Scottish Wild Bird Highly Pathogenic Avian Influenza Response Plan

August 2023

Scottish Government
Riaghaltas na h-Alba

Contents

Introduction

Aim of the plan

1. This document sets out the approach that the Scottish Government and its agencies will take to respond to an outbreak of Highly Pathogenic Avian Influenza (HPAI) in wild birds in Scotland. It also provides guidance to regulators, the general public, those involved in animal rescue, researchers and academics and environmental non-government bodies on issues relating to HPAI in wild birds. This includes what to do where there are suspected incidents of HPAI in wild birds or confirmed incidents in locations. The plan takes account of recommendations identified by the Convention on Migratory Species (CMS) and the United Nations Food and Agriculture Organization (FAO) Co-Convened Scientific Task Force on Avian Influenza and Wild Birds, published on 24 January 2022. It should also be read alongside the Scottish Government's Exotic Animal Disease Contingency Framework Plan[1] and the Notifiable Avian Disease Control Strategy for Great Britain[2], which outlines measures to be taken if Avian Influenza was suspected or confirmed in poultry, captive or wild birds.

2. This plan has been developed by Scottish Government and NatureScot in consultation with the Scottish Avian Influenza Wild Bird Task Force, drawing on information from the 2021/22 outbreak. It is a live document and will be subject to review, taking into account lessons learnt, policy developments, the latest scientific advice and comments from operational partners and stakeholders.

3. This plan has been developed around the impacts and effects of the current strain of HPAI H5N1. A strain of HPAI with a higher zoonotic potential (i.e., its ability to spread between birds and humans) would likely require additional precautions and mitigation not addressed in this plan.

4. This document is structured into sections to provide:

    - a brief overview of HPAI and routes of incursion in Great Britain,
    - the roles of the Scottish Government and their delivery agencies in assessing and responding to HPAI in wild birds,
    - the role of Animal and Plant Health Agency (APHA) and the national reference laboratory in surveillance for avian influenza in wild birds,
    - the legislative framework to manage this response,
    - a framework for licenced activities (e.g., research, shooting),
    - guidance and links to published guidance regarding HPAI for a range of stakeholder audiences.
    - information about existing surveillance and monitoring and future needs and,
    - information on communication and information distribution.

5. Additional information about previous outbreak of HPAI and what is known about their impact on wild birds can be found in the Annexes.

[1] Exotic animal disease contingency framework plan: August 2022 - gov.scot (www.gov.scot)
[2] Notifiable avian disease control strategy for Great Britain - GOV.UK (www.gov.uk)

6. This document is applicable to Scotland only. For comparable information on approaches in England and Wales see the Mitigation Strategy for Avian Influenza in Wild Birds in England and Wales.

Animal health

7. Animal health, including disease control, and wildlife conservation and management, is a devolved matter, and it is for the devolved administrations to assess the disease risks and respond accordingly. However, each administration seeks a consistent and coordinated approach to disease control across the four UK administrations, where possible.

8. While this document is applicable to Scotland only, it supports the GB-wide approach to avian influenza as set out in the Notifiable Avian Disease Control Strategy.

Legislative basis

9. The Notifiable Avian Disease Control Strategy for Great Britain[3] details the Scottish Government's response to detection of HPAIV in wild birds. The Avian Influenza (H5N1) in Wild Birds (Scotland) Order 2007[4]) provides for the introduction of controlled areas around locations of confirmed findings of HPAI H5N1 (i.e., the location from which the wild bird/wild bird carcass was collected). Measures implemented have the aim of preventing the spread of the disease to poultry or other captive birds (and to protect public health) and are put in place through the declaration of disease control areas: the default position is that a wild bird control area (WBCA) and wild bird monitoring area (WBMA) are declared.

10. The legislation is only relevant where the strain identified in wild birds is highly pathogenic avian influenza H5N1 which presents a significant risk to animal and human health. Experts agree that this current strain of HPAI H5N1 in circulation (clade 2.3.4.4b) does not meet the criteria as it is not the same highly zoonotic strain that formed the background to the legislation created and does not currently pose a significant risk to human health[5] .

Background

The 2021/2022 outbreak

11. The 2021/22 Highly Pathogenic Avian Influenza (HPAI) outbreak was the largest in the UK at that time, affecting poultry, other captive birds and wild birds, notably seabirds and wildfowl. Data collected by the Animal and Plant Health Agency's (APHA) GB-wide programme, which carries out year-round surveillance and testing of avian influenza in dead wild birds on behalf of Scottish Government and the other GB administrations, recorded a total of 603 wild birds across 34 species and 153 locations in Scotland as testing positive for HPAI between 1 October 2021 and 30 September 2022. These figures are the number of wild bird samples that tested positive and, is not an indication of the total level of mortality in the populations.

[3] Notifiable avian disease control strategy - GOV.UK (www.gov.uk)
[4] The Avian Influenza (H5N1 in Wild Birds) (Scotland) Order 2007 (legislation.gov.uk)
[5] HAIRS risk assessment: avian influenza A(H5N1) in non-avian UK wildlife - GOV.UK (www.gov.uk)

12. Scotland supports nationally and internationally important wild bird populations. A provisional assessment of evidence gathered by NatureScot and partners during the 2021/22 outbreak, shows that some species have been significantly affected by HPAI with a total of approximately 20,500 dead seabirds across 160 locations reported to NatureScot between 4 April and 11 September 2022. This is likely an under representative figure, as not all dead birds will have been reported and it cannot be stated equivocally that all mortalities were as a result of avian influenza. The species most reported were northern gannet, great skua, common guillemot, kittiwake, terns and large gulls, with some colonies recording particularly large losses. Presumed impacts of HPAI were recorded across Scotland, and were seen in both adults and chicks, with the timing of the HPAI spread differing across both regions and species.

13. Alongside seabirds, Scotland is also home to important wintering populations of wildfowl some of which were severely affected by HPAI during the winter of 2021/22, where an estimated 13,200 Svalbard barnacle geese died (around one third of the migratory or "flyway" population). HPAI also appeared to impact other important wildfowl species and a variety of raptor species such as golden and white-tailed eagles during this period, but to a lesser extent.

14. The 2021/22 outbreak of avian influenza virus was due to a H5N1 high pathogenicity avian influenza virus (HPAIV) (clade 2.3.4.4b), which was first detected at low levels during the previous outbreak in 2020/21. The first occurrence of this strain recorded in Europe was detected in 2020/21 in northern Europe (albeit at moderately low level) through the summer, including detections in great skuas on the Outer Hebrides and Northern Isles of Scotland.

15. Whilst the 2021/22 H5N1 viruses are related to those detected during 2020/21, three UK genotypes have been identified that can be distinguished based on their genetic composition, suggesting a new incursion in GB. Many of the UK H5N1 cases in 2021/22 epizootic are due to viruses that have their origins in migratory waterfowl that arrived in the UK in late 2021 (some of these can be distinguished genetically from viruses over-summering in northern Europe). It is not possible to exclude that some of the current H5N1 HPAI cases originated from the indigenous wild bird population carrying over-summering virus.

16. The continued detection of infection in wild birds through 2022/23 demonstrated that the virus was still circulating in wild bird populations and the probability of HPAI H5 still being present in wild birds in GB, in early February 2023, was very high. Direct and indirect contact with wild birds was deemed the most likely risk pathway for introduction of the virus into poultry holdings. Hotspots of infection remain a definite possibility, although these are difficult to predict. Evidence from surveillance, genetic sequencing of the virus and scientific risk assessments, conducted by government, indicate that infected poultry premises are very unlikely to be the cause of disease spread into other kept bird premises in the absence of links such as very close proximity, movement of infected birds or shared personnel. These activities are tightly controlled, particularly during any outbreak, when strict protocols are followed as set out in the Notifiable Avian Disease Control Strategy for Great Britain.

Pathogen and routes of incursion for avian influenza

Disease

17. Avian influenza refers to the disease caused by infection with avian influenza Type A viruses. These viruses naturally spread among wild birds worldwide and can infect domestic poultry and other captive birds.

18. There are four types of influenza viruses: types A, B, C and D with some strains of Influenza type A viruses of most significance to public health. Influenza type A viruses are classified into subtypes according to the combinations of different virus surface proteins hemagglutinin (HA) and neuraminidase (NA). There are 16 different H proteins and 9 N proteins in influenza affecting birds. The H5 and H7 are considered to be the most important from an animal health perspective, as they are the only subtypes to have been identified as causing highly pathogenic infection in birds. However, there are five strains of avian influenza that have caused public health concern in recent years: H7N9, H9N2, H5N6, H5N8 and a type of H5N1 strain more common in Asia. None of these strains easily infect people and are not usually spread from human to human, however a small number of people have been infected around the world and so precautionary steps are taken to mitigate this risk as much as possible.

19. The clinical severity as a result of avian influenza virus infection varies dependent upon both species infected and virus strain.

20. There are many strains of avian influenza viruses, which vary both in their ability to cause disease in birds and their ability to infect humans and other mammals.

21. The 2021/22 outbreak was sequenced by the UK's National Reference Laboratory for avian influenza at Weybridge (see roles and responsibilities for more details) as being H5N1 strain that has a low mammalian affinity.

22. Avian influenza is a notifiable animal disease in poultry and other captive birds (not wild birds). If you suspect any type of avian influenza in poultry or captive birds you must report it immediately by contacting:

    - If in Scotland your local Animal and Plant Health Agency (APHA) Field Services Office.
    - If in England call the Defra Rural Services Helpline on 03000 200 301.
    - If in Wales, contact 0300 303 8268.
    - Failure to do so is an offence.

23. Avian influenza is not a notifiable disease in wild birds. However, members of the public should use the online reporting system or call the Defra helpline (03459 33 55 77) if they find dead wild birds. See contact information at the end of this document for further details.

Routes of incursion

24. Avian influenza can be spread in a number of ways:

    - Movement of infected birds, from bird-to-bird, by contact with contaminated body fluids and faeces.
    - Movement of contaminated objects and surfaces.
    - Ingestion of infectious material.

25. An avian influenza outbreak can occur at any point in the year. However, avian influenza is not endemic in poultry in the UK, rather the UK typically faces a seasonal increase in the risk of an avian influenza incursion associated with the winter migration patterns of wild birds to the UK. Recent HPAI incursions in wild birds in the UK have followed migratory patterns of mainly Anatidae (ducks, geese and swans), which means infections are typically reported between autumn and spring. However, the recent and unprecedented spread of infections in Charadriiformes (shore birds) and Suliformes (orders of seabird species) have elongated the infection timeframe extending into late summer.

26. In late autumn or early winter, wild migratory wildfowl have the potential to carry the HPAI infection to the UK. In contrast, the risk of avian influenza incursion during the summer typically decreases because environmental conditions (warm, dry, high UV exposure) can reduce virus survival in the environment.

27. The UK is at the centre of a number of bird migration flyways (see figure 1). This represents challenges when trying to model potential transmission routes. The main flyways for migrating birds to and from the UK are:

    - Greenland/Iceland/ North West Atlantic,
    - North East Arctic archipelagos
    - Feno/Scandinavia
    - Continental Europe
    - South Atlantic

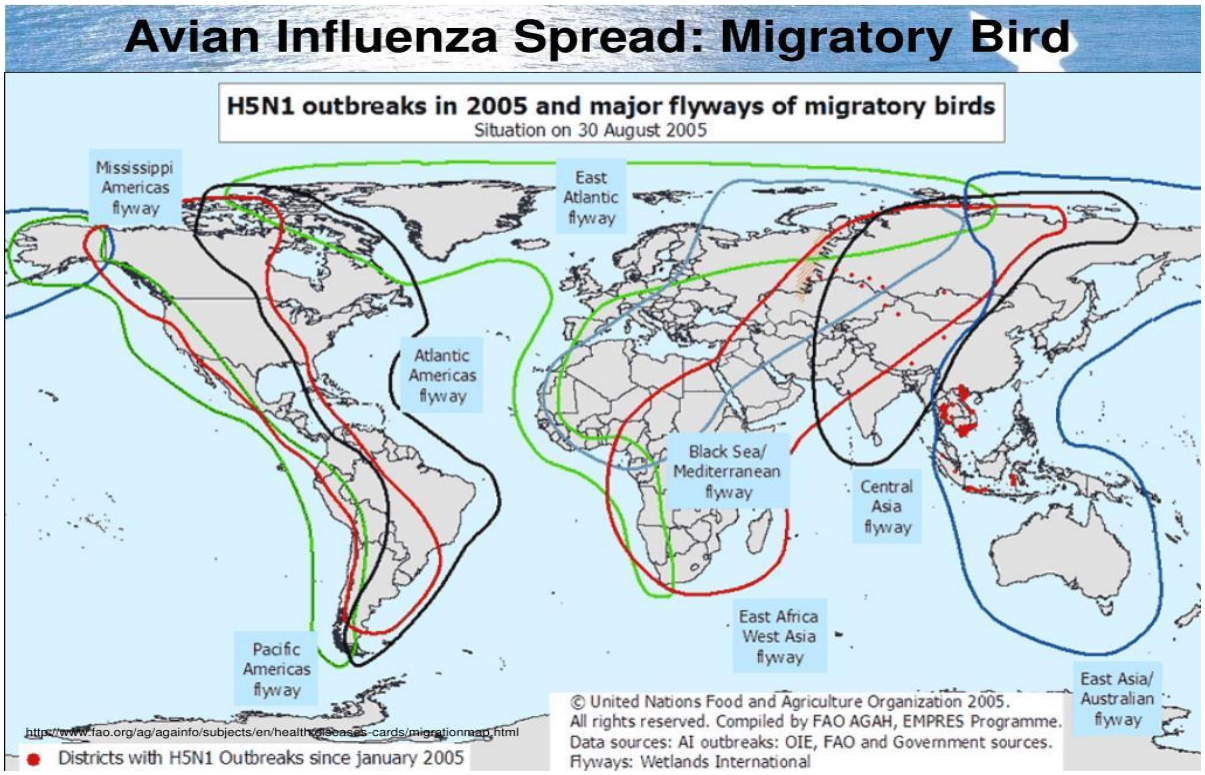

Figure 1: 2005 map of flyway routes of migratory birds.

28. As part of the work by the Scottish Avian Influenza task force, the potential for environmental testing to determine presence of the virus is being considered given the prevalence of the 21/22 outbreak during the summer months (see Research and Monitoring section).

29. The main clinical signs of HPAI in birds are listed in Annex B, and can be found online at: https://www.gov.scot/publications/avian-influenza-bird-flu/pages/how-to-control-the-disease/

Roles and responsibilities

Roles of Government and its agencies

30. The roles and responsibilities of key government departments, agencies and organisations involved in the response to an outbreak of HPAI in wild birds in Scotland are set out in Table 1.

Table 1: Roles and responsibilities of key government and other organisations involved in HPAI response in Scotland.

Organisation	Acronym	Responsibility
Scottish Government	SG	Responsible for responding, co-ordinating and managing the response to outbreaks of exotic notifiable diseases in Scotland, supported by operational partners, including NatureScot, with regards to environmental and wildlife impacts.

		Responsible for coordinating scientific advice and data requirements for species conservation. Scottish Ministers have overall responsibility for and oversight of the outbreak response. The relevant Minister will be involved in decision making, working closely with the Chief Veterinary Officer (CVO).
Animal and Plant Health Agency	APHA	Field delivery of animal health services in Scotland is currently undertaken by The Animal and Plant Health Agency (APHA), who work on behalf of the Scottish and Welsh Governments and Defra. APHA, on behalf of Scottish Ministers, are the lead operational partner responsible for: ○ identifying and delivering responses to notifiable endemic and exotic diseases in animals, and aspects of surveillance for new and emerging pests and diseases ○ scientific research in areas such as bacterial, viral, prion and parasitic diseases and vaccines. They act as an international reference laboratory for many farm animal diseases ○ facilitating international trade in animals and products of animal origin (PoAO) ○ regulating the safe disposal of animal by-products to reduce the risk of potentially dangerous substances entering the food chain
Animal Disease Policy Group	ADPG	A permanent UK-wide policy forum, which during disease outbreaks provides disease control advice (e.g., the level of surveillance required in dead wild birds) and strategy recommendations to Ministers and other strategic decision makers. Drawing in particular on advice from relevant experts, it reviews and challenges strategic assumptions. ADPG also has an important role in ensuring that policies are coordinated (although they may be different) across the four UK administrations. Membership of ADPG will include representatives from the Scottish Government, Defra, Welsh Government, DAERA, and all four UK CVOs.

Ornithological Experts Panel	OEP	This group of ornithological experts, chaired by APHA, provides specific technical and scientific advice and recommendations to supporting Scottish Government and other GB administrations' policies in response to controlling and preventing outbreaks of avian influenza.
NatureScot	-	Scotland's statutory nature agency, providing advice on the conservation impacts on key species, coordination of intelligence on the scale of impact on wild birds, regulating certain activities (e.g., taking, killing of species), provision of advice to reserve managers and wider land managers. The Scientific Advisory Committee subgroup on Avian Influenza, which sits within NatureScot provides scientific advice to the NatureScot Board and guides practical policy decisions.
Avian Flu in Wild Birds - Scottish Task Force	-	A network across key public and private bodies in Scotland to ensure an efficient, effective and coordinated approach to understanding and mitigating the impact of HPAI in wild birds. Technical & Advisory. Government and NGOs. Animal and public health, wildlife policy, ornithology. Meets frequently Previous meeting updates can be found here.
Scottish Environment Protection Agency	SEPA	Scotland's principal environmental regulatory body, with a specific HPAI focus on providing expertise and advice with respect to the disposal of carcasses.
Public Health Scotland	PHS	Lead for the public health response in Scotland, responsible for determining and mitigating the risk to public health from HPAI.
Local Authorities	LA	Ensure that environmental, health and safety issues are managed during the Scottish response to the HPAI response.
Scottish Society for the Prevention of Cruelty to Animals	SSPCA	To ensure animal welfare practices are applied in relation to sick wild birds that are reported by the general public.
Rescue/Rehabilitation Centres		Rehabilitation of sick or injured wild birds and to work with Government to respond to the outbreak.

Co-ordination groups

31. The four administrations work closely together in a well-established governance structure, with many policy, scientific, expert and advisory groups feeding into the Animal Disease Policy Group (ADPG). Policy teams and delivery agencies share information and technical advice during an outbreak such as this. There are also the weekly reports on findings of HPAI in wild birds in GB are reported online: Avian influenza in wild birds - GOV.UK (www.gov.uk).

32. The Animal Disease Policy Group (ADPG) provides the UK wide forum where disease control policy and strategic recommendations should be presented, reviewed, discussed, challenged and agreed. The ADPG has an important role in making sure policies are, as far as possible, consistent across the 4 administrations. Membership of the ADPG includes the 4 Chief Veterinary Officers from across the UK and other representatives from the four administrations, the UK Cabinet Office, and public health bodies who provide advice on zoonotic disease.

33. Statutory Nature Conservation Bodies also work across the 4 administrations to support decision making and responses.

UK level forums

34. At the UK level there are a number of forums considering and advising on the response to HPAI in wild birds. Those not already included in table 1 are:

- HPAI response (wild bird monitoring), led by British Trust for Ornithology (BTO). Technical discussion and agreement on managing the implications of HPAI in UK wild bird monitoring schemes, including ringing.
- Defra Group Avian Influenza in Wild Birds Working Group, as detailed in the Mitigation strategy for avian influenza in wild birds in England and Wales .
- Avian Influenza Wild Bird Recovery Advisory Group, as detailed in the Mitigation strategy for avian influenza in wild birds in England and Wales.
- Welsh Wild Bird Avian Influenza Strategic Response Group, as detailed in the Mitigation strategy for avian influenza in wild birds in England and Wales.
- Northern Ireland Seabird Conservation Strategy Steering Group, led by DAERA. Technical & Advisory. Government and NGOs developing strategy. Review and report on the current status of seabird populations and identify and assess their sensitivity to threats and pressures, informing management recommendations to maintain and improve conservation status.
- South Atlantic UKOTs HPAI working group. Technical & Advisory. Government and NGOs. Animal and public health, wildlife policy, ornithology.

Legislative Framework for HPAI in wild birds

35. Legislation is in place to respond to the identification of strains of HPAIV in wild birds or their carcasses which are a significant risk to human and animal health. The Avian Influenza (H5N1 in Wild Birds) (Scotland) Order 2007 provides for controlled areas around the location of where findings of HPAI H5N1 in wild birds are identified. Control measures are outlined in paragraphs 214 - 225 of the Notifiable Avian Diseases Control Strategy for GB and provide for the implementation controls identified in Table 2 below. It is not Scottish Government policy to cull wild birds, although powers exist to do this. As its aim is preventing the spread of the disease to poultry or other captive birds, and to humans and other mammals for a specific strain of H5N1, the legislation would not be suitable to support mitigation measures that are identified to help in the conservation of wild birds impacted by outbreaks of HPAI which are not a significant risk to human and animal health.

36. The Scottish HPAI task force has identified a number of activities (see Table 3) that may affect wild bird HPAI transmission or significantly impact on bird survival. These measures, along with some of the controls available under The Avian Influenza (H5N1 in Wild Birds) (Scotland) Order 2007, may be able to form the current framework of mitigating action.

37. Scottish Government will continue to keep legislation under review when considering our response to HPAI on the basis of current advice.

38. Avian influenza is a notifiable animal disease in poultry and other captive birds but is not notifiable in wild birds.

Table 2: Legislative controls under The Avian Influenza (H5N1 in Wild Birds) (Scotland) Order 2007[6].

Restrictions in Zone(s)	**Wild Bird Control Area (WBCA)**	**Wild Bird Monitoring area (WBMA)**
Default radius (km)	3	10
Minimum length of time in place since the collection of samples from the infected wild bird (days)	21[1]	30
Movement restrictions – poultry or other captive birds	Y	Y
Movement restrictions – hatching eggs	Y	N
Movement restrictions – bird by-products	Y	N
Restrictions/Requirements – controlled meat	Y	N
Restrictions – poultry/other captive bird manure	Y	N
Biosecurity	Y	Y
Ban on bird gatherings	Y	Y
Ban on the release of game birds	Y	Y
Ban on hunting/taking of wild birds	Y	Y

[1] See paragraphs 10-11 for circumstances where this may become part of the WBMA before this date.

6 **Key:**

Biosecurity: appropriate measures must be put in place for a range of measures, including people entering or leaving premises where poultry or other captive birds are kept (other than slaughterhouses).

Ban on bird gatherings: bird gatherings will not be permitted within the zone.

Ban on the release of game birds: the release of game birds will not be permitted within the zone.

Ban on hunting/taking of wild birds: the hunting of wild birds or the taking of them from the wild will be banned unless licensed.

Avian influenza GB wild bird surveillance

39. The Animal and Plant Health Agency (APHA) carries out year-round avian influenza surveillance of dead wild birds submitted via public reports and warden patrols (e.g., carried out by local authorities and at reserves), across Great Britain, on behalf of Scottish Government and the other GB administrations, to inform the disease risk for domestic poultry and captive birds.

40. The public are encouraged to report findings of dead wild birds using the online reporting system or by calling the Defra helpline (03459 33 55 77). The online reporting tool launched on 13 December 2022 is available to use 24/7 (as is the Defra helpline), making submission of reports simpler and quicker whilst collecting data in real time.

41. Reports of dead wild birds to the GB helpline (or online portal), administered by Defra on behalf of all three GB administrations, are triaged by APHA[7]. Wild bird carcasses meeting the criteria for testing are collected, where logistically feasible, by APHA's contractor, Farmcare UK. Not all birds are collected.

42. Carcasses that are identified for collection, are picked up by courier and delivered to the nearest Scotland's Rural College (SRUC) veterinary laboratory for identification, and sample collection, with swab samples taken and sent to the National Reference Laboratory (NRL) in Weybridge for testing. In all cases cloacal and oro-pharyngeal swabs are collected from a maximum of three birds per case per species (both for target and non-target species). Carcases are stored pending receipt of a negative HPAI PCR prior to postmortem.

43. Differential diagnosis investigations are also undertaken by SRUC where relevant. In some instances, nature reserve staff (who have been trained to take swab samples from dead birds in the field), in consultation with APHA, send samples directly to the APHA NRL as part of that dead wild bird surveillance. Wild birds and mammals may also be submitted by SRUC as part of wider Diseases of Wildlife surveillance under their contracts with Scottish Government.

44. Surveillance allows Government to understand the levels of risk to poultry, other captive birds and public health and what relevant mitigation measures may be adopted commensurate to the level of risk. It was not designed to help understand how the disease impacted wild bird populations from a conservation perspective.

45. APHA keeps the thresholds for reporting and triage criteria for testing under review with any suggested changes to the criteria for which birds are collected (species, number, locations) agreed by the ADPG and then published online[8]. Thresholds often change throughout the year, depending on the risk of incursion to increase or decrease sensitivity of the surveillance as required. Reports to the helpline are triaged against these criteria.

[7] Clinical signs - Avian influenza (bird flu): how to spot and report the disease - gov.scot (www.gov.scot)
[8] Clinical signs - Avian influenza (bird flu): how to spot and report the disease - gov.scot (www.gov.scot)

46. For the most up to date reporting threshold please visit www.gov.scot/birdflu. APHA publish a report (updated weekly) on findings of HPAI in wild birds in Great Britain Bird flu (avian influenza): cases in wild birds - GOV.UK (www.gov.uk)

Avian influenza in non-avian wildlife

47. While HPAI is predominantly considered a pathogen of birds, the virus has been shown in some instances to infect mammals.

48. Where appropriate, and in accordance with a set criteria, a number of wild mammals are tested for influenza of avian origin by the APHA avian influenza National Reference Laboratory.

49. Causes of death of wild seals and cetaceans are also monitored and investigated in Scotland by the Scottish Marine Animal Stranding Scheme (SMASS), who report suspicion of influenza of avian origin to APHA where relevant . For any species of dead animal, the advice to the public is not to touch or pick it up. Carcasses may present health risks and are best left alone. If the animal found dead is a fox, otter, stoat, weasel, pine marten, pole cat (but not badger) and HPAI is suspected, the location of the dead animal should be noted and the local APHA area office contacted for advice. For dead seals or cetaceans these should be reported to SMASS. Reports should be sent to reports@strandings.org. Further information on reporting is available at www.strandings.org/report. (see section on Advice for Wildlife Rescue/Rehabilitation Centres).

50. Separate advice is available on www.Gov.Scot/birdflu for those encountering sick wild birds or dead wild birds suspected as having been a victim of wildlife crime.

Guidance on carcass removal and disposal

51. The following section provides the most up to date advice on the removal and disposal of dead wild birds in Scotland. It draws on the most up to date evidence and will be updated as new information becomes available.

Removal of dead wild birds suspected of being infected with Avian Influenza

52. Dead wild birds can carry a number of diseases, therefore the Scottish Government advice is that they should not be touched, and left, in situ. At present there is no scientific evidence that the removal of carcasses significantly reduces the risk of onward spread of the current strain of HPAI H5N1 amongst wild birds in high bird density areas (e.g., seabird nesting sites).

53. A recent qualitative risk assessment carried out by the Centre of Expertise on Animal Disease Outbreaks (EPIC) (EPIC veterinary risk assessment: wild bird carcass collection in the event of mass mortality due to suspected highly pathogenic avian influenza (HPAI). (epicscotland.org)), has confirmed this position, albeit with high uncertainty. The risk assessment concludes that:

- In high density areas carcass removal is likely to be relatively ineffective at reducing the overall viral load being experienced due to extensive environmental contamination which has already occurred from both live and dead birds.
- In areas of lower bird density, background levels of environmental contamination are likely to be lower, hence removal of carcasses may have more relative impact on the local viral load, if it is feasible for it to be performed under good biosecurity conditions. However, carcass removal is unlikely to remove all dead birds due to ongoing mortality and practical difficulties of ensuring complete removal, reducing its effectiveness at preventing further transmission.
- Environmental contamination is likely to come mainly from live birds rather than carcasses.
- Human access to remove carcasses at high density locations could also result in disturbance of live wild birds. Impacts will vary by species, but this could result in increased movement of birds, both at the original location and to other sites, with potential for greater spread of infection.

54. Fomite (i.e., any object or materials which are likely to carry infection, such as clothes, utensils, and furniture.) contamination from human access to highly contaminated areas and subsequent transmission to other sites is also seen as a potential risk unless scrupulous cleaning and disinfection is carried out[9].

[9] NatureScot Scientific Advisory Committee Sub-Group on Avian Influenza Report on the H5N1 outbreak in wild birds 2020-2023 | NatureScot

55. It should be noted, however, that the advice regarding leaving carcasses in situ could change if a different strain of highly pathogenic avian influenza considered of greater risk to public health (i.e., a highly zoonotic strain), was identified. In such an event, appropriate guidance would be issued by Scottish Government or the relevant public health bodies.

56. The EPIC risk assessment cannot cover every scenario, the information provided is intended to inform decision making about carcass removal in different situations.

Disposal of dead wild birds suspected as being infected with avian influenza.

57. There is no obligation on landowners or local authorities to remove dead wild birds when they are not causing a public hygiene risk. However, it is recognised by Scottish Government that members of the public, landowners and local authorities may choose, at their own discretion and cost, to collect and dispose of dead wild birds. This could be at a residential premises, in particular for areas which may be accessed by children or pets, or in public areas or rural access routes, for example on footpaths, with frequent human footfall. Advice on what members of the public should do if they find a dead bird/s in their back garden is available here.

58. Animal by-products (ABP) regulations state that wild birds are out of scope of the ABP regulations unless the carcass is suspected of being infected with something that is communicable to other animals or humans. So, if it is suspected that bird carcasses are infected with HPAI, and if a decision is taken to move the birds, then they must be treated as category 1 ABP material and should be disposed of accordingly by the landowner.

59. It is essential that Local Authorities and NatureScot follow correct guidelines to safely dispose of dead wild bird carcasses. To that effect, the Scottish Government has provided all Scottish local authorities and NatureScot with guidance on the safe collection and disposal of dead wild birds. It should be noted, however, that all organisations are advised to conduct their own risk assessments in line with their own policies and instructions, including advice from their own public health team/health and safety representatives.

60. A derogation exists within Scottish ABP legislation for certain areas of Scotland considered remote. The remote burial derogation exists in the Highlands and Islands, excluding the Isle of Bute, but it is advised that this should not be regarded as a first option, rather it should be the very last option considered for animal by product disposal purposes.

61. Burial in such cases should be carried out in accordance with the Prevention of environmental pollution from agricultural activity (PEPFAA) code on disposal of animal carcasses.

62. The advice includes guidance on reducing the risk of infection to those handling wild bird carcasses. The risk to the general public's health from avian influenza is very low. However, the risk to people with prolonged, direct contact to infected birds is considered to be low.

63. Those with intensive exposure to infected birds, which include official local authority collection operations, are provided with guidance on the safe collection and disposal of wild bird carcasses, which includes:

    - the appropriate precautionary PPE (see section below),
    - how to handle wild bird carcasses,

- how to maintain personal hygiene
- and general health restrictions.

64. The general public are advised not to take part in collection operations, unless authorised by the appropriate authority to do so and follow the relevant guidance.

65. Responsibility for the collection and disposal of dead wild birds suspected of having been infected with avian influenza on private property or private land lies with the property owner/ landowner. The Scottish Government provides guidance to landowners on how this can be done safely.

Personal Protective Equipment (PPE) for collection of dead wild birds

66. Collection and subsequent testing will not be carried out for every wild bird carcass encountered in Scotland. If carcass collection is deemed necessary, a site-specific assessment is required in each case to assess whether the wild bird is likely to have been suffering from HPAI.

67. If the carcass has been found in an area where HPAI is circulating and conforms with the dead wild bird reporting criteria, then the suite of recommended PPE should be worn. This requires disposable overalls, rubber/polyurethane boots (or disposable shoe covers), disposable FFP3 mask (or full-face respirator), safety goggles, disposable nitrile/vinyl/heavy duty rubber (not latex) gloves to be worn. FFP3 masks should be face-fit tested.

68. When the dead wild bird has been picked up, a plastic bag can be turned back on itself and tied. It should then be placed in a second plastic bag, tied and disposed of as an animal by-product (as above). A high level of personal hygiene should also be maintained. Gloves should be carefully removed and disposed of safely and all cuts and abrasions covered with waterproof dressings before commencing. After handling dead wild birds, hands should always be washed thoroughly with disinfectant soap and water, or anti-viral handwash/wipes used. Wash any injuries – especially cuts – immediately, and cover with a waterproof dressing. Always wash hands and exposed skin before eating, drinking, smoking or preparing food. Any clothing that has been in contact with the dead bird should be washed using ordinary washing detergent at the standard manufacturer's recommended temperature.

69. If the carcass does not conform with the dead wild bird reporting criteria and is found in an area where there is no evidence of the virus being in circulation, then standard hygiene precautions applied for any other dead wild animal or bird may be appropriate (i.e., disposable gloves should be worn and strict personal hygiene adopted).

70. This advice is for collection of wild birds only, for non-avian wildlife, please refer to the advice on page 18 on who to contact in case of non-avian wildlife carcasses.

Advice for Wildlife Rescue/Rehabilitation Centres

71. The HPAI outbreak has represented a particular challenge for wildlife rescue/rehabilitation centres and reserves. The ingress of the virus to a centre, through the introduction of a sick bird would most likely result in the bird being treated as “captive” and the whole site being declared an infected premises depending on the level of biosecurity, quarantine arrangements in place and the length of time the bird had been admitted. If appropriate quarantine/isolation and biosecurity measures are not in place, this would require all other birds on the premises to be culled as a disease control measure.

72. A wild bird would not be considered captive during transport to a wildlife hospital or to any other location for veterinary assessment or treatment. Birds assessed outside on arrival at a site would not be deemed captive but strict biosecurity measures should be in place to protect the rest of the premises.

73. Local rescue centres are strongly advised to review their biosecurity protocols and liaise with their veterinary centre to establish effective quarantine and isolation facilities for new birds being admitted into the centre.

74. Some manufacturers have produced rapid antigen tests to detect avian influenza virus in the form of a “penside” test. APHA have issued a guidance note relating to these antigen tests. No test can be 100% accurate and it could not be used to rule out the risk of disease. Using these tests in a captive bird that you suspect to have AI does not remove the legal obligation to report suspicion of disease, even if the test is negative.

75. For day-to-day rescue and rehabilitation, only where HPAIV is not suspected, an appropriate risk assessment, carried out by the facility and checked with either Public Health Scotland or HSE, should be followed. If at any point the status changes and HPAIV is suspected, please follow the above advice.

76. If a case of avian influenza is suspected in wild birds taken in for rehabilitation this case must be considered as ‘other captive birds’ for the purpose of reporting requirements. Suspected cases must be reported immediately as for other poultry or captive birds.

HPAI in wild birds - research and monitoring

77. The integration of surveillance activities with research is essential to improve our understanding of avian influenza in wild bird populations. This includes presence of the virus in the environment; the need for serological testing; monitoring the impact to wild bird populations and prevention of spread within wild bird populations. This section highlights areas of research that are underway, and knowledge gaps that still remain.

Monitoring levels of infection of HPAI in wild birds

78. A critical component of the response to HPAI in wild birds is understanding how the disease is moving through a population and whether birds have developed a level of immunity to (the current strain of) HPAI (e.g., if the majority of the birds have encountered HPAI and have survived).

79. In June 2022 an eight-strong consortium 'FluMap' bringing together experts from the UK's leading research bodies led by APHA, was launched to develop new strategies to tackle avian influenza outbreaks. The FluMap consortium aims to deliver research into how avian influenza viruses are emerging in wild populations and to help understanding with regards to the risk posed to both domestic and wild birds including why some bird species are more resistant to avian influenza strains.

80. Ongoing monitoring and reporting of dead or sick wild birds in combination with testing for HPAI, allows the distribution, spread and any seasonality of infection and mortality to be identified. Alongside the GB avian influenza dead wild bird surveillance scheme, NatureScot, in discussion with APHA and SG, has identified priority areas for surveillance, thereby providing further intelligence and data on circulation in wild birds to aid conservation management.

81. NatureScot has set up a targeted reporting process using Epicollect (figure 2). This reporting is targeted at key sites and its primary aim is to provide real time intelligence on how the outbreak may be developing. In addition, the British Trust for Ornithology (BTO) have modified the Birdtrack software and mobile app to allow reporting of dead birds by the public. This continued monitoring, as with those schemes stated above, provides further data to monitor the spread of the outbreak and aid conservation.

82. NatureScot in conjunction with APHA have undertaken blood sampling from both the Svalbard and Greenland barnacle geese populations, with plans to sample gannets and great skua. This data may help to aid our understanding of disease resistance and transmission, and therefore the potential future risk to wild bird populations.

83. It is unlikely that there is currently the capacity to carry out extensive serological testing of wild birds during an outbreak over and above that undertaken through the GB dead wild bird surveillance scheme.

84. Certain avian influenza viruses including Influenza A (H5N1) are Specified Animal Pathogens (as set out in Scotland by The Specified Animal Pathogens (Scotland)

Order 2009 (as amended)) and can therefore only be handled in a facility with an appropriate Specified Animal Pathogen Order (SAPO) containment level 4 licence.

85. All diagnostic testing for Influenza Type A viruses from animals in scope of official controls or other official activities (as defined by the Official Control Regulations (OCR) (EU Reg 2017/625; amended and retained in UK legislation under SI 2020/1481) must be undertaken at either a national reference laboratory or an official laboratory designated for a relevant purpose.

86. The UK NRL for avian influenza is:

Animal and Plant Health Agency (APHA)
Weybridge Laboratory
Woodham Lane
Addlestone
KT15 3NB
England

The APHA Weybridge laboratory is also an Avian Influenza International Reference Laboratory (IRL). It is designated as a World Organisation for Animal Health (WOAH) avian influenza reference laboratory and a Food and Agriculture Organisation (FAO) Reference Centre for Animal Influenza.

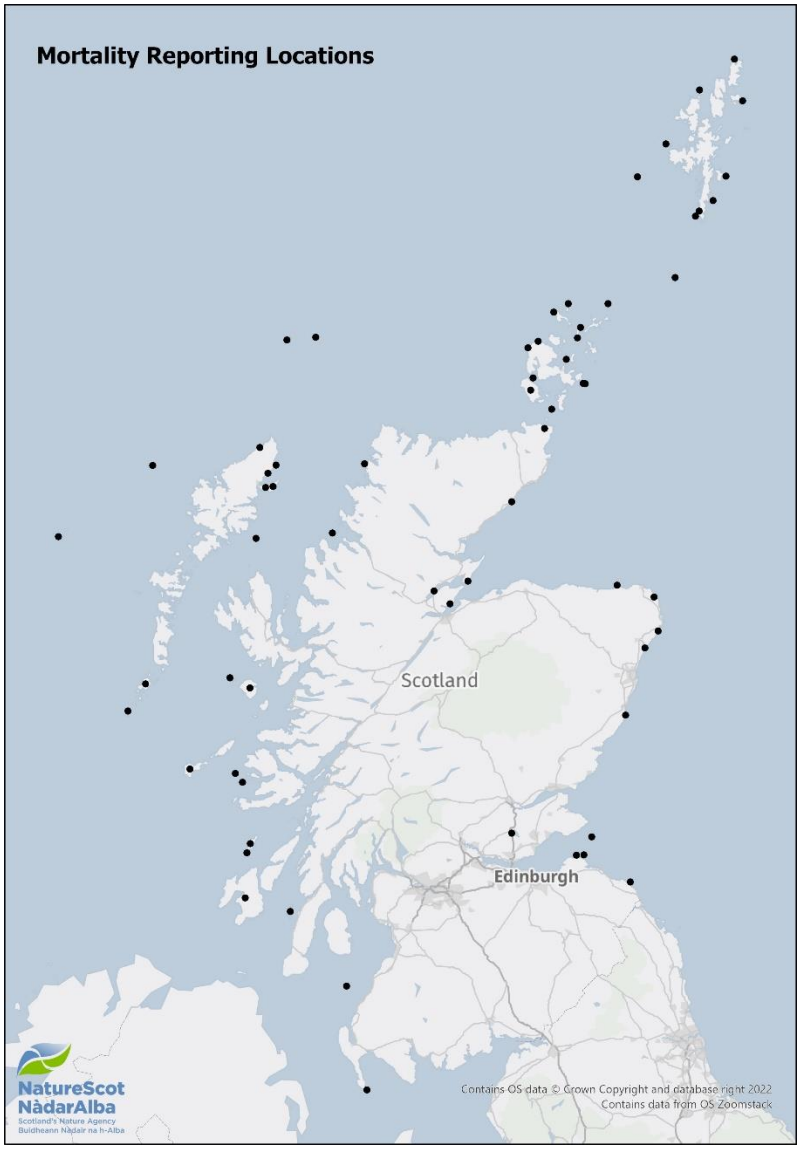

Figure 2: Map showing seabird sites used in the NatureScot Epicollect.

87. Summary:

- The provision of real time testing in specific colonies would help monitor any developing outbreak.
- Understanding how HPAI is circulating in live wild birds could increase understanding of its longer-term impacts. Specifically, in order to contribute to better targeted conservation management, it would be useful to understand the ability of specific species to develop resistance. Serological testing of apparently healthy birds will allow estimates of recovery rates from infection and focus management at colonies to aid in species recovery.
- As with serological testing of infected populations, testing capacity may be an issue.
- The potential to increase testing capacity in Scotland will be investigated and determination of whether the levels of testing that would be required to

investigate how the virus moves through infected populations are achievable and affordable.

Surveillance of other wild bird species

88. The avian influenza dead wild bird surveillance scheme is designed to be flexible in terms of the species of birds that are routinely tested based on current evidence across the EU and other countries. Current focus is targeted towards wild migratory wildfowl (such as geese, ducks, swans), gulls and raptors. The reporting criteria is continually reviewed and is readily adaptable to accommodate any changes to the list of susceptible species[10].

89. Birds not represented on the list are currently assessed as having a very low likelihood of HPAI being detected [10]. It is recognised that this reporting criteria relies on the reporting of dead wild birds by members of the public, but the scheme was designed to meet the policy requirements (i.e., the species that play an active role in the epidemiology of HPAI). The threshold for inclusions within the list is low, meaning the species on the list are relevant to the contribution to the epidemiology.

90. Summary:

- Ongoing monitoring of the spread of the virus is critical for our wild bird populations.
- The triage of cases is continually reviewed against guidance and susceptible species lists that are agreed at an international level.

Presence of virus in the environment

91. Environmental sampling to detect the presence of organisms from their DNA is now an established technique in biology (eDNA). Using environmental sampling to detect HPAI could assist in estimating the likelihood of reinfection from the environment following an outbreak in wild birds. At present Scottish Government's policy for outbreaks of HPAI in poultry is outlined in the Notifiable Avian Diseases Control Strategy for Great Britain. Scottish Government has a policy to cull poultry and other captive birds, in line with its legal and international obligation, to cull birds on infected premises and cleanse and disinfect premises before re-stocking. This is clearly not logistically possible, or desirable, in wild birds where, in most cases, there is no alternative but to let the disease run its course.

92. The eDNA testing may, however, help understanding of where the disease remains a threat following an outbreak or where new outbreaks might occur because a reservoir of virus is present outside the birds themselves. It is unclear at present if the capacity to undertake environmental testing for HPAI exists in Scotland.

93. Summary:

[10] wild-bird-target-species-for-passive-surveillance.pdf (izsvenezie.com)

- Further evidence to understand the prevalence and presence of the virus in the environment is needed to understand if there are infection routes other than from bird carcasses and faeces as this may have additional implications for non-avian species.
- Consideration of eDNA as a method of testing should be carried out.

Monitoring population level impacts of HPAI on wild birds

94. Long-term population monitoring is important in understanding the (long term) impacts of avian influenza on Scotland's wild bird populations.

95. Monitoring of seabird populations in Scotland (as well as the wider UK) is coordinated by the BTO under the Seabird Monitoring Programme (SMP). The SMP provides the opportunity to understand the extent and impacts of apparent HPAI mortality, in the context of baseline figures from the National Seabird Census.

96. The populations of species that qualify a site for protected status, (e.g., SPA qualifying species or assemblages), are routinely monitored.

97. For a number of goose species, monitoring data are already collected on a regular basis at local, national and international scales. The two barnacle goose populations are monitored regularly, with the Svalbard population monitored annually and the Greenland population, which winters across Scotland and Ireland, monitored on a three yearly cycle. A Greenland barnacle goose population census was conducted in February 2023. The population data feed into flyway level discussions, facilitated through the European Goose Management Platform, on species management decisions. Local data, particularly around goose management scheme locations, feed into local decisions on management and will continue to do so.

98. The Scottish Raptor Monitoring Scheme currently focuses primarily on the annual monitoring of diurnal birds of prey and owls native to, and which regularly occur within, Scotland. It also monitors ravens and provides annual information on breeding and numbers and productivity.

99. For some species or populations, the ability to detect even large population changes may be relatively poor [11]. Consideration will therefore be given to the ability of enhanced monitoring to detect population level impacts of HPAI. Some other species that may be impacted in the future (e.g., Common Buzzard), are less well assessed, and our understanding of the impact of the disease on these species is more limited. Consideration should be given to whether additional monitoring of particular species is needed, and this should be kept under periodic review.

[11] Review of the potential of seabird colony monitoring to inform monitoring programmes for consented offshore wind farm projects (www.bto.org)

100. Further to this existing monitoring and, in light of the unprecedented scale of the avian influenza outbreak since October 2021 and the potential impacts on wild bird species of conservation concern, NatureScot created a targeted mortality reporting system for gathering detailed information on wild bird mortality from site managers at key wild bird sites in Scotland (Figure 2), utilising Epicollect. The data gathered by Epicollect (and Bird Track) will help support the work of APHA on monitoring any spread of HPAI and can contribute to understanding the impacts of the disease on wild bird populations.

101. Summary:

- Monitoring under SMP and existing goose populations will continue to aid understanding of the long-term impacts of HPAI on wild bird colonies.
- As surveillance continues, consideration will be given to monitoring species that are not covered through existing programmes as necessary.
- The monitoring will have some level of flexibility to take into account any changes in circumstances during an outbreak.

Prevention of HPAI transmission to and within wild bird populations

102. The NatureScot Scientific Advisory Committee subgroup on Avian Flu have published a report which concluded that while there is relatively little understanding of the roles of different transmission routes and the importance of environmental persistence, this deficiency is of limited management consequence as there are almost no management options contingent on this knowledge[12]. In addition, compared to high levels of exposure generated through, within and between wild-species contact, exposure resulting from human vectoring of virus should be very small indeed. The key focus here should be on avoiding introducing virus into sites where it has been previously absent. A summary of this report can be found in Annex A.

103. NatureScot have developed guidance for land managers on methods to prevent the spread and transmission of HPAIV to locations where there are no current reports of HPAIV. Biosecurity plans are a useful tool to educate any visitors to colonies.

104. Summary

- There is currently no proposal to close access to colonies generally.
- Guidance for land managers is in place to assist in limiting transmission of the virus to other colonies.

Wider measures to mitigate the impacts of HPAI on wild birds

105. To assist in the recovery of HPAI impacted populations of wild birds, it may be appropriate to identify and put in place actions that have the potential to increase

[12] NatureScot Scientific Advisory Committee Sub-Group on Avian Influenza Report on the H5N1 outbreak in wild birds 2020-2023 | NatureScot

survival or productivity. Such measures may include the removal of pressures that cause direct mortality, or improvements to nesting or foraging habitats.

106. A range of initiatives under way such as the Scottish Seabird Conservation Strategy and the UK Marine Wildlife Bycatch Mitigation Initiative will help identify the most appropriate action that could be taken to aid population recovery thereby helping mitigate the impacts of pressures, including HPAI on wild birds.

The population and HPAI monitoring discussed previously will help identify species or populations most in need of mitigation measures. In addition to this, NatureScot has commissioned research into the breeding success of Scottish raptors in order to identify those species most in need of support. A collaboration is underway with Edinburgh University and APHA to assess how levels of immunity are building up in seabird and goose populations that have been especially badly hit by the disease. This will help predict whether particular populations are likely to start to recover or whether they remain vulnerable to further losses in the months and years to come.

107.

As well as focussing on the most impacted species, it may be appropriate to develop research programmes that allow work to identify and target measures that can bring wider benefits to a broader range of wild bird species. This will be assessed as the outbreak continues, and plans developed as the long-term pattern of the outbreak becomes clearer and impacts better understood. As an example, liaison with range states supporting migratory goose populations through the AEWA European Goose Management Platform is ongoing and population modelling will help predict ongoing impacts and guide modulation of flyway plans.

Summary of Activities that may impact wild bird HPAI transmission and or survivability.

108. All activities that may impact wild birds in terms of HPAI transmission and / or survivability are kept under regular review and are based on the latest advice.

109. The NatureScot Working Group reviewed a wide range of possibly disturbances, the possible ways of grouping species that might be impacted by the same disturbances in similar ways, the mechanisms by which they may increase the spread of HPAI, and approaches to mitigation and the process required to make decisions given the costs and benefits of curtailment/modification of human activities. There is however little available evidence to assess the impact from the very diverse forms of disturbance that may influence the epidemiology of H5Nx in wild birds or to inform policy on measures that could alleviate pressures on infection and recovery,

110. A matrix of activities that could have an impact on birds, where HPAI is having an impact, is identified below and associated with potential responses. The matrix (Table 3) includes research (bird ringing activities), access to sites, shooting and other land management activities. Currently there is no intention to ban the activities summarised in Table 3. Any further consideration will be undertaken in a site by site basis.

Table 3: Matrix of activities with lead decision makers.

	Activity	**Issues**	**Potential Response**	**Lead decision makers**
Research	Ringing at infected colonies	Increased risk of transmission and disturbance/stress of infected individuals. Human Health Risk	Licence condition Suspension of licence	BTO NatureScot
	Ringing adjacent to infected colonies	Risk of transmission through environmental contamination Human health risk	Licence condition Suspension of licence	BTO NatureScot
	Invasive interventions e.g., blood sampling	Higher increased stress on infected birds Higher human health risk	Condition/suspend licence	NatureScot
Shooting	Solway barnacle licence	Licences to protect agriculture	Condition/suspend licence	NatureScot

	Islay barnacle management	Lethal scaring, culling by marksman	Ability to immediately introduce increasing levels of control through the Islay Adaptive Management Plan	NatureScot
	Out of season grey geese crop protection	Mixed flocks/close proximity with HPAI infected barnacles	Condition/suspend licence	NatureScot
	Wildfowling (foreshore)	Disturbance of infected species	Condition/suspend permits where bylaws in place on NNRs/LNRs	NatureScot Local Authorities
			W&CA sec 2(6) temp suspension of open season for 14 days.	Scottish Government
	Inland goose shooting	Disturbance of infected species	temp suspension of open season for 14 days.	Scottish Government
	Flighting duck ponds	Disturbance of infected species	temp suspension of open season for 14 days.	NatureScot Local Authorities
		Feeding of ponds attracting increased congregation of different species and numbers leading	Advisory/Adjust consent where in an SSSI	Scottish Government
	Game shooting	Rearing fields acting as reservoir for infection	HPAI regulations	Scottish Government
		Release of game birds increasing risk of transmission	HPAI regulations	Scottish Government
		Driven Game shooting increasing transmission rates	W&CA sec 2(6) temp suspension of open season for 14 days.	Scottish Government
Access	General access into and around non-island colonies	Transmission through environmental contamination	Advisory/Access legislation	NatureScot Local Authorities
		Disturbance and increased stress on infected species		
	General access onto island colonies	Risk of transmission through environmental contamination	Advisory/Access legislation	NatureScot Local Authorities

	accessed by boat operators	Disturbance and increased stress on infected species		
	General access into and around key roost sites	Risk of transmission through environmental contamination	Advisory/Access legislation	NatureScot/ Local Authorities
		Disturbance and increased stress on infected species		
Other land management	Wildfowl collections	Changing feeding habitats	Advisory/HPAI Regulations	Scottish Government NatureScot
		Attracting increased congregation of different species and numbers leading to increased and intra/inter species transmission		
	Agricultural operations on feeding fields	Disturbance of infected birds	Advisory	Scottish Government
	Cockling on estuarine sites	Disturbance of infected birds	Advisory/Management Agreement/Byelaws	NatureScot Scottish Government

The Licensing/Ringing Decision making Framework

111. At the time of publication, there are currently no restrictions on the ringing nor research in relation to avian influenza. However, this may change should there be a significant outbreak in wild birds over the coming months. The HPAI Decision Making Framework has been developed, to allow a standardised process for assessing applications that may allow exemption for activities that may otherwise have been suspended, should the outbreak escalate.

112. Any decision to suspend ringing or other research activities will be taken by the Statutory Nature Conservation Bodies (SNCBs) in consultation with the British Trust for Ornithology (BTO) who administer the ringing scheme, the Joint Nature Conservation Committee (JNCC), the Royal Society for the Protection of Birds (RSPB) and other interested parties at the regular fortnightly meetings that are taking place during the HPAI outbreak. Any such recommendation will be made with a view to limiting any additional harm that the activity might do to a population or species that is, or could be, impacted by HPAI. The decision to recommend a suspension will be made in the light of best information available relating to the severity and geographical spread of the outbreak and the best estimate of the current risk to the different taxonomic groups identified by the BTO in their advice to ringers on operating during the HPAI outbreak.

113. The recommendation will require ratification by SNCB senior managers at the regular meetings chaired by JNCC.

114. This framework will be used to assess whether, because of their high conservation or scientific value, particular activities should be exempt from any such suspension or other restrictions placed on ringing and research activities by NatureScot.

115. The Framework will assess any additional risk to birds that the activity might generate (e.g., introducing HPAI to a colony where it is absent, increasing the chance of HPAI transmission from bird to bird or stressing birds to the point that they succumb to HPAI when they might otherwise have survived). The judgement about the level of risk arising from the activity will be made on the assumption that any risk mitigation detailed in the research proposal will be carried out, and that all risk mitigation processes detailed in BTOs advice to ringers is also fully implemented. In addition to this, further risk mitigation may be required by land managers in relation to operating on particular sites (e.g., islands supporting seabird breeding colonies). Again, the assumption made for the purposes of this assessment is that all of these requirements will be adhered to.

116. The scientific importance of the work being undertaken will also be assessed. Examples of important work might be long term datasets that follow population trends, regular sampling that allow estimates of productivity or adult or juvenile survival or studies directly related to the understanding and management of the HPAI outbreak.

117. Those who are planning projects that require a large amount of logistical planning or significant cash outlay in advance might wish to submit project details

in order to get an indication of whether a project is likely to be exempted before they commit to booking travel, accommodation etc**.** Note, however, that the future severity of the outbreak is unknown and, were it to become very severe, even the most valuable projects might need to be suspended. NatureScot will not provide financial or other compensation in the event that projects need to be suspended, even if an indication was previously given that the project was likely to be exempt. In the event of a disputed outcome, NatureScot may seek further advice from independent advisors. A flow chart of the process is provided below (figure 3).

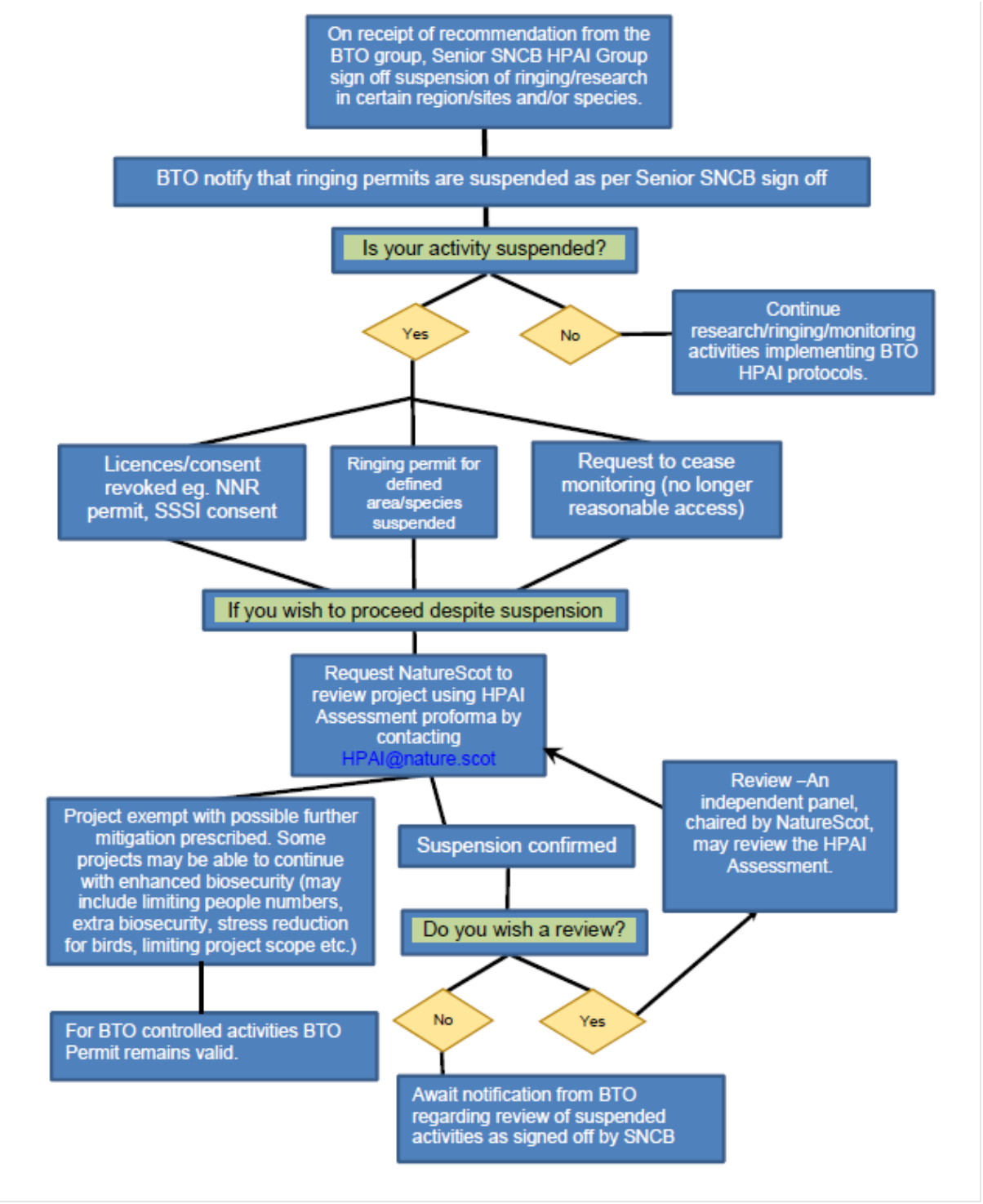

Figure 3: Suspension of Ringing and Research in areas of HPAI in Scotland.

Communications

118. Communications is an area where key lessons emerged from the experiences of the 2021/22 HPAI outbreak in wild birds, highlighting the vital importance of communications in responding to a wildlife outbreak. Communications should focus on the following points:

- Development of good communications with all organisations involved in the response to a future HPAI outbreak in wild birds;
- Provision of up-to-date information in the public domain;
- Clear description of the policy position (on a Scottish and UK basis);
- Definitions of roles and responsibilities of the key Marine Scotland personnel involved in the response; and
- Description of tools and infrastructures used to disseminate information effectively.

Communications – Roles and Responsibilities

119. Two-way communication between responsible bodies and stakeholders during an outbreak is key to mitigating the risk of transmission of disease between birds and in protecting human health. Communication responsibilities are outlined below:

Scottish Government

- Provide up-to-date advice to the public and bird keepers, including on how to spot and report the disease - https://www.gov.uk/government/publications/avian-influenza-in-wild-birds

Scottish Task Force on Avian Influenza in Wild Birds

- Development and implement an approach for stakeholder communications (in progress).

NatureScot

- Raise awareness of the conservation implications of avian influenza (e.g., via social media)
- Provide signage on NNRs managed by NatureScot

Animal and Plant Health Agency

- Publish weekly reports of positive findings in wild birds - https://www.gov.uk/government/publications/avian-influenza-in-wild-birds

Land managers

- Reporting mortality sightings using the report dead wild birds online service[13] or via the GB wild bird surveillance helpline administered by Defra on behalf of all GB administrations on 03459 33 55 77.

13

- Display signage to warn general public of the risk of HPAI and the measures they can take – example posters are provided by APHA Avian influenza (bird flu): how to spot and report the disease - gov.scot (www.gov.scot)

Public

- Reporting wild bird mortality sightings via the report dead wild birds online service[14] or via the GB wild bird surveillance helpline administered by Defra on 03459 33 55 77.

120. The Animal and Plant Health Agency (APHA) carries out year-round avian influenza surveillance of dead wild birds submitted via public reports and warden patrols.

121. The purpose of the surveillance and testing of wild birds is to capture information on the location and strains of avian influenza that might be prevalent in Great Britain. This data then helps government to build up a picture of the current risks, and shapes the response to this risk

122. Find out about recent wild bird findings.

Contact information

123. For reports of suspected cases of HPAI in poultry or other captive birds **in Scotland** contact your field service local office at the Animal and Plant Health Agency (APHA) (Contact APHA by calling 03000 200 301 if you are in England and 03003 038 268 if you are in Wales). Failure to do so is an offence. Sign up to the APHA Alerts Service to keep up to date with the latest news.

124. For suspected cases in Wild Birds:

125. Do not touch or pick up any dead or visibly sick birds that you find. Wild birds can carry several diseases that are infectious to people.

126. In Great Britain, the public are encouraged to report findings of dead wild birds using the report dead wild birds online service or by calling the GB wild bird surveillance helpline administered by Defra on 03459 33 55 77.

If you do not wish to provide your contact details

127. If you wish to submit a report without providing contact details, then the telephone helpline should be used. You must be 18 or over to use this service to report dead wild birds. GB wild bird surveillance helpline administered by Defra : 03459 33 55 77.

128. Report an injured animal or sick bird to the Scottish Society for the Prevention of Cruelty to Animals (SSPCA) in Scotland. Telephone: 03000 999 999). Information about call charges is available.

Avian influenza (bird flu): how to spot and report the disease - gov.scot (www.gov.scot)

Note: Please do not take sick birds to the SSPCA National Wildlife Rescue Centre, nor to any of their animal rescue and rehoming centres. Due to the current avian influenza situation the SSPCA cannot admit them due to the potential risk they could impose to other birds in their care.

ANNEX A

NatureScot Scientific Advisory Committee Sub-Group on Avian Influenza Report on the H5N1 outbreak in wild birds 2020-2023

NatureScot commissioned advice from its Scientific Advisory Committee in order to support **Scotland's Avian Flu Task Force**. Specifically, the sub-group was asked to consider:

1. An assessment of the current and emerging impact of highly pathogenic avian influenza (HPAI) on wild bird populations in Scotland, noting that the emerging evidence base is developing rapidly (and constrained due to restrictions on ringing and related activities in 2022);
2. An assessment of the current knowledge base regarding impact pathways, the vectors of transmission, species vulnerability, environmental persistence, and epidemiology modelling in relation to H5Nx in wild birds with a view to informing policy and identifying gaps in the knowledge base;
3. Taking account of the policy intention behind the GB Wild Bird Surveillance Scheme provide advice on complementary surveillance, testing, and carcass collection to expand the evidence base on the extent and spread of HPAI in wild birds. This should be wide ranging advice in terms of what needs to be done, should note ongoing research in this area, consider practical and resource constraints, as well as the current policy intention and advice from SG Animal Health and APHA;
4. Assessment of the impact from various forms of disturbance (e.g., access related to tourism, shooting, general access, generalist land management activities and research on birds involving human–bird contact) in relation to H5Nx in wild birds with a view to informing policy on measures that could alleviate pressures on infection and recovery;
5. Surveillance and monitoring priorities for passage and wintering populations of waterbirds in autumn-winter 2022-23, and breeding bird populations in spring summer 2023, and beyond. This will include guidance on permissible research activities; and
6. Further research, surveillance, scenario modelling and monitoring needs, and how these could be met most effectively.

The group was chaired by Dan Haydon with Jane Reid, Anna Meredith, Mark Bolton, Eleanor Watson and Francis Daunt. Emma Cunningham and Paul Digard provided invaluable input and support. The group was further supported by NatureScot and JNCC staff.

The full paper can be accessed here: (NatureScot Scientific Advisory Committee Sub-Group on Avian Influenza Report on the H5N1 outbreak in wild birds 2020-2023 | NatureScot)

ANNEX B

Clinical Signs

The main clinical signs of HPAI in birds can include any, or a combination of the following symptoms:

- swollen head
- closed and excessively watery eyes
- lethargy and depression
- recumbency and unresponsiveness
- incoordination and loss of balance
- head and body tremoring
- drooping of the wings or dragging of legs
- twisting of the head and neck
- swelling and blue discolouration of combs and wattles
- haemorrhages on shanks of the legs and under the skin of the neck
- loss of appetite or marked decrease in feed consumption
- sudden increase or decrease in water consumption
- respiratory distress such as gaping (mouth breathing), nasal snicking (coughing sound), sneezing, gurgling, or rattling
- fever or noticeable increase in body temperature
- discoloured or loose watery droppings
- cessation or marked reduction in egg production or viability of eggs

Clinical signs can vary between species of birds, with some birds showing minimal clinical signs. However, the presence of HPAI can only be confirmed through laboratory tests.

Diagnosis

The presence of HPAI in wild birds is confirmed by laboratory tests which are undertaken at the National Reference Laboratory (NRL) for Avian Influenza, located at the Animal and Plant Health Agency (APHA) in Weybridge. [Notifiable Avian Disease Control Strategy.]

This publication is available at **www.gov.scot**

Any enquiries regarding this publication should be sent to us at

The Scottish Government
St Andrew's House
Edinburgh
EH1 3DG

ISBN: 978-1-83521-036-9 (web only)

Published by The Scottish Government, August 2023

Produced for The Scottish Government by APS Group Scotland, 21 Tennant Street, Edinburgh EH6 5NA
PPDAS1314282 (08/23)

w w w . g o v . s c o t