



Department
for Environment
Food & Rural Affairs

Rapid risk assessment on incursion of HPAI (predominantly H5N8) into housed or not housed poultry flocks and captive birds

10 May 2021

Situation as at 10 May 2021



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Summary

This is an update of a rapid risk assessment last updated on 29 March 2021. It was first produced on 09 November 2020 in response to findings of highly pathogenic avian influenza (HPAI) H5N8 in poultry (on 02 November 2020) and wild birds (09 November 2020). **All updates made on 10 May 2021 are shown in red for ease of reference.**

1. In October 2020 the risk of HPAI H5N8 incursion through migratory wild waterfowl was increased to **MEDIUM** on the basis of outbreaks in north-west Europe.
2. The report of HPAI H5N8 in a broiler-breeder rearing unit flock in Cheshire (AIV 2020/02) on Monday 2 November was the first confirmed event of HPAI H5N8 in Great Britain (GB) since 2017. Two wild geese tested positive for HPAI H5N8 in south-west England on 09 November 2020. The risk of HPAI H5N8 incursion through movements of migratory wild waterfowl was increased to **HIGH** on 6 November 2020 and then to **VERY HIGH** in early December.
3. When this risk assessment was updated in January 2021, the risk of HPAI H5N8 incursion in wild birds was maintained at **VERY HIGH**, and the risk of exposure of poultry across the whole GB was assessed to be **MEDIUM** (where stringent biosecurity is applied) and **HIGH** (where biosecurity is sub-optimal).
4. When this risk assessment was updated on 01 March 2021, the risk of HPAI H5N8 incursion in wild birds was reduced to **MEDIUM**, and the risk of exposure to poultry across the whole GB was reduced to **MEDIUM**. It was noted that a medium risk level covers a wider spread of risk than a high or very high risk and so for locations where biosecurity is suboptimal the risk level was higher within the medium band than where biosecurity was good.
5. **When this risk assessment was last updated on 29 March, it was considered that the risk of infection to wild birds was continuing to decline, and the risk of HPAI H5 incursion in wild birds was reduced to **LOW** (from **MEDIUM**).**
6. In this update on **10 May**, it is considered that the risk of infection to wild birds is continuing to decline **in line with expectation**, and the risk of HPAI H5N8 incursion in wild birds is **maintained at **LOW****. **Cases of HPAI H5 in wild birds in north-western continental Europe are also now declining following the peaks in March (IZSVe, 2021b).** This lag in Europe behind the decline in wild bird cases in the UK is expected because some of those migrant water birds leaving the UK and Republic of Ireland will have flown back through Denmark, northern Germany and southern Scandinavia.

7. From 1 March 2021 the sensitivity of the surveillance scheme measuring cases of avian influenza in wild birds was increased back to its routine threshold of testing single dead wild birds after a period of reduced sensitivity when a group of three found carcasses were required to trigger a test in England. This includes all listed higher risk bird species from all locations irrespective of previous detections. Despite this, only nine new positive cases of HPAIV H5 in wild birds (all from two submissions) have been detected in the 218 carcasses submitted in GB since 29 March (to 6 May). These include three dead rooks (*Corvus frugilegus*) testing positive for HPAIV H5N1 in one wild bird event at a rookery in Fife in early April and six pheasants with HPAIV H5N8 at a site in Staffordshire. The previous case of HPAIV in wild birds in the UK was H5N1 in a Red Kite (*Milvus milvus*) in west Yorkshire in early March. These rare findings are not unexpected in the tail of the epizootic and are consistent with the ongoing low risk of incursion in wild birds. The other six positive wild bird cases relate to pheasants infected with HPAIV H5N8 at a shooting estate in Staffordshire where multiple pheasants have now been estimated to have died.

8. The housing order was lifted on 31 March 2021 in line with the estimated low risk of infection in wild birds in the UK at that date.

9. When this risk assessment was last updated on 29 March, it was considered that the risk of infection to poultry was continuing to decline, and the risk of HPAI H5 incursion in poultry with stringent biosecurity was reduced to **LOW** (from **MEDIUM**) while the risk to poultry with suboptimal biosecurity was maintained at **MEDIUM** (albeit with high uncertainty). Since the last update on 29 March, there have been no new outbreaks of HPAI H5 in poultry in the UK with just one outbreak of H5N8 in captive birds on the 31 March. This is despite the lifting of the housing order on 31 March 2021 during which time free range poultry have had access to the ranges, suggesting environmental HPAI H5 contamination on the ranges is greatly diminished.

10. Given the continuing decrease in wild bird infection pressure, and the likely decreasing levels of environmental contamination, the risk of HPAI H5 exposure to poultry and captive birds across the whole GB is now reduced from medium to **LOW** (albeit with high uncertainty) where biosecurity is sub-optimal and maintained at **LOW** (but now with medium uncertainty) where stringent biosecurity measures are applied. As with the “medium” risk level, the “low” risk level covers a wide spread of risk. It is considered too early to reduce the risk of poultry with stringent biosecurity to very low because even with stringent biosecurity some exposure to poultry could occur given residual contamination in the environment. The risk to poultry is expected to reduce further still in May as seasonal increases in temperature and day length further reduce the levels of environmental contamination and as infection levels reduce in UK breeding bird species.

11. The Avian Influenza Prevention Zone (AIPZ) is still in place, and personnel should be taking appropriate biosecurity measures. An AIPZ was declared in England, Wales and Scotland, with additional housing measures that came into force **between 14 December 2020 and 31 March 2021**.

12. An EFSA analysis of the 2016/2017 HPAI H5N8 epidemic concluded that good biosecurity was most effective in the reduction in the risk of virus incursion into poultry houses from wild birds. It is particularly important that stringent adherence to biosecurity measures are maintained when the AIPZ is lifted, to prevent disease being introduced to birds through contaminated fomites.

Introduction

During the autumn/winter of the 20/21 season, the UK has experienced a large epizootic of highly pathogenic avian influenza (HPAIV) H5 including H5N8, H5N1, H5N5 and H5N3 in wild birds. This spilled over into domestic poultry and captive birds as detailed in the published preliminary outbreak assessments and in earlier versions of this rapid risk assessment.

In early November a rapid risk assessment was undertaken to address the risk of incursion of H5N8 HPAI into housed and non-housed birds (domestic poultry and captive birds) from contact with migratory wild waterfowl from Europe during the 2020/2021 winter season. This was reviewed on 26 November 2020, then on 26 January 2021, on 01 March 2021, and updated here at 29 March 2021.

As of 30 April, the total number of HPAI outbreaks in poultry and/or captive birds in the UK was 24. HPAI H5N8 has been identified in poultry in England (15), Northern Ireland (2), Scotland (1), game birds in Wales (1), and captive birds in England (3). HPAI H5N1 has been identified in poultry and game birds in England (1) and Scotland (1). The most recent of these, where H5N8 was confirmed on 31 March was in captive birds at a site in Lancashire England (see map in Annex 1). The exposure to captive birds at that site happened when the risk of HPAI H5N8 incursion in wild birds was MEDIUM, and the risk of exposure to poultry across the whole GB was also MEDIUM ('occurs regularly'), and so the risk level at that time was different to the risk as assessed now. An Avian Influenza Prevention Zone (AIPZ) was declared in England, Scotland and Wales from 5pm on the 11 November 2020 with the requirement for additional housing measures in force from 14 December 2020. This meant that all bird keepers (whether they have pet birds, commercial flocks or just a few birds in a backyard flock) were required by law to take a range of biosecurity precautions, including housing their birds (except in very specific circumstances). The housing order was lifted in Great Britain on 31 March 2021 although the AIPZ is still in place. This rapid risk assessment addresses the risk to UK poultry and wild birds on 10 May 2021.

The dynamic of the epizootic in wild birds has changed as winter has progressed into spring. In the early stages in the autumn it was migratory wild waterbirds flying into the UK to overwinter and the aggregation of these with native species which posed the main risk of incursion and short term maintenance from Europe. The risk assessment in the autumn and early winter therefore focused on levels of infection of HPAIV in wild birds (mainly geese species) in north-western Europe (namely northern Germany, Denmark and the Netherlands) as some of these birds would continue their westward migration to the UK. As the epizootic progressed through the winter, the infection spread to sedentary wild bird species as the arrival of migratory wildfowl from the east declined. At this current late stage of the outbreak (i.e. **late** spring), most of the eastbound migrant wildfowl have now left the UK. The risk assessment here has therefore focused on the residual infectivity in the environment from wild bird faeces and the risk from those sedentary UK wild bird species still potentially harbouring infection. Therefore, the migration routes and wild water bird species on which the earlier risk assessments focused are not considered here. In terms of subsequent spill over of HPAI from wild birds to poultry, stringent biosecurity is of key importance in reducing the risk.

The EFSA (2017) opinion recommends that the following biosecurity measures for housed birds which should be applied are: separation from wild birds; separate waterfowl from gallinaceous poultry; provide potable drinking water; implement a hygiene lock for each poultry house and provide biosecurity training to all personnel. For non-housed birds, it was recommended to restrict access to birds for people and provide biosecurity training to personnel as the most feasible and sustainable measures. At all times, feed must be provided indoors only, wild bird access should be restricted; and contacts with other poultry premises limited. Feed and water could be provided under a roof or a horizontal fabric for non-housed birds. The opinion used expert knowledge elicitation to gather evidence on the biosecurity measures and a lack of biosecurity awareness in the staff on sites was commonly reported.

This rapid risk assessment aims to provide advice around the most appropriate form of prevention zone order for the different sectors.

Under article 6(1) of the Avian Influenza and Influenza of Avian Origin in Mammals (England) (No 2) Order 2006 ("the Order"), the Avian Influenza and Influenza of Avian Origin in Mammals (Scotland) Order 2006 and the Avian Influenza and Influenza of Avian Origin in Mammals (Wales) (No 2) Order 2006, the Secretary of State must carry out a risk assessment in order to declare an Avian Influenza Prevention Zone.

Measures to reduce the risk of transmission of avian influenza

6.—(1) If, after carrying out a risk assessment, the Secretary of State considers such action necessary to reduce the risk of transmission of avian influenza to poultry or other captive birds from wild birds or from any other source, he must—

- (a) declare an avian influenza prevention zone in all or part of England/Scotland/Wales; or
- (b) serve or require an inspector to serve a notice on the occupier of any premises where poultry, other captive birds or any categories of poultry or captive birds specified in the notice are kept.

(2) A declaration or notice under paragraph (1) must impose such measures as the Secretary of

State considers necessary to reduce the risk of transmission of avian influenza.

(3) When deciding the measures to impose under paragraph (2), the Secretary of State must consider whether measures are necessary—

(i) to prevent direct or indirect contact which wild birds might otherwise have with poultry and other captive birds;

(ii) to reduce the risk of feed and water provided to poultry and other captive birds being contaminated with avian influenza virus; and

(iii) to reduce the risk of the spread of avian influenza between premises.

(4) The power of the Secretary of State to impose measures by declaration or notice under this article includes the power—

(a) to require poultry and other captive birds to be housed or otherwise kept separate from wild birds;

(b) to require poultry or other captive birds or categories of such birds specified in the declaration or notice to be housed or otherwise kept separate from other poultry and captive birds;

(c) to require that poultry and other captive birds are provided with feed and water to which wild birds have no access;

(d) to require keepers of poultry and other captive birds and others who come into contact with such birds to cleanse and disinfect their footwear and take such other biosecurity measures as a veterinary inspector or an inspector under the direction of a veterinary inspector may require;

(e) to ban or limit the collection of poultry or other captive birds at any fair, market, show, exhibition, race or other gathering;

(f) to ban or limit the use of birds of the orders *Anseriformes* (including ducks, geese and swans) and *Charadriiformes* (including gulls, murre, terns, avocets, puffins, woodcock, oystercatchers, sandpipers, plovers, surfbirds, snipes and skimmers) as decoys during bird hunting.

Hazard Identification

The hazard identified is the avian influenza virus, predominantly HPAI H5N8, but other virus subtypes have been detected including H5N1, H5N2, H5N3 and H5N5.

Wild bird cases in England, Wales, and Scotland have tested positive for HPAI H5N1, H5N3, H5N5, and H5N8. The detection of four H5 HPAI subtypes in the same epidemic event is unparalleled in the UK or indeed at European level. All these viruses are genetically closely related through their haemagglutinin gene, which is the key viral gene influencing pathogenesis, host range, transmission, and host immunity.

Risk Question

What is the risk of incursion of HPAI (predominantly H5N8, but other virus subtypes have been detected including H5N1, H5N2, H5N3 and H5N5) into housed and non-housed birds (domestic poultry and captive birds) from contact with wild birds (resident species and migratory wild waterfowl) during the 2020/2021 winter season?

Risk Levels

For the purpose of this risk assessment, the following EFSA-derived definitions will be used:

Negligible	So rare that it does not merit to be considered
Very low	Very rare but cannot be excluded
Low	Rare but does occur
Medium	Occurs regularly
High	Occurs very often
Very high	Events occur almost certainly

Entry assessment

There is evidence that indigenous resident birds (species which breed here in the UK and which are relatively sedentary) have been infected over the winter, may continue to circulate viruses and consequently act as a reservoir of infection to poultry. However, changes in their behaviour during spring may reduce this risk, as birds make regional or neighbourhood scale movements from moderate aggregations on larger waters into smaller groups at their breeding sites on small waterbodies. This change in population structure and contact behaviour should reduce the circulation of virus (as was experienced in 2016/17).

There is a system for wild bird surveillance in GB, whereby found dead birds from target species are reported either by wardens at reserves and wetland sites, or by the public for testing at the NRL. **As of 29 April 2021, there were 320 wild bird**

positive findings of H5 in England (283), Wales (6), Scotland (22) and Northern Ireland (9). The wild bird species involved are set out in Annex 2. 292 submissions tested were subtyped as H5N8, 14 submissions were H5N1, six submissions were H5N5, one submission was H5N3 and six submissions were H5Nx (as unidentifiable H5 subtypes). Since 29 March, there has been one new HPAIV detection event involving three rook (*Corvus frugilegus*) carcasses at a rookery in Fife in Scotland testing positive for H5N1 between the 5th and 13th April 2021. In addition thousands of pheasants localised to a game bird estate near Uttoxeter have died with six carcasses being tested and confirmed to be positive for HPAIV H5N8. The total number of positive wild birds detected in this epizootic, in addition to the detection of multiple H5 HPAI subtypes in the same epidemic event, is unparalleled in the UK.

While the migratory water birds have departed, residual infection may remain in several resident wild bird populations, some of which may serve as bridging species including certain gull species and corvids (e.g. Eurasian magpie) with some testing positive for HPAI H5 both here and on the Continent. These species are distinguished by their propensity to scavenge potentially infected carcasses, habit of aggregating into large groups in winter (gulls often night roost in very large aggregations on waterbodies along with wildfowl; some corvid species in substantial mixed species assemblages in trees) as well as their boldness and habit of exploiting farms for forage. Corvids and especially gulls are also mobile and may cover significant distances every day between their night roosts, widely separated foraging locations and loafing sites. As well as representing a potential source of infection, they may also have a role in fomite transmission from areas where there is environmental contamination. At this stage in the outbreak, bridging species still play a role in fomite spread, but this is reducing as environmental contamination decreases.

The second peak in wild bird cases in Europe peaked in March at about 200 new cases per week, mainly in Germany but also in Denmark and southern Scandinavia (IZSVe 2021b), with weekly cases now at under 40 at the beginning of May.. However, at this time of year these birds are very unlikely to move west from continental Europe to the UK. There has also been secondary spread in the poultry industry particularly in Germany and more recently Poland due to spread by traders and at markets although this is coming under control due now. Currently, the main threats in the UK come from virus which remains circulating in populations of indigenous, sedentary wild birds and from residual HPAI H5 viral contamination in the environment e.g. on poultry ranges. Furthermore, movements of native wild birds to their breeding sites will further reduce the likelihood of contact between wild birds, which many inhibit the maintenance of avian influenza, even in wild populations of native species.

In summary, the following points are consistent with **an ongoing LOW risk of infection HPAI H5** in wild birds currently in the UK:-

1. While low levels of HPAI H5 are still circulating in wild birds in northern Europe (IZS^{Ve} 2021b), these birds are not likely to fly westwards, i.e. towards the UK at this time of year.
2. Migratory wild water birds have now departed from the UK, greatly reducing the number of birds which might maintain HPAIV in the UK. Although the strong northerly winds recently may have delayed departure of the remaining few, this will not greatly affect the overall risk.
3. Infection in wild birds is now limited to resident sedentary species, such as mute swans, some corvids and raptors.
4. Contacts between most species of resident sedentary wild birds have greatly decreased by this time of year as the birds have dispersed to their breeding sites within the UK, with large aggregations which are common in winter now mainly gone.
5. Detection of only nine HPAIV H5-positive wild birds in the UK (at two sites) in April indicates continued low risk of infection in wild birds in the UK following the single wild bird case in March.
6. As the level of infection in sedentary wild birds falls in the UK, so the levels of infectivity in the environment fall in effect giving a negative feedback loop.
7. Transmission through environmental contamination is further reduced at this time of year because of warmer temperatures and longer periods of higher intensity sunlight causing increased inactivation of the virus in the environment. The rate of inactivation will increase further through late spring.

We therefore consider the likelihood of there being infected wild birds including resident waterfowl, raptors and bridging species present in GB is **still LOW** as a country-wide assessment. However, there will be regional variation, based on the proximity to aquatic habitats which may be harbouring residual environmental contamination in sediments. (MEDIUM uncertainty).

Exposure Assessment to Poultry

There are multiple pathways for the exposure of poultry to notifiable avian diseases (Defra, 2018).

These include:

- Contact with infected poultry such as live birds, hatching eggs and day old chicks of poultry
- Contact with live infected wild birds, particularly waterfowl
- Contact with poultry products and by-products of infected poultry,
- Contact with contaminated feed, water, bedding, equipment, vermin or clothing / footwear of people in contact with infected birds or contaminated environment.

Biosecurity advice which poultry keepers should practise at all times of the year are focussed on these pathways as there is a constant low risk of incursion from any notifiable avian disease being introduced into poultry because LPAI viruses circulate constantly in wild waterfowl. The EFSA report from 2017 used a combination of systematic review of all poultry outbreaks and expert knowledge elicitation from members of the poultry sectors. What was clearly stated in the expert knowledge elicitation was the need to not only implement biosecurity measures which are feasible and sustainable, but also the importance of training poultry workers in what these measures mean.

There is considerable uncertainty in the effect of housing on reducing the risk. According to EFSA's expert knowledge elicitation, the prevention of access of poultry to water bodies could result in an estimated three-fold reduction in HPAI entry probability. Combining this biosecurity measure with confining poultry to indoor housing was estimated to further reduce the HPAI entry probability two-fold. Thus, overall, combining both actions to limit poultry access to water bodies and implementation of housing would give a six-fold reduction in risk. However, at this late stage in the outbreak with the wild bird risk at LOW, there may be a diminished return in maintaining the housing order.

Expert opinion is that the virus will retain infectivity in the environment at low temperatures, at least to 21 days at 4°C and 8.4 days at 20°C. Initial data indicate that the current H5N8 HPAI virus has extended survival properties when compared to the 2016 H5N8 virus that had survival properties of 14 days at 4°C and 6 days at 20°C. Ultimately, this suggests that the 2020/21 isolate lasts 50% longer at 4°C and 40% longer at 20°C than the H5N8 characterised in 2016/17.

As the season progresses, increasing temperatures, sunlight intensity and day length reduce virus survival, it is probably too early to say that there has been substantive environmental decay. Without further bouts of cold weather, environmental decay will be starting.

Contact with live infected wild birds, particularly waterfowl:

Housing birds will reduce direct contact with wild waterfowl (both residual migrants still present in the UK and resident species). It will not prevent any of the other pathways through which disease may enter a poultry premises. Other biosecurity measures will be more important. The likelihood of contact with wild waterfowl will be dependent on the number of such species nearby and how attractive the premises are to birds. The presence within the poultry premises of a pond or open feed bins are two well-known factors which make direct contact with wild waterfowl more likely for poultry with access to the outside environment, as well as encouraging bridging species to regularly visit premises.

As the most likely contact of poultry kept outdoors with wild waterfowl will be in those areas where there are high concentrations of these species, the likelihood of direct contact with wild waterfowl or indirect contact with their faeces would be greater for those poultry establishments in close proximity to, or with sites attractive to, wild waterfowl. Therefore, where there are no large aggregations of wild waterfowl, the risk is lower for this particular pathway, but there are still other pathways which could lead to the introduction of any notifiable avian disease. It is worth reiterating that H7 LPAI viruses which circulate in wild waterfowl, when introduced into housed layer hens, have been known to mutate into HPAI which is a more disruptive infection to control, due to the increased size in control zones. Although in the 2016/2017 season, the outbreaks in commercial poultry establishments in GB were all housed birds, since not all poultry premises throughout GB were tested, it is not possible to say whether outdoor flocks were exposed and did not exhibit clinical signs.

Incursion through imported live animals or products:

For the other pathways, contact with other live birds (i.e. trade in poultry, hatching eggs, day old chicks) will be dependent on the business itself and the commercial activities. Contact with products or by-products from infected birds will be dependent on the activities of people entering the premises and bringing such products with them and it should be noted that swill feeding is illegal. These will not be addressed in detail for this assessment. However, housing birds will not impact on this risk.

Contact with contaminated feed, water, bedding, equipment, vermin or clothing / footwear of people in contact with infected birds or contaminated environment:

Contamination of feed, bedding and water by wild birds can be prevented by sourcing such products from safe sources and keeping such items in containers or buildings to which no wild birds have access. The site can be made less attractive to wild waterfowl by preventing access to any ponds on site or excluding ponds and pools of standing water from the range and making sure feeding areas are protected.

Not scatter feeding and ensuring all feeding and watering is conducted undercover will be essential. Prompt clearing up and appropriate disposal into lidded waste containers of all spillages of animal feed will avoid attracting to wild birds. Contact with contaminated equipment, footwear and clothing can be prevented by making sure all personnel in contact with the birds use disinfectants appropriately. This will be particularly important where birds are housed, as contact with the birds is more frequent, as feed, bedding and water must be brought into the houses and birds must be checked for welfare issues or eggs collected from inside the houses. Visitors to the farm should also be recorded for security and to help tracing exercises. Other biosecurity practices should be employed to ensure wild birds are separated from flocks such as feeding birds indoors or under cover, discouraging wild birds from landing, removing wild bird contamination and draining watercourses, removing feeders and water stations from the range, ensuring good building maintenance and regular inspections for signs of wild bird/rodent access. Vermin control is strongly recommended because rodents act as fomite spreaders.

Above all, the EFSA opinion recommended ensuring all personnel are trained in, and practise, good biosecurity, regardless of whether birds are housed or not.

Domestic poultry

The GB poultry sector is complex and seasonally variable. There is a requirement for all poultry keepers in England, Scotland and Wales with more than 50 birds to be registered with the British Poultry Register. For fewer than 50 birds it is voluntary. Therefore, any data available will not necessarily include the backyard or smallholder community. In comparison to data available in 2013, the outdoor chicken sector has decreased from 62% of total holdings to 30% in 2018.

The poultry sector can be designated in the following way with the various populations according to the 2018 poultry register. The “outdoor” label is only an estimate and the NCP Salmonella survey estimates the free range population to be 55% of the layer birds and 18% of turkeys.

Poultry Type	Number of Birds	As proportion of total population	Number of holdings	As proportion of total poultry holdings
Total Chickens	270986618	85.45%	10125	51.98%
Outdoor Chickens	33500062	10.56%	5879	30.18%
Layers	47186064	14.88%	5454	28.00%
Broilers	166134899	52.39%	1663	8.54%
Total Turkeys	8462070	2.67%	1069	5.49%
Outdoor turkeys	1642191	0.52%	443	2.27%
Total ducks	4108083	1.30%	1364	7.00%

Poultry Type	Number of Birds	As proportion of total population	Number of holdings	As proportion of total poultry holdings
Outdoor ducks	981325	0.31%	878	4.51%
Total geese	146332	0.05%	187	0.96%
Outdoor geese	116826	0.04%	125	0.64%
Total CDGT	283703103	89.46%	12745	65.43%
Total Pheasant	23918729	7.54%	4733	24.30%
Total Partridge	9512172	3.00%	2001	10.27%
Total Poultry	317134004		19479	

Captive birds

Captive birds, such as those held in collections, zoos or approved bodies are already semi-housed and should be kept separate from wild waterfowl. For some, this will be difficult to prevent access to their water environment (penguins, pelicans, flamingos etc), but it is unlikely it will be possible to house indoors, so every effort should be made to prevent wild waterfowl access. There were outbreaks in captive birds in Europe (in zoos) in 2016/2017 and a derogation exists in EU legislation which means birds may not have to be destroyed, unless they are in contact with the infected collection.

Ratites

Ratites, such as ostriches, cannot be housed on a long term basis. Outbreaks of closely related H5N8 HPAIV have been reported in commercial ostriches in South Africa since 2017. Ratites are therefore susceptible to some strains of HPAIV at least and there has been a case in Germany of an emu showing clinical signs in a zoo and therefore these birds should also be considered susceptible.

Game birds

The majority of game birds have already been released for the shooting season and therefore are considered wild birds and outside the scope of a prevention order around housing. Some will still be kept in pens and could not be housed due to welfare issues, therefore the pens themselves would need to be netted where possible to ensure the birds cannot escape and forage locally. Game bird keepers should use the guidance

https://www.gfa.org.uk/user_files/uploads/Bird_Flu_and_Gamebirds.pdf

Captive birds used as decoys would be at risk of increased contact with wild waterfowl. If they remain at one place for the duration of the fowling season, then

they will not come into contact with domestic poultry; however, if the birds are moved around to other sites or spend any time at a premises where domestic poultry are kept, this is an increased risk for the poultry. It is illegal to release by hand captive birds for the purpose of being shot immediately after their liberation, under Part 1, Section 8 of the Wildlife and Countryside Act, 1981.

The large aggregations of wild waterfowl have now departed the UK and the proportion of sedentary wild birds infected is low with environmental contamination reducing continually with longer day length and higher environmental temperatures. We therefore consider the risk of exposure of poultry with biosecurity breaches to have decreased from medium to **LOW** (albeit with high uncertainty). For poultry with stringent biosecurity) the risk of exposure to poultry remains at **LOW** (medium uncertainty) This is consistent with the fact that no poultry outbreaks have occurred since the lifting of the housing order on 31 March 2021 in GB giving a large poultry population (~33 million birds) access to outside ranges. However, even stringent biosecurity does not eliminate all risk and it is too early to decrease the risk to poultry with stringent biosecurity to very low. The AIPZ is still in place and personnel should be taking appropriate biosecurity measures.

Consequence assessment

Any outbreak of notifiable avian disease has a significant impact on the GB poultry industry, through the trade and economic impacts on the producer and the sector. This is the same for any notifiable avian influenza virus. Average costs to government may be between £2 and £4 million per outbreak, depending on the number of birds involved and time taken to complete secondary C&D and return to disease free status.

GB is required to deliver surveillance for H5 and H7 LPAI incursions in poultry (including H5 and H7 HPAI in Anseriformes) under Council Directive 2005/94/EC and Commission Decision 2010/367/EU.

Conclusions

The risk of HPAI H5 in wild birds in the UK is estimated to remain at **LOW** (EFSA definition "rare but does occur") currently (10 May 2021), suggesting that a few infected birds are still present in the UK as demonstrated by the recent H5N1-positive **rooks at a rookery in Scotland**, with the potential for the occasional **wild bird still** to be infected from environmental contamination. Even though many birds have been infected already and the **few** remaining migratory waterbirds **have pretty much all departed from** the UK, there are still immunologically naïve susceptible resident bird species in the UK. However, as these birds disperse to their breeding grounds within the UK, bird-to-bird contacts will reduce, and with decreasing environmental

levels of virus the wild bird transmission rate is also decreasing, and with it the wild bird risk.

With the departure of the migratory water birds from the UK during April, resident sedentary wild bird species will have played the more important role in any residual spread of virus. This is consistent with the three rook carcasses infected with HPAI H5N1 at the rookery in Scotland in early April. Bridging species will play a less important role in onward spread of virus as environmental contamination continues to decrease with fewer infected birds to shed virus and higher viral decay rates in the environment.

The risk of exposure to poultry is now estimated to be **LOW** for all premises across the UK. However, for premises with suboptimal biosecurity, the uncertainty in this estimate is HIGH reflecting the continued presence of low levels of HPAI H5 infection in wild birds in the UK. The uncertainty in the low estimate of risk for poultry in premises with stringent biosecurity is considered to be MEDIUM and it is not considered appropriate to reduce the risk to very low because contamination can still get through even the most stringent biosecurity. The main route of exposure to poultry is through environmental contamination, particularly on the ranges which poultry have had access to since the lifting of the housing order. The lack of any poultry outbreaks since then is reassuring and indeed higher environmental temperatures, together with increasing sunlight (intensity and day-length) will be reducing environmental levels of HPAIV H5 and their associated risks. The lower levels of prevalence in the wild bird population will also reduce viral load present in the environment. However, as was seen in the epizootic of 2016/17, there may be a long tail of a small number of outbreaks over the coming months, even as the risk of exposure to poultry is reducing further still.

Despite no further outbreaks in poultry since the lifting of the housing order, it is important to emphasize the importance of maintaining good biosecurity with some 33 million free range poultry accessing their ranges daily. In particular owners should maintain good cleansing and disinfection of those ranges, particularly since the H5N8 strain this season can survive in the environment up to 50% longer than the 2016/17 strain.

In GB the sensitivity of wild bird avian influenza surveillance has been increased to ensure collection and analyses of any number of targeted species of wild birds (essentially ducks, geese, swans, gulls and birds of prey) known to carry risk of infection with AI viruses. Single dead birds of target species where possible will be collected and tested. However, an expectation of no wild bird cases could be disproportionate i.e. one case per week when surveillance sensitivity has been maximised will not necessarily correlate with an increase in wild bird risk.

Assumptions and Uncertainties

- The evidence for the economic benefits and dis-benefits of housing birds is not part of this assessment.

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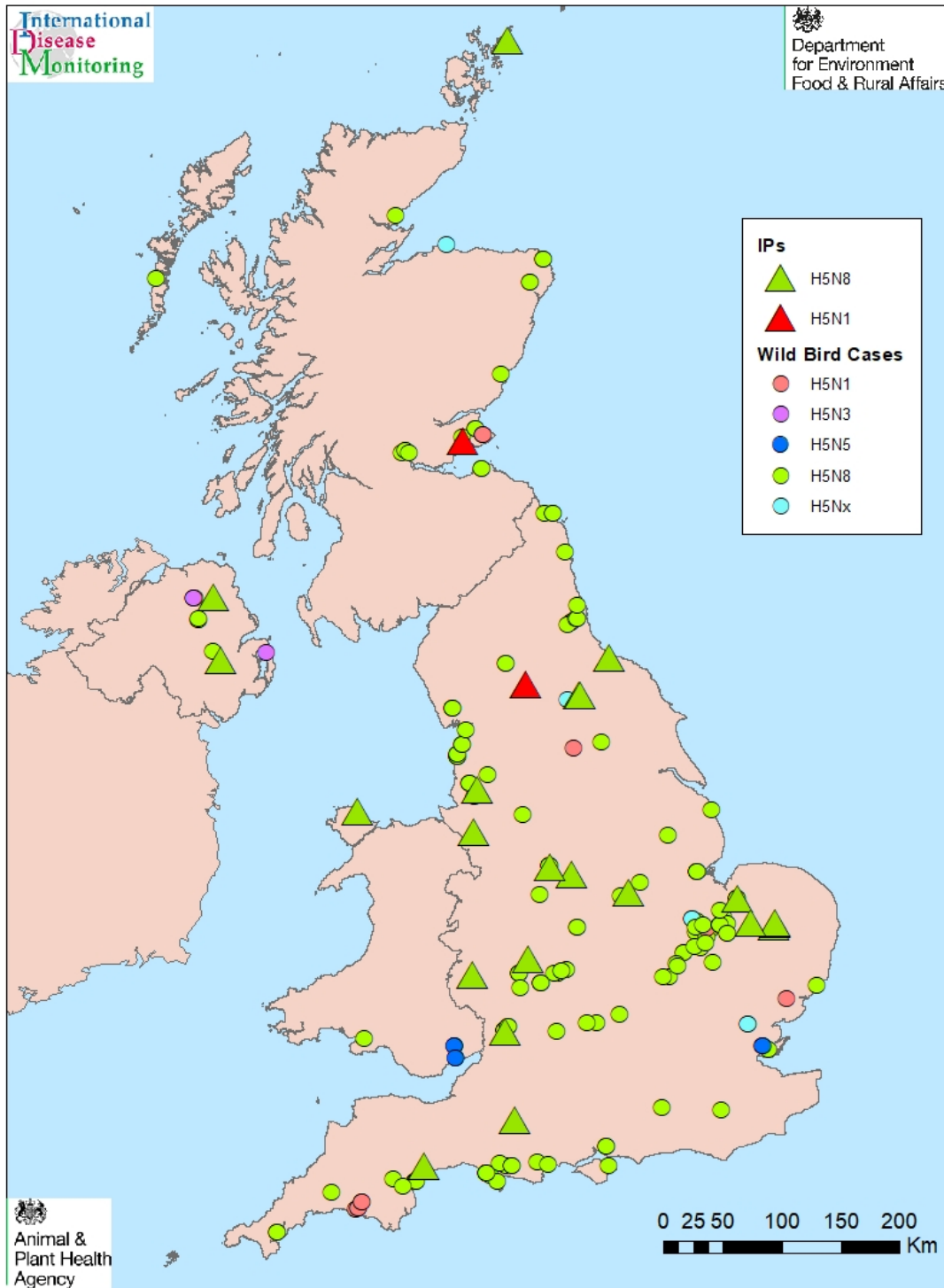
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Annex 1 – Map of wild bird cases and outbreaks of HPAI in the UK by strain, November 2020 to 1 May 2021.



UK HPAI IPs and Wild Bird Cases (as of 01/05/21)

Annex 2 – UK wild bird detections for HPAI by species to 29 April 2021 indicating whether populations are largely sedentary or migratory

Country & species	H5N1	H5N5	H5N8	H5N3	H5Nx	Grand Total	Status
England	12	1	265		5	283	
Black Swan			11			11	Sedentary
Brent Goose			6			6	Migrant
Buzzard			4			4	Sedentary
Canada Goose	1		24			25	Sedentary
Common Buzzard	1		2			3	Sedentary
Great White Egret					1	1	Sedentary
Grey Heron			1			1	Sedentary
Greylag goose			8		2	10	Sedentary
Herring Gull			2			2	Sedentary
Kestrel			1			1	Sedentary
Lesser Black Backed Gull			1			1	Sedentary
Black headed Gull			1			1	Sedentary
Mixed Avian			1			1	
Mute Swan	9	1	155			165	Sedentary
Peregrine Falcon			2			2	Sedentary
Pheasant			6			6	Sedentary
Pink footed goose			2			2	Migratory
Red Kite	1		1			2	Sedentary
Shelduck			1			1	Partial migrant but mainly sedentary at this time of year
Sparrow Hawk			1			1	Sedentary
Unspecified			1			1	-
Unspecified Goose			1			1	-
Unspecified Swan			11			11	-
Whooper Swan			21		2	23	Migratory
Wigeon			1			1	Migratory
Wales		5	1			6	
Little Grebe			1			1	Sedentary
Mute Swan		5				5	Sedentary
Scotland	3		18		1	22	

Country & species	H5N1	H5N5	H5N8	H5N3	H5Nx	Grand Total	Status
Greylag goose			1			1	Migratory
Mute Swan			7			7	Sedentary
Unspecified Swan			4			4	-
Whooper Swan			4			4	Migratory
Knot					1	1	Migratory
Red Knot			2			2	Migratory
Rook	3					3	Sedentary
Northern Ireland						9	
Peregrine Falcon				1		1	Sedentary
Unspecified Swan			6			6	-
Whooper Swan			2			2	Migratory
Grand Total	14	6	292	1	6	320	