Updated Outbreak Assessment #32

Highly pathogenic avian influenza (HPAI) in the UK and Europe

01 September 2022 Ref: VITT/1200 HPAI in the UK and Europe

Disease report

Since our last outbreak assessment on 01 August 2022, there have been further reports of high pathogenicity avian influenza (HPAI) H5, both in domestic poultry and in wild birds, in the United Kingdom (UK) and Europe. These include 10 new infected premises (IPs) confirmed with HPAI H5N1 in England; five in commercial poultry, three in non-commercial backyard poultry and two in captive wildlife premises. There have been 43 further HPAI H5 events detected in wild birds in Great Britain (GB) since our last assessment.

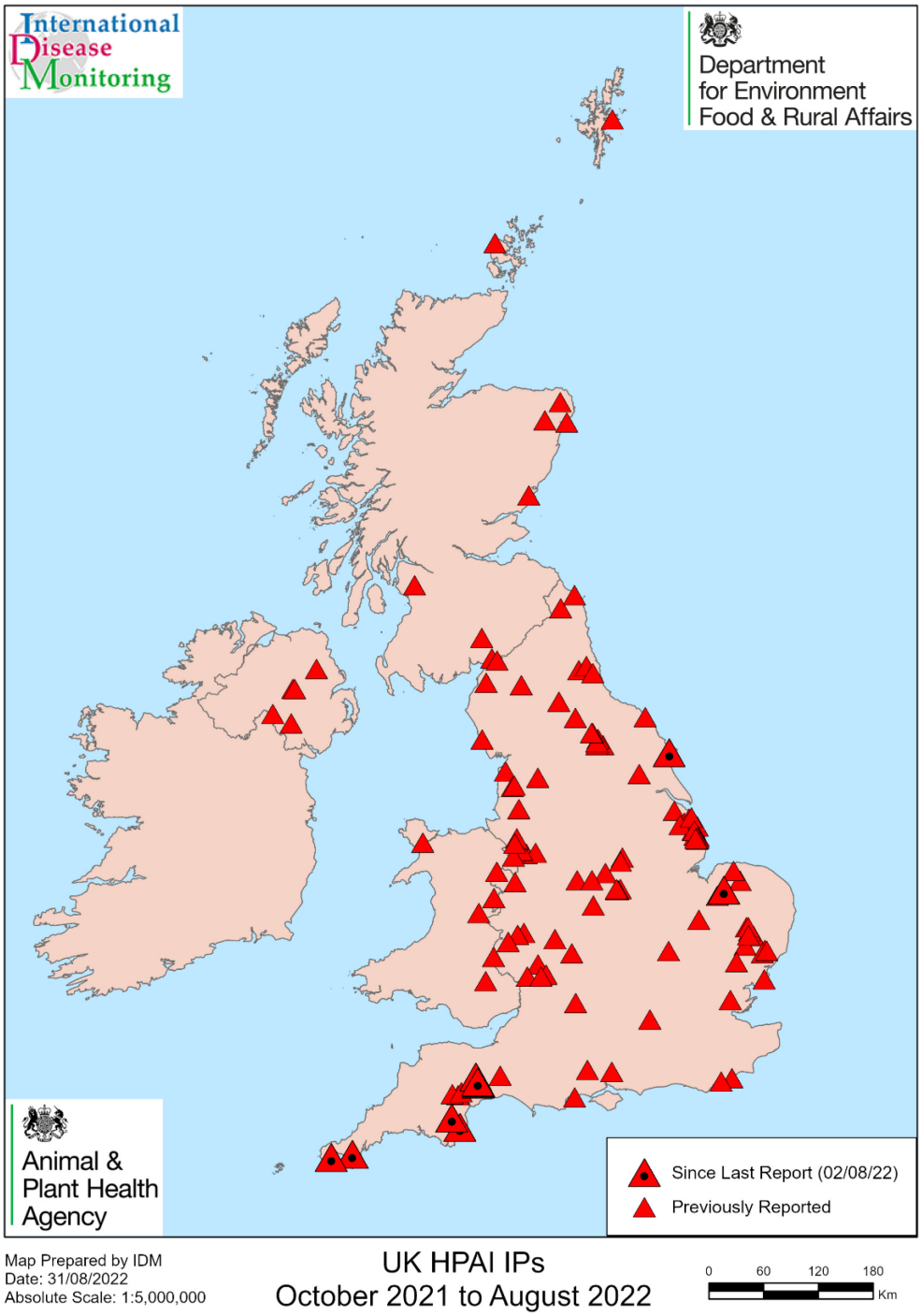
Across Europe, HPAI continues to be reported in domestic poultry and wild birds, though the number of detections reported by the EU reference laboratory (IZSVe) has decreased week by week throughout August.

For the first time, HPAI H5N1 has been maintained in bird populations over the summer months in GB, with the wild bird risk maintained at medium and risk to poultry at low (with low uncertainty where biosecurity is stringent and high uncertainty where biosecurity is poor). However, there will be regional variation, based on the proximity to aggregation sites.

Although the GB-wide Avian Influenza Protection Zone (AIPZ) was lifted on 16 August 2022, a regional AIPZ was subsequently declared in Cornwall, Devon and parts of Somerset on 31 August 2022 following eight IPs being confirmed in the region.

As we head towards the winter months wild bird migrations will become more significant once again, with ongoing events across Europe and North America of concern in regard to implications to the UK. We will continue to monitor the situation.

Map 1: HPAI H5 outbreaks in domestic poultry[1] and captive birds across the United Kingdom, October 2021 to 01 September 2022



[1] According to the 2021 WOAH definition of poultry: Terrestrial Code Online Access - WOAH - World Organisation for Animal Health

Situation assessment

United Kingdom

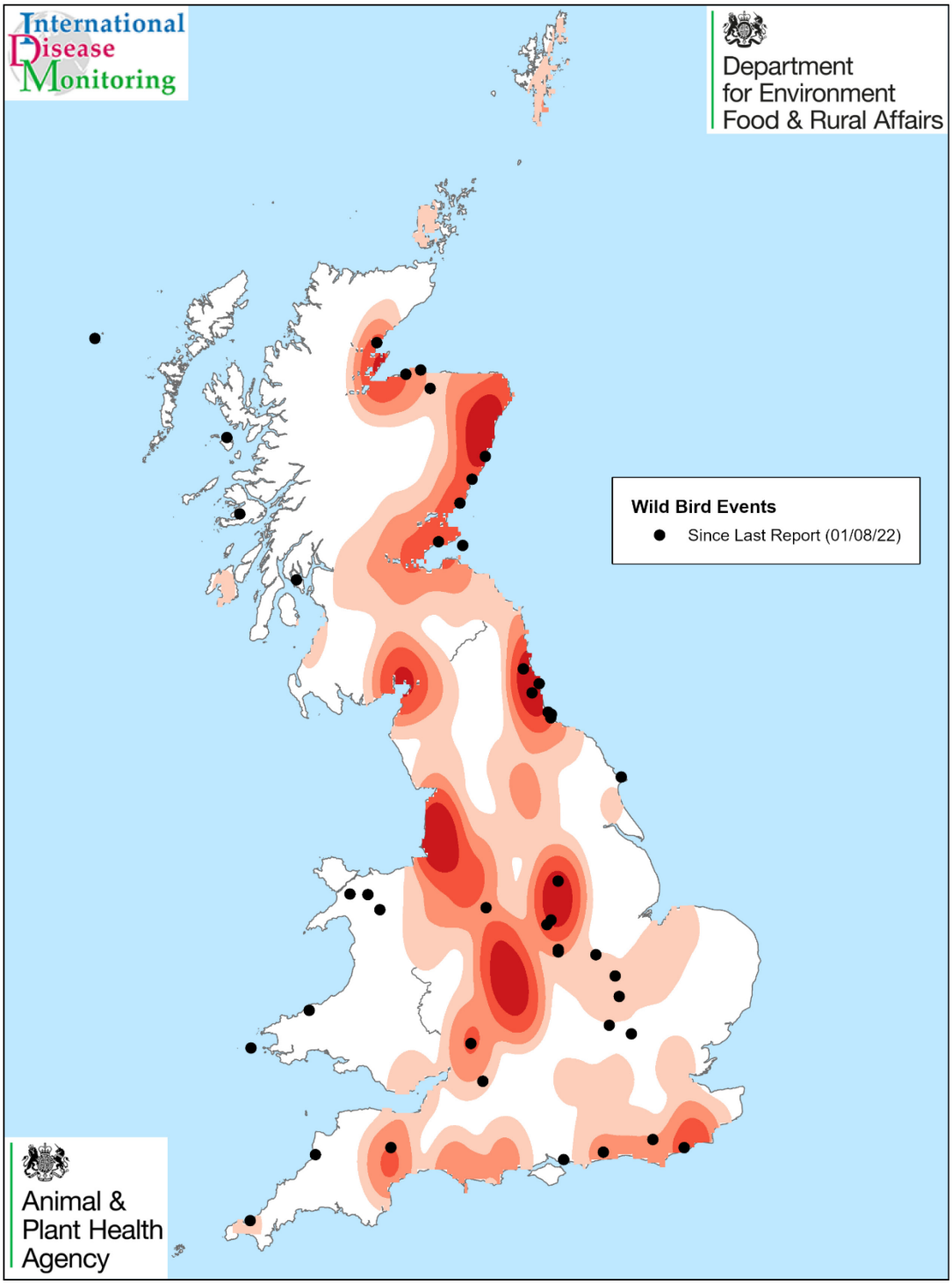
Since the first HPAI H5N1 detection on 15 October 2021, there have been 130 further confirmed IPs with HPAI H5N1 in poultry and captive birds across Great Britain (Map 1), (Table 1). Of these 131 IPs in total, 115 have occurred in England, 11 have occurred in Scotland (including the Scottish Islands), and five in Wales. The AIPZ, which required personnel working with poultry and hobbyists to take additional biosecurity measures, was lifted across England, Wales and Scotland on 16 August 2022. However, a regional AIPZ was subsequently declared on 31 August across Cornwall, Devon and parts of Somerset following the recent increase in the number of detections of HPAI in poultry, captive and wild birds in the area.

Since our last assessment on 01 August 2022, HPAI H5N1 has been confirmed at five further commercial premises in England: three in Devon, one in Norfolk and one in East Yorkshire. The three commercial IPs in Devon comprised of laying ducks, ducks and quail, and a rearing turkey premises. The commercial IPs in Norfolk and East Yorkshire had fattening geese and fattening turkeys, respectively.

The outbreaks in non-commercial backyard poultry occurred in two premises in Devon, one with chickens and one with mixed birds, the third outbreak was in backyard laying hens in Cornwall. Infection with HPAI was also confirmed in a wild bird hospital located in Cornwall and a zoo in Devon.

There have been no new premises with HPAI H5N1 confirmed in Northern Ireland (NI) since our last report on 01 August 2022 (DAERA, 2022). There have been two further confirmed cases of HPAI in wild birds in NI since our last report. As of 26 August 2022, the number of wild bird findings of HPAI H5 in Northern Ireland is 19 (IZSVe, 2022).

Map 2: Map showing the relative density of, and most recent HPAI H5 positive findings in, wild birds across Great Britain October 2021 to 01 September 2022

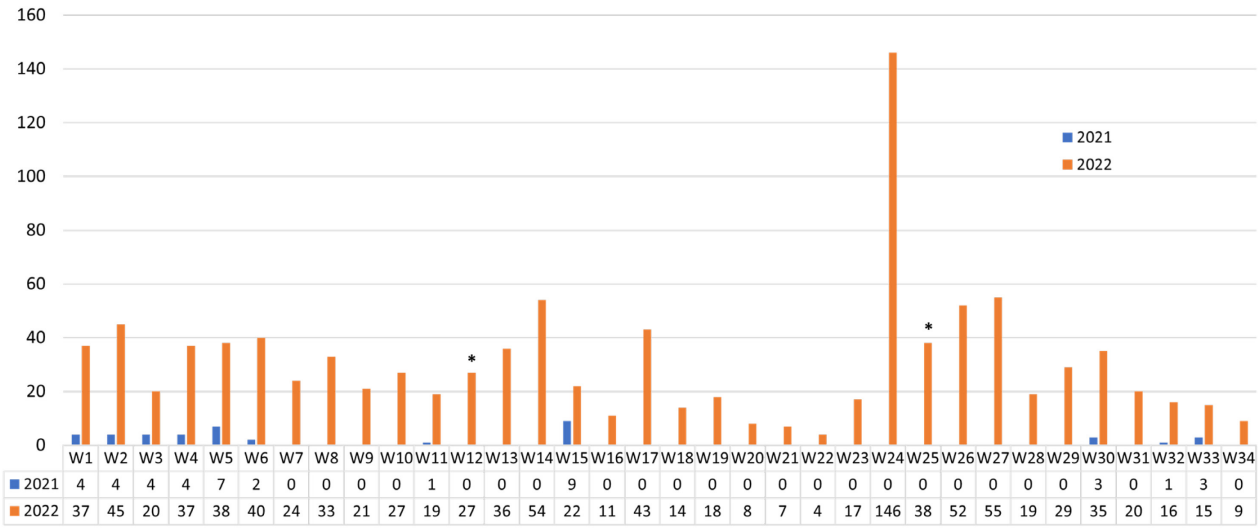


Since our last outbreak assessment on 01 August 2022, HPAI H5 has been detected in wild birds in 43 locations in Great Britain and the Scottish Isles, 18 of which have not had HPAI reported in wild birds previously. This brings the total to 372 separate wild bird positive locations, including 56 wild bird species (listed in Table 2), in 82 counties. The total number of positive wild bird findings is 1,578, with most in England (Table 2). The findings reported since 01 August were widespread across Great Britain with both coastal and inland locations. Most of these findings (47) were seabird species at coastal sites, although findings in waders (27) and raptors (13) have also been detected since our last assessment.

The majority of wild birds that have tested positive for HPAI H5 in Great Britain during the 2021 to 2022 season have been infected with the H5N1 strain. There have been many more reports between January and August 2022 compared to the same period in 2021, the sustained transmission and circulation of HPAI virus in breeding birds over the summer of 2022 is unprecedented in GB (Figure 1).

There have been 84 cases for which the HPAI H5 genotype has been identified, but characterisation of neuraminidase (NA) subtype is in progress due to low viral loads in samples. The NA could not be determined for a total of eight H5 HPAI samples from wild birds, due to very low viral loads.

Figure 1: Wild bird HPAI H5N1 positives per week across Great Britain: January to August 2021 and 2022. Asterisks denote changes in surveillance sensitivity[1]. For earlier data from both HPAI seasons, see our previous outbreak assessment.



	W1	W2	W3	W4	W5	W6	W7	W8	W9	W10	W11	W12	W13	W14	W15	W16	W17	W18	W19	W20	W21	W22	W23	W24	W25	W26	W27	W28	W29	W30	W31	W32	W33	W34
2021	4	4	4	4	7	2	0	0	0	0	1	0	0	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	1	3	0
2022	37	45	20	37	38	40	24	33	21	27	19	27	36	54	22	11	43	14	18	8	7	4	17	146	38	52	55	19	29	35	20	16	15	9

[1]Increased sensitivity of surveillance in England in week 12 and decreased sensitivity of surveillance in heavily affected seabird populations across Great Britain in week 25.

The species of wild birds affected by HPAI in mainland Great Britain have varied throughout the 2021 to 2022 season, including a greater variety of wild bird species overall compared to previous seasons (in 2020/21 315 birds, 30 species, in 43 counties). For further information on the “order shift” of HPAI during the 2021/2022 epizootic season, see our previous outbreak assessment.

The increased number of cases in sea birds observed over the summer may have been in part due to auk species such as guillemot being closely packed at breeding sites on vertical cliff faces, rather than dispersed out to sea. As breeding colonies disperse over the coming weeks, seabird cases of HPAI may be anticipated to decrease. The detections observed in waders and raptors in inland locations throughout August suggest possible reinfection from the coastal birds, which may be via gulls visiting coastal sites then travelling inland. Although there have been higher than average temperatures throughout the summer, the potential for environmental contamination with HPAI cannot be discounted, especially given the unprecedented scale of infection pressure observed at coastal locations. For further details, please see the report (updated weekly) on findings of HPAI in wild birds in Great Britain and Northern Ireland.

As of 01 September 2022, there has been a total of 57 wild bird HPAI findings from across the Scottish islands of Shetland (36), Orkney (12) and the Western Isles (9).

Europe

Across Europe, the number of poultry IPs reported weekly by IZSVe is still very low at one to five per week (Figure 2). The weekly number of HPAI cases in wild birds has decreased from the peak of over 100 in week 26, with fewer than 20 cases reported in week 34 (Figure 2). The total number of weekly reports of HPAI H5 in domestic poultry and particularly wild birds across Europe throughout the summer of 2022 (weeks 20 to 34) has been consistently higher than the numbers reported for the same period in 2021 (Figure 3), with fewer than 40 reports in week 20, then fewer than 10 reports from week 27 to week 34.

Figure 2: Number of HPAI positive events reported in poultry, captive and wild birds each week in Europe from October 2021 to 26 August 2022 (IZSVe, 2022)

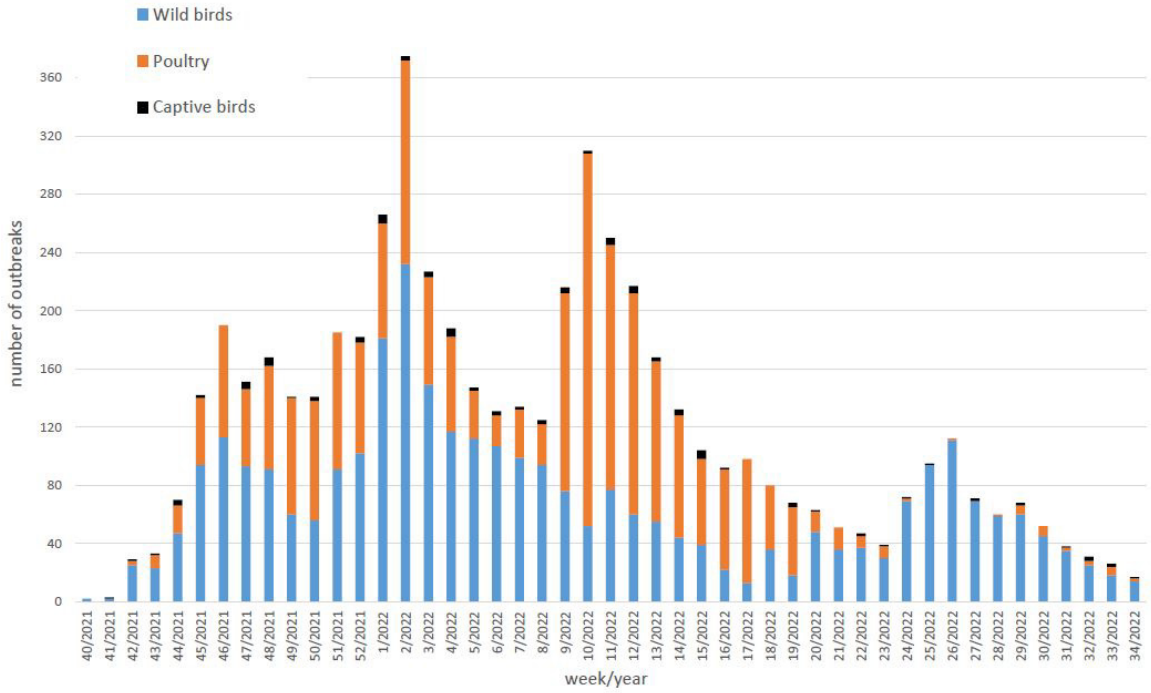
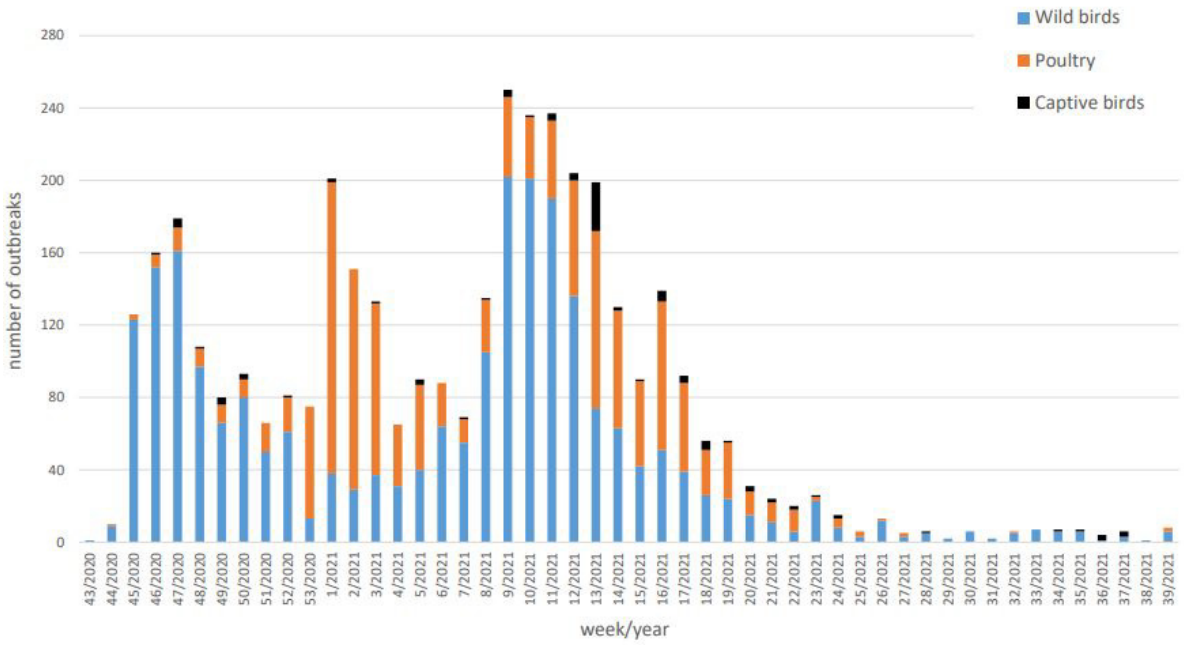


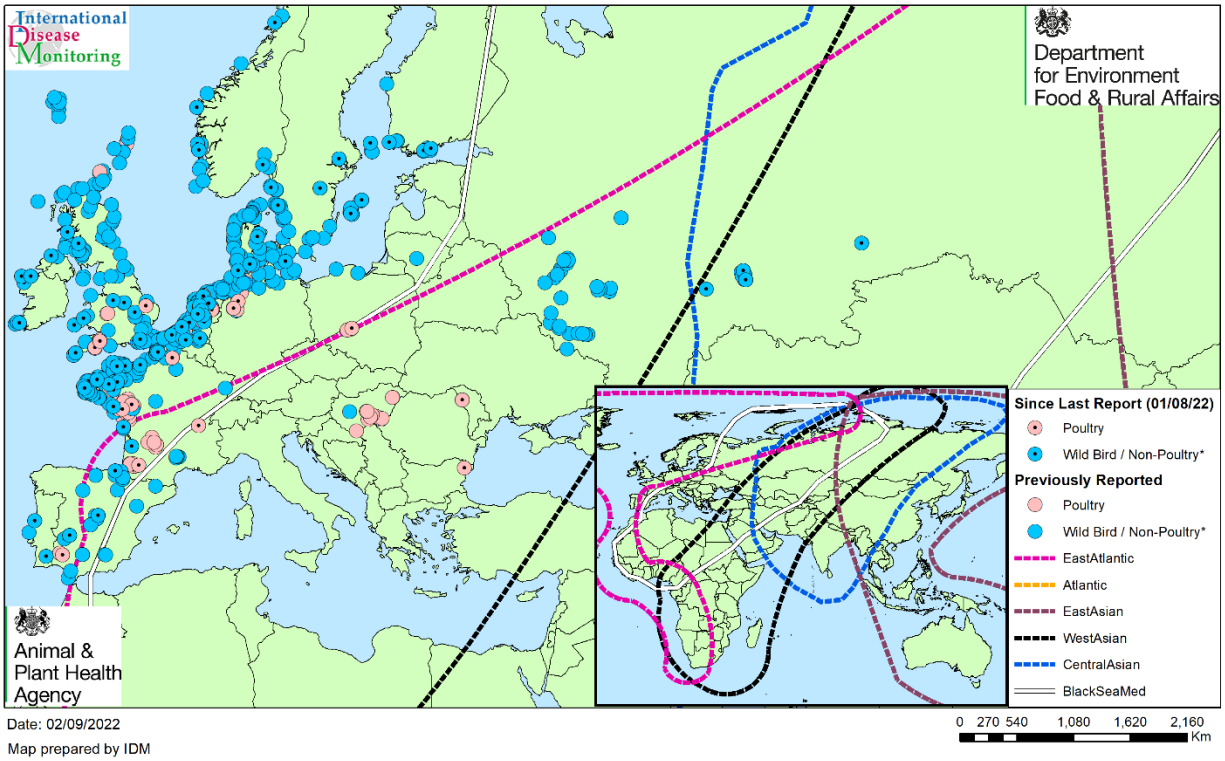
Figure 3: Number of HPAI positive events reported in poultry, captive and wild birds each week in Europe from October 2020 to 07 October 2021 (IZSVe, 2021)



Map 3 shows the distribution of HPAI H5 outbreaks in poultry and captive birds, together with cases in wild birds, in Europe, reported by WOAH between 01 June 2022 and 01 September 2022. Those events reported since our last outbreak assessment on 01 August are identified with black central dots.

All cases of HPAI H5 that have been reported by WOAH since 01 August 2022 have been of the subtype H5N1, with the exception of a flock of backyard birds in Moldova for which neither the species kept nor the avian influenza subtype was reported. Throughout this 2021 to 2022 epizootic, several HPAI subtypes have been reported in Europe including H5N1, H5N8 and H5N2 in domestic poultry and wild birds. Furthermore, HPAI subtypes H5N3 and H5N5 have also been reported in wild birds only across Europe. For details on reporting countries of the different subtypes see our previous assessments. This evident circulation of several HPAI subtypes within Europe poses potential for either new subtypes entering Great Britain due to migratory waterfowl in the coming months, or potential mutation and modification of the virus.

Map 3: HPAI outbreaks (from WOAH) in poultry, captive, and wild birds across Europe, 01 June 2022 to 01 September 2022.



Implications for GB

The ongoing situation with HPAI H5N1 in breeding birds over the summer months in GB and north-west Europe is unprecedented. In previous years, HPAI has generally not been detected in wild birds in the summer months, and certainly not maintained in breeding bird species. The national risk level for HPAI H5 in wild birds is typically at low at this time of year (late August) in GB. However, this summer that risk level has been assessed as medium with no evidence to lower it.

The number of wild bird cases in Europe has been decreasing since the unprecedented third peak of over 100 in week 26 (Figure 2). Most of the wild bird cases are in northern Europe, running along the English Channel through the northern coast of France and Belgium into The Netherlands, northern Germany and as far east as southern Sweden (Map 3). It should be noted that trends in wild bird cases in Europe are of minimal significance as a predictor for UK incursions at this time of year, although this will

change over the next month as migratory ducks, geese and swans arrive to overwinter, many of them flying through the Baltic and west through the Netherlands to GB. The presence of HPAI in wild birds in northern Europe at this time of year is therefore of concern as a potential source of infection for ducks, geese and swans migrating west to the UK this autumn. Furthermore, there are ongoing cases of H5N1 in wild birds along the north coast of Norway through where migrating Barnacle geese from Svalbard will migrate to wintering sites in Scotland this autumn. For the first time, H5N1 is present over the summer in breeding wild birds in Iceland and Jan Mayen Island (east of Greenland), through where whooper swan and geese species (pink-footed geese) will migrate to the UK and Republic of Ireland this autumn. In addition, HPAI H5N1 has been circulating in North America over the 2021/2022 season, with potential to bring H5N1 virus to their breeding sites in north-west Greenland where, over the summer, mixing may have occurred with light-bellied brent geese which overwinter in Ireland and will return to Ireland in the next few months. Auks infected with H5N1 have been detected in Canada as far north as the north of Hudson Bay (Coat's Island) this summer.

Residual infectivity from affected seabird colonies at coastal sites in southern and eastern England could serve as a source of infection for the dark-bellied brent geese and pink-footed geese which overwinter in the UK. These geese will be returning from their summer breeding sites (along the arctic coast of Russia for dark bellied brent geese, Iceland and Greenland for the pink-footed geese) in late September and early October.

The recent mass mortality events observed in seabirds appears not to have posed the same level of onward risk to the GB and EU poultry population as the migratory waterfowl species and the poultry risk appears to have become uncoupled from the wild bird risk. This is in part due to the specialised nesting and feeding behaviours of seabirds. Poultry outbreaks have continued to decrease both in Europe and the UK during August after the unprecedented number of outbreaks in the winter 2021/spring and summer 2022 season. This has perhaps been due to high temperatures, and long hours of sunlight inactivating the virus and so reducing environmental spread at inland sites. Also, seabirds such as auks, some gulls species and gannets are continuing to leave their breeding colonies at coastal breeding sites with the birds flying out to sea for the winter, and it is expected that the transmission in seabirds will reduce significantly next month. While seabirds typically forage in the sea, gull species may fly inland and scavengers such as raptors and corvids could bring infection inland from affected coastal sites. These inland cases together with the affected gull colonies in coastal areas present a period of uncertainty and warrant maintaining the national risk level for HPAI H5 in wild birds at medium. Indeed, this August, several resident GB wild birds

including mallard ducks, pheasants, Canada geese and mute swans have been infected and may serve as a source of infection to poultry particularly where biosecurity is poor.

Though there are gaps in scientific knowledge, the direct risk to GB poultry from infected seabirds at coastal locations is currently (01 September 2022) estimated to be low despite the medium risk of infection in wild birds.

While the risk from wild birds may have been uncoupled from the risk to poultry as seabirds do not fly inland, the possible spill-over of infections to resident wild birds at inland sites may represent a shift in wild bird species that begins to restore the coupling to poultry. The strength of the coupling between wild bird risk and poultry risk will increase as wild migratory waterbirds begin to arrive this autumn and will be closely monitored.

It is imperative that biosecurity is maintained to the highest extent possible to mitigate against the ongoing risk of infection posed by wild birds across the UK, especially since the infection pressure in wild birds is anticipated to increase in the coming months. The ongoing wild bird infection pressure will likely expose any weaknesses that exist, even where biosecurity is good.

Conclusion

Cases of HPAI H5 in wild birds and confirmations in poultry premises have continued to be reported across Europe and in Great Britain (GB) since our last assessment.

There have been 1,578 confirmed cases of HPAI H5 in wild birds in Great Britain to 01 September 2022 across a range of species, with multiple detections in wild birds in the last four weeks (Figure 1). The overall number of detections in wild birds and the wild bird infection pressure are still greatly elevated for this time of year but have been decreasing in recent weeks (Figure 1).

The mass die-offs this summer together with sustained transmission in breeding birds over the summer in GB and Europe is unprecedented. Even though the migratory waterbirds departed the UK almost six months ago, infection is maintained in tightly packed seabird colonies at coastal sites and in some resident birds at inland sites. There are now many immunologically naïve, susceptible, resident bird species in the UK which could become infected from residual environmental contamination and from spill-over from seabirds. Furthermore, the number of these susceptible birds will increase as the juvenile birds from this season fledge and disperse.

The risk of HPAI H5 infection in wild birds in GB remains at **MEDIUM**.

The risk of exposure of poultry across the whole of GB is maintained at **low** with low uncertainty where biosecurity is stringent, but with high uncertainty where biosecurity is suboptimal. The high uncertainty reflects that there may be differences based on geographical location i.e., coastal areas and also wild bird movements between the coast and inland sites at this time of year, as has been observed with recent IP's declared in the south west of England.

On 24 November 2021, the Chief Veterinary Officers for England, Scotland, Wales, and Northern Ireland announced housing measures, which came into force on the 29 November 2021. The housing measures were subsequently lifted across the UK on Monday 2 May 2022. Although the GB-wide AIPZ was lifted on 16 August 2022, a regional AIPZ was subsequently declared in Cornwall, Devon and parts of Somerset on 31 August 2022.

We are continuing to closely monitor the situation and reviewing the risk.

It is particularly important that stringent adherence to good biosecurity practices is still maintained, even though the outbreak appears to be waning and sunnier, warmer weather is forecast. Strict attention should be made to ensure compliance with reviewed contingency plans, with regular maintenance checks and repairs being carried out promptly not only on buildings, but to fencing and boundaries of outdoor areas to minimise contact with wild birds.

Reinforcement of good biosecurity awareness behaviours and practices should be a constant reminder to all personnel working with birds; any lapse of these measures could still easily result in disease being introduced to poultry and captive birds. Special consideration should be made when bringing in equipment and materials, especially bedding and outer packages which may have become contaminated following environmental exposure whilst stored outside.

If you keep poultry (including game birds or as pets), you should follow our biosecurity best practice advice on GOV.UK

Remain vigilant for any signs of disease in your flock and report any suspicious clinical signs of avian influenza to the Animal and Plant Health Agency.

- In England contact 03000 200 301
- In Wales, contact 0300 303 8268
- In Scotland, contact your local field services office

Further guidance about Avian Influenza including updated biosecurity advice for poultry keepers, in:

- England is available on GOV.UK
- Wales, is available on the Welsh Government's website
- Scotland, is available on the Scottish Government's website
- North Ireland is available on DAERA's website

The WOAH, FAO International Reference Laboratory and the UK National Reference Laboratory at Weybridge has the necessary diagnostic capability for strains of avian influenza virus, whether of low or high pathogenicity, and continually monitors changes in the virus on a wide scale whilst utilising global networks to gain early insights to epidemiological trends and potential emergence of new genotypes which might change the risk profile.

We will continue to report on any updates to the situation in Europe and in particular, any changes in disease distribution or wild bird movements which may increase the risk to the UK.

In England, Scotland and Wales, any findings of the following dead wild birds found at the same location at the same time should be reported to the Wild bird Helpline (Telephone: 03459 33 55 77 – select option 7):

- 3 or more swans, geese, ducks, gulls and waders
- Any number of birds of prey, including owls
- five or more birds of any species

It is advisable that you do not touch these birds.

Appendix 1: Current poultry[1] and captive bird premises with High Pathogenicity Avian Influenza (HPAI) H5N1 in Great Britain and Scottish Isles as of 01 September 2022. For outbreaks which were resolved before 05 August, see our previous outbreak assessment

Outbreak Number	Date HPAI H5N1 confirmed	Location, County	Description	Date resolved[2]
117	21 June 2022	Near Hastings, East Sussex	Wildlife rehabilitation centre	05 August 2022
118	6 July 2022	Near Birsay, Orkney	Backyard chickens	08 August 2022
119	8 July 2022	Near Tiverton, Devon	Backyard mixed species	10 August 2022
120	23 July 2022	Near Newton Abbott, Devon	Commercial broiler	
121	28 July 2022	Near Sandy, Bedfordshire	Mixed ornamental duck & geese	
122	05 August 2022	Near Ashburton, Devon	Backyard chickens	
123	07 August 2022	Near Cullompton, Devon	Commercial laying ducks	
124	09 August 2022	Near Cullompton, Devon	Commercial ducks and quail	
125	10 August 2022	Near Tiverton, Devon	Backyard mixed species	

Outbreak Number	Date HPAI H5N1 confirmed	Location, County	Description	Date resolved[2]
126	19 August 2022	Near Newlyn, Cornwall	Wild bird hospital	
127	21 August 2022	Near Gayton, Norfolk	Commercial fattening geese	
128	26 August 2022	Near Cullompton, Devon	Commercial rearing turkeys	
129	28 August 2022	Near Bridlington, East Yorkshire	Commercial fattening turkeys	
130	30 August 2022	Near Paignton, Devon	Zoo	
131	30 August 2022	Near Constantine, Cornwall	Backyard laying hens	

[1] According to the 2021 WOAH definition of poultry: Terrestrial Code Online Access - WOAH - World Organisation for Animal Health

[2] Date resolved refers to the date when all disease control restrictions (3km Protection Zone, 10km Surveillance Zone, 3km Captive Bird Monitoring Controlled Zone) have been removed from the premises

Appendix 2: Wild bird species in Great Britain that have tested positive for HPAI H5 as of 01 September 2022

Region and species	Total number of birds testing positive
England (below)	**929**
Arctic Tern	1
Barnacle Goose	13
Bewick's Swan	1
Black headed gull	36
Black Swan	2
Canada Goose	165
Common Buzzard	64
Common Eider	1
Common Tern	8
Coot	2
Cormorant	4
Curlew	3
Gadwall	1
Gannet	28
Goshawk	1
Great-crested Grebe	3
Grey Heron	3
Greylag goose	41
Guillemot	15
Gull sp.	11
Hen Harrier	3
Herring Gull	94
Kestrel	6
Kittiwake	9
Lapwing	1
Little Egret	1
Little Gull	1
Magpie	1
Mallard Duck	20
Moorhen	5
Mute Swan	248
Oystercatcher	1
Peregrine Falcon	6
Pheasant	8
Pied Wagtail	6
Pink Footed goose	18

Region and species	Total number of birds testing positive
Puffin	1
Razorbill	1
Red Kite	3
Rock Dove	1
Roseate Tern	1
Sandwich Tern	9
Sea Eagle	1
Sparrowhawk	8
Tawny Owl	3
Tufted Duck	1
Unidentified Swan	17
Unspecified Dove	2
Unspecified Duck	1
Unspecified Goose	16
White Fronted Goose	1
Whooper Swan	31
Widgeon	1
Wales (below)	**54**
Black headed gull	1
Canada Goose	4
Carrion Crow	2
Common Buzzard	4
Curlew	1
Gannet	4
Goshawk	1
Greylag goose	1
Hen Harrier	3
Herring Gull	4
Mute Swan	15
Peregrine Falcon	1
Pheasant	5
Rock Dove	1
Sparrowhawk	1
Unidentified Swan	1
Unspecified Goose	5
Scotland (below)	**595**
Arctic Tern	5
Barnacle Goose	34
Bird of Prey Unspecified	5
Black headed gull	2

Region and species	Total number of birds testing positive
Blackbird	1
Canada Goose	3
Common Buzzard	64
Common Eider	16
Gannet	113
Golden Eagle	2
Great black backed gull	4
Great Northern Diver	1
Great skua	22
Greylag goose	26
Guillemot	52
Gull sp.	18
Herring Gull	16
Kestrel	1
Kittiwake	5
Magpie	1
Mallard Duck	1
Manx Shearwater	1
Mute Swan	28
Pink Footed goose	80
Puffin	4
Razorbill	3
Red Kite	3
Sandwich Tern	1
Sea Eagle	5
Sparrowhawk	5
Unidentified Swan	16
Unspecified Crow	1
Unspecified Duck	2
Unspecified Goose	42
Unspecified Gull	1
Unspecified Skua	1
Unspecified waterfowl	1
Whooper Swan	9
Wood Pigeon	1
Grand Total	**1,578**

Authors

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References

All outbreaks and cases were taken from the World Organisation for Animal Health (WOAH). Please note that changes in format and level of detail are due to the change of data source for this report, from EU's Animal Disease Notification System (ADNS) to World Organisation for Animal Health (WOAH).

- DAERA (2022) Department of Agriculture, Environment and Rural Affairs Avian influenza information page

- IZSVe (2021) IZSVe report - Number of highly pathogenic avian influenza positive events notified by country and poultry category (pdf)

- IZSVe (2022) IZSVe report - Number of highly pathogenic avian influenza positive events notified by country and poultry category (pdf)

This publication is available at https://www.gov.uk/government/collections/animal-diseases-international-monitoring

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