Updated Outbreak Assessment #26

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

23 May 2022 Ref: VITT/1200 HPAI in the UK and Europe

Disease report

Since our last outbreak assessment on 10 May 2022, there have been reports of high pathogenicity avian influenza (HPAI) H5 both in Europe and in the United Kingdom (UK). This includes one further confirmed infected premises (IP) with HPAI H5N1 in domestic poultry in the UK. In Europe, HPAI continues to be reported in domestic poultry and wild birds.

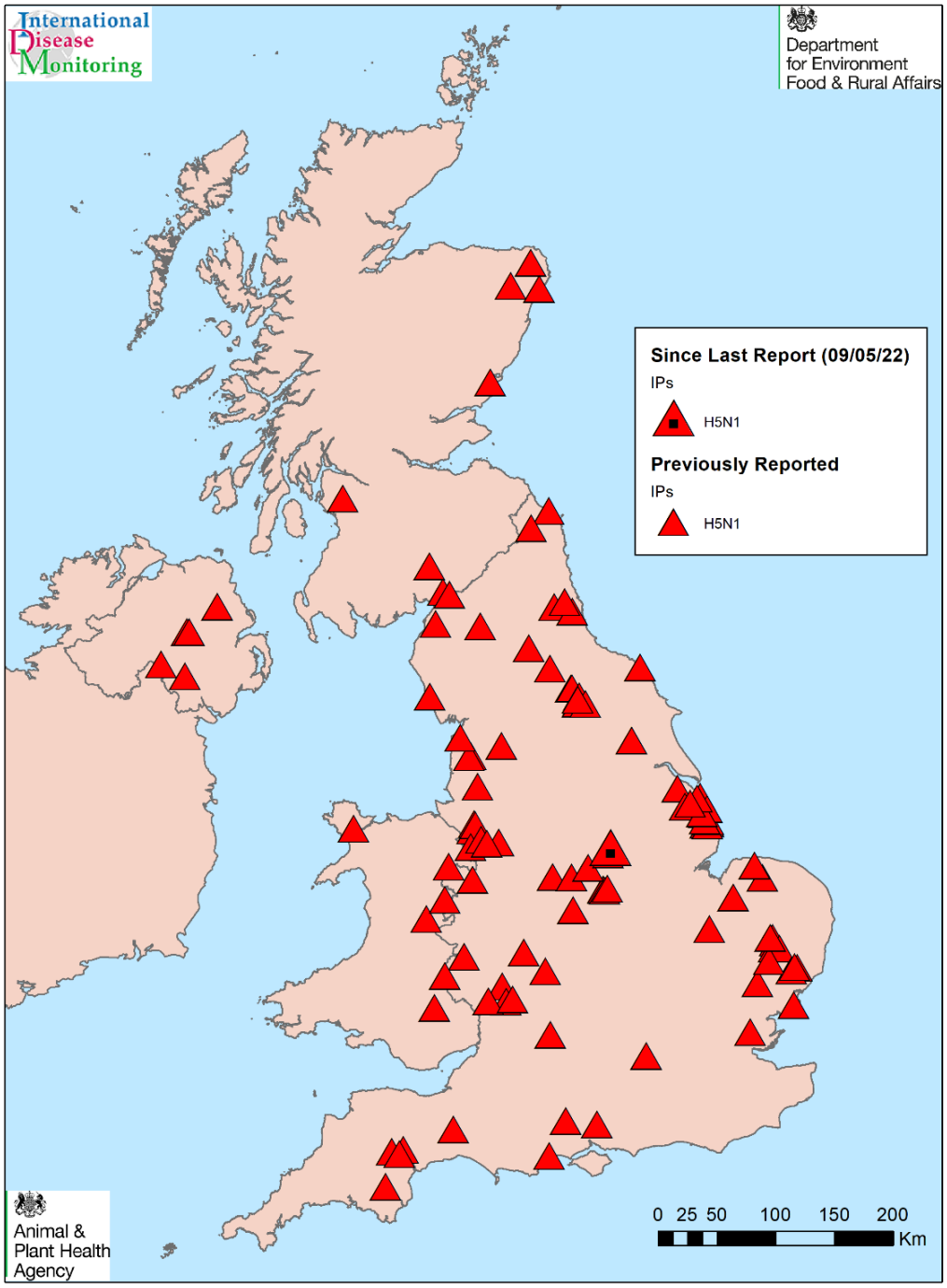
One new IP with HPAI H5N1 in domestic poultry has been confirmed in England and eight further HPAI H5 events have been detected in wild birds in Great Britain (GB) since our last assessment. There have been no further HPAI H5N1 IPs confirmed in Northern Ireland since our last assessment (DAERA, 2022). A total of seven wild bird findings have been reported for Northern Ireland, during this 2021 to 2022 outbreak season (IZSVe, 2022).

The OIE has also reported new IPs with HPAI H5N1 in domestic poultry in the Czech Republic, Germany and Hungary since our last report.

Wild bird cases of HPAI H5N1 continue to be reported in the Czech Republic, Finland, Germany and Spain.

The OIE has also reported untyped HPAI in domestic poultry in Bulgaria and Moldova, as well as HPAI H5N5 in wild birds in Norway.

Map 1: HPAI H5 outbreaks in domestic poultry[1] and captive birds across the United Kingdom, October 2021 to 23 May 2022.



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

Situation assessment

United Kingdom

The first detection of HPAI H5N1 virus during this 2021 to 2022 HPAI season was in rescued wild swans and captive poultry at a swan sanctuary in Worcester (England) on 15 October 2021. An AIPZ was declared in England, Wales and Scotland on 3 November 2021, requiring personnel working with poultry and hobbyists to take additional biosecurity measures. Additional housing measures came into force from 29 November 2021. These housing measures were lifted on 2 May 2022 but the AIPZ remains in place.

Since the first HPAI H5N1 detection on 15 October 2021, there have been 111 further confirmed IPs with HPAI H5N1 in poultry and captive birds across Great Britain (Map 1), (Table 1). Of these 112 IPs in total, 98 have occurred in England, nine have occurred in Scotland, and five in Wales.

Since our last assessment on 10 May 2022, HPAI H5N1 has been confirmed at one further poultry premises in England. The new IP was a commercial smallholder premises with chickens and ducks in Nottinghamshire.

There have been no new premises with HPAI H5N1 confirmed in Northern Ireland since our last report on 10 May 2022. The total number of poultry IPs in Northern Ireland remains at six: across the counties of Tyrone, Antrim, Armagh and Fermanagh.

Table 1: Poultry[1] and captive bird premises with High Pathogenicity Avian Influenza (HPAI) H5N1 in Great Britain during the epizootic since 1 October 2021, as of 23 May 2022

Outbreak Count	Date HPAI H5N1 confirmed	Location, County	Description	Date resolved[2]
1	27 October 2021	Near Wychavon, Worcester	Rescued wild swans (adults and young), rescued and captive geese, ducks, and chickens.	27 November 2021
2	2 November 2021	Near Chirk, Cheshire	Backyard chickens	3 December 2021

Outbreak Count	Date HPAI H5N1 confirmed	Location, County	Description	Date resolved[2]
3	4 November 2021	Near Arbroath, Angus	Mixed backyard flock of 16 chickens, 20 guinea fowl and 12 ducks.	5 December 2021
4	8 November 2021	Near Alcester, Bidford	Small flock of 31 turkeys and 19 chicken	8 December 2021
5	11 November 2021	Near Kirby Cross, Essex	Small flock of mixed geese, chickens, guinea fowl	17 December 2021
6	12 November 2021	Near Preston, Lancashire	Commercial turkey premises	29 December 2021
7	13 November 2021	Near Northallerton, North Yorkshire	Commercial free range laying hens	5 March 2022
8	16 November 2021	Near Preston, Lancashire	Backyard chickens	29 December 2021
9	17 November 2021	Near Willington, Derbyshire	Commercial turkey premises	14 February 2022
10	19 November 2021	Near Pokesdown, Bournemouth	Backyard ducks	20 December 2021
11	19 November 2021	Near Silecroft, Cumbria	Commercial free range laying hens	4 January 2022
12	21 November 2021	Near Mouldsworth, Chester	Commercial turkey premises	8 March 2022

Outbreak Count	Date HPAI H5N1 confirmed	Location, County	Description	Date resolved[2]
13	21 November 2021	Near North Fambridge, Essex	Small flock of mixed geese, chickens, ducks	22 December 2021
14	21 November 2021	Near Holkham, Norfolk	Small flock of mixed chickens and turkeys	24 December 2021
15	21 November 2021	Near Thirsk, Yorkshire	Commercial turkey premises	5 March 2022
16	25 November 2021	Near Thirsk, Yorkshire	Commercial free range laying hens	5 March 2022
17	25 November 2021	Near Thirsk, Yorkshire	Commercial turkey premises	5 March 2022
18	26 November 2021	Near Loughborough, Leicestershire	Commercial free range laying hens	4 February 2022
19	26 November 2021	Near Thirsk, Yorkshire	Commercial turkey premises	5 March 2022
20	27 November 2021	Near Blackpool, Lancashire	Mixed ornamental birds	20 February 2022
21	26 November 2021	Near Anglesey, Wales	Backyard hobby farm	27 December 2021
22	26 November 2021	Near Clitheroe, Lancashire	Mixed captive birds	9 February 2022
23	28 November 2021	Near Thirsk, Yorkshire	Backyard hobby farm	5 March 2022

Outbreak Count	Date HPAI H5N1 confirmed	Location, County	Description	Date resolved[2]
24	29 November 2021	Near Thirsk, Yorkshire	Commercial turkey premises	5 March 2022
25	01 December 2021	Leicestershire	Commercial free range laying hens	4 February 2022
26	02 December 2021	Near Thirsk, Yorkshire	Commercial free range laying hens	5 March 2022
27	02 December 2021	Staffordshire	Backyard hobby farm	29 January 2022
28	02 December 2021	Herefordshire	Commercial broiler farm	14 January 2022
29	04 December 2021	Dumfries	Commercial laying hens	18 January 2022
30	04 December 2021	Powys	Mixed captive birds	10 January 2022
31	04 December 2021	Yorkshire	Backyard turkeys	6 February 2022
32	04 December 2021	Gloucestershire	Wildfowl Park	24 January 2022
33	04 December 2021	Yorkshire	Commercial laying hens	5 March 2022
34	06 December 2021	Leicestershire	Commercial laying hens	4 February 2022
35	07 December 2021	Leicestershire	Commercial laying hens	4 February 2022

Outbreak Count	Date HPAI H5N1 confirmed	Location, County	Description	Date resolved[2]
36	07 December 2021	Near Pocklington, East Yorkshire	Commercial ducks	19 February 2022
37	08 December 2021	Near Sudbury, South Suffolk	Commercial laying hens	26 January 2022
38	08 December 2021	Near Thirsk, North Yorkshire	Commercial turkeys	5 March 2022
39	09 December 2021	Cumbria	Commercial laying hens	31 January 2022
40	09 December 2021	Dumfries	Backyard mixed species	16 January 2022
41	10 December 2021	Near Moffat, Dumfriesshire	Backyard mixed species	14 January 2022
42	10 December 2021	Near Highworth, Wiltshire	Commercial turkeys	29 January 2022
43	10 December 2021	Near Clifford, Herefordshire	Commercial turkeys	25 January 2022
44	11 December 2021	Near Washington, Sunderland, Tyne & Wear	Mixed wildfowl	6 March 2022
45	11 December 2021	Near Alford, Lincolnshire	Commercial laying hens	24 March 2022
46	11 December 2021	Near Willington, Derbyshire	Mixed poultry	14 February 2022
47	12 December 2021	Near Alford, Lincolnshire	Commercial laying hens	24 March 2022

Outbreak Count	Date HPAI H5N1 confirmed	Location, County	Description	Date resolved[2]
48	12 December 2021	Near Alford, Lincolnshire	Commercial laying hens	24 March 2022
49	14 December 2021	Near Middleton-in-Teesdale, County Durham	Backyard chickens	17 February 2022
50	14 December 2021	Near Pocklington, Yorkshire	Commercial ducks	19 February 2022
51	14 December 2021	Near Alford, Lincolnshire	Commercial laying hens	24 March 2022
52	14 December 2021	Near Alford, Lincolnshire	Commercial broiler breeder and laying hens	24 March 2022
53	15 December 2021	Near Atherstone, Leicestershire	Backyard mixed species	9 February 2022
54	15 December 2021	Near Wem, Shropshire	Commercial mixed species	9 February 2022
55	15 December 2021	Near Lockerbie, Dumfries and Galloway	Backyard mixed species	18 January 2022
56	16 December 2021	Near Alford, Lincolnshire	Commercial chickens	24 March 2022
57	16 December 2021	Near Thirsk, Yorkshire	Commercial broiler chickens	5 March 2022
58	16 December 2021	Near Alford, Lincolnshire	Commercial laying hens	24 March 2022

Outbreak Count	Date HPAI H5N1 confirmed	Location, County	Description	Date resolved[2]
59	17 December 2021	Near Alford, Lincolnshire	Commercial laying hens	24 March 2022
60	18 December 2021	Near Alford, Lincolnshire	Commercial laying hens	24 March 2022
61	18 December 2021	Near Frodsham, Cheshire	Commercial mixed species	8 March 2022
62	22 December 2021	Near Alvanley, Cheshire	Backyard ducks	8 March 2022
63	22 December 2021	Near Buckfastleigh, Devon	Backyard ducks	11 February 2022
64	28 December 2021	Near Pentney, Norfolk	Commercial turkeys	9 February 2022
65	28 December 2021	Near North Somercotes, Lincolnshire	Commercial turkeys	27 March 2022
66	30 December 2021	Near Romsey, Hampshire	Backyard mixed species	5 February 2022
67	31 December 2021	Near Theddlethorpe, Lincolnshire	Backyard mixed species	24 March 2022
68	31 December 2021	Near Melton Mowbray, Lincolnshire	Commercial turkeys	28 March 2022
69	02 January 2022	Near Eton, Berkshire	Rescued wild swans	22 March 2022

Outbreak Count	Date HPAI H5N1 confirmed	Location, County	Description	Date resolved[2]
70	03 January 2022	Near Alford, Lincolnshire	Backyard chickens	24 March 2022
71	04 January 2022	Near Carlisle, Cumbria	Commercial mixed species	12 March 2022
72	05 January 2022	Near Louth, Lincolnshire	Commercial turkeys	27 March 2022
73	07 January 2022	Near Upholland, Lancashire	Backyard mixed species	14 March 2022
74	10 January 2022	Near Louth, Lincolnshire	Commercial laying hens	28 March 2022
75	13 January 2022	Near Tattenhall, Cheshire	Commercial grandparent breeder turkeys	29 March 2022
76	13 January 2022	Near Tarporley, Cheshire	Commercial breeder turkeys	5 April 2022
77	20 January 2022	Near Ross on Wye, Herefordshire	Backyard mixed species	2 March 2022
78	22 January 2022	Near Crewe, Cheshire	Commercial turkeys	5 April 2022
79	22 January 2022	Near Inverurie, Aberdeenshire	Backyard mixed species	
80	25 January 2022	Near Newcastle upon Tyne, Tyne and Wear	City farm smallholder mixed species	14 April 2022
81	26 January 2022	Near Whitby, North Yorkshire	Wildlife rescue centre mixed species	11 March 2022

Outbreak Count	Date HPAI H5N1 confirmed	Location, County	Description	Date resolved[2]
82	28 January 2022	Near Calveley, Cheshire	Commercial turkeys	5 April 2022
83	28 January 2022	Near Ashleworth, Gloucestershire	Backyard chickens	15 March 2022
84	4 February 2022	Near Bishops Waltham, Hampshire	Commercial broiler breeder chickens	12 April 2022
85	5 February 2022	Near Fakenham, Norfolk	Conservation park mixed species	26 April 2022
86	9 February 2022	Near Berwick-upon-Tweed, Northumberland	Backyard mixed species	6 April 2022
87	14 February 2022	Near Wooler, Northumberland	Backyard mixed species	7 April 2022
88	21 February 2022	Near Grimsby, Lincolnshire	Commercial rearing turkeys	2 April 2022
89	21 February 2022	Near Newtown, Powys	Commercial breeding pheasants	30 March 2022
90	21 February 2022	Near Welshpool, Powys	Commercial breeding pheasants	30 March 2022
91	23 February 2022	Near Gateshead, Tyne and Wear	Commercial hobby flock mixed species	20 April 2022
92	25 February 2022	Near Ledbury, Herefordshire	Commercial game supplier	31 March 2022

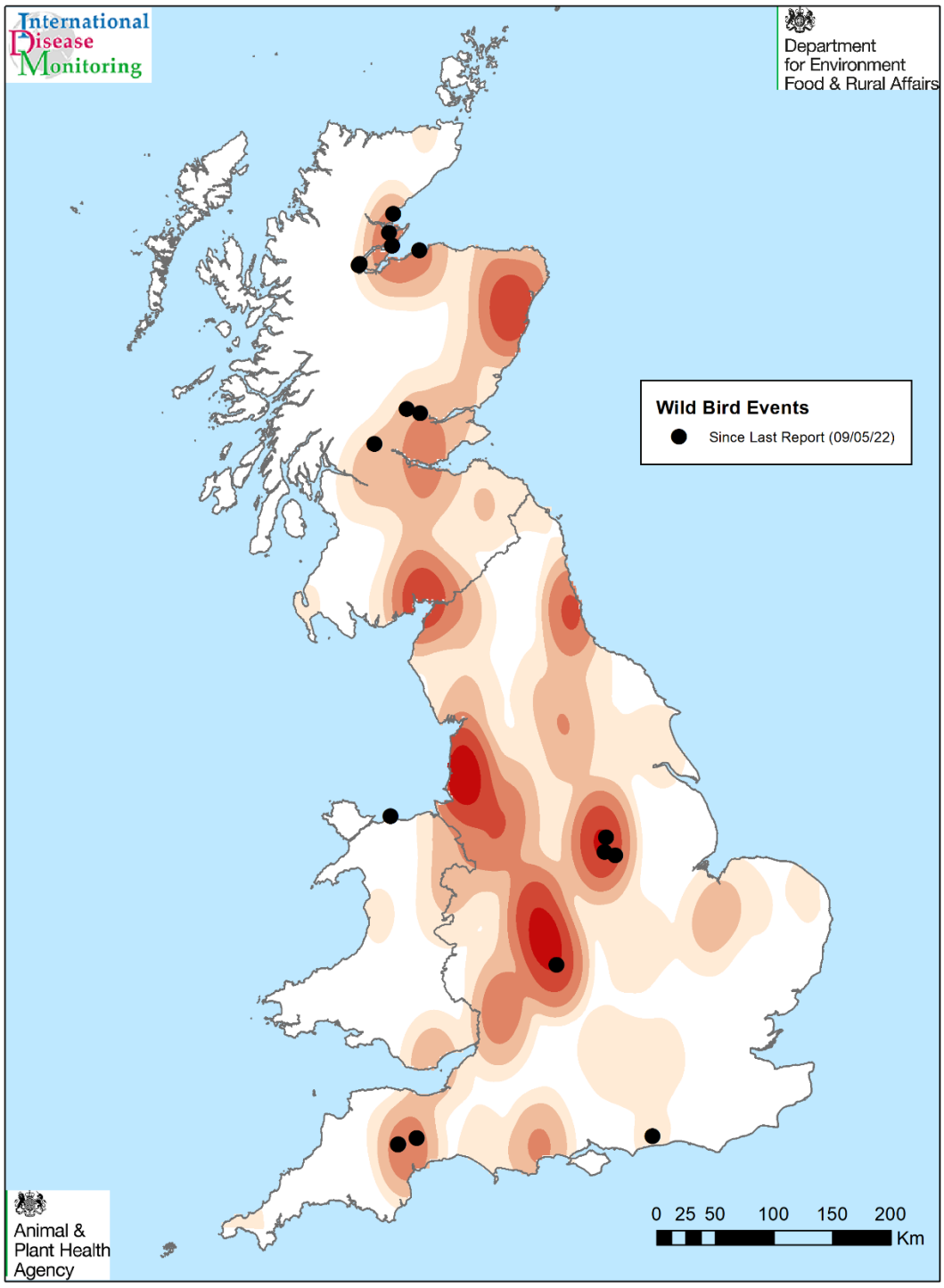
Outbreak Count	Date HPAI H5N1 confirmed	Location, County	Description	Date resolved[2]
93	26 February 2022	Near Westhorpe, Suffolk	Smallholding mixed species	
94	1 March 2022	Near Redgrave, Suffolk	Commercial fattening ducks	
95	11 March 2022	Near Ellon, Aberdeenshire	Backyard mixed species	12 April 2022
96	11 March 2022	Near Diss, Suffolk	Commercial fattening ducks	
97	12 March 2022	Near Diss, Suffolk	Commercial fattening ducks and chickens	
98	18 March 2022	Near Beith, North Ayrshire	Rescued pigeons, buzzards, swans, hens and ducks.	22 April 2022
99	19 March 2022	Near Strichen, Aberdeenshire	Commercial laying hens	30 April 2022
100	20 March 2022	Near Woodbridge, Suffolk	Commercial broiler ducks	
101	27 March 2022	Near Tuddenham St Martin, Suffolk	Commercial layer ducks	
102	28 March 2022	Near Stowmarket, Suffolk	Backyard mixed species	
103	30 March 2022	Near Woodbridge, Suffolk	Backyard chickens	
104	06 April 2022	Near Exeter, Devon	Commercial mixed species	

Outbreak Count	Date HPAI H5N1 confirmed	Location, County	Description	Date resolved[2]
105	06 April 2022	Near Ely, Cambridgeshire	Commercial fattening ducks	
106	07 April 2022	Near Exeter, Devon	Backyard mixed species	
107	08 April 2022	Near Ilminster, Somerset	Commercial mixed species	
108	08 April 2022	Near Eye, Suffolk	Commercial mixed species	
109	13 April 2022	Near Teignbridge, Devon	Commercial mixed species	
110	24 April 2022	Near Ilkeston, Derbyshire	Smallholder mixed species	
111	7 May 2022	Near Lowdham, Nottinghamshire	Commercial laying hens	
112	19 May 2022	Near Southwell, Nottinghamshire	Commercial smallholder mixed species	

[1] According to the 2021 OIE definition of poultry: Terrestrial Code Online Access - OIE - 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

Map 2: Map showing the relative density of and most recent HPAI H5 positive findings in wild birds across Great Britain October 2021 to 23 May 2022

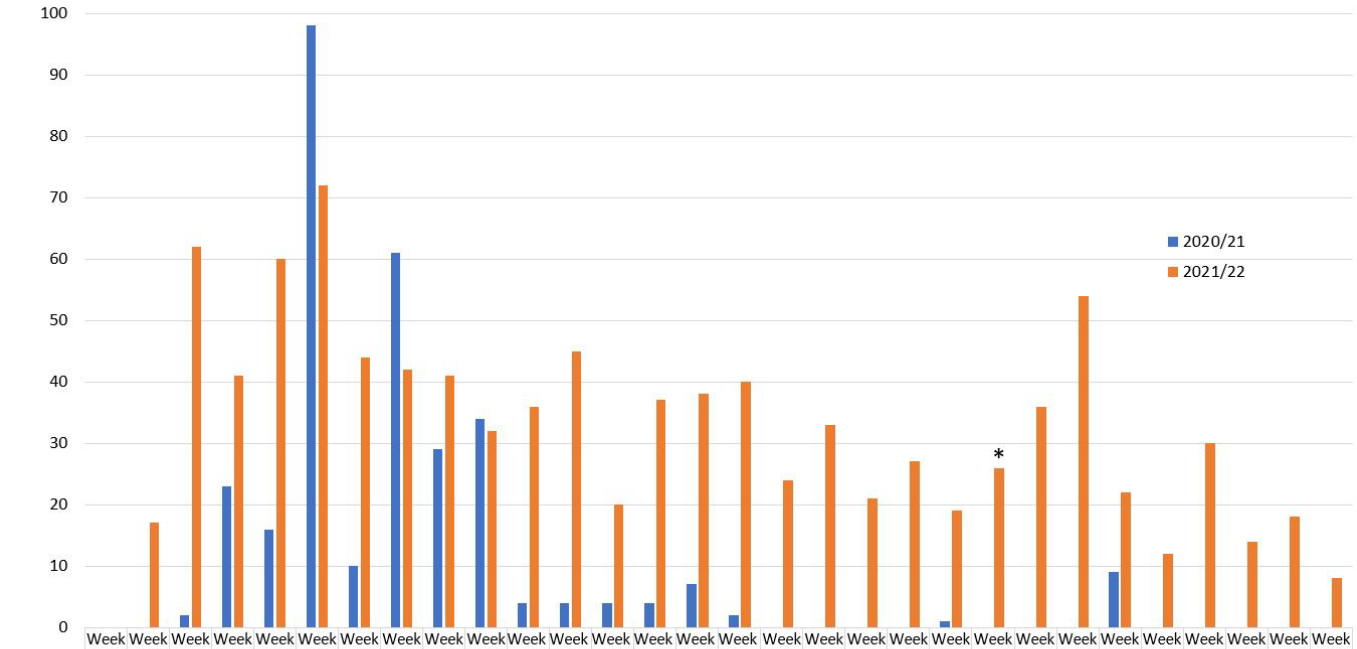


Since our last outbreak assessment on 10 May 2022, HPAI H5 has been detected in wild birds in eight further locations in Great Britain, bringing the total to 288 separate wild bird positive locations, involving 49 different bird species (listed in Table 2), in 76 separate counties. The total number of positive wild bird findings is 1,074, with most in England (Table 2). The findings reported within the last two weeks are widespread across Great Britain and include three findings on the Shetland Islands.

The majority of wild birds that have tested positive for HPAI in Great Britain during the 2021 to 2022 season have been infected with the H5N1 strain. HPAI continues to be detected in wild birds, with many more reports in the 2021 to 2022 season compared to the 2020 to 2021 season (Figure 1). A general downward trend has been observed since week 17 when 30 wild birds were reported, with only eight findings in week 204 (Figure 1).

There have been 65 cases for which the HPAI H5 genotype has been identified, and characterisation of NA subtype is in progress due to low viral loads. The NA could not be determined for a total eight H5 HPAI samples from wild birds, due to very low viral loads.

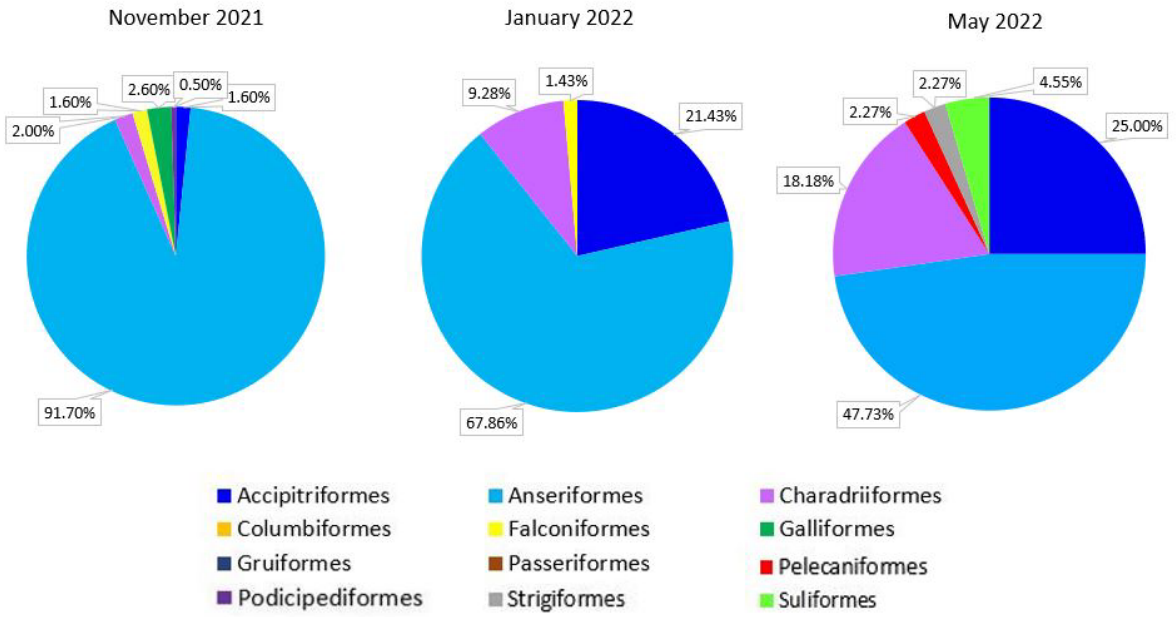
Figure 1: Wild bird HPAI H5N1 positives across Great Britain 2020 to 2021 and 2021 to 2022 seasons. The asterisk denotes an increase in surveillance sensitivity in England.



	Week 43	Week 44	Week 45	Week 46	Week 47	Week 48	Week 49	Week 50	Week 51	Week 52	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13	Week 14	Week 15	Week 16	Week 17	Week 18	Week 19	Week 20
2020/21	0	0	2	23	16	98	10	61	29	34	4	4	4	4	7	2	0	0	0	0	1	0	0	0	9	0	0	0	0	0
2021/22	0	17	62	41	60	72	44	42	41	32	36	45	20	37	38	40	24	33	21	27	19	26	36	54	22	12	30	14	18	8

The species of wild birds affected by HPAI in Great Britain have varied throughout the current 2021 to 2022 season, including a greater variety of wild bird species overall. In particular, an increasing proportion of birds of prey/raptor (*Accipitriformes*) and other resident species (*Passeriformes, Columbiformes*) have become infected as the outbreak has progressed. Although Anseriformes (swans, geese and ducks) still represent the main Order of birds affected, the proportion of HPAI-positive Anseriformes detected in May 2022 has decreased substantially compared with January (47.73% versus 67.86%; Figure 2). The proportion of Charadriiformes detections is higher in May compared with January (18.18% versus 9.28%; Figure 2). Charadriiformes is a diverse order of birds including waders, terns and pelagic birds such as auks and skuas. In May there were six gull cases, one oystercatcher and a guillemot. These eight Charadriiformes cases accounted for 18.18% of the 44 wild bird cases in May. This compares to January for example when there 140 wild bird cases of 13 (9.28%) were Charadriiformes. The apparent doubling in the proportion of Charadriiformes affected in May compared to January masks an overall decrease in the total number of Charadriiforme cases and reflects the fact that in May all the migrant ducks geese and swans have left GB, with auk species such as guillemot now at coastal breeding sites rather than out to sea. Cases continue to be confirmed in resident species such as Canada geese, greylag geese, common buzzard and mallard duck.The described changes in the total number and order of birds affected during May 2022, together with the last detections in pink-footed geese being reported on 5 May are consistent with the anticipated reduced contribution of overwintering wildfowl migrant species to HPAI in GB at this time of year.

Figure 2: Proportion of HPAI H5 wild bird positives by Order across the 2021 to 2022 HPAI season in Great Britain as of 23 May 2022



For further details, please see the report (updated weekly) on findings of HPAI in wild birds in Great Britain and Northern Ireland.

Table 2: Wild bird species in Great Britain that have tested positive for HPAI H5 as of 23 May 2022

Region and species	Total number of birds testing positive
England	**679**
Barnacle Goose	13
Bewick's Swan	1
Black headed gull	17
Black Swan	2
Canada Goose	143
Common Buzzard	59
Common Eider	1
Coot	1
Curlew	2
Gadwall	1
Goshawk	1
Great-crested Grebe	3
Grey Heron	3
Greylag goose	37
Guillemot	1
Gull sp.	8
Hen Harrier	1
Herring Gull	9
Kestrel	6
Kittiwake	1
Lapwing	1
Little Gull	1
Magpie	1
Mallard Duck	15
Moorhen	3
Mute Swan	230
Oystercatcher	1
Peregrine Falcon	5
Pheasant	8
Pied Wagtail	6
Pink Footed goose	18
Red Kite	2
Sea Eagle	1

Region and species	Total number of birds testing positive
Sparrowhawk	7
Tawny Owl	1
Tufted Duck	1
Unidentified Swan	17
Unspecified Dove	2
Unspecified Duck	1
Unspecified Goose	14
Unspecified pigeon	1
White Fronted Goose	1
Whooper Swan	31
Widgeon	1
Wales	**41**
Canada Goose	4
Common Buzzard	4
Goshawk	1
Greylag goose	1
Herring Gull	2
Mute Swan	15
Peregrine Falcon	1
Pheasant	5
Sparrowhawk	1
Unidentified Swan	1
Unspecified Goose	5
Unspecified pigeon	1
Scotland	**354**
Barnacle Goose	34
Bird of Prey Unspecified	3
Black headed gull	1
Blackbird	1
Canada Goose	3
Common Buzzard	63
Common Eider	9
Gannet	2
Great black backed gull	1
Greylag goose	26
Guillemot	1
Gull sp.	10
Herring Gull	8
Kestrel	1
Magpie	1

Region and species	Total number of birds testing positive
Mallard Duck	1
Mute Swan	28
Pink Footed goose	80
Red Kite	3
Sea Eagle	2
Sparrowhawk	5
Unidentified Swan	16
Unspecified Duck	2
Unspecified Goose	42
Unspecified Gull	1
Unspecified waterfowl	1
Whooper Swan	9
Wood Pigeon	1
Grand Total	**1,074**

Europe

The total numbers of IPs with HPAI H5 in poultry and cases in wild birds in Europe are presented in Table 3. New disease reports are still being made to the World Organisation for Animal Health (OIE) on a daily basis. Numbers reported are from OIE's WAHIS platform.

Table 3: Events (to 23 May 2022) of HPAI H5 in domestic poultry (P) and cases in wild birds (WB) since 1 October 2021 in the UK and Europe, according to OIE report date

Country	H5 (WB)	H5 (P)	H5N1 (WB)	H5N1 (P)	H5N8 (WB)	H5N8 (P)	H5N2 (WB)	H5N2 (P)	H5N3 (WB)	H5N5 (WB)	Total
Albania			1			4					5
Austria			35								35
Belgium	6		63	3							72
Bosnia and Herzegovina			2								2

Country	H5 (WB)	H5 (P)	H5N1 (WB)	H5N1 (P)	H5N8 (WB)	H5N8 (P)	H5N2 (WB)	H5N2 (P)	H5N3 (WB)	H5N5 (WB)	Total
Bulgaria	1	31									32
Croatia			8	2							10
Czech Republic			21	6							27
Denmark		1	114	4	1	1					121
Estonia			10		2	1					13
Faroe Islands			1								1
Finland			17		2						19
France			92	1,062							1,154
Germany			1,035	70			1		1		1,107
Greece			7								7
Hungary			32	266							298
Iceland			2	1							3
Ireland			75	6							81
Italy			21	249							270
Latvia			2								2
Lithuania			5								5
Luxembourg			4								4

Country	H5 (WB)	H5 (P)	H5N1 (WB)	H5N1 (P)	H5N8 (WB)	H5N8 (P)	H5N2 (WB)	H5N2 (P)	H5N3 (WB)	H5N5 (WB)	Total
Moldova				1							1
Netherlands	1		204	42	2						249
Norway			8	2						6	16
Poland			32	103				1			136
Portugal			12	4							16
Republic of North Macedonia			3								3
Romania			14	5							19
Russia	35	12	13	9							69
Serbia and Montenegro			3		3		1				7
Slovakia			22	2	1						25
Slovenia			39	1							40
Spain			41	31							72
Sweden			40	4	1						45
Switzerland			3								3
Ukraine	2	1									3
United Kingdom			391	79	1						471

Northern Europe

Since our last outbreak assessment on 10 May 2022, HPAI H5 has been reported in eight European countries excluding the United Kingdom (OIE). The total number of European countries affected this HPAI season according to IZSVe (2022) is currently 34.

Bulgaria

Between 10 and 23 May 2022 according to the OIE, there have been seven outbreaks of untyped H5Nx HPAI in Bulgaria. All seven premises were commercial holdings; four had ducks, one had broiler breeder chickens, one had broilers and one premises had laying hens. The number of birds at each IP was not reported. The most recent presentation from the EU Standing Committee on Plants, Animals, Food and Feed (PAFF) on 11 May states that responsive measures have been put in place such as banning outdoor poultry keeping, poultry markets and enhanced biosecurity/surveillance. An epidemiological investigation has also revealed that consignments of hatching eggs during the incubation period were sent to Greece and Hungary, the latter of which has reported an increased number of outbreaks over the last four weeks (PAFF, 2022a).

Czech Republic

Since 10 May, the OIE has reported one further poultry IP with HPAI H5N1. The premises had 277 mallard ducks. There was also a backyard flock with 60 hens reported and two HPAI H5N1 events in wild birds, involving 11 grey herons (*Ardea cinerea*) and two mute swans (*Cygnus olor*). It should be noted that all these reports refer to disease outbreaks and cases which occurred in December 2021 and January 2022.

Finland

Since our last assessment, the OIE has not reported any further HPAI IPs, but has reported one further case of HPAI H5N1, involving one barnacle goose (*Branta leucopsis*).

France

Between 10 and 23 May 2022, the OIE has not reported any further HPAI IPs with domestic poultry or cases in wild birds. There is a time delay in receiving case reports, and while outbreaks in France are continuing to occur, the situation is improving with the four-week rolling number of outbreaks reduced from 64 last week to 12 this week (Plateforme ESA, 2022).

Repopulation has begun in the west of France including the Vendée and Loire Atlantique departments according to defined criteria including no new HPAI outbreak confirmations for 21 days and the implementation of a 4-week sanitation period. Geographic perimeters have also been set to define coalescent areas and surrounding coalescent areas at the regional level, whereby all parts within a coalescent area perimeter are considered the same epidemiological entity. On 9 May 2022, a national decree outlined that 19 departments (comprising of those most heavily affected during the 2021/22 epizootic plus adjacent departments) will remain at a high-risk level for HPAI, whereas other departments will be lowered to a moderate risk level, whereby only animals kept in wetland areas will require sheltering (PAFF 2022b).

Sequencing analysis suggests that the epidemic in the Southwest and Midwest of France started with two separate introductions from wild birds, followed by an unprecedented level of in-between-farm transmission (EUVET Mission, 2022).

Germany

There has been one further poultry premises with HPAI H5N1 reported by OIE for Germany since our last assessment, this was a fattening turkey premises with a reported start date of 9 December 2021.There have been a further three cases reported in wild birds, including unspecified Phalacrocoracidae (4), Ciconiidae (1) and Laridae (1) birds.

Hungary

Between 10 and 23 May 2022, the rate of detections in Hungary has continued to increase. The OIE has reported a further 86 HPAI H5N1 IPs in Hungary. Of these 86 IPs, 54 had foie gras or fattening ducks and 19 had foie gras or fattening geese, forming the majority of the affected premises. The rolling monthly incidence of HPAI outbreaks has increased from 96 last week to 114 this week, including two new outbreaks which have occurred in fattening duck farms in the Szabolcs-Szatmár-Bereg county, bordering Ukraine and situated around 100km from the currently affected counties of Bács-Kiskun, Békés and Csongrád-Csanád. The first outbreak in the Szabolcs-Szatmár-Bereg county since January 2022 was detected on 10 May (Plateforme ESA, 2022).

Responsive measures have been put in place including pre-movement swab testing of birds, housing in high-risk counties, preventive culling and phylogenetic analysis. No further information on the definition of high-risk counties is currently available. As of 11 May 2022, a total of 1,339,160 birds affected by HPAI had been killed and 286,313 birds had been culled as a preventive measure (PAFF, 2022c).

Moldova

Since 10 May 2022, there has been a report by OIE of untyped HPAI (neither H- or N-type reported) in domestic poultry of different species from backyards. A total of 4,194 birds were reported to be involved in the outbreak in Rezina Village, Ungheni district. This is the second outbreak reported in Moldova this HPAI season.

Netherlands

There have been no further commercial poultry HPAI H5N1 IPs or wild bird cases reported by the OIE since 10 May 2022. The most recent Plateforme ESA update report states that a new outbreak has been detected in Boskoop about 70 km west of the outbreaks in Ede in a small multi-species farm (300 chickens, ducks, pheasants and quails) which was communicated by health authorities on 19 May. There have also been two outbreaks on pheasant farms detected on 19 and 20 May; the IP confirmed on 20 May was located near to the Boskoop outbreak, the IP confirmed on 19 May was located in Landsmeer, in the northern Netherlands (Plateforme ESA, 2022).

Following the series of recent outbreaks that have occurred in late April and early May in the Gelderland province, housing measures were introduced for commercial bird keepers and shielding measures for risk birds were introduced for private keepers. In addition, buffer zones have been set up to prohibit movement of poultry and poultry products within 72 hours of a new outbreak occurring. Movement of eggs and slaughter animals is possible again after these 72 hours but only under strict conditions and with an exemption (PAFF 2022d).

Norway

There have been no further reports of HPAI H5N1 in poultry or wild birds since 10 May, but there have been two further cases of HPAI H5N5 reported, each involving a single white-tailed eagle (*Haliaeetus albicilla*). Both of these cases were confirmed in early April 2022.

Southern Europe (OIE data only, by report date)

Spain

Since 10 May 2022, the OIE has not reported any further HPAI IPs with domestic poultry but has reported one case of HPAI H5N1 in a wild griffon vulture (*Gyps fulvus*).

According to OIE, there have been no further reports of HPAI H5 outbreaks in domestic poultry or cases in wild birds between 10 and 23 May in; Albania, Austria, Belgium, Bosnia and Herzegovina, Croatia, Denmark, Estonia, the Faroe Islands, Greece, Iceland, Italy, Latvia, Lithuania, Luxembourg, the Netherlands, North Macedonia,

Poland, Portugal, the Republic of Ireland, Romania, Russia, Serbia and Montenegro, Slovakia, Slovenia, Sweden, Switzerland or Ukraine.

Table 4: Number of HPAI H5 infected poultry premises (P) and findings in non-poultry (NP), including wild birds reported in the United Kingdom and Europe each month during the 2021 to 2022 epizootic, according to OIE report date as of 23 May 2022

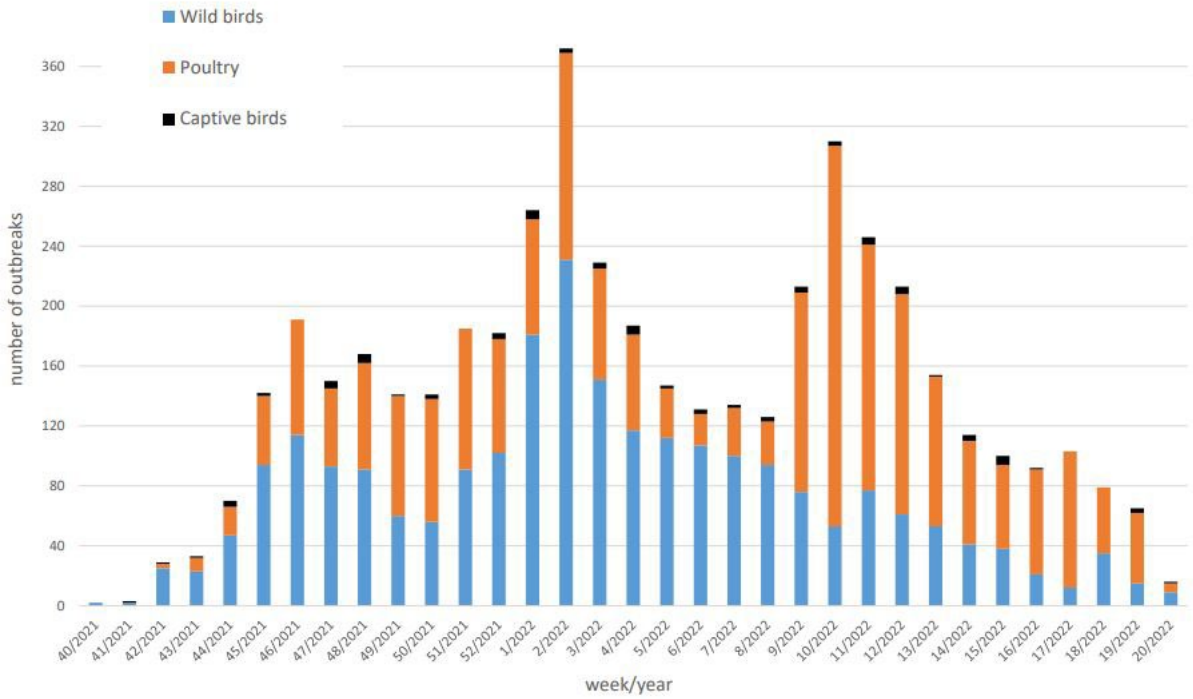
Country	Oct 21-P	Oct 21-NP	Nov 21-P	Nov 21-NP	Dec 21-P	Dec 21-NP	Jan 22-P	Jan 22-NP	Feb 22-P	Feb 22-NP	Mar 22-P	Mar 22-NP	Apr 22-P	Apr 22-NP	May 22-P	May 22-NP
Albania	0	0	0	0	0	0	0	0	0	0	4	1	0	0	0	0
Austria	0	0	0	1	0	7	0	13	0	6	0	1	0	2	0	1
Belgium	0	0	0	11	2	5	1	20	0	25	1	9	0	3	0	0
Bosnia and Herzegovina	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Bulgaria	0	0	0	0	7	0	2	0	1	0	1	0	9	1	12	0
Croatia	0	0	1	2	0	4	1	5	0	2	0	0	0	0	0	0
Czech Republic	0	0	2	5	2	4	0	0	1	9	0	1	1	0	1	3
Denmark	0	2	1	19	1	14	3	39	2	23	0	12	0	6	0	0
Estonia	1	3	0	1	0	5	0	0	0	2	0	0	0	1	0	0

Country	Oct 21-P	Oct 21-NP	Nov 21-P	Nov 21-NP	Dec 21-P	Dec 21-NP	Jan 22-P	Jan 22-NP	Feb 22-P	Feb 22-NP	Mar 22-P	Mar 22-NP	Apr 22-P	Apr 22-NP	May 22-P	May 22-NP
Faroe Islands	0	0	0	0	0	2	0	0	0	1	0	0	0	0	0	0
Finland	0	7	0	4	0	0	0	2	0	1	0	2	0	1	0	2
France	0	0	1	4	29	14	171	13	161	16	602	13	77	9	167	9
Germany	1	5	17	30	17	116	19	187	9	301	3	74	4	101	1	13
Greece	0	0	0	0	0	1	0	0	0	0	0	10	0	2	0	1
Hungary	0	0	20	2	52	5	41	11	0	9	0	3	29	1	124	0
Iceland	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
Ireland	0	0	2	17	4	12	0	5	0	4	0	8	0	0	0	0
Italy	4	0	113	4	168	10	23	4	4	5	5	0	1	0	0	0
Latvia	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0
Lithuania	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	2

Country	Oct 21-P	Oct 21-NP	Nov 21-P	Nov 21-NP	Dec 21-P	Dec 21-NP	Jan 22-P	Jan 22-NP	Feb 22-P	Feb 22-NP	Mar 22-P	Mar 22-NP	Apr 22-P	Apr 22-NP	May 22-P	May 22-NP
Luxembourg	0	0	0	2	0	1	0	1	0	1	0	0	0	0	0	0
Moldova	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
Netherlands	1	0	7	40	2	64	6	102	11	93	7	40	9	59	2	0
Norway	0	0	2	2	0	2	0	3	0	1	0	0	0	4	0	4
Poland	0	0	23	3	40	5	16	18	5	6	9	0	4	1	0	0
Portugal	0	0	0	0	2	1	0	6	5	1	0	5	0	0	0	0
Republic of North Macedonia	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0
Romania	0	0	0	1	0	2	0	2	1	7	2	4	0	0	2	0
Russia	3	28	5	9	2	2	0	1	4	0	0	1	0	1	0	0
Serbia and Montenegro	0	5	0	1	0	0	0	0	0	0	0	0	0	0	0	0

Country	Oct 21-P	Oct 21-NP	Nov 21-P	Nov 21-NP	Dec 21-P	Dec 21-NP	Jan 22-P	Jan 22-NP	Feb 22-P	Feb 22-NP	Mar 22-P	Mar 22-NP	Apr 22-P	Apr 22-NP	May 22-P	May 22-NP
Slovakia	0	0	1	1	0	2	1	2	1	3	0	5	0	0	0	0
Slovenia	0	0	0	0	1	2	0	35	0	0	0	0	0	0	0	0
Spain	0	0	0	0	0	0	1	4	17	15	23	12	0	6	0	1
Sweden	0	1	0	9	3	6	0	13	0	7	0	3	0	1	0	3
Switzerland	0	0	0	1	0	0	0	0	0	1	0	2	0	0	0	0
Ukraine	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0
United Kingdom	0	1	12	53	38	96	8	64	7	45	6	49	4	14	1	35

Figure 3: Number of HPAI positive events reported in poultry, captive and wild birds each week in Europe from October 2021 to 20 May 2022 (IZSVe, 2022)



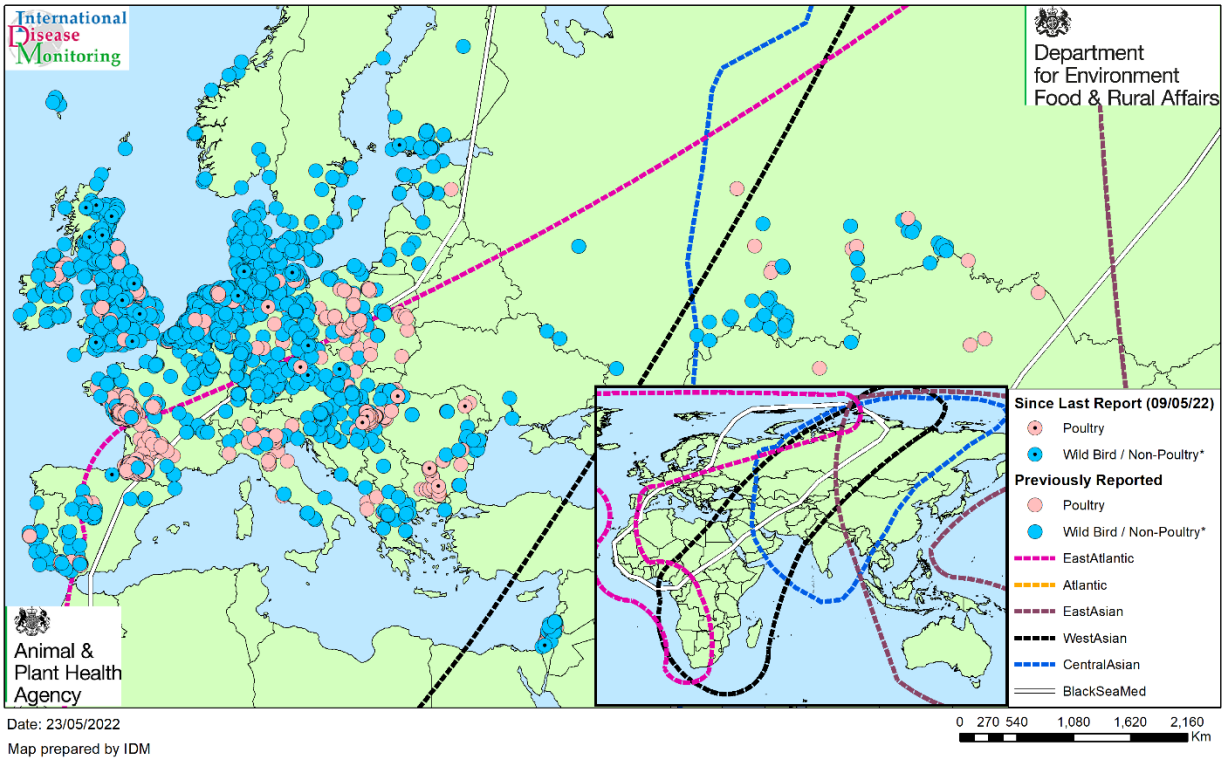
Across Europe, the number of poultry IPs reported weekly has decreased since week 17 when there were around 70 outbreaks, down to around 42 in weeks 18 and 19, then decreasing to around two outbreaks in week 20 (Figure 3). Cases of HPAI infection in wild birds continue to show a generally decreasing trend between weeks 18 and 20 in Europe, with the lowest number of cases in week 20 since the beginning of the epizootic in 2021 (Figure 3). With the exception of the increased number of recent poultry outbreaks in Hungary, there is a general decreasing trend in the number of poultry IPs with HPAI H5 reported per month by the OIE for European countries, with slight spiking in Bulgaria according to available data for May so far (Table 4).

Genetic analysis of viral sequences (detailed in our previous reports) indicate that many of the UK H5N1 cases in 2021/22 epizootic are due to viruses that may 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) but which themselves likely separated into further genotypes following reassortment with other influenza viruses in wild birds.

Data generated at APHA Weybridge indicates that this H5N1 virus will retain infectivity in the environment at low temperatures, for up to 45 days at 4ºC (Ian Brown, APHA Weybridge, Pers. Comm.). As higher temperatures, sunlight intensity and day length reduce virus survival, environmental decay will be occurring at a faster rate. The survival at 20ºC drops to 18 days supporting declining virus infectivity in the environment as temperatures averaging 14ºC have been occurring in the UK for the last few weeks.

Map 3 shows the distribution of HPAI H5 outbreaks in poultry and captive birds, together with cases in wild birds, in Europe reported to OIE between September 2021 and 23 May 2022. Those events reported since our last outbreak assessment on 10 May are identified with black central dots.

Map 3: HPAI outbreaks (from OIE) in poultry, captive, and wild birds across Europe, September 2021 to 23 May 2022.



Highly Pathogenic Avian Influenza in Poultry and Non-Poultry*
September 2021 - May 2022
Overlay: Migratory Bird Flyways

OIE Data Only
*OIE Defined

Implications for the GB

Though the detections of HPAI in wild birds and rate of new IPs in Great Britain are greatly decreased from what was observed earlier on in the season, residual infection pressure remains on the domestic poultry and captive bird populations in GB and is particularly pertinent where biosecurity is sub-optimal. Even where biosecurity is good, any wild bird infection pressure is likely to expose any weaknesses that exist. While the infection pressure from wild birds continues to decrease at this time of year, 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 lifting of housing measures on 2 May.

There has been an unprecedented number of HPAI H5N1 IPs with domestic poultry and captive birds, as well as wild bird cases, reported in this 2021 to 2022 season: not only for the UK, but also across Europe. It should be noted that trends in wild bird cases in Europe are now of minimal significance as a predictor for UK incursions during the spring and summer, although the downward trend in wild bird cases (Figure 3) may also be reflected in UK wild bird cases as the last of the migrant waterbirds depart for their breeding grounds.

Currently, although some traffic of wild waterbirds migrating eastward from Ireland may occur where they briefly use stop-over sites in the UK, most eastbound migratory species are thought to overfly the UK. Northbound species leaving Ireland for breeding sites in Greenland and Iceland, may perhaps stop-over in western Scotland or the Northern Isles.

The departure of migratory wildfowl from GB is now complete with virtually all overwintering waterbirds now gone. It should be noted that the departure of migrant waterfowl does not mark the end of the risks produced by wild birds and HPAI. The virus is likely to continue to circulate in resident GB wild birds (species which breed in GB albeit with varying degrees of movement within GB) over the next month, with sporadic detections, although the rate is predicted to continue falling throughout spring in line with previous epizootics, although detection in sentinel species (e.g., raptors) may continue for some time. Resident birds may continue to circulate HPAI H5 virus and consequently act as a future source of infection to poultry. However, changes in their behaviour and distribution may reduce this risk, as the birds make regional or neighbourhood scale movements away from winter aggregations on larger waters into smaller groups or even single pairs at their breeding sites (often smaller waterbodies). This change in population structure and contact behaviour should reduce HPAI virus contamination levels close to poultry production and the circulation of virus within the wild bird population (as was experienced in 2016/17 and 2020/21).

Higher temperatures and sunlight intensities will reduce the level of environmental contamination by promoting inactivation of the virus. As the day length increases over the coming weeks the current warm weather is also expected to continue with faster environmental decay of the virus. The long-range forecast from the Met Office predicts that temperatures are likely to remain above normal (forecast until 8 June). With the average maximum temperature for May at 14.5°C, (according to a 20-year average based on the West Yorkshire weather station as the centre of GB Bingley SAMOS (West Yorkshire) UK climate averages - Met Office) the Met Office anticipates that temperatures will likely move back to nearer normal through June.

Conclusion

Cases of HPAI H5 in wild birds and confirmations in poultry premises have continued to be reported across Europe and in Great Britain since our last assessment, though a downward trend is observed.

There have been 1,074 confirmed cases of HPAI H5 in wild birds in Great Britain to 23 May 2022 across a range of species, with multiple detections in wild birds each week (Figure 1). The wild bird species 'order shift' observed between November 2021 and May 2022 (Figure 2) demonstrates that a greater proportion of other species, including raptors and potential bridging species such as pigeons, gulls, pheasants and pied wagtails, have tested positive as the outbreak has developed. This reflects HPAI infection spreading initially from migratory water birds at incursion, to more native, sedentary wild bird species, likely via environmental exposure. As the outbreak has progressed further into the spring months of 2022, the proportion of HPAI-positive Anseriformes (waterfowl) has increased. A potential contributing factor to this increase could be the increased sensitivity of surveillance in England since 22 March. The overall number of detections in wild birds, and wild bird infection pressure, is also decreasing (Figure 1).

On the date of this report (late May), migrating waterfowl would not be expected to enter the UK from Continental Europe, even if the weather there were to deteriorate significantly in the coming weeks. Even though the remaining migratory waterbirds have now departed 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 expected to decrease and with it the wild bird risk. With the departure of the migratory waterbirds from the UK, resident wild bird species will now play a more important role in any residual spread of virus. Bridging

species will play a less important role in onward spread of virus given the decrease in environmental contamination. Higher environmental temperatures, together with increasing sunlight intensities will reduce environmental levels of H5N1 and the associated risks in the spring months.

Due to the decreasing weekly number of cases of H5N1 in wild birds in mainland GB and the reduced environmental contamination/virus survivability due to warmer temperatures and extended periods of high intensity sunlight as we progress through spring, the risk of HPAI H5 infection in wild birds in GB is reduced to **MEDIUM**.

The risk of exposure of poultry across the whole of Great Britain is maintained at **low** (with medium uncertainty) where good biosecurity is applied, and at **medium** (with medium uncertainty) where biosecurity is suboptimal. This assessment takes into consideration the Avian Influenza Protection Zone (AIPZ) and assumes that bird keepers are taking the additional biosecurity measures required.

On 24 November, 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, though the AIPZ still remains in place, and biosecurity requirements should be adhered to.

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

It is particularly important that stringent adherence to good biosecurity practices is now 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 OIE, 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, 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):

- any number of swans, geese, ducks, gulls, waders and raptors
- five or more birds of any species

It is advisable that you do not touch these birds.

In Scotland and Wales, findings of any number of dead wild birds of any species, 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). It is advisable that you do not touch these birds.

Authors

- Dr Lorna Freath
- Prof Ian Brown
- Dr Ash Banyard
- Dr Alex Byrne
- Anthony Pacey
- Dr Paul Gale
- Dr James Aegerter
- Dr Lauren Perrin

References

All outbreaks and cases were taken from the World Organisation for Animal Health (OIE). 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 (OIE).

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

  EUVET Mission (2022) https://ec.europa.eu/food/document/download/669ff6a2-61d0-4747-be6b-0476b1aa501f_en?filename=reg-com_ahw_20220511_hpai-fra_euvet.pdf

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

- PAFF (2022a) Avian Influenza emergency funding (europa.eu)

- PAFF (2022b) Présentation PowerPoint (europa.eu)

- PAFF (2022c) HPAI_Hungary_PAFF_May_2022 (europa.eu)

- PAFF (2022d) Avian Influenza 2020 (europa.eu)
- Plateforme ESA (2022) Weekly bulletin of International Animal Health Watch of 17/05/2022 to 24/05/2022

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

Any enquiries regarding this publication should be sent to us at iadm@apha.gov.uk