

Annex to:

EFSA (European Food Safety Authority), ECDC (European Centre for Disease Prevention and Control), EURL (European Reference Laboratory for Avian Influenza), Adlhoch C, Fusaro A, Gonzales JL, Kuiken T, Marangon S, Stahl K, Niqueux É, Staubach C, Terregino C, Grazina Mirinaviciute, Aznar I, Broglia A and Baldinelli F, 2023. Scientific report: Avian influenza overview December 2022–March 2023. EFSA Journal 2023;21(3):7917, 431010 pp. <https://doi.org/10.2903/j.efsa.2023.7917>

Annex A - Data on Birds

The Annex contains tables and figures on wild birds species and movements and HPAI virus detections in birds.

Table A.1: Reported gull mortality in the Netherlands, Dec-Feb 2022-2023 vs 2021-2022 (source: AI-Impact, with data from DWHC, SOVON and waarneming.nl)

Period	Black-headed gulls			Herring gulls			Great black-backed gulls			All gulls		
	Dec	Jan	Feb	Dec	Jan	Feb	Dec	Jan	Feb	Dec	Jan	Feb
2021-2022	48	68	85	105	89	65	44	47	24	229	288	229
2022-2023	28	49	571	30	40	121	5	13	26	92	231	964

Table A.2: Monthly movements for black headed gull. This table shows where ringed birds present in **Belgium and the Netherlands** between December and February have been found by country and month.

Destination	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Iceland & Faeroes	.	.	.	.	.	1	.	.	.	.	.	.
Great Britain & Ireland	174	158	87	9	5	12	12	22	13	36	54	104
Spain & Portugal	11	13	4	.	1	1	.	5	3	4	2	3
France & Channel Islands	192	142	63	10	8	13	35	36	30	45	36	91
Belgium & The Netherlands	35848	31912	17773	1540	956	1425	4343	5659	6897	12534	24656	35880
Norway & Sweden	52	50	248	445	352	897	423	163	111	189	123	61
Germany & Denmark	733	886	1396	637	874	1141	519	348	429	558	618	773
Italy, Switzerland & Austria	50	44	23	3	3	1	3	3	1	2	18	44
Svalbard	.	.	.	.	.	.	.	.	.	.	.	.
Poland, Czech Republic & Slovakia	189	219	781	339	947	1140	189	155	158	208	230	202
Hungary, Croatia, Bosnia-Herzegovina, Slovenia, Montenegro, Serbia	20	14	7	2	1	6	1	2	2	.	2	9
Greece, Albania & Macedonia	.	.	.	.	.	.	.	.	.	.	.	.
Romania, Bulgaria, Moldova, Ukraine, European part of Turkey	.	1	1	3	1	5	2	1	.	.	1	.
Finland, Estonia, Latvia, Lithuania & Kaliningrad	3	3	211	877	666	3650	1111	130	46	33	16	2
Russia (not Kaliningrad) & Belarus west of 45 degrees East	2	.	25	139	78	105	74	38	18	13	3	3
Russia east of 45 degrees East	.	.	.	.	.	.	.	.	.	.	.	.
Nearctic	.	.	.	.	.	.	.	.	.	.	.	.
Africa and Middle East	2	2	2	.	.	.	.	.	.	.	.	.
Asia	.	.	.	.	.	.	.	.	.	.	.	.
Other	7	7	21	3	29	8	10	13	22	6	5	7

Table A.3: Monthly movements for black headed gull. This table shows where ringed birds present in **France and Channel Islands** between December and February have been found by country and month.

Destination	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Iceland & Faeroes	.	.	.	.	.	.	.	.	.	.	.	.
Great Britain & Ireland	12	10	9	6	2	41	23	6	7	11	15	11
Spain & Portugal	18	21	5	1	.	1	7	9	5	17	22	24
France & Channel Islands	1716	1450	569	51	32	88	340	464	548	665	935	1355
Belgium & The Netherlands	130	111	170	179	310	439	113	67	65	66	112	191
Norway & Sweden	.	1	19	125	98	348	79	5	2	9	5	3
Germany & Denmark	25	25	61	62	201	483	157	39	37	45	31	26
Italy, Switzerland & Austria	28	37	12	3	21	73	8	6	3	14	26	32
Svalbard	.	.	.	.	.	.	.	.	.	.	.	.
Poland, Czech Republic & Slovakia	29	48	234	201	859	1067	94	36	20	30	40	35
Hungary, Croatia, Bosnia-Herzegovina, Slovenia, Montenegro, Serbia	2	5	16	7	20	22	4	.	1	.	3	3
Greece, Albania & Macedonia	.	.	.	.	.	.	.	.	.	.	.	.
Romania, Bulgaria, Moldova, Ukraine, European part of Turkey	.	.	.	.	.	4	.	.	.	.	.	.
Finland, Estonia, Latvia, Lithuania & Kaliningrad	.	.	17	68	75	907	159	8	6	1	1	.
Russia (not Kaliningrad) & Belarus west of 45 degrees East	.	.	1	1	.	.	.	.	.	.	.	.
Russia east of 45 degrees East	.	.	.	.	.	.	.	.	.	.	.	.
Nearctic	.	.	.	.	.	.	.	.	.	.	.	.
Africa and Middle East	.	.	.	.	.	.	.	.	.	.	.	.
Asia	.	.	.	.	.	.	.	.	.	.	.	.
Other	.	.	.	.	.	.	1	1	.	3	.	.

Table A.4: Monthly movements for black headed gull. This table shows where ringed birds present in **Germany and Denmark** between December and February have been found by country and month.

Destination	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Iceland & Faeroes	.	.	.	.	.	.	.	.	.	.	.	.
Great Britain & Ireland	48	55	20	.	1	.	1	3	3	26	36	39
Spain & Portugal	5	5	2	1	.	.	.	.	.	2	1	6
France & Channel Islands	37	28	16	1	4	1	7	9	9	11	23	34
Belgium & The Netherlands	1119	912	404	37	24	35	149	143	159	264	592	1031
Norway & Sweden	201	258	396	292	163	614	205	74	76	188	305	290
Germany & Denmark	9757	9736	7205	857	402	682	1091	1422	1972	2859	5073	8559
Italy, Switzerland & Austria	167	143	34	2	2	6	11	8	12	25	59	160
Svalbard	.	.	.	.	.	.	.	.	.	.	.	.
Poland, Czech Republic & Slovakia	910	1105	1475	288	479	766	218	266	322	518	776	1029
Hungary, Croatia, Bosnia-Herzegovina, Slovenia, Montenegro, Serbia	26	18	15	1	11	6	2	.	.	.	2	17
Greece, Albania & Macedonia	.	.	.	.	.	.	.	.	.	.	.	.
Romania, Bulgaria, Moldova, Ukraine, European part of Turkey	1	.	1	1	.	14	.	1	.	.	1	1
Finland, Estonia, Latvia, Lithuania & Kaliningrad	3	2	209	643	394	3056	929	129	53	41	9	2
Russia (not Kaliningrad) & Belarus west of 45 degrees East	.	.	9	21	15	30	19	10	2	1	1	.
Russia east of 45 degrees East	.	.	.	.	.	.	.	.	.	.	.	.
Nearctic	.	.	.	.	.	.	.	.	.	.	.	.
Africa and Middle East	1	1	.	.	.	.	.	.	1	.	.	.
Asia	.	.	.	.	.	.	.	.	.	.	.	.
Other	2	2	8	6	4	1	3	2	.	.	3	5

Table A.5: Monthly movements for black headed gull. This table shows where ringed birds present in **Italy, Switzerland and Austria** between December and February have been found by country and month.

Destination	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Iceland & Faeroes	.	.	.	.	.	.	.	.	.	.	.	.
Great Britain & Ireland	.	2	1	.	.	.	3	3	5	9	.	.
Spain & Portugal	2	6	3	.	.	.	.	.	.	.	.	3
France & Channel Islands	37	26	17	4	7	9	26	26	24	16	19	40
Belgium & The Netherlands	95	92	66	8	8	15	89	115	106	110	83	103
Norway & Sweden	.	.	2	4	3	41	23	3	2	6	4	3
Germany & Denmark	126	143	85	32	56	176	173	110	111	96	114	186
Italy, Switzerland & Austria	2614	2454	635	73	82	162	289	324	325	618	1407	2572
Svalbard	.	.	.	.	.	.	.	.	.	.	.	.
Poland, Czech Republic & Slovakia	201	157	290	130	828	1254	186	170	179	220	370	277
Hungary, Croatia, Bosnia-Herzegovina, Slovenia, Montenegro, Serbia	231	193	290	44	154	275	76	40	21	26	68	236
Greece, Albania & Macedonia	.	.	.	.	.	.	.	.	.	.	.	.
Romania, Bulgaria, Moldova, Ukraine, European part of Turkey	1	1	1	.	2	10	1	6	4	.	.	.
Finland, Estonia, Latvia, Lithuania & Kaliningrad	.	1	21	42	54	561	83	10	19	21	9	1
Russia (not Kaliningrad) & Belarus west of 45 degrees East	.	.	1	4	2	3	6	2	.	1	.	.
Russia east of 45 degrees East	.	.	.	.	.	.	.	.	.	.	.	.
Nearctic	.	.	.	.	.	.	.	.	.	.	.	.
Africa and Middle East	.	1	.	.	.	.	.	.	.	.	.	.
Asia	.	.	.	.	.	.	.	.	.	.	.	.
Other	.	1	.	.	.	.	.	.	.	.	2	.

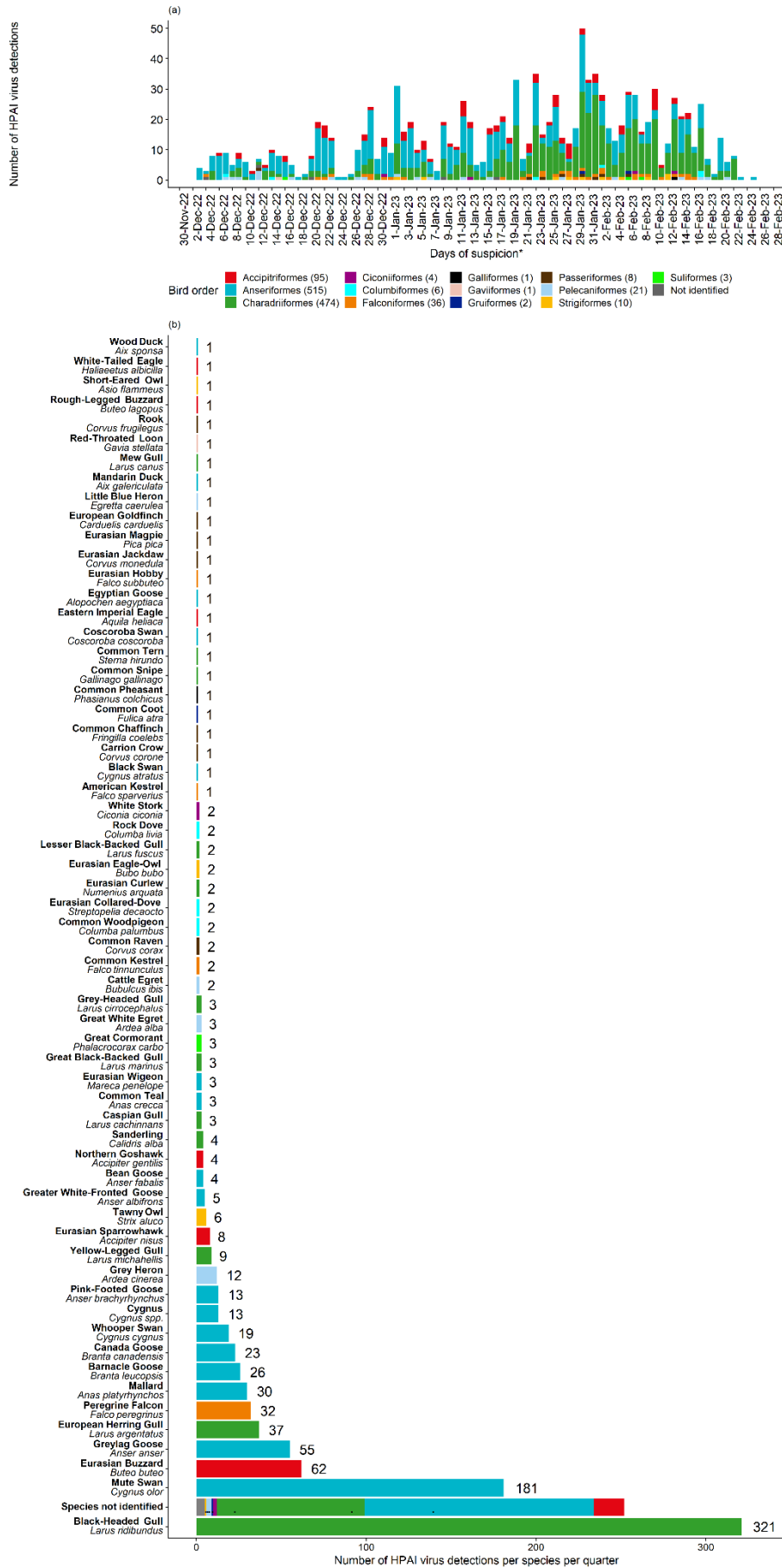


Figure A.1: Number of reported detections of highly pathogenic avian influenza virus A(H5) in wild birds by (A) bird order and week of suspicion and (B) wild bird species in the EU/EEA and United Kingdom, from 3 December to 1 March 2023

Table A.6: Highly pathogenic avian influenza notifications reported to WOA/WAHIS in wild birds in Americas from 3 December 2022 to 1 March 2023. On one single reported detection of HPAI in wild birds, more than one bird might be involved.

Country	Wild bird species	Number of HPAI virus detections
Argentina	Anatidae	1
	<i>Chloephaga melanoptera</i>	1
Bolivia	<i>Pygochelidon cyanoleuca</i>	1
Canada	<i>Corvus brachyrhynchos</i>	1
Chile	<i>Pelecanus thagus</i>	58
	<i>Sula variegata</i>	7
	<i>Cathartes aura</i>	5
	<i>Larus belcheri</i>	4
	<i>Leucophaeus modestus</i>	4
	<i>Phalacrocorax bougainvillii</i>	2
	<i>Calidris alba</i>	1
	<i>Larus dominicanus</i>	1
	<i>Nycticorax nycticorax</i>	1
	<i>Phalacrocorax brasilianus</i>	1
	<i>Phalacrocorax gaimardi</i>	1
	<i>Rynchops niger</i>	1
	<i>Thalasseus elegans</i>	1
Costa Rica	<i>Pelecanus occidentalis</i>	6
	<i>Falco peregrinus</i>	1
Ecuador	<i>Chroicocephalus ridibundus</i>	1
	<i>Sula nebouxii</i>	1
Guatemala	<i>Pelecanus occidentalis</i>	1
Honduras	<i>Pelecanus occidentalis</i>	4
Panama	Unknown	4
	<i>Pelecanus occidentalis</i>	4
Peru	<i>Pelecanus thagus</i>	1
	<i>Sula variegata</i>	1
United States of America	<i>Aechmophorus occidentalis</i>	1
	<i>Anas fulvigulafuligula</i>	1
	<i>Anser erythropus</i>	1
	<i>Arenaria melanocephala</i>	1
	<i>Asio otus</i>	1
	<i>Aythya marila</i>	1
	<i>Branta bernicla</i>	1
	<i>Branta canadensis</i>	1
	<i>Centrocercus urophasianus</i>	1
	<i>Dendrocygna bicolor</i>	1
	<i>Falco mexicanus</i>	1
	<i>Gavia pacifica</i>	1
	<i>Melanitta fusca</i>	1
	<i>Phalaropus lobatus</i>	1
	<i>Quiscalus mexicanus</i>	1
	<i>Thalasseus sandvicensis</i>	1

	<i>Tringa semipalmata</i>	1
Uruguay	<i>Cygnus melancoryphus</i>	1
	<i>Cygnus melancoryphus</i>	

Source: WOAH-WAHIS (data extraction carried out on 3 March 2023).

Table A.7: Number of highly pathogenic avian influenza outbreaks in Europe, by country, virus subtype and affected sub-population, from 3 December to 1 March 2023. Cumulative numbers since the start of the 2022–2023 epidemiological year are reported in parentheses (1 October 2022 to 1 March 2023).

Reporting Country	Captive birds	Poultry		Wild birds		Total	
	A(H5N1)	A(H5Nx)	A(H5N1)	A(H5Nx)	A(H5N1)		A(H5N5)
Austria	4 (5)	-	3 (3)	8 (8)	69 (69)	-	84 (85)
Belgium	11 (19)	-	6 (11)	(1)	127 (170)	-	144 (201)
Bulgaria	-	(1)	1 (1)	-	-	-	1 (2)
Croatia	-	-	(1)	-	2 (4)	-	2 (5)
Cyprus	(1)	-	(1)	-	(1)	-	(3)
Czechia	-	-	26 (27)	-	6 (6)	-	32 (33)
Denmark	(2)	-	3 (4)	(1)	49 (66)	-	52 (73)
France	27 (63)	2 (2)	189 (289)	-	172 (219)	-	390 (573)
Germany	52 (125)	-	20 (56)	2 (3)	277 (360)	-	351 (544)
Hungary	1 (1)	-	31 (105)	-	14 (14)	-	46 (120)
Iceland	-	-	-	-	0 (4)	-	(4)
Ireland	(2)	-	(2)	-	9 (13)	-	9 (17)
Italy	(1)	-	2 (29)	-	64 (103)	-	66 (133)
Luxembourg	1 (1)	-	-	-	2 (2)	-	3 (3)
Moldova	-	-	1 (2)	-	-	-	1 (2)
Netherlands	4 (15)	-	3 (22)	-	81 (166)	-	88 (203)
North Macedonia	(1)	-	-	-	-	-	(1)
Norway	-	-	0 (2)	1 (1)	15 (21)	(1)	16 (25)
Poland	1 (1)	-	88 (88)	-	40 (43)	-	129 (132)
Portugal	-	-	-	-	(1)	-	(1)
Romania	-	-	3 (3)	-	14 (22)	-	17 (25)
Serbia	-	-	-	-	1 (4)	-	1 (4)
Slovakia	1 (1)	-	3 (3)	-	5 (5)	-	9 (9)
Slovenia	1 (1)	-	1 (1)	-	13 (16)	-	15 (18)
Spain	-	-	2 (2)	(1)	17 (37)	-	19 (40)
Sweden	1 (1)	-	-	-	30 (36)	-	31 (37)
Switzerland	(1)	-	-	-	29 (32)	-	29 (33)
United Kingdom^(b)	15 (38)	-	19 (118)	-	91 (219)	-	125 (375)
Total	119 (279)	2 (3)	401 (770)	11 (15)	1,127 (1633)	(1)	1,660 (2,701)

(b): United Kingdom data are from ADNS up to 31 December 2020. From 1 January 2021 onwards, the data source was the World Animal Health Information System (WOAH-WAHIS) for United Kingdom (excluding Northern Ireland), and ADNS/ADIS for United Kingdom (Northern Ireland).^{Error! Bookmark not defined.}

'-': means that no HPAI outbreaks or detections were notified to ADIS or WOAH.

Source: EFSA, ADNS and WOAH (data extraction carried out on 1 March 2023).

Table A.8: Categorisation of the wild bird species detected as HPAI virus-positive between 1 October 2016 and 10 March 2023

Raptor	Waterfowl	Colony-breeding sea birds	Other wild bird species
Accipitridae	Anatidae	Arctic tern	Anambra waxbill
Accipitriformes	Anatinae	Atlantic puffin	Ardeidae
Bald eagle	Anserinae	Auk	Calidris
Bearded vulture	Barnacle goose	Black guillemot	Carrion crow
Common barn-owl	Bean goose	Black-headed gull	Cattle Egret
Common kestrel	Black swan	Caspian gull	Charadriidae
Eagles	Bufflehead	Common murre	Ciconiidae
Eastern Imperial Eagle	Brent goose	Common tern	Columbidae
Eurasian buzzard	Canada goose	Cormorants and shags	Common Chaffinch
Eurasian eagle-owl	Common eider	Crowned cormorant	Common coot
Eurasian Hobby	Common goldeneye	Dalmatian pelican	Common crane
Eurasian sparrowhawk	Common pochard	European herring gull	Common moorhen
Falcons and caracaras	Common shelduck	Glaucous gull	Common pheasant
Golden eagle	Common teal	Great black-backed gull	Common raven
Griffon vulture	Coscoroba Swan	Great Cormorant	Common redshank
Gyrfalcon	Cygnus	Great ne	Common ringed plover
Hen harrier	Duck	Great skua	Common Snipe
Kites, hawks and eagles	Egyptian goose	Grey-headed gull	Common starling
Lanner falcon	Eurasian wigeon	Gulls, terns and skimmers	Common woodpigeon
Little owl	Ferruginous duck	Lesser black-backed gull	Corvids, jays and magpies
Merlin	Gadwall	Little auk	Cranes
Montagu's harrier	Garganey	Manx shearwater	Curlew sandpiper
Northern goshawk	Goosander	Mediterranean gull	Dunlin
Northern long-eared owl	Goose	Mew gull	Eurasian blackbird
Osprey	Greater scaup	Northern fulmar	Eurasian bullfinch
Peregrine falcon	Greater white-fronted goose	Northern gannet	Eurasian collared-dove
Red kite	Greylag goose	Pelecanidae	Eurasian curlew
Rough-legged buzzard	Lesser white-fronted goose	Razorbill	Eurasian jackdaw
Short-eared owl	Mallard	Ring-billed gull	Eurasian jay
Spotted harrier	Mandarin Duck	Sandwich tern	Eurasian magpie
Strigidae	Muscovy duck	Silver gull	Eurasian oystercatcher
Strigiformes	Mute swan	Sulidae	Eurasian spoonbill
Tawny owl	Nene	Western gull	Eurasian woodcock
True owls	Northern shoveler	Yellow-legged gull	European Goldfinch
Ural owl	Pink-footed goose		European greenfinch
Western marsh-harrier	Tufted duck		Finches

White-tailed sea-eagle	Whooper swan		Great Blue heron
	Wood Duck		Great crested grebe
			Great white egret
			Greater Flamingo
			Green sandpiper
			Grey heron
			Grey plover
			Guineafowl
			Haematopodidae
			Hooded crow
			House sparrow
			Little Blue Heron
			Little egret
			Little grebe
			Northern bald ibis
			Northern lapwing
			Passeridae
			Pheasants and allies
			Pied avocet
			Rallidae
			Red knot
			Red-throated Loon
			Rock dove
			Rook
			Ruddy turnstone
			Sanderling
			Semipalmated sandpiper
			Snipe
			Song thrush
			Turdidae
			Western grebe
			Western sandpiper
			Western water rail
			Whimbrel
			White stork
			White-rumped sandpiper