

EPIDEMIOLOGICAL SITUATION OF HIGHLY PATHOGENIC AVIAN INFLUENZA IN PORTUGAL - DECEMBER 2021 TO NOVEMBER 2022

At the end of the summer 2021 Russia notified to the OIE detections of a new HPAI A(H5N1) virus in domestic and wild birds near the western and eastern border with Kazakhstan and Mongolia. By the end of September, the first outbreak of infection by this new H5N1 within the European Union (EU) was confirmed in Czechia. Since then, outbreaks of disease in poultry and wild birds were reported in 25 EU Member States as well as in Bosnia and Herzegovina, Kosovo, Moldova, Northern Macedonia, Albania, Iceland, Norway, United Kingdom, Switzerland, Ukraine, Japan, Canada and United States of America.

The following information describes the current epidemiological situation of highly pathogenic avian influenza in Portugal.

1. **Outbreak events**

The first outbreak was confirmed in November 30th 2021 in Palmela, district of Setúbal, Lisboa e Vale do Tejo and the last outbreak in kept birds was detected on September 29th 2022 in a commercial poultry holding (fattening turkeys) in Abrigada e Cabanas de Torres, Alenquer, district of Lisboa. The last case of H5N1 infection in wild birds was confirmed on November 21st , in a Grey Heron, at Marinha Grande, district of Leiria.

Subsequently to detection of the first outbreak, the Avian Influenza Contingency Plan was immediately activated and an Official Edict was issued by the Director General determining the measures to be applied within restriction zones. This Edict has been updated in order to include all the outbreaks and, currently, Edict nº 24 is in force.

The contingency plan chain of command is shown on figure 1.

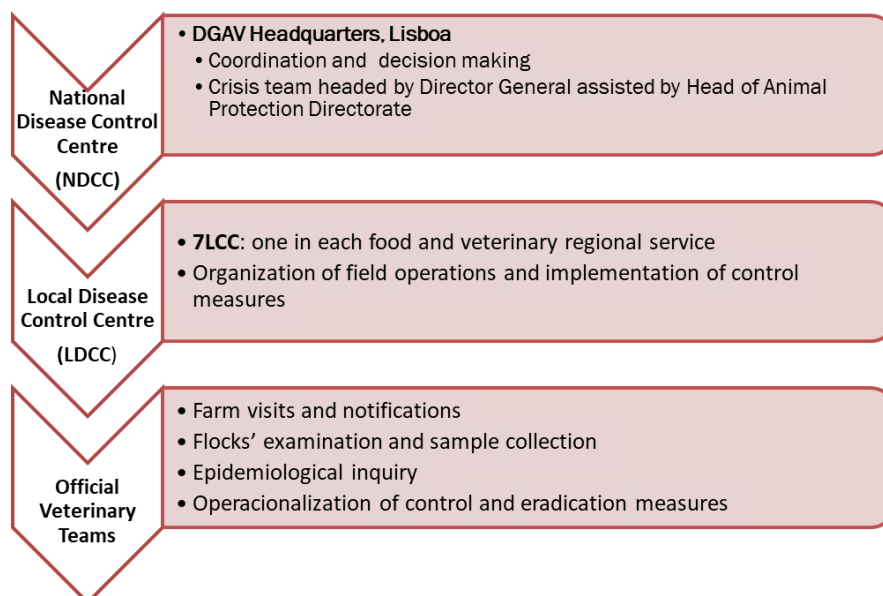


Figure 1 – Contingency plan's chain of command

All outbreaks were confirmed by the National Reference Laboratory for Animal Health, INIAV, I.P. which carried out real-time RT-PCR assays for virus detection as well as sequencing assays of the haemagglutinin (HA) cleavage site to determine the pathogenicity of the detected viruses. Table 1 shows all outbreaks confirmed until November 21st:

Outbreak	District	County	Parish	Probable Origin	Confirmation date	Holding type	Species	Number of birds
1/GAAP	Setúbal	Palmela	Poceirão	Contact with wild birds	30/11/2021	Captive birds (backyard flock)	Chickens, turkeys, ducks and geese	79
2/GAAP	Leiria	Óbidos	Santa Maria, São Pedro e Sobral da Lagoa	Unknown, possibly through contaminated water	23/12/2021	Commercial	Fattening turkeys	18100
3/GAAP	Santarém	Vila Nova Barquinha	Praia do Ribatejo	Possible link to outbreak 2	30/12/2021	Commercial	Fattening turkeys	7353
3B/GAAP	Santarém	Vila Nova Barquinha	Vila Nova da Barquinha	Wild bird	10/01/2022	Wild birds	Barbary ducks (<i>Cairina moschata</i>)	3 (found dead) within surveillance zone of outbreak 3/GAAP
3C/GAAP	Santarém	Constância	Santa Margarida da Coutada	Wild bird	14/01/2022	Private birds collection	Chicken, ducks, geese, pigeons	96
4/GAAP	Setúbal	Santiago do Cacém	Santiago do Cacém, Santa Cruz e S. Bartolomeu da Serra	Contact with wild birds	03/01/2022	Captive birds (backyard flock)	Chicken and ducks	60
4B/GAAP	Setúbal	Santiago do Cacém	Santo André	Wild bird	17/01/2022	Wild bird	Greylag goose (<i>Anser anser</i>)	1
5/GAAP	Santarém	Alpiarça	Alpiarça	Wild bird	04/01/2022	Wild birds	Greylag goose (<i>Anser anser</i>)	3 tested (about 100 birds, 15 found dead)
6/GAAP	Leiria	Peniche	Peniche	Wild bird	10/01/2022	Wild birds	Yellow-legged-gull (<i>Larus michahellis</i>)	2 (found dead)
7/GAAP	Lisboa	Torres Vedras	A-dos-Cunhados e Maceira	Unknown	04/02/2022	Commercial	Fattening turkeys and free range broilers	4831 (turkeys) e 7403 (free range broilers)
7B/GAAP	Lisboa	Torres Vedras	A-dos-Cunhados e Maceira	Unknown	08/02/2022	Commercial	Chicken breeders	61112
7C/GAAP	Lisboa	Torres Vedras	A-dos-Cunhados e Maceira	Possible link to outbreak 7B	10/02/2022	Commercial	Chicken breeders	31387
7D/GAAP	Lisboa	Torres Vedras	A-dos-Cunhados e Maceira	Possible link to outbreak 7B	14/02/2022	Commercial	Duck breeders	12414
8/GAAP	Beja	Mértola	Mértola	Unknown	18/02/2022	Captive birds (backyard flock)	Chickens, turkeys, ducks and geese	26

Outbreak	District	County	Parish	Probable Origin	Confirmation date	Holding type	Species	Number of birds
7E/GAAP	Lisboa	Torres Vedras	A-dos-Cunhados e Maceira	Possible link to outbreak 7B	19/02/2022	Commercial	Duck breeders	85500
9/GAAP	Faro	Silves	Silves	Wild bird	25/02/2022	Wild bird	White stork (<i>Ciconia ciconia</i>)	1 (injured)
10/GAAP	Beja	Ferreira do Alentejo	Odivelas	Unknown	28/02/2022	Captive birds (backyard flock)	Chicken, geese, peacock, guineafowl	13
11/GAAP	Porto	Vila do Conde	Vila do Conde	Possible contact with wild birds	03/03/2022	Captive birds (backyard flock)	Chicken, broilers	60
12/GAAP	Beja	Beja	S. Matias	Wild bird	10/03/2022	Wild bird	Eurasian jay (<i>Garrulus glandarius</i>)	1 (found dead)
13/GAAP	Faro	Castro Marim	Azinhal	Possible contact with wild birds	15/03/2022	Captive birds (backyard flock)	Chickens, Muscovy ducks, geese	46
14/GAAP	Leiria	Peniche	Peniche	Wild bird	22/06/2022	Wild bird	Northern gannet (<i>Morus bassanus</i>)	1
15/GAAP	Coimbra	Figueira da Foz	São Pedro	Wild bird	29/07/2022	Wild bird	Yellow-legged-gull (<i>Larus michahellis</i>)	1
16/GAAP	Beja	Castro Verde	São Marcos da Ataboeira	Unknown	11/08/2022	Captive birds (backyard flock)	Chickens, turkeys, ducks geese, pigeons, peacock	95
17/GAAP	Beja	Beja	S. João Batista e Santiago Maior	Contact with wild birds	26/08/2022	Captive birds (city park)	Goose (Anser anser)	1 (of a flock of 12 geese)
18/GAAP	Évora	Vendas Novas	Vendas Novas	Unknown	29/08/2022	Commercial	Fattening ducks	44868
19/GAAP	Beja	Beja	União das freguesias de Beja (Salvador e Santa Maria da Feira)	Wild bird	30/08/2022	Wild bird	Mallard (<i>Anas platyrhynchos</i>)	1
20/GAAP	Santarém	Benavente	Santo Estevão	Unknown	01/09/2022	Commercial	Fattening ducks	192281
21/GAAP	Aveiro	Aveiro	São Jacinto	Wild bird	14/09/2022	Wild bird	Northern gannet (<i>Morus bassanus</i>)	1
22/GAAP	Porto	Vila Nova de Gaia	União das freguesias de Gulpilhares e Valadares	Wild bird	21/09/2022	Wild bird	Northern gannet (<i>Morus bassanus</i>)	1
23/GAAP	Setúbal	Almada	Costa de Caparica	Wild bird	21/09/2022	Wild bird	Northern gannet (<i>Morus bassanus</i>)	1
24/GAAP	Lisboa	Alenquer	Abrigada e Cabanas de Torres	Unknown	29/09/2022	Commercial	Fattening turkeys	11882
25/GAAP	Leiria	Marinha Grande	Marinha Grande	Wild bird	21/11/2022	Wild bird	Grey Heron (<i>Ardea cinerea</i>)	1

Table 1 – Outbreaks summary

2. Measures to control and eradicate the outbreaks – Poultry farms and backyard flocks

Upon confirmation of the outbreaks, control and eradication measures were immediately implemented according to Delegated Regulation (EU) n.º 2020/687 of 17 of December 2019.

These measures included:

- 2.1. Quarantine and epidemiological enquiry;
- 2.2. Stamping out (please see table 2 for details);

Outbreak	Stamping out date	Nº animals eliminated	Date preliminary clean&desinf	Final clean&desinf
1/GAAP	03/12/2021	79	08/12/2021	16/12/2021
2/GAAP	24-28/12/2021	18100	01/01/2022	09/01/2022
3/GAAP	31/12/21 - 3/01/22	7353	07/01/2022	15/01/2022
3C/GAAP	14/01/2022	96	17/01/2022	25/01/2022
4/GAAP	04/01/2022	60	07/01/2022	15/01/2022
7/GAAP	05-07/02/2022	12234	08/02/2022	16/02/2022
7B/GAAP	09-18/02/2022	61112	18/02/2022	26/02/2022
7C/GAAP	11-18/02/2022	31387	18/02/2022	26/02/2022
7D/GAAP	15-17/02/2022	12498	19/02/2022	27/02/2022
8/GAAP	19/02/2022	26	20/02/2022	28/02/2022
7E/GAAP	20/02/2022	85500	21/02/2022	01/03/2022
10/GAAP	01/03/2022	13	01/03/2022	09/03/2022
11/GAAP	03/03/2022	60	03/03/2022	11/03/2022
13/GAAP	16/03/2022	46	17/03/2022	25/03/2022
16/GAAP	12/08/2022	95	13/08/2022	20/08/2022
18/GAAP	31/08/2022-01/09/2022	44868	05-07/09/2022	21/09/2022
20/GAAP	02-05/09/2022	192281	06-08/09/2022	25/09/2022
24/GAAP	30/09/2022	11882	03/10/2022	31/10/2022

Table 2 – Stamping out and cleaning and disinfection details

- 2.3. Disposal of carcasses, by-products (manure) and waste;
- 2.4. Cleaning and disinfection;
- 2.5. Tracing and recall of meat and eggs;
- 2.6. Implementation of restriction zones:
 - 2.6.1. Protection zone – area within a circle of a 3 km radius centred on the infected premises;
 - 2.6.2. Surveillance zone - area within a circle of a 10 km radius centred on the infected premises.

The map below (Figure 2) shows the location of the last outbreaks detected in poultry (18/GAAP, 20/GAAP and 24/GAAP) as well as the restriction zones implemented .

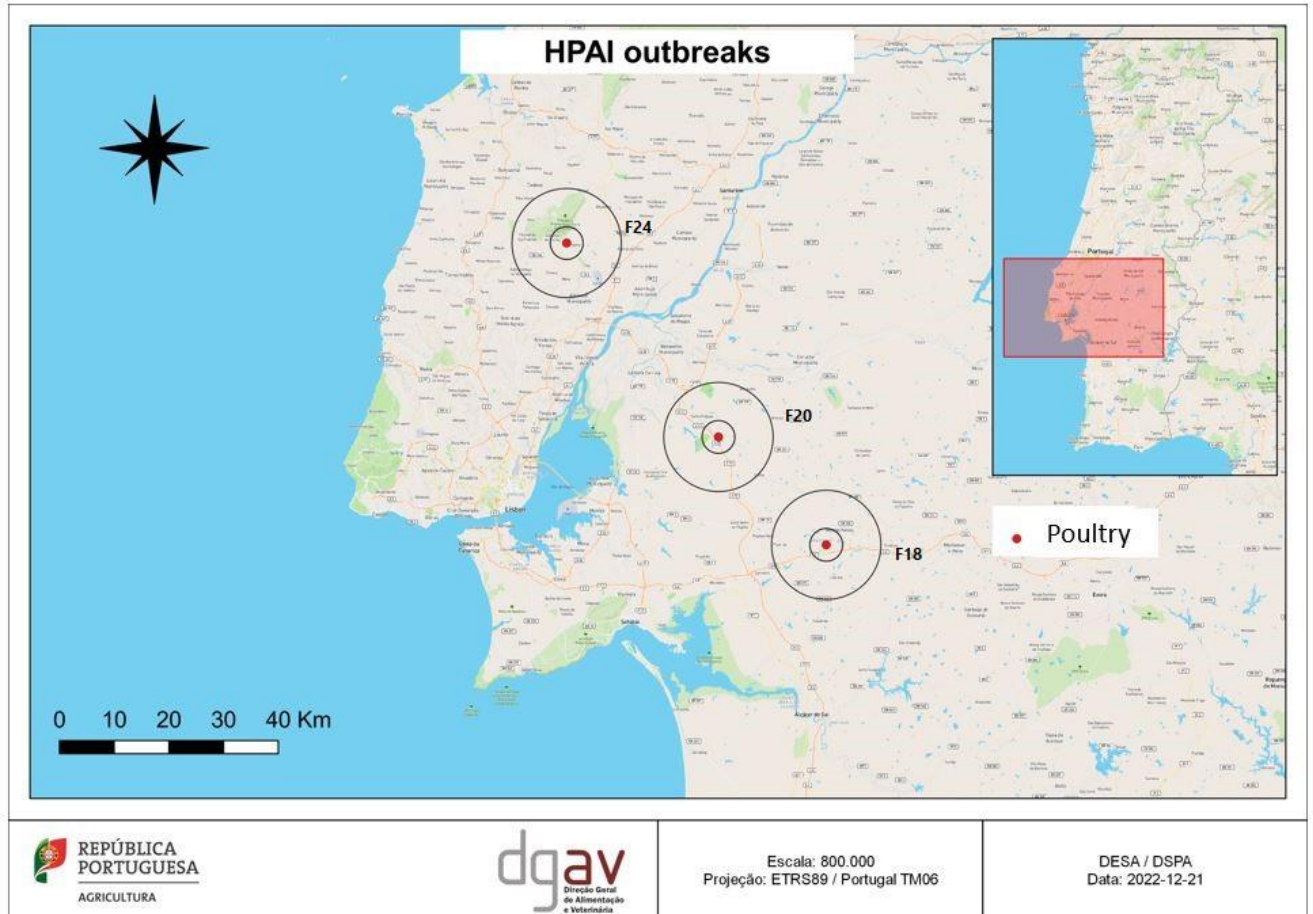


Figure 2 – Location of outbreaks in poultry, including restriction zones.

The following table shows the counties and parishes located within the aforementioned restriction zones:

District	Outbreak	Protection Zone (PZ)		Number of farms in PZ		Surveillance Zone (SZ)		Number of farms in SZ		
		County	Parishes	Large farms	Small farms & backyard flocks	County	Parishes	Large farms	Small farms & backyard flocks	
Évora	18/GAAP-Vendas Novas (38.652439, - 8.4827665)	Vendas Novas	Vendas Novas	0	1	Vendas Novas	Landeira	0	1	
		Montemor-o-Novo	Cabreia	0	0	Montemor-o-Novo	Cabreia, Foros de Vale de Figueira, Cortiçadas de Lavre e Lavre, N.S. da Vila, N.S. do Bispo e Silveiras,	0	3	
						Montijo (distrito de Setúbal)	Canha, Pegões	0	3	
Santarém	20/GAAP-Santo Estevão (38.829589, - 8.710556)	Benavente	Samora Correia, Santo Estevão	0	1	Benavente	Benavente	2	7	
							Santo Estevão	1	0	
		Montijo	Canha	0	0	Coruche	Branca, Biscainho	0	0	
						Montijo	Canha	1	3	
Lisboa	24/GAAP - Abrigada e Cabanas de Torres (39.147585,- 9.03407)	Alenquer	Ventosa, Vila Verde dos Francos, Abrigada e Cabanas de Torres	7	20	Alenquer	Carnota, Meca. Olhalvo, Ota, Aldeia Galega da Merceana e Aldeia Gavinha, Santo Estevão e Triana, Ribafria e Pereiro de Palhacana	12	68	
							Azambuja			Alcoentre, Aveiras de Cima, Azambuja, Manique do Intendente, V.N. de S. Pedro e Maçussa
							Cadaval			Vilar, Cadaval e Pero Moniz, Lamas e Cercal
							Torres Vedras			Maxial e Monte Redondo

Table 3 – Poultry holdings within restriction zone

3. Measures implemented within the restriction zones:

3.1. Protection zone

- Inventory of all poultry holdings;
- All holdings were visited by official veterinarians for clinical examination of the poultry and other captive birds and sampling for laboratory testing for HPAI virus;
- Poultry keepers must immediately report any increased morbidity or mortality or significant drop in production data in order to allow timely and appropriate investigations by DGAV;
- Movement restrictions and prohibitions:
 - no poultry or other captive birds as well as eggs, for incubation or consumption, may enter or leave a holding without authorisation granted by DGAV;
 - removal or spreading of used litter, manure or slurry from holdings is prohibited. Removal of manure and used litter may be carried out when authorised by DGAV;
 - transport of poultry meat from slaughterhouses, cutting plants and cold stores is prohibited unless authorised by DGAV;
 - fairs, markets, shows or other gatherings of poultry or other captive birds are prohibited.
 - Release of poultry for game birds restocking is prohibited.
- Reinforced biosecurity measures:
 - Preventing contacts with wild birds;
 - Entrance of staff and visitors only when strictly necessary;
 - Records of each visit must be kept by holdings;
 - All staff and visitors entering or leaving poultry holdings must strictly follow disinfection procedures;
 - All parts of vehicles entering or leaving poultry holdings must be cleaned and disinfected;
 - Dead birds (normal daily mortality) must be promptly disposed according to Regulation (EC) n.º 1069/2009;
 - All vehicles and equipment used for transporting live poultry or other captive birds, meat, feed, manure, slurry and bedding and any other material or substances likely to be contaminated are cleaned and disinfected after each transport and allowed to completely dry before any subsequent use.

Measures within the protection zone are lifted 21 days after conclusion of the preliminary cleaning and disinfection of the infected holdings. At the end of this period, protection zone is then included in the surveillance zone for 9 days.

3.2. Surveillance zone:

- Inventory of all poultry holdings;
- A sample of holdings are visited by official veterinarians for clinical examination of the poultry and other captive birds and, if necessary, sampling for laboratory testing for HPAI virus;

- Poultry keepers must immediately report any increased morbidity or mortality or significant drop in production data in order to allow timely and appropriate investigations by DGAV;
- Movement restrictions and prohibitions:
 - no poultry or other captive birds as well as eggs, for incubation or consumption, may enter or leave a holding without authorisation granted by DGAV;
 - removal or spreading of used litter, manure or slurry from holdings is prohibited. Removal of manure and used litter may be carried out when authorised by DGAV;
 - transport of poultry meat from slaughterhouses, cutting plants and cold stores is prohibited unless authorised by DGAV;
 - fairs, markets, shows or other gatherings of poultry or other captive birds are prohibited.
 - Release of poultry for game birds restocking is prohibited.
- Reinforced biosecurity measures:
 - Preventing contacts with wild birds;
 - Entrance of staff and visitors only when strictly necessary;
 - Records of each visit must be kept by holdings;
 - All staff and visitors entering or leaving poultry holdings must strictly follow disinfection procedures;
 - All parts of vehicles entering or leaving poultry holdings must be cleaned and disinfected;
 - Dead birds (normal daily mortality) must be promptly disposed according to Regulation (EC) n.º 1069/2009;
 - All vehicles and equipment used for transporting live poultry or other captive birds, meat, feed, manure, slurry and bedding and any other material or substances likely to be contaminated are cleaned and disinfected after each transport and allowed to completely dry before any subsequent use.

These measures are enforced for at least 30 days following the date of completion of preliminary cleansing and disinfection on the infected holding. Please see table 4 for details regarding duration of control measures within restriction zones.

Outbreak	Date of restrictions' lifting
1/GAAP	07/01/2022
2/GAAP	31/01/2022
3/GAAP	05/02/2022
3C/GAAP	15/02/2022
4/GAAP	05/02/2022
7/GAAP	10/03/2022
7B/GAAP	20/03/2022
7C/GAAP	20/03/2022
7D/GAAP	21/03/2022
8/GAAP	22/03/2022
7E/GAAP	25/03/2022
10/GAAP	01/04/2022
11/GAAP	03/04/2022
13/GAAP	16/04/2022
16/GAAP	12/09/2022
18/GAAP	07/10/2022
20/GAAP	10/10/2022
24/GAAP	02/11/2022

Table 4 - Restrictions' lifting dates

4. Testing carried out within the scope of Avian Influenza contingency plan, active surveillance in poultry and wild bird's passive surveillance - Laboratory data (until November 30th 2022)

As mentioned above, reinforced surveillance was implemented within protection and surveillance zones aimed at detecting spreading of the disease as well as before granting derogations for birds and products movements.

Within the scope of the avian influenza contingency plan, including clinical suspicions and reinforced surveillance within restriction areas implemented and regarding poultry, a total of 3.785 birds from 152 holdings were tested. Please see table 5 for details regarding this testing in poultry.

Avian Influenza Contingency Plan				
Surveillance type	Nº of tested holdings	Nº of tested birds	Nº positive holdings	Nº of positive birds
Clinical suspicions	35	441	13	80
Protection zone	79	2011	5	299
Surveillance zone	38	1333	1	3
Total	152	3785	19	382

Table 5 – Avian Influenza Contingency Plan - Poultry laboratory results

Portugal carries out an avian influenza active surveillance programme in poultry, according to annex II to Delegated Regulation (EU) n° 2020/689. Therefore, this is a risk based surveillance which includes all poultry establishments located in higher risk areas for introduction of avian influenza virus as well areas of higher density of such establishments. Table 6 shows the results of active surveillance in poultry, between January 1st and November 30th 2022.

Active Surveillance/2022	N° sampled birds	N° of tested establishments	N° negative establishments	N° positive establishments
Laying hens	1090	109	109	0
Free range laying hens	480	47	47	0
Fattening turkeys	550	55	54	0
Ducks (breeders and fattening)	850	41	41	1
Game birds - pheasants	10	1	1	0
Game birds - partridges	220	22	22	0
Game birds - waterfowl	43	5	5	0
Quails	140	14	14	0
Total	3383	294	293	1

Table 6 – Avian Influenza Surveillance Plan – Active surveillance in poultry

The positive fattening ducks establishment, located in Santo Estevão, Benavente, district of Santarém corresponds to outbreak 20/GAAP.

Within the scope of the Avian Influenza Surveillance Programme, passive surveillance in wild birds is also carried out. Results of this surveillance, done primarily in wild birds found dead or diseased, are shown in the table below:

Common name	Scientific name	N° of tested birds	N° negative birds	N° positive birds	Outbreak	Virus subtype
Common Buzzard	<i>Buteo buteo</i>	3	3	0	not applicable	not applicable
Western Marsh Harrier	<i>Circus aeruginosus</i>	1	1	0	not applicable	not applicable
White Stork	<i>Ciconia ciconia</i>	14	13	1	9/GAAP	H5N1
Whooper Swan	<i>Cygnus cygnus</i>	1	1	0	not applicable	not applicable
Ruff	<i>Calidris pugnax</i>	1	1	0	not applicable	not applicable
Barn Owl	<i>Tyto alba</i>	2	2	0	not applicable	not applicable
Tawny Owl	<i>Strix aluco</i>	1	1	0	not applicable	not applicable
Cormorant	<i>Phalacrocorax carbo</i>	1	1	0	not applicable	not applicable
Spotless Starling	<i>Sturnus unicolor</i>	1	1	0	not applicable	not applicable
Gadwall	<i>Anas strepera</i>	1	1	0	not applicable	not applicable

Common name	Scientific name	Nº of tested birds	Nº negative birds	Nº positive birds	Outbreak	Virus subtype
Eurasian Jay	<i>Garrulus glandarius</i>	3	1	2	12/GAAP	H5N1
Gull	<i>Larus sp.</i>	7	7	0	not applicable	not applicable
Herring Gull	<i>Larus argentatus</i>	7	7	0	not applicable	not applicable
Lesser Black-Backed Gull	<i>Larus fuscus</i>	43	43	0	not applicable	not applicable
Audoin's Gull	<i>Ichthyaetus audouinii</i>	3	3	0	not applicable	not applicable
Mediterranean Gull	<i>Larus melanocephalus</i>	1	1	0	not applicable	not applicable
Yellow-Legged-Gull	<i>Larus michahellis</i>	56	53	3	6/GAAP e 15/GAAP	H5N1
Coot	<i>Fulica atra</i>	2	2	0	not applicable	not applicable
Common Moorhen	<i>Gallinula chloropus</i>	1	1	0	not applicable	not applicable
Eurasian Woodcock	<i>Scolopax rusticola</i>	2	2	0	not applicable	not applicable
Greylag Goose	<i>Anser anser</i>	6	2	4	4B/GAAP e 5/GAAP	H5N1
Egyptian Goose	<i>Alopochen aegyptiacus</i>	1	1	0	not applicable	not applicable
Northern Gannet	<i>Morus bassanus</i>	10	6	4	14/GAAP, 21/GAAP, 22/GAAP e 23/GAAP	H5N1
Purple Heron	<i>Ardea purpurea</i>	1	1	0	not applicable	not applicable
Little Egret	<i>Egretta garzetta</i>	2	2	0	not applicable	not applicable
Grey Heron	<i>Ardea cinerea</i>	3	2	1	25/GAAP	H5N1
Common Black-Headed Gull	<i>Chroicocephalus ridibundus</i>	8	8	0	not applicable	not applicable
Common Blackbird	<i>Turdus merula</i>	2	2	0	not applicable	not applicable
Red Kite	<i>Milvus milvus</i>	2	2	0	not applicable	not applicable
Little Owl	<i>Athene noctua</i>	1	1	0	not applicable	not applicable
Common Scoter	<i>Melanitta nigra</i>	2	2	0	not applicable	not applicable
Puffin	<i>Fratercula arctica</i>	1	1	0	not applicable	not applicable
Muscovy Duck	<i>Cairina moschata</i>	7	4	3	3B/GAAP	H5N1
Mallard	<i>Anas platyrhynchos</i>	11	10	1	19/GAAP	H5N1
Iberian Magpie	<i>Cyanopica cooki</i>	1	1	0	not applicable	not applicable
Eurasian Kestrel	<i>Falco tinnunculus</i>	1	1	0	not applicable	not applicable
Sanderling	<i>Calidris alba</i>	1	1	0	not applicable	not applicable

Common name	Scientific name	Nº of tested birds	Nº negative birds	Nº positive birds	Outbreak	Virus subtype
Pigeon	<i>Columba livia</i>	12	12	0	not applicable	not applicable
Hoopoe	<i>Upupa epops</i>	1	1	0	not applicable	not applicable
European Turtle Dove	<i>Streptopelia turtur</i>	4	4	0	not applicable	not applicable
Eurasian Collared Dove	<i>Streptopelia decaocto</i>	12	12	0	not applicable	not applicable
Song Thrush	<i>Turdus philomelus</i>	3	3	0	not applicable	not applicable
Cory's Shearwater	<i>Calonectris diomedea</i>	3	3	0	not applicable	not applicable
Total		246	227	19		

Table 7 – Passive surveillance in wild birds

5. Outbreak description and control measures - wild birds

Outbreak 4/GAAP:

On January 4th 2022, H5N1 infection was confirmed in 2 greylag goose (*Anser anser*) found dead at Barragem dos Patudos, in county and parish of Alpiarça, district of Santarém, region of Lisboa e Vale do Tejo. Barragem dos Patudos is part of a county park and leisure area and there are no poultry farms in the vicinity (within a 3 km radius). However, there is a holding keeping captive birds for purposes of exhibition and education and this holding was immediately visited by official veterinarians for clinical inspection and sampling. A total of 40 swabs (oropharyngeal and cloacal) were tested for the presence of HPAI H5N1 virus and all were negative.

Fairs, markets and other gatherings of birds were prohibited in this area.

Outbreaks 6/GAAP e 3B/GAAP:

On January 10th 2022, H5N1 infection was confirmed on 2 yellow legged gulls (*Larus michahellis*) in Praia do Baleal, Ferrel, Peniche, district of Leiria and on 3 wild Barbary ducks (*Cairina moschata*) on the city park at Vila Nova da Barquinha.

In the vicinity of the area where the yellow legged gulls were found there are 3 poultry establishments: 2 fattening turkeys farms and one backyard flock. Surveillance of these establishments is ongoing.

The city park of Vila Nova da Barquinha is included within the surveillance zone of outbreak 3/GAAP.

Outbreak 4B/GAAP:

On January 18th 2022, H5N1 infection was confirmed on a diseased greylag goose (*Anser anser*) which was found in the area of Lagoa de Santo de André e da Sancha Natural Reserve, within the limits of outbreak 4 surveillance zones. In the vicinity of this area there is only a backyard flock and all its birds are currently healthy.

Outbreak 9/GAAP:

On February 25th 2022, H5N1 infection was confirmed on a diseased white stork (*Ciconia ciconia*) found in the area of Silves, Faro district, Algarve. There are no commercial poultry farms in this area, only backyard flocks

Outbreak 12/GAAP:

On March 10th 2022, infection by the H5N1 virus was confirmed in an eurasian jay (*Garrulus glandarius*) found dead in the parish of S. Matias, Beja. As in the previous case, there are no commercial poultry establishments in the vicinity of the place where this bird was found.

Outbreak 14/GAAP:

On June 22nd 2022, infection by the H5N1 virus was confirmed in a diseased northern gannet (*Morus bassanus*) found in Praia do Baleal, Ferrel, Peniche, district of Leiria. This bird subsequently died while being transported to a wildlife rescue centre. There are no commercial poultry establishments in the area where this bird was found.

Outbreak 16/GAAP:

On July 29th 2022, a yellow-legged gull found diseased in Praia do Cabedelo, Figueira da Foz. The bird was collected and transported to a wildlife rescue centre (CRAM) – ECOMARE, in Gafanha da Nazaré, where it subsequently died. In the surroundings of the site where the bird was collected there are no commercial poultry establishments.

Outbreak 17/GAAP:

On August 26th 2022, infection by highly pathogenic avian influenza virus of subtype H5N1 was confirmed in a geese (*Anser anser*) kept in an urban park in the city of Beja. Several other birds present at this location (geese, barbary ducks and mallards) will be killed and destroyed. There are no commercial poultry establishments in this district and no restriction zones were implemented.

Outbreak 19/GAAP:

On August 30th infection by highly pathogenic avian influenza virus of subtype H5N1 was confirmed in a wild mallard found dead at a city park in Beja. In this location there were other four mallards which were tested and found to be negative to HPAI virus.

Outbreak 21/GAAP:

On September 14th, infection by highly pathogenic avian influenza virus, subtype H5N1, was confirmed in a Northern Gannet (*Morus bassanus*), collected in the Ria de Aveiro, off S. Jacinto, Aveiro municipality. The bird was prostrate and was delivered to the CRAM-Ecomare wildlife rescue centre, where it died. Given the location of collection, as well as the inexistence of registered poultry establishments in the area, no disease control measures were implemented.

Outbreak 22/GAAP:

On September 21st, infection by highly pathogenic avian influenza virus, subtype H5N1, was confirmed in a Northern Gannet (*Morus bassanus*), found dead at Francemar beach, Vila Nova de Gaia municipality. Given the location of collection, as well as the inexistence of registered poultry establishments in the area, no disease control measures were implemented.

Outbreak 23/GAAP:

On September 21st, infection by highly pathogenic avian influenza virus, subtype H5N1, was confirmed in a Northern Gannet (*Morus bassanus*), collected at Fonte da Telha beach, Almada municipality. Given the location of collection, as well as the inexistence of registered poultry establishments in the area, no disease control measures were implemented.

Outbreak 25/GAAP:

On November 21st, infection by highly pathogenic avian influenza virus, subtype H5N1, was confirmed in a Grey Heron (*Ardea cinerea*), collected at a city park, Marinha Grande municipality. Given the location of collection, as well as the inexistence of registered poultry establishments in the area, no disease control measures were implemented.

6. Information and communication

In addition to measures mentioned above, official information regarding the outbreaks was sent to the Ministries of Agriculture, Health and Environment and Climate Action as well as to counties, law enforcement and civil protection authorities.

Information concerning the outbreaks were also sent to all stakeholders, namely: poultry industry associations, racing pigeons associations, hunters associations and zoos, including instructions regarding preventive measures and biosecurity.

Press notes about each outbreak and public information and awareness leaflets including advice on biosecurity and HPAI preventive measures are available on DGAV webpage at:

- <https://www.dgav.pt/>
- <https://www.dgav.pt/animais/conteudo/animais-de-producao/aves-de-capoeira/saude-animal/doencas-das-aves/gripe-aviaria/>.

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