

22 September 2021



2020 Annual Surveillance report/HPAI Early Warning tool (assessing the risk of introduction via migratory wild birds)

Inma Aznar

EFSA

Trusted science for safe food

- To present the 2020 annual influenza surveillance report
- To present the new tool for visualising wild bird locations and connectivity (and publicising video)
- To inform about current projects aiming to empower MSs/EC early warning capabilities and decision making

SCIENTIFIC REPORT



APPROVED: 23 June 2021

Annual Report on surveillance for avian influenza in poultry and wild birds in Member States of the European Union in 2020

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Yves Van der Stede

Abstract

In 2020, Council Directive 2005/94/EC required EU Member States (MSs) to carry out surveillance for avian influenza (AI) in poultry and wild birds and notify the results to the responsible authority. Based on this, MSs, Iceland, Norway, Switzerland and the United Kingdom implemented ongoing surveillance programmes to monitor incursions of AI viruses in poultry and wild birds. EFSA received a mandate from the European Commission to collate, validate, analyse and summarise the data resulting from the avian influenza surveillance programmes in an annual report. This is the second such report produced using data directly submitted to EFSA by MSs. This report summarises the results of the surveillance activities carried out in poultry and wild birds in 2020. Overall, 24,768 poultry establishments (PEs) were sampled, of which 46 were seropositive for H5 virus strains and seven for H7 strains. Seropositive PEs were found in nine MSs (Belgium, Denmark, Finland, France, Italy, the Netherlands, Poland, Spain and Sweden) and the United Kingdom. As per previous years, the highest percentages of seropositive PEs were found in establishments raising waterfowl game birds and breeding geese. Out of the 53 PEs with positive serological tests for H5/H7, seven tested positive in polymerase chain reaction (PCR) or virology for H5(H7) virus strains: six for Low Pathogenic Avian Influenza (LPAI) and one for Highly Pathogenic Avian Influenza (HPAI). In addition, 13 countries also reported PCR results from 248 PEs which did not correspond to the follow-up testing of a positive serology event (e.g. in some PEs, PCR tests were used for screening). Twenty-five of these PEs were found positive for AI viral RNA. These positive PEs were located in Bulgaria, Estonia, Germany, Romania and Slovakia. A total of 18,968 wild birds were sampled, with 878 birds testing positive to HPAI virus. Fourteen countries reported HPAI-positive wild birds, with all HPAI strains identified as H5. Most positive birds were infected with H5N8, with a smaller number of H5N1, H5N5 and unidentified NA subtypes. In addition, there were 317 birds testing positive for LPAI H5 or H7 virus and 429 birds testing positive for non-H5/H7 AI virus, reported by 31 countries. The surveillance findings for poultry and wild birds for 2020 are discussed in relation to the current knowledge of the epidemiology of AI in Europe, in particular the H5N8 epidemic which has been identified late 2020.

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Keywords: Avian Influenza, HPAI, LPAI, surveillance, poultry, wild birds

Requestor: European Commission

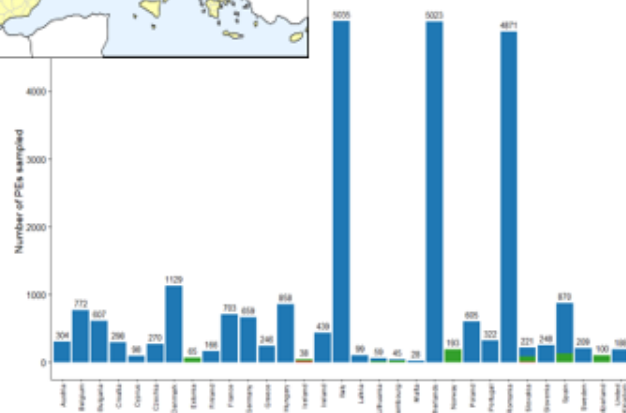
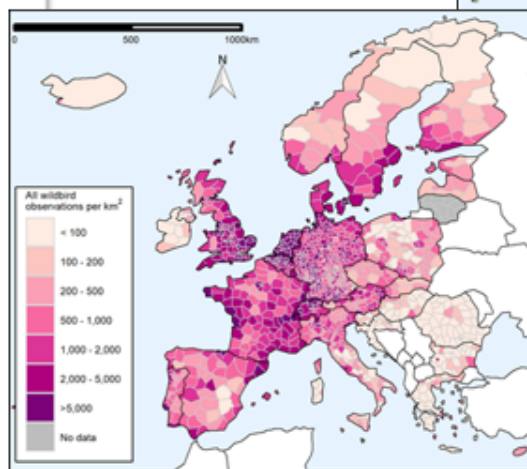
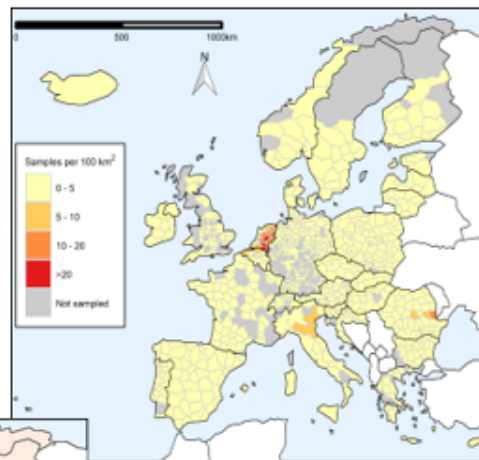
Question number: EFSA-Q-2021-00340

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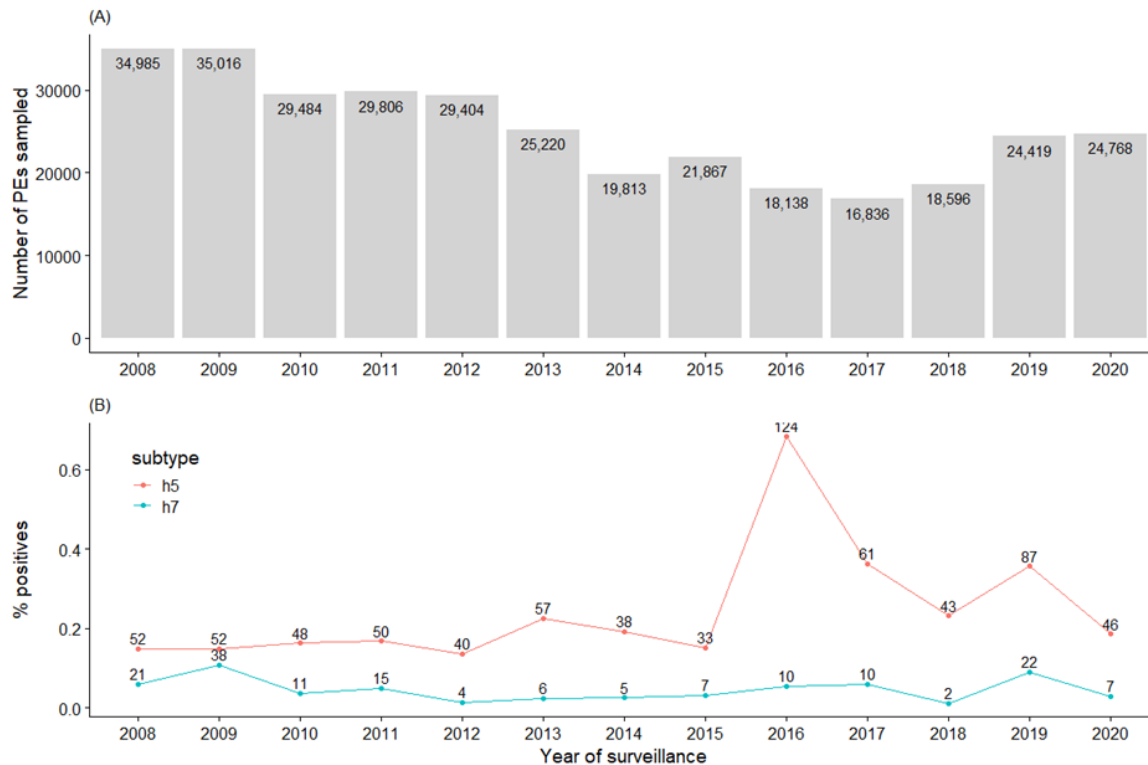
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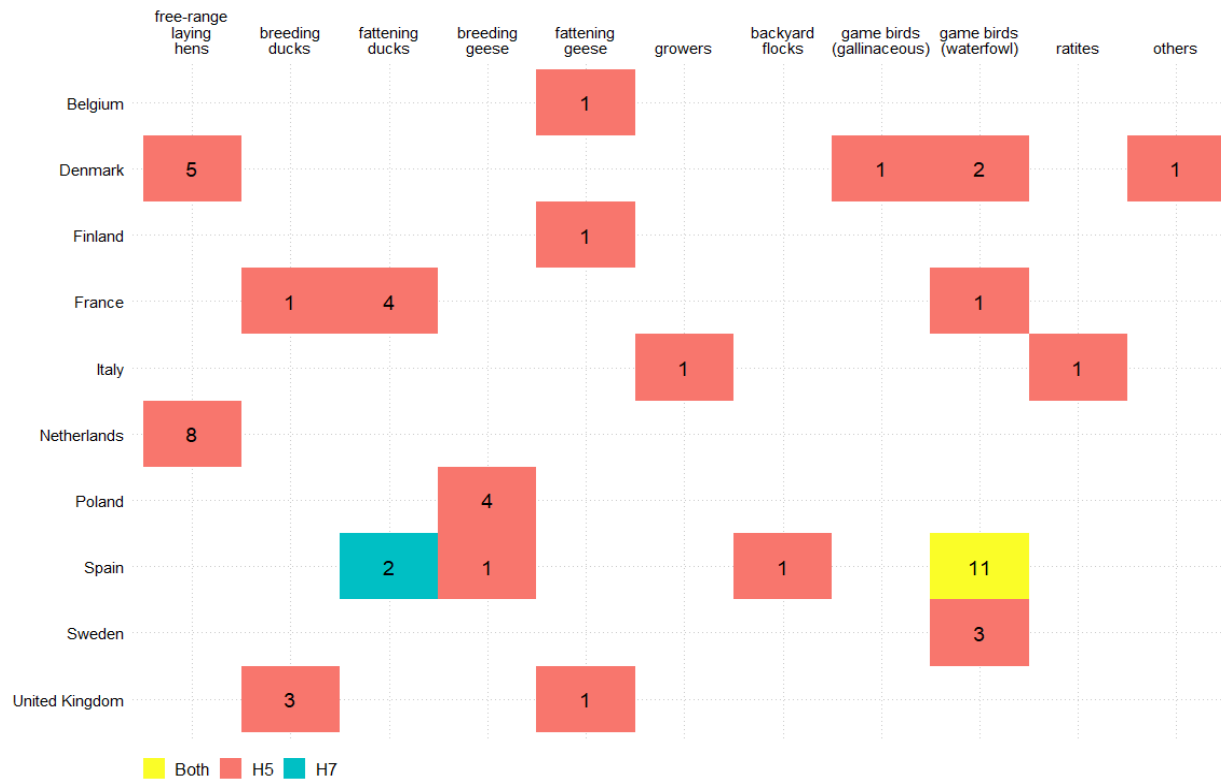
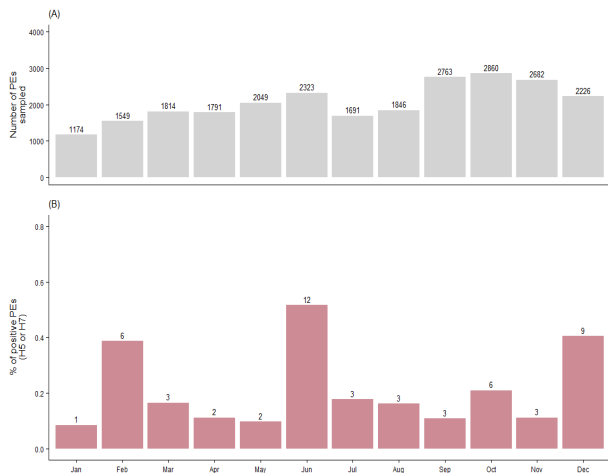
Programme type: EU co-funded active surveillance, National programmes, Private industry programmes

Poultry findings

- 31 reporting countries and **24,767** sampled Pes
- 53 seropositive to H5/H7 (**0.21% vs 0.45%** in 2019)..with 7 PCR positive (6LPAI and 1HPAI)
- 748 sampled for PCR with 25 PCR positives



Poultry findings



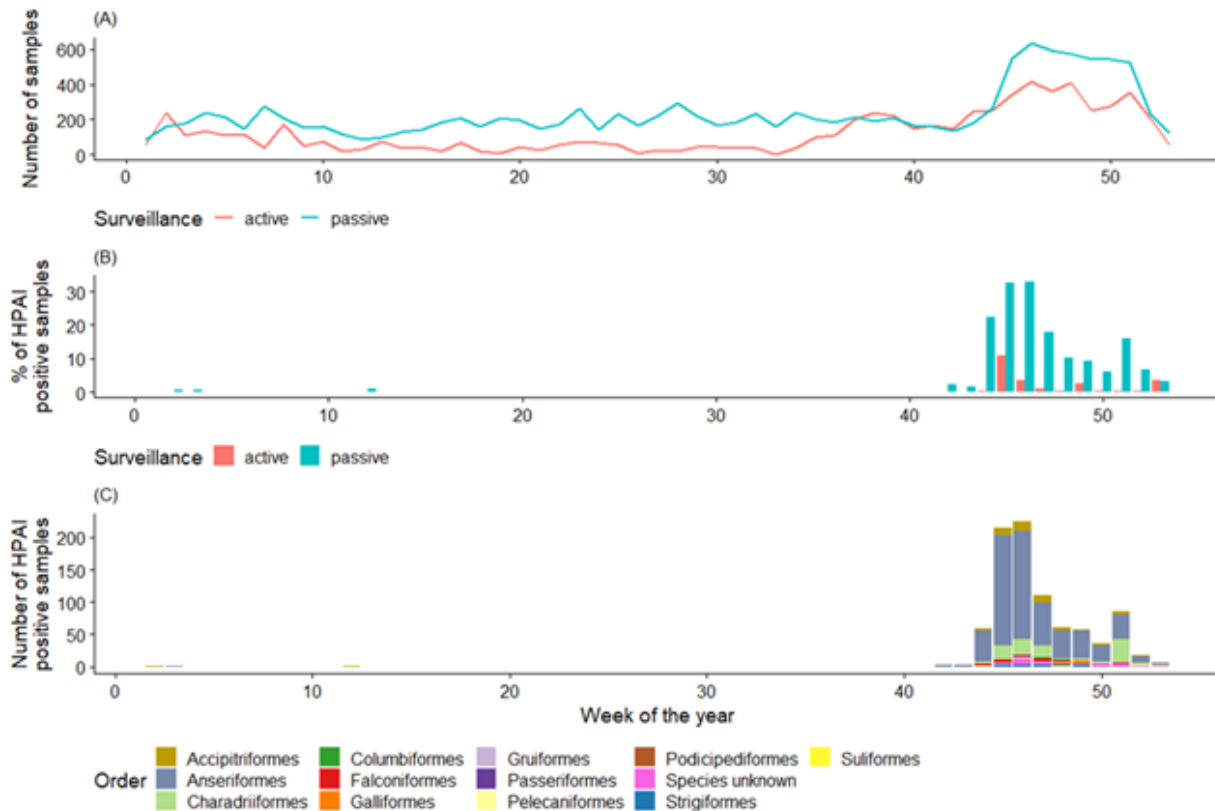
Wild bird findings (HPAI)

- 31 reporting countries and **18,968** reported wild birds: **12,418** passive surveillance and 6,550 active surveillance
- The number of wild birds tested by passive surveillance was much higher than in 2019 and 2018

	Bird status	No. of birds sampled	No. of AI positive birds			
			All positive	Positive in VI	HPAI positive	LP AI positive
active	Hunted with clinical signs	84	33	0	30	3
	Hunted without clinical signs	2,403	313	10	31	282
	Live without clinical signs	4,063	107	35	9	98
	Subtotal	6,550	453	45	70	383
passive	Found dead	11,904	1,157	11	797	360
	Live with clinical signs	514	14	1	11	3
	Subtotal	12,418	1,171	12	808	363
Total		18,968	1,624	57	878	746

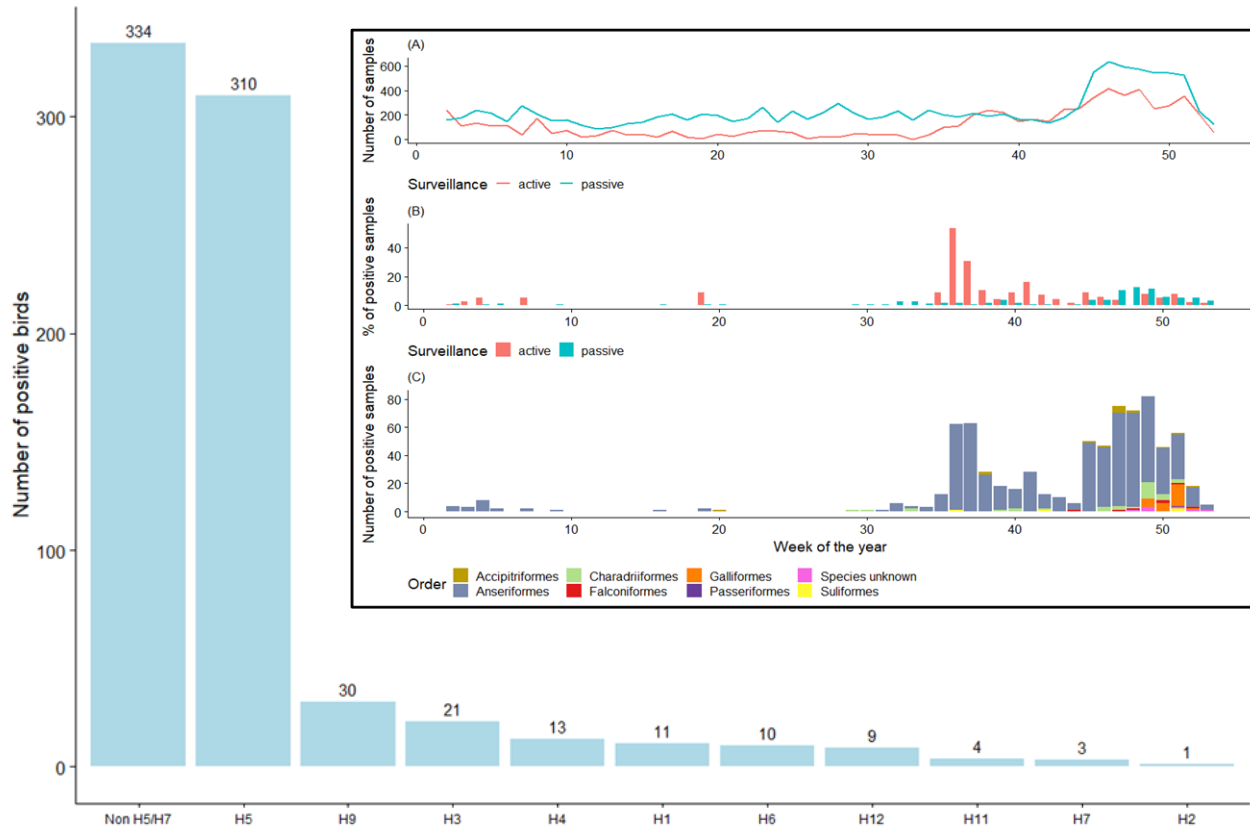
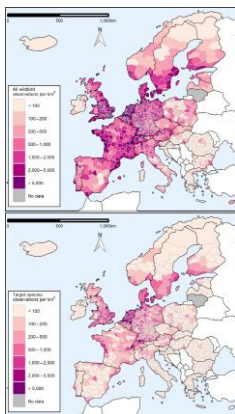
Wild bird findings (HPAI)

- The proportion of birds sampled that belonged to the high list of target species is **still low (35%)**
- % of HPAI positive birds much larger in samples taking via **passive surveillance**
- A large proportion of sampling and HPAI positives occurred in the last quarter of 2020



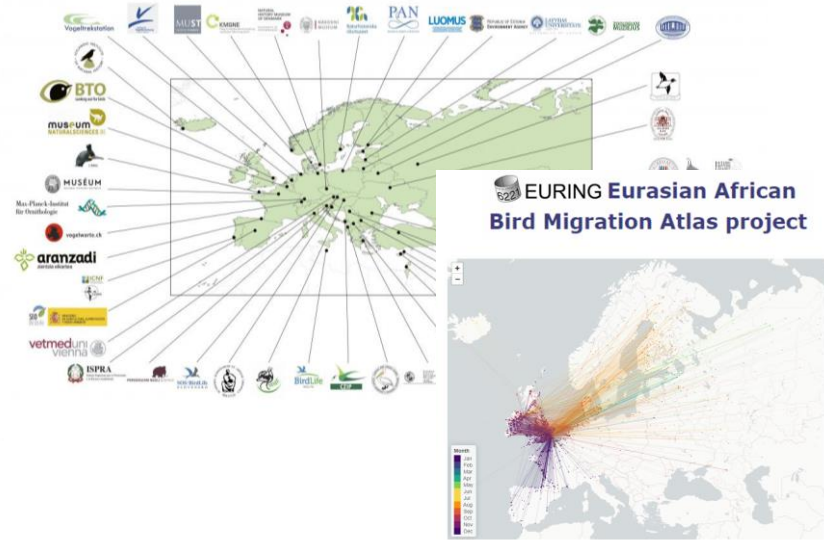
Wild bird findings (LPAI)

<http://doi.org/10.5281/zenodo.4967481>



- Important to ensure the **follow up** of serological results in poultry
- **Passive surveillance** in wild birds yield a much larger proportion of **HPAI** cases than active surveillance and therefore is recommended
- Sampling birds including in the **list of target species** of EFSA will lead to an earlier detection of HPAI

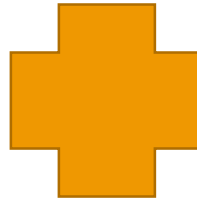
Tool to visualise the migration and connectivity of wild bird species in the target list for HPAI



✓ 20 online bird portals

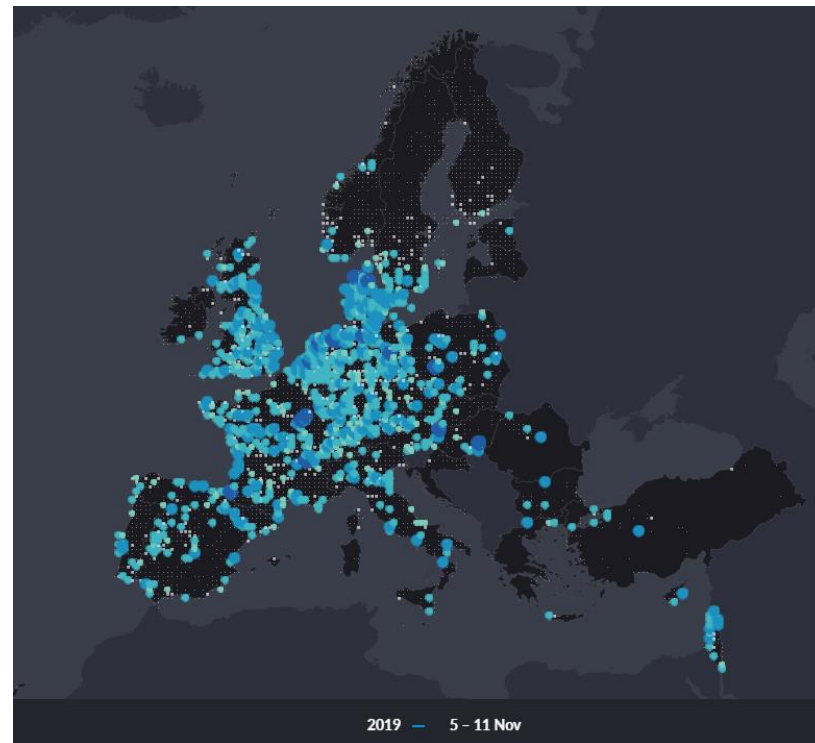
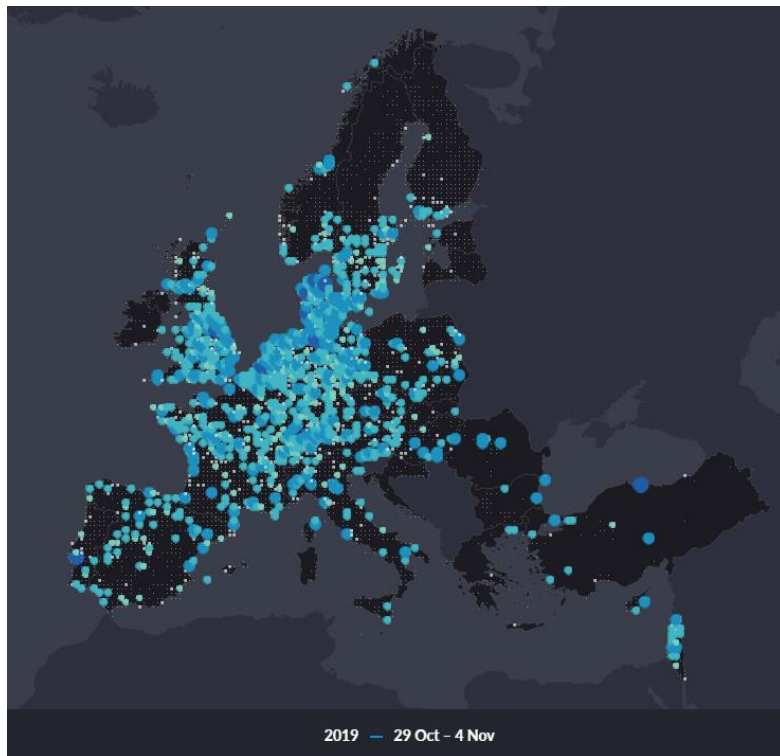
✓ 350 million bird records since 2010

✓ Updated with c. 140,000 new bird records everyday



✓ 35 ringing schemes submit data
✓ More than 100 years of accumulated data of bird recoveries

Wild bird Migratory Tool and publicising video



[PUBLICISING VIDEO](#)

Provision of a pilot project to develop an Early Warning System for HPAI (automated risk maps)

Key objective

-To develop a spatiotemporal model to predict the risk of entry and establishment of HPAI in wild birds (pilot)

-Results available by July 2022

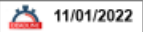
-If successful (if prediction is high), automated risk maps will be uploaded in the Migratory tool



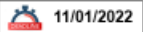
Catalan Ornithological Institute

Models of relative bird abundance based on EBP data for 12 key species (including Russian data)

Canada Goose, Greylag Goose, Pink-footed Goose, Greater White-fronted Goose, Taiga/Tundra Bean Goose, Mute Swan, Whooper Swan, Eurasian Wigeon, Mallard, Eurasian Teal, Common Pochard and Tufted Duck

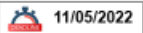


Models of bird movements (long-distance & local) based on EURING data for the same 12 key species



Global consultancy specialized in veterinary epidemiology

Development of a spatiotemporal risk assessment model of HP avian influenza introduction and establishment in Europe based on EBP and EURING model outputs + other risk parameters



Can additional surveillance outside the EU provide an early warning?

- Identify key hosts
- Identify key areas
- Identify key times for sampling

Important bird Areas in terms of aggregation of waterfowl

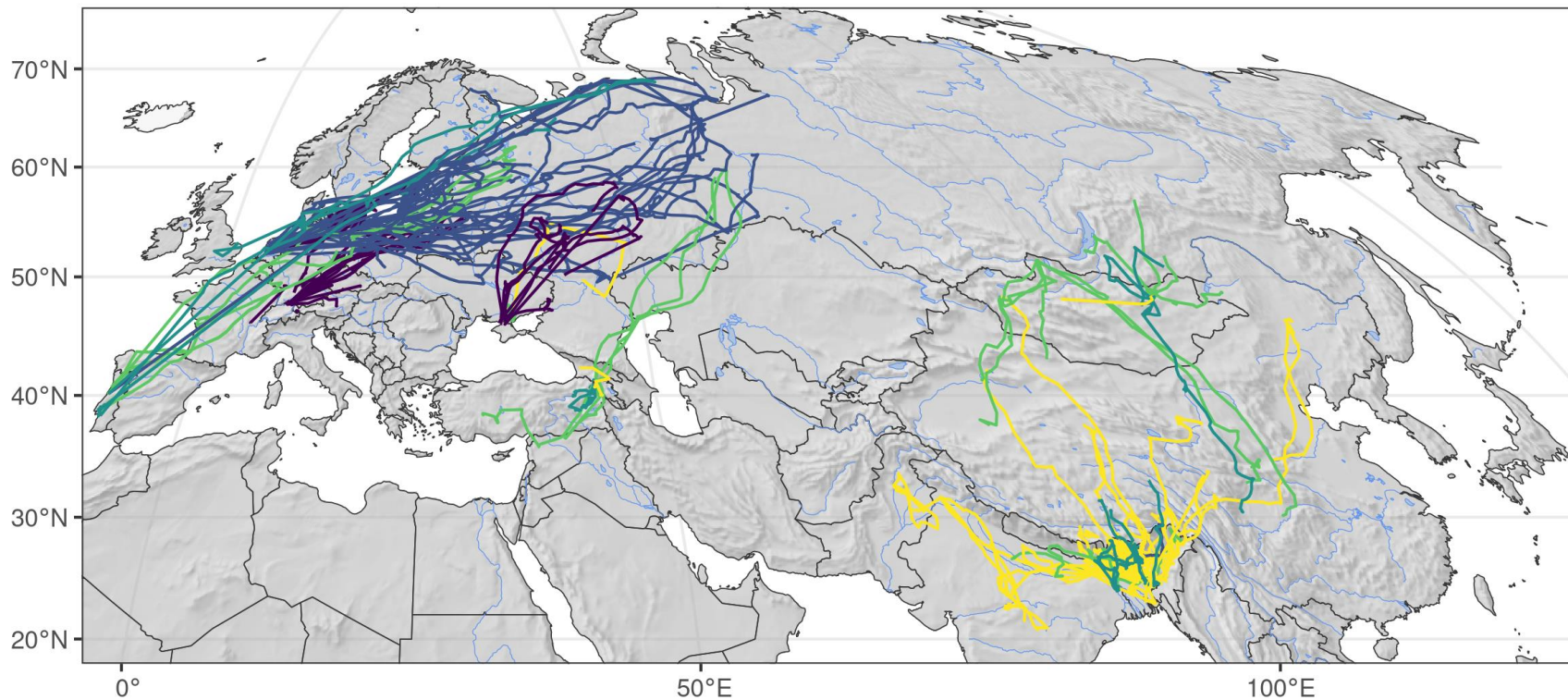


Pilot studies in Ukraine and Georgia

- Preliminary data from 20 Aug to 15 Sep >100 influenza positive samples
- From field to sequence in short times

Why these sites?

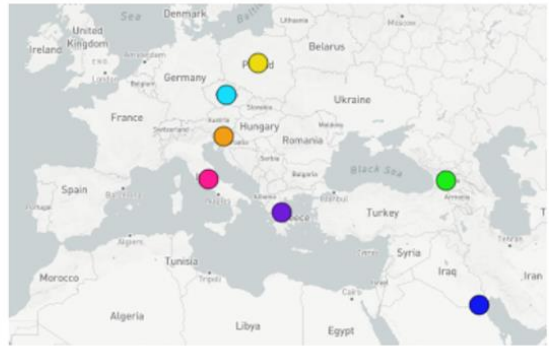
Waterfowl telemetry
movement data from
Delta-flu



How soon the results and what to expect?

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A_gonae_Russia_Novosibirsk_region_1_2020_HMNS_2020-09-15
Sub02021_A_chicken_Germany_016920_2021_HMNS_2021-02-17
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In 2020, retrospective analysis show Georgia samples positive 4-6 weeks before EU

More than 100 positive samples since 20 August for which we will have full genome sequence data by the end of September

Thanks

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