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Review of HPAI Outbreaks, and Prospects for Future

SWCA – January 2024

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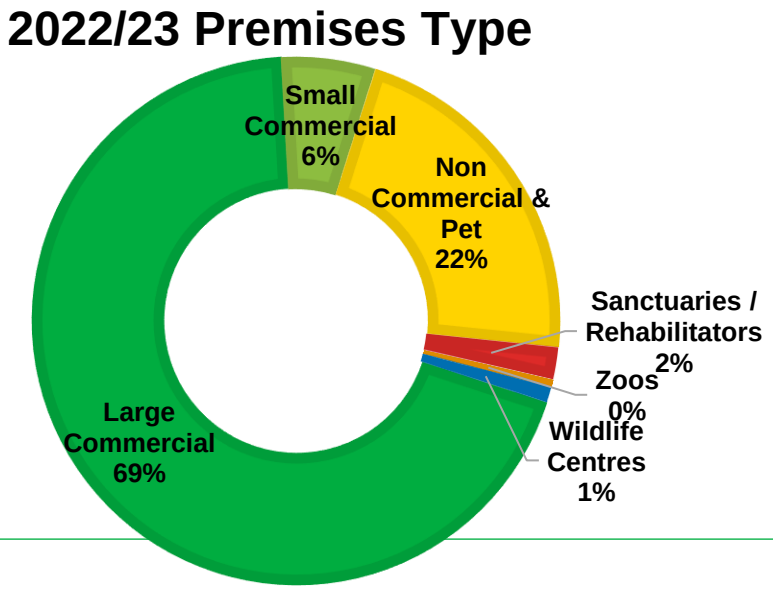
Defra

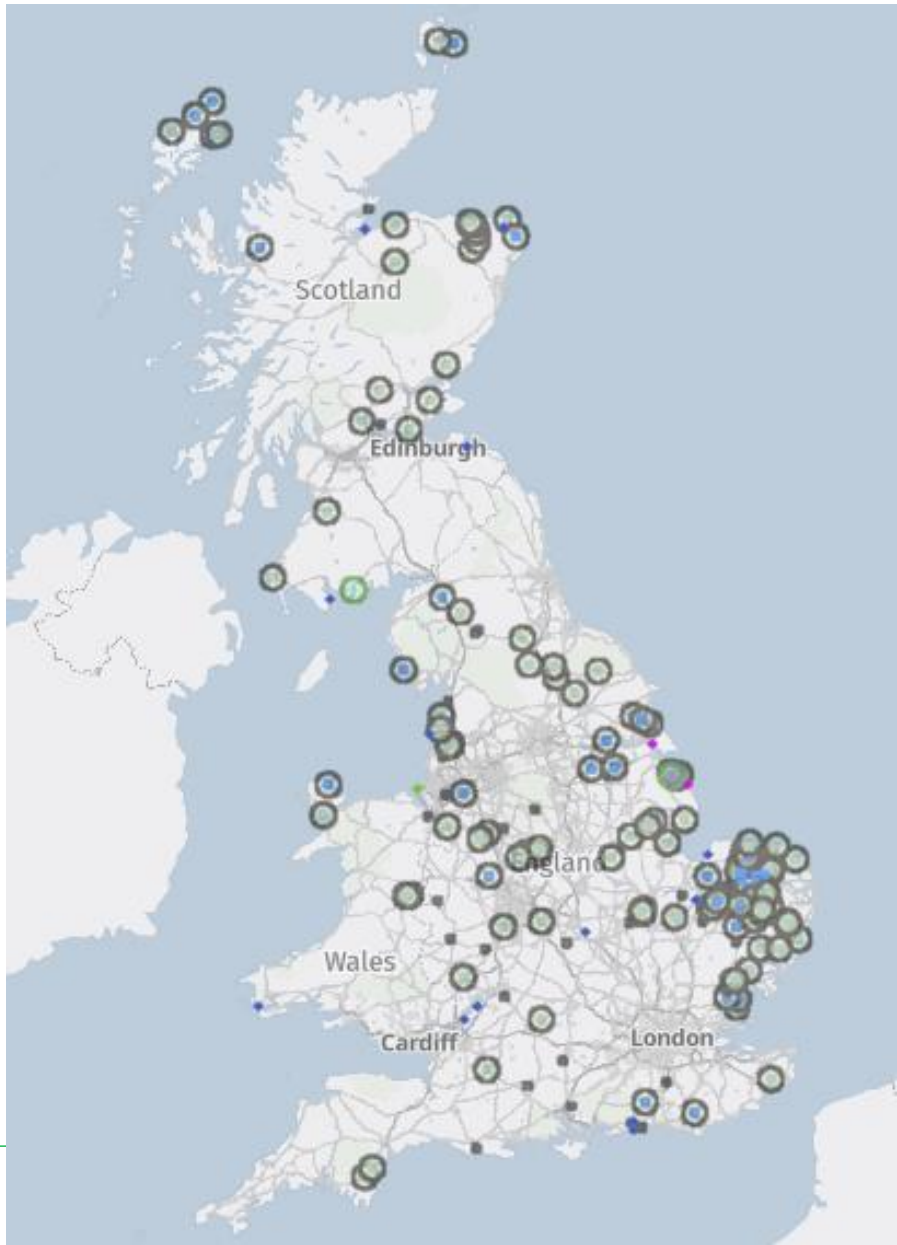
Overview

- Comparison between last year and this year
- Some observations from outbreak
- What should we be doing now

Review of the 2022/23 avian influenza outbreak – 207 cases

- First Infected Premises on 01 October 2022 – last on 27 September 2023
- 2022/2023 cases of H5N1 highly pathogenic avian
  - 160 x cases in England
  - 38 x cases in Scotland
  - 8 x cases in Wales
  - 1 x cases in Northern Ireland
- 1 outbreak of low pathogenic avian influenza





Compare that with the position this year – 5 cases

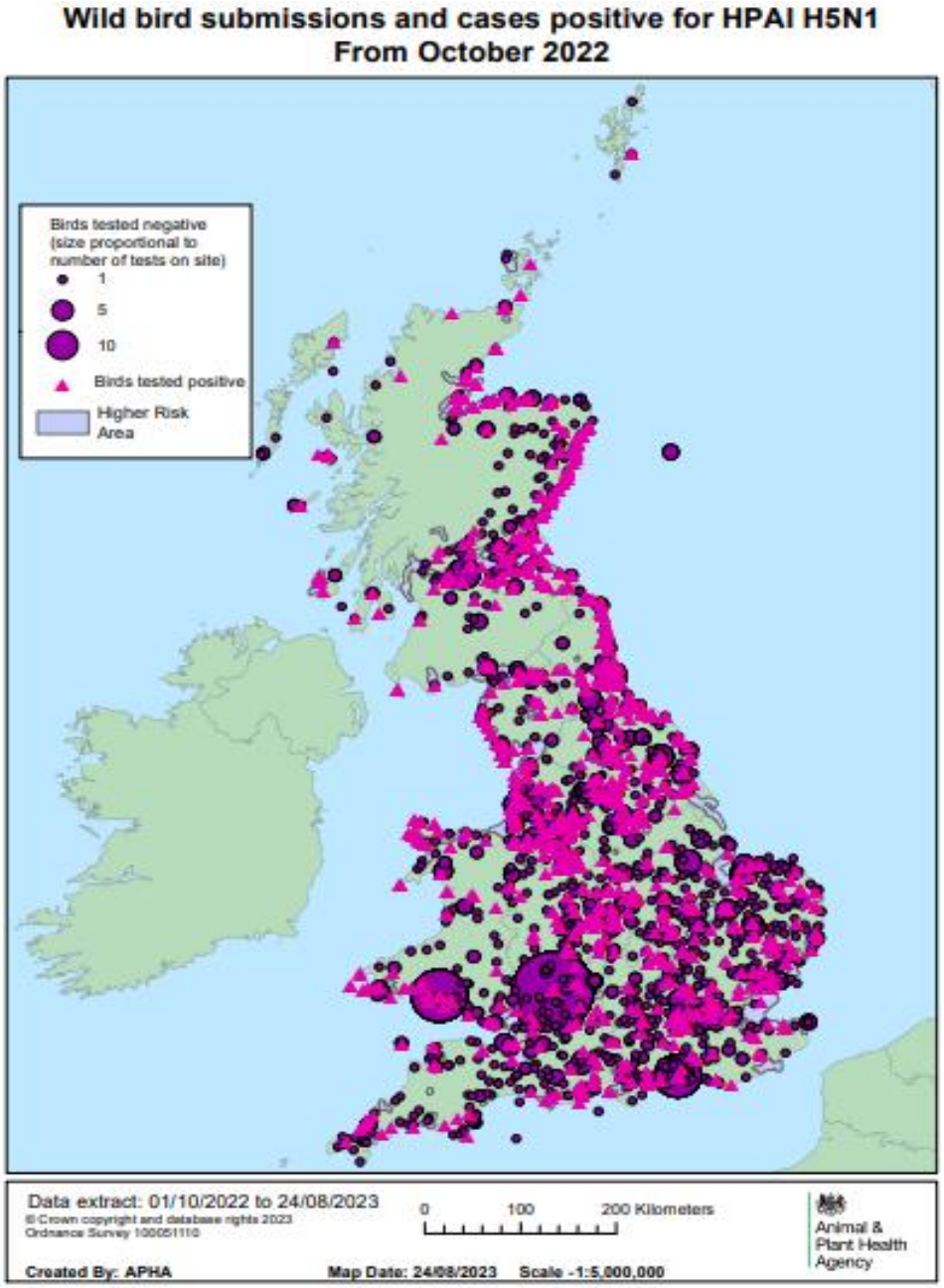
- First Infected Premises on 23 October 2023 –
- 2023/2024 cases of H5N1 highly pathogenic avian
  - 3 x cases in England
  - 2 x cases in Scotland
  - 0 x cases in Wales
  - 0 x cases in Northern Ireland
- Two backyard and 3 commercial

2022/23 Wild Bird Findings – 1580 findings

- 1,580 wild birds have tested positive for avian influenza in GB (05/09/23)
- At 452 locations
- In 90 counties
- In 61 species

- Large number of detections in black headed gulls for the first time.

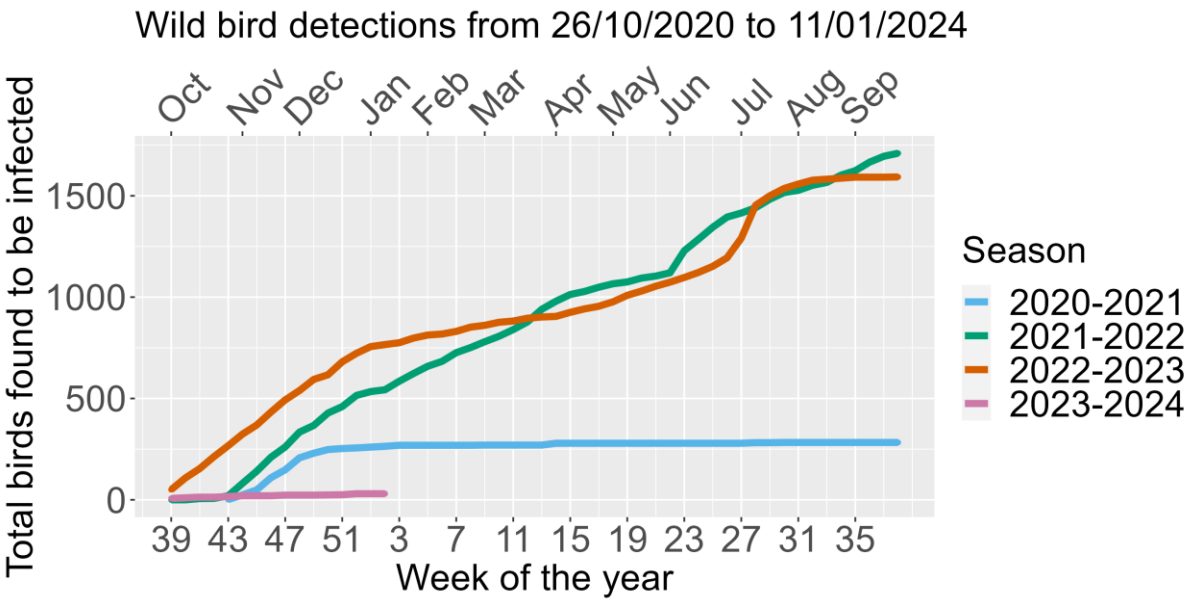
- Mortality noted again in breeding seabirds over the summer months.



Compare with 2023/24 - Wild Bird Findings - 22

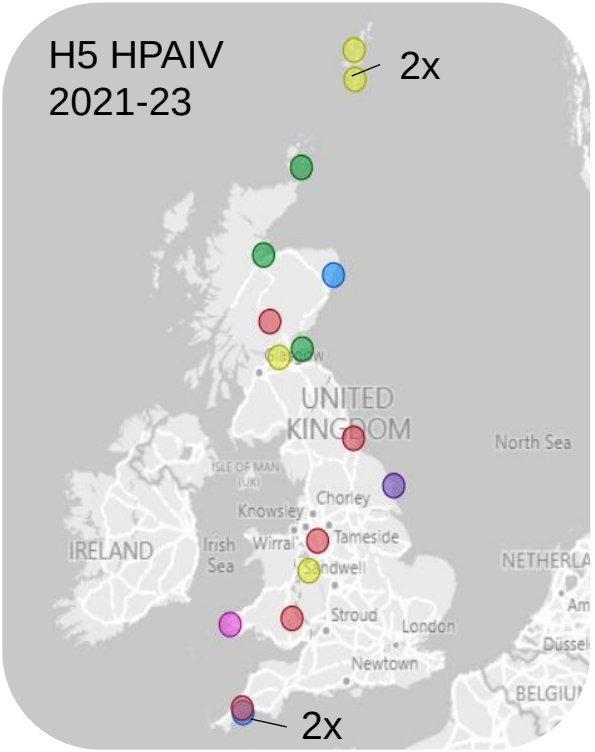
- Recent findings have been almost exclusively in seabirds and in coastal locations

- To-date 22 cases in 18 locations in 13 species and in 14 counties
- Same time last year were 766 findings



Non-avian wildlife testing for H5 HPAIV

Species	Negative	HPAIV H5N1	HPAIV H5Nx	Influenza A (non-H5 HPAIV)	Total tested
Red fox (*Vulpes vulpes*)	16	**6**	**0**	0	22
Otter (*Lutra lutra*)	47	**5**	**0**	0	52
Badger (*Meles meles*)	1	**0**	**0**	0	1
Grey seal (*Halichoerus grypus*)	45	**5**	**1**	0	51
Harbour seal (common seal, *Phoca vitulina*)	49	**3**	**0**	3	55
Harp seal (*Pagophilus groenlandicus*)	1	**0**	**0**	0	1
Unspecified seal	37	**0**	**0**	0	37
Stoat (*Mustela erminea*)	2	**0**	**0**	0	2
Common dolphin (*Delphinus delphis*)	32	**1**	**1**	0	34
Harbour porpoise (*Phocoena phocoena*)	3	**1**	**0**	0	4
Total	**233**	**21**	**2**	**3**	**259**



Harbour seal (*Phoca vitulina*)

Common dolphin (*Delphinus delphis*)

Eurasian otter (*Lutra lutra*)

Red Fox (*Vulpes vulpes*)

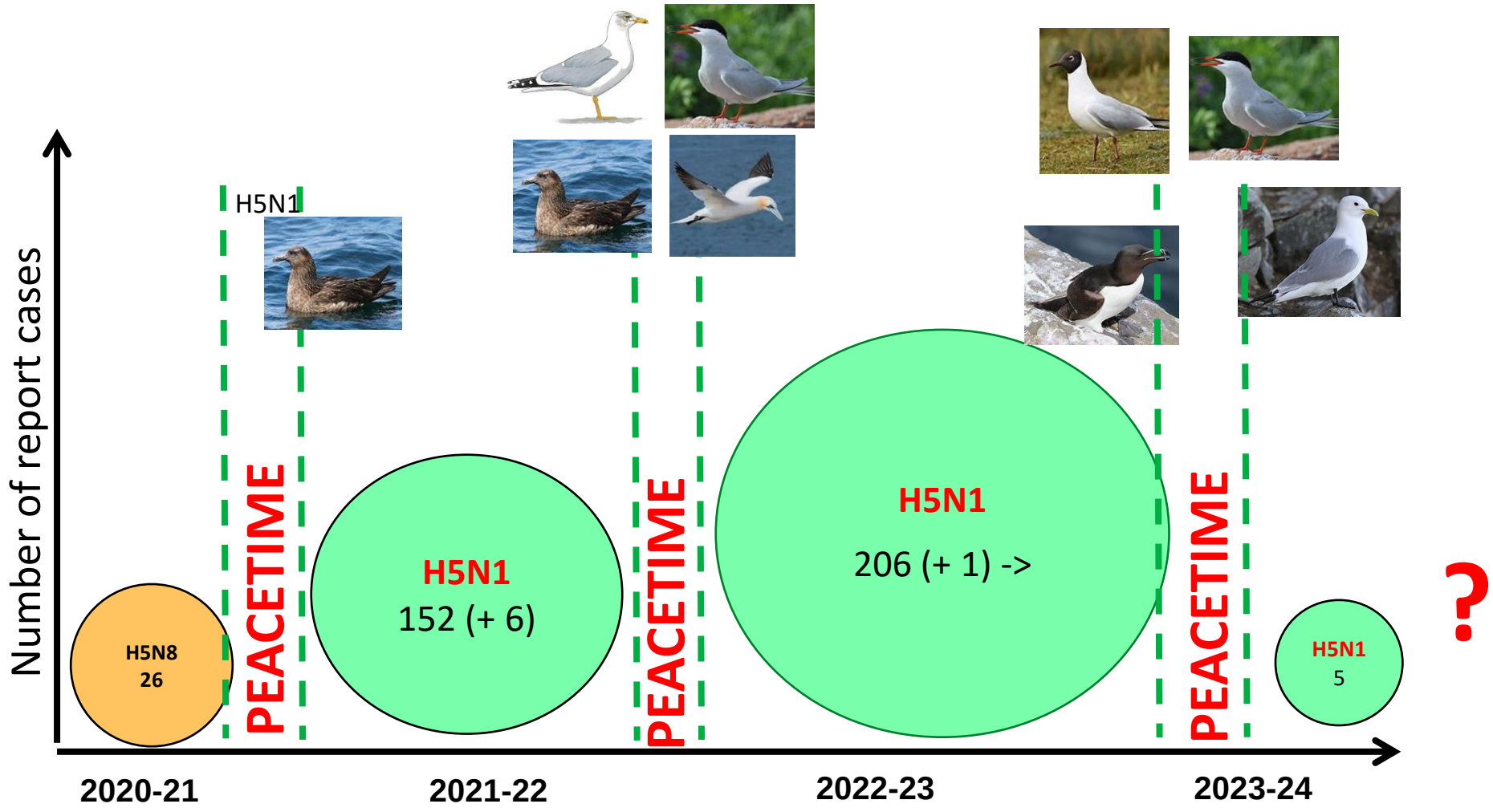
Harbour porpoise (*Phocoena phocoena*)

Grey seal (*Halichoerus grypus*)

- 23 findings in wild mammals since October 2021, of these 8 have been since 1 October 2023

https://www.gov.uk/government/publications/bird-flu-avian-influenza-findings-in-non-avian-wildlife

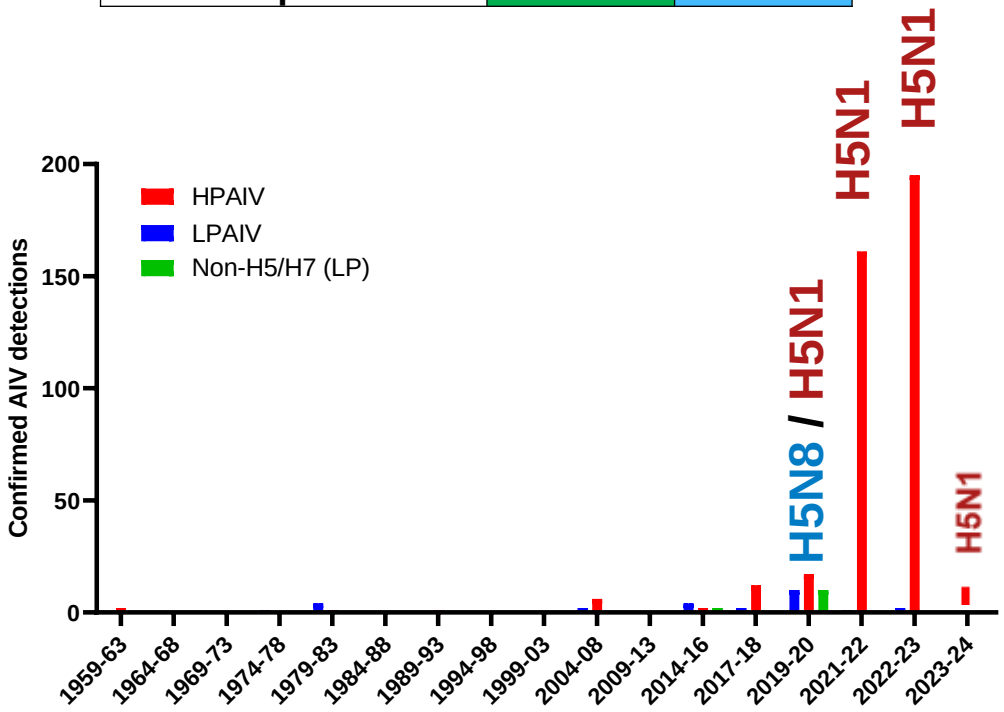
The ‘over-summering’ phenomenon

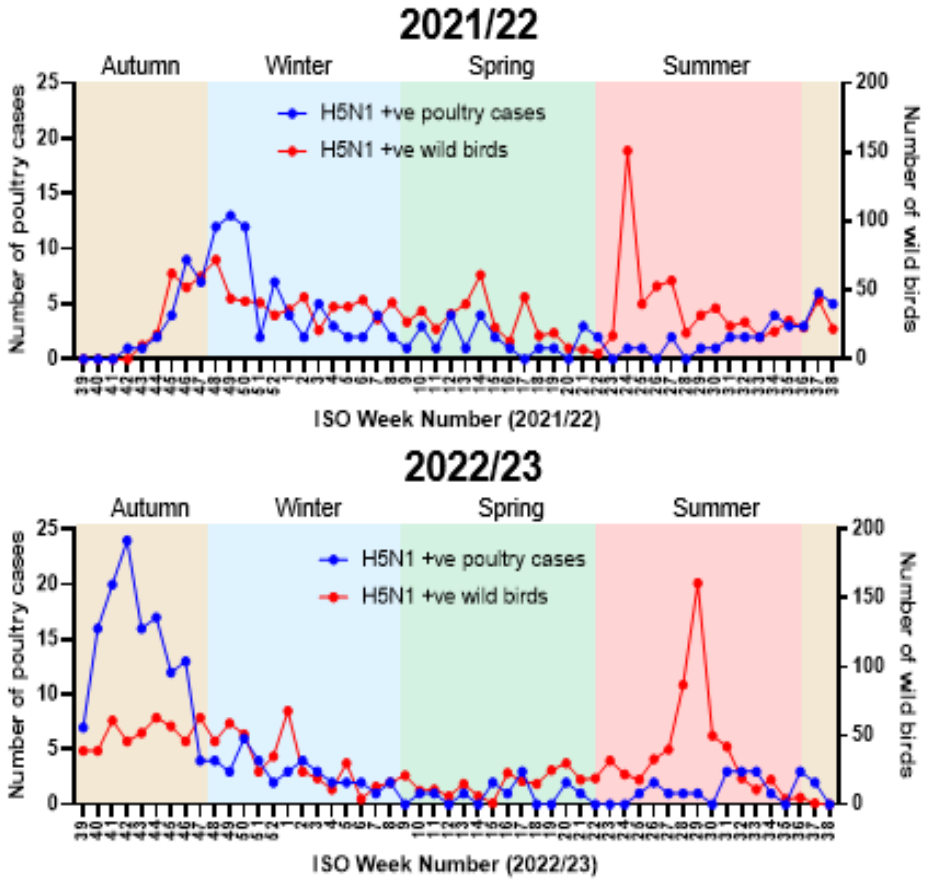


Virus emergence in gulls (Europe): Summer 2022/2023

HPAIV H5N1 detections in GB

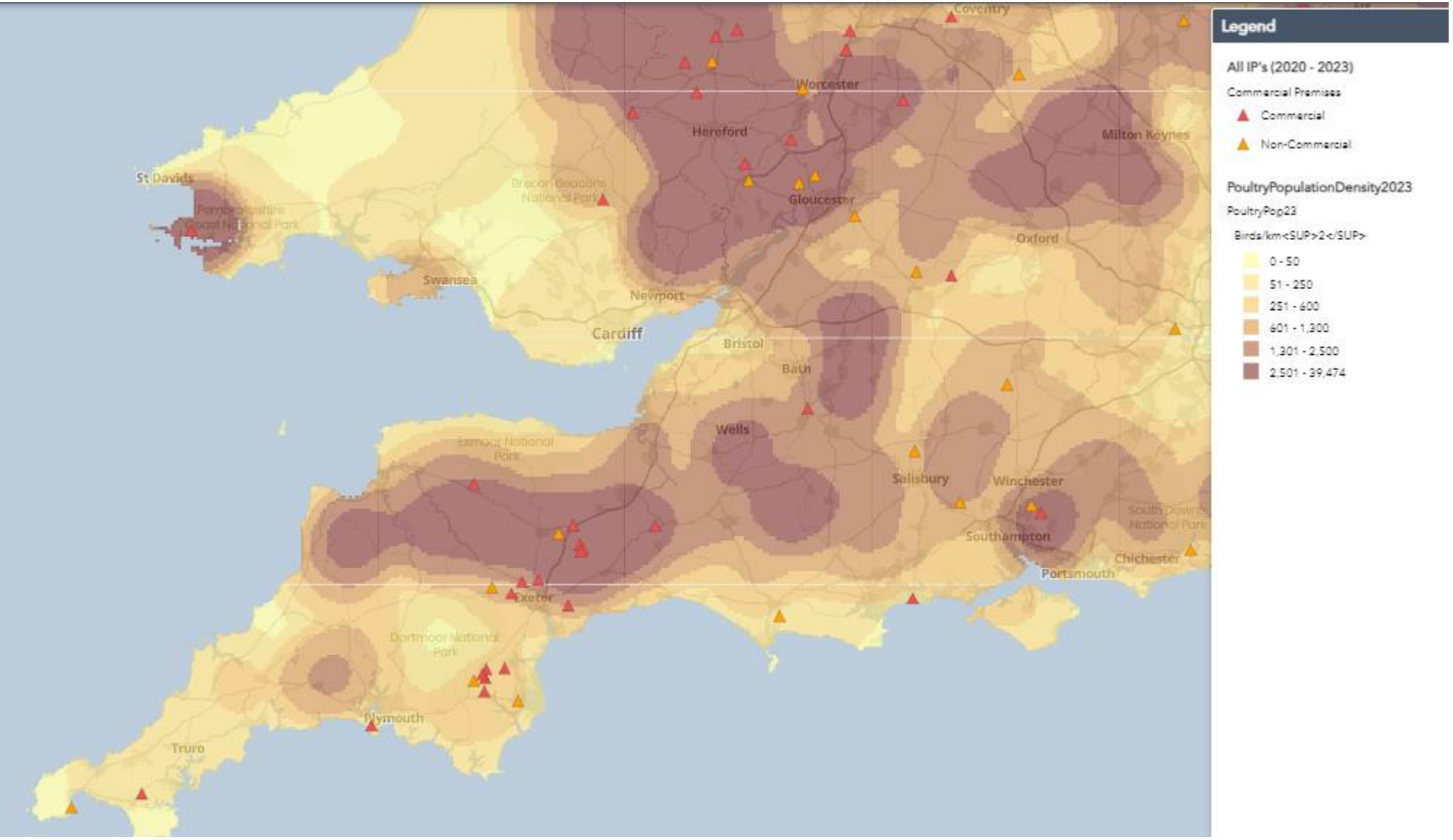
	Epizootic period	
	21-22*	22-23#
Lab confirmed	158	206
Influenza positive wb	1726	1595





*2021/22 Epizootic (06/09/21 – 01/10/22)

2022/23 Epizootic (01/10/22 – 01/10/23)


Legend
All IP's (2020 - 2023)
Commercial Premises
Commercial
Non-Commercial
PoultryPopulationDensity2023
PoultryPop23
Birds/km²
0 - 50
51 - 250
251 - 600
601 - 1,300
1,301 - 2,500
2,501 - 39,474
Coventry
Worcester
Hereford
Milton Keynes
St Davids
Gloucester
Oxford
Swansea
Newport
Cardiff
Bristol
Bath
Wells
Salisbury
Winchester
Southampton
Chichester
Portsmouth
Exeter
Plymouth
Truro

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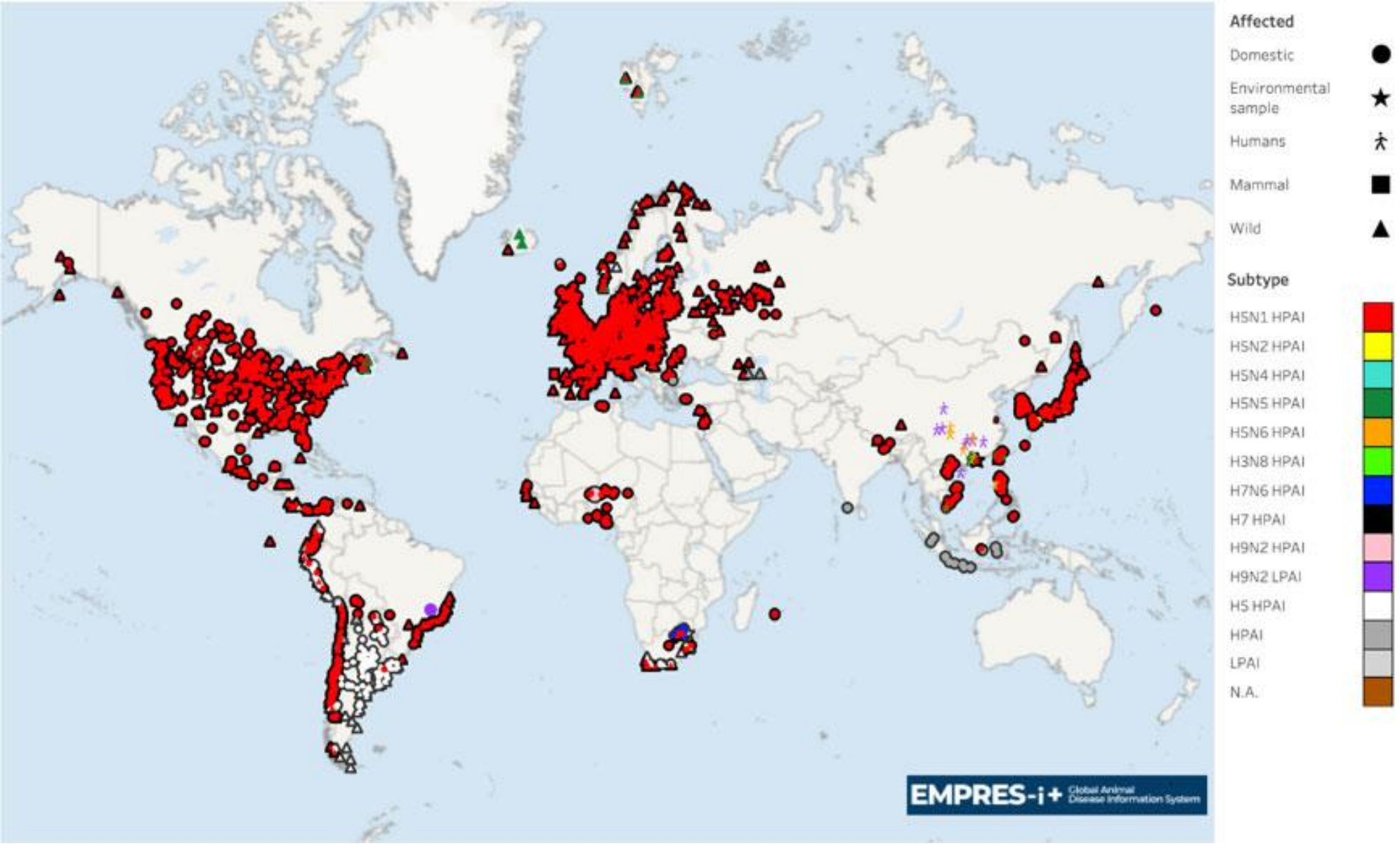
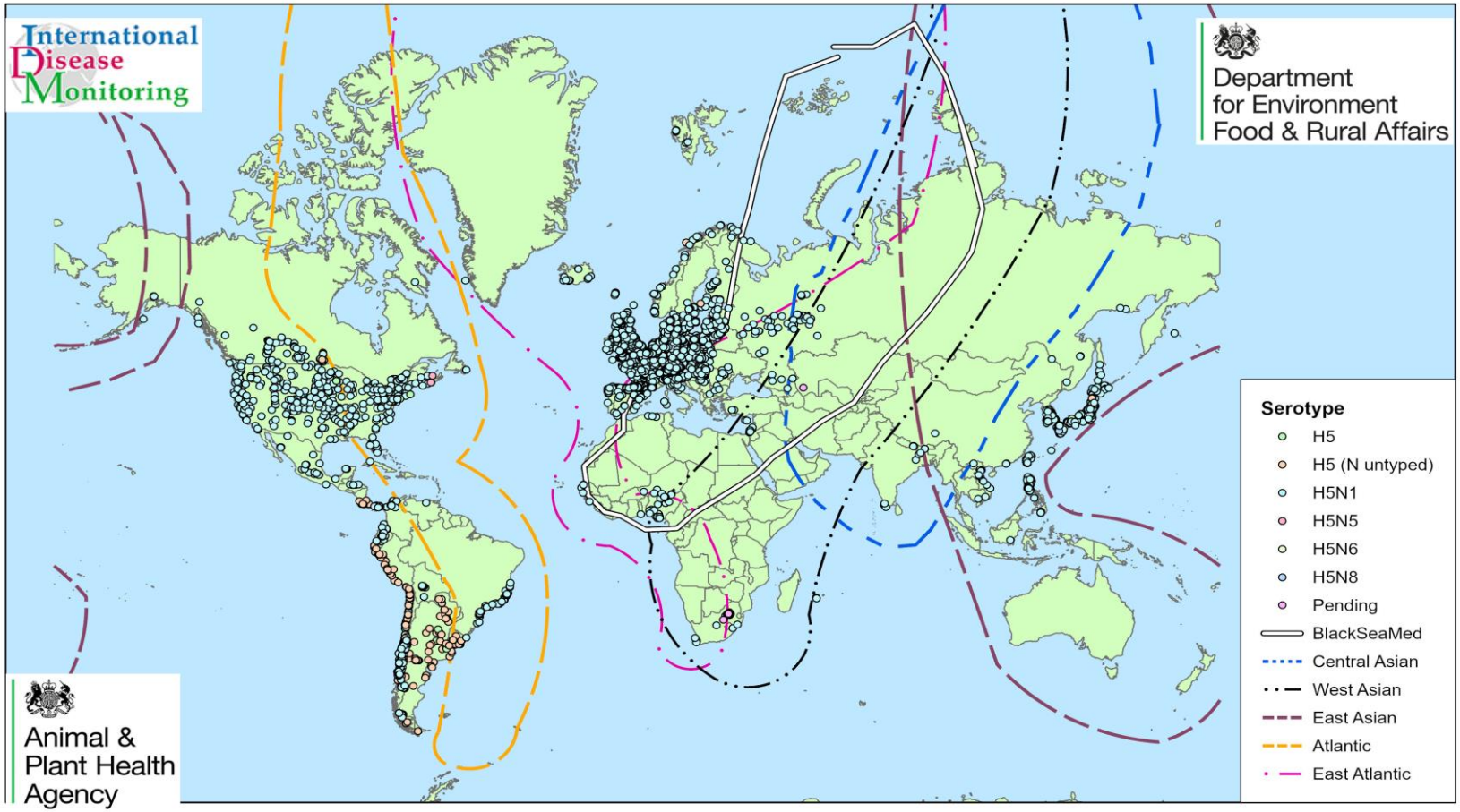
HPAI is a Global Issue



Global distribution of AIV with zoonotic potential* observed in the period 1 October 2022 to 30 September 2023 (i.e. previous wave)

Global distribution of AIV with zoonotic potential* observed since 1 October 2023 (i.e. current wave)

Migratory bird flyways



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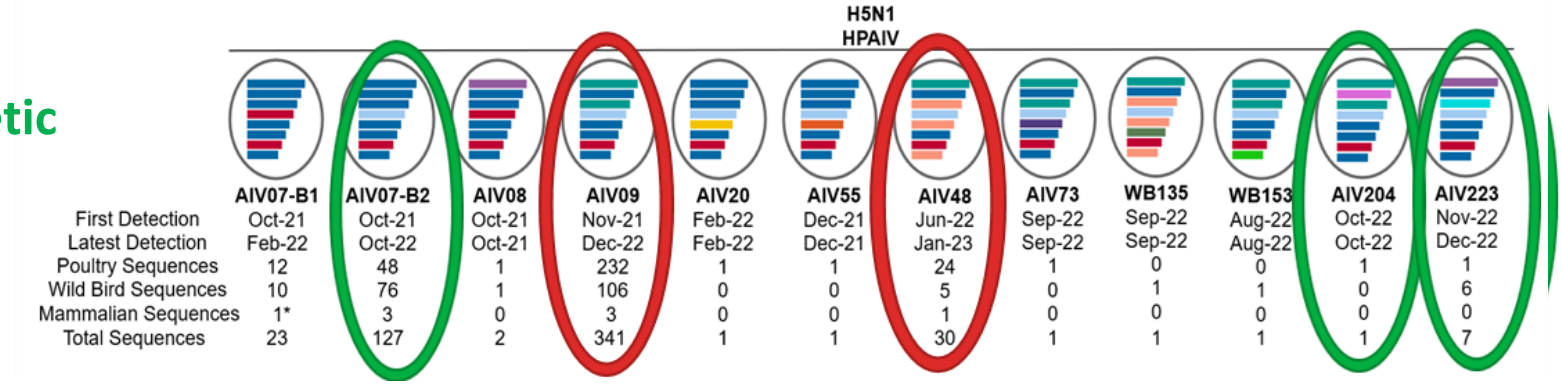
What have we done and what more should we be doing?

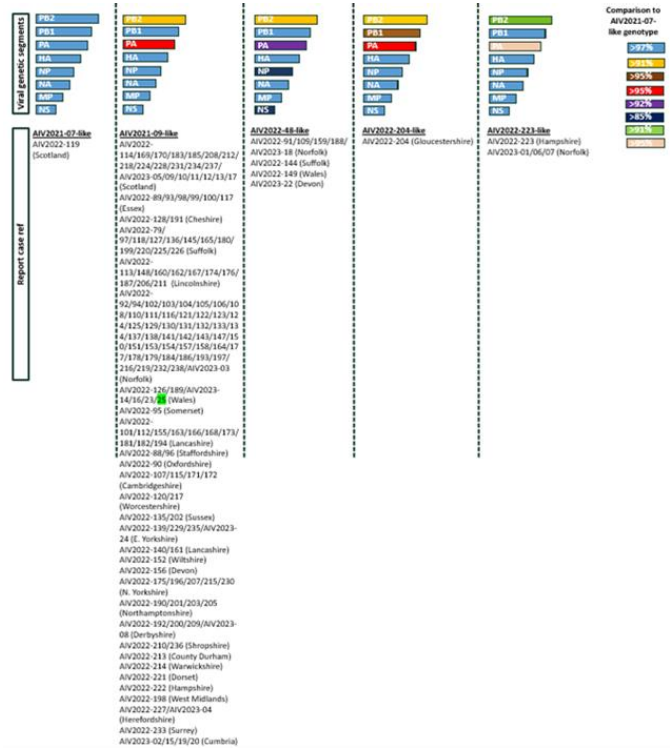
Some of the lessons identified and next steps

- Transmission efficiency likely depends on species (and may also differ between genotypes)
- Develop proposals for vaccination
- Review of policies & legislation – engagement & consultation e.g. mandatory registration for all birds; remote inspections; definition of poultry, CBMCZs
- Work with NGOs on threats to and from wild birds
- Close working with public health colleagues to monitor public health risk
- Actively engage with harder to reach groups – backyard, rescue centres, captive bird keepers etc.
- Review contracts for culling & disposal and vet resources
- Engage with insurers to explain risks and processes
- Increased surveillance in wild birds and wild mammals
- Work with industry on contingency and business continuity plans
- Highlight and communicate areas where biosecurity can be improved
- Learn from others and share best practices

Large virus diversity-genetic level



	AIV07-B1	AIV07-B2	AIV08	AIV09	AIV20	AIV55	AIV48	AIV73	WB135	WB153	AIV204	AIV223
First Detection	Oct-21	Oct-21	Oct-21	Nov-21	Feb-22	Dec-21	Jun-22	Sep-22	Sep-22	Aug-22	Oct-22	Nov-22
Latest Detection	Feb-22	Oct-22	Oct-21	Dec-22	Feb-22	Dec-21	Jan-23	Sep-22	Sep-22	Aug-22	Oct-22	Dec-22
Poultry Sequences	12	48	1	232	1	1	24	1	0	0	1	1
Wild Bird Sequences	10	76	1	106	0	0	5	0	1	1	0	6
Mammalian Sequences	1*	3	0	3	0	0	1	0	0	0	0	0
Total Sequences	23	127	2	341	1	1	30	1	1	1	1	7



- 12 different H5N1 genotypes detected in the UK since October 2021, but only 5 of these detected since October 2022 (AIV07-B2, AIV09, AIV48, AIV204 and AIV223)
  - Some of which (AIV07-B2 and AIV204) have only been detected on a limited number of occasions.
  - Reassortment of the polymerase gene segments has contributed significantly to the genotypic diversity.

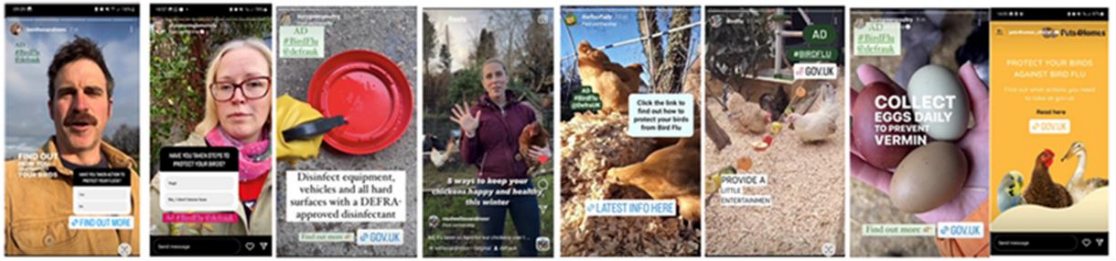
Conclusions

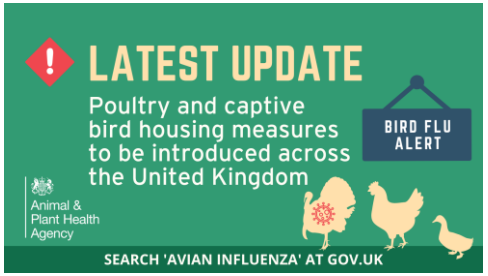
- Vaccination will only work when applied in combination with other measures
- Vaccination is not a substitute for poor biosecurity
- No current vaccine or vaccine technology authorised in UK (or anywhere?) meets all the UK criteria for widespread vaccine deployment
- DIVA strategy is essential for trade but if more than one vaccine or vaccine type required to cover the range of species in UK this will add complexity to the surveillance testing approach
- No animal disease legislative changes required to implement a vaccination strategy

- Surveillance requirements to meet trade requirements are a major barrier to the affordability / cost effectiveness of the deployment of vaccines
- Development of effective vaccines for use as a preventive measure is now a key priority for both government and industry.
- Vaccination Task Force will help inform future strategy – report expected by early August

Proactive social **media** and other comms

- CVO Interviews and media
- GOV.UK
- Webinars for industry and individual companies
- Text alerts
- Videos
- Paid for advertising on social media
- Use of social media influencers
- Close working with industry





Contingency planning for outbreak resilience

1. Need to take measures to both **reduce the impact** of becoming an IP (contingency plan), **as well as the likelihood** of becoming an IP.
2. Understand **what will happen to you in an outbreak** before it happens – **designation of hatcheries.**
3. **Think about the co-location of ALL critical infrastructure** – feed mills, hatcheries, egg stores, cutting plants etc..
4. **Record keeping for tracings – good records reduce the impact**:
   - YOU HAVE TO PROVE WHAT YOU HAVEN'T DONE
   - ALL visitors, mortality, feed, water, bird movements for at least 3 months
   - In electronic format
   - Must be complete and legible with contact phone numbers.
5. **Licencing - needs evidence** of ability to comply with conditions
6. **Run a company exercise – e.g. C&D and restocking**
7. Agree a **single point of contact** in the company for each activity
8. Provide an **on-site pack of information**.

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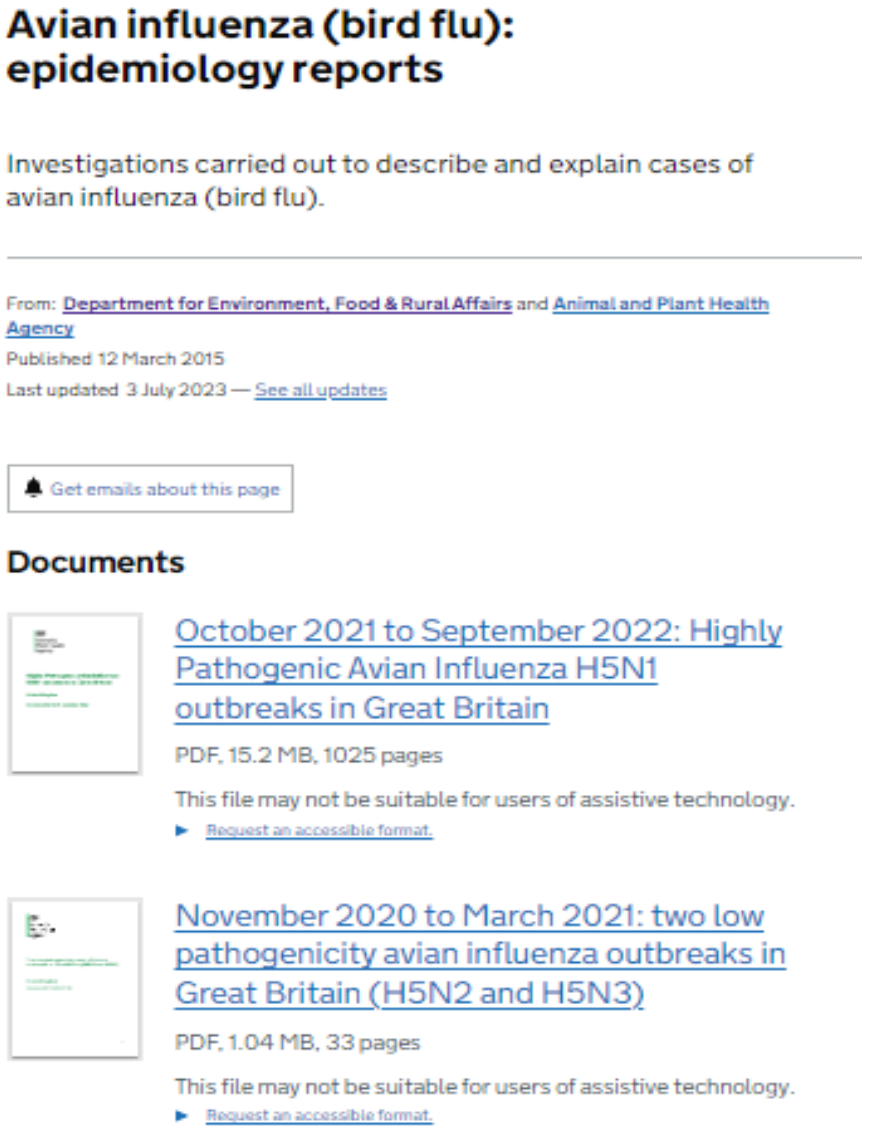
Biosecurity, Biosecurity, Biosecurity….

Epidemiology

- Epi reports for 22/23 will be published on GOV.UK
- Avian influenza (bird flu): epidemiology reports - GOV.UK (www.gov.uk)
- Virtually all of the IPs in the 2022/23 outbreaks were attributed to direct or indirect initial introductions from wild birds
- No evidence of long distance spread or spread between premises, apart from when the premises were located close together and were part of the same business
- Biosecurity on a number of premises was a major issue



Avian influenza (bird flu): epidemiology reports

Investigations carried out to describe and explain cases of avian influenza (bird flu).

From: Department for Environment, Food & Rural Affairs and Animal and Plant Health Agency
Published 12 March 2015
Last updated 3 July 2023 — See all updates

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Documents

October 2021 to September 2022: Highly Pathogenic Avian Influenza H5N1 outbreaks in Great Britain
PDF, 15.2 MB, 1025 pages
This file may not be suitable for users of assistive technology.
Request an accessible format.

November 2020 to March 2021: two low pathogenicity avian influenza outbreaks in Great Britain (H5N2 and H5N3)
PDF, 1.04 MB, 33 pages
This file may not be suitable for users of assistive technology.
Request an accessible format.

Putting things in perspective

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5,000 to 10,000 infectious doses

Survival time in the environment 4 – 12 weeks

Most important risk factors / pathways to focus on

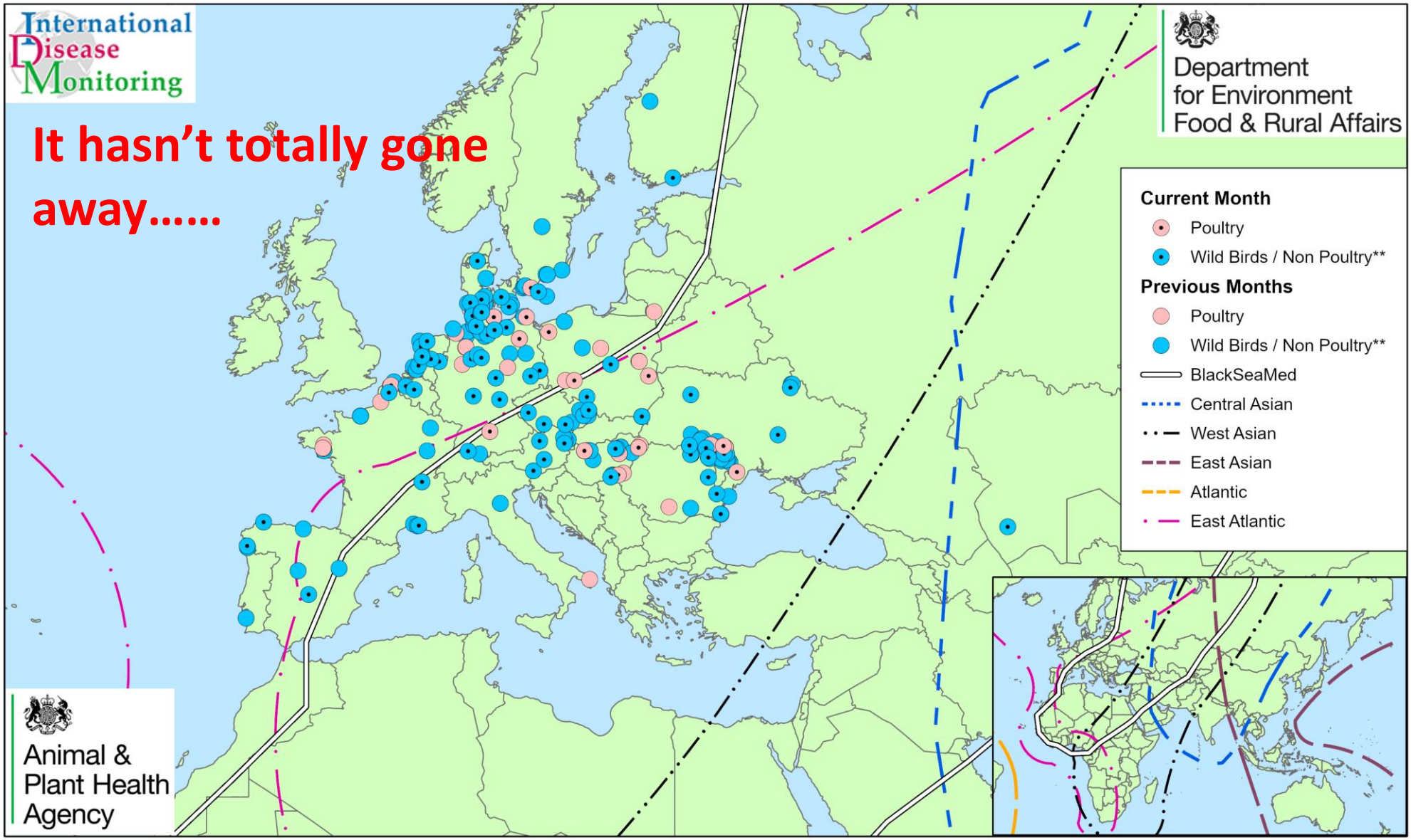
- Attracting wild birds – **mossy roofs and ponds**
- The entrance door:
  - **Reduce the number of movements** in and out
  - **Shed specific PPE**
- The **curtilage** of buildings
- Maintenance failures:
  - **Water ingress** – leaking roofs and flooding events
  - Ventilation systems - netting
  - Building damage e.g. storms
- **Bedding management**
- **Rodents and wild birds** in buildings
- **Mindset** / culture of biosecurity
- **Visitor management** – supervision and same standards
- **Unexpected events** – sickness absence, holidays etc
- **Ventilation** – design – ridges and baffles, sucking in leaf litter

Summary of key points

Epidemiological investigation is still showing:

1. Introduction of disease has been characterised by **single introduction events often small doses.**
2. The majority of IPs are due to **direct or indirect introduction from wild birds.**
3. There is **rarely spread between premises**:
    1. Except where they were part of the same business.
    2. There is no long-distance spread.
    3. There has been no disease in compartments.

- The need for a **controlling mind** to be accountable for biosecurity.
- **Human behavioural science is important – make it easy to do the right thing**
- David Brailsford's aggregating **marginal gains** across the business
- The importance of the **hard shell** being **at the level of the shed**.
- The particular importance of e.g., **bedding management, leaking roofs, flooding**, etc.
- The need to **review the business, and contingency plan** – what if? E.g., hatcheries, EPCs, cutting plants on site or adjacent.



Map Prepared by IDM

Date: 16/01/2024

Absolute Scale: 1:43,000,000

Highly Pathogenic Avian Influenza in Poultry, Captive and Wild Birds*
December 2023 to January 2024
Overlay: migratory bird flyways
(* WOAH Data Only ** WOAH Defined)

0 810 1,620 2,430 Km

Thank you

https://www.gov.uk/guidance/avian-influenza-bird-flu