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Rapid Risk assessment

for highly pathogenic avian influenza H5 (HPAI H5) clade 2.3.4.4b

Update based on the period
October (01–31 October) 2023

Situation in Germany

No outbreaks of HPAIV H5 in domestic poultry or captive birds were detected in Germany between 1 and 31 October 2023.

The number of cases in wild birds continued to fall significantly in October. A total of three HPAIV H5 cases in gulls from Lower Saxony were reported to the Animal Disease Notification System (TSN) (Table 1).

At the beginning of November, increased mortality of wigeons was recorded in the northern part of the North Frisian Wadden Sea. Initial investigations revealed the presence of HPAIV H5N1. Further investigations are still pending at the time of writing this risk assessment.

HPAIV infections in mammals were not reported from Germany for the month of October.

***Table 1**: Number of reported HPAIV H5 wild bird cases, affected bird groups and locations for the period 1 - 31 October 2023 by federal state (data for November not included). Data source: TSN, FLI. Data status: 08/11/2023*

Federal state (August/September)	County	Location	Wild birds (number of HPAIV notifications)	Date of confirmation
Lower Saxony (7/3)	Aurich	Baltrum	Herring gull (1)	19.10.
		Norderney	Herring Gull (2)	10.10.

***Figure 1**: Outbreaks of HPAIV H5N1 in Germany in poultry (dots), other captive birds (zoo/wildlife sanctuary; squares), cases in wild birds (triangles) since 01.10.2022. In colour outbreaks and cases for October 2023. Different colours: see legend. Data status: 08.11.2023; data for November not included; data source: TSN, FLI.*

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Situation in Europe

Across Europe, ten **outbreaks of HPAI H5N1 in domestic poultry** were reported in October, mainly from Eastern European countries (Poland n=2, Bulgaria n=4, Romania n=2) and the United Kingdom (n=2) (Fig. 2). Reports have been increasing since the end of October. This trend continued in November. Up to 08 November, Denmark and Hungary continued to report outbreaks in poultry (not included in Fig. 2). Both small and large farms (chickens, waterfowl and turkeys) with up to 400,000 animals are affected.

In **captive birds,** Norway reported an outbreak in a small non-commercial holding and Austria reported a case in a crowned crane in a zoo (Fig. 2).

In addition to Germany, the United Kingdom (n=5), Norway (n=4), Austria and Serbia (3 each), Finland, Iceland, Romania, Sweden, Spain (2 each), France and Hungary each reported one case **in wild birds** (Fig. 2). From mid-October, these reports, which mainly affected waterfowl (ducks, geese, swans), became more frequent.

The **H5N1 subtype was** identified in the majority of cases. In contrast, Iceland and Norway reported evidence of HPAIV **H5N5** in one eider duck (Iceland) and one eagle owl, one herring gull, one gull and one white-tailed eagle (Norway).

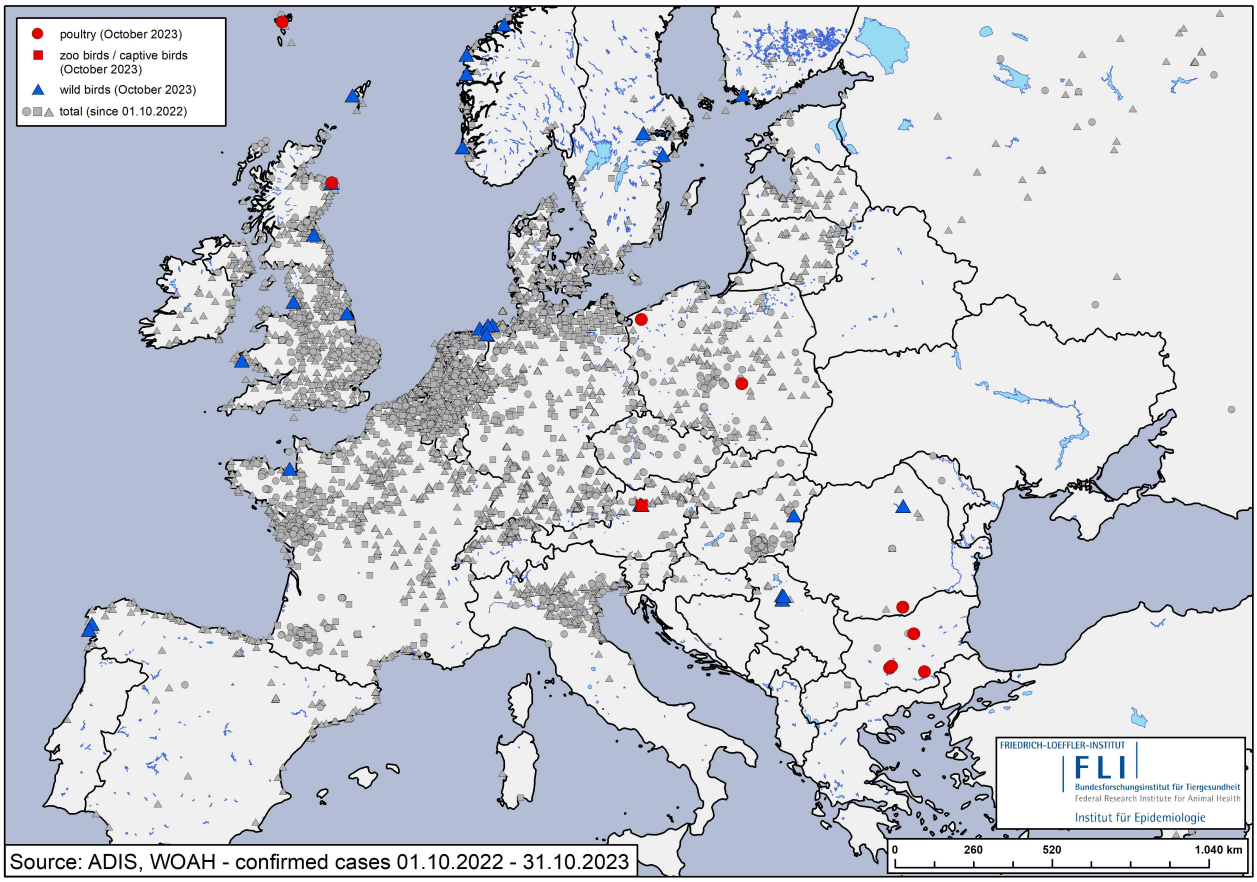

***Figure 2**: HPAI cases in poultry, captive birds and wild birds reported to ADIS and WOAH from 01 October 2022 to 31 October 2023. Cases for September in red and blue; poultry = commercial (domestic) poultry; zoo/other birds = other captive birds. In colour outbreaks and cases for October 2023, November data not included. Data query status: 08.11.2023; Data source: ADIS, WOAH.*

The HPAI H5N1 viruses investigated in gulls in Europe until October belonged exclusively to the genotype "gull-like BB" of clade 2.3.4.4b HPAIV H5, which emerged (presumably in France) from a reassortment event of H5N1 and an AIV of subtype H13 adapted to gulls and has been spread across Europe since June 2022. This genotype dominated events in Germany and Europe in 2023 and was also responsible for many of the fatal mammal cases in Europe. It is not yet clear whether the new cases are the same or a different genotype (investigations are ongoing).

No HPAIV H5 detections in mammals were reported from Europe in October.

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Situation in the world/Special events

Worldwide, outbreaks in domestic poultry and wild bird cases caused by HPAIV H5 clade 2.3.4.4b are again being reported to the World Organisation for Animal Health (WOAH), particularly in the Americas. The Antarctic region is also affected for the first time:

- Antarctic region: On South Georgia, a group of islands in the South Atlantic, HPAIV H5 has so far been confirmed in brown skuas and southern fulmar. Further suspected cases extend into November and affect skuas and terns.
- A total of 24 cases and outbreaks were reported in South America in October:
    - HPAIV H5 cases in flamingos, gulls and terns in Argentina, Uruguay, the Falkland Islands and Brazil (mainly terns, but also penguins)
    - Chile: According to the national fisheries and aquaculture authority, almost 3,000 Humboldt penguins died between February and October 2023, some of which were registered as HPAIV H5N1-positive. It remains unclear whether the mortality is linked to HPAIV cases.
- North America: After hardly any outbreaks were reported during the summer, the number of outbreaks in domestic poultry increased to 44 in 14 US states in October. In October, 13 outbreaks were reported in Canada. Wild birds are also massively affected. HPAIV H5N1 was also frequently reported in hunted mallard ducks in the USA.
- Africa: HPAIV H5 outbreaks in domestic poultry have been reported in South Africa and Mozambique.
- Asia: Japan reported several cases of HPAIV H5N1 in wild birds found dead at the end of October (hawk, whooper swan and crow).

Fatal mammal infections with HPAIV H5 also continue to be reported:

- Brazil: Infected sea lions found dead
- Argentina: Over 1,000 dead elephant seal calves on the Valdez Peninsula
- Subantarctic region: suspected cases in elephant seals (number unknown)
- Chile: Affected species are sea lions, Chilean dolphins, coastal and river otters.

Despite the high number of outbreaks in poultry worldwide and an assumed multiple contact between humans and infected birds, **infections with HPAIV H5 clade 2.3.4.4b in humans** still appear to be very rare events that are closely monitored and documented. Since 2020, fewer than 10 human infections with mild or asymptomatic courses have occurred in Europe and North America, although severe courses have been reported in two people from Ecuador and Chile following infection with HPAIV H5. In October, there were no further reports of human infections with HPAIV H5 of clade 2.3.4.4b.

According to an assessment by the European Centre for Disease Prevention and Control (ECDC), the risk of zoonotic transmission of HPAIV H5N1 clade 2.3.4.4b and the associated impact on public

health is classified as low. However, a moderate risk is assumed for occupationally exposed groups who have close contact with infected poultry or who have been exposed to infected and diseased cats (e.g. in Poland) (source).

Summary and risk assessment

Although the current HPAI H5N1 outbreak in Europe declined sharply in August and September, it has not completely subsided. The year-round presence of the virus can therefore be confirmed for Germany again this year. Outbreaks in poultry and cases in wild birds have been increasingly reported since mid-October. While seagulls were predominantly affected in spring and summer, the new cases now appear to be occurring again in waterfowl (swans, ducks, geese). In Germany, the Wadden Sea National Park also recorded an increased number of localised dead wigeons found on the Schleswig-Holstein North Sea coast at the beginning of November 2023, in which HPAIV H5N1 was detected. Further phylogenetic investigations of the virus are ongoing.

A new subtype (H5N5) is likely to have emerged from reassortment with a low pathogenic virus in wild birds in northern Europe, but has so far only been found in Norway and Iceland. The possibility of further reassortment events is likely in autumn and winter when waterfowl, which are often infected with low pathogenic influenza viruses at this time, meet at resting places. Migratory movements may also lead to the introduction of new genotypes from other regions.

In many parts of Germany there are suitable resting and wintering areas for a large number of waterfowl. During the autumn migration, there is an increased movement dynamic (also over longer distances) and in some places higher resting populations. At the same time, small to medium-scale movements of resting waterfowl species favour the spread of the virus to other populations, even over short distances. Depending on the temperatures, waterfowl populations are expected to peak around mid-October.

The risk of entry and (undetected) spread of HPAI H5 viruses in waterfowl populations in connection with high waterfowl densities at staging areas within Germany is classified as ***high***. The "Bird Flu Radar" (EFSA) indicates a high probability of HPAIV H5 being introduced into northern Germany in mid-November.

Cooler temperatures and weaker UV radiation represent favourable conditions for the persistence of HPAIV and thus new entries from Scandinavia, the Baltic states and eastern and central Russia, as well as for possible reassortment events between HPAIV H5 and various low-pathogenic avian influenza viruses, which occur in high diversity and in large numbers in wild waterfowl from September onwards. It is not yet possible to say what role H5 antibodies in adult wild birds play in the overall situation and future disease development.

The risk of HPAIV H5 introduction into German poultry farms and captive bird populations in zoological facilities through direct and indirect contact with wild birds is classified as ***high***, as

reports of wild bird cases have been increasing again since mid-October. Outbreaks in poultry from European (neighbouring) countries indicate a current risk potential.

The number of outbreaks in poultry and captive birds in Europe has been rising again since October. It is currently assumed that there is a ***moderate*** risk of the virus spreading between holdings (secondary outbreaks) within the EU. The risk of undetected circulation of HPAI H5 viruses is also estimated to be ***moderate*** for waterfowl holdings in Germany.

The risk of introduction through the sale of live poultry in the travel trade or poultry exhibitions within Germany and Europe is classified as ***low***, but would increase accordingly with a possible increase in outbreaks in poultry.

Current recommendation

The top priority is to protect poultry from the introduction and possible further spread of HPAIV infections. To this end, the relevant recommended biosecurity measures and monitoring and clarification tests must be reviewed and strictly adhered to. Poultry farmers are legally obliged to comply with the basic rules of biosecurity. The reporting of deaths in poultry farming to the veterinary authorities, followed by an official investigation, is considered a measure for the early detection of the fatal disease in chickens and turkeys.

Poultry or bird exhibitions or the sale of live poultry (in the travel trade) should only be permitted in compliance with strict biosecurity rules and, if necessary, subject to a coordinated regional risk assessment. Bringing together (pedigree) poultry from different origins and keeping them at the exhibition venue for several days should be avoided at all costs.

Increased attention must also be paid to compliance with biosecurity measures for intra-Community movements of poultry, particularly to or from EU countries with a current outbreak. Careful cleaning and disinfection must be ensured for poultry transport vehicles returning from affected countries.

A risk-based restriction of the free-range keeping of poultry (stabling) is recommended in the vicinity of frequent cases of HPAIV-infected wild birds. Every citizen can use TSIS to view wild bird cases in the districts (TSIS query).

Prevention and biosecurity measures in poultry farms, animal parks and zoos, especially those with outdoor and free-range systems, should be urgently reviewed and optimised where necessary. Livestock farmers can check the biosecurity of their farms anonymously and free of charge using the so-called "AI risk traffic light" (https://risikoampel.uni-vechta.de/). In particular, it should be possible to prove that farmers had already taken effective measures to prevent the entry and spread of HPAIV *before* an HPAIV case occurred. The British authorities have published a photo book with examples of biosecurity in poultry flocks (photo book).

Even though EU Regulation 2023/361 has made it possible to vaccinate poultry against HPAI since February 2023, there is still a lack of suitable commercial vaccines authorised for use throughout Europe. In this respect, considerations of vaccination as a further preventive protective measure in addition to the known biosecurity precautions must remain largely theoretical. France, which has started vaccinating commercial duck farms under a national derogation, was immediately banned from trading poultry with the USA and Japan. This also has consequences for the entire European trading area. Vaccination of poultry would also be linked to considerable monitoring requirements, which are financially costly and would also place a heavy burden on the personnel capacities of veterinary offices and testing facilities.

Surveillance of wild mammals for HPAIV H5 infection (see below), but also mammals kept in captivity (fur animals) should be intensified. Similarly, dogs, cats and pigs kept on farms with poultry with HPAIV outbreaks should be included in environmental testing (swab and serum samples).

In times of high risk or when HPAIV cases or outbreaks are known in an area, consideration should be given to suspending hunting of waterfowl, both to reduce disturbance to the wild bird population and to reduce the possibility of spreading infection from the wild to the domestic environment when infected birds are transported.

It is virtually impossible to influence the course and spread of HPAIV infections in wild bird populations. The collection of carcasses has proven to be a useful measure against further food chain-related transmission (especially mammals and birds of prey such as sea eagles). Conservationists, national park rangers, bird wardens, bird ringers etc. should be prepared to deal with sick and dead birds in co-operation with the relevant veterinary authorities, and the possible collection and disposal of dead birds should be planned in advance. The registration of the number of dead birds found and the associated communication between environmental and veterinary authorities should be intensified. A detailed document with instructions and background information can be found here.

Close personal and unprotected contact with dead or sick birds should be avoided; in general, if your own (even mild) symptoms of illness occur as a result of such contact, a doctor must be consulted immediately to clarify a possible HPAIV human infection.

The same precautions should be taken when finding dead wild carnivores (especially foxes). Carnivores found alive with neurological changes may also be infected with HPAIV H5N1. If foxes or other carnivores are examined at state testing centres as part of rabies screening, tissue samples from the CNS and lungs should always be tested for influenza virus RNA.

Abnormal behaviour and deaths of wild birds and mammals in connection with wild bird mortality should be reported immediately to the veterinary authorities for recovery and, if necessary, investigation.

Correct species identification of dead birds is required and, in addition to information on the total number of non-investigated dead finds, must be reported via TSN. This is the only way to ensure that the extent of the incident can be realistically estimated and documented.

For an overview of further options for action, a catalogue of recommendations can be found here.

Data sources: Animal Disease Notification System (TSN), Animal Disease Information System (ADIS), World Organisation for Animal Health (WOAH), Empres-I, European Food Safety agency (EFSA), Scientific Committee on Antarctic Research; Influenza Aviar | Servicio Nacional de Pesca y Acuicultura (sernapesca.cl); Canadian Food Inspection Agency; USDA APHIS

Query period cards: 01.10.2023- 31.10.2023; for the text up to and including 08.11.2023.
Query date: 08.11.2023

Further information

The data situation in the databases is dynamic and changes daily. Therefore, there are shifts in the figures if they are queried at different times.

The European Food Safety Authority (EFSA) provides an updated edition of the scientific assessment of what is happening in Europe: Avian influenza overview June - September 2023 | EFSA (europa.eu).

In addition to weekly updated maps of the outbreaks, the FLI also provides information on molecular-virological investigations of HPAI viruses in Germany (HPAIV genotypes in Germany | Zenodo) and a catalogue of questions (FAQ).
The Radar Bulletin Germany is published at monthly intervals on the FLI website.

The magazine for the poultry industry (DGS) has set up an avian influenza radar in which avian influenza outbreaks are listed chronologically with details of species and locations.

The European Reference Laboratory for Avian Influenza has launched a new HPAI dashboard on HPAI detections in the EU.

The EFSA has also set up an HPAI dashboard in which the figures in Europe can be displayed in real time.

Together with Euring, Eurobird Portal and Ausvet, EFSA has set up a Bird Flu Radar.

The WHO published a risk assessment on 21 December 2022.

Information on HPAI outbreaks in domestic poultry and wild birds in the USA can be found on the USDA APHIS website. Daily updated mammal cases are also shown.

Information on the situation in Antarctica.

The British Trust of Ornithology (BTO) has published helpful tips for bird ringers.

Meanwhile, the FAO's Scientific Task Force on Avian Influenza in Wild Birds and others are calling on authorities to recognise HPAI as a problem for the conservation of biodiversity and to Monitoring and control measures should also be geared towards the protection of wild fauna.