

Risk assessment

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



Update for February based on the period January (01 - 31 January) 2024

Situation in Germany

Between 1 and 31 January 2024, 9 HPAIV H5 outbreaks were detected in domestic poultry in Germany. Affected were laying hen farms (4); private holdings (4) and a turkey fattening flock (Tab. 1, Fig. 1).

A total of 31 cases of HPAIV H5 in wild birds were reported to the German Animal Disease Notification System (TSN) in January. The main species affected were barnacle geese in the Wadden Sea area and occasionally other goose and bird species in Bavaria, Brandenburg, Lower Saxony, Hamburg, Hesse and Thuringia (Fig. 1, Table 2). The H5N1 subtype was confirmed in all but one case. On Heligoland, subtype H5N5 was detected in a dead great black-backed gull (Fig. 1, Tab. 2).

A total of four new HPAI genotypes have been detected in Germany since November 2023. The previously dominant genotype (Ger-02-23-N1.1, EU BB) was last detected in September 2023 and has not reappeared since then. The new genotypes each show their own distribution patterns. One genotype (Ger-11-23-N1.1, EU DB) dominated the occurrence in wild birds and poultry until December 2023 and only occurred in the area of the countries on the North Sea coast. The genotype Ger-11-23-N1.4 (EU DA) was only sporadically detected in Germany in November 2023. In December 2023 and January 2024, two genotypes (Ger-11-23-N1.3, EU DG and Ger-11-23-N1.2) dominated events in poultry farms and wild birds in Germany.

In Germany, an HPAIV H5N1 infection was reported in January in a red fox from Karlsruhe, which was killed with disease symptoms on a company premises.

Federal state	County	Poultry species concerned	Direction of use	Number of birds kept on the farm concerned	Date Determinati on
Brandenburg (1)	Cottbus	Chicken	Private	8	19.01.
Bavaria (1)	Dillingen on the Danube	Turkey	Fattening	20,000	09.01.
Mecklenburg-Western Pomerania (3)	Western Pomerania- Rügen	Duck	Private	31	04.01.
	Western Pomerania- Rügen	Chicken	Egg production	>30,000	04.01.
	Northwest Mecklenburg	Chicken	Private	27	06.01.
Lower Saxony (2)	Northeim	Chicken	Egg production	225	18.01.
	Emsland	Chicken	Private	29	27.01.
Schleswig-Holstein (2)	East Holstein	Chicken	Egg production	15,000	10.01.
	East Holstein	Chicken	Egg production	1,800	05.01.

Table 1: Confirmed HPAIV H5 outbreaks in domestic poultry, including captive birds, for the period from1 to 31 January 2024 in Germany. Data source: TSN, FLI. Data status: 05/02/2024

Table 2: Number of reported HPAIV H5 cases in wild birds, affected bird groups and locations in the period 1 to 31 January 2024 per federal state. Data source: TSN, FLI. Data status: 05/02/2024

Federal state (December/January)	County	Municipality	Wild birds (number of HPAIV notifications)	Period Determinati on
Bavaria (4/1)	Rottal-Inn	Eggenfelden	Peregrine falcon (1)	12.01.
Brandenburg (0/2)	Elbe-Elster	Plessa	White-fronted goose (1)	10.01.
	Potsdam- Mittelmark	Stahnsdorf	Wild goose (1)	29.01.
Hamburg (4/1)	Hamburg	City	Canada goose (1)	26.01.
Hesse (0/1)	Vogelsberg district	Scotsmen	Wild goose (1)	04.01.
Lower Saxony (6/2)	Hanover	Neustadt am Rübenberge	Wild goose (1)	04.01.
	Heath district	Hodenhagen	Wild goose (1)	04.01.
Schleswig-Holstein	Rendsburg-	Kosel	Barnacle goose (1)	10.01.
(10/22)	Eckernförde	Fleckeby	Barnacle goose (1)	10.01.
	Plön	Heikendorf	Cormorant (1)	24.01.
	Dithmarschen	Lehe	Barnacle goose (1)	10.01.
		Warwerort	Barnacle goose (1)	18.01.
		Meldorf	Barnacle goose (1)	18.01.
		Friedrichskoog	Barnacle goose (1)	26.01.
		Nordermeldorf	Grey goose (1)	18.01.
	North Friesland	Schwabstedt	Barnacle goose (1)	29.01.
		Reußenköge	Barnacle goose (1); Magpie (1)	26.01.
		Husum	Barnacle goose (1)	04.01.
	Pinneberg	Heligoland	Great black-backed gull (H5N5; 1)	26.01.
	East Holstein	Dahme	Barnacle goose (1)	24.01.
		Cheeks	Eurasian coot (1)	24.01.
	Duchy of	Schmilau	Wild duck (2)	04.01.
	Lauenburg			
	Schleswig-	Borgwedel	Buzzard (1), Barnacle Goose (1)	26.01.
	Flensburg	Sneeze grey	Barnacle goose (2)	04.01.
	Steinburg	Brokdorf	Barnacle goose (1)	04.01.
Thuringia (1/2)	Sonneberg	Föritz valley	Canada goose (1), greylag goose (1)	04.1./25.01.



Figure 1: Outbreaks of HPAIV H5N1 in Germany in domestic poultry (dots), other captive birds (zoo/wildlife sanctuary; squares) and cases in wild birds (triangles) since 01.10.2023. In colour current outbreaks and cases for the period 01.-31.01.2024. Different colours: see legend. Data source: TSN, FLI; data status: 05/02/2024.

Situation in Europe

The number of HPAIV H5 outbreaks in **domestic poultry** in Europe (n=52, excluding Germany) in January was similar to the previous two months. Various sectors of poultry production were affected. While Hungary was particularly affected last month, most outbreaks in January were in the Republic of Moldova, with all 18 outbreaks in rather small holdings (Fig. 2, 3). In January, France reported two outbreaks in vaccinated fattening duck farms, among others. In one case, the fattening ducks had only been vaccinated once, in the other case they had already been vaccinated twice, the last time about 7 weeks before the outbreak. The USA, Canada, Thailand and Japan have issued an import ban on ducks and duck products, which applies in part to countries throughout the EU.

In January, Ukraine (n=5), the Czech Republic (n=13), Slovakia (n=1) and Austria (n=2) reported outbreaks in **captive birds** (Fig. 3). The majority of these were private chicken farms.

The number of cases in **wild birds** in Europe also remained at a high level in December with 126 cases. A total of 21 European countries reported cases in wild birds, with waterfowl (swans and geese) being the most frequently affected species. An increasing mortality in swans in which HPAIV was detected were reported from Eastern Europe (Fig. 3).

In the vast majority of cases, the **subtype H5N1** was identified. Deviating from this, Norway reported HPAIV **H5N5** in one white-tailed eagle.



Figure 2: Notifications of HPAIV H5 outbreaks in poultry for January 2024 in Europe (Germany not included); n.a.=not specified. Here "small flock" = less than 100 animals per flock. Data source: ADIS; data status: 05/02/2024.



Figure 3: HPAI cases in poultry, captive birds and wild birds reported to ADIS and WOAH from 01 October to 31 January 2024. Cases for December in red and blue; poultry = domestic poultry kept for commercial purposes; zoo/other privately kept birds = other captive birds. Data source: ADIS, WOAH; status of data query: 05/02/2024.

The H5N1 HPAI viruses of clade 2.3.4.4.b characterised in Europe since October 2023 have new and different genotypes, which presumably arose through reassortment of circulating HPAI viruses with various local LPAI viruses. There is an increased number of new genotypes with a renewed trend towards more regionality. The BB genotype, which has dominated since 2022 and was mainly found in gulls and various seabird species, has been displaced.

Since September, individual H5N5 viruses have been characterised in Norway, England, Germany and Iceland. The genotype underlying these viruses was already characterised in 2021, but has not been found since the first quarter of 2022.

In January, the WOAH was notified of 59 detections of HPAIV H5 in mammals exclusively from Finnish fur farms (Arctic fox, red fox, American mink; Fig. 4).



Figure 4: HPAIV H5 infections in mammals in Europe reported to WOAH since 01.10.2022. *Polish mammal cases concern 33 cats and 1 caracal and are described on the homepage of the "Main Veterinary Inspectorate" in Poland. Data query: 05/02/2024.

Situation in the world/Special events

Worldwide, outbreaks in **domestic poultry and wild bird cases** caused by HPAIV H5 of clade 2.3.4.4b continued to be reported to the WOAH in January, particularly in Asia and on the North American continent. The cases and outbreaks in South America have presumably fallen sharply due to the climate (summer in the southern hemisphere).

- Israel: reported HP H5N1 cases in 4 wild birds in different parts of the country in January, including gulls, a teal and a peregrine falcon.
- Africa: Ghana reported an outbreak in domestic poultry from the Western Region at the end of January. Over 22,000 birds had to be killed.
- Southeast Asia: Dozens of H5N1 outbreaks in domestic poultry and cases in wild birds have been detected in Taiwan, Cambodia, Vietnam, Laos, Japan and South Korea. South Korea continued to report outbreaks of HPAIV H5N6 in domestic poultry and cases in wild birds. Japan reported one case of HPAIV H5N5 in a junglefowl.
- Antarctic region: Gentoo penguins, skuas and albatross species of sub-Antarctic islands (Falkland, South Georgia) are affected by HPAIV H5N1 infections.
- North America: In the colder regions of North America (USA and Canada), some outbreaks in poultry and cases in wild birds have been reported for January:
 - Canada: 4 outbreaks in domestic poultry in Nova Scotia, Ontario, Saskatchewan and Quebec.
 - USA, 5 states: 13 outbreaks in domestic poultry, 13 outbreaks in kept poultry (private farms); a total of over 2 million animal losses in January. Over 100 wild birds tested positive in January alone, about a third of them in hunted ducks (teal, mallard, pintail, shoveller), two thirds from geese, gulls, owls or birds of prey found dead or sick.

Fatal infections with HPAIV H5 in mammals were also reported in January: In a raccoon from Kentucky and in elephant seals and fur seals in the Antarctic region (South Georgia and Sandwich Islands). A <u>study</u> from South Korea published in January retrospectively describes an outbreak of HPAIV H5N1 in cats in two animal shelters in Seoul, in which around 40 cats died acutely from respiratory diseases in July and October 2023. Infection from contaminated food was suspected.

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 after infection with HPAIV H5. In January 2024, a 3-year-old boy and a 70-year-old man contracted

HPAIV H5N1 in Cambodia. Both lived in households where poultry had previously died. Information about the virus clade is currently not available.

According to a current 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 low to **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) (<u>source</u>).

Summary and risk assessment

A considerable number of outbreaks in poultry (n=190) have been reported in Europe since November. From this period alone, the number of poultry losses across Europe amounts to almost 4.4 million.

The range of wild bird species affected now increasingly includes waterfowl again. An increased number of mute and whooper swans have been reported from south-east Europe since December.

The H5N1 HPAI viruses of clade 2.3.4.4.b characterised in Europe since October 2023 show new and different genotypes that have presumably arisen through reassortment of circulating HPAI viruses with various LPAI viruses. A further subtype (H5N5) is circulating in northern Europe and has been detected sporadically in Norway, Iceland, England and northern Germany since November.

In many parts of Germany there are suitable resting and wintering areas for a large number of waterfowl. In winter, weather conditions lead to increased movement dynamics (even over long distances) and in some places to high numbers of 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.

Cold temperatures and weaker UV radiation are favourable conditions for the survival of HPAI viruses. The possibility of further reassortment events is most likely when waterfowl, which are often infected with low pathogenic influenza viruses at this time, meet at resting sites. The presence of H5 antibodies in adult wild birds after surviving infection in recent years could have a positive impact on the overall situation for affected wild birds, but leave continued virus circulation undetected, as more birds could be at least partially protected from severe illness and death. This means that there may still be a risk of introduction for poultry holdings, even if no conspicuous wild bird deaths have been observed in the region.

The <u>risk of HPAI H5 viruses entering</u>, <u>spreading and spreading further in waterfowl populations in</u> <u>connection with high waterfowl densities at assembly centres within Germany is still classified as</u> <u>high.</u> The <u>"Bird Flu Radar"</u> (EFSA) <u>indicates a high probability of HPAIV H5 being introduced in mid-</u>

February <u>in north-west Germany</u>, <u>selectively around Lake Constance and south-east Germany</u>. However, the risk is generally increased for the whole of Germany.

The <u>risk of HPAIV H5 entering German domestic poultry holdings and bird populations in zoological</u> <u>facilities through direct and indirect contact with wild birds is still</u> classified <u>as *high* for February</u>, as reports of wild bird cases continue to be frequent. Outbreaks in domestic poultry and captive birds in Europe indicate a current risk potential that also affects small private holdings.

A <u>moderate</u> risk of introduction through the spread of the virus between holdings (secondary outbreaks) within the EU and also within Germany is currently assumed, as the number of outbreaks in domestic poultry is on the decline. The intra-Community movement of poultry from countries with a pronounced outbreak represents a particular risk factor. Currently, all sectors of poultry farming are affected across Europe, with turkey and waterfowl flocks currently the most affected.

The <u>risk of introduction through the sale of live poultry in the travelling trade or at poultry</u> <u>exhibitions within Germany and Europe is considered to be</u> <u>high</u>.

The <u>risk of undetected circulation of HPAI H5 viruses in waterfowl farms</u> is also <u>still</u> classified <u>as</u> <u>high</u>.

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.

Prevention and <u>biosecurity measures</u> 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" (<u>https://risikoampel.uni-vechta.de/</u>). 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 (<u>photo book</u>).

In addition, containment orders remain a highly effective measure for minimising the exposure of poultry holdings. On the basis of local risk assessments, small-scale and short-phase containment orders can also make a useful contribution.

Direct or indirect contact between poultry and wild waterfowl or natural bodies of water should be completely avoided in order to prevent the introduction of the disease. 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).

Increased vigilance for rapid detection of suspected cases in poultry and immediate initiation of diagnostic clarification with regard to HPAIV would also include early testing of sick birds in waterfowl holdings and fallen stock for AIV in order to detect the circulation of HPAI at an early stage.

To avoid secondary outbreaks, at least the following precautions should be taken:

- No shared use of equipment, carcass bins and vehicles by several poultry farms.
- Restriction of vehicle and passenger traffic on poultry farms to an absolute minimum.
- Staff looking after poultry should only work on a single farm.
- Veterinarians and other persons visiting poultry flocks on a professional basis should break off their tour and observe a 48-hour waiting period if they have entered a flock in which clinical signs, including increased mortality, indicate HPAI.

Poultry or bird exhibitions or the sale of live poultry (travelling trade), including supra-regional trade, should be prohibited or effectively monitored. Bringing together (pedigree) poultry of different origins and keeping them for several days at the exhibition venue 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.

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, <u>considerations</u> 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 countries including 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.

Persons exposed to potentially infected poultry or captive birds, e.g. during killing or evacuation, or who have come into contact with infected wild birds, must be adequately protected and actively monitored or self-monitored for at least 10 days after exposure for respiratory symptoms or conjunctivitis and immediately inform local health and occupational health services to initiate testing and follow-up. Antiviral pre- or post-exposure prophylaxis should be considered and stocked for exposed individuals in accordance with national recommendations.

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 wild bird populations and to reduce the possibility of spreading infection from the wild to the domestic environment when infected birds are transported. In addition, there is an increased risk of infection of humans or domestic animals (dogs, cats) when handling raw, infected meat.

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 public is called upon to report dead birds and conspicuous cases of illness (neurological symptoms) to the veterinary authorities. Citizens can report dead finds at <u>ornitho.de</u>. The registration of the number of dead finds and the associated communication between environmental and veterinary authorities should be intensified. A detailed document with instructions and background information can be found <u>here</u>.

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 <u>found here</u>.

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), <u>Scientific Committee on Antarctic Research</u>; <u>Canadian Food Inspection Agency</u>; <u>USDA APHIS</u>

Query period: 01.-31.01.2024; Query date: 05/02/2024

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: <u>Avian influenza overview September-December 2023</u> | <u>EFSA (europa.eu)</u>.

In addition to weekly updated <u>maps of the outbreaks</u>, the FLI also provides information on molecular-virological investigations of HPAI viruses in Germany <u>(HPAIV genotypes in Germany | Zenodo)</u> 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 <u>avian influenza radar</u> in which avian influenza outbreaks are listed chronologically with details of species, numbers and locations.

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

The EFSA has also set up an <u>HPAI dashboard</u> 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 European Centre for Disease Prevention and Control publishes weekly <u>overviews</u>, including on HPAI in public health. The WHO published a <u>risk assessment</u> on 21 December 2022.

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.

"<u>Offlu</u>" published an overview of HPAI cases in wild birds and mammals in South America and the Antarctic region in December with an assessment of the risk of entry into Oceania and the Antarctic penguin population. The document also refers to options for action.

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