

*HPAI outbreaks reported in this publication refer to officially confirmed cases only.
The information is compiled from the following sources: World Organisation for Animal Health (OIE), national governments and their ministries, and the European Commission (EC) – these sources are responsible for any errors or omissions.*

Wild waterfowl, avian influenza, and biodiversity

It is a well established fact that anthropogenic movements of poultry and poultry products, within and across national borders, remains the primary source of H5N1 highly pathogenic avian influenza (H5N1 HPAI) spread. Furthermore, through numerous field studies, domestic waterfowl have been identified as the H5N1 HPAI reservoir.



Although wild waterfowl including ducks and geese (Anatidae), shorebirds, and gulls (Charadriiformes) are known to be the reservoir for low pathogenic avian influenza viruses, they have not been determined to be reservoirs for H5N1 HPAI based on global surveillance results. Instead, data currently suggests that Anatidae are more likely intermittent disease transporters along specific flyways (eastern portion of the central Asian flyway), and in other flyways, their role is less clearly defined. In contrast, domestic ducks appear to be the true H5N1 HPAI reservoir, and given the range of vaccination programs globally, partially protected flocks may serve as the most likely source of virus.

However, the relative importance of migratory and non-migratory wild waterfowl as H5N1 HPAI vectors remains less clearly determined, with suggestions of differing roles of wild birds in different flyways.

It is for this reason that recognizing the diversity of migration strategies and the multitude of species that may play a role in avian influenza virus transmission, a better understanding of wild bird biodiversity, migration routes, habitat use, and daily movements is necessary.

Additionally, in the context of globalized trade, free-market capitalism, dwindling natural resources, urbanization, and climatic changes, stakeholders across the globe need to take into account the need to protect biodiversity worldwide. There are numerous important linkages between human, domestic, and wild animal health, with these being closely associated with the ecosystems we share. The private and public sectors stand to gain substantial societal benefits, including environmental and public health, from protecting biodiversity and health of wildlife. With species extinctions running at about 1,000 times the background rate, some biologists contend that the world is currently witnessing a biodiversity crisis.

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On 23–25 February 2011, the Food and Agriculture Organization of the United Nations (FAO) participated in the Global Conference on Wildlife titled “Animal Health and Biodiversity—Preparing for the Future” in Paris, France. This conference addressed the benefits and challenges related to coordinated management of health risks at the interface between animals (domestic and wild), humans, and ecosystems. FAO collaborated with the World Organisation for Animal Health (OIE), the Wildlife Conservation Society (WCS), and the World Health Organization (WHO) in organizing this event.

Both FAO and OIE have been working closely through organizational structures and joint areas of interest. For example, the OIE-FAO network of expertise on animal influenzas (OFFLU) works to reduce the negative impacts of animal influenza viruses by promoting effective collaboration between animal health experts and with the human health sector, strengthening the functioning of laboratories, from local to global.

FAO supports animal health programmes in Southern Africa

Established in 2007, the Emergency Centre for Transboundary Animal Diseases (ECTAD) in Gaborone (Botswana) supports animal health activities in a region dealing with numerous livestock diseases. On average, livestock contributes one-third to GDP in countries of the Southern African Development Community (SADC). However, only a few are actively engaged in the lucrative trade of livestock products to the EU. This is due to the presence of trade-sensitive diseases such as African swine fever (ASF), foot-and-mouth disease (FMD), contagious bovine pleuropneumonia (CBPP), and others.

In Gaborone, ECTAD works together with its partners in the Regional Animal Health Center (RAHC), namely the World Organisation for Animal Health (OIE) and the African Union–Interafrican Bureau for Animal Resources (AU-IBAR). In a collaborative effort, ECTAD has assisted countries in the region to improve their preparedness against threats posed by exotic diseases (for example, highly pathogenic avian influenza [HPAI]) through strengthening their capacity to carry out active and passive field-surveillance and improving diagnostic capabilities of national veterinary laboratories.

For endemic diseases in the region, ECTAD puts together programs to improve disease control planning, pre- and post-vaccination serological monitoring, and introduction and reinforcement of biosecurity measures. A good example is FMD, which is present in most of SADC. Here, ECTAD and OIE have introduced the FMD Progressive Control Pathway (PCP), a tool developed by FAO and OIE. Countries in the region enter the PCP at different levels. Assistance and monitoring of the progression along the different steps will be provided.



In terms of success stories of ECTAD’s work, noteworthy is the 2008 Rift Valley fever outbreak in Madagascar. This triggered the setup of a countrywide surveillance and early reporting system using a network of government as well as private veterinarians. These actors implemented a clearly defined surveillance scheme and, within a year, managed to provide the central veterinary laboratory with samples from the entire country and brought outbreaks under control. The surveillance system remains in place and functioning to date.



The ASF outbreak in Mauritius from 2008 to 2010 led to the near decimation of the existing pig population of this island. ECTAD-Gaborone, together with the national authorities, worked expediently to set up a training program for pig farmers. Also, it assisted in rehabilitating the pig production sector, as well making sure that biosecurity measures were being introduced. The support provided culminated in assisting national authorities to prepare the voluntary declaration of freedom from ASF for submission to the OIE.

It is important to underscore that ECTAD works largely through national structures of the Veterinary Services. The activities are supported by FAO representation office in some African countries and through the existing coordination mechanism established by the SADC livestock coordination desk. This arrangement facilitates ECTAD's capacity to react swiftly to requests for assistance by Member Countries. FAO's resource partners are witnessing the benefits of investing in animal health and livestock development. In turn, these activities support poverty alleviation and food security.

MOST RECENT H5N1 AI OUTBREAKS 2006-2011

Note: This list has been compiled on the basis of information up to 31 March 2011.

2011

March	Bangladesh, China (Hong Kong SAR), Egypt, India, Israel, Japan, Korea (Republic of), Myanmar, Viet Nam
February	Indonesia, West Bank
January	Cambodia

2010

October	Nepal
June	Russian Federation
May	China, Israel, Mongolia
April	Lao PDR
March	Bhutan, Bulgaria , Romania

2009

March	Germany
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2008

November	Thailand
September	Togo
July	Nigeria
June	Pakistan
May	United Kingdom
March	Turkey
February	Switzerland , Ukraine
January	Saudi Arabia

2007

December	Benin, Iran, Poland
October	Afghanistan
August	France
July	Czech Republic
June	Ghana, Malaysia
April	Kuwait
January	Côte d'Ivoire, Hungary

2006

August	Sudan
July	Spain
June	Niger
May	Burkina Faso, Denmark
April	Djibouti, Sweden
March	Albania, Austria , Azerbaijan, Cameroon, Croatia , Greece , Jordan, Kazakhstan, Serbia, Slovenia
February	Bosnia-Herzegovina , Georgia , Iraq, Italy , Slovakia

Green: areas which never had reported outbreaks in poultry

Sources: World Organisation for Animal Health (OIE), European Commission (EC), FAO and national governments

AT A GLANCE

The latest HPAI outbreaks for the period 1 – 31 March 2011

Note AIDEnews publishes reports of **confirmed HPAI cases** using the following sources: OIE, European Commission, FAO and national governments.

AFRICA

Egypt

A total of 38 H5 HPAI positive cases were reported in 12 governorates: Beni Suef (3), Dakahlia (1), Damiyatta (1), Fayoum (9), Gharbia (2), Helwan (3), Menoufia (11), Minya (1), Qena (2), Sharqia (3), Sixth of October (1), Sohag (1) Governorates (number of outbreaks in brackets). More than 43,000 birds have died or been culled. Of the 38 outbreaks, 28 were in backyard poultry (chickens, ducks, geese) and 10 were in commercial chicken farms; and 6 outbreaks in commercial farms occurred even though they had been vaccinated (Fayoum (3), Menoufia (2), Sohag (1)).

NEAR EAST

Israel

An outbreak of H5N1 HPAI occurred on 5 March in a turkey farm in Rosh Zurim, Jehuda and Samaria District. Out of 13,000 birds (14-week-old), 200 died. Samples tested positive for H5N1 by real time RT-PCR. Including nearby farms, a total of 40,800 birds have been destroyed.

ASIA

Bangladesh

A total of 79 H5N1 HPAI outbreaks occurred in: Barisal (11), Chittagong (17), Dhaka (24), Khulna (4), Rajshahi (21), Rangpur (2) Divisions (number of outbreaks in brackets). Most of the outbreaks were in commercial poultry farms with one outbreak in backyard poultry. A total of 272,331 birds died or were destroyed.

China (Hong Kong SAR)

A goose carcass found dead at a beach near Sham Shek Tsuen, Lantau, Hong Kong SAR on 1 March 2011 tested positive for H5N1.

India

Another H5 HPAI outbreak occurred in a state government-run poultry farm, Gandhigram, Tripura State on 4 March. A total of 380 out of 10,550 susceptible birds died.

Indonesia

The Participatory Disease Surveillance and Response (PDSR) programme through 33 Local Disease Control Centres covers 71,653 villages in 85 percent of Indonesia's 448 districts and municipalities in 29 of its 33 provinces. During February 2011, PDSR conducted surveillance in 2,011 villages (2.8 percent). The overall HPAI incidence was 2.8 infected villages per 1,000 villages under surveillance.

Japan

H5N1 HPAI outbreaks were reported in three farms in two prefectures (Chiba and Miyazaki), approximately 130,000 birds were destroyed. Meanwhile, a Peregrine Falcon (*Falco peregrinus*) that was found in the United States Air Force Misawa Air Base, Misawa City, Aomori Prefecture tested positive for H5N1 avian influenza.

Korea, the Republic of

A total of four outbreaks of H5N1 HPAI were confirmed in poultry farms in four provinces ("do"): Chungcheongnam-do, Gyeonggi-do, Gyeongsangbuk-do and Jeollanam-do.

Myanmar

Another H5N1 HPAI outbreak occurred in a layer chicken farm in Sagaing State on 16 March. A total of 350 out of 780 chickens died within four days. The rest were culled as a part of control measures.

Viet Nam

A total of 10 outbreaks in seven provinces were reported: two outbreaks in the Red River Provinces of Nam Dinh and Hai Phong; two outbreaks in the North Central Coast Provinces of Nghe An, Quang Tri; four outbreaks in the South Central Coast Provinces of Binh Dinh, Quang Ngai*; and two outbreaks in the Mekong River Delta Province of Tien Giang*. More than 16,000 birds were affected. (*: multiple outbreaks).

SUMMARY OF CONFIRMED HPAI OUTBREAKS (As of 31 March 2011)

Sources: OIE, European Commission (EC), FAO and national governments – WHO for human cases/deaths

Note: H5N1 unless otherwise indicated. Highlighted countries indicate those in which there has been only one officially confirmed H5N1 outbreak or occurrence. Dates of the last outbreak within this year are in bold.

AFRICA	First outbreak	Latest outbreak	Animals affected to date	Human cases / deaths to date
Benin	7 November 2007	15 December 2007	Domestic poultry	-
Burkina Faso	1 March 2006	20 May 2006	Domestic poultry - wild birds	-
Cameroon	21 February 2006	28 March 2006	Domestic poultry – wild birds	-
Côte d'Ivoire	31 March 2006	31 January 2007	Domestic poultry – wild birds	-
Djibouti	6 April 2006	6 April 2006	Domestic poultry	1 / 0
Egypt	17 February 2006	30 March 2011 Helwan, Minya, Menoufia	Domestic poultry – wild birds – donkeys*	133 / 45
Ghana	14 April 2007	13 June 2007	Domestic poultry	-
Niger	6 February 2006	1 June 2006	Domestic poultry	-
Nigeria	16 January 2006	22 July 2008	Domestic poultry – wild birds	1 / 1
Sudan	25 March 2006	4 August 2006	Domestic poultry	-
Togo	6 June 2007	8 September 2008	Domestic poultry	-

ASIA	First outbreak	Latest outbreak	Animals affected to date	Human cases / deaths to date
Afghanistan	2 March 2006	2 October 2007	Domestic poultry – wild birds	-
Bangladesh	5 February 2007	29 March 2011	Domestic poultry	2 / 0
Bhutan	18 February 2010	14 March 2010	Domestic poultry	-
Cambodia	12 January 2004	28 January 2011	Domestic poultry – wild birds	13 / 11
China	20 January 2004	9 May 2010 wild birds	Domestic poultry – wild birds	40 / 26
China (Hong Kong SAR)	19 January 2004	1 March 2011	Domestic poultry – Wild birds	-
India	27 January 2006	4 March 2011	Domestic poultry	-
Indonesia	2 February 2004	February 2011	Domestic poultry – pigs (with no clinical signs)	176 / 145
Japan	28 December 2003	16 March 2011	Domestic poultry – wild birds – raccoons (no clinical signs)	-
Kazakhstan	22 July 2005	10 March 2006	Domestic poultry – wild birds	-
Korea, Rep. of	10 December 2003	22 March 2011	Domestic poultry – wild birds	-
Lao PDR	15 January 2004	27 April 2010	Domestic poultry	2 / 2
Malaysia	7 August 2004	2 June 2007	Domestic poultry – wild birds	-
Mongolia	10 August 2005	3 May 2010	Wild birds	-
Myanmar	8 March 2006	16 March 2011	Domestic poultry	1 / 0
Nepal	8 January 2009	25 October 2010	Domestic poultry	-
Pakistan	23 February 2006	17 June 2008	Domestic poultry – wild birds	3 / 1
Thailand	23 January 2004	10 November 2008	Domestic poultry – wild birds – tiger	25 / 17
Viet Nam	9 January 2004	30 March 2011	Domestic poultry	119 / 59

NEAR EAST	First outbreak	Latest outbreak	Animals affected to date	Human cases / deaths to date
Iran	2 February 2006	10 December 2007	Domestic poultry - wild birds	-
Iraq	18 January 2006	1 February 2006	Domestic poultry – wild birds	3 / 2
Israel	16 March 2006	5 March 2011	Domestic poultry – Emu (zoo)	-
Jordan	23 March 2006	23 March 2006	Domestic poultry	-
Kuwait	23 February 2007	20 April 2007	Domestic poultry – wild birds – zoo birds	-
Saudi Arabia	12 March 2007	29 January 2008	Domestic poultry	-
West Bank & Gaza Strip	21 March 2006	27 February 2011	Domestic poultry	-

* Journal of Biomedical Science : <http://www.jbiomedsci.com/content/17/1/25>

EUROPE	First outbreak	Latest outbreak	Animals affected to date	Human cases / deaths to date
Albania	16 February 2006	9 March 2006	Domestic poultry	-
Austria	10 February 2006	22 March 2006	Wild birds – cats	-
Azerbaijan	2 February 2006	18 March 2006	Wild birds – domestic poultry – dogs	8 / 5
Bosnia-Herzegovina	16 February 2006	16 February 2006	Wild birds	-
Bulgaria	31 January 2006	29 March 2010	Wild birds	-
Croatia	21 October 2005	24 March 2006	Wild birds	-
Czech Republic	20 March 2006	11 July 2007	Wild birds – domestic poultry	-
Denmark	12 March 2006	22 May 2006	Wild birds – domestic poultry	-
France	17 February 2006	14 August 2007	Wild birds – domestic poultry	-
Georgia	23 February 2006	23 February 2006	Wild birds	-
Germany	8 February 2006	10 January 2009 mallard, wild	Wild birds – domestic poultry – cats – stone marten	-
Greece	30 January 2006	27 March 2006	Wild birds	-
Hungary	4 February 2006	23 January 2007	Wild birds – domestic poultry	-
Italy	1 February 2006	19 February 2006	Wild birds	-
Poland	2 March 2006	22 December 2007	Wild birds – domestic poultry	-
Romania	7 October 2005	27 March 2010	Wild birds – domestic poultry – cat	-
Russian Federation	15 July 2005	5 June 2010 wild birds	Domestic poultry – wild birds	-
Serbia	28 February 2006	16 March 2006	Wild birds – domestic poultry	-
Slovakia	17 February 2006	18 February 2006	Wild birds	-
Slovenia	9 February 2006	25 March 2006	Wild birds	-
Spain	7 July 2006	9 October 2009 (H7)	Poultry	-
Sweden	28 February 2006	26 April 2006	Wild birds – domestic poultry – game birds – mink	-
Switzerland	26 February 2006	22 February 2008	Wild birds	-
Turkey	1 October 2005	9 March 2008	Domestic poultry – wild birds	12 / 4
Ukraine	2 December 2005	11 February 2008	Wild birds – domestic poultry – zoo birds	-
United Kingdom	30 March 2006	22 May 2008 (H7N7)	Wild birds – domestic poultry	-

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