



Wild bird H5N1 Outbreaks

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1 Key

Dates in () indicate confirmation dates.

- All entries indicate H5N1 positive unless noted otherwise.
- Key non-wild bird outbreaks are also listed (indented).

Sources are: Ai-news from the Wildfowl and Wetland's Trust, Ai-watch, pro-med-mail, OIE (World Organisation for Animal Health), published literature and NGO unpublished reports.

Maps of global avian influenza outbreaks are available at Nature Reporter Declan Butler's Blog: <http://declanbutler.info/blog/?p=16>

Please contact leon.bennun@birdlife.org to report any inaccurate or missing outbreaks.

2 Albania

01 Mar 2006 Tests on 2 dead swans negative

(07 Mar 2006) Confirmed in chicken found dead on a southern Albanian farm in the village of Cuke (290km south of Tirana), 20 km (12 miles) north of the border with Greece, 10 km from Butrint lagoon, a known resting ground for migratory birds Ramsar reserve eg Pygmy Cormorant *Phalacrocorax pygmeus*, Dalmatian pelican *Pelecanus crispus*, Ferruginous duck *Aythya nyroca*, white-headed duck *Oxyura leucocephala*, , white tailed eagle *Haliaeetus albicilla*, Greater spotted eagle *Aquila clanga*,

3 Afghanistan

11 Mar 2006 Eastern Lagham province sudden death of cat that ate several chicken tested

12 Mar 2006 (16 Mar) poultry H5N1 in Kabul and Eastern Nagarhar

4 Austria

13 Feb 2006 (14 Feb) 2 Mute swans found dead in Mellach, Stryia confirmed. Several dead swans found in reservoir

18 Feb 2006 1 Mute swan confirmed in Vienna suburb of Donaustadt

(02 Mar) 5 ducks and 1 chicken confirmed near Graz Village at Noah's ark sanctuary

06 Mar 2006 3 cats tested at Noah's Ark Nature sanctuary in Graz, but negative

22 Mar 2006 (28 Mar) North Austria bird flu suspected in Vienna. 2 swans confirmed at Freudenu power station, also 1 swan at Floridsdorf waterpark

3 April 2006 Two swans confirmed on the western Attersee bank Litzlberg (in total 6 cases in North Austria)

11 April 2006 confirmed H5N1 in 18 more wild birds (15 swans, a goose, a duck and a heron) found dead in Vienna last week.

16 April 2006 5 swans H5N1 confirmed near water park (with previous swan outbreaks) near Danube in Vienna. Total 39 suspected H5N1 near Vienna.

Summary: more than 2,100 specimen were tested since the virus first appeared on Feb. 14. Confirmed positive were: 59 swans, 27 ducks, six chickens, four water fowl, two geese, one coot, one seagull and one egret

22 April 2006 confirmed in 8 swans 3 wild ducks and 1 coot found in Grein, northern Austria on Danube River

5 Azerbaijan

01 Feb 2006 mass deaths caused by cold tested negative

03 Feb 2006 Pirallakhi Island (near Baku) New Castle Disease (NCD)

29 Jan 2006 (10 Feb) at Absheron Peninsula

9000 dead birds 01/16-02/23 swans (n = 717), bald coot (1156), cormorant (923) Pelican (170), gull(278), magpie(82), raven (127), pheasants (41) pigeon (13). Unclear if H5N1, cold or NCD

(18 Feb 2006) 3 out of 10 waterfowl confirmed Beilagan (250 km W of Baku)

March 03 first time spread to poultry – Boyuk, Brahmanly villages in Fuzuli region south west off of coast, on border with Iran

(15 Mar 2006) 3 people die, 100 km s of Baku, in area apparently without infection in poultry

16 Mar 2006 1 dog die in Baku City H5 confirmed

28 Mar 2006 Azerbaijan die-off starting to decrease birds still die in Novkhani, Bilajari and Sulutepe. (*Report machine translated and unclear)

27 Mar 2006 Total confirmed in 7 people (6 in Salyan Rayon) and 1 in west (Tarter Rayon), defeathering of dead wild swans not buried confirmed to be source of infection by WHO study

4 April 2006 diagnostic examinations on 4464 samples, including samples taken from 3463 poultries, 998 wild birds, and 3 other animals were implemented in the Veterinary Laboratory of the Republic together with other state organizations. The examinations revealed separate forms of bird flu in 14 poultries, 20 wild birds, and 1 dog. As a result of the examinations, H5N1 form of the virus was detected in 7 wild birds among 1236 birds, and H5N1 form in 2 wild birds among 248 birds taken from Absheron region. (Not clear how birds tested or species).

Blood and pathological samples taken from all regions of the republic, national parks, territories temporarily settled by migratory birds were also examined for AI. Test showed H5N1 in 1 wild bird among 121 samples taken from Shamakhi region, 1 wild bird among 22 samples taken from Ganja city, 1 wild bird among 24 samples taken from Samukh region, 1 wild bird among 3 samples taken from Ali Bayramli region, H5 form in 1 wild bird among 13 samples taken from Aghstafa region, H5N3 form in 6 wild birds among 47 samples taken from Beilagan region, H5N1 form in 1 poultry and H5 form in 1 poultry among 17

samples taken from Fuzuli region, H5N1 form in 1 poultry among 7 samples taken from Aghdam region

New report confirming wild swan defeathering lead to infection in people in Salyan Rayon (Gilsdorf et al. 2006)

People infected by H5N1 had the Qinghai Lake H5N1 virus strain, and were closely related to virus taken from swan in Azerbaijan, Iran and Italy in 2006 (Brown 2006).

6 Belgium

18 Oct 2004 2 crested hawk-eagles smuggled from Thailand confirmed found at Brussels airport. Genetic analysis showed Thai-Vietnam origin. Probably fed infected chicken carcass (van Bourm 2005)

7 Bosnia-Herzegovina

20 Feb 2006 (27 Feb) 2 dead Mute swan culled at Malo Plivsko Jezero Lake (Plivsko Lake OIE) in Jajce, flock of 15 arrived 11 Feb, 2 culled after showing signs of disease

8 Burkina Faso

3 April 2006 Poultry outbreak near capital Ouagadougou, 123 Helmeted Guinea fowl died at the beginning of March at a camp site at Gampela, Saaba department, Kadiogo province

20 May 2006 Spread of H5N1 in back-yard poultry at villages Bobo-Dioulasso and Sabou. Another outbreak was also reported in the capital Ouagadougou, where the disease was first detected last month. Bobo-Dioulasso lies about 360 km (220 miles) west of the capital, while Sabou is about 100 km west of Ouagadougou.

9 Bulgaria

31 Jan 2006 (03 Feb) 1 Mute swan Danube River near Vidin close to Romanian border

13 Feb 2006 (20 Feb) 3 swans black sea coast one each from: Durankulak Lake near Dobrich, the Tsonevo dam in the Varna region, and at a Burgas

(2 April 2006) Dead Dalmatian pelican test negative for H5N1.

20 July H5N1 in three farms in Slanchogled village in the south of the country near the Turkish border in the Kardzhali region, 260 km (162.5 miles) southeast from Sofia. Suspect source of infection are illegal poultry trade, human movement between Turkey and Bulgaria and water basin? According to agricultural minister Nihat Kabil. There are apparently large number of Turkish people living in this area, and several thousand people cross these borders every day.

10 Cambodia

24 Jan 2004 Poultry outbreak from imports from Thailand (Jamwal 2006)

11 Cameroon

(12 Mar 2006) Poultry duck outbreak confirmed in Northern town of Maroua 50 km from Nigerian border

(30 Mar 2006) 1 wild duck found dead on Malape lake 1,000 km north of the capital Yaounde.

12 Canada

2004 H7N3 detected in Fraser valley poultry

June 16, 2006 1 gosling in a backyard flock tested positive for a low path H5 virus (Not H5N1).

13 Chile

2002 H7N3 detected in large broiler breeder operation and nearby turkey flock

14 China (Hong Kong)

1997 Hong Kong poultry outbreak closely related HA gene to GD geese strain, but internal genes related to H9N2 in quail and H6N1 in teal. 75 % of chicken in farm died but 20 % of poultry in markets died but all excrete viruses, cross infection with H9N2 may provide immunity (Seo & Webster 2001; Guan et al. 1999)

1999 HK ducks and geese outbreak very closely related to 2000 outbreak and Guang Dong goose extracted in 1996

10 Dec 2002 First die-off of aquatic waterfowl due to avian influenza since 1961 (Sturm-ramirez et al. 2004). Several waterfowl in Penfold Park near Shing Mun River (Ellis et al. 2004; Guan et al. 1999; Perkins & Swayne 2003; Guan et al. 1999): Most species free-range, but fed also some captive birds 1 Black swan, 12 Canada geese, 1 whooper swan, 6 ducks, little egret (Z⁺ genotype (Li et al. 2004)), feral pigeon (Z genotype), Peregrine falcon (Z genotype)

No poultry farm within 6 km, and no staff had contact with poultry farms, but between Nov – Dec 10,000 human visitors, fed grain mixture from supplier who also supplied poultry

17 December 2002 Rosybill pochard, white-faced whistling duck, Hawaiian goose, Greater flamingo, Red-crested pochard, Wood duck, Brazilian teal, Baham pintail, Chestnut-breasted teal, Argentine shoveller, Chiloe wigeon, Puna teal, Canada goose, Ringed teal, manded wood-duck, Coscoroba swan confirmed in Kowloon Park on hill in Tsim Sha Tsui on Kowloon Peninsular. Kowloon summary: total of 105 birds from the open ponds, including 80 (43.7%) of 183 ducks, 9 (37.5%) of 24 geese and swans, and 16 (11.1%) of 144 flamingos, died during the outbreak. Avian influenza of the H5N1 subtype was confirmed by virus isolation in 95 (90.5%) of these cases (Sturm-ramirez et al. 2004).

Poultry farm 15 km away but live poultry market across road
Birds fed duck pellets imported from UK and grain from local merchants

17 Dec 2002 1 dead grey heron at Lok Ma Chau Spur, wetland mitigation ponds (Z genotype, Li et al 2004 Nature)

27 Dec 2003 1 dead grey heron in adjacent pond to above grey heron (Z genotype)

6 Jan 2003 Black-headed gull dead at Chek Lap Kok, Lantau Island, 29 km away from (Z genotype) Lok Ma Chau, 32 Km from Penfold Park; Black-headed gulls are winter visitors, winter population 15,000.

1 Nov 2004 (3 Nov) 1 Grey Heron at Ecological mitigation area of Lok Ma Chau Spur Line, found dead, 20 km away from Penfold Park

1 Dec 2004 (13 Dec) 1 Grey Heron at same place as above, found dead

5 Jan 2005 (14 Jan) Chinese pond heron at same place as above, found dead

4-8 Jan 2006 (10 Feb) 1 magpie robin, in HK close to China border in Tai Po found dead
Summary table by HK government for Jan 2006 outbreak

20 Feb 2006 (29 Feb) 1 crested myna found in urban play-ground 2 oriental magpie robins: 1 magpie found Sha Tau Kok

14.1 Location of H5N1-infected wild birds found in Hong Kong in 2006

http://www.afcd.gov.hk/tc_chi/whatsnew/what_qua/files/h5n1_2006.pdf

Label	Submission Date	Bird's name	Location
1	10.1.06	Oriental Magpie Robin	Kam Shan Tsuen, Tai Po
2	26.1.06	Oriental Magpie Robin	Sheung Wo Hang Tsuen, Sha Tau Kok
3	31.1.06	Crested Myna	Muk Lun Street Playground, Wong Tai Sin
4	31.1.06	Chicken	Yuen Tuen Shan, Sha Tau Kok
5	3.2.06	Common Magpie	Yuen Tun Village, Tsing Lung Tau, Sham Tseng
6	3.2.06	Little Egret	(near Lung Mun Oasis) Tuen Mun River, Tuen Mun At creek close to infected poultry not genotype Z (ai watch, Martin)
7	6.2.06	Chicken	Wu Tai Circuit, Tuen Mun
8	7.2.06	Japanese White Eye	Diocesan Boy's School, 131 Agyle Street, Mong Kok
9	16.2.06	Common Magpie	Dianthus Rd., Yau Yat Tsuen, Sham Shui Po
10	17.2.06	Common Magpie	Junction of Boundary Street / Flower Market Path, Mong Kok
11	20.2.06	Munia	Repulse Bay Rd., Repulse Bay
12	20.2.06	White-backed munia	Queen's Rd East, Wanchai
13	20.2.06	Large-billed crow	Magnolia Rd., Yau Yat Tsuen, Sham Shui Po
14	21.2.06	House crow	Lai On Estate, Cheung Sha Wan
15	23.2.06	House crow	Tai Hang Tung Est., Shek Kip Mei
16	25.2.06	Common Magpie	The Hong Kong Golf Club, Shouson Hill

15 China (Mainland)

1996 First record of H5N1 in Guangdong domestic geese killed 40 % of geese in farm

2001 Chinese duck meat imported to Korea tested positive from Shanghai region (Tumpey et al 2002)

Genetic strain found circulating in wild ducks in 1999-2002, different than virus found in Hong Kong live bird markets (Chen et al 2004, Guan et al 2002) later viruses more virulent

Jan 2004 Outbreak in Lhasa, Tibet was traced back to shipment of infected chickens from Lanzhou (FAO 2004)

April 2005

More info on exact death tolls in 2005 Qinghai outbreak: 3282 bar-headed geese *Anser indicus*, 1302 great cormorants *Phalacrocorax carbo*, 929 great black-headed gull *Larus ichthyaetus*, 570 brown-headed gulls *Larus brunnicephalus*, , 145 ruddy shelduck *Tadorna ferruginea* and a small number of whooper swan, **black-neck cranes** (*Grus nigricollis*), pochard were found dead between 4 May and 29 June (according to Chen et al 2006, see below) (Chen et al. 2005; Liu et al. 2005; Chen et al. 2006)

BH geese started showing symptoms of the disease in late April. Starting 4 May BH geese died (and had at least 3 different strains of the virus: “A”, “B” and “C”) then 10 days later black and brown-headed gulls died (with strains C), and on 24 May large numbers of ruddy shelduck (different strain of virus that was not detected in other species of birds strain D) and dead cormorants (virus strain C) were found dead. A small number of cormorants were found dead 16 May near initial infection area of bh geese and gulls. Both gulls and the cormorant had the same strain of H5N1. The bh geese that died early in the outbreak had strains A and B. Authors suggest that the bh geese may also have had D strain (the strain killing ruddy shelduck) but that it just was not detected in the sample of bh geese tested. Based on this data the authors suggest that the virus was introduced multiple times by different species of birds. Authors suggest the bh geese carried the virus from southern wintering habitats, rather than that other species of birds that carry the disease asymptotically brought the disease to the lake.

Strain C (that infected the gulls and cormorants in Qinghai Lake) also infected birds in Mongolia and Russia and chicken in Liaoning

At Qinghai, state-owned fish factory on south shore of lake, lots of poultry in area, and also duck farming and fish aquaculture (Feare 2006). In 2006 reports suggested that there were artificial bar-headed geese breeding farms that domesticated and released birds into the wild at Qinghai Lake and Lhasa and could have been sources of infection (Butler 2006).

According to Joseph Dudley 700,000 people live within 100 km of Qinghai Lake. Information on use of poultry products in fish farming projects at Qinghai Lake at: <http://www.fao.org/docrep/field/003/U4173E/U4173E00.htm>

Jiang Hongxing from Chinese Department of Forestry conducting research on H5N1 infected birds in Qinghai Lake provided details of infected wild birds:

Bar-headed Goose arrive at Qinghai Lake for breeding in the mid March, they are followed by Common Cormorant, Ruddy Shelduck, Greater Black-headed Gull and Brown-headed Gull (in that order).

The population size of Bar-headed Goose, Common Cormorant, Ruddy Shelduck, Greater Black-headed Gull and Brown-headed Gull is 15000, 7000, 1000, 5000, 10000 individuals respectively. The counts are the primary survey results in this early May. Based on info from Qinghai Lake NNR staff, the population size is smaller than the former surveys before the H5N1 outbreaks.

47 Black-necked Cranes were counted in the survey around the whole Qinghai Lake in early May of 2006. 5 nests were found in 5 separate sites. Reserve staff say the population of this crane has been increasing in recent years. Before about 20-30 cranes were discovered in each summer."

Nearest poultry outbreaks from the Qinghai outbreak was in Lanzhou, c 300 km from Lake Qinghai and Xinjian NW China (but some outbreaks may have occurred and were not reported)

HA,NA and NP genes in Qinghai outbreak related to V genotype from southern China chickens

M, NS, PA, PB1, PB2 internal proteins related to Z genotype from domestic poultry in southern China (Chen et al 2005). Bar-headed geese at Qinghai had internal proteins closely related to 6 Poyang Lake ducks (Chen et al 2006) and HA,NA and NP genes related to V-genotype from other duck in Poyang Lake.

Summary: Outbreak occurred a couple of weeks after bar-headed geese had already arrived to lake and so it is unlikely that bar-headed geese brought the virus to the area. Instead there may be other species that can asymptotically carry infections that arrive later in the spring.

2 Virus clusters 1) Hunan, Yunnan and Indonesia. 2) Vietnam, Thailand and Malaysia (Chen et al 2006)

More information on virology of H5N1 in China/Hong Kong (Shortridge et al. 1998)

Jan and March 2005 6 migratory ducks test positive for H5N1 at Poyang Lake Jiangxi province. Species either mallard *Anas platyrhynchos*, falcated teal *Anas falcata* and spot-billed duck *Anas poecilorhyncha*. (Chen et al. 2006)

25 April 2006 Liaoning province 1 magpie and wild duck found dead in region where there have been no recent H5N1 outbreaks (though there have been a lot of birds vaccinated so it is possible that there was infected poultry that were not showing symptoms and shedding the virus). There were outbreaks in Liaoning last year.

01 May 2006 1 out of 3 bar-headed goose in Qinghai have tested positive for H5N1 just north of Qinghai Lake. Location is at Rkang Tsha Rdzong.

23 April 2006 27 bar-headed geese found dead in Yushu prefecture in Qinghai province wetland confirmed (about 60 km away from Yushu village, in a very remote region). Yushu is within the Sanjiangyuan Natural Reserve (33^o 0'33' N, 95^o20'E). There are 5

townships within Yushu: Xiaosuomang, Zhongda, Anchong, Haxiu, Batang. Yushu is on main road connecting Lhasa and Qinghai Lake. It is 600 km north east of Lhasa and 450 km south west of Qinghai Lake

For map of region:

<http://www.mapquest.com/maps/map.adp?formtype=address&country=CN&addtohistory=&city=>

01 May 2006 now 123 bar-headed geese found dead in same location + 2 other unidentified species. Officials report no domestic poultry in area.

Sangjiangyuan NR sounds fairly pristine but some reports state that there is a need to restore deterioration of grassland, prevent desertification, control rodents and livestock within the reserve, which would suggest that there are some human impacts.

The Sanjiangyuan region covers 363,000 square kilometers of land with a 590,000-people population, of which the Sanjiangyuan nature reserve accounts for 152,300 square kilometers. Within SNR there are 200,000 people. It is one of the largest protected wetlands in the world.

14 May 2006 30,000 dead chickens in in Dalian city (38⁰ 51 N 121⁰ 37 E), Liaoning province, northeast China, authorities investigating if H5N1. Major supplier to Hong Kong and Macau. This outbreak is near the 2 (magpie and wild duck) found 20 April 2006 in Liaoning province.

(21 May 2006) In total 308 wild birds (300 are bar-headed geese) found dead in Yushu County (of Qinghai province, since beginning of outbreak 23 April). 2891 samples (faecal/cloacal/exact location unspecified) have been taken from Qinghai on migratory birds, all tested negative

Summary 23 April – 08 June in - outbreak in Yushu: 404 bar-headed geese, 3 brown-headed gulls, 4 ruddy shelducks, 1 tern, 6 grebes, 1 egret, 2 goosanders, 2 Casmerodius (egret?);

Total number of dead birds found: 495

24 May 2006 399 dead bar-headed geese and ruddy shelduck in Tibet's Nakchu (Nagqu) prefecture (200 km north of Lhasa) and Qinghai's Guoluo Tibetan Autonomous prefecture in southeastern Qinghai province, a region without poultry.

There are also artificial breeding of bh geese in Nagqu prefecture according to Chinese media translated over aiwatch. Nagqu is in northern part of Tibet.

This outbreak is different from the bh geese reports from Yushu County last week.

Chinese ministers say that this week's outbreaks are along the same migratory route as the Yushu County outbreak.

Summary: 21 May – 08 June - outbreak in Guoluo: 235 bar-headed geese, 5 brown-

headed gulls, 23 ruddy shelducks, 9 grebes, 3 owls, 1 black-neck crane, 6 common cormorants, 1 grassland vulture and 2 condors;
Total number of dead birds 440

Summary 21 May – 08 June - outbreak in Naqu: 300 bar-headed geese, 65 widgeons, 6 crows, 6 hawks, 1 black-necked crane and 82 other wild birds.
Total number of dead birds 1154

26 May 2006 28 dead wild birds recorded in Lhasa, but apparently death not attributed to H5N1.

08 June 2006 Poultry outbreak in 1 farm in Hetian (Hotan) county, Xinjiang (north west of Qinghai province). Hetian County is along a main road running west to east along the southern end of Xinjiang province. Hetian had poultry outbreaks in Nov 2005

28 June 2006 Poultry outbreak in northern China Shanxi province at Changzi county

01 July 2006 New poultry or wild bird outbreak in Ningxia Hui Autonomous Region Zhongwei city

14 July H5N1 outbreak in Aksu city, Xinjiang region, when 3,045 chickens were found dead

16 Congo

19 Mar 2006 Potential poultry death test negative in southern city of Lubumbashi test negative

17 Croatia

(19 Oct 2005) 6 out of 12 tested positive in swans Zdenci municipality fish pond Eastern Croatia, 1500 migratory swans come to area, 15 died

21 Oct 2005 (26 Oct) 2 out of 15 tested confirmed in fish pond in Nasice, thought to be from same flock as Zdenci outbreak. One ringed swan that was healthy and resighted in unaffected area of Hungary Sept 27, was part of a healthy flock of 1500 swans arriving into Grudnjak fish farm 19 Oct, it was later found dead and with H5N1 in Croatia, indicates that infection probably occurred in Croatia (Feare 2006). Piles of chicken waste and dead birds dumped next to fish farms to weather (and may leach into ponds)

Jan 2006 1 Swan in fish pond confirmed

15 Feb 2006 (21 Feb) 1 Mute swan in Slatina, Island of Ciovo confirmed

15 March 2006 - A swan found dead in eastern Croatia has tested positive for the H5N1 strain of bird flu. Baranja region, on the shores of the Danube River, authorities suspect swan from Serbia, because close to border.

28 Feb – 3 Mar 2006 (16 Mar) 1 dead swan (alone and apparently not part of a flock) and several black-headed gulls have also tested positive for H5N1, 30 out of 70 (gulls and shorebirds) that were caught **ALIVE** near the location of the swan town of Pantana at Pantan ornithological reserve, near Split on the country's southern coast.

(7 April 2006) Confirmed first bird flu case in the capital of Zagreb after a dead swan found there tested positive for the H5 strain of bird flu virus. The dead swan was found on the shores of the Sava River in southeast Zagreb. 3rd h5n1 mute swan in Croatia.

18 Czech Republic

20 Mar 2006 Summary: total of 1259 samples of wild birds found dead were tested between 1 Jan and 25 Mar 2006 within the framework of the national surveillance program, all with negative results. 1 dead mute swan confirmed

29 Mar 2006 (30 Mar) 1 swan confirmed at Vltava river near Hluboka nad Vltavou, in the southern part of the country.

30 Mar 2006 1 swan four kilometres away from the first, namely on the Vltava River in Ceske Budejovice, H5 confirmed.

31 Mar 2006 1 swan found dead, presence of the H5 confirmed in a third swan the body of which was found in Hluboka nad Vltavou, south Bohemia. Located 300 m from first swan

5 April 2006 4 swans found at Vltava River dead confirmed

7 April 2006 eighth case of bird flu after tests showed that a swan found dead recently was infected with the H5 virus South Bohemia, about 5 km from the country's border with Austria town of Velka Cerna near the south Bohemian center Ceske Budejovice

(16 April 2006) 4 swans confirmed with H5N1, Near the southern Czech town of Ceske Budejovice, around 150 kilometres (90 miles) south of Prague and around 40 kilometres from the Austrian border. In same area as previous outbreaks

1 swan confirmed with H5 at Vltava river at Orlik, around 40 kilometres south of Prague

(26 April 2006) 12 swans found dead in southern Bohemia, confirmed 150 km south of Prague, near region of previous outbreaks

20 May 2006 2 swans found dead and 1 tested positive for H5N1 at Kostice in the southeast (near Breclav on border of Austria and Slovakia)

Summary: Country total 14, 12 others this year found on south west, 150 km west of Kostice village)

19 Denmark

16 Mar 2005 1 whooper swan in Roskilde Fjord (Brackish water) at Frederikssund, Frederiksborg county

15 Feb 2006 32 dead mute swan, 1 gull, 1 cormorant found 30 mile from Ruegen Island on Falter Island but H5N1 negative

(14 Mar 2006) 1 common buzzard confirmed, found dead, 70 km south of Copenhagen in wetland area near Naestved in Svinø Strand, Storstroems county in Coastal, in summerhouse garden

17 Mar 2006 1 Peregrine falcon found dead and confirmed. Not specified except on small island in sea at Drejø, Fyens county , H5 confirmed

18 Mar 2006 1 Greylag goose found dead at harbor in sea water Svendborg Havn Fyens county confirmed

19 Mar 2006 1 Tufted duck in sluice (floodgate) in Præstø, Storstroems county brackish water at fjord coast confirmed

20 Mar 2006 1 Tufted duck found dead Coastal in brackish water at water south of Nykøbing Falster Guldborgsund, Storstroems county H5 confirmed

12 Mar 2006 9 Tufted duck at harbour in sea water at Ærøskøbing Fyens county confirmed

Full genome sequences of the first bird flu case in Denmark (Buzzard *Buteo buteo*)

<http://www.influzanet.dk/>

<http://www.influzanet.dk/H5N1%20sequences.htm>

List of all tested wild birds in Denmark since 1 January 2006

http://www.dvfv.dk/Files/Filer/Husdyrsygdomme/Avi%E6r%20influenza/AI_resultater.xls

Official Danish government website about avian flu

www.fugleinfluenza.com

19.1 Chronological overview of the detections of high pathogenic avian influenza (HPAI) in wild birds in Denmark

http://www.uk.foedevarestyrelsen.dk/AnimalHealth/Avian_influenza/Latest_news/Results_in_2006/forside.htm

First administrative division	Name of location	Date of confirmation of HPAI (H5)	Affected species
Storstrøms Amt	Svinø	14/03/2006	1 common buzzard (<i>Buteo buteo</i>)
Fyns Amt	Ærøskøbing	17/03/2006	9 tufted ducks (<i>Aythya fuligula</i>)
Fyns Amt	Ærøskøbing	19/03/2006	6 tufted ducks (<i>Aythya fuligula</i>)
Frederiksborg Amt	Frederikssund	21/03/2006	1 whooper swan (<i>Cygnus cygnus</i>)
Storstrøms Amt	Præstø	22/03/2006	1 tufted duck (<i>Aythya fuligula</i>)
Fyns Amt	Ærøskøbing	22/03/2006	2 tufted ducks (<i>Aythya fuligula</i>)
Fyns Amt	Drejø	24/03/2006	1 peregrine falcon (<i>Falco peregrinus</i>)
Fyns Amt	Svendborg	25/03/2006	1 greylag goose (<i>Anser anser</i>)
Storstrøms Amt	Guldborgsund	25/03/2006	1 tufted duck (<i>Aythya fuligula</i>)
Fyns Amt	Fåborg	27/03/2006	2 mute swans (<i>Cygnus olor</i>) 1 tufted duck (<i>Aythya fuligula</i>)
Storstrøms Amt	Nysted	27/03/2006	1 common buzzard (<i>Buteo buteo</i>)
Storstrøms Amt	Stubbekøbing	27/03/2006	1 tufted duck (<i>Aythya fuligula</i>)
Frederiksborg Amt	Skibby	27/03/2006	1 rough-legged buzzard (<i>Buteo lagopus</i>)
Sønderjyllands Amt	Sønderborg	29/03/2006	1 common buzzard (<i>Buteo buteo</i>)

Sønderjyllands Amt	Kegnæs	30/03/2006	1 tufted duck (<i>Aythya fuligula</i>)
Bornholms Amt	Vang	31/03/2006	1 mute swan (<i>Cygnus olor</i>)
Vestsjællands Amt	Skælskør	31/03/2006	1 tufted duck (<i>Aythya fuligula</i>)
Storstrøms Amt	Bandholm	01/04/2006	1 tufted duck (<i>Aythya fuligula</i>)
Fyns Amt	Fåborg	01/04/2006	1 common buzzard (<i>Buteo buteo</i>)
Storstrøms Amt	Nysted	06/04/2006	1 whooper swan (<i>Cygnus cygnus</i>)
Fyns Amt	Ullerslev	07/04/2006	1 common buzzard (<i>Buteo buteo</i>)
Frederiksborg Amt	Hornbæk	07/04/2006	1 common buzzard (<i>Buteo buteo</i>)
Storstrøms Amt	Præstø	10/04/2006	1 swan (<i>Cygnus sp.</i>)
Frederiksborg Amt	Skibby	10/04/2006	1 swan (<i>Cygnus sp.</i>)

19.2 Number of wild birds that have been tested

In the period 15 February 2006 to 15 March 2006 have 225 wild birds been analysed with a negative test result. The wild birds that have been examined have been:

- 69 swans (49 *Cygnus sp.*, 18 *Cygnus olor*, 1 *Cygnus cygnus* and 1 *Cygnus columbianus*),
- 69 wild ducks (1 *Anas sp.*, 3 *Anas platyrhynchos*, 4 *Aythya fuligula*, 1 *Clangula hyemalis*, 2 *Melanitta nigra*, 58 *Somateria sp.*),
- 1 wild goose (*Branta leucopsis*)
- 44 predatory bird (16 *Accipitor nisus*, 3 *Accipitor gentilis*, 1 *Asio flammeus*, 23 *Buteo buteo*, 1 *Falco tinnunculus*, 1 *Haliaeetus albicilla*),
- 7 herrons (2 *Ardea sp.* and 5 *Ardea cinera*),
- 9 gulls (7 *Larus sp.*, 1 *Larus argentatus* and 1 *Larus ridibundus*),

- 26 other wild birds (8 *Bombycilla garrulus*, 1 *Carduelis flammea*, 1 *Corvus corone*, 1 *Corvus frugilegus*, 2 *Fulica atra*, 1 *Garrulus sp.*, 1 *Haematopus sp.*, 1 *Phalacrocorax sp.*, 3 *Phasianus sp.*, 1 *Pica pica*, 2 *Turdus merula*, 1 *Turdus philomelus* and 3 *Turdus pilaris*).

18 May 2006 H5N1 in poultry (100 hens, ducks, geese, peacock) at Kerteminde in Funen county, near region with wild bird outbreaks. The outbreak is said to have started on May 16. The protection and surveillance zone in Funen county was removed May 08 (after wild bird, swan and tufted duck outbreaks).

26 May 2006 the Danish Veterinary and Food Research Institute detected high pathogenic avian influenza (H5) in a magpie (*Pica pica*), which was found near the city Kerteminde in Funen County.

2 June 2006 low pathogenic avian influenza (H5) was detected in domestic mallard holding near the city Tommerup in Funen County. The holding is situated near the 18 May backyard poultry outbreak in Kerteminde in Funen County. There were no clinical signs of disease among the animals. Ducklings (mallards) from the holding were tested in accordance with the Danish surveillance programme for avian influenza in poultry.

20 Djibouti

15 May 2006 Human and small number of poultry confirmed with H5N1 in village close to the border of Somalia. People refuse to cull chickens without compensation from government.

21 Egypt

(17 Mar 2006) four chickens in Cairo, two in nearby Giza and one in Minya, 220km (135 miles) south of the capital.

17 Mar 2006 1 dead egret (cattle?) near Cairo and zoo

17 Mar 2006 1 dead human (28 yr old) Cairo Banha (Qaloubiyah province) 40 km N Cairo

22 Eritrea

16 Mar 2006 WHO records mass wild bird death at western Gash Barka and Northern Red Sea **This was fictitious!! (17 Mar 2006)

23 Ethiopia

16 Mar 2006 H5 reported in poultry test negative

24 Finland

5 May 2006 Summary: 12,000 swans arrived to breed, but no dead birds have tested positive for H5N1

8 May 2006 (11 May) Hundreds of wood pigeon and lapwing found dead in Island of Jurmo, tests are now being conducted. Test results negative.

24 France

13 Feb 2006 (18 Feb) 1 sample pooled from 3 Common Pochard out of 7 dead pochards found dead in Joyeux village Ain near Lyon

19 Feb 2006 (23 Feb) 1 Common Pochard, near Bouvent village Ain found dead Sandrans (2), Versailleux (2), Villars les Dombes (4), Marlieux (9), Monthieux (1), Birieux (3), Lapeyrouse (1) – OIE report lumped wild duck, heron, swans all in Ain
– 26 Feb confirm turkey farm Ain

26 Feb 2006 15 wild mute swan Ain near turkey farm around swamps at Lake of Pourra

28 Feb 2006 1 tufted duck at Prévessin-Moëns Ain

(28 Feb) 1 dead swan Monthieux, Ain

(02 Mar) 1 heron, 1 common pochard, 9 swans (Marlieux and Saint-Mitre-les-Remparts) Ain

02 Mar 2006 Saint Marcel en Dombes 1 buzzard, 1 barnacle goose Ain

(05 Mar) 1 gull H5 but not H5N1 in N France Boulogne

06 March 1 swan dead with H5N1 31 miles east of Camarque toward Marseille in Southern France

8 Mar 2006 1 mute swan Birieux confirmed, 2 mute swan at Villars les Dombes Ain

15 Mar 2006 (21 Mar) 1 great-crested grebe found dead in Ain at Divonne-les-Bains near Swiss border

19 March 2006 1 Common Pochard Chanoz Chatenay, and Swans (13 - Whooper and Mute) in Marlieux (5 birds) , Birieux (2), Villars les Dombes (5), Versailleux (3) and Lapeyrouse (1) all in Ain region. Typing of the virus indicates that it is very similar to virus A/Chicken/Tula/10/2005(H5N1), A/Bar Headed Goose/Qinghai/65/05 (H5N1), and also to A/common pochard/France/0667/2006(H5N1),

24 April 2006 2 swans found died this week confirmed H5N1 with Saint-Paul-of-Varax, in the marshes of Dombes in Ain near the region where other swans found

25 Georgia

13 Jan 2006 Dead pigeon found but not H5N1

24 Feb 2006 (27 Feb 2006) swans found in Adzhara, a semi-autonomous region not far from the Turkish city of Trabzon

27 Feb 2006 wild birds in military base, but unclear if final tests show H5N1

1 Mar 2006 Abkhazian dead wild birds but not H5N1

26 Germany

Website of German outbreaks (in German)

http://www.fli.bund.de/fileadmin/user_upload/Dokumente/News/av_Influ/LB_Influenza.pdf

14 Feb 2006 (15 Feb) First 2 swans, 1 northern goshawk confirmed Ruegen Island,

14 Feb 2006 (17 Feb) Ruegen Island: 1 Canada goose, 6 mute swan, 3 whooper swan, tufted duck + 28 other birds confirmed, (in total approximately 100 birds confirmed)

One dead whooper swan ringed on collar (2C26) and leg (EE...984) in Latvia as nestling female at Aizpute, Liepaja (54⁰ 41 N, 21⁰33' E), Resighted on 28 Jan 2006 on Ruegen Island (Schaprode) and found dead 14 Feb 2006 Feldmark, Schaprode Ruegen Island Sibling of whooper swan 2C30 was resighted alive and healthy on 18 February 2006, 10 km south of the finding place of the dead one.

((17 Mar 2006 total 100 + whooper and mute swans, 15 geese, 7 raptors, 2 cormorants, 7 gulls, 2 corvids, 1 merganser, 1 great-crested grebe))

22 Mar 2006 – update from Marko (Nabu) 226 infected, 3 % of dead birds tested positive, 6000-10000 healthy birds tested.

20 Feb 2006 1 Buzzard, 1 gull, 5 swan, 2 geese, 3 ducks Mecklenburg-Western Pomerania North east state in Germany (near Ruegen),

24 Feb 2006 2 wild ducks, 2 swan, 2 raptor, Schleswig-Holstein

26 Feb 2006 1 Tufted duck Lake Constance, 3 more tufted duck Mecklenburg- Western Pomerania in North west

(01 Mar) 1 mute swan in Schwabstahl, 1 mallard at Sachsenkan in Bavaria

-between 16 – 25 Feb 595 samples taken in area

(01 Mar) Cat on Ruegen island

01 Mar 2006 Brandenburg just west of Berlin 3 cases 1 coot, 1 kestrel, 1 swan

03 Mar 2006 1 wild duck first in big city Mannheim (north west of Stuttgart)

05 Mar 2006 1 wild goose in field in Soltau-falling bostel, 40 km from Lueneburg

(09 Mar 2006) 1 Stone Marten sick and dying confirmed, near Wittow ferry on Ruegen Island

(3 April 2006) 1 swan found dead in Ansbach in Bavaria confirmed

(3 April 2006) 1 swan found dead in Neustadt/Aisch in Bavaria confirmed

(4 April 2006) 1 buzzard found dead in Berlin

(4 April 2006) 2 more swans in Bavaria

(4 April 2006) 1 duck Kehlheim

(4 April 2006) 1 duck Ulm

(4 April 2006) 1 dead heron being tested

4 April 2006 Summary for Bavaria: 4198 dead birds, which were found in the Free State, were examined for the H5N1-Virus, 40 samples were positive, correspond to a ratio of 0,95 per cent

Summary April 2006 Over 7000 dead birds sent to testing Niedersachsen (north) and only 2 tested positive (results from 2006). They have been testing for over 10 years. Cold winter and so many birds died of natural causes, for example there were 800 dead buzzards tested.

5 April 2006 Saxony poultry outbreak near Leipzig. Turkey and geese farm, geese allowed to be outside and may have been infected by wild birds but wild bird tests in surrounding region, all negative

13 April 2006 1 goose confirmed Luckau in Dahme Spreewald. In Brandenburg two new cases were confirmed by bird flu.

Four infected swans were found in Reddevitz and two in Alto Reddevitz.

13 April 2006 1 common pochard near Bodensee in Ueberlingen

18 April 2006 4 new cases of H5N1 in Bavaria, 2 swans, 1 common merganser (in Dillingen at the Danube), 1 duck in Lindau and 1 Eagle owl in Munich at Strasslach. Bring total in Bavaria to 60.

19 April 2006 (27 April) confirmed H5N1.. 1 white stork in Letschin, Merckisch Oderland district east of Brandenburg. Stork found in field alone. ¾ of the storks that return to breeding grounds in Brandenburg have already returned from wintering grounds in Africa (via Turkey) or Spain. The bird was not ringed and there is no information on the origin of the stork.

23 April 2006 2 wild ducks and 1 eagle owl found dead confirmed H5N1 in west of Munich in Ampersee with Geiselbullach/Olching in the district Fuerstenfeldbruck

5 May 2006 Dead gosander at the Luberweiher in municipality Niederalteich was infected with H5N1-Virus

6 May 2006 Summary: within Germany 337 wild birds, three cats and a stone marten total have tested positive for H5N1

Summary of H5N1 outbreaks in Germany between 5 April – 15 May 2006. Most of the cases involve single birds with a few groups of 2-6 and mostly waterfowl, storks and falcons. The deaths occurred between March 29 and May 9 in Brandenburg (south of M-W Pomerania), Baden Wurtttemberg (south west corner), Bavaria (south east corner), Mecklenburg-Western Pomerania (Rugen Island area), Schleswig Holstein (North border Denmark).

<i>First administrative division</i> (land)	<i>Lower administrative division</i>	<i>Date of start of the outbreak</i>	<i>Cases</i>	<i>Taxonomic category</i>
Brandenburg	Dahme-Spreewald	19 April 2006	1	Anserini
	Märkisch-Oderland	28 April 2006	1	Ciconiidae
	Märkisch-Oderland	3 May 2006	1	Ciconiidae
	Märkisch-Oderland	9 May 2006	1	Falconiformes
Baden Württemberg	Bodenseekreis	12 April 2006	6	Cygnini, Anatinae
	Bodenseekreis	18 April 2006	2	Anatinae

	Konstanz	20 April 2006	1	Anatinae
	Sigmaringen	19 April 2006	2	Anatinae
Bavaria	Deggendorf	24 April 2006	1	Cygnini
	Deggendorf	8 May 2006	1	Anatinae
	Dillingen a.d. Donau	31 March 2006	1	Cygnini
	Dillingen a.d. Donau	18 April 2006	3	Cygnini, Anatinae
	Donau-Ries	2 May 2006	1	Cygnini
	Fürstfeldbruck	24 April 2006	2	Anatinae
	Kelheim	13 April 2006	1	Anatinae
	Landsberg/Lech	28 April 2006	1	Mergus
	Landsberg/Lech	12 May 2006	1	Mergus
	Lindau-Bodensee	13 April 2006	1	Anatinae
	Lindau-Bodensee	19 April 2006	1	Anatinae
	Lindau-Bodensee	24 April 2006	1	<i>Podiceps cristatus</i>
	Neu-Ulm	7 April 2006	1	Anatinae
	Rosenheim	18 April 2006	1	Anatinae
	Straubing, Stadt	20 April 2006	1	Falconiformes
	Straubing-Bogen	28 April 2006	1	Cygnini
	Wei&Szig;enburg-Gunzenhausen	11 April 2006	1	Cygnini
	Wei&Szig;enburg-Gunzenhausen	12 April 2006	1	Cygnini
	Mecklenburg-Western Pomerania	Ostvorpommern	5 April 2006	1	Cygnini
Schleswig-Holstein	Ostholstein	19 April 2006	2	Cygnini, Falconiformes
	Plön	12 April 2006	1	Falconiformes
	Plön	19 April 2006	1	Falconiformes
	Plön	25 April 2006	1	Anserini

	Rendsburg-Eckernförde	19 April 2006	4	Anserini, Falconiformes, Phalacrocorax
	Rendsburg-Eckernförde	20 April 2006	5	Anserini
	Rendsburg-Eckernförde	24 April 2006	3	Anserini
	Rendsburg-Eckernförde	28 April 2006	1	<i>Podiceps cristatus</i>
	Steinburg	5 April 2006	1	Falconiformes

27 Greece

30 Jan 2006 (9 Feb) 1 dead mute swan confirmed at Paralia-Katerini, central Macedonia, Pieria. Found on coast. According to OIE report birds arrived 20 days ago and then found dead

01 Feb 2006 (9 Feb) 1 dead mute swan confirmed at Nei Epivates, Thessaloniki in central Macedonia. Found on coast.

31 Jan 2006 (9 Feb) 1 dead mute swan confirmed at Stavros. Thessaloniki in central Macedonia. Found on coast.

03 Feb 2006 (10 Feb) 1 Red-breasted goose found dead in northern part of Skyros Island
-large die-off in Evros swans, shelduck but not h5n1 instead starvation

(14 Feb 2006) 2 dead mute swan confirmed at Alykes Amoliani Island in Chalkidiki, Central Macedonia

(13 Feb 2006) 1 dead mute swan confirmed at Loudias River village of Nea Pella in Pella at Central Macedonia

(11 Feb 2006) 1 dead mute swan confirmed at the village of Makrygialos in Pieria, Central Macedonia

(11 Feb 2006) 1 dead mute swan confirmed at village of Paralia Katerini in Pieria, Central Macedonia

(13 Feb 2006) 1 dead mute swan confirmed at village of Epanomi in Thessaloniki, Central Macedonia

(12 Feb 2006) 1 dead mute swan confirmed at village of Stavros in Thessaloniki, Central Macedonia

(6 Feb 2006) 2 dead mute swans confirmed at Xirolimni Lake near the village of Fanari at Rodopi Lagoon in Eastern Macedonia and Thrace

(03 Mar 2006) 1 dead mute swan confirmed at the village of Epanomi, Thessaloniki, central Macedonia

23 Feb 2006) 15 mute swans NE along coast west of Evros delta in Thrace

H5N1 confirmation swans and 1 cormorant NE Greece

28 Feb 2006 total wild birds H5N1 19 in Greece

24 Feb 2006 (03 March) 3 swans in Xanthi (30 km from coast, near Thasos Island) and Imathia in North

(13 Mar 2006) 6 more dead swan confirmed by government in North (country total 32)

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Central Macedonia	Pieria	NA*	village of Paralia-Katerini	40° 16' N	22° 35' E	11 Feb. 2006	fau	1	0	0
Central Macedonia	Thessaloniki	NA*	village of Epanomi	40° 25' N	22° 54' E	13 Feb. 2006	fau	...	...	1	0	0
Central Macedonia	Thessaloniki	NA*	village of Stavros	40° 40' N	25° 41' E	12 Feb. 2006	fau	...	...	1	0	0
Eastern Macedonia and Thrace	Rodopi	NA*	Xirolimni Lake, village of Fanari	40° 58' N	25° 09' E	6 Feb. 2006	fau	...	...	2	0	0

* NA: not applicable

28 Holland

2003 H7N7 HPAI in 347 poultry operation (Abbott 2003)

15 May 2006 Summary 13,000 birds tested since Feb 2006, all negative.

28 Hungary

15 Feb 2006 (21 Feb) 3 mute swans Nagybaracska village near southern border to Croatia and Serbia

-Preliminary test on 14 swans negative

21 Feb 2006 4 mute swans near Danube delta, South Hungary near Nagybaracska village

01 Mar 2006 (2 Mar) 1 Mallard and 1 cormorant in Szentendre in Pest (north of Budapest), 1 gull in Szazhalombatta in Pest, (30 km s budapest), 1 swan

Dunaszentbenedek in Tolna (100 km S Budapest), 1 swan Nagybaracska

(06 Mar) 2 more swans Csatalja, 8 km west of Nagybaracska – Total number of dead birds (25 in country)

4 June 2006 Domestic geese confirmed at farm in Kiskunmajsa-Bodoglar in Bacs-Kiskun

20 June 2006 Domestic geese suspected at farm in Kulsogalambos in Bacs-Kiskun County

29 India

18 Feb 2006 Government announce major poultry outbreak, (Down to Earth article suspect much earlier 15 Jan 2006 true outbreak). Navapur in Maharashtra district

16 Mar 2006 Bhopal testing centre has so far tested 1,000 samples from migratory birds, but all tested negative (aiwatch)

4 April 2006 Surveillance of 47 birds belonging to 21 species including eight migratory species were captured and their samples collected at Gharana Wetland Conservation Reserve in Jammu.

Some of the species include Bar-headed Geese, Shoveller, Ruff, Green Shank, Temmnick's Stint, Common Snipe, Indian Moorhen, Purple Moorhen and other species. Oropharyngeal and Cloacal Swabs, Faecal material and Serum Samples

06 June 2006 No new H5N1 outbreaks since March.

Strain of H5N1 in Indian outbreak related to swans in Iran and Italy (Pattnaik *et al.* 2006).

30 Indonesia

15 Dec 2003 – 2 Feb 2004 127 poultry outbreaks in Banten, West Java, Central Java, Jakarta, Yogyakarta, East Java, Lampung, Bali, South Kalimantan, Central Kalimantan, South Sumatra

15 April 2005 H5N1 in pig in Java (New Scientist 2005)

2005 – April 2006 H5N1 endemic new outbreaks in Nanggroe Aceh, Barat: West, Tengah, Central, Seletan: South, Tanggara: South, Utara: North on native chickens, broilers, layers, quails, ducks, pigeons

25 May 2006 In Sumatra 7 close family members died of H5N1 and no animals (ducks, chicken, pigs) and manure tested negative in vicinity. Final analysis seems to

indicate that poultry to human infection can not be ruled out. But pig tested positive to antibodies of disease (type A or H5 virus) in nearby village

25 July 2006 Poultry outbreaks in Bali (Gusti Ngurah Sandjaja in western Jembrana district), South Sulawesi, Sinjai, Bone, North Sumatra. Three more people hospitalized with H5N1 like symptoms.

31 Iran

01 Oct 2005 and 01 Feb 2006 (14 Feb 2006) Swan confirmed North west of Iran marshland near Caspian Sea Rasht, birds found dead at (Selkeh and Espand) at Somaesara (Anzali wetland)

32 Iraq

(18 Mar 2006) 1 Pigeon ??? –Chris Feares

18 Jan 2006 Sulaimaniyah poultry confirmed backyard flocks

(30 Mar 2006) Poultry confirmed in Baghdad Kamamaliyya district

33 Israel

17 Mar 2006 thousands of turkeys and chickens" found dead on two communal farms, Kibbutz Ein Hashlosha and Kibbutz Holit, located near the Gaza strip – officials confirm that due to poultry not wild birds

01 April 2006 – 08 June 2006 After infected poultry culled and buried, no new cases of H5N1

34 Italy

2000 H7N1 isolated from Saker falcon (Magnino 2000)

3 Feb 2006 (11 Feb 2006) 5 Mute swan in mainland on Calabria (at Vibo Valentia), Puglia; and also 3 Sicily (at Siracusa and Catania), First birds found by fishermen near Asprovalta village, Thessaloniki city. 22 Dead swans found in area.

19 Feb 2006 (20 Feb) 13 Mute swan found in Puglia (at Bari, Foggia and Lecce), Sicily (at Catania) and Calabria), 1 Purple gallinule (*Porphyrio porphyrio*) (Sicily, at Catania), 1 buzzard (*Buteo buteo*) (Sicily, at Catania), 1 Mallard (*Anas platyrhynchos*) (Umbria at Perugia)

35 Ivory Coast

2006 April 16 200 dead poultry found, suspected H5N1 NEGATIVE

27 April 2006 Chickens, ducks and sparrowhawks test positive for H5N1 in 2 heavily populated areas near Abidjan.

36 Japan

23 Dec 2003 Poultry outbreak Yamaguchi prefecture

(Description of outbreaks in 2003/2004 (Terakado 2004))

http://www.maff.go.jp/tori/20040630e_report.pdf

1 Mar – 18 April Kyoto (17 Feb poultry outbreak), Osaka (4 Feb) and Hyogo poultry outbreaks, Large-billed crows H5N1 near poultry, scavenging on dead poultry and manure (Kanai 2004). After H5N1 confirmed and manure piles destroyed, crows dispersed and many crows captured but only 9 showed infection (all within 30 km from outbreak). 393 crows sampled (by salivary swabs), 123 were within 30 km of outbreak. In large roost sites tests showed negative. Experimental infection tests on crows showed that they can carry the disease asymptotically and develop antibodies (n=4, Kanai 2004). 3 outbreaks in Japan (Yamaguchi, Oita, Kyoto) originated from different sources (slight differences in base sequences). Genotype V.

(14 Mar 2006) Testing from Sept – Feb 2006 on wild birds showed only 1 has LPAI (H6), not H5N1. Testing occurred in 7 areas: small rice tub river estuary (Chiba prefecture Kisarazu city), valley Tsu tideland (Chiba prefecture Narashino city), the Sugo swamp (Ibaraki prefecture Mitsukaido city * Bando city), the Tsushima island (Nagasaki prefecture Tsushima city), around the Sa lagoon (Niigata prefecture Niigata city), Kitaura (Ibaraki prefecture Itako city), summer Ikawa (Fukushima prefecture Iwaki city) - - at 7 places those which are executed over 9 times.

37 Jordan

28 Mar 2006 Jordan 3 turkeys in farm confirmed in north of capital Ajloun Kofranja

38 Kazakhstan

5 Aug 2005 Poultry (geese) and migratory bird (**?...although OIE and FAO suggest wild birds are cause, can not find details of tests on wild birds) outbreaks reported close to Russian border in north-eastern village Golubovka, in Pavlodar, is on the river Irtysh. Poultry share water reservoirs with wild birds

(20 Mar 2006) 1 dead wild swan western province on shore of Caspian Sea at Mangistau province, western Kazakhstan. First reported case since major outbreak July 2005

20 April 2006 20 new bird flu cases (on what??) have been registered in Kazakhstan in the last few days, Radio Svoboda informs. The dead birds were found in coastal areas in Mangistau region

Kenya

15 May 2006 Veterinary authorities test 500 wild birds, all negative, plan to test 10,000 wild birds.

39 Korea

2001 Chinese duck meat imported to Korea tested positive (Tumpey et al. 2006)

10 Dec – 23 Dec 2003 poultry outbreaks surveillance was conducted on different wild bird species after the HPAI poultry outbreak Eumsung district, Chungcheong-buk province in central part of Korea, with 5,460 fecal samples being collected and tested from 62 different migratory bird habitats and 112 samples being collected directly from different wild birds. Although eight different HA subtypes of AI viruses were identified in that surveillance, no H5 subtype virus has been isolated so far (J. H. Kim, unpublished

data). Recently, H5N1 viruses were isolated from 3 of 259 magpies near the two different farms where H5N1 HPAI was confirmed (Kim, unpublished data). However, since magpies are a nonmigratory common bird in Korea and typically reside within 3.5 km of nest areas, it is likely that the magpies were infected from exposure to infected chickens and not vice versa. (Lee *et al.* 2006)

March 2004 magpie H5N1 near poultry, but in large roost sites tests showed negative

40 Kuwait

11 November 2005 1 flamingo in southern Kuwait beach captive and imported in private collection

Laos

17 May 2006 First H5N1 outbreak since 2004. Found in 1 duck in back-yard poultry 20 km south of Vientiane. At Xay Setta district, 20 kilometres (12 miles) south of the capital in a small poultry operation. Officials suspect that duck was smuggled from Vietnam or was infected by poor quality vaccines or vaccination method (?)

25 July 2006 H5N1 at a commercial farm in Vientiane's Xaythany district (south end). This outbreak has spread to two other poultry operations in Vientiane. The last poultry outbreak in Laos confirmed by the OIE occurred in Jan 2004.

41 Malaysia

16 Mar 2006 reported two new cases in resort caged birds in North Perak near Taiping, Tajol (249 birds of 30 species including parrots, owls, canary) and also 6 dead chickens at large chicken and duck farm in Kampung Changkat Tualang 100 km away from resort

20 Mar 2006 2000 random samples of saliva swabs obtained from various species of migratory birds at the Kuala Gula Bird Sanctuary (in Batu Gaja) no H5N1 taken between August 2005 to 13 Mar 2006 Migratory birds species include Eurasian curlews, redshanks, golden plovers, terns, egrets and gulls flock

(22 Mar 2006) 1 dead cattle egret confirmed at Taman Panorama, Ipoh ornithologist Lim Kim Chye says could have come into contact with infected poultry as both wild and farmed birds often mingle and feed in the same ponds

42 Mongolia

12 Aug 2005 (27 Aug)

From WCS study in Mongolia where 10,650 live birds of 65 species were observed alive in 9 sites, in 400 km (radius) area in western Mongolia (Altay, Uliastay, 150 km south of Byanhongor). Sampling sites were selected based on high congregation of birds)

No healthy birds tested positive (Wildlife Conservation Society 2005).

Erhel Lake

Dead birds:

Dead birds selected for testing were thought to be fresh enough to be able to detect virus if present

1 whooper swan confirmed also at Erhel lake Alag-Ederne country

2 Mongolian gulls, 1 bar-headed goose all negative at Erhel Lake

75 birds (mostly whooper swan) and 7 bar-headed geese, 2 common golden eye, 7 common pochard, 9 Mongolian gull, 4 ruddy shelduck, 1 swan goose, 1 tufted duck, 2 velvet scoter, 3 whooper swan found dead at Erhel Lake but not all tested.

H5N1 positive rate amongst all birds dead or alive was 0-15 % of whooper swan, 0-3 % of species that died in Qinghai and 0-1 % of other species.

Living birds:

Also tested 430 faecal samples of 4 species at Erhel Lake caught by hand nets.

Monospecies flocks were flushed and faecal samples tested.

Population details

6500 birds of 39 species at Lake Erhel counted and alive

Erhel Lake birds dead birds found out of 6500 healthy (uninfected species in the same site) 55 species (Wildlife Conservation Society 2005).

Ahmag Lake

Dead birds

3 whooper swans and 1 bar-headed goose confirmed at Ahmag Lake, Bulgan province

1 whooper swan tested negative at Ahmag Lake

Khunt Lake 9 birds –wild ducks, geese and swans

First ever case of H5N1 in wild bird in area without poultry (Promedmail)

In region without poultry, 774 samples taken of both dead and wild birds but no infections found in healthy birds (ruddy shelduck, herring gull, black-headed gull, bar-headed goose, whooper swan, and Eurasian widgeon) (Normile 2005 Science).

Many of species that migrate to Qinghai also go to Erhel Lake (OIE, WCS expedition)

Samples collected from other live birds at the 2 sites, including 60 ruddy shelducks, 24 bar-headed geese,

and 25 black-headed gulls, were found to be negative for the virus birds from the 10 sites. The majority of samples were faecal samples but also included tissues from 4 birds found dead at the site. Samples came from the following species: Bar-headed goose (*Anser indicus*), Herring Gull (*Larus argentatus*), Black-headed gull (*Larus ridibundus*), Eurasian Widgeon (*Anas penelope*), Ruddy Shelduck (*Tadorna ferruginea*), and Whooper Swans (*Cygnus cygnus*).

Summary: Although H5N1 strains in Mongolia closely related to strains in Qinghai, outbreak occurred at end of moult season when birds can not fly, so unlikely that infected birds brought the virus to lake.

42.1 Table: Numbers of live, apparently healthy birds observed and tested at various sites across western Mongolia. “Tested” refers to the number of birds from which faecal samples were obtained.

Species	Total			Erhel Lake (Site 7)	
	Sites	Live	Tested	Live	Tested
Bar-headed goose	1,5,6,7	316	115	165	34
Black-headed gull	8,9	70	35	0	0
Mongolian gull	7	557	18	557	18
Ruddy shelduck	1-4,7	4275	603	2943	360
Whooper swan	7,8,9	232	91	48	18

04 May 2006 (30 May) H5N1 in 1 Whooper swan in Mongolia, Bulgan aimag at Saikhan soum near Xinjiang province in China where there was a recent poultry outbreak. Bird detected as part of active surveillance has been implemented in the western and central parts of Mongolia following the main flyways of migratory birds. A total of 182 samples have been collected from birds belonging to 27 different wild species. Surveillance in the eastern part of the country is in progress.

43 Morocco

(3 April 2006) 323 birds tested dying or sick so far all negative, starting surveillance program over 40 wetlands

44 Myanmar

8 March 2006 First outbreak in poultry in Aung Myae Thar Zan township, Mandalay, country poor capacity to respond, people selling and eating infected poultry, and government delay announcement to domestic media

45 Niger

27 Feb 2006 Poultry outbreak on border with Nigeria

03 June 2006 New poultry outbreak Gabi village in Maradi around 10 km (6 miles) from the border with Nigeria's Katsina State where there was a previous outbreak

46 Nigeria

10 Jan 2006 outbreak in central commercial poultry 40,000 H5N1, Kano, Kaduna state near Hadejia Ngura inland delta, almost simultaneous outbreaks in 4 battery farms. H5N1 initial occurrence was in Guinea Savannah ecological zone, an area with high human densities and significant agricultural production. In dry season farmers grow crops at receding water edge at reservoirs, rivers or lakes and allow poultry to roam freely around crops, houses and surrounding vegetation. Outbreak site located on southern edge of major Chad basin Hadejia-Nguru wetland area a major wintering habitat for waterbirds. Outbreak area located along primary road between Niger, Chad, Cameroon, Mali and Benin. In Nigeria 40 % commercial operations, 60 % backyard poultry (different from most African countries with 80 % backyard poultry (2006).

Results from **Muller et al. 2006** Symposium on Avian Influenza, Cambridge suggests that there were two different genetic strains 1 from Qinghai, China and another related to Egypt/France/Italy strain

After analyzing samples from infected birds on two farms in south-western Nigeria they found the viruses were genetically distinct from each other and from H5N1 found in the north of the country (**Ducatez et al. 2006**)

One strain in Nigeria traced back to day-old chicks from Turkey according to FAO.

There were three distinct strains that were related to:

- 1) Egypt poultry 2006 and 2005 Turkey poultry and wild birds
- 2) Qinghai lake wild birds 2005
- 3) Mongolia, Turkey, Tula, Iraq swan, goose and chicken 2005 infections.

30 June 2006 H5N1 spread to Taraba state (1 commercial farm, 2 backyard poultry) in eastern Nigeria. In most other parts of Nigeria, virus spread has been slow

47 Norway

10 Mar 2006 Norwegian health authority testing 2 ducks, 12 found dead in Jaeren in municipality of Klepp near Stavanger on coast in Southwest Norway, another woodcock and dead duck found further south in Sokndal and Egersund in Jaeren region

48 Pakistan

2003/2004 HP H7N3 broiler poultry

2005 LP H9N2

(27 Feb 2006) confirmed, 2 Poultry outbreak north west frontier province Charsadda and Abbottabad

(26 Mar 2006) Mass die off of crows near Moza Mangaseel on the border of Punjab and NWFP in area with large scale poultry industry, testing for H5N1

4 April 2006 Blood samples of the crows and kites (cheel) which had mysteriously died in hundreds within three days in Peshawar negative H5N1

18 April 2006 Pakistan's third outbreak of the deadly H5N1 bird flu strain was confirmed Sunday at a poultry farm near the capital of Islamabad. Sihala village, 25 km east of Islamabad

49 Palestine

(3 April 2006) Confirmed poultry gaza strip, 1 isolated case.

50 Philippines

18 Jul 2005 H5N1 Low pathogenic detected at duck farm village of Calumpit

51 Poland

March 04 2006 (Mar 06) H5N1 in 2 wild swan in Vistula River area N of the city of Torun, 200 km inland and 150 km NW of Warsaw

March 06 confirmed H5N1 poultry close to location of 2 swans

(08 March 2006) confirmed H5N1 1 wild swan Vistula River

March 08 2006, government feeds and keeps 50 swans isolated for testing to check if H5N1 positive

(11 March 2006) 1 swan in western town of Kostrzyn in Warta National Park (Ramsar and one of Europe's largest breeding areas for migratory waterfowl) on Oda River at pumping station confirmed, 2nd confirmation in country outside of area near Torun. Area has many fish ponds. Warta River mouth has 4 grebes, 8 ducks, 5 rails 10 shorebirds and 26 bird species nesting in the Park are the species endangered by extinction, such like for instance aquatic warbler (*Acrocephalus paludicola*), com-crake (*Crex crex*), black-tailed godwit (*Limosa limosa*), crane (*Grus grus*), bittern (*Botaurus stellaris*), little bittern (*Ixobrychus minutus*), or black tern (*Chidonias niger*). Important moulting habitat for wild birds, with up to 2500 whopper swans in winter, teal, grey lag goose.

(11 Mar 2006) 1 dead merganser found in Swinoujscie 100 miles N of Kostrzyn, Baltic coast in North-western tip of Poland and 1 dead swan (or goose) in North town of Bydgoszcz confirmed (not on coast, 50 km w of Torun)

11 Mar 2006 dead swan found 50 km from German border in Gorzow Wielkopolski

(21 Mar 2006) a swan found dead in Bydgoszcz in the northern Kujawsko-Pomorskie province and a swan found dead in Kostrzyn

(25 Mar 2006) Third case of H5N1 virus in Lubuskie Province on Friday in a hawk found dead near the city of Kostrzyn, close to the Odra River and to the place where other two dead wild swans infected with H5N1 had been found. Hawk found with "flock???" of other dead hawks and one tested positive.

4 April 2006 32 wild swans confirmed and killed, initially kept in quarantined aviary in the city of Torun. Earlier 79 wild swans were tested and released after testing negative for H5N1.

11 May 2006 Swan in Warta (central Poland) confirmed H5N1

7 May 2006 – 07 June 2006 No new cases of H5N1

52 Romania

7 Oct 2005 3 swans out of 137 dead test h5n1 +ve in Tulcea and Constanza county at Black sea (near Ukraine border)

10 Oct 2005 2 geese, 1 swan Constanza tested at same time as hen, 150 km away from first outbreak of 2 chicken and swan in Tulcea (SE Romania near wetland migratory birds).

21 Oct 2005 1 grey heron Vaslui county in uninhabited area near border to Moldovia, 130 km away from Tulcea and 200 km from coast

21 Nov 2005 7 swans Tulcea

Romania has many inland fish farms in flood plain of Danube

23 Feb 2006 (03 Mar) 33 villages in Romania infected H5N1 in poultry – Calarasi, Constanta, Dambovita , Zavoia, Unirea, Azizia, Satu Nou and Morteni (chickens); Borcea (turkey); Crangu (Turkey + chicken)

(03 Mar 2006) domestic birds 50 miles west of Bucharest, in village of Catunu in Dambovita county

Summary 2005: The first outbreak of avian influenza was registered on 7 October 2005 at Ceamurlia-de-Jos in Tulcea county. From 7 October 2005 to 24 April 2006, 53 outbreaks were confirmed at 52 localities in 9 counties in the Danube Delta and Black Sea area: Tulcea, Braila, Buzau, Calarasi, Constanta, Dambovita, Dolj, Ialomita and Ilfov counties. On 21 April 2006, the last outbreak of avian influenza in Romania ended (Deleni village/Constanta county). All outbreaks occurred in small backyard premises and no commercial farms were affected.

01 Mar 2006 (03 Mar) 1 wild goose found dead in eastern city Buzau

01 Mar 2006 (06 Mar) 1 more wild goose found dead in eastern city Buzau

4 April 2006 1 dead owl found in Constanta tested positive for bird flu

8 May 2006 No new outbreaks since 21 April. Since October 2005, 53 outbreaks in 9 counties, all in backyard flocks in Danube River and Black Sea area

14 May 2006 Although officials announced the country to be free of H5N1 in late April, there have been significant poultry outbreaks in central Romania with almost 1 million birds to be culled this week. A large (150,000 birds) commercial poultry farm in Codlea (Brasov county) illegally sold poultry to four other counties in central and Eastern Romania as well as to infections in Hureza (Brasov county) and back-yard poultry flocks in Fagaras villages. Poultry H5N1 outbreak in Codlea (reported last week) thought to be due to illegal turkey imports that died and then were allegedly buried around the poultry

platform. Manager, farmer and veterinarian (?) were arrested in connection with this outbreak.

02 June 2006 Rapid spread of H5N1 200 km around poultry farm in Brasov to: Vrancea, Covasna, Sibiu, Alba, Valcea, and Prahova over 115 outbreaks reported.

53 Russia

2005 David Stroud: A detailed analysis shows that the initial HPAI outbreak at Novosibirsk last summer was on a farm adjacent to the airport there which is the only airport in Siberia/Central Russia with regular daily flights from China.

July 2005 Domestic poultry began to die in the village of Suzdalka in western Siberia, Russia (Dovolnoe County, Novosibirsk region). Genetic studies show similarity in virus to strain that caused outbreaks in birds in Asian countries from 2003 to 2005 and in Japan in 2003 and 2004 (Shestopalov *et al.* 2006)

26 July 2005 2 out of 2 dead wild ducks in Sargatsky district

28 July 2005 Berdyuzhsky district Tyumen region on sick ducks positive

31 July 2005 3 out of 3 sick birds in Tyumen region, Armizonsky affected region

Between July – Aug 2005 OIE monitored healthy and sick wild birds in affected and non-affected areas in 85 living hunted birds 0 were infected in both affected and non-affected areas. Sick and dead birds did test positive for H5N1

16 Aug 2005 H5N1 in poultry in Oktyabrskoye village in Chelyabinsk territory in the Ural mountains

Summary since July 2005 H5N1 from Novosibirsk to Tyumen, Omsk, Kurgan, Altai and Chelyabinsk

17 Nov 2005 Numerous migratory birds in Volga River including Coot, common pochard, gadwall.

At Novosibirsk affected flocks close to lake, but no massive mortality in wild waterfowl population found at lake, some dead wild birds observed.

17 Aug 2005 Tests on disease-free area of Tyumen region, Armizonsky district (n = 6) for Pochard, Pigeon, crow, coot, all negative

(18 Aug 2005) Tests on 26 birds sampled – hunted living birds, in non-affected Kuybyshevsky district in Novosibirsk region showed all negative. Species tested Coot, rook, rock pigeon, crow, magpie, common pintail, great crested grebe, pochard, wild duck, green sandpiper, sparrow (Lvov *et al.* 2006a; Lvov *et al.* 2006b)

(18-21 Aug 2005) Samples taken as above but in affected area. Test on 47 birds hunted showed all negative. Species were garganey, marsh harrier, sparrow-hawk, pigeon, rook, magpie, laughing gull herring gull, white-headed plover, crow, bittern, coot, pochard, great-crested grebe, grey heron, green sandpiper, oystercatcher, wild duck, duck-hawk, magpie, gadwall, sparrow

18 Aug 2005 tests on Herring gull, Common pochard (n = 2) hunted negative in Altay region, Volchikhinsky district

18 Aug 2005 tests on 1 common pochard in Mikhaylovsky district, Gusevo Lake disease-free area, negative

18 Aug 2005 tests on 1 black-headed gull hunted in Gusevo Lake area negative

18 Aug 2005 tests on Klyuchevskoy district, Bashkul Lake 1 hunted gadwall in disease free area negative

19 Aug 2005 tests on 1 mallard in Kulundinsky district of Vozdvizhenka Lake negative, 1 Greylag geese, 1 black-headed gull negative

19 Aug 2005 tests on 1 teal negative

20 Aug 2005 tests in Slavgorodsky district of Pokrovka Lake, hunted in disease-free area one 2 common pochard, 1 shelduck, and 1 cormorant negative

3 Aug 2005 tests in Kurgansk region, Chastoozyorinsky district on dead birds in affected areas, 2 wild duck , 1 gull, 2 pigeons, 1 common pochard positive

27 Aug 2005 Tests on 1 great crested grebe, 1 black headed gull, 2 little terns, mallard, shelduck coot, cormorant, big tern, grey heron, little tern, black-tailed godwit, garganey, whited faced ibis, common pintail, black-headed gull, black winged stilt, roddy shelduck (n = 29) unclear if hunted or dead, 1 mallard, 1 shelduck, 2 coots tested positive

14 Aug 2005 Tests in affected area of Omsk region Maranovsky district, hunted birds, N = 25 birds, rook, northern shoveler, crow, pigeon, wild duck, sandpiper, oystercatcher, little grebe, black-winged stilt, phalarope, little tern, pied wagtail, green sandpiper, white-headed plover, laughing gull, starling, coot, mallard

21 Aug 2005 test in affected area of Omsk Karasuky district N = 15, wild duck duck-hawk, coot, pochard, pigeon, rook magpie, gadwall, sparrow all negative.

9 Feb 2006 (11 Feb) Black sea coast Krasnodarsky in wild swans ducks and crows, Crested grebe?

06 Mar 2006 wild birds outbreak in Kabadino-Balkaria, Chechnya and Dagestan. (no details)

Novosibirskaya Oblast 12 % wild birds have bird influenza (A_i watch, unclear if h5n1, or any other details, according to researcher Alexander Shestopalov, 1 % in waterfowl and 0 in corvids/magpies).

9 April 2006 Dagestan H5N1 has been found in poultry at the Khasavyurt processing plant in Daghestan, Russia.

13 April 2006 172 individuals of the "roaming", synanthropic bird (rooks, crow, magpie, pigeons tested, all negative H5N1 in Novosibirsk

18 April 2006 More infections in poultry confirmed in Kolobrodovo of the Frolovskiy region of the Volgograd province, 2nd outbreak in Volgograd province. Media claim Russia loses half of countries poultry because of H5N1

18 April 2006 Starodevitsa in the Khorol'skeye region teal and geese negative for H5N1, 400 birds will be shot in area for surveillance

19 April 2006 Novgorod region 300 birds already shot for surveillance testing, all test negative

6 May 2006 One duck shot on Lake Shuga in the Uglovsky district, and four ducks from Lake Gusinoe, Khabarsky district have tested positive for antibodies to H5N1.

11 May 2006 H5N1 in poultry operations in Reshety Village in Novosibirsk. Village is near Karasuk and about 100 km from Kupino, where outbreaks were detected last year. Dead poultry was also reported in Lyagushachye Village in Novosibirsk, tests are now being conducted.

15 May 2006 Dead poultry in Maksimovka, Tyukalinsk, Omsk Region, testing being conducted.

25 May 2006 in the Kama region most of the wild bird migration has ended. 199 tests were taken of wild ?planktonic? birds, but none tested positive for H5N1.

02 June 2006 Antibodies to the bird flu virus have been discovered in nine blood samples (out of 36 blood samples) of wild ducks taken in Krasnoyarsk territory from Lake Itkul in mid-May.

But antibodies can't test for H5N1, so likely showed H5 or type A virus.

02 June 2006 Monitoring of wild birds in Kluchevsk, Uglovsk and Habrovsk districts at the end of April resulted in 66 blood samples. Of these 66, antibodies to bird flu were found in 1 duck shot on Shuba lake of Uglovsk district and 4 ducks from Gusinoe lake of Habarovsk district

30 May 2006 168 hens, ducks, geese and turkey cocks die of H5N1 in Troitsk village of the Kulundinsk district of the Altai territory. 10 domestic poultry die of H5N1 village of Plotava in the Aleysky district, of the Altai territory

June 27 2006 1,622 bodies of wild geese found on the shores of Lake Ubsu-Nur (a saline lake and world heritage site) at Ovyursky district in the Republic of Tuva. As of 01 July 2006, 3339 dead birds have been found (cormorants, geese and herons)

The lake is situated between Russia and **Mongolia** and provides habitat for several threatened species such as:

Dalmatian pelican *Pelicanus crispus*, white-headed duck *Oxyura leucocephala* (EN), Baikal teal *Anas formosa* (VU), imperial eagle *Aquila heliaca* (VU), greater spotted eagle *Aquila clanga* (VU), band-tailed fish eagle *Haliaeetus leucoryphus* (VU), white-tailed sea-eagle *Haliaeetus albicilla*, lesser kestrel *Falco naumanni* (VU), Siberian crane *Grus leucogeranus* (CR), red-crowned crane *Grus japonensis* (EN), hooded crane *Grus monacha* (VU), white-naped crane *Grus vipio* (VU), relict gull *Larus relictus* (VU), corncrake *Crex crex* (VU), redbreasted snipe *Limnodromus semipalmatus* and whitethroated bushchat *Saxicola insignis* (VU)

H5N1 apparently confirmed. news reports also state that many fish have been found dead, so there could be other causes of mortality. One report in Russian media says that H5N1 has been confirmed in some birds.

02 Aug 2006 There is still no official government reports but it appears that H5N1 was detected in the dead birds at Ubsu-Nur Lake at two specialist laboratories (Novosibirsk and Vladimir).

This lake borders Mongolia and Russia and is a UNESCO World Heritage Site. The total number of dead birds is thought to be 10-15 thousand

Official regional sources blame wild birds based on the presence of H5 antibodies in Altay, Krasnoyarsk, Novosibirsk, Tuva regions

24 June 2006 100 gulls dead and being tested for H5N1 in Arkhangyelsk province

54 Saudi Arabia

Dec 2005 1 Saker Falcon captive confirmed, bird in Saudi Arabia for 2 years (Samour, 2006 Falco article)

55 Serbia

2 Mar 2006 (7 Mar) 2 dead mute swans north west areas of republic, Velicki Backi canal near Sobmor and Bajina Basta municipalities

15 Mar 2006 1st confirmed case H5N1 in poultry (1 swan and 1 rooster) in Bajina Basta (in east) near Bosnian border

56 Slovakia

1 Peregrine falcon Gabcikovo Danube river outside Bratislava

1 smew Danube river outside Bratislava

In 2004 testing of 96 wild birds using cloacal swabs, 1 common snipe and 1 long-eared owl tested positive for H7 near ponds in eastern Slovakia

57 Slovenia

11 Feb 2006 (16 Feb) 1 Mute swan river Drava, near Maribor in North east Slovenia first case,

24 Feb 2006 (28 Feb) 3 Mute swan same place as above

25 Feb 2006 Grey heron in suburb of Maribor city downriver of swan with H5N1

3 April 2006 1 mute swan Melje in Maribor, 1 northern pintail Koblerjev Zaliv in Naribor confirmed

South Africa

03 July 2006 Highly pathogenic H5N2 in a Ostrich Farm near Mossel Bay in Western Cape. Import bans imposed on South African Ostrich meat, and outbreak appears to be contained.

18 July 2006 H5N2 now contained according to South African government.

58 Spain

3 Mar 2006 AI surveillance in Spain: 565 samples taken from wild ducks in NE Spain in late 2005 have tested negative for H5, and 87 taken this year have also tested negative.

08 July 2006 H5N1 detected in a Great-crested grebe at lagoon of Salburua, in the outskirts of Vitoria in Alava province, Basque County. Some newspaper reports suggest that the grebe was found 3 weeks earlier but actually two grebes were picked up, one on 20th May and other on 30 June. Great crested grebes in western Europe tend to migrate to large lakes and reservoir to breed (May – July) and moult and then move back to coastal areas in July/August. Since Oct 2005 844 wild birds have been tested in Catalunya and all have been negative.

There were 300 post-breeding moulting great-crested grebe in area where bird found.

59 Sri Lanka

4 April 2006 Five migratory birds found dead in northern Sri Lanka were not infected with bird flu, health officials said Sunday, 220 km north of Colombo

60 Sudan

18 April 2006 First cases of bird flu in poultry in the capital Khartoum and nearby Jazeera state. 100,000 chickens culled at 15 farms in Khartoum. Both are major farming centers. Sudan, backyard and commercial poultry Sudan is highly dependent on importation of hatching eggs and day-old live poultry from various sources

61 Sweden

26 Feb 2006 (11 Mar) Tufted duck (2/4 tested) at Oskarshamn region, 150 miles (250km) south of Stockholm, on coast at Baltic sea in Gotland

03 March 2006 8 new cases Tufted duck (H5, unsure if N1), Oskarshamn near area of first tufted duck outbreak and 1 scaup in Karlshrona (All H5, 10 out of 14 birds in Sweden have HPAI but not H5N1), in southern tip of Sweden, on coast at Baltic sea

(14 Mar 2006) Owl confirmed in Oxelosund found dead (total in wild birds 27)

17 Mar 2006 H5 has been found in a duck on a game farm in eastern Sweden

(21 Mar 2006) Two swans with an aggressive form of bird flu have been found in central Stockholm

28 Mar 2006 1 mink confirmed in Blekinge area of south eastern Sweden

Solvesborg, west of Karlsrona where several bird flu cases have previously been found and it is thought the mink contracted the disease by eating wild birds which were already infected

12 April 2006 1 wild duck positive for H5 found in Skane, Ahus close to previous outbreak in Solvesborg

62 Switzerland

(17 Feb 2006) six swans, a seagull and a heron tested negative H5N1

26 Feb 2006 1 (01 March) 1 Goosander found dead floating on Lake Constance near Jet d'eau fountain, first confirmed case

26 Feb 2006 1 (01 March) 1 domestic duck in Geneva (Stein-am-Rhein) unconfirmed

27 Feb 2006 (01 Mar) 1 Mute swan Lake Geneva H5 but H5N1 unconfirmed

01 Mar 2006 1 Mute swan NW corner Lake Constance Kreuzlingen town, near German outbreak H5, but unconfirmed H5N1

02 Mar 2006 (13 Mar) 1 tufted duck in Steckborn Canton Thurgau near Lake Constance, 1 common coot in Feuerthalen near Canton Zurich confirmed

03 Mar 2006 2 ducks in Ramsen, 1 Coot in Stein in state of Schaffhausen near Germany H5 but H5N1?

09 Mar 2006 1 little grebe in Schaffhausen on German border near Lake Constance confirmed

12 April 2006 1 common pochard confirmed found in Thurgau

23 April 2006 Five new cases of H5N1 plus “two or three” new cases of H5 in wild birds found dead near Lake Constance last week.

Summary: 32 wild bird outbreak cases, most along lakeshores. About 1000 birds tested, by 01 May government lift ban on outdoor poultry

26 Feb 2006 – 07 June 2006 No cases of H5N1

63 Taiwan

Jan 2004 Chiayi Prefecture and Changhwa Prefecture poultry outbreak

64 Tanzania

Sept 2005 sampling of 57 wild birds in Mtera dam (Cloacal and choanal) results all negative

Dec 2005 sampling 5 sites, 625 wild birds funded by USAID and samples tested at Univ Minnesota

65 Thailand

December 2004 several dead open-bill storks in Thailand tested positive for H5N1

Species tested positive categorized into 4 groups: 1. Asian open-billed stork 2. Wetland dweller 3. Bird tolerate with human and get overlapped with domestic avian 4. other group which share very few percentage. Species were: Asian open-billed storks, Greater barbets, Green peacocks, Scaly-breasted munia, Rock pigeon, Lesser whistling duck, House sparrow, Red turtle-dove, Black drongo, Wood sandpiper, Zebra dove, Black-collared starling, Common myna, White-vented myna, Red-whiskered bulbul, Brown-headed gull, Black kite, Streak-eared bulbul, Grey crowned crane, Lophura pheasant, Ring-necked pheasant, Kalij pheasant, Silvered pheasant, Golden pheasant and Green-winged pigeon. We tested about 90 - 100 spp, 20,000 birds, mostly cloacal swabs, some tracheal and blood samples. Infection rate unknown, in one unspecified location/time 23 brown-headed gulls were tested 1 tested positive.

Outbreaks of H5N1 in Thailand may be related to migratory birds infecting free-range ducks (Gilbert et al. 2006; Tiensin et al. 2006; Songserm et al. 2006)

05 July 2006 Suspicious poultry death (200 chickens) at Pichit province, Mab Krapao village, Sam Ngam district. H5N1 not yet confirmed.

10 July 2006 According to prime minister, poultry death last week at Pichit province apparently New Castle Disease, not H5N1. Poultry mortality at Suphan Buri, and also 2 girls in Pichit province have shown H5N1-like symptoms and are waiting for test results..

25 July 2006 Agriculture and Cooperatives Ministry confirmed a fresh outbreak of the H5N1 virus in the northern province of Phichit. Livestock Development Department's lab detected the avian flu virus in a fighting cock carcass from Bang Mun Nak district. This was where almost 300 fowls had been culled after the mysterious deaths of around 30 fighting cocks and free-range chickens two weeks ago.

26 July 2006 1 person died in Phichit Province with H5N1 after having direct contact with a dead chicken. The victim was the first human bird flu patient in the kingdom during the past one and a half years--since February 2005.

Later reports say 2 people were in contact with H5N1 by eating infected spotted pigeons (*Streptopelia chinensis*, a commensal widespread, resident species)

The Public Health Ministry said the new cases pushed the number of suspected cases to 44 nationwide, all awaiting bird flu laboratory test results.

Governments claims outbreaks caused by infected egg-crates from Laos (seems unlikely and transmission more likely from Thailand to Laos.

66 Turkey

9 Oct 2005 First poultry confirmed in the northwest region of the country, in Manyas town

2 Dec 2005 2 pigeons Bitlis in eastern border of Turkey Anatolia

Jan 2006 1 sparrow Yozgat at Sorgun in Agahefendi village near center of Turkey

Jan 2006 1 pigeon, 1 swan, 1 dove, 1 cormorant in Aydin on coast at Kusadasi in Aydin region, west end near Izmir;

Jan 2006 1 pigeon in Erzincan, Merkez 700 km east of Ankara in Anatolia

2 Jan 2006 2 wild ducks Ankara in centre of Turkey

6 Jan 2006 1 pigeon Bitlis

9 Jan 2006 1 wild duck Koyu, 1 pigeon Kayabasi north east end of Turkey in Gaziantep

Map of all poultry outbreaks at:
<http://www.oie.int/cartes/TUR060120A.pdf>

67 Turkmenistan

Winter 2005 H5N1 confirmed poultry. Allegations that H5N1 found in wild birds found to be untrue, no H5N1 in wild birds in migration and winter season 2005/2006 (Turkmenistan delegation from Ministry of Environment and Nature Conservation Society)

68 UK

23 Oct 2005 1 parrot from Surinam died in quarantine possibly because of H5N1, but unclear because faecal sample from parrot pooled with sample from H5N1 infected Mesias imported from Taiwan

5 April 2006 1 whooper swan at Anstruther in Fife, east Scotland near St. Andrews confirmed, found dead and decomposed, 8 day old carcass. Origin of swan could be: 1) Baltic Sea, died while migrating to Iceland, or 2) South in UK and died during migration 3) Wintered locally in Fife. Genetic sequence shown to be almost identical to strain in Rugen Island, Germany

27 April 2006 H7 in poultry in Norfolk 13 miles west of Norwich

Ukraine

Feb 2006 reports of 300 wild birds dead at coastal Simferopol but die cold

27 Feb 2006 Odessa zoo 40-80 birds died but not H5N1

(04 Mar 2006) H5N1 confirmed in Odessa zoo, same subtype as in Crimea in Dec 2005

27 April 2006 (12 May) 50 cormorants found dead at Sivasha (near salt-water Lake Sivash in the Genicheskiy region of Kherson region tested positive for H5. And also more poultry outbreaks in Gornostayevka in the eastern Crimea

12 June 2006 outbreak of H5N1 in poultry in a village in eastern Ukraine at Sumskaya Region near the border with Russia. This is the first outbreak in Ukraine outside of the Black Sea region.

69 USA

2004 H5N2 confirmed in Texas live-bird markets

10 Mar 2006 USA government invest 3.5 million \$ to surveillance breeding birds in Yukon-Kuskokwim Delta, on the North Slope and in the Aleutian Islands where the Asian winter birds nest. Nationwide, the goal is to sample 75,000 to 100,000 wild birds. In Alaska, about \$4 million in federal money will be allocated to study about 15,000 birds. Biologists in Alaska plan to test water samples from lakes and ponds in the habitats of migratory birds

70 Uzbekistan

Winter 2005 Bukhara region, where there are many mute swans on Dengizkul Lake found that there was no sign of unusual mortality (Dr. Elena Kreuzberg-Mukhina, The Regional Environmental Centre for Central Asia)

71 Vietnam

8 Jan 2004 – Feb 2004 1282 outbreaks reported in both northern (near Hanoi) and southern Vietnam (near Ho Chi Minh City). Poultry and human confirmed (Nguyen et al. 2005). Evidence in Chen et al 2006 suggests multiple infections from China. This could be through smuggling of “spent hens” between China and Vietnam (aiwatch, media)

12 April 2006 H5N1 in chickens smuggled from China, the first case in poultry since December, officials said on Thursday. Chickens seized in the northern border province of Lang Son, 154 km north of Hanoi

Chen et al 2006 showed that VN H5N1 Z-genotype closely related to Thai and Malaysian strain

Zambia

28 June 2006 The 40 wild birds found dead early this week in Livingstone near the famous Victoria Falls shared by Zambia and Zimbabwe tested negative for H5N1.

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