



Avian Influenza and Migratory Waterbirds - Information Sheet (V. 29Jan04)

1.0 Migratory waterbirds in Hong Kong

Some 160 species of waterbirds, such as ducks, gulls, egrets, herons, shorebirds and Cormorants, have been recorded in Hong Kong's wetlands, particularly around Mai Po and Inner Deep Bay where some 54,000 waterbirds may be recorded in winter. Migratory waterbirds may be divided into three types.

Winter visitors. These include ducks, gulls, Cormorant and some of the herons and egrets. They breed as far north as the Russian Far East and spend the winter along the coast of China, including Hong Kong. They usually arrive in Hong Kong at the end of October and will fly back north to breed in February/March.

Passage migrants. These are the shorebirds, such as the plovers and sandpipers, which breed in the Russian Far East as well as northern China but fly as far south as Southeast Asia and Australia to spend the non-breeding season. In spring when shorebirds are flying north to breed, some 20,000 - 30,000 individuals may pass through Deep Bay between late March and May. Then in autumn, when they have finished breeding and are flying south to their non-breeding grounds, they will pass through Deep Bay between July and September.

Summer visitors. A small number of waterbirds migrate to Hong Kong in summer to breed such as the Yellow Bittern that arrives in April and depart from September.

2.0 Migratory waterbirds and avian flu

Due to the fact that waterbirds carry avian influenza viruses, migratory waterbirds have been accused of spreading the virus and causing the H5N1 outbreaks amongst poultry in a number of Asian countries this winter. In particular, there have been questions about whether Black-faced Spoonbills may be spreading the avian flu because their range is similar to that of countries where the avian flu outbreak has been seen this winter. This is unlikely however, for the following reasons;

- ♦ Black-faced Spoonbills breed on small islands in the De-Militarised Zone off the west coast of the Korean peninsula, where they have no contact with poultry or people. After breeding, they will migrate south, normally leaving Korea by late September. Therefore, the recent outbreak of avian flu in the Republic of Korea occurred some three months after the Black-faced Spoonbills have left.
- ♦ The Black-faced Spoonbills now in Hong Kong began arriving at the end of October and still, no cases of avian flu have so far, fortunately, been recorded in



Hong Kong. Furthermore, all the Black-faced Spoonbills in Hong Kong usually stay in the wetlands Mai Po and Inner Deep Bay, having minimum contact with poultry farms or people. So even if these birds did carry any avian flu virus, there is little chance of cross-contamination.

- ♦ As with Black-faced Spoonbills, all the other migratory waterbirds (e.g. wild ducks and gulls) that winter in Hong Kong, usually remain around the Deep Bay wetlands, particularly the mudflats of Inner Deep Bay. There is therefore, also little chance of cross-contamination between these birds and people, even visitors to Mai Po Nature Reserve.
- ♦ There would also be little opportunity for migratory waterbirds to spread the virus to domesticated poultry because the majority of the poultry infected so far have been reared in factory farms and cages. They would therefore be minimal chance for cross-contamination.
- ♦ Since the first H5N1 outbreak in HK in 1997, the Department of Microbiology at Hong Kong University and the HK Government have separately, each winter, been testing the wintering birds at MP for H5N1. This was done by collecting faeces and bodily fluids from wild birds caught during regular bird banding work. So far, over 7,000 samples have been tested and all have so far been negative.
- ♦ This winter (2003/04), the Department of Microbiology, Hong Kong University have put 4 domestic ducks in individual cages in the 'waterfowl collection' at Mai Po Nature Reserve, to see if the wild ducks that are found in the Collection can infect the domestic ducks with any disease. Droppings from the ducks are also removed to analyse for viruses. So far, the domestic ducks are growing fat and they have not shown any sign of disease.
- ♦ In Taiwan (Guandu Nature Park) and Singapore (Sungei Buloh Wetland Reserve), officials have been collecting samples from migratory birds to test but none of the samples have been found to carry the H5 virus.
- ♦ The evidence to support the theory that migratory birds are responsible for the spread of disease is so far be based on the 1999 appearance of the West Nile Virus in New York. The virus went on to cover all North America and killed hundreds of thousands of native and rare birds. While it is accepted that the virus could have been introduced to the US by migrating birds, others believe it is more likely a commercially imported bird carried the bug.

The World Health Organisation's epidemiologist Richard Brown (based in Manila) is sceptical about the idea that migratory birds brought the flu into Asia since "If it was the chief cause (of the outbreaks) you would have seen this happen before," he said.



As a result, whilst migratory waterbirds do carry various types of avian flu viruses, it is unlikely that they are the key factor responsible for the recent outbreaks in Asia. Furthermore, visitors to Mai Po Nature Reserve will be unlikely to catch avian flu as a result of their visit.

3.0 What is avian flu?

The following information is summarised from the website of the World Health Organisation (http://www.who.int/csr/don/2004_01_15/en/).

Avian influenza is an infectious disease of birds caused by type A strains of the influenza virus, and is thought to be transmitted through the droppings of infected birds. All birds are thought to be susceptible to infection with avian influenza, though some species are more resistant than others. Infection causes a variety of symptoms in poultry, ranging from mild illness to a highly contagious and rapidly fatal disease resulting in severe epidemics. Fifteen subtypes of influenza virus are known to infect birds. To date, all outbreaks of the highly pathogenic form have been caused by influenza A viruses of subtypes H5 and H7.

3.1 Avian flu and its effects on birds

Migratory waterfowl, such as wild ducks, are a reservoir of avian influenza viruses, and these birds are also the most resistant to infection. Domestic poultry, including chickens and turkeys, are particularly susceptible to epidemics of influenza. Contact between domestic poultry with wild migratory waterfowl has been suspected as a cause of epidemics. Live bird markets have also played an important role in the spread of epidemics.

The quarantining of infected farms and destruction of infected or potentially exposed flocks are standard control measures aimed at preventing spread to other farms and the country poultry population. Avian influenza viruses are highly contagious and can be readily transmitted from farm to farm through contaminated equipment, vehicles, feed, cages, or clothing. The virus can survive for long periods in the environment, especially in low temperatures. Strict sanitary measures on farms can provide some degree of protection.

3.2 Avian flu and people

Avian influenza viruses usually only infect birds and pigs. The first case of human infection with an avian influenza virus occurred in Hong Kong in 1997, when the H5N1 strain caused severe respiratory disease in 18 people, of whom 6 died. This coincided with an epidemic of highly pathogenic avian influenza, caused by the same strain, in Hong Kong poultry population. Investigation later showed that close contact with live infected poultry was the source of human infection. Rapid destruction within three days of Hong Kong entire poultry population of around 1.5 million birds, reduced the risk of further direct transmission to humans, and may have averted a pandemic.



This winter (2003/04), all the reported poultry epidemics in the Republic of Korea, Viet Nam, and Japan, have been caused by an H5N1 strain of avian influenza viruses. Furthermore, in January 2004, laboratory tests have confirmed the presence of H5N1 avian influenza virus in human cases of severe respiratory disease in Viet Nam.

3.3 Avoiding an avian flu pandemic

Several measures can help minimize the global public health risks that could arise from large outbreaks of highly pathogenic H5N1 avian influenza in birds. An immediate priority is to halt further spread of epidemics in poultry populations. For example, the prompt culling of Hong Kong entire poultry population in 1997 probably averted a pandemic.

This strategy works by reducing opportunities for human exposure to the virus. Vaccination of persons at high risk of exposure to infected poultry, using existing vaccines effective against currently circulating human influenza strains, can reduce the likelihood of co-infection of humans with avian and influenza strains, and thus reduce the risk that genes will be exchanged. Workers involved in the culling of poultry flocks must be protected, by proper clothing and equipment, against infection. These workers should also receive antiviral drugs as a prophylactic measure.

3.4 How the public can minimise the risk of catching avian flu

Stay away from infected birds, pigs and humans. Wear a face mask to avoid inhaling airborne virus (from sneezing persons). Wash your hands with soap and water after touching surfaces that may have been touched by sick persons or fowls. Further information may be obtained from the website of the Hong Kong SAR Government's Department of Health which describes the steps they have taken to reduce the risk of cross-contamination between birds and people <http://www.info.gov.hk/dh/new/index.htm>. This basically repeats the message of observing good personal hygiene and for the public to wash their hands thoroughly after contact with live birds.'

For further information on migratory waterbirds, please contact WWF Hong Kong by;
e-mail: <maipo@wwf.org.hk>

Tel: 2471-6306

Fax: 2482-0369