

Avian Influenza and Wild Bird: Update from Hong Kong

Lew Young,
WWF Hong Kong, Mai Po Nature Reserve, Hong Kong.

1. Background

Hong Kong recorded the first human outbreak of avian influenza (AI) in August 1997, when 18 people became infected, with six of the cases being fatal. In order to halt the outbreak, a mass cull of all the poultry in Hong Kong was carried out, and this was repeated during another outbreak in May 2001. Since then, the Hong Kong Government have taken a range of steps to reduce the risk of further AI outbreaks ^{(1), (2)}. Regarding wild birds, they have produced guidelines on how to reduce the risk of infection for people who keep caged birds, and to warn against the feeding of wild birds and joining religious bird releases ⁽³⁾. The government has also produced guidelines for handling and disposing of dead wild bird ⁽⁴⁾, and have a webpage with updated news on the AI situation in Hong Kong <http://www.info.gov.hk/info/flu/eng/index.htm>

2. Wild birds and H5N1 surveillance in Hong Kong

The main congregation of water birds in Hong Kong is found in and around the Mai Po Inner Deep Bay Ramsar Site in the northwestern corner of the territory. This mosaic of wetland supports up to 70,000 wintering water birds (including 16,000 to 22,000 waterfowl) and another 20,000 to 30,000 shorebirds during spring and autumn passage.

An influenza team from the Department of Microbiology, Hong Kong University, began systematic surveillance for the H5N1 virus amongst the wintering water birds at the Mai Po Nature Reserve in 2003. Two to three times every week, faecal droppings were collected from areas where water birds, particularly waterfowl, were known to congregate. A range of birds (especially waterfowl and shorebirds) was also caught so that tracheal and cloacal samples, as well as blood samples, could be taken for analysis. Of the 24,000 samples that have been collected from 2003 to 2007, none have so far been found to contain the H5N1 virus.

The Hong Kong Government began their own sampling programme in autumn 2005, by analysing faecal droppings from Mai Po and other areas, as well as carcasses of dead birds collected around Hong Kong. Of the over 25,000 samples collected so far, H5N1 positive samples were identified from 17 dead birds collected in spring 2006 ⁽⁵⁾, and another 17 dead birds and one live caged bird for sale in spring and summer 2007 ⁽⁶⁾.

3. Closure of the Mai Po Nature Reserve

During the AI outbreak across Asia during the winter 2003 – 2004, the media and various national governments began to blame migratory birds for the spread of the HPAI virus, which fuelled considerable public concern over the issue. As a result in January 2004, the Hong Kong Government decided to close the Mai Po Nature Reserve for a seven-week period as a precautionary measure. When outbreaks of H5N1 infection occurred in southern China during the winter 2005 - 2006, the Hong Kong Government once again closed the Reserve in January 2006 for a 10-week period.

It was not until summer 2006, when the Hong Kong Government developed criteria for deciding under what condition in future, to close Mai Po Nature Reserve during outbreaks of H5N1 infection, and criteria for its reopening ⁽⁷⁾. These criteria stated that the Reserve would be closed for if a H5 infected dead wild bird were to be found within a 3 km radius of the Reserve. If no further cases are found after 21-days, then the Reserve would be reopened.

4. The role of caged birds

In early winter 2006, the Hong Kong Government requested the public to report cases of dead birds, which would be collected and taken to check for the H5N1 virus. Of the approximately 10,000 samples that have been collected since then, 34 carcasses were identified as having the H5N1 virus ⁽⁵⁾ ⁽⁶⁾ and some 60% were found within 3km of the Yuen Po Street Bird Garden in Kowloon where some 9,600 caged birds are on sale each day. Some 80% of these birds being sold for religious releases (Chan 2007). These infected birds did not fit into the typical picture of the wild bird commonly blamed for the spread of the virus. Only one of the infected birds was a waterbirds (a Little Egret *Egretta garzetta*), and only one was migratory in Hong Kong (a Kestrel *Falco tinnunculus*). Two were introduced species that had now adapted and become resident in Hong Kong (Chestnut munia *Lonchura atricapilla* and Silver-eared Munia *Leiothrix argentauris*). These infected dead birds could also be divided into three broad groups, i.e. those that are traded as caged birds (e.g. Magpie Robin *Acridotheres cristalellus*) or for religious release (e.g. munias), were scavengers (e.g. magpies and crows), or were predators (e.g. falcons). Suspicion therefore then began to grow that the trade in caged birds either for the pet trade or for religious release, was somehow related to the cases of H5N1 infected birds being found in the urban areas of Kowloon and Hong Kong. This was supported in June 2007 when a dropping from a caged Daurian Starling being sold in Bird Garden was found to have the H5N1 virus.

Conclusion

In Hong Kong, disproportionate blame has been given to the role of migratory water birds for being the main agent for the spread and cross-infection of the H5N1 virus to humans. The results from local H5N1 surveillance work by both academics and the government, as well as information from the distribution of dead infected birds in recent years, is showing that caged birds also play an important role in appearance of H5N1 cases in the territory. The government

needs to review the enforcement of existing legislation covering the import and sale of caged birds, as well as the need for stricter control of the trade. At present, caged birds entering Hong Kong by land do not need to go through the strict health checks that commercial poultry need for entering the territory.

Furthermore, the complete closure of wildlife nature reserves if a case of H5 is found within 3km of the site needs to be reviewed. Whilst the Deep Bay wetlands may support tens of thousands of water birds at particular times of year, these birds are spread over a wide area of mudflats, and shrimp and fishpond with few people. The density of birds in this area is much lower than that in Bird Garden, which is located in an urban area with much high human density and where a number of cases of H5N1 infected birds, have been found. Continuing the closure policy will only perpetuate a wrong perception amongst the public (and government), about the role of water birds in the spread of the H5N1 virus, and lead to complacency in developing policy that deals with the role of other possible vectors, such as the trade in caged birds.

Acknowledgement

The following very kindly provided data and information for this presentation: Ms. Aidia Chan Sin-wai (Department of Ecology & Biodiversity, Hong Kong University), Dr. Connie Leung and Prof. Malik Pieris (Dept. of Microbiology, Hong Kong University), Dr. Gary Ades (Kadoorie Farm and Botanic Garden), and Mr. Lee Wai-hung, Agriculture, Fisheries and Conservation Department, Hong Kong Government.

References

- (1) Anon 2006. Measures to Control avian influenza. Paper prepared for the Panel on Food and Environmental Hygiene, Legislative Council, Hong Kong SAR Government.
<http://www.legco.gov.hk/yr06-07/english/panels/fseh/papers/fehs1212cb2-587-4-e.pdf>
- (2) Anon 2006. Preparing for the Peak Season of Avian Influenza Outbreak. Paper prepared for the Panel on Food and Environmental Hygiene, Legislative Council, Hong Kong SAR Government.
<http://www.legco.gov.hk/yr06-07/english/panels/fseh/papers/fehs1212cb2-587-1-e.pdf>
- (3) Anon 2005. Prevention of Avian Influenza – Management of Birds. Prepared by the Agriculture, Fisheries and Conservation Department, Hong Kong SAR Government.
http://www.afcd.gov.hk/misc/english/prevention_of_h5n1_nov_2005.doc
- (4) Anon 2006. Safety guidelines for Handling and Disposing of Dead Wild Birds. Prepared by the Agriculture, Fisheries and Conservation Department, Hong Kong SAR Government.
http://www.afcd.gov.hk/english/whatsnew/what_qua/files/handling_of_dead_birds.pdf
- (5) Location of H5N1 infected wild birds found in Hong Kong in 2006

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

- (6) Location of H5N1 infected wild birds found in Hong Kong in 2007
http://www.afcd.gov.hk/english/whatsnew/what_qua/files/common/h5n1_2007.pdf
- (7) Management of Public Access to Mai Po Nature Reserve / Wetland Park / Walk-in Aviaries
<http://www.legco.gov.hk/yr05-06/english/panels/fseh/papers/fe0711cb2-2663-03-e.pdf>
- (8) Chan, S.W. 2007. Religious release of birds in Hong Kong. Unpub. M.Phil. thesis. Department of Ecology and Biodiversity, University of Hong Kong.