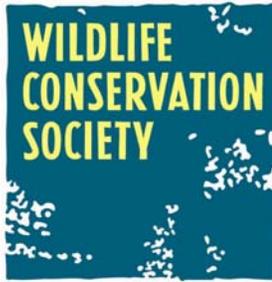


The Conservation Implications of Avian Influenza (H5N1)



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The reaction throughout the region that has been of greatest immediate concern to conservationists...

- Wild birds are to blame for transmission
- They must be controlled or killed

July 2004, Thailand

“Prime Minister Thaksin Shinawatra said he has told the Ministry of Natural Resources and Environment to proceed with plans to cull wild Asian open-billed storks that are suspected of being carriers of bird flu.”

Aug 2004, Singapore

“Crows and mynahs will also be culled, and migratory birds will be trapped and their wings clipped, to temporarily prevent them from flying”

Spokesman, Wildlife Reserves Singapore

Other reactions with conservation implications have included:

- Destruction of habitat.
 - Cutting stork nesting trees in Thailand
 - A school in Hong Kong cut trees in order that birds wouldn't rest in the school grounds.
- Release of cage birds. People keeping birds as pets throughout the region released them out of fear.
- All over Asia people were told to stay away from wild birds. In Taiwan children's nature classes involving birds or visits to nature reserves were cancelled.
- Birds as an enemy. For the first time people were scared of birds.

Examining the evidence

- Avian flu viruses have been found to be endemic in certain groups of wild birds, primarily ducks, for many years.

However,

- H5N1 has to date been found in only seven wild birds of six species.
- How many were tested is unpublished, but reports indicate that “more 6000 wild birds” have been tested in Hong Kong alone. Wild birds have also been tested at least in China, Thailand, Philippines and Singapore.
- No other results published.
- However I understand Open-bill Storks in Thailand were all negative as have been all birds tested in Singapore.
- My assumption is, until told differently, that all other tests were also negative.

“the presence of H5N1 viruses in dead migratory birds suggests that wild bird populations may be involved”

Li et al. Nature July 04.

Peregrine Falcon <i>Falco peregrinus</i>	Resident/ migrant	Found “near two poultry farms”
Little Egret (2) <i>Egretta garzetta</i>	Resident	Unknown
Grey Heron <i>Ardea cinerea</i>	Resident	Unknown
Black-headed Gull <i>Larus ribundus</i>	Migrant	Unknown
Tree Sparrow <i>Passer montanus</i>	Resident	From Kowloon Park quarantine area with 100+ dying ducks and geese
Feral Pigeon <i>Columba livea</i>	Resident	From Kowloon Park quarantine area with 100+ dying ducks and geese

“The timing and distribution of the H5N1 infection in poultry in China from 2001 onwards coincides with the general period of winter bird migration to southern China” Li et al. Nature July 04.

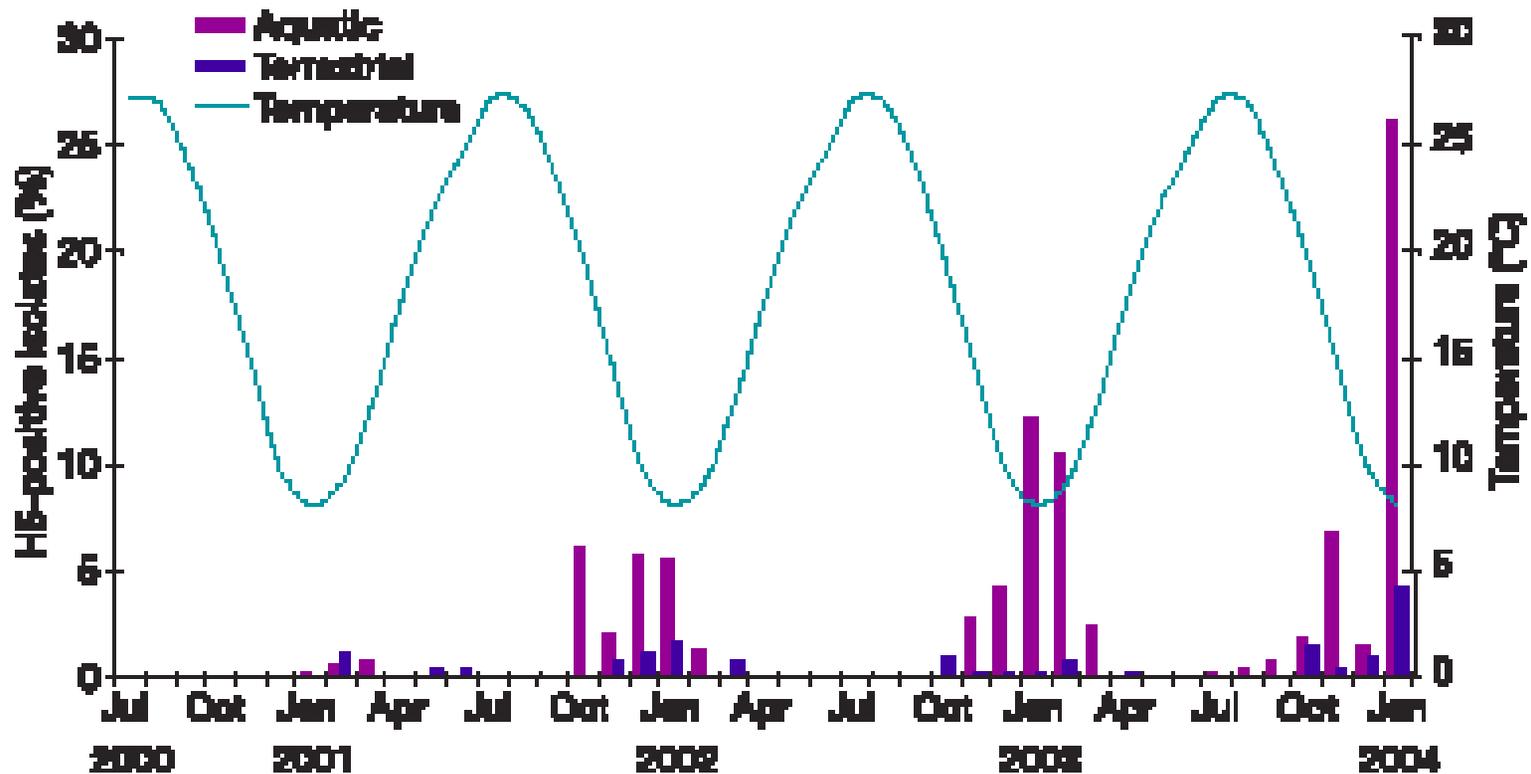


Figure 2 Seasonality of the isolation of avian H5N1 viruses from domestic poultry in mainland China during July 2000 to January 2004 (see Table 1). The mean monthly temperature in southern China (approximated from the monthly average temperatures of the cities Changsha, Kunming and Xiamen) is shown for reference.

This may fit for migratory waterfowl arriving to winter in southern China, but what is the evidence for migratory birds transmitting H5N1 across the region?

There are no waterfowl that spend the winter in southern China and then migrate further south to Southern Vietnam, Cambodia, Indonesia, central Thailand, nor north to Korea or west to Pakistan...

There are no wild migratory birds at all that follow these routes and times.

More likely due to:

Compression of domestic poultry flocks in winter

International movement of poultry and other birds in trade



Evidence points to migratory wild birds as victims not vectors



The main current threat to wild birds is not from the virus itself but persecution by poorly informed decision makers and members of the public

Separation of wild and domestic birds

Live Wildlife Markets

- Birds packed very close together, multi-species groups, poor conditions
- Domestic and wild birds in close proximity
- Birds often transported long distances
- Live “wet-markets”=“international viral exchanges”

Poultry industry

- Long distance transmission to/from migrant birds unlikely
- Local risk from resident sparrows and urban birds is much greater





Positive implications for conservation

- Wet markets became less popular and post SARS the Chinese Govt closed them down although they have no re-opened
- People became more reluctant to eat wild birds
- The trade not only in poultry but all birds was limited by many countries both inside and outside of the region



Ways forward for conservation...

1. Stop the killing

- Focussed education of public and decision makers as to the real risks
- More data on disease vectors in wild birds both in the wild and in trade

2. Seize the moment – linking conservation to human health

- Campaigns directed at closing wildlife markets and the wild bird trade
- Better enforcement of existing laws
- More data on markets, not just disease issues, but numbers and movements of wild birds in trade

3. Be ahead of the curve – an H5N1 outbreak in wild birds?

- Better bio-security in the poultry industry. Vaccination?
- Close markets where wild birds are released
- Health monitoring of wild populations?

Stop press.....

- **18 Sept. 2004.** Chickens start dying on a farm outside of Phnom Penh.
- **22 Sept. 2004.** Bird flu outbreak declared, 2200 birds slaughtered.
- **23 Sept. 2004.** Wild birds from nearby pond implicated as cause:
"It can be speculated that the virus was reintroduced from the pond where wild ducks have passed by and left their droppings"
Hans Wagner, Senior Animal Production and Health Officer, FAO, Bangkok.
- **23 Sept. 2004.** Cambodian Government reported that the chickens were bought from a Thai owned farm.
- **24 Sept. 2004.** Thai company deny responsibility:
"C.P. Cambodia didn't cause the deadly virus spread in Cambodia since it has taken strict preventive measures in its farm"
Sakol Cheewakoseng, CP Company President.
- **27 Sept. 2004.** The outbreak was "likely to have arisen from unclean water and illegal relocating of infected birds".

