

Transmission of Avian Influenza and the Survival of Free-Range Poultry Operations NOFA/Mass, June, 2006 – (www.nofamass.org)

Avian Influenza (AI) has been endemic for centuries without posing serious health consequences for birds or humans. In 1997, however, the H5N1 influenza virus mutated into a form that can, with difficulty, infect humans. [Actually the subtype H5N1 was first detected in 1959 in Scotland, but it didn't kill any person until 1997] The worst outbreaks of this subtype occurred in Southeast Asia since 2003 [2006 has so far seen the most cases on human infections of H5N1].

The Wild Bird Theory

Public health officials have tracked outbreaks of the H5N1 strain of AI in an effort to find out how it is transmitted from one location to another. One early theory was that wild birds carried the virus with them during migration, infecting flocks of poultry along the way either through droppings or through direct contact with birds raised outdoors.

For a while the UN's Food and Agriculture Organization (FAO) was a key promoter of the theory that AI transmission was primarily caused by the migrations of wild birds. In fact as recently as November, 2005 FAO Assistant Director-General Louise Fresco was quoted as saying: "The backyard chicken is the big problem and the fight against bird flu must be waged in the backyard of the world's poor."¹

Such a theory seemed to be supported by examples of the virus suddenly appearing in remote locations in Asia. The reported circumstances of one particular AI outbreak among geese at Qinghai Lake in Northwestern China has been relied upon heavily by advocates of the wild bird theory. Lindsey Hillsheim of the Institute for Agriculture and Trade Policy explains how this theory initially came into vogue for many scientists: "The jump of the virus to western China, Russia, Turkey and France seemed to implicate migratory waterfowl as the carriers of the virus, largely because no direct link to human activity could be found."²

Based on this theory, governments in much of Southeast Asia (Thailand, China, Vietnam) have prohibited backyard poultry. As peasant farmers drop out of production, the market share of multinational factory farming companies like the Thailand-based Charoen Pokphand Group (whose poultry production model is based on that of the U.S.-based, Tyson Foods) expands.³

Since the spread of AI to parts of Europe and Africa, many governments -- even ones that have not yet had AI outbreaks -- have followed the lead of Southeast Asian governments. Austria, Croatia, France, Germany, the Netherlands, Norway, Slovenia, Nigeria and Sweden have all outlawed backyard poultry in various ways.⁴

Factory Farming the Real Source for Most AI Transmission

As more evidence has come in, however, experts are realizing that, while the AI virus is surely capable of

1 [Fowl play: The Poultry Industry's Central Role in the Bird Flu Crisis](#) By Genetic Resources Action International (GRAIN), February 2006, p.3.

2 Dead Birds Dont Fly: An Avian Flu Primer for Small-Scale Farmers By Lindsey Hillsheim, Institute for Agriculture and Trade Policy (IATP), Minneapolis, MN, March 2006 <<http://www.agobservatory.org/library.cfm?refid=80410>>.

3 Isabelle Delforge, The flu that made agribusiness stronger Focus on the Global South, Bangkok, 7-5-04.

<www.focusweb.org/content/view/363/28/>

4 GRAIN p.4.

being transmitted back and forth between domestic birds and wild birds, this is not the primary source of the spread of AI. Even FAO officials are now admitting this. The head of infectious diseases at the animal-health service of the Rome-based FAO, Juan Lubroth, recently said of H5N1: "The disease is spreading more through commercial husbandry and the humans that are moving poultry around... This is not to say that there's no risk from wild birds, but it is poultry and trade that is primarily responsible."⁵ In May, 2006, the FAO's Deputy Director-General, David A. Harcharik, said, "FAO considers that globalization and international trade are definitely the main factors in the spread of the virus from one country or region to another, and that wild birds play only a partial role in this."⁶

In May, 2006, a report in the science journal *Nature* put the wild bird theory concerning AI at Qinghai Lake into serious doubt:

The hypothesis that migratory birds are responsible for spreading avian flu over long distances has taken another knock. Last year, an outbreak of the deadly H5N1 strain in thousands of migratory birds at Qinghai Lake in western China provided what seemed the first firm evidence for the idea. Because the lake is so remote, experts assumed infected birds had flown up from southern China.

But it has now emerged that, since 2003, one of the key migratory species affected, the bar-headed goose, has been artificially reared near the lake. The breeding farms -- part of an experimental programme to both domesticate the birds and release them to repopulate wild stocks -- raise the possibility that farmed birds were the source of the outbreak. . . . The idea that migrating birds didn't carry the virus to Qinghai after all would fit with other recent evidence.⁷

Evidence shows that, rather than spreading, the H5N1 virus dies out quickly in wild birds because they are dispersed. Rather than passing from a dead host to a nearby victim, as happens in confinement operations, the virus in wild birds cannot so easily find a new host. It tends to die with the original victim. Upon reports of a die-off of wild birds due to H5N1 at Erkhel Lake in Mongolia, veterinarians from the Wildlife Conservation Society found that only one sample turned out positive for the virus. Researcher Dr. William Karesh commented that the virus "had a very low impact," and that "The disease is self-limiting in wild birds."⁸

Further evidence that wild birds are not vectors for the spread of AI is that, despite enormous efforts to track H5N1 infections in wild birds, infections have not been nearly as widespread as in factory farm operations. In February, 2006, Genetic Resources Action International (GRAIN) issued a report entitled, *Fowl Play: the Poultry Industry's Central Role in the Bird Flu Crisis*. Drawing on the opinions of bird conservation organizations and many other scientific researchers, the report shows that wild birds that have been infected so far have been victims of AI much more than vectors of it. The GRAIN report has gained widespread recognition and backing including the prestigious medical journal, *The Lancet Infectious Disease*.⁹

5 Bird-Flu Trail Leads Medical Detectives Back to Poultry Farms, May 30, 2006, Bloomberg, at <http://www.bloomberg.com/apps/news?pid=10000080&sid=a334DK66cvUc&refer=asia>

6 David A. Harcharik, Deputy Director-General, FAO, "Opening address, FAO-OIE International Scientific Conference on Avian Influenza and Wild Birds," Rome, 30-31 May 2006
<http://www.fao.org/ag/againfo/subjects/en/health/diseases-cards/conference/documents/Harcharik.pdf>

7 Declan Butler, "Blogger reveals China's migratory goose farms near site of flu outbreak," *Nature* 441, 263 (18 May 2006) <http://www.nature.com/nature/journal/v441/n7091/full/441263a.html>. Also available through:

<http://www.scidev.net/dossiers/index.cfm?fuseaction=dossierReadItem&type=1&itemid=2851&language=1&dossier=24>

8 Donald G. McNeil Jr., "From the Chickens' Perspective, the Sky Really Is Falling," *New York Times*, 3-28-06.

9 "Avian influenza goes global, but don't blame the birds," *The Lancet Infectious Diseases*, April 2006; 6:185

Even a National Academy of Sciences study has found that: "After testing more than 13,000 wild birds in marshes within bird flu infested provinces in China, scientists identified only six highly pathogenic bird flu viruses in six ducks. The overall conclusion of the study: "Transmission within poultry is the major mechanism for sustaining H5N1 virus endemicity in this region."¹⁰ The study also made claims about how the virus has been spreading: "Our data show that H5N1 influenza virus has continued to spread from its established source in southern China to other regions through transport of poultry and bird migration."¹¹ Another indicator that raises questions about the wild bird theory is that outbreaks that were expected according to its theoretical models, in which new infections arrive through the feces of migrating birds, have not come to pass. In May, 2006, the New York Times reported that "Defying the dire predictions of health officials, the flocks of migratory birds that flew south to Africa last fall, then back over Europe in recent weeks did not carry the deadly bird flu virus or spread it during their annual journey, scientists have concluded."¹² Furthermore, as Nature reports:

... a senior animal-health officer at the UN Food and Agricultural Organization (FAO), says he is now sceptical that migrants can carry the virus over long distances. For example, the current spring migration from Africa to Europe is almost over, with no sign of outbreaks. The FAO has also checked 20,000 wild birds in Africa and found no H5N1.¹³

Far better evidence suggests that the spread of AI is connected to shipments of live birds and poultry manure from factory farms via rail and truck routes. As Bloomberg news reports:

The focus on wild birds has led to misguided attempts to control the virus, Richard Thomas, a spokesman for BirdLife International, a Cambridge, U.K.-based conservation society, said in an interview. New research suggests the wild animals may be getting the virus from farm-based chickens and ducks.¹⁴

Richard Thomas has further stated that, "The pattern of outbreaks follows major road and rail routes, not flyways".¹⁵

Given this growing body of evidence exonerating migratory birds in the spread of AI, Norway and France have already changed policy and lifted their bans on outdoor poultry.¹⁶

10 [Fowl play: The Poultry Industry's Central Role in the Bird Flu Crisis](#) By Genetic Resources Action International (GRAIN), February 2006, p.5.

11 H Chen et al., "Establishment of multiple sublineages of H5N1 influenza virus in Asia: Implications for pandemic control," PNAS early edition, Proceedings of the National Academy of Sciences of the USA, Washington DC, February 10 2006:

<<http://www.pnas.org/cgi/doi/10.1073/pnas.0511120103>>

12 Migrating Birds Didn't Carry Flu By Elisabeth Rosenthal, New York Times, 5-11-2006.

<<http://www.nytimes.com/2006/05/11/world/europe/11birdflu.html?ex=1148788800&en=6f6d5e9d0b11d860&ei=507>>.

13 Declan Butler, "Blogger reveals China's migratory goose farms near site of flu outbreak," Nature 441, 263 (18 May 2006)

<<http://www.nature.com/nature/journal/v441/n7091/full/441263a.html>>. Also available through:

<<http://www.scidev.net/dossiers/index.cfm?fuseaction=dossierReadItem&type=1&itemid=2851&language=1&dossier=24>>

14 Bird-Flu Trail Leads Medical Detectives Back to Poultry Farms, May 30, 2006, Bloomberg, at

<<http://www.bloomberg.com/apps/news?pid=10000080&sid=a334DK66cvUc&refer=asia>>

15 Joanna Blythman, June 7, 2006, The Guardian, <http://society.guardian.co.uk/health/story/0,,1792075,00.html>.

16 Norway lifts outdoor poultry ban, citing reduced bird flu risk, Associated Press, 6-1-06

<http://news.findlaw.com/ap/o/51/06-01-2006/2a6800056b1fe090.html>

France lifts poultry restrictions caused by bird flu scare, 5-12-2006, Agence France Press,

<http://www.eubusiness.com/Agri/060512191459.55ukk6iz>

Who Is Hurt By Confining Poultry?

Currently AI is not very infectious to humans (one has to be directly exposed to infected poultry for long periods) but, like any virus, it can mutate to a more infectious form given the proper conditions. It turns out that the best conditions for viral mutation occur in large, confined poultry operations (factory farms). Conditions there encourage rapid transmission and evolution of disease agents – environments that are warm and moist, crowded with many genetically similar hosts, and devoid of sunlight and fresh air. Compared to factory-farmed birds, flocks of wild fowl and domestic backyard flocks actually limit AI transmission, and therefore the disease's chance to evolve into a more virulent form. Normally, the more virulent a virus is, the more likely it is to kill its host and thus end its chance to reproduce and infect other hosts. The highly concentrated environment of factory farms, however, provides the perfect conditions for a virus to successfully mutate into a more highly pathogenic form. Thousands of hosts (chickens) with near identical genetic makeup, all the same age and size, crowded in close conditions, allow a virus to kill its host and still move on to the next victim.

Unfortunately, massive meat conglomerates have been creating these very conditions at breakneck speed all around the globe. In the last 50 years, in the name of cheaper food, these factory farms have industrialized and concentrated the world's livestock, taking them from millions of backyards and small farms and enclosing them in giant facilities operated for maximum production. Some Chinese factory farms raise 5 million chickens at a time. It is no surprise that H5N1 evolved into its highly deadly form in 1997.

The real solution to avian flu is to improve the conditions on factory farms and promote backyard poultry as an alternative to factory farming—not to outlaw it. Bans on outdoor poultry would only reinforce factory farm production rather than hold them accountable for their decisive role in exacerbating the current threat. The most immediate effect of such a ban would not be to protect public health, but to push out of business those people who are producing livestock in the most responsible way available: sustainable and organic farmers.

Organic Husbandry Means Raising Animals Out of Doors

NOFA/Mass has long stood for the necessity of organic livestock and poultry being raised out of doors. Organic farmers believe that the presence of soil, with its millions of competing microbes, plus sunlight, fresh air and water are vital to raising healthy animals. Moreover, National Organic Standards call for all animals to be raised with access to the out-of-doors. Commenting on the parallel debate over AI in Britain, the director of Elm Farm Research Centre, which researches organic agriculture and advocates policy, has said: "If you keep birds entirely indoors, they simply stop being free-range or organic."¹⁷

The victim of a ban on outdoor poultry would not only be the birds and the farmers, but also consumers. More and more consumers every year are becoming conscious of the unhealthy, inhumane conditions and practices at factory farms. They are coming to small, local and organic growers for an alternative. Should these farmers be put out of business, such consumers would be forced back to the industrialized food system for their animal products.

When considering an appropriate response to bird flu, we are faced with a choice: either we will turn even further toward a food system that relies upon surveillance and centralized control to backstop its massive scale or we will support better living conditions for animals, and support the very best providers of food security: small and sustainable farmers.

17 Joanna Blythman, June 7, 2006, The Guardian, <http://society.guardian.co.uk/health/story/0,,1792075,00.html>.