

# *Assessment of ornithological data relevant to the spread of Avian Influenza in Europe - Phase 2*

## **Background and context**

The risks associated with the spread of the Highly Pathogenic Avian Influenza (HPAI) virus strain of the H5N1 sub-type have featured prominently as an issue of international concern. HPAI H5N1 not only represents a serious threat to domestic poultry (economic aspect) but also a serious potential risk to humans (public health aspect). It is also an issue which could have serious consequences for the wild birds and other species of conservation concern (ecological aspects). Addressing the threats posed by HPAI H5N1 is a multi-disciplinary challenge which requires the inputs and close collaboration of different experts, including veterinarians, virologists, epidemiologists, ornithologists and conservation managers.

Since autumn 2005, with the westward spread of this Asian strain of the virus into Europe the matter has been the focus of heightened attention and action by the European Commission and the EU Member States. DG SANCO (the lead service in the Commission), working in close association with the Standing Committee on the Food Chain and Animal Health (SCOFCAH), has proposed a series of biosecurity measures to deal with the emerging situation which have been put in place by the Member States. It has also enacted systems of surveillance for poultry and wild birds to help with early detection of the virus as well as to provide scientific information on levels of infection of different species. Whereas there is still ongoing debate on how this strain of Avian Influenza is spread, and the extent to which trade in poultry and of wild birds may be implicated in this, it has also been recognised that migratory wild birds can act as transmitters of the disease.

In response to the emerging threat, and in recognition of the need to have the most up to date and best available ornithological information on wild bird species that would be considered at higher risk in spreading HPAI H5N1, DG ENV, which is the lead service in the Commission in relation to ornithological and wild bird conservation matters, commissioned a first preliminary assessment of the relevant data by two leading international ornithological organisation, Wetlands International and EURING. The issue of avian influenza and wild birds had also been regularly discussed with the Member States within the framework of the ORNIS Committee and its Scientific Working Group.

The results of this study, which represented the most complete scientific overview on the movements and use of important sites by 17 waterbird species considered to present a higher risk of spreading HPAI H5N1 to the EU, are available on the web site of DG ENV at [http://ec.europa.eu/environment/nature/conservation/wildbirds/birdflue/index\\_en.htm](http://ec.europa.eu/environment/nature/conservation/wildbirds/birdflue/index_en.htm).

However, since the initiation of this study there were very significant developments in relation to the spread of HPAI H5N1. Starting with the first outbreaks in Greece and Italy in February 2006, there were more than 700 outbreaks of the virus in several Member States, involving at least 25 species of wild birds, most of which are categorised as waterfowl. Most of these outbreaks took place during the period of February to May 2006 although there were a few incidents since then, including one in Spain in July 2006. Therefore, the EU was facing a radically different situation in relation to HPAI H5N1 within the territory of its Member States, which required updated and more refined ornithological information on the ecology and behaviour of wild bird species that present a risk of further spreading the virus within the

EU. Given the primary role of waterbirds in the identified outbreaks of HPAI H5N1 in Europe the new contract focused again primarily on this group of birds and on further analysis of the data of Wetlands International and the European Union of Bird Ringing (EURING), conducted by these two organisations<sup>1</sup>.

## **Objectives of the contract**

The key objective was to provide an updated and expanded assessment of available ornithological data on European wild bird species considered to be at higher risk from the HPAI H5N1 strain of avian influenza, especially as regards their migrations, concentration and high risk areas. This study was carried out with a view to enabling the European Commission to provide reliable and credible information on the ornithological dimension of risks of further spread of HPAI H5N1 within the EU and to inform appropriate preparedness and response strategies for such eventualities.

In this context the following tasks were undertaken by the contractor:

### ***A. Review and update of preliminary analysis of higher risk species and sites in light of evolution of HPAI H5N1 in Europe in 2006***

There was a need to reassess the results of the first 'preliminary assessment of ornithological data relevant to the spread of avian influenza in Europe' in light of the developments that had taken place in winter 2005/2006.

This would require a review and updating of the criteria that underpinned the selection of the list of higher risk species on the basis of the confirmed HPAI H5N1 in wild birds in Europe. There would be need to review a number of transmission risk factors, based on outbreaks in Europe and readily available information (literature and unpublished). Similarly, there would be a need to review the list of key sites identified in the preliminary analysis as potentially higher risk areas in light of the outbreaks that had taken place.

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<sup>1</sup> Wetlands International organizes and co-ordinates actions for the monitoring and protection of waterbirds, and their habitats, all around the globe. They work with an extensive network of experts, including some 18 Specialist Groups and very well developed networks of observers and contacts in the field. On behalf of the Ramsar Convention a database is managed with information on 1200 wetlands which qualify as "sites of international importance". In January each year the International Waterbird Census (IWC) is organised, which includes more than 20,000 sites in more than a hundred countries. In Europe alone more than 20 million waterbirds are counted each year. The IWC databank is site-based and provides important information on the distribution and numbers of waterbirds.

EURING has collected data on the movements of individually marked birds for decades. EURING was founded in 1963 to ensure co-operation between ringing schemes in all aspects of scientific bird ringing across Europe, and to promote the use of ringing data for management and conservation of bird populations. This is facilitated by a standard protocol for data transfer and the creation of the EURING DataBank (EDB) <http://www.euring.org/edb/index.htm>, which contains records from the member schemes of individual birds that have been ringed across Europe, including Russia, and subsequently found (alive or dead). The EDB currently comprises more than 2.5 million records for over 250 species from 40 individual national schemes, so provides an invaluable resource for addressing questions pertaining to bird movements.

### ***B. Detailed analysis of potential "sentinel" species***

Whereas a wide range of bird species had been recorded as carrying the HPAI H5N1 virus, the majority of cases of outbreaks related in particular to a small number of waterbird species, especially the Mute Swan. Such species may have added value in relation to their role as 'sentinels' for early detection and in surveillance programmes.

There would be need to carry out a more detailed analysis of three or four potential 'sentinel species' in the spread of H5N1 that had been most affected by outbreaks in Europe in the winter 2005/2006 (e.g. Mute Swan, Mallard, Tufted Duck, Pochard). Such an analysis should focus in particular on an evaluation of the movements and behaviour of these species relevant to the spread of the virus. It should involve count data as well as analysis of ringing recoveries, having regard to local, regional and European scale movements. It should also include an overview of mortality data for these species as a basis for evaluations in relation to the potential impact of avian influenza on their survival at local, regional and population scales.

### ***C. Identification of high risk bird species acting as "bridge species" between wild birds and poultry or/and humans***

Whereas the outbreaks of HPAI H5N1 in Europe had been largely confined to waterbirds, there were concerns that the virus might spread to other groups of birds that are more widespread and less dependant on wetland habitats, including species that come into more regular contact with poultry and humans. These so-called 'bridge species' involve both migratory and non-migratory species.

The identification of bridge species should take account of the situation in each of the EU Member States. In addition, the criteria for identifying 'bridge species' would need to be further elaborated and should include the following:

- ecology and (social) behaviour of different species
- patterns of movements and distribution
- information on virological aspects (occurrence of LPAI and HPAI)
- behaviour of species which increases the risk of coming into close contact with "higher risk species", poultry farms and/or people.

### ***D. Web based presentation of ornithological information on higher risk species and areas***

There was a need for effective communication of the ornithological information relevant to avian influenza arising from the analyses carried out by Wetlands International and EURING within the framework of contracts for DG ENV.

This should involve the further development of a web-based application for presentation of updated information and analysis from the first assessment report, both with regard to the higher risk species as well as to key sites along migratory routes. Such a web based application should aim to help identify the connectivity between areas with high concentration on high risk migratory bird species, thus contributing to an early warning system.