



**Convention on the
Conservation of
Migratory Species of
Wild Animals**



**Agreement on the
Conservation of
African-Eurasian
Migratory
Waterbirds
(AEWA)**



Scientific Seminar on Avian Influenza, the Environment and Migratory Birds

**UNEP HQ, Gigiri, Nairobi, Kenya
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Conclusions and Recommendations

Short Version

MEETING GOAL

To address migratory bird populations and environmental aspects in the current Asian lineage Highly Pathogenic Avian Influenza (HPAI) virus subtype H5N1 epidemic.

BACKGROUND

Sound scientific information, including an understanding of the environment and migratory bird populations, is a necessity for understanding the HPAI H5N1 epidemic.

HPAI H5N1 is an avian virus. Humans and other mammals are currently aberrant hosts.

RECENT ADVANCES

H5N1 is considered to have been spread between countries by a number of different known vectors, including the movement of live poultry and its by-products, legal and illegal trade in birds, equipment associated with these respective industries, movement of people, and migrating waterbirds.

The current situation is unique in that the ecology and epidemiology of Asian lineage HPAI H5N1 differs from that observed for previous Avian Influenza Viruses (AIVs). In the present epidemic disease occurs in a wide range of species that include poultry, wild birds, humans and other mammals.

RECOMMENDATIONS

Surveillance and Early Warning System

Early detection is essential for the control or eradication of Asian lineage HPAI H5N1.

FAO, OIE, and WHO – Global Livestock Early Warning and Response System (GLEWS). It has the potential to be enhanced (and must be) to also track the spread of HPAI H5N1 in populations of wild birds. The integration of The Global Avian Influenza Network for Surveillance (GAINS) into this EWS is encouraged.

This system must be rapid, transparent, and have local, national and international levels.

Risk Assessment

All countries should undertake risk assessments which should be transparent, structured, science-based and make use of all available knowledge.

Research Needs

We need to increase research on various aspects of the epidemiology and ecology of H5N1 in wild bird populations and the environment. These include:

- 1. Prevalence of H5N1 in various wild bird populations.*
- 2. Analysis of existing ringing and monitoring data and implementation of targeted work to increase understanding of migratory systems.*
- 3. Ecology of virus in the environment.*
- 4. Natural mortality rates in wild bird populations.*
- 5. Wild bird susceptibility to H5N1 among high risk species.*
- 6. Effective measures to reduce spread of H5N1 between wild birds and poultry.*

Other Short and long Term Needs

We must collate data available on trade issues to fully understand the epidemiology of the disease.

The development of compensation policies for agricultural losses and for impacts on protected areas must be proactively established.

We need to effectively communicate with the media, and ultimately educate the public and policy makers using facts.

Interplay between the agriculture, animal (domestic and wildlife) health, human health, ecosystem health, and socio-cultural factors should be emphasized.

Maintaining and developing collaborative approaches to address the multiple and complex issues raised by the international spread of HPAI H5N1 will prove to be critical to long-term success.

Resources are required to strengthen and broaden the Scientific Task Force on Avian Influenza and Wild Birds to carry forward these recommendations.

Extended version

INTRODUCTION

In mid-2005, concerns about the role of migratory birds as potential vectors of the Asian lineage Highly Pathogenic Avian Influenza (HPAI) virus subtype H5N1, which was spreading north-westwards from its origins in East and South-east Asia, led the UNEP Convention on Migratory Species (CMS) to establish a Scientific Task Force on Avian Influenza and Wild Birds. The Scientific Task Force on Avian Influenza, which was established in August 2005, now comprises 13 members and observers, including UN bodies, wildlife treaties and specialist non-governmental organisations and institutions. The Task Force aims to obtain the best scientific advice on the conservation impact of the spread of HPAI H5N1, assessing the role of migratory birds as vectors of the virus, and issuing advice on the root causes of the epidemic as well as technically sound measures to combat it and develop early warning expertise.

Largely as a result of the Task Force's work, successive Conferences of the Parties (COPs) to the African-Eurasian Waterbird Agreement, the Ramsar Convention on wetlands and CMS, held between October-November 2005, passed detailed Resolutions on avian influenza. More recently the Convention on Biological Diversity held a brainstorming meeting on the impacts of avian influenza on

wildlife in Brazil in March 2006 prior to its eighth Conference of the Parties, which subsequently adopted a decision on the subject.

The Seminar on Avian Influenza, Wild Birds and the Environment has been convened by CMS, AEWA and UNEP in April 2006 in Nairobi, Kenya, with the main purpose of identifying follow up actions and make recommendations for the practical implementation of the provisions of the above-mentioned Resolutions. It has also reviewed the latest scientific studies concerning the evolution and spread of Asian lineage HPAI H5N1, its impacts on wild birds and the wider environment. The seminar discussed issues related to the risk of further transmission and to effective risk mitigation strategies.

The Seminar recalled the conclusions of the Contracting Parties to the African-Eurasian Waterbird Agreement (AEWA)¹, the Ramsar Convention on wetlands², and the Convention on Migratory Species (CMS)³ that Highly Pathogenic Avian Influenza (HPAI) H5N1 is considered to have been spread between countries by a number of different known vectors, including the movement of live poultry and its by-products, legal and illegal trade in wild or captive birds, movement of people, and migrating waterbirds. The relative significance of these different modes of spread has varied and evidence of causal links is weak or lacking in many cases.

The Seminar considered that this statement still accurately reflects the current situation, noting also that recent events have highlighted situations where more than one vector can combine to spread HPAI.

The current situation is unique in that the ecology and epidemiology of Asian lineage HPAI H5N1 differs from that observed for previous Avian Influenza Viruses (AIVs) and has now caused disease in a wide range of species, not only of birds but also of mammals.

Recent events have highlighted the significant impacts the spread of this virus has had on livelihoods of rural populations, with negative consequences both for food security and economies especially in developing countries.

Overall the establishment and maintenance of high standards of poultry biosecurity remains central to the reduction of risk of infection of poultry by HPAI H5N1. It is important that national veterinary services are upgraded to OIE standards.

SURVEILLANCE, EARLY WARNING AND RISK ASSESSMENTS

Early detection is essential for the control or eradication of Asian lineage HPAI H5N1.

In response to the spread of HPAI H5N1, the responses of the Food and Agriculture Organisation (FAO), the World Organisation for Animal Health (OIE) and the World Health Organisation (WHO), have been considerable, notably through the publication in May 2005 of a *Global Strategy for the Progressive Control of Highly Pathogenic Avian Influenza*, and its implementation, *inter alia*, through regional programmes of *Emergency Assistance for Early Detection and Prevention of Avian Influenza*. FAO, OIE and WHO have developed an integrated early warning system (Global Livestock Early Warning and Response System to Major Transboundary Diseases - GLEWS) which includes already available information from both official and unofficial sources. It has the potential to be enhanced more comprehensively to track the spread of HPAI H5N1 in populations of wild birds. It is clearly crucial to build on existing activities to more fully consider disease surveillance in

¹ AEWA MoP3: Resolution 3.18. Avian Influenza. Dakar, Senegal. http://www.unep-aewa.org/meetings/en/mop/mop3_docs/final_resolutions_pdf/res3_18_avian_influenza.pdf

² Ramsar CoP9: Resolution IX.23. Highly pathogenic avian influenza and its consequences for wetland and waterbird conservation and wise use. Kampala, Uganda. http://www.ramsar.org/res/key_res_ix_23_e.pdf

³ CMS CoP8: Resolution 8.27. Migratory species and highly pathogenic avian influenza. Nairobi, Kenya. http://www.cms.int/bodies/COP/cop8/documents/proceedings/pdf/eng/CP8Res_8_27_Avian_Influenza_eng.pdf

wild bird populations, since adequate surveillance for HPAI H5N1 in populations of both wild bird and poultry, and the rapid reporting of infection, remains central to international and national control strategies.

Surveillance programmes, operating at various scales, should be developed as a matter of priority through building upon and enhancing existing activities. They should always have clearly defined objectives and their development should incorporate the results of risk assessments that have established likely species at higher risk of carrying HPAI H5N1, as well as the best strategic design (optimal selection of sampling sites) and methods of sampling these species. If infection rates in wild bird populations are low, then surveillance will need to be carefully targeted with adequate sample sizes (and locations) so as to ensure adequate detection sensitivity. National programmes of surveillance should be planned jointly by ornithologists working together with veterinary experts.

Given that national results are of high relevance in the wider international context it is important that reporting of results is rapid, very much more rapid than at present - with rapid sharing of data between countries and collaborating organisations.

The development of global early warning systems (EWS), which incorporate the results of national and international surveillance programmes should have the following attributes:

- be web-based so as to allow the rapid dissemination of open-access data and information deriving from surveillance systems;
- should allow for integration of surveillance results with geographical and other data sets so as to facilitate integrated responses and risk management;
- should fully report associated meta-data that would allow full analysis and interpretation of results in order to decide on accurate response (*inter alia*, information on type of surveillance (active or passive) and locations of sampling locations); and
- facilitate the timely and effective management of risks identified as a result of early warning. This implies clear warning triggers and targeted reporting.

The development of the Global Avian Influenza Network for Surveillance (GAINS) as an international initiative (and NEWFLUBIRD in western Eurasia and Africa as a possible regional component of GAINS) clearly would fully incorporate these requirements and their development should be encouraged.

There is a need for developing and implementing more comprehensive and integrated surveillance and early warning systems for avian influenza. Current EWS address specific aspects of AI be that the epidemiological, human, wildlife or ecological aspects of the disease. More comprehensive EWS would also serve as a reliable base for risk assessments. In this regard, it was noted that the mandate of UNEP's Division for Early Warning and Assessment suggests that it might productively contribute to the development and implementation of comprehensive early warning systems, in particular for the incorporation of environmental data and information, linking environmental aspects to risk assessments, and promoting institutional and technical related capacity building for monitoring and early warning-particularly in developing countries.

Support for the implementation of effective EWS is even more necessary in developing countries given the lack of resources, both human and financial, that might be available for such purpose.

In addition to the international level reporting of HPAI (*i.e.* of notifiable diseases to OIE), there is an imperative to ensure that both active and passive surveillance and reporting, at the local level is standardised, efficient, transparent and appropriate to the local needs. The National and Regional hubs to co-ordinate this need should be identified *e.g.* African and European Unions and Regional Economic Groupings - *e.g.* COMESA in Africa and ASEAN in Southeast Asia.

There are surveillance systems that have been developed to rapidly gather disease information and ensure rapid response. An example is ARIS (Animal Resources Information System) in Africa - a flexible country surveillance reporting system through African Union-Inter-African Bureau of

Animal Resources, which provides capacity for automatic reporting to OIE to avoid duplication of effort.

Participatory international initiatives should ensure coordination with regional and national existing monitoring and early warning processes and systems to increase the reliability of warnings and follow-up response actions.

We envisage that the proposed integrated and comprehensive surveillance and early warning systems should have a scientific base to avoid the use of *ad hoc* or anecdotal reporting systems which cannot be objectively assessed or interpreted.

Risk assessments

All countries should undertake risk assessments which should be transparent, structured, science-based and make use of all available knowledge. The communication of web-links to national or other assessments via a single clearing house mechanism would be helpful.

There is a general need to strengthening HPAI field surveillance in wild birds and especially in developing countries. To this end the further building of national capacity to develop and implement field programmes for AIV surveillance would be assisted through the development of training courses and relevant capacity building, especially involving international collaborations with existing centres of expertise. The programme of Technical Co-operation Programmes on avian influenza and wild bird surveillance in Africa, Middle East and Central Europe initiated by FAO has been an extremely helpful response, and the Seminar encourages FAO to further develop and co-ordinate wildlife surveillance activities for AI and funding of this crucial activity, including expanding capacity development into Asia.

Similarly, there is an important need to develop the capacity of veterinary services world wide to aid field responses to outbreaks. The need to enhance the capacity of human health services, especially in developing countries, in anticipation of an avian influenza pandemic was noted, whilst recalling that human health aspects lie outside the mandate of the Scientific Task Force on Avian Influenza and Wild Birds.

Maximum information should be routinely gathered from each outbreak of HPAI H5N1 in both wild and domestic birds on the ecological and epidemiological aspects so as to enhance epidemiological understanding. This would be facilitated by including ecological expertise in the early response missions so as to collect a broad range of contextual information such as species present. To this end, there is an immediate need for surveillance for AIVs in the vicinity of past and current HPAI outbreaks so as to establish actual infection levels in wild birds using these areas. This will build understanding of the ecology of the virus.

Data and information needs

Best practice guidance on the practicalities of how to plan and undertake AIV field surveillance is urgently needed, and should be translated and widely disseminated.

Better, contemporary and international analysis of existing waterbird ringing and count data is needed so as to synthesis summary information on the routes and timing of waterbird migration systems, especially of poorly known intra-African migrants, Asia-Pacific and Neotropical flyways. The results of these studies and other relevant data should be made more readily available through the production of flyway atlases, ideally published on the internet so as to enhance the accessibility of this information.

Targeted international ringing, colour-ringing and satellite telemetry programmes for selection of waterbird species likely to be at higher risk of carrying HPAI H5N1 so as to improve the scope of relevant dataset would be valuable.

Regional waterbird conservation initiatives have the potential to valuably stimulate better co-ordinated studies of migratory waterbirds in flyways and regions where information on bird movements is relatively poor. For example, activities of the Asia-Pacific Migratory Waterbird Conservation Strategy in establishing a specific Working Group on Migratory Waterbirds and AI have potential to further develop the collection of data and information from Asian-Pacific flyways.

The international collation of waterbird count data by the International Waterbird Census in seasons other than January would valuably enhance international capacity to analyse waterbird movements and flyway systems and allow for gathering or mortality information at additional periods of the year.

The collection and reporting of information on, and samples from, birds (both wild and domestic) should always be referable to at least species level. Latin names derived from a defined taxonomic reference should always be used in the reporting of data. For waterbirds, taxonomy and population identification should follow Wetlands International's *Waterbird Population Estimates*. Photographs should routinely be taken which can then subsequently identified or reconfirmed by specialists. Teams capturing wild birds for AIV sampling should include both veterinarians and ornithologists capable of identifying the species caught.

As an important component of the development of risk assessments there is a need for better consolidated information on national and international trade in poultry and poultry products. Efforts should be made to obtain accurate data on the volume of such trade from the poultry industry. Similarly information on the volume of international trade in wild birds should be sought from the Convention on International Trade in Endangered Species (CITES), TRAFFIC, and other relevant sources of data and information.

Research requirements

The establishment of national programmes to establish baselines and monitor trends in natural mortality levels in waterbirds would better allow the identification of unusually high mortality.

The establishment of long-term surveillance programmes for AIVs at strategically important 'mixing' (and/or staging areas) on flyways is a strategic priority.

PRIORITY SHORT TERM NEEDS

The effective containment of HPAI H5N1 outbreaks depends critically on rapid reporting and control measures. Experience has shown that reporting can be significantly encouraged through the establishment of compensation mechanisms to defray the extent of economic losses resulting from control programmes, especially in developing countries. However, although desirable, payment of compensation can raise complex issues. Seminar participants recognised and acknowledged the importance of this issue and further encouraged the activities of FAO to facilitate the development of national compensation policies, where their application may be useful and appropriate.

Wetland protected areas play a vital role in bird and biodiversity conservation, as well as public education and environmental communication. When these areas depend on visitor revenue, their long-term future can be severely compromised by either unnecessary closure as a result of H5N1 concerns, or reduced visitor numbers due to public misconceptions.

The Seminar urged governments to:

- avoid prescribing closure of wetland protected area except where absolutely necessitated by a continuing H5N1 outbreak. Wholesale reserve closure serves very limited disease control and is highly detrimental to conservation;
- communicate to the public that it continues to be entirely safe to visit wetland protected areas, in the absence of an H5N1 outbreak at the site; and

- work with site management and veterinary authorities to ensure regular and effective site monitoring, to ensure rapid detection of any potential H5N1 outbreak.

Data and information needs

There is need for international synthesis of information concerning migration phenology for example which species arrive in which country in which month? Whilst there is much (scattered) national information this has never been collated internationally other than for a few species. This has policy relevance in terms of identifying high risk periods.

Research requirements

There is an urgent need for research on the behaviour and ecology of migratory and non-migratory species living in close association with man and which might thus provide a 'bridge' for the transmission of HPAI from waterbirds to poultry. Such research should aim to developing practical guidance on ways and means of reducing this risk.

Field studies are needed to clarify exposure pathways to develop practical guidance on effective means of reducing transmission between wild waterbirds and domestic poultry and thus enhancing biosecurity - especially suitable for use in developing countries (for example in village poultry situations).

Communication, education and awareness of public and policy-makers

In 2005, Contracting Parties to the African-Eurasian Waterbird Agreement, the Ramsar Convention on wetlands, and the Convention on Migratory Species noted that there was no justification for killing birds as a supposed control measure for HPAI and strongly supported *"the recommendations of WHO, FAO and OIE that attempts to eliminate HPAI in wild bird populations through lethal responses such as culling is not feasible and should not be attempted, not least since it may exacerbate the problem by causing further dispersion of infected birds."*

Further, Contracting Parties to the Ramsar Convention emphasised *"that destruction or substantive modification of wetland habitats with the objective of reducing contact between domesticated and wild birds does not amount to wise use as urged by Article 3.1 of the Convention, and also may exacerbate the problem by causing further dispersion of infected birds."*

The Seminar was especially concerned to hear that some countries have adopted policies to control wild birds, and noted that there is not a single example of a disease of both livestock and wildlife being controlled successfully by the killing of wildlife in an attempt to eradicate disease reservoirs.

Organisations represented on the Scientific Task Force on Avian Influenza and Wild Birds are asked, as a matter of urgency, to work with the countries concerned to develop awareness that policies of wild bird control or wetland habitat destruction are likely to be ineffective and may exacerbate the situation by spreading HPAI H5N1.

The spread of HPAI H5N1 is of public concern, yet there remains widespread public misunderstanding of the issue in many countries, including circulation of misinformation. This creates political pressure for ill-advised and disproportionate policies such as the culling of wild birds and the destruction of wetland habitats. Conservation organisations scientists and veterinary services should actively work with media to enhance the accuracy of reporting on this issue. This should include the development of much more effective communication strategies to give policy makers, stakeholders and the general public more balanced information on real levels of risk and appropriate responses.

The current situation gives an important opportunity to communicate important messages regarding sustainable development, especially with respect to the interface of agriculture, human health, wildlife health, ecosystem health and sociology.

As a matter of urgency, it would be valuable to collate best advice and develop guidelines on potential responses to be undertaken in the event of HPAI H5N1 detection in wild birds for use by land managers and veterinary services. This might usefully be disseminated via a web-based clearing house mechanism.

LONGER TERM NEEDS

It is a priority to build programmes of sustainable financial and other support for the range of short-term programmes that have or will be developed in response to the spread of HPAI H5N1.

The degradation of the health of ecosystems as documented by the Millennium Ecosystem Assessment and a review presented to the Seminar, and especially in the decline in extent and condition of wetlands, has had a role in the evolution and spread of HPAI H5N1. It has created the conditions where there is closer contact and mixing between people, domestic poultry (including ducks), and wild waterbirds. This encourages cross-infection with the potential of causing genetic changes which may result in higher viral pathogenicity. Reducing the opportunities for such contacts through preventing further loss of wetlands, improving mechanisms for the maintenance and wise use of wetlands is an important long-term requirement. To this end it would be valuable to develop and disseminate practical guidance, *inter alia* in collaboration with the Ramsar Convention. It would also be desirable in collaboration with FAO to develop and disseminate practical guidance in restructuring agricultural production systems with the goal of reducing stress on the environment and risks to human health. Agro-ecosystem health is viewed as a key to sustainable human health and well-being.

Data and information needs

Better information is needed on those cultural practices that have the potential to either help or hinder the control of HPAI H5N1 and the potential to modify inherently risky behaviour by humans.

COLLABORATION AND CO-OPERATION

Maintaining and developing collaborative approaches to addressing the multiple and complex issues raised by the international spread of HPAI H5N1 will prove to be critical to long-term success. To affect successful solutions, collaborative partnerships will need to be fully integrated involving the range of necessary ornithological, wildlife, and wetland management expertise together with those traditionally responsible for public health and zoonoses, including veterinary, agricultural, virological, epidemiological, and medical expertise. Partnerships are needed at multiple scales, including international, national and local (the latter especially in the context of responses to HPAI H5N1 outbreaks).

The continued close working and collaboration of the organisations and international agencies represented on the Scientific Task Force on Avian Influenza remains essential.

Data and information needs

There is a need for better integration of existing data on trade in poultry and other birds in the context of epidemiological modelling at various scales.

The establishment of a web-based clearing-house mechanism which would provide a single source of information on the spread of HPAI H5N1, including surveillance results, is urgently needed.

NEXT STEPS

The Seminar asked the Scientific Task Force on Avian Influenza, as a matter of urgency, to promote the implementation of these conclusions and recommendations both within participating organisations and agencies, and with others as necessary and appropriate.

The seminar asked CMS to review the Terms of Reference, membership and name of the Scientific Task Force on Avian Influenza and consider future priorities for the activity of this liaison group. The review should consider also potential co-operation with other organisations that might support the activities of the Task Force.

In order to maintain a professional approach by the Scientific Task Force, additional resources are urgently needed. As a minimum, the Task Force should aim to appoint a full-time Task Force co-ordinator for an initial period of 12 months. Task Force members and observers, other Seminar participants and Governments are invited to provide funding or in-kind support for this, and, if possible, further resources in support of Task Force activities beyond the minimum level.

A review of the work of the Scientific Task Force on Avian Influenza, including a summary of these conclusions and recommendations should be transmitted to the UN Special Co-ordinator for Avian Influenza.

11 April 2006