

New Flubird Database
- Platform for Data Exchange and Knowledge Building in Avian Influenza Surveillance -

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To tackle shortcomings in the current understanding of the epidemiology of avian influenza viruses in migratory wild birds, a network of virologists, ornithologists and epidemiologists was established, built on related initiatives and cooperations. Apart from enhancing possibilities of method standardization and sharing of data and expert knowledge, this large-scale cooperation forms the backbone of a targeted surveillance system, with tasks distributed among the partners according to their respective expertise.

As a central instrument for this purpose, a database system was developed to store, manage and analyse data from the different disciplines, as well as additional environmental data. A flexible user management system was implemented, allowing data access rights to be configured independently for different users, and different data types, respectively. Interaction by project participants is possible via a secured internet connection and a web interface, which provides the different tools and modules for data processing.

Emphasis is placed on the integrative process of combining the interdisciplinary data for analysis, which is realized on different levels. Interactive software modules allow for the creation of database queries, targeting parameters shared by the different types of data. The resulting subsets of interest can be ordered, stratified and visualized in form of tables and diagrams, as well as in thematic maps created by means of a linked map server.

Explorative data analysis including spatial effects was deployed to search the data pool continuously for patterns and trends that could allow for a better comprehension of the disease's ecology. Because of the different spatial scales and sources of the geographical database the combination of virological, ornithological and environmental data generates challenges regarding geographical and statistical analysis.

In close cooperation with partner institutes, insights from other workpackages and expert opinions will be used to parameterize epidemiological models, suited to enhance the predictability of the occurrence of defined sub- and patho-types on the basis of the continuously updated datasets. Examples for candidates are results from experimental infection studies, performed to elucidate the role of selected waterbird species as long-distance carriers, as well as observational and ecological information with reference to the potential ability of different bird species to spread avian influenza viruses, gathered by ornithological and ecological partners.

To prepare the exchange of data and information with related initiatives, as for example the wild-bird monitoring in the European Union or the Global Avian Influenza Network for Surveillance (GAINS) of the World Conservation Society (WCS), data structures and coding systems were implemented and designed to preserve compatibility.