

# Shorebirds and avian influenza viruses

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Very little is known about the viruses circulating within and between shorebird species. The Southeastern Cooperative Wildlife Disease Study (SCWDS) at the College of Veterinary Medicine, University of Georgia, USA, is currently investigating the prevalence of avian influenza viruses (AIV) in those shorebirds that migrate across the eastern half of the United States.

AIV have been found in more than 90 species of wild birds but do not appear to cause noticeable disease or mortality. Unlike the human form, AIV occurs in the digestive system of birds and is spread via faeces. AIV has the potential to mutate and cross species lines potentially infecting other animals such as swine, horses, and domestic poultry. Virus eradication efforts on swine and poultry farms are costly, and no continent (except Antarctica) has been spared the expense of cleaning up after an outbreak.

Until recently, it was generally believed that humans could be infected with influenza of avian origin only after the virus had undergone numerous mutations through another host, such as swine. However, scientists are alarmed by the recent direct transmission of AIV from domestic birds to humans. The first recognized case occurred in Hong Kong in 1997 when 6 out of 18 people known to have been infected died from an influenza infection transmitted directly from domestic poultry to humans. In addition, there have been numerous accounts of genetic exchange between viruses normally restricted to either birds or mammals. During the last 30 years, most avian influenza research has focused on the Anseriformes. The limited data on AIV in Charadriiformes suggest that influenza infections in shorebirds differ seasonally and genetically. For instance, prevalence rates in waterfowl are highest in the Northern Hemisphere in autumn whereas in shorebirds they appear to be highest in spring.

Our research attempts to understand the epidemiology of AIV in shorebirds migrating across the eastern half of the United States. Because of domestic animal and public health concerns, it is important to determine how the virus is transmitted and maintained in shorebirds in relation to species, time, and location. Beginning in April 2000, we collected cloacal swabs from shorebirds cannon-netted or mist-netted

by several collaborators. The major part of our sampling ended in September 2001. Over 3,000 shorebirds have been sampled during spring and autumn migration from over 10 locations in the United States. Additionally, we sampled shorebirds wintering at one location in Argentina.

We test each sample by inoculating specific pathogen-free eggs with a small amount of medium in which each cloacal swab was collected. If the virus is present, it will proliferate in the eggs over the course of 72 hours. Viruses are initially detected as a result of their ability to haemagglutinate (bind with) red blood cells. Further classification, or sub-typing, of the virus is performed serologically to determine the specific surface proteins called haemagglutinin and neuraminidase. The genetics of these viruses are studied more intensively by the Southeast Poultry Research Laboratory, Agricultural Research Service, US Department of Agriculture, to determine potential pathogenicity in other animals and their relationship with other known avian and mammalian influenza viruses.

One of our primary interests at SCWDS is investigating the prevalence of infection and viral sub-type diversity among species and locations. For instance, is there a sub-type difference between species? Are some sub-types more frequently isolated at a particular location? Answers to these questions may help us understand whether such differences relate to species, migration patterns, habitat preferences, or other factors. It is hoped that a better understanding of the risk associated with these viruses will benefit shorebird conservation efforts, as well as public and domestic animal health alike.

Our research would not be possible without the generous cooperation of the following: British Trust for Ornithology; DNREC: Delaware Coastal Programs; New Jersey Division of Fish and Wildlife; Manomet Center for Conservation Sciences; Royal Ontario Museum; Fundación Inalafquen; Texas Parks and Wildlife, New Jersey Audubon Society; University of Massachusetts Boston; Arkansas and Lacassine National Wildlife Refuges; North Carolina State University; National Museum of Natural History, Smithsonian Institution; and the Arkansas Cooperative Fish & Wildlife Research Unit, University of Arkansas.

## Errata

As a result of a computer software error, certain mathematical symbols did not print correctly in the August 2001 issue of the *Bulletin*, Volume 95. We apologise to the authors whose work was affected. Details are as follows:

□ **Page 19:** WSG Virginia Conference, Abstracts of Posters, in the abstracts of both posters by A.J. Lesterhuis & R.P. Clay, the “≥” symbol (equal to or greater than) was replaced by “⊕” (in the second paragraph of the first poster and in the last paragraph of the second poster).

□ **Page 46:** in the paper by Bernard Deceuninck on *Breed-*

*ing waders in France: populations, trends and distributions: 1984–1996*, the “≥” symbol (equal to or greater than) was replaced by “⊕” once in the left column and four times in the right column. Also, in the first paragraph of the right column, an equation in parentheses which should have read “ $(T_1 \neq 0)$ ” was replaced in three places by “ $(T_1 | 0)$ ”.

□ **Page 66:** in the STUDY AREA AND METHODS section of the paper by C.J. Henty on *Wader migration in Corfu, southern Adriatic, May 1998*, “x 30 telescope” was replaced by “∞ 30 telescope”.



# Annual conference of the International Wader Study Group, Kollumerpomp, The Netherlands, 31 August–2 September 2001

The 2001 WSG annual conference was held in the delightful surroundings of the YMCA Centre “Kollumeroord” near Kollumerpomp, The Netherlands. All who took part are grateful to Meinte Engelmoer and his team of helpers as well as the Centre staff for all they did to make it such a successful and enjoyable weekend.

- Gerrit Krottje produced drawings for the badges and programme.
- Tom van der Have and Eddy Wymenga organised the programme for the “Workshop on Farmland Waders”.
- Arrivals by train were collected by Klaas van der Bij, Jaap Feddema, Henk Hiemstra and Sjouke Kazimier.
- Teckla Sierks, Esther Timmerman, Brechtje Veenstra and Amarins Veenstra attended the reception desk; Martin de Jong and Nils Anthes were in charge of projection equipment and schedules.
- Harry Blijleven, Grietien Fortuin, Joop Hellinga, Henk Hiemstra, Gerrit Krottje, Robert Kuipers, Erik Schotthorst, Jaap Veenstra and Jan Willems guided the excursions.
- Eiso Beukema, Age Bruining, Acronius Bijlsma, Elmer Grozeler, Wijnand Hulst, Erna Kiers, Albertha van der Meer, Christiaan Veenstra, Heidi Veenstra, Pieter Wagenmakers and Audrey van der Werf of the Centre “Kollumeroord” did much to make our stay comfortable and enjoyable.
- Financial support was provided by the provinces of Groningen and Fryslân, the provincial landscapes of Fryslân (It Fryske Gea) and Groningen (Het Groninger Landschap), the National Forest Service (Staatsbosbeheer), the Dutch Society for the Conservation of Nature in the Netherlands (Natuurmonumenten), the Dutch Society for the Preservation of the Wadden Sea (Waddervereniging) through Fiene de Vreese and Anky Woudstra and the Dutch Centre for Field Ornithology (SOVON).
- In overall charge was the organising committee: Johan Taal (bookings, reception), Jaap Veenstra (money), Titia Zijlstra (transport, signs, reception desk), Grietien Fortuin (excursions, posters, badges) and Meinte Engelmoer (coordination).

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## A personal account of the Kollumerpomp conference

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In spring 2001, I was in Nome, Alaska trying to locate radio-tagged Pacific Golden-Plovers when the decision “let’s go to Kollumerpomp” was made. My wife, Patricia, on the phone from Montana, was excited about returning to The Netherlands after nearly 25 years since our last visit. Following the long flight and a few days in and around Amsterdam, we travelled on Thursday by train (the on-time, efficient train service in Holland is impressive) to Fyslân and our first Wader Study Group meeting. We were warmly welcomed upon arrival in Buitenpost, and the same spirit of friendship and hospitality pervaded the entire conference.

Discussions about waders began in the shuttle-car en route to the Conference Center, and continued, interspersed with topics ranging from politics to personal reflections on home and family, for the next four days. Assembled at the Center (in a quiet and charming rural setting), we found an outstanding “flock” of wader-folk from many parts of the world. Unfortunately, the US was under-represented as there were only four Americans in attendance. It was a great pleasure to make a number of new acquaintances, and also to finally shake hands with colleagues we had known previously only through correspondence.

We were glad to have arrived a day early in time for an unexpected treat Thursday evening when Chris Schenk showed marvellous transparencies of waders and other sub-

jects taken during his visits to the Siberian tundra. Adding to the enjoyment that night, Pavel Tomkovich shared slides and commentary about his experiences in Alaska this past summer.

Formal sessions began on Friday and were as geographically wide-ranging as many of the birds themselves; e.g., Taimyr, Churchill, Paraguay, Australia, Hawaii, South Africa. We heard interesting papers on a diverse array of topics including population trends, foraging ecology, timing of migration, functions of preen gland waxes, and moult. Being “*Pluvialis* people”, we especially enjoyed a number of reports featuring Eurasian and American Golden-Plovers. We were honored to be among those presented (by Theunis Piersma) with a complimentary copy of the lovely new book “*Goudplevieren en wilsterflappers: eeuwenoude fascinatie voor trekvogels*” (Golden plovers and wilsternettors: a deeply rooted fascination with migrating birds) written by Joop Jukema *et al.* Wader biologists will want to examine this impressive work closely, it is an important addition to shorebird literature. Along with many of the conference participants, we watched a demonstration of the “wilsternet” in a nearby meadow. Clearly, this centuries-old device to capture waders has potential application in contemporary studies. Notably, Ingrid Tulp and Hans Schekkerman reported data from the Taimyr acquired by “wilsternetting”, and the technique is used extensively in The Netherlands for ringing of Eurasian Golden Plovers and other species.

Mother Nature favored us with clement weather for field trips and the picnic on Saturday afternoon. Of three trip-options, we elected to see the Groningen North coast and the Lauwersmeer. It was an enjoyable excursion (we appreciated

