

1st WWT FAO CIRAD Wetlands International Wild Bird Avian Influenza Surveillance Training Course

held at WWT Slimbridge 19th-23rd February 2007



Report to
Food and Agriculture Organisation of the United Nations,
CIRAD and Wetlands International

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1. SUMMARY

There is a clear need for national wild bird avian influenza surveillance programmes. The Wildfowl & Wetlands Trust has a history of wildfowl monitoring, ringing and health screening and is hence well placed to provide training to others in these prerequisite skills. Consequently, FAO (via CIRAD and Wetlands International) funded WWT to run a one week training course. This 1st WWT FAO CIRAD Wetlands International Wild Bird Avian Influenza Surveillance Training Course was held at WWT Slimbridge Centre from 19th to 23rd February 2007.

The aim of the course was to facilitate the development of national wild bird avian influenza surveillance programmes by providing training for international delegates in waterbird capture and marking, and sample collection, storage and transport.

The course was attended by 23 delegates from 15 countries including four delegates from the coordinating and funding organisations i.e. FAO, CIRAD and Wetlands International. The 19 trainees were from Mali, Mauritania (two delegates), Niger, Nigeria (two delegates), Sudan, Kenya, Malawi, South Africa, Turkey (two delegates), Ukraine (two delegates), India and Mongolia (four delegates).

The course comprised of lectures, practical demonstrations, and presentations from the delegates to provide international context. Electronic copies of all presentations plus other important references, manuals and information were sent to delegates after the course. It should be noted that a one week course does not qualify participants to be competent bird trappers and markers.

Overall the course was deemed to be successful and fulfilled its aim and objectives. The international avian influenza and conservation context brought by the delegates from the coordinating and funding organisations was highlighted as integral to the success of the course.

Future needs of counties were identified and include further capacity building, access to equipment for trapping birds, better communication, coordination and funding for surveillance programmes. Continued training and in-country support is recommended.

Some logistical aspects require attention for future courses e.g. provision of translation facilities. Also ideally future courses would be held earlier in the autumn/winter to maximise potential for catching wild birds.

2. BACKGROUND

Following the significant outbreak of highly pathogenic avian influenza H5N1 in wild birds at Lake Qinghai, China, in spring of 2005 there has been particular concern about the role of wild birds in the epidemiology of the disease and, in particular, long distance transmission of the virus in migratory birds. The need for national wild bird avian influenza surveillance programmes was clear, however, many countries have neither the expertise nor the infrastructure to conduct such logistically complex work.

The Wildfowl & Wetlands Trust (WWT) has been coordinating and implementing a wildfowl (Family Anatidae: ducks, geese and swans) ringing programme in the UK for over 50 years, and has extensive experience in the methods used to capture and mark wildfowl. In conjunction with this, WWT also has considerable experience of conducting wildlife health research, as part of its long-term waterbird monitoring programmes. More recently, WWT has played a key role in the development and implementation of the UK wild bird avian influenza screening programme since its inception in autumn 2005. This expertise has also been used during 2006 and 2007 to support wild bird avian influenza surveillance programmes in Kenya, Tunisia and Iceland. However, the demand for this expertise means it is not possible to provide *in situ* assistance with the development of national screening programmes in all countries where this is required.

In recognition of this and the waterbird capture, marking and health screening expertise of WWT, the Food and Agriculture Organisation of the United Nations contracted WWT (via CIRAD and Wetlands International) to provide capacity building training courses.

3. THE COURSE(S)

Originally, in early 2006, courses were planned to take place earlier in the autumn/winter when it would be expected to catch large numbers of birds. These were delayed for various organisational reasons until February 2007. Two one week courses were planned to be held at WWT Slimbridge, Gloucestershire, UK, in February and March 2007. The first course was to be attended in the main by delegates from Africa and the second to be attended in the main by delegates from eastern Europe and central Asia. Unfortunately the latter course was necessarily postponed until later in the year due to logistical and organisational problems.

The first of the two proposed courses for 2007 took place at WWT Slimbridge from 19th – 23rd February.

The aim of the course was:

- To facilitate the development of national wild bird avian influenza surveillance programmes by providing training for international delegates in waterbird capture and marking, and sample collection, storage and transport.

The objectives of the training course were:

- To instruct course participants in methods of waterbird capture and marking, and sample collection, storage and transport.
- To undertake practical waterbird capture and marking sessions, including use of traps, swan pipes, and cannon nets, and undertake practical sample collection sessions.
- To instruct and demonstrate principles and practicalities of personal health and safety.
- To instruct and demonstrate practicalities of animal welfare.
- To ensure skills are transferred as successfully as possible through follow-up liaison and continued provision of advice.

It was made clear from the beginning of the course that a five day training programme demonstrating a wide range of catching techniques would not qualify delegates to competently catch and mark birds unsupervised. These are skills that need to be developed over a number of years, involving much practical work under expert supervision.

Delegates

The course was attended by 19 trainees from 12 countries namely Mali, Mauritania (two delegates), Niger, Nigeria (two delegates), Sudan, Kenya, Malawi, South Africa, Turkey (two delegates), Ukraine (two delegates), India and Mongolia (four delegates). There was a wide range of experience/skill level within the group, some being competent and highly experienced at bird trapping and ringing, others with little or no experience.

In addition to these trainees, the course was attended by four delegates from the coordinating and funding organisations namely: Dr. Scott Newman (FAO), Dr. Taej Mundkur and Dr. Ward Hagemeyer (Wetlands International), and Dr. Gilles Balança (CIRAD) i.e. in all 23 delegates from 15 countries participated.

The trainee from Chad did not receive his visa in time and thus did not attend the course. The proposed FAO delegate from Australia also did not attend.

Appendix 1 show names, positions and contact details of the delegates.

Accommodation

Most delegates stayed at the nearby, basic but inexpensive Youth Hostel (paid for by FAO).

Food

FAO provided a per diem to each delegate for food. Breakfast was provided at the accommodation, lunches were provided at WWT and evening meals were provided at WWT or the local public house on alternate nights. The last night party involved a meal at WWT and a traditional British ceilidh (Scottish barn dance).

Transport

FAO paid all transport costs directly to delegates.

Language

The pre-course information informed delegates that the course was taught in English with an expectation that delegates would be able to speak sufficient English to be able to participate.

Certificate of attendance

As a number of delegates requested a certificate of attendance, one was provided to all delegates at the final night party. The format of the certificate is shown in Appendix 2.

Course structure

The course comprised of formal lectures from WWT staff, practical and field sessions (some to catch birds, some merely to demonstrate techniques without catching birds) and lectures from external guest speakers namely Keith Hamilton (Veterinary Adviser, UK's government's Department of Environment, Food and Rural Affairs) and David Stroud (Senior Ornithological Adviser, UK's Joint Nature Conservation Committee).

Given that mornings are better for catching birds, this dictated the course format and thus most of the practical sessions took place in the mornings with more lectures in the afternoon. Although this is not an ideal format for learning, it was unavoidable in such a short five day course. Moreover, some of the techniques had to be demonstrated in the field before the formal lecture was presented. Delegates were made aware of this at the beginning of the course.

To gain experience of avian influenza surveillance in different situations and national contexts, delegates gave presentations about their own national surveillance programmes or other bird capture and marking experiences (in the timetable, Appendix 3, these are referred to as 'delegate presentations').

WWT teaching staff

Most of the WWT training was carried out by five WWT staff: Ruth Cromie, Richard Hearn, Nigel Jarrett, Dave Paynter and Robin Ward. Profiles of these staff are given in Appendix 4.

Course content

The main subjects taught were

- Trapping wildfowl using a variety of trapping methods*
- Principles of handling, crating and marking (including ringing) wildfowl
- Principles of ageing and sexing wildfowl
- Principles of animal welfare
- Collecting, storing and transporting avian influenza samples
- Human health and safety

*Trapping methods demonstrated were as follows: a variety of duck traps, traditional duck decoy using a dog, swan pipes, cannon nets, whoosh nets, mist nets, spring traps and round-ups of 'flightless/moulting' birds (using Mute Swans as an alternative given the time of year).

Appendix 3 shows the detailed timetable of the course.

During practical sessions all delegates witnessed how birds were trapped, thereafter, all delegates had the opportunity to handle, ring, age, sex and swab (cloacal, oropharyngeal and/or tracheal) birds and take biometric data. Blood samples were taken from some of the birds to demonstrate bleeding techniques.

Numbers and species of birds caught during the course

Captive ducks and geese were used for the first handling training session. Thereafter, wild birds were caught and processed.

In total, some 90 individual wild birds of 10 species (namely Bewick's Swan, Mute Swan, Greylag Goose, Canada Goose, Shelduck, Mallard, Teal, Pintail, Tufted Duck and Coot) were caught and processed by delegates. Future courses held earlier in the autumn or winter are likely to yield more birds.

Animal welfare

Throughout the course the importance of animal welfare was maintained as second only to human health and safety. It was stressed that as well as the ethical reasons for having good animal welfare standards, essential data e.g. that from ringing recoveries, are unreliable if birds have had their welfare compromised significantly.

Health and safety

Delegates were requested to sign a WWT risk assessment form at the beginning of the course (Appendix 5).

All delegates were provided with waterproof coveralls, rubber Wellington boots, nitrile gloves and a P3 face mask for all practical work.

Biosecurity

To reduce the potential for infection from delegates being transported via fomites to WWT Slimbridge, they wore the personal protective equipment provided whenever in contact with birds or their environs.

To reduce the potential for infection from WWT Slimbridge being transported via fomites back to delegates' home countries, all personal protective equipment was disinfected after use and was left at WWT Slimbridge.

Teaching resources

A double CD containing the following was sent to delegates after the course.

- Course and delegate information and feedback
- Presentations from teaching staff and guest lecturers
- Presentations from delegates
- Useful references and sources of information and equipment for catching birds
- FAO's wild bird avian influenza surveillance manual
- WWT's wildfowl catching manual
- Key avian influenza wild bird resolutions
- Videos of bird capture
- Photographic images taken during the course

Further country needs

At the end of the course delegates were asked to provide five needs of their country with respect to establishing and running wild bird avian influenza surveillance programmes. These needs can be broadly summarised as follows (with detailed needs per country in Appendix 6):

1. More surveillance needed
2. Greater access to catching/trapping equipment
3. Standardised methodologies in surveillance programmes
4. Greater capacity for rapid response
5. Increased capacity and knowledge for all participants in surveillance programmes
6. Increased communication and coordination between individuals and organisations involved in surveillance programmes
7. Wider public awareness and understanding
8. Funding of all aspects of programmes.

One of the course objectives was follow-up provision of advice to delegates however, to date, this has not been requested.

Feedback and course outcomes

The diversity of experience within the delegates meant that it was sometimes difficult to pitch the training correctly for both inexperienced and experienced bird catchers and handlers. However, overall the course appeared successful (and enjoyable!) with delegates thoroughly engaged and learning throughout.

A feedback session was held at the end of the course and a feedback form completed (Appendix 7).

Of the 12 delegates completing the appropriate section of the feedback form, 75% felt the course fully achieved its objectives, 25% that it partly met its objectives. Similarly, 67% of those delegates felt the course fully met their personal objectives, 33% that it partly met their objectives.

In terms of teaching method, the practical demonstrations were deemed most useful. Table 1 shows how delegates rated the three main teaching methods i.e. lectures, practical demonstrations and delegate presentations.

Table 1: Delegate perception of teaching methods employed

Teaching method	'Usefulness of teaching method' category		
	Very useful [no. of delegates]	Somewhat useful [no. of delegates]	Not useful [no. of delegates]
Lecture	69% [9]	31% [4]	0%
Practical demonstration	100% [12]	0%	0%
Delegate presentations	67% [8]	33% [4]	0%

Note totals are different as not all delegates completed all questions.

Delegates clearly learned most from the practical sessions and some were disappointed not to see cannon netting of live birds. Cannon netting was thoroughly demonstrated (theory with videos and practical) but cannons were not fired over birds. The decision to not attempt to catch birds with a cannon net was taken to avoid the great potential for wasting many days awaiting birds to enter the catch area, a common feature of cannon netting. Moreover, the firing of cannon nets generally cannot be observed by many people as it scares away the birds. Had the course been longer it may have been possible to demonstrate this more fully.

Issues arising

Involvement of FAO, CIRAD and Wetlands International staff

The involvement of staff from the coordinating and funding organisations (namely FAO, CIRAD and Wetlands International) was seen as integral to the success of the course for providing further international context and expertise in both avian influenza surveillance and ornithological monitoring.

Length of course

Some delegates felt the course needed to be longer to cover more subjects in greater depth. This would have created more time for practical and problem solving activities.

Timing of the course

Although 90 birds were caught during four days of bird catching, the lateness of the course in the winter (and the preceding mild weather) meant that this was relatively few. It is suggested that any future courses be held earlier in the autumn or winter when there are more birds and they are easier to catch.

Language

Although the course was taught in English there was a clear need for some translation into other languages. One of the Mongolian delegates provided adequate translation to her colleagues. Polyglot delegates provided some translation where necessary, to the French speaking delegates however, one would suspect that this was far from adequate and affected the learning potential for those delegates.

Per diem and food

As delegates were given (by FAO) a per diem for food, it became apparent that some delegates were saving the money and not attending the relatively expensive mealtimes at which much of the essential discussion and interaction took place. It is suggested that for any future courses, food is included in the 'cost of the course' to encourage full participation.

4. CONCLUSION

The one week course was deemed successful and on the whole achieved its objectives and hence its overall aim of facilitating development of national avian influenza surveillance programmes. The practical sessions were deemed the most valuable aspect of the course. Sharing the knowledge and expertise of the delegates and the personnel from the coordinating and funding organisations was seen as a vital part of the course. However the course was too short a training period to qualify participants to be competent bird catchers and markers. These are skills that need to be developed over a number of years, involving much practical work under expert supervision.

Future needs of countries have been identified and include further capacity building, access to materials and equipment for trapping birds, better communication, coordination and funding for surveillance programmes. Continued in-country support was identified as an important next step in most countries, although this has not yet been quantified or actioned.

Although 90 wild birds were caught and processed during the course, holding the course earlier in the autumn or winter would increase likelihood of catching even more thus giving more practical experience.

Some logistical aspects require attention for future courses e.g. provision of translation facilities.

5. RECOMMENDATIONS

Although the course provided an excellent introduction to the trapping and marking of birds it is not sufficient to qualify delegates to conduct this competently. Therefore, further training and/or continued in-country support are important next steps for this in most countries.

Access to materials and equipment for trapping birds needs to be improved.

Further funding, training and better coordination for wild bird avian influenza surveillance programmes were identified as pressing needs for most countries.

For future courses consideration needs to be given to:

- possibly increasing length of the training period (accepting that this often brings other logistical problems)
- running them earlier in the autumn/winter when it is likely that more birds would be caught
- providing translations facilities if necessary
- providing food costs within the cost of the course to encourage full participation at mealtimes rather than a per diem for food.

6. ACKNOWLEDGEMENTS

The authors are grateful to Kirsty Stevens for providing administrative support before and during the course. We are also extremely grateful to Rebecca Lee for production of the WWT Wildfowl Catch Manual, and many of the supporting documents used on the course.

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APPENDIX 2. CERTIFICATE OF ATTENDANCE



WWT Wildfowl & Wetlands Trust

The Wildfowl & Wetlands Trust

presents this certificate to

Insert name here

on completion of the

FAO CIRAD Wetlands International WWT Avian Influenza Surveillance Course

Course content:

- Trapping wildfowl using a variety of trapping methods
- Principles of animal welfare
- Principles of handling, crating and ringing wildfowl
- Principles of ageing and sexing wildfowl
- Collecting, storing and transporting avian influenza samples
- Avian influenza surveillance strategies

19-23 February 2007

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APPENDIX 3. COURSE TIMETABLE

FAO CIRAD Wetlands International WWT AI Surveillance Training Course Timetable

MONDAY 19th February: Introduction to course, and animal and human health			
Time	Subject	Location	Tutors
08:00	Breakfast		
09:00-09:30	Welcome: course and tutor introduction	Lecture Theatre	Richard Hearn/Ruth Cromie
09:30-10:00	International delegate introductions	Lecture Theatre	Delegates
10:00-10:30	Introduction to WWT and role in wild bird AI surveillance	Lecture Theatre	Ruth Cromie
10:30-11:00	BREAK		
11:00-12:30	Orientation - quick view of the WWT Slimbridge reserve	Sloane Tower & Holden Tower	Richard Hearn/Ruth Cromie
12:30-13:00	AI - background and global update	Lecture Theatre	Ruth Cromie
13:00-14:00	LUNCH	Slimbridge restaurant/McNeice Room	
14:00-14:30	Principles of human health and safety	Lecture Theatre	Ruth Cromie
14:30-15:00	Principles of animal welfare	Lecture Theatre	Ruth Cromie/Nigel Jarrett
15:00-16:15	Captive bird handling	Slimbridge Duckery	Ruth Cromie/Nigel Jarrett
16:15-16:45	BREAK		
16:45-17:15	Pre-catch briefing for duck trapping and decoy demonstration	Lecture Theatre	Richard Hearn
17:15-18:15	FAO perspective	Lecture Theatre	Scott Newman FAO
18:15-19:00	Commentated flood-lit evening wild swan feed	Peng Observatory	Martin McGill
19:00-20:30	Evening meal at Slimbridge	Slimbridge restaurant	

TUESDAY 20th February: Wildfowl trapping			
Time	Subject	Location	Tutors
07:45	Breakfast		
08:30-10:30	Duck trapping	Slimbridge reserve	Dave Paynter
10:30-11:00	BREAK		
11:00-13:00	Duck decoy demonstration	Slimbridge duck decoy	Dave Paynter
13:00-14:00	LUNCH	Slimbridge restaurant/McNeice Room	
14:00-16:00	Trapping techniques: duck traps	Lecture Theatre	Richard Hearn
	Cannon netting	Lecture Theatre	Robin Ward
	Swan pipes	Lecture Theatre	Richard Hearn
16:00-16:30	BREAK		
16:30-17:30	International delegate presentations	Lecture Theatre	Delegates
17:30-18:00	Pre-catch briefings for demonstrations	Lecture Theatre	Robin Ward/Richard Hearn
	<i>Free time</i>		
19:00-20:00	Evening meal at Tudor Arms	Tudor Arms	

WEDNESDAY 21st February: Wildfowl ageing and sexing, data management			
Time	Subject	Location	Tutors
06:45	Breakfast at YHA will be left out for you in kitchen i.e. no cooked breakfast		
7:30-11:30	Swan pipe catch	Slimbridge Swan Pipe	Dave Paynter
11:30-12:00	BREAK		
12:00-13:00	Swan pipe catch de-brief	Lecture Theatre	Dave Paynter/Ruth Cromie/Richard Hearn
13:00-14:00	LUNCH	Slimbridge restaurant/McNeice Room	
14:00-15:00	Principles of ageing and sexing wildfowl	Lecture Theatre	Richard Hearn
15:00-15:30	Data management	Lecture Theatre	Richard Hearn
15:30-16:00	BREAK		
16:00-17:00	<i>Free time</i>		
17:00-17:30	Pre-swan catch briefing	Lecture Theatre	Dave Paynter
17:30-18:30	International delegate presentations	Lecture Theatre	Delegates
19:00-20:00	Evening meal at Slimbridge	Slimbridge Restaurant	

THURSDAY 22nd February: Wildfowl trapping			
Time	Subject	Location	Tutors
08:00	Breakfast		
9:00-11:00	Cannon netting demonstration	Slimbridge reserve	Robin Ward/Richard Hearn
11:00-11:30	BREAK		
11:30-12:15	Mist netting demonstration	Car park field	Robin Ward/Richard Hearn
12:15-13:00	Whoosh netting, spring trapping and dazzling demonstration	Car park field	Robin Ward/Richard Hearn
13:00-14:00	LUNCH	Slimbridge restaurant/McNeice Room	
14:00-15:00	Trapping techniques: continued	Lecture Theatre	Richard Hearn
15:00-15:30	Marking techniques	Lecture Theatre	Richard Hearn
15:30-16:00	BREAK		
16:00-17:00	International delegate presentations	Lecture Theatre	Delegates
17:00-17:30	Pre-Mute Swan round up briefing	Lecture Theatre	Ruth Cromie/Mark Roberts
	<i>Free time</i>		
19:00-20:00	Evening meal at Tudor Arms	Tudor Arms	

FRIDAY 23rd February: AI sampling, storage and transport			
Time	Subject	Location	Tutors
07:45	Breakfast		
8:30-10:00	Mute Swan round up	Slimbridge grounds	Mark Roberts
10:00-10:30	BREAK		
11:00-12:30	AI sampling protocols, storage and transport	Lecture Theatre	Ruth Cromie
12:30-13:00	AI surveillance strategies	Lecture Theatre	David Stroud, JNCC
13:00-14:00	LUNCH	Slimbridge restaurant/McNeice Room	
14:00-14:30	UK targetted strategy to wild bird surveillance	Lecture Theatre	Keith Hamilton, Dept. Environment, Food and Rural Affairs
14:30-15:00	International delegate presentations	Lecture Theatre	Delegates
15:00-15:30	BREAK		
15:30-16:30	Feedback session and course close	Lecture Theatre	Richard Hearn/Ruth Cromie
	<i>Free time</i>		
19:00-20:00	Last night meal	Slimbridge Restaurant	
20:00-23:00	Last night party - Ceilidh	Slimbridge Foyer	

APPENDIX 4. WWT STAFF TEACHING PROFILES

Ruth Cromie (Head of Waterbird Biology) received her Ph.D. in veterinary microbiology in 1991 from University College, London. She has worked on wildfowl immunology in Hong Kong and diseases of marsupials at the Smithsonian Institution, Washington DC, USA. Since 1997, Ruth has worked at WWT, her responsibilities including disease control and management within captive bird populations, wildlife health research, and running WWT's Animal Welfare and Ethics Committee. Ruth teaches on a number of post graduate conservation and wildlife health courses including co-directing the Durrell Wildlife Conservation Trust's Summer School in Endangered Species Conservation and Management. Since August 2005, she has been a member of WWT's Avian Influenza Management Strategy Group and sits on the UK government's Ornithological Expert Panel on wild bird surveillance and AI contingency planning. She has been involved in wild bird catching and health screening across UK and in Iceland and Kenya (the latter two involving AI surveillance).

Richard Hearn (Head of Waterbird Monitoring) has worked at WWT for more than 11 years and is an experienced waterfowl biologist. He has managed and coordinated the WWT Ringing Programme for nine years, and the UK's Goose & Swan Monitoring Programme for three years. He has almost 20 years of ringing experience, has held a cannon netting licence since 1996, and been a ringing trainer since 1998. He is experienced at catching wildfowl across UK, in Iceland and Russia. More recently, he has been involved in the training of wildfowl ringers in Botswana and Kenya (the latter via two FAO-funded AI surveillance expeditions). He is the Assistant Coordinator of the Wetlands International/IUCN-SSC Duck Specialist Group.

Nigel Jarrett (Avicultural Manager) is responsible for the management of over 6,000 captive flamingos and wildfowl at seven WWT centres in the UK. With over 30 years hands-on experience, he has worked with all but 10 of the world's 163 wildfowl species. He is committed to developing ex situ conservation projects which contribute directly to species conservation in the wild e.g. using captive wildfowl to develop best practice handling techniques for use by field ornithologists or species reintroduction. He has undertaken wildfowl monitoring, catching and ringing work throughout the UK, and in Central Asia and the Middle East, Norwegian and Greenland tundra, USA, Mexico and in the Caribbean. He is the Assistant Coordinator of the Wetlands International/IUCN-SSC Flamingo Specialist Group.

Dave Paynter (Reserve Manager) has managed the nature reserve at Slimbridge for over 25 years. He is a very experienced wildfowl ringer with over 25 years experience, and is responsible for implementing most of the field and ringing activity at Slimbridge including the coordination of swan pipe catches. Dave's ability to catch large numbers of birds using various trapping techniques has contributed significantly to the UK's live wild bird AI surveillance programme. He has undertaken wildfowl monitoring in Azerbaijan and is experienced at catching wildfowl on the Russian tundra as well as the UK.

Robin Ward (Senior Waterbird Monitoring Officer) has been at WWT for five years, where his main responsibilities have been studies of long-term changes in waterbird usage of several UK wetlands, a study of disturbance risk trade offs with respect to diving duck, organising the national Mute Swan census, a monitoring review of Dark-bellied Brent Geese and the provision of technical expertise to various waterbird ringing based studies. Previous to this, he was Research Associate at Durham University for 12 years, where his main responsibilities included provision of field and technical support and guidance to ecologists working on bird related studies chiefly involving shorebirds and seabirds. This included leading of cannon netting teams and other bird ringing activities, and training in radio telemetry. His skills as a field ornithologist, and especially in the use of cannon nets, has over the past 17 years been recognised by others worldwide from being invited and able to participate and teach on 12 ringing based expeditions to Australia, Brazil, Iceland, Jordan, Portugal, Tunisia (FAO-funded AI surveillance) and U.S.A.. He sits on the Cannon Netting Technical Panel of the British & Irish Ringing Scheme; he recently completed a term of office with the latter's Ringing Committee.

APPENDIX 5. RISK ASSESSMENT FORM

Project:	AI surveillance course
Client:	FAO WI CIRAD WWT
Project Code:	24008
Location:	WWT Slimbridge
Date:	February 2007
Nature of Work:	Wildfowl catching, ringing, cloacal and oropharyngeal swabbing
Personnel:	Centre and HQ staff, international delegates
Assessor:	Ruth Cromie

General Risk	Rating	AI Specific Risk	Rating
Lone working	X	Catching waterfowl	H
Working near water	L	Crating birds	H
Working in water	L	Ringing and processing wildfowl	H
Working with boats on water	X	Cloacal & oropharyngeal sampling	H
Working in waterlogged terrain	M	Blood sampling	H
Working on uneven terrain	M	Disposing of birds which die during catching	H
Working on contaminated land	X		
Working with hazardous chemicals	X		
Working with light machinery	X		
Working with heavy machinery	X		
Working in politically hostile, war, high crime areas	X		
Undertaking physical/manual labour	M		
Lifting and carrying heavy equipment	M		
Working in poor light conditions	X		
Working at night	X		
Working in confined spaces	X		
Working with ladders, scaffolding, etc	X		
Working in derelict buildings	X		
Working in aircraft	X		
Working in areas with high noise	X		
Working in climatic extremes	M		
Handling wild animals (general)	H		

General Risk	Precaution
Working near water	<ol style="list-style-type: none"> 1. Ensure colleagues are aware of your whereabouts. 2. Do not enter into water. 3. Be aware of tide times, flood warnings etc. 4. Avoid unstable, slippery or dangerous banks. 5. Avoid overhanging branches. 6. Avoid plants liable to sting or cause personal injury. 7. Wear suitable protective clothing.

Working in water	<ol style="list-style-type: none"> 1. Pre-notify colleague of your whereabouts. 2. Gather as much information about potential hazards prior to entry into water. 3. Be aware of tide times, flood warnings etc. 4. Do not enter water without the presence of a second individual stationed on adjacent dry land. 5. Ensure personal safety is maintained at all times. 6. Wear suitable protective clothing. 7. Avoid overhanging branches. 8. Avoid plants liable to sting or cause personal injury.
Working in waterlogged terrain	<ol style="list-style-type: none"> 1. Pre-notify colleague of your whereabouts. 2. Check ground conditions prior to entering waterlogged area. 3. Avoid overhanging branches. 4. Avoid plants liable to sting or cause personal injury. 5. Wear suitable protective clothing.
Working on uneven terrain	<ol style="list-style-type: none"> 1. Pre-notify colleague of your whereabouts. 2. Be observant of ground conditions. 3. Avoid overhanging branches. 4. Avoid plants liable to sting or cause personal injury. 5. Wear suitable protective clothing.
Handling wild animals (general)	<ol style="list-style-type: none"> 1. Only trained personnel should handle, catch or restrain birds. 2. When there is a risk of eye injury, ensure eye protectors are worn. 3. All new injuries are treated as soon as possible, preferably by a trained 1st Aider. Ensure a basic first aid kit is available. 4. For serious injuries, including all eye injuries, the patient seeks advice from a GP. 5. Where possible handlers should wear clothes that have smooth, tightly woven fabric to prevent birds toe-nails or bill-nails getting caught (loose-knit, woollen clothing should not be worn). 6. Existing cuts or abrasions are protected with waterproof elastoplasts and or impervious outer garments (e.g. rubber gloves for hands). 7. Hands (and other body parts) that come into contact with material that is possibly contaminated are washed with soap and hot water as soon as possible. 8. Seek qualified assistance, e.g. from a GP, as soon as possible after the occurrence of an incident or if symptoms occur and explain the nature of the work. The WWT Risk Card mentions: leptospirosis, chlamydiosis, salmonellosis, campylobacteriosis, Newcastle Disease, colibacillosis (E. coli 0157), cryptosporidiosis, giardiasis, avian influenza, Lyme disease and allergic alveolitis.
AI Specific Risk	Precaution
Catching Waterfowl	<ol style="list-style-type: none"> 1. All personnel involved in the AI surveillance training course should: <ol style="list-style-type: none"> a) Implement WWT Avian Influenza Health and Safety Guidelines. b) If working outdoors, when practical work upwind of birds to decrease the risk of inhaling aerosols. c) If working indoors, work in well-ventilated areas. d) Disinfect work surfaces, equipment (ringing equipment, crates and hand-nets) that have come into contact with birds with a solution of 1:50

	Virkon.
Crating Birds	<ol style="list-style-type: none"> 1. All personnel involved in the AI surveillance training course should implement WWT Avian Influenza Health and Safety Guidelines. 2. Plastic crates should be used for all bird catching activities. Hessian or cotton bird bags should only be used to restrain wild passerines and geese. 3. All crates should be fitted with a removable carpet on the floor to prevent birds from slipping and to absorb faeces. 4. After use, crates and sacks should be cleaned as follows: <ol style="list-style-type: none"> a) Immerse bird crate (and mat) / sack immediately after use in a solution of 1:50 Virkon disinfectant solution. b) After a minimum of 10 minutes immersion, remove crate (and mat) / sack from disinfectant. c) Wear a face mask to power-hose rinse the crate (and mat) / sack to remove organic matter. d) Allow crate (and mat) / sack to air dry. e) Replace the Virkon solution at least once every 7 days.
Ringling and Processing Wildfowl	<ol style="list-style-type: none"> 1. All personnel involved in the AI surveillance training course should implement WWT Avian Influenza Health and Safety Guidelines.
Cloacal Swabbing	<ol style="list-style-type: none"> 1. All personnel involved in the AI surveillance training course should implement WWT Avian Influenza Health and Safety Guidelines.
Blood Sampling	<ol style="list-style-type: none"> 1. All personnel involved in the AI surveillance training course should implement WWT Avian Influenza Health and Safety Guidelines. 2. Only persons with an appropriate Home Office personal licence or veterinary surgeons shall be allowed to take blood samples (depends on 'primary purpose' of sampling). 3. All sharps shall be contained and disposed of in an appropriate Sharpsafe container. 4. All contaminated items e.g. syringes and cotton wool shall be disposed of as clinical waste. 5. In the event of a needlestick injury, the puncture site should be allowed to bleed, then flooded with alcohol, dried, then covered by a plaster. The injured person should look out for signs of subsequent illness.
Disposing of Birds which Die during Catching Activities	<ol style="list-style-type: none"> 1. All personnel involved in the AI surveillance training course should implement WWT Avian Influenza Health and Safety Guidelines. 2. Wearing appropriate PPE (see below) any dead birds should be double bagged in plastic bags as follows (see the WWT video): <ol style="list-style-type: none"> a) Place the hand inside the plastic bag. b) Pick up the dead bird or mammal with the bag-covered hand. c) Invert the plastic bag over the dead bird or mammal without contaminating the outside of the bag. d) Tie a knot in the bag. e) Place the sealed bag in a second bag and tie a knot in the second bag. f) Label the outer bag with the species name, date and recovery location.

Human Health Monitoring	<p>All personnel should:</p> <ol style="list-style-type: none"> Be aware of and look out for symptoms of avian influenza in humans. Symptoms include: <ul style="list-style-type: none"> Conjunctivitis. Fever with a temperature $\geq 38^{\circ}\text{C}$. Cough or shortness of breath requiring hospitalisation. Diarrhoea, vomiting, and abdominal pain. Immediately inform their tutor or line manager if they develop these symptoms. Inform their General Practitioner or healthcare provider that they have potentially been exposed to HPAI.
Personal Hygiene (including First-Aid)	<p>All personnel involved in the AI surveillance training course should:</p> <ol style="list-style-type: none"> Cover all new and existing cuts and grazes with waterproof dressings before starting work. If cuts and grazes occur, wash immediately with soap and running water and apply a waterproof dressing. A first-aid box will be available at each catch. Immediately wipe off any faeces from body or clothing using viricidal handwipes (to be provided by WWT) and thoroughly wash hands with soap and running water at the first opportunity. Take care to avoid contamination of the face and other exposed areas. If contamination does happen, then the area should be washed thoroughly with soap and water. Not eat, drink or smoke during catches. Not bite nails, suck fingers, pens or pencils. Avoid putting contaminated hands (gloved or ungloved) in pockets. After catches, thoroughly wash hands, nails and forearms before eating, drinking, smoking, using the telephone, taking medication, applying make-up, or inserting contact lenses.
Personal Protective Equipment	<p>All personnel involved in the AI surveillance training course should:</p> <ol style="list-style-type: none"> Wear coveralls (to be provided by WWT). These will be disinfected after every catch with a solution of 1:50 Virkon. Wear Wellington boots or waders which be disinfected after every catch with a solution of 1:50 Virkon. Wear nitrile gloves for all bird handling and catching activities and processing activities. These should be disinfected after every catch / catching session. Wear latex gloves for taking swabs and blood samples. These should be disposed of as clinical waste after every catch / catching session. Wear a P3 mask. These can be disposed of as clinical waste.

Rating	6...1	Explanation	6...2	Notes
6...2.1	H	High probability of risk to human health		Risk of fatality, disabling accident or need for first aid even if precautionary measures are undertaken.
M		Possible probability of risk to human health		Risk of first aid or minor injury even if precautionary measures are undertaken.
L		Unlikely or negligible risk to human health		Limited or negligible risk of minor injury if precautionary measures are undertaken.
X		Not applicable		No risk identified associated with the nature of the site visit.

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Personnel:	Centre and HQ staff, international delegates
Assessor:	Ruth Cromie

	6...3	Print Name	6...4	Sign Name
Name:	-----			
	Personnel		Date	

APPENDIX 6. FUTURE COUNTRY NEEDS AS IDENTIFIED BY DELEGATES



WWT Wildfowl & Wetlands Trust

Future wild bird surveillance needs of countries as identified by delegates on WWT/FAO avian influenza surveillance training course, 19-23 February 2007 at WWT Slimbridge Centre.

Africa

Kenya	Niger	Mauritania	Nigeria	'Africa'	Malawi
Increase appropriate equipment and skills for operation	Increase communication of the situation re: H5N1 in migratory and local birds	Laboratory preparation for early analysis of samples for H5N1	Encourage multi-disciplinary approach to AI related issues	Standardisation of field and laboratory methods	Increase training support for bird monitoring and censusing
More mid-level technicians and funding for them ?sponsorship	More teaching of personnel in capture techniques	Expertise to teach techniques	Intensify awareness campaign on AI through media, workshops, symposia etc.	Support for full time technicians to ensure continuity in field crew	Enhance public awareness programmes
Make ringing independent of government and self-propagating ?funding	Increase acquisition of materials for avian capture	Financial support for equipment provision	Widen monitoring of wetland birds and other groups	Increase access to equipment	Increase capacity for rapid response for containment of H5N1
Increase capacity and knowledge in technicians	Funding for an expert in capture and collection of samples from migratory birds	Increased bird surveillance during migration	Capacity building and intensify efforts in partnership with various national/international agencies and government re flow of information	Increase human capacity via skills and knowledge	Strengthen surveillance capacity to react to a domestic or wild population outbreak of H5N1
Improve mechanism of dissemination of information between institutions		Support national expertise with new techniques	Provision of funding for graduate/post graduate studies and to stimulate ornithological interests in younger generation	Increase funding support for sampling	Improve coordination among stakeholders to take advantage of synergy

Other

India	Ukraine	Turkey	Mongolia	'International'
Increase colour banding and coding materials	Increase practical support in waterbird trapping	Dissemination of information	More traps and varied techniques	Application of techniques in country
Standardised methodology for collection and transport of AI samples	More equipment for bird trapping and transport		Ringling programme	Increase hands-on skills
Provision of addresses of manufacturers of different traps and ringing equipment	Increase bird counting in the migration season		Sample techniques, transport and storing	
Exchange of information on AI outbreaks	Increase international projects in Ukraine		Financial support for projects	
Updating of improvised methodology			More testing equipment	

APPENDIX 7. FEEDBACK FORM



WWT Wildfowl & Wetlands Trust

Feedback Form

Course title: FAO CIRAD Wetlands International WWT AI Surveillance course

Course dates: 19 Feb – 23 Feb 2007

1. Did the course achieve its objectives? (please tick one)
Fully Partly Not at all
2. Did the course meet your objectives? (please tick one)
Fully Partly Not at all
3. Which part(s) of the course did you find of **most** benefit and why?

4. Which part(s) of the course did you find of **least** benefit and why?

5. How could the course be improved?

6. Please circle a number and provide comments where applicable.
(5 = excellent, 4 = good, 3 = satisfactory, 2 = poor, 1 = very poor)

Administration	
FAO planning of your trip	5 4 3 2 1
Information provided by WWT prior to arrival	5 4 3 2 1
Overall organisation of the training course	5 4 3 2 1
Comments:	

Facilities and services	
Accommodation	5 4 3 2 1
Food at accommodation	5 4 3 2 1
Teaching facilities at WWT	5 4 3 2 1
Food at WWT	5 4 3 2 1
Comments:	

Training	
Lectures	5 4 3 2 1
How useful were these to you?	
<input type="checkbox"/> Very useful <input type="checkbox"/> Somewhat useful <input type="checkbox"/> Not useful	
Comments:	
Practical sessions	5 4 3 2 1
How useful were these to you?	
<input type="checkbox"/> Very useful <input type="checkbox"/> Somewhat useful <input type="checkbox"/> Not useful	
Comments:	

Delegate presentations	5 4 3 2 1
How useful were these to you?	
Very useful <input type="checkbox"/> Somewhat useful <input type="checkbox"/> Not useful <input type="checkbox"/>	
Comments:	

7. Future needs

What country (or region) do you work in? _____

List the five most important needs your country (or region) has in terms of avian influenza surveillance:

1.	
2.	
3.	
4.	
5.	

8. Any other comments
