Organisation Mondiale de la Santé Animale
World Organisation for Animal Health
Organización Mundial de Sanidad Animal

Original: English
November 2010

REPORT OF THE MEETING OF THE OIE WORKING GROUP ON WILDLIFE DISEASES

Paris, 12–15 October 2010

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The meeting of the OIE Working Group on Wildlife Diseases (WGWD) was held from 12 to 15 October 2010 at the OIE Headquarters in Paris. The meeting was chaired by the WGWD President, Dr William Karesh, and Prof. Ted Leighton was appointed as rapporteur. The Agenda and complete list of participants are provided at Appendices I and II, respectively.

1. Opening Remarks and Welcome

Dr Bernard Vallat, Director General of the OIE, welcomed the participants and thanked them for the work they carry out on behalf of the OIE. He confirmed the increasing importance of integrating wildlife issues into the remit of the OIE so as to meet the goals of OIE, and identified particular issues that are of relevance to the WGWD. First, there was a great need for accurate reporting of diseases in wildlife to create a more complete picture of the state of animal health around the world while not adversely affecting international trade without rationale. The challenge was to maintain or improve the quality and credibility of reporting while finding ways of attaining acceptance that occurrence of pathogens in wildlife affects exceptionally the trade status of domestic animals and products. A second area of importance was the shift from classification of diseases by disease and host taxonomy to one focused on the pathogen itself. This would require significant attention from the WGWD to add scientific information about pathogens in wildlife.

Dr Vallat also identified key events for the year that required the attention and efforts of the WGWD. He asked the Group to focus on finalising the planning for the first OIE Global Conference on Wildlife Animal Health and Biodiversity to be held in Paris from 23 to 25 February 2011. The meeting provided the opportunity to illustrate the value of understanding the linkages between health and good management of natural resources, and engage OIE Members to include biodiversity considerations in animal health policy. The second timely issue was that the first round of capacity building for the network of focal points for reporting on diseases in wildlife had now been completed. This new global focal points network allowed OIE and Members to be better linked with wildlife disease management authorities. It was the first time OIE has had such a network and it provided an opportunity to better serve OIE Members. Now was the time to begin planning the second round of regional training workshops to engage the focal points and the WGWD should provide input on the content of these workshops to ensure they are focused on the most critical issues related to OIE policy objectives, to stimulate the participation of focal points in contributing to OIE policy and participation in OIE efforts. Finally, OIE had been in contact with the Council for Game and Wildlife Conservation (CIC) based in Hungary, which proposed working with OIE in the area of wildlife health and might create a specialised office within the organisation to work on these issues. An official Agreement could be signed between CIC and the OIE.

2. Discussion with the Animal Health Information Department

Dr Karim Ben Jebara, Head of the Animal Health Information Department of the OIE, spoke to the Group on reporting of diseases in wild animals by Delegates and their Wildlife Focal Points. He also provided the Group with a written report on wildlife diseases reported in 2009 and an analysis of reporting trends. Reporting had improved considerably in the past 2 years; the quantity and quality of the information reported had improved and the geographical distribution of responses was broader than in the past. The current system of reporting facilitated the direct interaction between the Delegate and the Focal Points in each country responsible for reporting OIE listed diseases in all species and non-listed diseases in wildlife. Such direct communication in turn had improved the flow of information within each country as well as to the OIE.

The Group discussed with Dr Ben Jebara and his staff some of the issues associated with reporting disease in wild animals, mainly regarding the choice of disease occurrence codes in wild species and their interpretation. The Animal Health Information Department was aware of nearly all of these issues: some resulted from insufficient training in the reporting procedure and some were issues that were being progressively addressed in the development of WAHIS and *WAHIS-Wild*. Dr Ben Jebara noted that reporting of OIE-listed disease was done though WAHIS and could be complemented by Wildlife Focal Points. The latter would complete information on non-listed diseases in wildlife that occurred in 2010 and this would be done on-line through the *WAHIS-Wild* system, which was to be made available to Delegates and Wildlife Focal Points in February 2011.

Dr Ben Jebara noted that the OIE had developed clear criteria for including or excluding pathogens on the OIE List of pathogens and diseases required to be reported internationally. No such set of criteria had been developed for pathogens that were not on the OIE List but that Wildlife Focal Points were asked to report annually to the OIE. The WGWD originally had identified the pathogens to be reported, and might wish to consider establishing a set of criteria for including and excluding pathogens in this voluntary reporting list.

The Group was very impressed with the progress made by the Department in facilitating and encouraging reporting of listed and non-listed diseases in wildlife, in the development of *WAHIS-Wild*, and in the presentation and analysis of wildlife diseases reported to the OIE. The Group congratulated Dr Ben Jebara and his staff for excellent work

3. Update from WGWD Members on Significant Wildlife Disease Events in Different Regions

Anthrax – significant outbreaks of anthrax in wildlife were reported from the Queen Elizabeth National Park in Uganda, and the Kruger National Park in South Africa. Two small outbreaks occurred in Bison in north-western Canada.

Bovine tuberculosis – a re-emergence of bovine tuberculosis in Chacma baboons (*Papio ursinus*) has been detected in the Kruger National Park, South Africa. Bovine tuberculosis remains of concern in several countries in Europe where the number of species affected is increasing, but no new foci have been notified for wildlife.

Canine distemper – sporadic cases of canine distemper were confirmed in lions (*Panthera leo*) in the Kgaligadi Transfrontier Park (South Africa/Botswana), making this first time reported in Southern Africa. Infected domestic dogs in peripheral rural settlements appear to be the source of infection.

Monkey pox – an upsurge in the incidence of monkey pox infection in humans has been reported from the Democratic Republic of Congo. It is suspected that this increase in human cases is related to the cessation of smallpox vaccination, which offered some cross protection.

Harmful algal bloom – a significant mortality event, involving Burchell's zebra (*Equus burchelli*), wildebeest (*Connochaetes taurinus*) and White rhinoceros (*Ceratotherium simum*), caused by a cyanobacterial bloom in a man-made impoundment, was reported from the Kruger National Park in South Africa.

Pansteatitis in fish and crocodiles – pansteatitis was confirmed in Nile crocodiles (*Crocodylus niloticus*) and sharp-toothed catfish (*Clarius* spp.) in three river systems in the Kruger National Park. This has been occurring for 2–3 years now.

Rift Valley fever – a significant outbreak of Rift Valley fever occurred between February and June, 2010, in the central plateau region of South Africa. Although mainly sheep, cattle and goats were infected, clinical disease was also confirmed in native wildlife, including African buffalo (*Syncerus caffer*), Springbok (*Antedorcas marsupialis*), Waterbuck (*Kobus ellipsiprymnus*), Sable antelope (*Hippotragus niger*), Bontebok (*Damaliscus pygorgus*) and Eland (*Taurotragus oryx*). In addition, certain non-native farmed wildlife species such as llamas, alpacas and fallow deer were also clinically affected.

Newcastle disease – in Canada, Newcastle disease (ND) was detected in double-crested cormorants (DCCO) (*Phalocrocorax auritus*) in summer 2010 in Saskatchewan and Ontario. In Ontario, 18 mortality events in DCCO were reported between 8 June and 1 September 2010; ND virus was confirmed in five. In Saskatchewan, DCCO were confirmed with ND at three widely separated locations. In the United States of America (USA), ND was confirmed or suspected in the mortality of more than 800 DCCO at locations in Minnesota, North Dakota, and Wisconsin during mid-summer of 2010. Mortality was observed concurrently in other species, including ring-billed gulls (*Larus delawarensis*) and white pelicans (*Pelecanus erythrorhynchos*), but ND was not confirmed in them.

White nose syndrome in bats – in the USA, white nose syndrome (WNS) was first recognised in hibernating bats in upstate New York in 2006, and through the spring of 2010 has been found in 14 States as far west as Oklahoma. In Canada, WNS was confirmed in bats in Quebec and Ontario for the first time in the spring of 2010. A new fungal species (*Geomyces destructans*) is the suspected cause: infected bats often have white fungus on their muzzles, may arouse from hibernation and fly outside during daylight hours in winter, and deplete their energy stores. Mortality of 97–100% is reported in hibernating bat populations in some affected caves and concerns have been raised about the ecological impacts of significant bat losses, as well as the possible extinction of some of the threatened bat species. In the USA, a national response plan is currently under development and research into the epidemiology of WNS is on-going, as well as into methods to treat bats and disinfect caves and caving gear. Advisories have been issued in both countries to the public to take measures to avoid spreading WNS to unaffected caves, and several States in the USA have closed caves to the public. Affected Canadian locations are closed to human access.

Chronic wasting disease – in Canada and the USA, chronic wasting disease (CWD) continues to slowly expand from nearly all previously recognised foci of infected free-ranging cervids. This resulted in CWD detection for the first time in the State of Virginia in early 2010 in an area adjacent to the affected region in West Virginia. The single exception to the observed continued expansion of CWD in wild cervids is in the State of New York, where no additional infected free-ranging white-tailed deer (*Odocoileus virginianus*) have been found since CWD was first detected there in two animals in 2005. Wildlife managers continue to conduct surveillance to detect or monitor CWD and are currently considering modifying the surveillance strategies to maximise efficiency in the face of decreasing financial resources to conduct such work.

Mortality in Markhors – in Tajikistan as of 21 September 2010 there was an acute die off involving 21 Markhors (*Capra falconeri*) gathered around watering holes. Prior to death, animals were reported to have "sniffles" and upon examination, the lungs were damaged. Colleagues from Tajikistan consulted the national veterinary authorities and external experts to address this mortality event. As the suspected diagnosis was contagious caprine pleuropneumonia (*Mycoplasma*), an effort was to be made to treat animals at or near the watering holes with Oxytetracycline and to decontaminate the environment by burning carcasses and disinfecting with chlorine lime.

Mortality in Saiga antelope – in May 2010, nearly 12,000 Saiga antelope (*Saiga tatarica*, females and young of the year) were found dead over a week in the Ural population in western Kazakhstan, near the Russian border, around a water source. The affected subpopulation of animals was emerging from an unusually harsh winter and is part of approximately 26,000 individuals globally. This species is on the IUCN Red List of Threatened Species™. The deaths were ascribed to pasteurellosis, but other causes of mortality have also been suggested including an infection other than pasteurellosis, environmental contamination, and toxin exposure.

African swine fever – ASF still persists in the Caucasus region of Europe in domestic pigs. The wild boar (*Sus scrofa*) is affected by epidemiological links that remain unclear. Outbreaks in wild boars are sporadically recorded.

Avian trichomonosis – this protozoan appears to affect populations of finches in the United Kingdom since the summer of 2005. Since then, outbreaks have been seen every year during the late summer and autumn. The Green finch (*Carduelis chloris*) is the main species affected but other finches and house sparrow (*Passer domesticus*) are reported infected as well. In heavily affected areas, populations are dropping significantly. In Canada, native finches also are affected by highly-pathogenic strains in the Atlantic coastal region. This pathogen has the potential to spread westward across the whole of North America.

Chytrid fungus – chytrid fungus (*Batrachochytrium dendrobatidis*) is now reported widely in Europe as well as elsewhere in the world. This probably is an invading fungus on the continent and now seems widespread where invasive species of amphibians are recorded in natural habitats. Thailand has found it for the first time, in frogs imported for the pet trade. The fungus has not detected in native amphibian populations in Thailand.

Rabies – rabies in red foxes invaded Northern Italy in November 2008. A large vaccination programme has been carried out resulting in a decline of the case number and no recent significant expansion (as of September 2010).

West Nile virus – several outbreaks of human and equine West Nile virus infections were recorded in Europe, since August 2010. Countries affected were Bulgaria, Greece, Italy, Russia and Spain; only Austria has reported wildlife cases so far.

4. OIE and invasive species

The Group noted that invasion of natural habitats by alien species was recognised as a major threat to the conservation of many fragile habitats across the globe. The OIE had recognised the importance of the matter by recently dedicating a special issue of the OIE *Scientific and Technical Review* (**29** [1&2], 2010). Among the most deleterious effects of invasive species was the fact that they carried, maintained and spreaded infections or parasites that could then affect naïve autochthonous populations of wild animals exposed. A significant cause of invasion was linked to legal or illegal trade in animals or animal products. As the concerns on expansion of invasive species grew, the OIE should be solicited to address the question and consider new standards aimed at limiting the risk of invasive species propagation through global trade in animals or animal products. The Working Group considered that the OIE should be prepared to face demands on this topic rising from official or non-governmental organisations. The Working Group members were willing to help establish connections with relevant organisations that were involved in the mitigation of invasive species problems.

5. OFFLU[1] – review of comments by FAO on avian influenza surveillance document from 2009

The Group met with Dr Keith Hamilton, representing the OFFLU programme, to review comments from OFFLU and from the FAO concerning a document on surveillance for avian influenza in wild birds that the Group had written in 2009 at the request of OFFLU. The Group agreed to adjust the level of detail in the document to be consistent with a larger document of which the wild bird surveillance document is to be a part. A final revised document was provided to Dr Hamilton.

1 OFFLU: OIE/FAO Network on Avian Influenza

6. OIE Global Conference on Wildlife Animal Health and Biodiversity

The Group and OIE staff discussed the scientific programme and practical matters associated with the OIE Global Conference on Wildlife Animal Health and Biodiversity to be held from 23 to 25 February 2011 in Paris. The final proposal for the programme of speakers was established and approved by the Director General. Several members of the Working Group would be speakers at the Conference.

Conference Document – it was agreed that the OIE would publish a document based on the material presented; it would consist of papers written by the speakers who would wish to do so. Speakers would have considerable latitude to present their material in a format best suited to it. The Group agreed to edit the submitted papers into a cohesive publication that would strive to capture the essence of the conference. Authors would be asked to submit papers of 5000 words or less. Papers might be submitted in English, French or Spanish, but it was anticipated that most would be submitted in English. Abstracts for papers to be presented at the Conference must be submitted by the first week of January 2011. Power-point presentations would be requested 1 week before the Conference. Manuscripts of papers from those people who chose to submit them would be requested at the Conference or, at the latest, by 1 April 2011.

Conference Posters – it was also agreed to invite poster presentations at the Conference. Posters must be consistent with the overall theme of the Conference and detailed scientific topics would not be accepted. Posters must be in English. The Group would review proposed poster abstracts and select those that meet the criteria for inclusion in the Conference. Poster abstracts must be submitted by 15 December 2010.

Dr Daniel Chaisemartin joined the Group to discuss the practical aspects of the Conference. The Conference would be held at the Maison de la Chimie, 28 rue St Dominique, Paris, with a capacity to accommodate 600–700 persons. The Conference registration fee would be €250 for early registrants and more for late registrants. A book of the Conference and poster abstracts would be provided to all participants at the meeting, and the power-point slides of all presentations would be available on the OIE website after the Conference. All participants and all Delegates and Wildlife Focal Points would received the conference publication, which would also be available on the OIE website. The OIE would pay the expenses and registration of Conference speakers, but all others must pay their own travel, per diem and registration expenses themselves. Invitations would be made widely and especially to OIE Delegates and to their Wildlife Focal Points.

7. Reports from OIE Collaborating Centres on Wildlife

Collaborating Centre for Training in Integrated Livestock and Wildlife Health and Management in South Africa (Onderstepoort) – The Centre had not been asked to furnish an additional report to its annual report provided in January 2010 as it was established only in May 2009. It was noted that this Centre participated importantly in the Workshop for Wildlife Focal Points held in Tanzania in March 2010.

Collaborating Centre for Wildlife Disease Surveillance & Monitoring, Epidemiology and Management in Canada (Saskatchewan) – Prof. Leighton, Director of the Canadian Cooperative Wildlife Health Centre (CCWHC), serving as a member of the Group, provided a report on the Collaborating Centre's activities in 2010. The Centre participated in the Group preparing the Guide on Animal Health Surveillance, on the Working Group for Wildlife Diseases and attended the 2nd Global Conference for OIE Reference Laboratories and Collaborating Centres in June 2010. The Centre had an on-going programme for capacity development in Sri Lanka. It secured funds for and undertook an 8-week feasibility study for the establishment of a wildlife health centre in Sri Lanka in summer 2010, and was working with Sri Lanka on a proposal for an OIE Twinning project based on the outcome of this study. The Centre participated in delivering the curriculum it had developed in 2009 for the 2010 Workshops for Wildlife Focal Points in Tanzania, Mali and Thailand. The Centre participated in the Asia-Pacific Conference on Wildlife Borne Diseases in Beijing in collaboration with the US Department of Agriculture. The Centre continued to provide data management services to the Dutch Wildlife Health Centre and to participate in the EU wildlife research consortium *WildTech*.

8. Training of Wildlife Focal Points

Completion of First Workshop Series – Dr Elisabeth Erlacher-Vindel summarised the results of the first round of Training Workshops for Wildlife Focal Points. The curriculum developed by the Collaborating Centre (CCWHC) was presented to Focal Points in all five OIE regions though a mechanism to work with Focal Points in Western Europe still needed to be developed. The combination of lectures and table-top activities by the participants was very effective in delivering the core information. Some Regional Representations of the OIE used the Workshops for presentation of additional material beyond the Workshop itself. Overall, feedback was very positive and the Workshops deemed highly successful.

The Training Manual developed with the support of Prof. Ted Leighton for the first series of Workshops was being published by the OIE as a general reference work. It would be available soon in English and then in French and Spanish upon completion of translations.

Dr Karesh commented that the Training Manual would be appropriate background reading for the regional moderators for wild animal diseases now being appointed by the ProMed organisation, and that he would recommend this to them.

Second Series of Training Workshops – Dr Erlacher-Vindel reported that the OIE was committed to providing a second Training Workshop for Wildlife Focal Points in each OIE region, probably beginning in the third-quarter of 2011. Again, it was planned to provide a uniform curriculum in each region; the second workshop should not repeat the content of first but rather should be an extension of the first workshop. It was proposed that a case-based or problem-based format could be used in which 1–3 wildlife disease event scenarios would be used as the themes around which to provide practical experience relevant to the terms of reference of Wildlife Focal Points. If approved by the Director General of the OIE, these case scenarios would be used to cover practical matters, such as the use of *WAHIS-Wild* and notification of diseases to OIE, as well as practical aspects of disease surveillance and outbreak investigation and response.

It was recommended by the Group that the Canadian Collaborating Centre (CCWHC) develop the basis for the curriculum for this second series of training workshops, and Prof. Leighton agreed to this. Regional OIE staff would be asked to comment on the potential content for future Training Workshops for Wildlife Focal Points at their meeting in Paris in late October 2010. These comments would be provided to Prof. Leighton and colleagues at the CCWHC to include in their design of the workshop curriculum. The Collaborating Centre would also seek engagement in the design of this curriculum by colleagues in the OIE regions who would participate in presenting the workshops, so that the curriculum meets the needs of all regions and participants as closely as possible.

It was noted that the Focal Points for Wildlife in Western Europe had not been offered training and that some programme appropriate to them should be considered, perhaps in association with the July 2012 meeting of the Wildlife Disease Association in Lyons, France.

9. Report from the *ad hoc* Group on Diseases of Honey Bees

Dr Francois Diaz presented the Group with the final report from the *ad hoc* Group on Diseases of Honey Bees (January 2010) and asked if there were any further comments or issues with respect to wild bees. The Group had considered the draft report at its previous meeting in February 2010, did not have any further comments, and acknowledged the final draft.

10. Draft Policy on the Implications of the Livestock/Wildlife Interface

In 2009 the WGWD began work on a draft policy on the implications of the livestock/wildlife interface and concluded its work at the meeting in February 2010. Dr Kris De Clercq representing the Scientific Commission for Animal Diseases (SCAD) presented the final document outlining key questions and issues on the policy implications related to wildlife and domestic animal health. Input to this document had been provided earlier in the year by the WGWD and the *ad hoc* Group on Epidemiology and then compiled in a single document by the Scientific Commission for Animal Diseases in September 2010. The Group agreed that the document provided clear guidance for integrating wildlife disease related issues for the purposes of international animal disease standard setting and supported the approach of OIE in addressing issues related to animal health on a disease by disease, risk-based analysis approach.

Dr De Clercq also noted that the SCAD and the Terrestrial Code Commission were in agreement regarding the need for a transition to a pathogen-based structure in the OIE *Terrestrial Code*. The WGWD strongly supported this concept and expressed its commitment to helping OIE with its implementation.

Related to this document was the question of the recommended definition of wildlife. The WGWD reviewed the definition of wildlife that it drafted at an earlier meeting provided in the draft policy document. The Group now revised the definitions slightly by removing any references to domestic animals as this was outside the scope of the request to the Group. Consequently, the WGWD recommended the following definitions:

Wild animals are those animals that do not live under human supervision or control and do not have their phenotype selected by humans.

Captive wild animals are those animals that live under human supervision or control but do not have their phenotype selected by humans.

Feral animals are those animals that do not live under human supervision or control but do have their phenotype selected by humans.

The WGWD recognised that animals from any of these three categories might be regarded as "wildlife," by some authorities and that pathogens and diseases from all three groups should be reported to the OIE. However, the reporting of disease in these animals should not necessarily impact the disease status of the country.

11. *Terrestrial Code* Chapter Items from the Scientific Commission for Animal Disease

The SCAD requested the WGWD to review three *Terrestrial Code* chapters to determine the degree of updating that these chapters might require.

Terrestrial Code Chapter 6.11 – Prevention of Zoonosis from non-human primates

The WGWD reviewed this chapter and found that it would benefit from updating based on recent scientific advances. The Group did not feel that it had adequate expertise on certain parts of the chapter but agreed to consult primate and zoonotic disease experts to make recommendations for updating, with the goal of providing these comments prior to January 2011.

Terrestrial Code Chapter 5.9 – Quarantine measures for non-human primates

The WGWD reviewed this chapter and found that it also would benefit from updating based on recent scientific advances and that it should be expanded to include diseases of primates that might not be zoonotic. The Group agreed that appropriate non-human primate quarantine also had the important role of protecting other non-human primates and other species of animals from diseases that were not zoonotic. The Group did not feel that it had adequate expertise on certain parts of the chapter but agreed to consult primate and zoonotic disease experts to make recommendations for updating, with the goal of providing these comments prior to January 2011.

Terrestrial Code Chapter 5.10 – Model Veterinary Certificate for International Trade

The WGWD reviewed the chapter and found the current models to be adequate for wildlife with a few minor revisions or additions to "Box I-22" related to reasons for shipment to update terminology such as "wildlife management" and "population management".

12. *Ad hoc* Group on Epizootic Haemorrhagic Disease

The WGWD was asked to participate in and recommend persons with wildlife expertise to participate in the *ad hoc* Group being formed to draft a new *Terrestrial Cod*e chapter on Epizootic haemorrhagic disease (EHD). The Group recommended a short list of appropriate experts from the wildlife field around the world.

13. *Ad hoc* Group on Peste des Petits Ruminants

The WGWD was asked to participate in and recommend persons with wildlife expertise to participate in the *ad hoc* group being formed to draft a new *Terrestrial Code* chapter on Peste des petits ruminants (PPR). The Group recommended a short list of appropriate experts from the wildlife field around the world.

14. *Ad hoc* Group on Brucellosis

The WGWD was asked to participate in and recommend persons with wildlife expertise to participate in the *ad hoc* group being formed to draft a new *Terrestrial Code* chapter(s) on Brucellosis. The Group recommended a short list of appropriate experts from the wildlife field around the world.

15. *Ad hoc* Group for validation of diagnostic tests for wildlife

The Biological Standards Commission had decided to look at the issue of diagnostic test validation for wildlife. Currently, chapters in the *Manual of Diagnostic Tests and Vaccines for Terrestrial Animals* (the *Terrestrial Manual*) were not uniform on this issue and not all tests in the *Terrestrial Manual* had been through a validation procedure. The Biological Standards Commission was contemplating establishment of an *ad hoc* Group for this issue. Two members of the WGWD were identified to serve on the *ad hoc* Group if established: Prof. Ted Leighton and Dr John Fischer. The Group also recommended a short list of appropriate experts from the wildlife field around the world.

The WGWD reviewed this issue in 2002, 2003, 2004, 2005, 2006 and 2009 and agreed that an orderly review of the suitability for wildlife disease surveillance and diagnosis of current diagnostic tests for OIE Listed diseases should be undertaken. The WGWD had made recommendations in consultation with each relevant OIE Reference Laboratory to determine what diagnostic tests were available for a list of diseases, which of these tests would be suitable for use in some or all wild animal species, and what problems in sensitivity and specificity were recognised or anticipated when each test was applied to species for which it had not been validated. The most recent synopsis was provided in February, 2010 (see Appendix III).

16. Theileriosis

The WGWD noted that the *Terrestrial Code* Chapter on Theileriosis was in need of revision. Much of the information was over twenty 20 old and was now scientifically out of date. This disease was the third most important vector-borne animal disease in sub-Saharan Africa and had significant relevance in wildlife. The WGWD recommended that the Theileriosis chapter be revised soon and aligned with the new pathogen-based structure of classification of diseases in the *Terrestrial Code*.

17. Guide on Terrestrial Animal Health Surveillance

Dr Lea Knopf of the OIE Scientific and Technical Department provided an update on the "Guide on Terrestrial Animal Health Surveillance" including aspects on surveillance in wildlife. The Guide would be a practical document for use in the field and was not intended to duplicate or reiterate the content of text books and documents about animal disease surveillance already available. Completion of the guide was being delayed. The WDWG urged an early completion of this work as it was a valuable tool; the Group hoped that the SCAD remain committed to supporting this effort.

18. Reports from External Organisations, Programmes or Projects

PREDICT: Dr William Karesh provided an update on the PREDICT project of the Emerging Pandemic Threats (EPT) Programme funded by the US Agency for International Development (USAID). Dr Karesh was the Chief Technical Officer for one (PREDICT) of the five major sub-projects in the USAID Programme. The OIE was a key participant in the EPT initiative, with a particular focus on improving laboratory capacity and laboratory networks, the aim of which was to improve the global capacity to predict and prevent emerging diseases with pandemic potential. A large focus of the programme was targeted to diseases associated with wildlife. Areas of work for the overall programme include: pathogen detection, risk modelling, risk reduction, wildlife surveillance capacity building, information sharing and management, and advanced training in human and veterinary public health.

IDENTIFY: Ms Jennifer Lasley provided a report on the OIE efforts on the IDENTIFY project (also part of the EPT Programme funded by USAID), noting that WHO[2] and FAO[3] were partners in the project. The goal of the project was to enhance diagnostic capacity in target countries and promote the reporting of emerging epidemiological events. Much effort would be devoted to building capacity for rapidly identify common pathogens to allow for early recognition of unusual events and referral of samples with potential "unknown" pathogens to other.

FAO: Dr Scott Newman (FAO Observer to the Working Group meeting) provided a report on FAO activities related to wildlife diseases. The FAO report was aimed at providing the Working Group and OIE colleagues, with the opportunity to understand the priority areas and activities FAO was undertaking in wildlife health, to stimulate thought on where future collaborative opportunities might exist. FAO highlighted efforts on the following: capacity building for colleagues in the Ministries of Agriculture and Natural Resources conducted with AU–IBAR[4]; future Africa-wide Wildlife Investigations and Livestock Disease: Implications for Livelihoods and Public Health, which will also include public health colleagues; development of a training manual to support these capacity building efforts; wildlife surveillance activities in buffalo and bats; Scientific Task Force activity updates; and internal One Health activities within FAO with both the Forestry and Fisheries Departments including the side event organised among CIC[5], CBD[6], FAO at the Conference of Forestry on Hunting, Trade and Management of Wildlife in Tropical Forests in which a presentation was made on Wildlife Farming and Bushmeat Consumption.

WildTech: Prof. Marc Artois presented information received from WildTech. WildTech was a European Union funded cooperative programme on "Novel technologies for surveillance of emerging and re-emerging infections of wildlife" (acronym: WildTech). The consortium consisted of 13 multidisciplinary partners, and was coordinated by the University of Nottingham. The programme started in July 2009 and was funded for 4 years. WildTech's objective was to establish a framework for pan-European surveillance for wildlife pathogens based on new diagnostic tools, such as nucleic acid microarrays (NA). Bluetongue virus and *Mycobacterium bovis* were being used as the first models to test the concept in a range of priority species such as deer and wild boar. Prototype NA arrays were expected to be ready before end of the year 2010; first stage of validation would be completed by next spring. Further progress would be reported to the OIE. A connection between WildTech and the Working Group would be maintained through their members and OIE participation in the WildTech External Advisory Committee.

19. Timing of future meetings

In order to work more closely with the Scientific Commission and, through it, with other OIE Specialist Commissions, the WGWD had decided to hold its annual meeting in Paris during the second week November (7 to 10 November 2011).

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…/Appendices

2 WHO: World Health Organization
3 FAO: Food and Agriculture Organization of the United Nations
4 AU–IBAR: African Union–Interafrican Bureau for Animal Resources
5 CIC: International Council for Game and Wildlife Conservation
6 CBD: Convention on Biological Diversity

Appendix I

MEETING OF THE OIE WORKING GROUP ON WILDLIFE DISEASES

Paris, 12–15 October 2010

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6. OIE Global Conference on Wildlife Animal Health and Biodiversity
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15. *Ad hoc* Group for validation of diagnostic tests for wildlife
16. Theileriosis
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Sensitivity and Specificity of some diagnostic tests for wildlife diseases

Routine diagnostic tests that have been developed and are currently used for detecting or confirming diseases in domestic livestock have generally not been validated for wildlife. The question remains as to whether there are any essential differences in sensitivity or specificity of these tests when they are applied to wildlife samples and whether the Working Group for Wildlife Diseases should put forward suggestions for amending and updating the next edition of the OIE *Manual of Diagnostic Tests and Vaccines for Terrestrial Animals* where relevant.

Diagnostic tests can arbitrarily be divided into two categories:

1) AGENT IDENTIFICATION TECHNIQUES, which include both directly visual diagnostics as well as antigen detection techniques.

2) INDIRECT TECHNIQUES

There will, however, always be some overlap in these categories.

1. Agent identification techniques

a) Directly visual diagnostic

1. Macroscopic – identification of macroparasites (helminths, ectoparasites and larval myiasis) and disease vectors (winged and flightless arthropods) OR pathognomonic macroscopic lesions at necropsy.

2. Microscopic

   i) Detection and identification of micro-parasites in body fluid or tissue smears, skin scrapings, faecal examinations and urine sediments. Examples are haemoparasites, anthrax bacilli, microfilaria, dermatomycoses, entero-protozoons, helminth eggs and micro-ectoparasites. Specific stains may be required.

   ii) The typical light microscopic appearance or electron-microscopic features of specific diseases in histopathological organ sections, e.g. mycobacteriosis, spongiform encephalopathies, systemic mycoses, viral inclusion bodies, systemic protozoa, etc. Specific stains may be required.

   iii) Making use of fluorescent conjugates to identify aetiological agents in tissue smears, e.g. fluorescent antibody techniques used for diagnosis of rabies and clostridial infections.

   iv) Immunohistochemical techniques for demonstration of the aetiological agent in tissue sections, e.g. rabies, Rift Valley fever, spongiform encephalopathies.

b) Antigen detection

There are various direct and indirect methods of detecting infectious agents and antigen in specimens. These include:

1. *In vitro* or *in vivo* culture – commonly used to isolate bacteria, viruses, fungi and some protozoa.

2. Molecular techniques – including polymerase chain reaction (PCR) amplification of the agent's genetic material, and specific DNA probes to detect antigen.

What is very important is that all of these agent identification diagnostic techniques should theoretically not be affected by the species of the host, i.e. domestic livestock or wildlife. There may be some species variation in the proliferation rate or amplification of the agent, which may affect the amount and distribution of antigen in the tissues.

2. Indirect techniques

These techniques are mainly serum/plasma based immuno-assays that rely on detecting the host's response to the antigen. These assays directly or indirectly measure antibody levels or cellular immune responses to the specific agent, which may have resulted from exposure, infection or disease. Examples are virus neutralisation tests, all the various enzyme-linked immunosorbent assay (ELISA) techniques, complement fixation tests, haemagglutination inhibition tests, precipitin tests, gamma interferon tests and intradermal antigen response tests.

Most of these tests involve the comparison of results with known positive and negative controls, and interpretation of the results depends on set "cut off" point levels. These serological tests are frequently used in specific disease surveys, or to test batches of animals prior to certification or movement. They are also used in individual diagnostics where repeat testing is used to assess sero-stability. Some indirect technique tests for specific diseases have been used for many years in certain wildlife species with excellent results. However, it is with these indirect test techniques that a problem with sensitivity and specificity may occur, and where species validation becomes important.

Overview of the quality of diagnostic tests for wildlife diseases: state of the art

The methods used in some tests assure that results obtained are not adversely affected by differences in the animal species to which the tests are applied. Many of the standard tests to identify infectious agents are in this category – culture for bacteria and viruses, and PCR for example. Other test methods only can be applied to one or a small number of species. Examples are all indirect ELISAs, in which an antibody that reacts with the immunoglobulin molecules of the host animal species is required within the test. Thus, unless such host species specific antibodies have been developed, the results of these tests are not valid and will be highly misleading if applied to samples from other species of animals. On the other hand, competitive and blocking ELISAs and the fluorescence polarisation assay do not require host species specific antibodies and thus can be applied to samples from any species of animal.