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REPORT OF THE MEETING OF THE OIE SCIENTIFIC COMMISSION FOR ANIMAL DISEASES

Paris, 19 - 21 February 2008

A meeting of the OIE Scientific Commission for Animal Diseases was held at the OIE Headquarters in Paris, France from 19 to 21 February 2008. Dr Bernard Vallat, Director General of the OIE welcomed the participants and thanked them for the valuable work they do on behalf of the OIE and the International Committee. He commented on the importance of several issues listed on the agenda of the meeting and invited the Commission to pay special attention to the issues related to foot and mouth disease, notably the report of the ad hoc Group on country evaluation for foot and mouth disease (FMD) status and the report of the OIE Mission that visited countries in South America in December 2007. He indicated that negotiations are in progress to appoint a focal point for FMD at the office of the OIE Regional Representative for the Americas and invited the Commission to consider technical expertise and advice to countries on aspects related to FMD when needed. He also supported closer liaison between the Commission and the OIE sub-regional commission for FMD in South-East Asia (SEAFMD) in matters related to country evaluations for FMD from that region. Dr Vallat confirmed that negotiations are in progress to host a global conference on FMD in December 2008. He urged the Commission to also make recommendations on the best way how the OIE should address issues related to wildlife diseases following the recommendations made by the Wildlife Working Group.

The meeting was chaired by Prof. Vincenzo Caporale, President of the Scientific Commission and Dr. Preben Willeberg was rapporteur.

The agenda and the list of participants are attached as [Appendices I](#) and [II](#).

1. Report of the meeting of the Scientific Commission for Animal Diseases, 18 to 20 September 2007

The Commission reviewed the report and the progress made with issues identified for further action.

1.1. Handbook for animal disease surveillance

The Commission re-iterated its commitment to develop a handbook on animal disease surveillance. Note was taken of the recommendation of the ad hoc Group on Epidemiology that a consultant should be appointed to manage the process and also the recommendations of the ad hoc Group on Wildlife disease surveillance and ad hoc Group on vector-borne diseases on the need for handbooks related to surveillance for wildlife diseases and vectors. The Commission acknowledged the need for a driver or focal point for the process but concluded that it would not be in favour of appointing an external consultant to conduct the task. It was decided that a meeting of representatives of the relevant Collaborating Centres should be convened to discuss the way forward and to appoint a driver to manage the process. Aspects related to wildlife disease and vector surveillance should be incorporated into the handbook and not be addressed separately.

1.2. Networks for OIE reference laboratories for specific diseases

The Commission discussed the interim report of the President of the Commission on his visits to and discussions with selected laboratories on the way forward for the establishment of networks for OIE Reference Laboratories for foot and mouth disease and other OIE listed diseases. The President indicated that following the response of the Director General of the OIE on the interim report, further visits and discussions are underway. He also indicated that consideration should be given of inviting the OIE Reference Laboratory for FMD at Pirbright to the next meeting of the Commission to discuss matters related to the network for FMD.

1.3. Report of the FMD mission to South America – December 2007

The Commission took note of and endorsed the comments on the Mission report by the ad hoc Group on country evaluation for FMD. It was re-iterated that the findings and recommendations of the Mission should be read together and brought into context with the recommendations of the previous Mission in December 2006 as well as the undertaking by the CVP (Central Veterinary Committee of the Southern Cone countries) following discussions on the recommendations of the report of the December 2006 Mission. The report was endorsed and adopted for distribution for comments by the countries concerned. The comments of the countries will be evaluated during the next meeting of the Commission.

1.4. The use of lactoperoxidase to inactivate pathogens in milk

Following an inquiry from the IDF (International Dairy Federation) the Commission agreed to delete the reference to the IDF in paragraph 4.5 of the September 2007 report as the statement made do not reflect the official opinion of the IDF.

2. Work plan and activities

The Commission took note of progress with the work plan for 2007/2008 and noted that meetings of the ad hoc Groups as identified were convened while meetings of new ad hoc Groups for Swine vesicular disease, Crimean Congo haemorrhagic fever have been scheduled as well as a newly constituted ad hoc Group for Brucellosis. The Commission recommended that it would be more appropriate to wait for the final outcome on the discussions and adoption of the revised *Terrestrial Code* chapter on bovine Tuberculosis before proceeding to revise the current chapter on bovine Brucellosis due to similarities in the approach of the *Terrestrial Code* to these two diseases.

3. Reports of ad hoc Groups

3.1. Ad hoc Group on country evaluation for rinderpest

The Commission reviewed the reports ([Appendix IV and Appendix V](#)) and recommendations of the meetings of the *ad hoc* Group that met at OIE Headquarters from 2 to 3 October 2007 and 5 to 6 February 2008.

The ad hoc Group evaluated 16 country dossiers for the allocation of infection free country status for rinderpest. The Commission evaluated these recommendations and endorsed the recommendation for the allocation of rinderpest free status to 12 countries while the allocation of free status to 1 country's status was kept pending subject to compliance with disease reporting obligations, another 2 countries were made subject to further additional information requested from these countries in respect of disease reporting obligations to the OIE and aspects related to veterinary service delivery as required in the questionnaire for the allocation of disease free status. The application of one country was rejected due to non-compliance with the requirements of the *Terrestrial Code* for the allocation of infection free status for rinderpest.

The Commission did not agree with the comments of the Group on the way forward for achieving the ideal of declaring global rinderpest freedom. While the Commission accepted that the final objective of global eradication is within reach, it would not be acceptable to create another system or new structures for country evaluations other than what are already provided for within the OIE decision-making system and OIE standards for qualifying for freedom from rinderpest. The Commission also agreed with a suggestion by the Director General that to expedite the process, countries in the various regions of the globe could be grouped in accordance with the historical risk of exposure or non-exposure to rinderpest

to facilitate the detail of information that would be required for evaluation depending on the risk. A declaration of global freedom from rinderpest within the foreseeable future would also necessitate an evaluation of the disease status in countries and territories of countries that are not members of the OIE. The Commission recommended that whatever system will be used to incorporate such non OIE countries and territories in the evaluation process, the same criteria for evaluation applicable to OIE members, should apply. The Commission supported the principle that countries should also take responsibility for the declaration of disease free status of territories that for historical reasons or otherwise, are not be necessarily part of the mainland of a country.

The Commission endorsed the recommendations of the Group for minor changes to Appendix 3.8.2 of the *Terrestrial Code* on the surveillance guidelines for rinderpest as well as minor changes to the country questionnaire to assist the application for rinderpest freedom.

3.2. Ad hoc Group on country evaluation for foot and mouth disease (FMD)

The Commission reviewed the report ([Appendix III](#)) and recommendations of the meeting of the *ad hoc* Group that met at OIE Headquarters from 17 to 18 January 2008.

The ad hoc Group evaluated 7 country dossiers for the allocation of freedom from FMD – 4 countries for freedom without vaccination, 2 countries for zonal freedom with vaccination and 1 country for a zone free with vaccination and a zone free without vaccination. The Commission evaluated these recommendations and endorsed the recommendation for the allocation of FMD freedom without vaccination to 4 applicant countries whilst the applications for zonal freedom with vaccination for 2 countries were rejected. For one country that applied for two zones for FMD freedom (one zone with and one zone without vaccination), only the application for the zone free without vaccination was approved.

The Commission took note that the application of Brazil that was evaluated by the ad hoc Group, did not qualify for a fast track procedure as it implied a new application for a new zone that can only be approved by the OIE International Committee on recommendation by the Scientific Commission. Following the discussions at the OIE headquarters in February 2007 with a delegation from Brazil, it was indicated to the OIE Delegate of Brazil that should they consider submitting a revised application requesting only the re-instatement of previously approved free zones, it could be subjected to the fast track decision-making procedure without agreement by the International Committee. In reviewing the report of the ad hoc Group the Commission emphasised over and above the comments from the ad hoc Group that in the submission of a revised application, Brazil should take note of the comments of the OIE FMD mission to South America in December 2007 and should especially address the following issues:

- Surveillance in particular in high risk areas
- Animal identification system
- Animal movement control in border regions
- Vaccination under veterinary control

The Commission also offered its assistance to countries to help to bring the purpose of FMD surveillance into context with the OIE standards for achieving and maintaining disease freedom from FMD. Workshops with the help of the OIE Regional Representative for the Americas were suggested as a possibility to render assistance.

An application was received from the OIE Delegate of Cyprus for the Commission to consider the reinstatement of the FMD status of Cyprus to a country free of FMD without vaccination. The FMD status of Cyprus was suspended on 6th November 2007 after the Delegate notified the OIE of a suspect outbreak of the disease. The Commission evaluated the dossier submitted by Cyprus and on request also had discussions with a delegation of Cyprus supported by the European Commission, to get clarity on the containment of the suspect outbreak of the disease. The Commission concluded that Cyprus has complied with the requirements of Article 2.2.10.2 and Article 2.2.10.8 for the restoration of FMD freedom without vaccination.

The Commission reviewed and endorsed the comments of the ad hoc Group on the report of the OIE Mission of December 2007 to assess the implementation of the recommendations of the 2006 Mission for a regional approach for FMD control in the frontier areas bordering Argentina, Brazil, Bolivia and Paraguay (refer to par 1.3).

The Commission took note of the attempts of the OIE Central Bureau to provide a user-friendly mapping system for the Scientific and Technical Department. The Commission however, urged that the process be expedited as the detailed evaluation of country applications for especially zonal freedom from disease and the presentation of these applications to the International Committee is becoming extremely difficult without the help of such a system.

3.3. *Ad hoc* Group for country evaluation for bovine spongiform encephalopathy (BSE) risk

The Commission reviewed the report ([Appendix VI](#)) and recommendations of the meeting of the *ad hoc* Group that met at OIE Headquarters from 14 to 16 January 2008.

The ad hoc Group evaluated 4 country dossiers for the allocation of BSE risk status. The Commission endorsed the recommended negligible BSE risk status to 1 country and controlled BSE risk status to 2 countries whilst the application of 1 country was rejected.

The Commission discussed the insertion in the report of proposed comments by the Scientific Commission to applicant countries and concluded that it should be deleted from the report as it could give the impression that recommendations by the BSE *ad hoc* Group for BSE risk status to countries are provisional pending the proposed comments by the Commission to the applicant country. The Commission confirmed its view that once a recommendation of the ad hoc Group is endorsed by the Commission and adopted by the International Committee, that decision is final and further maintenance of the status in accordance with the requirements of the Terrestrial Code, implies a trust relationship between the country concerned and the OIE.

The Commission reviewed the proposed shortened questionnaire for the annual reconfirmation of status by countries that have been allocated a BSE risk status and requested the ad hoc Group to review their proposal to make it more concise and simple to only reflect the most critical elements necessary for confirmation of status.

The Commission took note of the inquiries addressed to the OIE by 4 Members and was satisfied that it was dealt with in the correct manner by the ad hoc Group and Central Bureau.

3.4. *Ad hoc* Group on atypical scrapie and BSE

The Commission reviewed the report ([Appendix VII](#)) and recommendations of the meeting of the *ad hoc* Group that met at OIE Headquarters from 5 to 7 November 2007.

The Commission supported the conclusions of the *ad hoc* Group that for atypical BSE, insufficient scientific data are available to justify changes to the current text of the Terrestrial Code and that for atypical scrapie insufficient information is available that would support the establishment of rules or guidelines specific to atypical scrapie other than in relation to the choice of diagnostic test use for surveillance.

The Commission took note of the initiative by the experts concerned to draft out of session a new chapter on scrapie for the *Terrestrial Code*. The Commission concluded that as the proposal for a new chapter was not included within the Terms of Reference of the Group, the Commission could not comment on the draft chapter and suggested that the experts submit it directly to the Code Commission for evaluation.

The proposals by the Group for minor changes to Appendix 3.8.5 and the questionnaire for BSE risk classification were endorsed for further attention of the Code Commission.

3.5. *Ad hoc* Group on climate change and vector-borne diseases

The Commission reviewed the report ([Appendix VIII](#)) and recommendations of the meeting of the *ad hoc* Group that met at OIE Headquarters from 20 to 22 November 2007.

The Commission concluded that climatic changes are likely to be a factor in determining the spread of some diseases, such as vector-borne diseases. However, it was considered important to carefully look at additional significant factors, other than climatic change, including their options for control and risk mitigation. The Commission recommended that the Epidemiology *ad hoc* group should consider discussing these issues with the view of changing disease patterns in general and this might comprise effects of climatic changes. A background paper on new epidemiological factors related to the international spread of diseases could be requested to assist the Epidemiology Group in this task.

The Commission acknowledged the need expressed by the Group that a handbook on vector surveillance could be helpful but recommended that it should be included within the planned handbook on animal disease surveillance (par 1.1). The proposed Appendix on *Guidelines for Arthropod Vectors of Animal Diseases* is accepted in principle for consideration by the Code Commission.

The Commission did not agree that the Group should be tasked with reviewing of the *Terrestrial Code* chapters related to vector-borne diseases but should any relevant chapter be identified for revision, an expert on vector surveillance could be invited to assist the experts on that disease within an *ad hoc* Group.

3.6. *Ad hoc* Group on wildlife disease surveillance

The Commission reviewed the report and recommendations of the meeting of the *ad hoc* Group that met at OIE Headquarters from 23 to 25 January 2008. The report is attached as [Appendix IX](#).

The Commission acknowledged the need expressed by the Group that a handbook on wildlife disease surveillance could be helpful but recommended that it should be included within the planned handbook on animal disease surveillance (par 1.1).

The changes proposed by the Group on Appendix 3.8.1 (General guidelines for animal health surveillance) were noted but the Commission requested that the *ad hoc* Group for Epidemiology who was responsible for drafting the original text for Appendix 3.8.1, at their next meeting review the proposed changes in detail as well as the new definitions proposed by the Group.

3.7. *Ad hoc* Group on Epidemiology

The Commission reviewed the report ([Appendix X](#)) and recommendations of the meeting of the *ad hoc* Group that met at OIE Headquarters from 13 to 15 February 2008.

The Commission took with appreciation note of the work done by the Group to finalise revised texts for the Chapter, surveillance guidelines and country evaluation questionnaire for contagious bovine pleuropneumonia (CBPP) and recommend the Code texts to the Code Commission for further processing.

The Commission endorsed the changes suggested by the Group to the text in Articles 2.2.10.2 to 2.2.10.5 of the *Terrestrial Code* chapter on foot and mouth disease. The Commission agreed that the text is now clearer to emphasise that the implementation of effective animal health measures to prevent the spread of virus between animal populations of different health status is the critical factor which may not necessarily include a buffer zone. The Commission also endorsed the possible addition of a text to Articles 2.2.10.3 and 2.2.10.5 as proposed by the *ad hoc* Group.

The Commission supported the proposal of Prof Willeberg to proceed with the proposed program to develop guidelines for epidemiological modelling as mandated in Resolution XXXIII of the 75th General Session of May 2007. The Director General is requested to approve the formation of an *ad hoc* Group to draft the proposed guidelines with the assistance of the OIE Collaborating Centre for Animal disease surveillance systems and risk analysis at Ft Collins, USA.

The Code Commission is requested to take note of the views of the ad hoc Group as supported by the Scientific Commission, on defining clinical surveillance and setting timeframes for active surveillance after a declaration of freedom from a disease.

4. Working group on wildlife diseases

The Commission reviewed the report ([Appendix XI](#)) and recommendations of the meeting of the Working Group that met at OIE Headquarters from 28 to 31 January 2008.

Following discussions with the Director General on the way forward of the Working Group relative to the increased importance of the pathogen interface between wildlife and domestic species, the Commission reviewed the Terms of Reference and working plan proposed by the Group. The Commission reiterated that there should be much closer integration between the activities of Group and the Commission. However, the Commission also indicated that the approach to date within the OIE in setting standards or revising standards, are based on a disease-by-disease approach. It is thus very difficult to define specific tasks or priorities for the Group under a broader concept such as “wildlife diseases”. It was therefore concluded that the members of the Working Group that will be appointed during the 76th General Session of the OIE, review the proposed Terms of Reference and working plan taking this concept into consideration.

The Commission indicated that a member of the Commission should be invited to attend future meetings of the Working group to ensure better integration between the Group and the priorities of the Commission.

The Commission welcomed the intended formation of an ad hoc Group to develop guidelines for the integration of wildlife disease data within the WAHIS system of the OIE.

The Commission took note of the review conducted by the Group on the current list of OIE diseases and acknowledged that by adding possible wildlife involvement where appropriate to the current list, could serve as a baseline for further discussions or revision in the outlay of the *Terrestrial Code*.

The Commission endorsed the proposal that the Director General in the reconstitution of the Group, should consider including experts from South America and Asia that are currently not represented in the Group.

5. Official disease free status recognition

The Commission discussed several issues raised by the Scientific and Technical Department related to problems encountered with the submission, analysis and processing of dossiers and the annual reconfirmation of official animal disease free status.

The Commission resolved that a Resolution should be prepared for submission for adoption by the International Committee at the 76th General Session in which at least the following should be captured:

- The procedure and obligation of OIE Members and Territories for submission of annual reconfirmations for the maintenance of official disease free status as well as the consequences for failure to submit such reconfirmations.
- The fees applicable or when payment of fees is not applicable for submitting requests for the allocation of official disease free status by the OIE.
- A generic and concise format for submission of annual reconfirmations stating the most critical requirements to illustrate compliance with the *Terrestrial Code*.

The proposed Resolution shall replace applicable previous Resolutions taking care that it should collate all the critical components of previous Resolutions related to the procedures for country evaluations.

The Commission re-iterated its view that the integrity and continuous ability of a country to deliver a veterinary service as outlined in Chapter 1.3.3 of the *Terrestrial Code* should be critical factors in accepting the claims for maintenance of disease free status and in evaluating country applications for the allocation of official disease free status. The questionnaires for assessing country applications also require specific information to assess the ability of a country to control and maintain disease freedom.

Should a country applying for the allocation of a free zone adjacent to a free zones of similar status, the Commission would accept that such an application would imply an enlargement of the previous approved zone unless a country specifically indicates that it wishes to maintain the zones as two separate zones although of comparable disease status. The Commission acknowledged that it remains within the prerogative of the national policy of a country applying for the merging of one or more zones, that such a country by default would also accept the risk management implications and the loss of the disease status of the entire amalgamated zone in the event of an outbreak.

6. Issues referred to Scientific Commission by the Code Commission

On request of the Terrestrial Code Commission, the Commission reviewed Member Country comments on Chapter 2.3.3 (Bovine tuberculosis). The comments of the Commission were forwarded to the Code Commission

The Commission reviewed the definitions in Chapter 1.1.1. The Commission reiterated its view that whenever definitions need to be changed, the existing textbook definitions (for example for epidemiological based definitions) should take preference. The comments of the Commission were forwarded to the Code Commission.

7. Schedule of meetings of the Scientific Commission

A tentative meeting of the Bureau of the Commission is scheduled for Saturday 24 May 2008, just prior to the 76th General Session should there be any issues related to country evaluations that need the decision of the Commission for presentation to the International Committee.

A meeting of the Bureau of the Commission will take place on Saturday 31 May 2008, following the 76th General Session to finalise the program and priorities for 2008/2009.

The next full meeting of the Scientific Commission will be from 29 September to 1 October 2008 at OIE headquarters, Paris.

.../Appendices

**MEETING OF THE
OIE SCIENTIFIC COMMISSION FOR ANIMAL DISEASES**

Paris, 19 - 21 February 2008

Agenda

1. Review of the meeting report of the Scientific Commission for Animal Diseases, 18-20 September 2007

- a) Handbook for animal disease surveillance - need for concrete planning
- b) Networks for OIE Reference Laboratories for specific diseases
- c) FMD mission to South America – December 2007
- d) Use of the lactoperoxidase system (par 4.5 of the September report)

2. Work plan and activities

- a) Review of the progress of the work plan discussed in September 2007

3. Reports of *ad hoc* Groups and Working Group on Wildlife diseases

- a) *Ad hoc* Groups on Country evaluation for Rinderpest
- b) *Ad hoc* Group on Country evaluation for FMD
- c) *Ad hoc* Group for Country Evaluation for BSE risk
- d) *Ad hoc* Group on atypical scrapie and BSE
- e) *Ad hoc* Group on climate change and vector-borne diseases
 - Examination of “Terms of Reference”
 - Proposed new Appendix text including the definition of “vector” (note: the choice of the term feed instead of food in the definition should be discussed).
 - Recommendation to review disease specific Code Chapters on vector-borne disease
 - Recommendation of developing a manual of methods for collection, enumeration and identification of vectors
- f) *Ad hoc* Group on wildlife disease surveillance
 - Recommendation to include all animal species susceptible to diseases of concern to the OIE in the purview of the OIE
 - Proposed revisions on Appendix 3.8.1.
 - Recommendation to develop the definition of “international spread” used in Article 2.1.1.2.
 - Recommendation to make Article 2.1.1.1. in line with the definition of “*emerging disease*”
 - Examination of “Terms of Reference”
- g) *Working Group on Wildlife*
 - Priority OIE listed diseases with wildlife involvement
 - Reporting of wildlife disease through WAHIS
 - Terms of Reference and Work Plan
- h) *Ad hoc* Group on Epidemiology
 - Epidemiological modelling
 - Time frame for maintaining active surveillance after declaring freedom from disease or historical freedom
 - Buffer zone and other animal health measures required for zones free from FMD

4. Issues related to official disease status recognition

- a) Comments from Members on BSE status (Japan, China, Peru and Argentina)
- b) Aspects related to the submission, analysis and processing of dossiers and annual reconfirmation of official disease free status

5. Issues referred to Scientific Commission by the Code Commission

- a) Member comments on Chapter on Bovine TB
- b) Member comments on definitions in Chapter 1.1.1

6. Other issues

- a) Schedule of meetings of the Scientific Commission
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**MEETING OF THE
OIE SCIENTIFIC COMMISSION FOR ANIMAL DISEASES**

Paris, 19 - 21 February 2008

List of participants

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**REPORT OF THE MEETING OF THE OIE AD HOC GROUP
FOR THE EVALUATION OF COUNTRY STATUS FOR FOOT AND MOUTH DISEASE**

Paris, 17-18 January 2008

The Agenda and list of participants are presented as Appendices I and II, respectively.

1. Opening and Agenda

The meeting of the OIE *ad hoc* Group on the Evaluation of Country Status for foot and mouth disease was held at OIE Headquarters, Paris from 17-18 January 2008. Prof. V. Caporale chaired the *ad hoc* Group and Dr Alf-Eckbert Füssel acted as rapporteur. The *ad hoc* Group endorsed the proposed agenda.

2. Feedback on the OIE FMD mission to South America (Agenda point 4 b))

The *ad hoc* Group discussed the findings of an OIE-mission to South America carried out in December 2007. Based on the final version of the draft report the *ad hoc* Group concluded as follows:

The findings of the mission indicate that the recommendations from the December 2006 mission for the HSZ are neither fully implemented nor did the mission identify any intensified surveillance being carried out in the areas adjacent to the HSZ. It is important to stress that the recommendations are implemented differently and some countries are considerably more advanced than others. It is also important to note that underperforming of one country should not necessarily affect the status of the others but it is a cause for concern - this element is of particular importance in relation to the present political situation in Bolivia – and should be an incentive for mutual assistance and higher level of integration for the measures to implement.

Although the CVP (Comité Veterinario Permanente del Cono Sur) has already earmarked resources for the HSZ for a period of 5 years, it appears that some of the countries have not fully appreciated that the period of at least two years during which the HSZ should stay in force will only start once all the recommendations of the OIE are complied with in the four countries in all parts of the programme. Extract from the South America OIE FMD mission report of January 2007, Chapter 5:

4. *Given the obligations under the Terrestrial Animal Health Code to either reconfirm annually to the OIE the status “free of FMD with vaccination” on the basis of evidence and documentation of active surveillance aiming to detect possible virus circulation in the country, or to apply for the reinstatement of that status on a similar basis; and taking into account evidence of an endemic situation in the border areas between Argentina, Bolivia, Brazil and Paraguay affecting a shared ecosystem and a common population of susceptible animals, the Mission recommend the following:*

(1) *to agree and harmonise within the CVP of Mercosur a transboundary FMD control and eradication programme including at least the following elements:*

(a) *the establishment of a buffer zone in all of the above mentioned countries alongside their borders in this common ecosystem in which an intensified control and vaccination programme is implemented over a sufficient period of time, and*

- (b) *the establishment around the buffer zone of a surveillance zone of sufficient size in which an intensified surveillance programme is implemented over a sufficient period of time to detect and identify remaining pockets of virus infection and circulation;*

It is acknowledged that coordination across borders has improved and that the veterinary services do meet on a regular basis. Under the responsibility of the CVP audits are carried out and continue to be carried out, with the participation of PANAFTOSA, and appropriate benchmarks have been set to monitor the progress made in implementation of the OIE recommendations. In addition, the mission noted the transparent and critical analysis in the report of the audit missions on the situation in the participating countries. It is also acknowledged that additional financial and staff resources have been made available to continue with the implementation of the HSZ.

While geo-referencing of holdings in the HSZ has been almost completed, there are still shortcomings in most countries in the identification of cattle and other susceptible species. Both, the identification of animals and the registration of holdings need further harmonised integration in an effective system of movement control. In certain areas structural deficiencies in the system of controlling the movement of animals have not been rectified after the introduction of improved IT-systems and logistics. Also the information concerning the holdings registration and disease control measures is not made available throughout the whole HSZ. Information and communication seems to flow better across the border than along the borders, further improvements of communication and communication systems should be implemented.

The established databases on geo-references of holdings in the HSZ should be completed with data on the established links between farms on both sites of the border liable to facilitate the spread of possible FMD virus, such as common ownership or shared equipment, staff employed for vaccination, family relationships or cooperative structures

Although some advances have been made with the synchronisation of the vaccination campaigns within the HSZ, this does not necessarily mean that the vaccination schemes are fully compatible and harmonised across the borders yet, or that there were no undue differences in the way vaccines are commercialised and supplied to the customers. There are also noticeable differences in the official supervision of the vaccination operations, although the mission did see improvements in the infrastructure necessary to carry out effective vaccination and none of the mission teams observed significant shortcomings in the maintenance of the cold chain. Some serious concern has been raised because in some countries vaccination is not carried out under the direct control of the official veterinary services.

Given the necessity of surveillance for the detection and documentation of evidence of virus circulation, there is no alternative to the purity requirements laid down for FMD vaccines in the OIE Manual and the countries in South America should endeavour to use best available regional practices to ensure that vaccines used do not interfere with surveillance requirements. Progress has been made in batch controls of vaccines and in the active investigation of isolates for new antigenically distinct viruses. Concern, however, was raised in relation to the fact that in some countries new legislation on vaccine standards was passed which still does not comply with OIE standards.

As at present the programme including the HSZ is not fully implemented, the progress in its implementation should be monitored by the OIE on a regular basis. This might include follow-up missions in collaboration with PANAFTOSA, and the OIE should request a biannual situation report. Particular attention should be paid to the implementation of the programme in Bolivia, as this could jeopardise the status of the whole sub-region.

3. Evaluation of Country applications for freedom from disease

3.1. Brazil application for freedom with vaccination

Brazil presented a dossier requesting the recognition of freedom from FMD with vaccination for a – in fact – NEW ZONE embracing 12 Federal States, including Mato Grosso do Sul (MS).

As a consequence, this exercise is not to reinstate the previous status of a previously approved zone (as before Brazil had for the same area at least two zones in accordance with the approval procedure).

The *ad hoc* Group suggests that the OIE writes to Brazil seeking clarification whether they want to pursue the dossier as a single dossier for approval at the General Session – despite the technical consideration and possible approval by the *ad hoc* Group.

As for the proposed zone no specific information was provided for a bio-security plan to separate animal subpopulations (Article 1.3.5.3 of the *Terrestrial Code*), the *ad hoc* Group concluded that the dossier should be evaluated in the light of an application for a new zone which makes a difference in relation to certain periods of the *Terrestrial Code* that have to be observed following the elimination of the last spots of virus circulation in July 2007:

- Article 2.2.10.8 6 months if reinstatement of a previously declared zoned (could go ahead) or
- Article 2.2.10.3 12 months if it was a new zone (the dossier cannot be evaluated as the time has not been sufficient)

The *ad hoc* Group concluded:

- the dossier cannot be approved as such, as MS does not fulfil the above quoted conditions
- in the case where Brazil submits a second application - they have to decide on instatement of a new enlarged or re-instatement of a previous zone, then the Group can consider whether it may be accepted that the zone previously including MS could be smaller (deleting part of a zone)
- the survey design as presented in the dossier does not suite the needs for this dossier and in particular has not been designed in coordination with PANAFTOSA.
- in addition, account must be taken of the relevant findings of the OIE mission 2007 which has identified an insufficient implementation of the HSZ-programme;
- Brazil has auto-declared freedom for certain areas without consulting the OIE
- at that state the *ad hoc* Group terminated the evaluation of the dossier.

3.2. United Kingdom (Recovery of free status without vaccination)

The *ad hoc* Group evaluated the application submitted by the UK and concluded that the dossier was sufficient to document the absence of FMDV in that country.

However, the *ad hoc* Group singled out the importance of strong veterinary services necessary to meet the challenges of an outbreak.

The *ad hoc* Group will propose to the Scientific Commission (SCAD) to reinstate the previous free status without vaccination for the UK.

3.3. Belize

The *ad hoc* Group evaluated a dossier submitted by Belize to document historical freedom from FMD.

Further to the application dossier it was noted that Belize is in regular contact and exchange of information with PANAFTOSA and that they have prepared a type of a contingency plan to react to possible outbreaks. They have a very restrictive import policy, but there is an informal movement of cattle to Guatemala. Due to the informal movement, the number of animals that move from Belize to Guatemala is unknown.

The *ad hoc* Group will propose to the SCAD to recognise historical freedom from FMD for Belize. However, the *ad hoc* Group recommend to the SCAD to clarify to what extent any change in the status of neighbouring countries affects – in the light of the informal movements – the status of Belize.

3.4. Dominican Republic

The *ad hoc* Group evaluated the dossier submitted by the Dominican Republic (DR) for recognition of historical freedom from FMD. The status of DR must be seen in the context of its neighbour country.

Haiti was initially on the list of free countries (1999 published 2000) but lost its status in 2002 when they discontinued to reconfirm their status and stopped submitting the sanitary reports. Since 2 years they have resumed their reporting to OIE and they also have now submitted additional information to substantiate absence of FMD on the island.

As there is no possibility to exclude informal movement with Haiti, any change of the status of this neighbouring country will immediately and directly affect the status of DR.

Based on the information provided by the Dominican Republic the *ad hoc* Group cannot conclude that all the conditions required by Article 3.8.1.6 are fulfilled by the neighbouring country Haiti and in the absence of a buffer zone, the risk remains that the status of Haiti could directly affect the status of DR. Haiti's case (formerly historically FMD free) might need to be considered in separate discussions.

The *ad hoc* Group decided to request from DR additional information for:

- epidemiological investigations
- follow-up of suspicions

3.5. Brunei

The *ad hoc* Group evaluated the dossier submitted by Brunei and concluded to recommend to the SCAD the approval of the historical free status of Brunei without vaccination.

However a certain risk remains imports of de-boned beef from an FMD endemic country and there is little evidence of traceability of animal movements, surveillance and suspect investigation in the past.

3.6. Philippines (new zones)

The Philippines requested that the remaining parts of the Luzon area be recognised as “free from FMD practising vaccination”. The regulatory measures to prevent introduction of FMD should be better explained including swill feeding. The *ad hoc* Group concludes that the document does not sufficiently clarify the situation in this part of the Philippines and notably in relation to:

- vaccine control and application
- surveillance, including results and interpretation of NSP sero-surveys
- there is a patchwork system within the area of zones free without vaccination and free with vaccination with no evidence of separation
- swill feeding practice is not clear

The *ad hoc* Group will therefore not recommend the dossier for approval by the SCAD.

3.7. Colombia

The *ad hoc* Group evaluated the dossier submitted by Colombia, which is far too exhaustive, but well presented and sufficiently detailed and concluded as follows:

- if Colombia gets the status for the last piece of its territory it will have a large zone free with vaccination as compared to the small zone free without vaccination, both in its north-west and including two islands.
- the document does not provide sufficient information suggesting that Colombia has decided to retain the controls between the new zone and those zones that had been approved previously and consequently in case of an outbreak the whole country (except the free zone) would lose its status
- then more sophisticated the regionalisation then higher are the requirements for identification and traceability
- bearing the risk of losing the status, Colombia should be encouraged to properly protect its borders
- the group noticed the progress made by Colombia in implementing rules and procedures to guarantee a purity of used vaccines that no longer interferes with the required sero-surveillance.

The *ad hoc* Group concluded to recommend the application to the SCAD for approval, including the approval of the two islands for the status of "free without vaccination", subject to a plausible explanation for abandoning the buffer zone previously existing between the zone free with vaccination and Venezuela

4. Miscellaneous

The SCAD is requested to review the system of providing delimitations of the zones recognised for a specific disease status. It is recommended to provide more details in particular to use geo-referencing for unequivocal and detailed description of the areas.

5. Agenda points 3 and 4 a)

Due to lack of time the *ad hoc* Group was unable to address Point 3. "Review of submitted FMD data for annual reconfirmation of already classified countries" and point 4 a) "Pending issues from the report of the OIE FMD mission to South America January / February 2007: Transition from status "free with vaccination" to "free without vaccination" clarification of requirements currently outlined in the *Terrestrial Code*. It was suggested to refer these topics to the SCAD or the next *ad hoc* Group meeting on FMD.

.../Appendices

Appendix I

**MEETING OF THE
OIE AD HOC GROUP FOR EVALUATION OF COUNTRY STATUS
FOR FOOT AND MOUTH DISEASE**

Paris, 17 - 18 January 2008

Agenda

- 1. Feedback on the OIE FMD mission to South America (December 2007)**
 - 2. Evaluation of requests from Member Countries for recognition of FMD free status**
 - Dominican Republic (historically free)
 - Belize (historically free)
 - Brunei (historically free)
 - Philippines (new zone, with vaccination)
 - Colombia (two new zones)
 - Brazil (one zone with vaccination, declared by Brazil as recovery of status)
 - United Kingdom (recovery status)
 - 3. Review of submitted FMD data for annual reconfirmation of already classified countries**
 - 4. Other matters**
 - a) Pending issues from the report of the OIE FMD mission to South America January / February 2007: Transition from status “free with vaccination” to “free without vaccination” clarification of requirements currently outlined in the *Terrestrial Code*
 - b) Discussion on the draft report of the OIE FMD mission to South America December 2007
 - 5. Finalization and adoption of the draft report**
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Appendix II

**MEETING OF THE
OIE AD HOC GROUP FOR EVALUATION OF COUNTRY STATUS
FOR FOOT AND MOUTH DISEASE**

Paris, 17 – 18 January 2008

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**REPORT OF THE MEETING OF THE
OIE AD HOC GROUP FOR EVALUATION OF COUNTRY STATUS
WITH RESPECT TO RINDERPEST**

Paris, 2 - 3 October 2007

A meeting of the *Ad hoc* Group on rinderpest was held at the OIE headquarters from 2 to 3 October 2006. The members of the Group were welcomed by Dr Lea Knopf.

The agenda and list of participants are presented as Appendices I and II, respectively.

1. Adoption of agenda and appointment of rapporteur

The meeting was chaired by Dr Arnon Shimshony with Dr Peter Roeder as rapporteur.

2. Evaluation of country status for rinderpest freedom

The OIE Central Bureau needs to check the compliance of countries with their OIE reporting obligations and remind the countries that accreditation will not be granted unless semi-annual for 2007 and annual reports for 2006 are submitted to OIE before the SCAD meeting in February 2008. With respect to PR China, this matter was discussed with the Director-General who confirmed that the accreditation could not be granted until the required reports were received. He offered to write immediately to China to explain this situation. The situation with respect to China is complicated by the effective date of China's membership of OIE; the reporting obligation needs to be clarified.

▪ **CHINA**

The *Ad hoc* Group appraised the dossier presented by the People's Republic of China in support of an application for recognition of the status of freedom from rinderpest. The very comprehensive dossier presented a detailed description of the veterinary structure and legal provisions. Rinderpest occurred last in 1956 after an extensive control programme which employed mass vaccination with an attenuated vaccine. The use of this vaccine was phased out by 1970 except for a short period in 1994/5 when a vaccination buffer zone was created on the border with Pakistan because of an outbreak of rinderpest there. The dossier contained the results of an extensive serosurveillance programme in support of statements relating to the absence of clinical disease.

In reviewing the application in relation to the *Terrestrial Animal Health Code* Edition 2007 the Group came to the conclusion that PR China is eligible for freedom from infection status on a historical basis (25 years without disease and 10 years without vaccination). The extensive documentation which accompanied the application was appreciated as providing strong support to the application providing valuable information of the steps taken to confirm the free status. The dossier would anyway have been valid to support an application under the new *Terrestrial animal Health Code* Rinderpest Chapter provisions.

Recommendation: accept application as free from rinderpest on a historical basis

- **GABON**

Gabon's dossier illustrated the fact that the country is eligible for the status of freedom from rinderpest on a historical basis (25 years without disease and 10 years without vaccination) as described in the *Terrestrial Animal Health Code* Edition 2007.

Recommendation: accept application as free from rinderpest on a historical basis

- **IRAN**

The Islamic Republic of Iran last experienced rinderpest in 1994 and last practised vaccination of cattle in 2003. However, Vaccination of small ruminants, applying a rinderpest vaccine, continued in sheep and goats for protection against PPR into 2004. IR Iran is thus eligible for accreditation as free from rinderpest in accord with the *Terrestrial Animal Health Code* Edition 2007. The dossier contained a comprehensive description of the veterinary infrastructure and surveillance system supported by a well-conducted and analysed serological surveillance programme. Some members of the Group would have wished to have a more detailed description of the livestock population and sampling frame to clearly differentiate between cattle and buffaloes.

Recommendation: accept application for freedom from rinderpest.

The Group also recommended that OIE, as a separate issue, should report to IR Iran that there is some concern over the accuracy of the census data for cattle and buffaloes.

- **SUDAN**

The Sudan presented an exemplary dossier with a very comprehensive and convincing exposition of the history of rinderpest in the country and the reasons why the country can be accepted to be free from rinderpest. The very extensive clinical and serological surveillance data were presented in a very clear manner and provide definitive support for the application. Rinderpest occurred last in 2001 and vaccination ceased throughout the whole country in June 2002.

The Sudan is eligible for freedom from infection under both the old "OIE Pathway" (three stage) regulations, which the veterinary authorities followed assiduously, as well as under the *Terrestrial Animal Health Code* Edition 2007. Reporting to OIE for 2006 is in compliance and the first semi-annual report for 2007 is awaited.

Recommendation: accept application for freedom from rinderpest.

The Group recommended that OIE should include a letter of congratulation to the Sudanese veterinary authorities for having presented an exemplary dossier demonstrating the remarkable achievement of progressing from endemic infection to a status of accreditation of rinderpest freedom in less than seven years.

- **UGANDA**

The Ugandan veterinary authorities presented a convincing dossier with very good supportive serological data. Uganda is eligible for freedom from infection under both the old "OIE Pathway" (three stage) regulations, which the veterinary authorities have followed as well as under the *Terrestrial Animal Health Code* Edition 2007 provisions. Uganda has complied with its reporting obligations, for 2006 and the first semi-annual report for 2007 is awaited.

Recommendation: accept application for freedom from rinderpest

3. Review of amendments of the Appendix 3.8.2.

The whole Appendix as amended by the Epidemiology *Ad hoc* Group was reviewed and relatively minor amendments were suggested.

Drafting the section "The use and interpretation of serological tests" for inclusion in the Appendix 3.8.2 as Article 7 had been passed to the Rinderpest *Ad hoc* Group. The following text was drafted by the Group:

Article 3.8.2.7

The use and interpretation of serological tests for RP surveillance

Serological testing is an appropriate tool to use for RP surveillance. The prescribed serological tests which should be used for RP surveillance are described in the *Terrestrial Manual*; these are of high diagnostic specificity and minimise the proportion of false positive reactions. Antibodies to virulent strains and the Kabete O vaccine strain of RPV can be detected in cattle from about 10 days post infection (approximately 7 days after the appearance of fever) and peak around 30 to 40 days post infection. Antibodies then persist for many years, possibly for life, although titres decline with time. In the case of less virulent strains the detection of the antibody response by ELISA may be delayed by as much as three weeks. There is only one serotype of virus and the tests will detect antibodies elicited by infection with all RP viruses but the tests cannot discriminate between antibodies to field infection and those from vaccination with attenuated vaccines. This fact compromises serosurveillance in vaccinated populations and realistically meaningful sero surveillance can only commence once vaccination has ceased for several years. In these circumstances, dental ageing of cattle and buffaloes is of great value to minimise the inclusion of animals seropositive by virtue of colostral immunity and historic vaccination or infection. The cohort of cattle with one single set of central incisors is the most appropriate to sample:

1. Pragmatically and solely for the purposes of serosurveillance, it can be accepted that:
 - a) Cattle having one pair of erupted permanent central incisor teeth are aged between 21 and 36 months (Asian buffaloes 24 to 48 months);
 - b) Cattle having only two pairs of erupted permanent central incisor teeth are aged between 30 and 48 months (Asian buffaloes 48-60 months)

The test most amenable to the mass testing of sera as required to demonstrate freedom from infection is the H c-ELISA. Practical experience from well-controlled serological surveillance in non-vaccinated populations in Africa and Asia demonstrate that one can expect false positive reactions in 0.05 % or less of sera tested. The sensitivity of the test approaches 100 % (relative to the VNT) in Kabete O vaccinated cattle and infection with highly virulent viruses but is lower in the case of low virulence strains. Experience supported by experimental studies indicate that in all cases sensitivity exceeds 70 %.

Only tests approved by OIE as indicated in the Manual should be used to generate data presented in support of applications for accreditation of RP freedom. It is necessary to demonstrate that apparently positive serological results have been adequately investigated. The follow-up studies should use appropriate clinical, epidemiological, serological and virological investigations. By this means the investigation should examine all evidence that might confirm or refute the hypothesis that the positive results to the serological tests employed in the survey were not due to virus circulation.

The prescribed serological tests have not been fully validated for use in all wild species. From the collective experience of the reference laboratories and experts over the years, an appropriate test protocol for wildlife is based on the high expected sero-prevalence in a previously infected buffalo herd which is 99 % seroconversion of eligible animals within a herd as detected by use of a 100 % sensitive test. No single test can achieve this but combining the H c-ELISA with the VNT raises sensitivity close to 100 %.

4. Other matters

- **Timeline maintenance of “provisionally free” and “rinderpest disease free” status**

Dr Knopf raised the issue of the retention of the classifications of “provisionally free” and “free from disease” which were steps in the “OIE Pathway” until the *Terrestrial Animal Health Code* Rinderpest Chapter was revised in May 2007. Countries need to be informed of the implications of the changes to the *Terrestrial Code* and it was proposed that this should take the form of a Resolution prepared for the next OIE General Session in May 2008. The Central bureau will take the necessary action. This issue relates also to the proposal for establishing a Joint OIE/FAO Standing Technical Committee and joint Work Plan as discussed in the next item.

▪ **Outcome of the GREP consultative Group meeting, Rome September 2007**

Drs Knopf, Njeumi and Roeder described one outcome of the GREP meeting which proposed steps to facilitate global rinderpest freedom accreditation before the end of 2010. In brief, the proposal is for FAO and OIE to agree to:

- i. Establish a Joint OIE/FAO Standing Technical Committee to assist the two organisations to monitor progress in accreditation of countries as free from rinderpest and to drive the necessary actions to expedite the engagement of countries in the process. The Standing Technical committee would appraise the situation of all countries, irrespective of their membership of the organizations, and establish a Joint Work Plan to advise and assist countries to become accredited as free in the shortest time possible. Meetings would be convened as deemed necessary. The Standing Technical Committee would also drive the process of assembling the data to be presented to a Global Accreditation Commission for consideration.
- ii. Establish a Global Accreditation Commission composed of eminent scientists to examine the data collated by OIE and FAO and endorse the conclusion that the world is free from rinderpest. The process of preparing to convene this Commission needs to commence as soon as possible. The Standing Technical Committee would assist in the process of making the preparations.

It was stressed that the Standing Technical Committee needs to be established and have its first meeting in the very near future to draw up the Work Plan. Much needs to be done to ensure that progress is made in a timely manner and to achieve this it is considered that the GREP Secretariat and the OIE Central Bureau would benefit from assistance.

In addition to sovereign nations it is necessary to consider that there are still dependent territories and the Director-General offered to address this by writing to the CVOs of the “mother” countries to clarify whether submissions have to be made for accreditation.

The *Ad hoc* Group recommended that a decision on establishing a Standing Technical Committee be expedited. The Director-General agreed to enter into discussions with FAO on this matter but to do so requires a final proposal from FAO to consider and form the basis for discussions.

▪ **Review of the rinderpest questionnaire**

The Questionnaire was reviewed and refinements suggested by the Central Bureau were agreed. The proposed final version is included as [Appendix III](#).

▪ **Proposed amendment to the *Terrestrial Manual* (rinderpest chapter), recommended by the *Ad hoc* Group on rinderpest**

The recommendation was to include the use of conjunctival and nasal swabs in the section dealing with rinderpest virus isolation procedures. This was endorsed by the Group.

▪ **General recommendations**

- The Group requested the OIE Central Bureau to communicate with the countries whose applications for rinderpest freedom accreditation were considered at the meeting to remind them about their reporting obligations and the implications of being in default.
- In view of the imminent eradication of rinderpest and the need, should any resurgence occur, to compare isolates with historical virus strains, the Group recommended that an appropriate *Ad hoc* Group should include the archiving of viruses as one of the important functions of a reference laboratory.

- The rinderpest Chapter of the *Terrestrial Manual* should include a statement “The prescribed serological tests have not been fully validated for use in all wild species.”

5. Finalisation and adoption of draft report

The draft was reviewed, amended and accepted subject to circulation for comments in the coming week.

.../Appendices

Appendix I

**MEETING OF THE
OIE AD HOC GROUP FOR EVALUATION OF COUNTRY STATUS
WITH RESPECT TO RINDERPEST**

Paris, 2 - 3 October 2007

Agenda

- 1. Adoption of agenda and appointment of rapporteur**
 - 2. Evaluation of country status for rinderpest**
 - China
 - Gabon (revised version)
 - Iran (revised version)
 - Sudan
 - Uganda
 - 3. Review of amendments of the Appendix 3.8.2.**
 - Revision of section “The use and interpretation of serological tests”
 - 4. Other matters**
 - Timeline maintenance of “provisionally free” and “rinderpest disease free” status
 - Recommendations from the GREP consultative Group Meeting 25-26 September, Rome
 - a) Update on progress in global eradication of rinderpest
 - b) Strategies for the implementation of a global vaccine ban and control
 - 5. Finalisation and adoption of draft report**
-

Appendix II

**MEETING OF THE
OIE AD HOC GROUP FOR EVALUATION OF COUNTRY STATUS
WITH RESPECT TO RINDERPEST
Paris, 2 – 4 October 2007**

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RINDERPEST INFECTION FREE COUNTRY

Report of Country which applies for recognition of status, under Chapter 2.2.12 and Appendix 3.8.2 of the *Terrestrial Animal Health Code*, as a rinderpest infection free country

Please address concisely the following topics. National regulations laws and *Veterinary Administration* directives may be referred to and annexed as appropriate

1. Introduction

- 1.1. Geographical factors. Provide a general description of the country including physical, geographical and other factors that are relevant to rinderpest dissemination, countries sharing common borders and other countries that although may not be adjacent share a link for the potential introduction of disease. Provide a map identifying the factors above.
- 1.2. Livestock industry. Provide a general description of the livestock industry in the country.

2. Veterinary system

- 2.1. Legislation. Provide a list and summary of all relevant veterinary legislation in relation to rinderpest.
- 2.2. *Veterinary Services*. Provide documentation on the compliance of the Veterinary Service of the country with the provisions of Chapters 1.3.3. and 1.3.4. of the *Terrestrial Code* and I.1.2 of the *Terrestrial Manual* and describe how the veterinary services supervise and control all rinderpest related activities. Provide maps and tables wherever possible.
- 2.3. Role of farmers, industry and other relevant groups in rinderpest surveillance and control (include a description of training and awareness programs on rinderpest)
- 2.4. Role of private veterinary profession in rinderpest surveillance and control

3. Rinderpest eradication

- 3.1. History. Provide a description of the rinderpest history in the country, date of first detection, origin of infection, date of eradication, lineage(s) present.
- 3.2. Strategy. Describe how rinderpest was controlled and eradicated (e.g. stamping-out, modified stamping-out, zoning), provide timeframe for eradication
- 3.3. Vaccines and vaccination. Was rinderpest vaccine ever used? If so, when was the last vaccination carried out? What species were vaccinated? Has heterologous vaccine been used in cattle, buffalo or yak?
- 3.4. Legislation, organisation and implementation of the rinderpest eradication campaign. Provide a description of the organizational structure at the different levels. Indicate if detailed operational guidelines exist and give a brief summary.
- 3.5. Animal identification and movement control. Are susceptible animals identified (individually or at a group level)? Provide a description of the methods of animal identification, herd registration and traceability. How are animal movements controlled in the country? Provide evidence on the effectiveness of animal identification and movement controls.

4. Rinderpest diagnosis

Provide evidence that a system is in place for the rapid confirmation of a suspected outbreak i.e. that the provisions in Chapters I.1.2 and 2.2.12.4.2 (writes **2.1.4**) of the *Terrestrial Manual* are applied. In particular, the following points should be addressed:

- 4.1. Is rinderpest laboratory diagnosis carried out in the country? If so, provide a list of approved laboratories. If not, provide the name(s) of and the arrangements with the laboratory(ies) samples are sent to.
- 4.2. Provide an overview of the rinderpest approved laboratories, in particular to address the following points:
 - 4.2.1. Procedures for the official accreditation of laboratories. Give details of internal quality management systems, e.g. Good Laboratory Practice, ISO etc. that exist in, or planned for, the laboratory system.
 - 4.2.2. Give details of participation in inter-laboratory validation tests (ring tests).
 - 4.2.3. Is live virus handled?
 - 4.2.4. Biosecurity measures applied
 - 4.2.5. Details of the type of tests undertaken

5. Rinderpest surveillance

Provide documentary evidence that surveillance for rinderpest in the country complies with the provisions of Appendix 3.8.2. of the *Terrestrial Code* and Chapter 2.2.12.4.2 of the *Terrestrial Manual*. In particular, the following points should be addressed:

- 5.1. Clinical suspicion. What are the criteria for raising a suspicion of rinderpest? What is the procedure to notify (by whom and to whom) and what penalties are involved for failure to report? Provide a summary table indicating, for the past two years, the number of suspect cases, the number of samples tested for rinderpest virus, species, type of sample, testing method(s) and results (including differential diagnosis). In particular, provide evidence of compliance with the provisions of ~~paragraph 3.5. of Appendix 3.8.2 of the *Terrestrial Code*.~~
- 5.2. Serological surveillance. Are serological surveys conducted? If so, provide detailed information on the survey design in accordance with ~~paragraph 3 to 5 of Appendix 3.8.2 of the *Terrestrial Code*,~~¹ ~~(annual sample sizes shall be sufficient to provide 95% probability of detecting evidence of rinderpest if present at a prevalence of 1% of herds or other sampling units and 5% within herds or other sampling units). How frequently are they conducted?~~ Are wildlife susceptible species included in serological surveys? If not, explain the rationale. Provide a summary table indicating, for the past two years, the number of samples tested for rinderpest virus, species, type of sample, testing method(s) and results (including differential diagnosis). Provide details on follow up actions taken on all suspicious and positive results.
- 5.3. Livestock demographics and economics. What is the susceptible animal population by species and production systems? How many herds, flocks, etc., of each susceptible species are in the country? How are they distributed (e.g., herd density, etc.)? Provide tables and maps as appropriate.
- 5.4. Wildlife demographics. What susceptible species are present in the country? Provide estimates of population sizes and geographic distribution. What are the measures in place to prevent contact between domestic and wildlife susceptible species?

¹ Accounts of the ages for eruption of the incisor teeth vary markedly and are clearly dependent on species, breed, nutritional status and nature of the feed.

Therefore, for the purposes of serosurveillance, it should be noted that:

- a) cattle having only one pair of erupted permanent central incisor teeth are aged between 21 and 36 months (Asian buffalos 24-48 months);
- b) cattle having only two pairs of erupted permanent central incisor teeth are aged between 30 and 48 months (Asian buffalos 48-60 months).

- 5.5. Slaughterhouses and markets. Where are the major livestock marketing or collection centers? What are the patterns of livestock movement within the country? How are the animals transported and handled during these transactions.

6. Rinderpest prevention

- 6.1. Coordination with neighbouring countries. Are there any relevant factors about the adjacent countries that should be taken into account (e.g., size, distance from adjacent border to affected herds or animals)? Describe coordination, collaboration and information sharing activities with neighbouring countries.

6.2. Import control procedures

From what countries or zones does the country authorize the import of susceptible animals or their products? What criteria are applied to approve such countries or zones? What controls are applied on entry of such animals and products, and subsequent internal movement? What import conditions and test procedures are required? Are imported animals of susceptible species required to undergo a quarantine or isolation period? If so, for how long and where? Are import permits and health certificates required? What other procedures are used? Provide summary statistics of imports of susceptible animals and their products for the past two years, specifying country or zone of origin, species and volume.

- 6.2.1. Provide a map with the number and location of ports, airports and land crossings. Is the official service responsible for import controls part of the official services, or is it an independent body? If it is an independent body, describe its management structure, staffing levels and resources, and its accountability to the central veterinary services. Describe the communication systems between the central authorities and the border inspection posts, and between border inspection posts.

- 6.2.2. Describe the regulations, procedures, type and frequency of checks at the point of entry into the country and/or their final destination, concerning the import and follow up of the following:

- a) animals
- b) genetic material (semen and embryos)
- c) animal products
- d) veterinary medicinal products (i.e. biologics)

- 6.2.3. Describe the action available under legislation, and actually taken, when an illegal import is detected. Provide information on detected illegal imports.

7. Control measures and contingency planning

- 7.1. Give details of any written guidelines, including contingency plans, available to the official services for dealing with suspected or confirmed outbreaks of rinderpest.

- 7.2. Is quarantine imposed on premises with suspicious cases, pending final diagnosis? What other procedures are followed regarding suspicious cases?

7.3. In the event of a rinderpest outbreak:

- 7.3.1 indicate the sampling and testing procedures used to identify and confirm presence of the causative agent.
- 7.3.2 describe the actions taken to control the disease situation in and around any holdings found to be infected with rinderpest,
- 7.3.3 indicate the control and/or eradication procedures (e.g. vaccination, stamping out, partial slaughter/vaccination etc) that would be taken,
- 7.3.4 describe the procedures used to confirm that an outbreak has been successfully controlled/eradicated, including any restrictions on restocking,

- 7.3.5 Give details of any compensation payments made available to farmers etc when animals are slaughtered for disease control/eradication purposes.

8. Compliance with the *Terrestrial Code*

- 8.1. The Delegate of the country must submit documentary evidence that the provisions of Article 2.2.12.2 or 3.8.1.6 (historical freedom) of the *Terrestrial Code* have been properly implemented and supervised.

9. Recovery of status

Countries applying for recovery of status should comply with the provisions of Article 2.2.12.3 of the *Terrestrial Code* and provide detailed information as specified in sections 3.1, 3.2, 3.3 and 5.2 of this ~~report~~questionnaire. Information in relation to other sections need only be supplied if relevant.

**REPORT OF THE OIE *AD HOC* GROUP ON COUNTRY STATUS EVALUATION
FOR FREEDOM FROM RINDERPEST**

Paris, 5 - 6 February 2008

A meeting of the *ad hoc* Group on rinderpest was held at the OIE headquarters from 5 to 6 February 2008. The members of the Group were welcomed by Dr Lea Knopf.

The agenda and list of participants are presented as Appendices I and II, respectively.

1. Adoption of agenda and appointment of rapporteur

The meeting was chaired by Dr John Anderson with Dr Peter Roeder and Geneviève Libeau as rapporteurs.

2. Evaluation of country status for rinderpest freedom

The country submissions were examined in detail to ensure that the information provided was sufficient to provide a convincing case that each country was indeed free from rinderpest, that all conditions stipulated by OIE had been complied with including the issue of complying with OIE WAHID reporting obligations.

▪ **Equatorial Guinea (historical freedom)**

The report was accepted as providing adequate evidence to accredit Equatorial Guinea as free from rinderpest on a historical basis. However, the country is in default of OIE reporting obligations and needs to be actively encouraged and assisted to correct this preferably before the next SCAD meeting. Ideally Equatorial Guinea should submit at least the first six-monthly report now followed by the second and annual summary report for 2007 in due course. It was reported to the Group that the OIE Regional Office for Africa (Bamako) has been requested to assist with this process.

Recommendation: Equatorial Guinea be recognised as historically free from rinderpest.

▪ **Jordan (historical freedom)**

Last experiencing rinderpest in 1971 during the Near East panzootic of 1969 to 1973, Jordan is known to have escaped the regional rinderpest upsurge that occurred in 1982, which affected its neighbours Lebanon, Syria and Israel. Vaccination ceased in 1997 making Jordan fitted to be recognised as free from rinderpest on a historical basis. Other criteria have been complied with except that Jordan has not completed its reporting obligations for 2007. Ideally Jordan should submit at least the first six-monthly report now followed by the second and the annual summary report for 2007 in due course.

Recommendation: Jordan be recognised as historically free from rinderpest subject to reporting compliance.

- **Belarus (historical freedom)**

The report was accepted as providing adequate evidence to accredit Belarus as free from rinderpest on a historical basis. However, the country is in default of OIE reporting obligations for 2007 and needs to be actively encouraged and assisted to correct this preferably before the next SCAD meeting. Ideally Belarus should submit at least the first six-monthly report now followed by the second and annual summary report for 2007 in due course. It was reported to the Group that the OIE Regional Office for Eastern Europe (Sofia) has been requested to assist with this process.

Recommendation: Belarus be recognised as historically free from rinderpest subject to reporting compliance.

- **Serbia (historical freedom)**

Some members of the Group were somewhat surprised to be presented with the application from Serbia because it had been assumed by them that all of the fragments of the former Republic of Yugoslavia were covered by earlier inclusion in the baseline list of rinderpest free countries when it was compiled in 2000. At that time the record shows that the “Former Yugoslav Republic of Macedonia”, “Bosnia and Herzegovina” and “Yugoslavia” were entered onto the list as separate entities. “Yugoslavia” has since separated into Croatia, Slovenia, Montenegro and Serbia (of which Kosovo is constitutionally still a part). It is worth noting that Serbia was in 2005 accredited as free from foot-and-mouth disease and Kosovo was included in the application. Thus, it could be considered that each of the components of the Former Republic of Yugoslavia have already been accredited as free from rinderpest in compliance with the requirements for entry onto the baseline list of rinderpest free countries. SCAD is requested to confirm this understanding and the Group recommends that OIE should contact each of the separate countries/territories of the Former Republic of Yugoslavia to inform them of the issues and the requirements needed for them to continue to be recognised as free from rinderpest. Notwithstanding this, the Serbian dossier was found acceptable for recognition of the country as free from rinderpest on a historical basis. Reporting obligations have been complied with.

Recommendation: Serbia be recognised as historically free from rinderpest

- **Djibouti**

It is accepted that rinderpest was last recognised to have occurred in 1985 and vaccination to have ceased 10 years later. Therefore, Djibouti does not qualify for historical freedom. Djibouti presents a strong case to be recognised as free from rinderpest but additional information concerning the functioning of the quarantine activities employed to cope with the cattle from Somali and Ethiopia which transit the country en route for the Gulf countries would give increased confidence. To comply fully with OIE guidelines for recognition of rinderpest Djibouti needs to pay more attention to providing serological data for resident cattle.

Djibouti has not submitted reports for 2007 and this also needs to be rectified. Ideally Djibouti should submit at least the first six-monthly report now followed by the second and annual summary report for 2007 in due course.

Recommendation: Djibouti should be requested to resubmit its application with additional information, informed of the reasons why and actively assisted by OIE and FAO to resubmit in a timely manner.

- **Lebanon (historical freedom)**

The last occurrence of rinderpest was in 1982 at which time its neighbour Israel also underwent infection. The statement in the dossier of rinderpest occurring in 1992 in Israel and the West Bank is erroneous.

The dossier from Lebanon would be acceptable if additional information was provided. A more detailed account of cattle importations, their sources and the operation of quarantines is needed. In addition, OIE reporting obligations for 2007 need to be complied with. Ideally Lebanon should submit at least the first six-monthly report now followed by the second and annual summary report for 2007 in due course.

Recommendation: the decision to grant recognition of rinderpest freedom be delayed pending Lebanon's provision of additional information and compliance with reporting obligations. The OIE Scientific and Technical Department have communicated this to the Lebanese authorities. Information provided could be communicated electronically to the members of the Group for comment.

The additional information requested was provided quickly for submission to the Ad Hoc Group electronically. It was found satisfactory and as a result the Group recommended that Lebanon be accredited as free from rinderpest provided that the country complies with OIE reporting obligations.

- **Tajikistan**

Rinderpest last occurred as a single introduction from Afghanistan in 1949 after 20 years of freedom. However, as part of the vaccination buffer zone created by the USSR authorities, vaccination continued to be employed along the borders with China and Afghanistan until 2002. Tajikistan has conducted both participatory disease surveillance for clinical disease and two rounds of extensive serosurveillance. The results were presented in an exemplary dossier.

Recommendation: Tajikistan be recognised as free from rinderpest and the authorities be commended for their presentation.

- **Afghanistan**

Afghanistan presented an exemplary and comprehensive dossier which was accepted without reservation as confirming freedom from rinderpest. Afghanistan has complied with its reporting obligations.

Recommendation: Afghanistan be recognised as free from rinderpest and congratulated on their dossier presentation

Subsequent to the meeting held in Paris a number of other, already announced and expected dossiers were received by OIE from countries wishing to be accredited as free from rinderpest. The Group decided in consensus that these dossiers should be circulated electronically for consideration and that the OIE Central Bureau should collate responses for consideration by SCAD.

- **Ethiopia**

Ethiopia's dossier presents a convincing case to confirm that it has been free from rinderpest since it was eliminated in 1995 by a highly innovative, epidemiology-based control programme. Vaccination was progressively restricted from 1990 and ceased totally in 2000. The country has been constrained from achieving international recognition of its rinderpest freedom by concerns over the persistence of rinderpest in neighbouring countries. The concerns of rinderpest continuing to circulate in neighbouring countries are now greatly reduced and all countries in the Somali Ecosystem are able to proceed with accreditation of rinderpest freedom. The Group encouraged Ethiopia to maintain their high level of surveillance as part of the Somali Ecosystem.

Recommendation: Ethiopia be recognised as free from rinderpest subject to compliance with OIE reporting obligations

- **Sierra Leone**

Sierra Leone has been free from rinderpest since a single incursion in 1958 (50 years) and has only used rinderpest vaccination once in 1984 as part of a regional campaign (24 years ago). It has made good progress in re-establishing veterinary services, including surveillance capacity, and qualifies for recognition of rinderpest freedom.

Recommendation: Sierra Leone be recognised as historically free from rinderpest subject to compliance with OIE reporting obligations

- **Uzbekistan**

Uzbekistan has greatly strengthened its veterinary services in recent years especially with respect to their general functioning and in terms of surveillance and disease control. Rinderpest has not occurred in Uzbekistan since it was eliminated from the USSR in 1928 and only a very small proportion of cattle were vaccinated to provide a border buffer zone until 1998. Active disease surveillance and serosurveillance clearly demonstrate rinderpest freedom. The rinderpest dossier shows this clearly and the data presented adequately demonstrate freedom from rinderpest on a historical basis.

Recommendation: Uzbekistan be recognised as historically free from rinderpest subject to compliance with OIE reporting obligations

3. Other matters

- **OIE and FAO collaboration in progressing GREP**

Further to recommendations made in the section dealing with country status, the Group recommended that both FAO and OIE should contact countries to play an active role in encouraging them to proceed with accreditation of freedom and assist them to do so. The two organisations should keep each other informed of actions taken and communications with countries.

The Group reviewed a document originally prepared by FAO and modified by OIE and came to the conclusion that additional actions were required if global accreditation of rinderpest freedom is to be achieved by 2010. Related to this, the Group members (but not the OIE Central Bureau representative) were unanimous in considering that retention of the deadline of 2010 for global rinderpest freedom should be retained, as to delay the process risks a further weakening of resolve and provision of resources on the part of countries to complete the process. Having reviewed the document the Group considers achievement of the goal of 2010 to still be feasible. Therefore the proposal put forward by FAO at the GREP consultative meeting in Rome in September 2007 and discussed in the Report of the Rinderpest *ad hoc* Group Meeting in October 2007 appears to be the only feasible solution. The proposal in essence described establishing two processes to ensure that global accreditation is achieved in time. The first was for OIE and FAO to establish and operate a Standing Technical Committee to constantly monitor progress in accreditation, identify constraints and propose the means of overcoming them. Their focus would include giving attention to the difficulty in giving rinderpest free status to a significant number of countries which will, it is considered, be unable to achieve accreditation through the normal protocols, for a number of different reasons including their lack of membership of OIE and/or FAO. The final process of declaring global rinderpest freedom needs to be endorsed at the highest possible level by an independent body of esteemed academicians as was done for smallpox by WHO. OIE needs to appoint the required Global Rinderpest Commission in collaboration with FAO so that both organisations can issue public statements with the Commission's endorsement in 2010. The establishment of these two bodies would in no way detract from OIE's mandate in this regard. Although some members of the *ad hoc* Group could be considered appropriate to participate in the Standing Group, the Group as composed is not able adequately to address either function.

The Group revised the global list of countries/territories where action is needed. A few modifications were made to the list which is appended. This document, if kept up to date, provides a useful management tool to monitor progress and identify shortcomings and situations where interventions are needed.

- **Other issues**

The Group recommends that if a country accredited as free from rinderpest subsequently separates into two or more parts, each of these parts should retain the same status as long as OIE membership obligations are complied with (*viz.* the Yugoslavia Republic/Serbia, Montenegro etc. and Indonesia/Timor L'Este).

4. Finalisation and adoption of draft report

The draft was reviewed by the Group, amended and accepted subject to circulation for minor comments until the coming week.

Appendix I

**MEETING OF THE
OIE AD HOC GROUP ON COUNTRY STATUS EVALUATION
FOR FREEDOM FROM RINDERPEST**

Paris, 5 - 7 February 2008

Provisional Agenda

1. Adoption of agenda and appointment of rapporteur

2. Evaluation of country status for rinderpest

- Equatorial Guinea
- Jordan
- Belarus
- Serbia
- Djibouti
- Lebanon
- Tajikistan
- Afghanistan
- Sierra Leone
- Uzbekistan
- Ethiopia

3. Other matters

- Identification of individual regions of the world based on their (historical) rinderpest risk and suggestions for recognition procedure to follow, respectively
- Follow up on list FAO/OIE of countries to be recognized officially rinderpest free with regard to progress of world-wide recognition of countries' rinderpest status

4. Finalisation and adoption of draft report

Appendix II

**MEETING OF THE
OIE AD HOC GROUP FOR EVALUATION OF COUNTRY STATUS
WITH RESPECT TO RINDERPEST**

Paris, 5 – 7 February 2008

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List of participants

MEMBERS

Prof. Vincenzo Caporale
*(President of the OIE Scientific
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Invited but could not attend

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**OIE AD HOC GROUP FOR EVALUATION OF COUNTRY STATUS
FOR BOVINE SPONGIFORM ENCEPHALOPATHY IN ACCORDANCE
WITH THE *TERRESTRIAL ANIMAL HEALTH CODE***

Paris, 14 – 16 January 2008

A meeting of the *Ad hoc* Group for evaluation of country submissions as complying with the 2007 bovine spongiform encephalopathy (BSE) Chapter of the *OIE Terrestrial Animal Health Code* (the *Terrestrial Code*) for recognition as ‘negligible BSE risk’ or ‘controlled BSE risk’ status was held at OIE headquarters from 14 – 16 January 2008. The agenda and list of participants are provided as Appendices I and II, respectively. Prof. V. Caporale, President of the OIE Scientific Commission for Animal Diseases, chaired and Drs. K. Van Dyck and J. Kellar shared rapporteur responsibilities.

Consistent with guidance from Prof. Caporale during preceding sessions, the Group compared and contrasted all of the dossiers received before making formal evaluations against the BSE Chapter of the 2007 *Terrestrial Code*.

This report, like its predecessors, includes a section on technical comments, clearly differentiated from the evaluations made against the BSE chapter of the 2007 *Terrestrial Code*. The *Ad hoc* Group continues to experience challenges in evaluating the country dossiers. It has retained the technical reference to highlight to the Scientific Commission (SCAD) and the International Committee a number of technical issues and concerns underlying those challenges.

1. General comments

The meeting was informed that a limited number of countries provided the annual update. The OIE acknowledged that the wording used in the Code could be confusing and misinterpreted by the Member Countries of the OIE. The *Ad hoc* Group questioned the situation for countries where conditions were established and communicated for the maintenance of official BSE risk status, but no or only limited information had been received. The fact that the Member Countries remain in the risk category could be questioned.

Prof. V. Caporale stated that the conditions to keep the status are very clearly defined. The information should be available and countries which do not provide this information should not be maintained in their risk categories. The importance of the update and the impact of not providing it should be emphasised to all Member Countries.

2. Technical comments

2.1. Specific comment to the Biological Standards Commission

The *Ad hoc* Group pointed out the potential need to include Lateral flow Immuno-chromatography as a rapid test in the Manual of Diagnostic Tests and Vaccines for Terrestrial Animals based on the validation and experience within the European Union.

2.2. Annual updates

During the *Ad hoc* Group's review of the submissions in November 2006 and January 2007, it created country evaluation reports which included, where applicable, specific provisions to be addressed in the first annual update. The *Ad hoc* Group discussed the limited number of answers received upon its specific requests to selected countries and that the results were generally unsatisfactory. In response and further to guidance of the *Ad hoc* Group on atypical scrapie and atypical BSE which met in November 2007, the *Ad hoc* Group modified the questionnaire for BSE status recognition to a compressed form to facilitate the annual update process (see under section 2.3.). The *Ad hoc* Group recommended that the same format be forwarded to all those countries which did not reply to the specific update request.

2.3. Revised and compressed questionnaire for annual update in support of BSE status retention:

The compressed questionnaire as proposed by the *ad hoc* Group is available in [Appendix III](#).

The modifications made to the table on feed controls were also made in the questionnaire for BSE status recognition (see [Appendix IV](#)).

3. Review of submitted BSE data for annual reconfirmation or supplementary information from countries already assigned BSE status

The *Ad hoc* Group expressed its concern over the general lack of response to requests for annual updates from countries which were assigned specific BSE status in May 2007. The *Ad hoc* Group supports the observations made by the *Ad hoc* Group on atypical BSE and atypical scrapie in November 2007 regarding the advantages to be gained by formatting the update requirements and incorporating the provision in the BSE chapter. The *Ad hoc* Group has provided the SCAD with a proposal for annual updates. The *ad hoc* Group suggests that the SCAD clearly communicate the requirement and time frame for the annual updates and the consequences of failing to observe the request. The *Ad hoc* Group notes the adherence of BSE designated countries to the transition requirements from assessment under the 2004 *Terrestrial Code* to those of 2005, including the time restrictions applied by the Bureau for re-submission and seeks only that same degree of compliance. Citing as examples the critical letters received from Japan and China on proposed country BSE status recognition, the *Ad hoc* Group is concerned that failure to support this process will undermine the credibility of OIE assignment of BSE status.

4. Review of the comments of OIE Members on country classification for BSE risk

The Group discussed letters from Argentina, China, Cyprus, Japan and Peru which commented on proposed country classification for BSE risk.

5. Review of new Country Status Applications for BSE risk evaluation

5.1. Liechtenstein

The *Ad hoc* Group discussed the country application of Liechtenstein. The conclusions of the discussions are reflected in the draft evaluation report of Liechtenstein. The evolution of the BSE risk status of Liechtenstein is closely linked to the Swiss BSE risk status, due to the customs union and shared legislation.

The submission from Liechtenstein sought assessment against the requirements for recognition as complying with the 2007 *Terrestrial Code*. The *Ad hoc* Group noted that the country dossier from Liechtenstein followed the format recommended by OIE in the guidelines circulated for countries wishing to make a formal submission for evaluation of their BSE status against the requirements of the 2007 *Terrestrial Code*.

Note: Liechtenstein has a customs union with Switzerland. This is reflected in multiple statements made during the following assessment. Due to the tight connection between the veterinary authorities of Liechtenstein and Switzerland as well as Liechtenstein's integration into the Swiss system in the veterinary field, in principle, all legislation, rules and data concerning BSE are identical for both Switzerland and Liechtenstein. Therefore, in the dossier mainly Swiss data, containing the data of Liechtenstein are shown.

a) Section 1: Risk Assessment — Article 2.3.13.2 point 1

The *Ad hoc* group considered that a robust and comprehensive risk assessment had been undertaken, taking into account all known pathways of BSE exposure in accordance with the criteria specified in Article 2.3.13.2 point 1.

- *Risk assessment for introduction of the BSE agent*

From 1991 to 2007, MBM importations occurred mainly from Germany and France, with small numbers from other members of the EC and beyond. MBM is used only for pet-food since 2001.

Introduction of cattle into the customs union Switzerland-Liechtenstein during the interval 1991 to 2007 was mainly from France for immediate slaughter in Switzerland. Annual totals varied between 2800 and 7000 head, the number of cattle that ended up in Liechtenstein is not calculable.

Few numbers from other members of the EC and beyond were imported for breeding purposes. How many of these animals were imported in to Liechtenstein itself, is not available. With a total cattle population of not even 6000 head, it is certainly only a very small number.

Since December 1996 import of live bovines has only been permitted from countries having effectively enforced a feed ban of mammalian protein to ruminants.

As Switzerland aligned its BSE policy with EU requirements, Liechtenstein did the same, due to its integration with the Swiss veterinary policy. The same relationship applied to importation of beef, most of which was from Brazil in the interval 2000 to 2007.

The *Ad hoc Group* considered that the conclusion of the release assessment was that the risk can not be considered negligible and that the BSE agent could have entered Liechtenstein through one or more of the imported commodities from controlled BSE risk countries.

- *Risk of recycling and amplification of the BSE agent*

There are neither rendering plants nor feed mills in Liechtenstein. There is only a collection centre for animal by-products.

b) Surveillance according to Appendix 3.8.4.

The *Ad hoc Group* found it necessary to extrapolate from Table 1 in Appendix 3.8.4 of the *Terrestrial Animal Health Code* in order to accommodate the small size (3'000 cattle over 24 month) of Liechtenstein's cattle population. The *Ad hoc Group* noted that the surveillance undertaken by Liechtenstein meets the minimum requirements of type A surveillance according to the *Ad hoc Group's* extrapolation from Table 1 of the Appendix 3.8.4 on surveillance for BSE in the 2007 *Terrestrial Code*.

c) Other requirements — Article 2.3.13.2 points 2–5

- *Awareness programme*

The *Ad hoc Group* concluded that the awareness programme meets the requirements of the 2007 *Terrestrial Code*. The awareness programme parallels that of Switzerland.

- *Compulsory notification and identification*

The *Ad hoc Group* noted that BSE was declared a notifiable disease under relevant legislation in 1990 and concluded that the system for compulsory notification and investigation meets the requirements of the 2007 *Terrestrial Code*.

- *BSE monitoring and surveillance system*

The Ad hoc Group noted that the surveillance undertaken meets the minimum requirements of type A surveillance according to Article 3.8.4.3. of Appendix 3.8.4. on surveillance for BSE in the 2007 Terrestrial Animal Health Code.

- *Laboratory examination*

All laboratory testing is done in Switzerland and the *Ad hoc* Group concluded that the arrangements for laboratory examination meet the requirements of the 2007 *Terrestrial Code*.

- *Appropriate level of control and audit of the feed ban*

The *Ad hoc* Group noted that the appropriate legislation, control and audit of the proper implementation of the feed ban are in force, integrated in the Swiss control programme.

d) *BSE history in the country:*

BSE cases (total of two) have been detected in animals born in 1991 and 1993.

e) *Compliance with Conditions for ‘controlled BSE risk’ Status - Article 2.3.13.4*

Based on the information provided, it is the recommendation of the *Ad hoc* Group that Liechtenstein be regarded as having met the requirements for recognition as complying with the 2007 BSE Chapter of the *Terrestrial Animal Health Code* as ‘controlled BSE risk’.

f) *Conclusions*

- *Recommended status*

The *Ad hoc* Group recommends ‘controlled BSE risk’

5.2 Paraguay

The *Ad hoc* Group discussed the country application of Paraguay.

The conclusions of the discussions are reflected in the draft evaluation report of Paraguay.

The submission from Paraguay sought assessment against the requirements for recognition as negligible BSE risk as complying with the 2007 *Terrestrial Code*. Paraguay submitted a dossier which conformed fully with the guidelines circulated for countries wishing to make a formal submission for evaluation of their BSE status against the requirements of the 2007 *Terrestrial Code*.

Paraguay provided a description of its national Veterinary Services with particular reference to the allocation of legislation and organization in respect of BSE prevention, detection and control.

a) *Section 1: Risk Assessment — Article 2.3.13.2 point 1*

- *Risk assessment for introduction of the BSE agent*

No MBM imports. Some pet food. 94 % of cattle imports are for direct slaughter, mainly from Uruguay, Brazil and Argentina. Only 16 head from USA on 3 farms; each United States import is buried or incinerated upon death. Animal by-product imports were restricted to intestines from Brazil in 2006 for human consumption.

The *Ad hoc* Group considered that the conclusion of the release assessment was that the risk can not be considered negligible and that the BSE agent could have entered Paraguay through one or more of the imported commodities from controlled BSE risk countries.

- *Risk of recycling and amplification of the BSE agent*

Paraguay has a traditional extensive feeding practice for cattle (92.8% beef and 7.2% dairy), with low milk production, limited use of vegetable concentrates and no reference to the use of MBM in cattle rations. Paraguay's 9 rendering plants have permanent veterinary inspection and employ batch processing with 133°, 20', 3bars. SRM is diverted from the feed chain to the human consumption. MBM is principally diverted to export. Domestic use of MBM is dedicated to the poultry and pig sectors.

A ruminant to ruminant ban was imposed in 1996 and in 2004 extended to a mammalian to ruminant feed ban.

Feed testing has been conducted since 1999. Increased testing was implemented in 2004, upon the advent of the mammalian MBM to ruminants ban and the introduction of microscopy. Feed testing results indicate to the Ad hoc Group that there is a risk of recycling and amplification of the BSE agent if it were present in the country's cattle population.

b) *Surveillance according to Appendix 3.8.4.*

The Ad hoc Group noted that the surveillance undertaken meets the minimum requirements of type B surveillance according to Article 3.8.4.3. of Appendix 3.8.4. on surveillance for BSE in the 2007 Terrestrial Animal Health Code.

c) *Other requirements — Article 2.3.13.2 points 2–5:*

- *Awareness programme*

The awareness programme meets the requirements of the 2007 *Terrestrial Code*.

- *Compulsory notification and investigation*

The *Ad hoc* Group noted that BSE was declared a notifiable disease under relevant legislation in 1996 and concluded that the system for compulsory notification and investigation meets the requirements of the 2007 *Terrestrial Code*.

- *BSE monitoring and surveillance system*

The bovine population comprises more than 6 million animals above 24 months of age. The surveillance was shown as geographically distributed and exceeds the minimum requirements of type B surveillance and approaches the minimal requirements of Type A surveillance.

- *Laboratory examination*

The *Ad hoc* Group concluded that the arrangements for laboratory examination meet the requirements of the 2007 *Terrestrial Code*.

- *Appropriate level of control and audit of the feed ban*

The *Ad hoc* Group noted that the appropriate legislation, control and audit of the proper implementation of the feed ban have been in force throughout the last 8 years, subject to the comments below under “annual update, specific requirements”.

d) *BSE history in the country:*

BSE has not been recorded in Paraguay.

e) Compliance with Conditions for 'negligible BSE risk' status - Article 2.3.13.3

Based on the information provided, it is the recommendation of the *Ad hoc* Group that Paraguay be regarded as having met the requirements for recognition as complying with the 2007 BSE Chapter of the *Terrestrial Animal Health Code* as 'Negligible BSE risk'.

f) Conclusions

- *recommended status*
negligible BSE risk status

5.3. Mexico

The Ad hoc Group (AHG) discussed the country application of Mexico.

The conclusions of the discussions are reflected in the draft evaluation report of Mexico.

The submission from Mexico sought assessment against the requirements for recognition as complying with the 2007 *Terrestrial Code*. Mexico submitted a dossier which conformed generally with the guidelines circulated for countries wishing to make a formal submission for evaluation of their BSE status against the requirements of the 2007 *Terrestrial Code*.

a) Section 1: Risk Assessment — Article 2.3.13.2 point 1

- *Risk assessment for introduction of the BSE agent*

MBM was imported during the interval of interest, mainly from the US, with 80-85% of meals described as of swine origin and the remaining 15 to 20% from poultry. The importation of ruminant MBM was banned in 2001, if not from countries free from BSE.

300.000 cattle have been imported from the US since 2000, in addition to approximately 30.000 from Canada between 2000 and 2003. Importations of live cattle from Canada and the US were banned in 2003, but imports from the US have continued.

Considerable quantities of bovine products have been imported from several "Controlled BSE Risk" countries, principally from the US. All the imported bovine products (including offal and tongues) are used for human consumption.

The *Ad hoc* Group considered that the conclusion of the release assessment was that the risk can not be considered as negligible that the BSE agent entered Mexico through one or more of the imported commodities.

- *Risk of recycling and amplification of the BSE agent*

SRM are not removed, but brain and spinal cord of 100% of the slaughtered cattle are used for human consumption. At the end of 2000 the use of MBM from ruminants was banned for cattle.

Methods used in rendering plants do not adhere to the provisions of the *Terrestrial Code* and appear incapable of destroying prion infectivity.

42 of 51 Mexican rendering plants handle tissues of ruminant origin. Feed mills have specific production lines for feed intended for different species. Inspections initiated in 2004 in rendering and feed plants have improved annually, with no infractions reported. Tests to detect cross-contamination are not used. No information was provided regarding on-farm inspections.

The *Ad hoc* Group considered that the conclusion of the exposure assessment was that there is a risk of recycling and amplification of the BSE agent if it were present in the country's cattle population.

b) Surveillance according to Appendix 3.8.4.

The *Ad hoc* Group noted that the surveillance undertaken meets the minimum requirements of type A surveillance in accordance with Article 3.8.4.3 of the Appendix 3.8.4. on surveillance for BSE in the 2007 *Terrestrial Code*.

c) Other requirements — Article 2.3.13.2 points 2–5:

- *Awareness programme*

The training on BSE started in 1994 when it was included in courses of foreign animal diseases. Since 2000 specific BSE training has been provided not only to veterinarians, but also to all those involved in the handling and production of cattle and their products.

In 2004 BSE training was improved in conjunction with improvements in BSE surveillance activities.

The *Ad hoc* Group concluded that the awareness programme meets the requirements of the 2007 *Terrestrial Code*.

- *Compulsory notification and investigation*

The *Ad hoc* Group noted that BSE became notifiable under specific legislation in 1999 and concluded that the system for compulsory notification and investigation meets the requirements of the 2007 *Terrestrial Code*.

- *BSE monitoring and surveillance system*

The cattle population 24 months and older is approximately 18 million head. The improvement in active surveillance undertaken in 2004 (as a result of a FAO project and the presence of BSE cases in the US) and the change of strategy in 2007 (improving the coverage of cattle with neurological signs) have allowed Mexico to reach the 300.000 points needed for Type A surveillance.

- *Laboratory examination*

The national reference lab, the NBSL3 of CPA (Mexico-US Commission for the Prevention of FMD and other Foreign Animal Diseases) is located in Palo Alto and performs three different tests: IHC, WB and LFI (Lateral Flow Immunochromatography, a rapid test approved by the EU). At the end of 2006 another laboratory, belonging to CPA but located in Aguascalientes, started working also with LFI and it is currently processing 1000 samples/month. The establishment of other regional laboratories is planned.

The *Ad hoc* Group concluded that the arrangements for laboratory examination meet the requirements of the 2007 *Terrestrial Code*.

- *Appropriate level of control and audit of the feed ban*

The *Ad hoc* Group noted that the control of the implementation of the feed ban is focused entirely on visual inspection of the rendering facilities. Feed mills are only inspected once, when they are registered and start operating. Tests to detect cross-contamination are not used. Inspections on farms to control the use of MBM in cattle don't seem to be in place.

d) BSE history in the country:

BSE has not been reported in Mexico

e) Compliance with Conditions for 'Controlled BSE risk' Status - Article 2.3.13.4

Based on the information provided, it is the recommendation of the *Ad hoc* Group that Mexico be regarded as having met the requirements for recognition as complying with the 2007 BSE Chapter of the *Terrestrial Code* as 'Controlled BSE risk'.

f) Conclusions

▪ *recommended status*

The BSE *Ad hoc* Group recommends 'Controlled BSE risk'

5.4. Other country

The Group assessed one additional country dossier which did not meet the requirements, neither for 'negligible BSE risk' nor for 'controlled BSE risk'. This dossier was referred back to the corresponding country.

.../Appendices

Appendix I

**MEETING OF THE OIE AD HOC GROUP FOR THE EVALUATION OF COUNTRY STATUS
FOR BOVINE SPONGIFORM ENCEPHALOPATHY (BSE)**

Paris, 14 - 16 January 2008

Agenda

- 1. Adoption of agenda and appointment of rapporteur(s)**
 - 2. Review of new Country Status Applications for BSE risk evaluation**
 - Mexico
 - Korea
 - Paraguay (including revisions)
 - Lichtenstein
 - 3. Review of submitted BSE data for annual reconfirmation or complementary information of already BSE categorized countries or applicant countries to be proposed for adoption by the International Committee in May 2008**
 - 4. Review of comments of OIE Members on country classification for BSE risk (list September meeting of SCAD)**
 - Argentina
 - China
 - Japan
 - Peru
 - 5. Minor revisions in the *Terrestrial Code* BSE Chapter, Appendices 3.8.4. & 3.8.5. and the BSE questionnaire**
 - Based on the suggestions made by the *Ad hoc* Group on atypical scrapie and atypical BSE
 - 6. Other matters**
 - 7. Finalization and adoption of the draft report**
-

Appendix II

**OIE AD HOC GROUP FOR EVALUATION OF COUNTRY STATUS
FOR BOVINE SPONGIFORM ENCEPHALOPATHY**

Paris, 12 - 14 January 2008

List of participants

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Appendix III

ANNUAL UPDATE IN SUPPORT OF BSE STATUS RETENTION

YEAR _____

Please answer the following questions and complete the following tables

Question 1: Please provide documentation about relevant changes in BSE legislation, compared to the previous year

Table 1: Import

Country	Commodity and quantity					
	Cattle		MBM & products containing MBM		Other products (*)	
	Amount	Use	Amount	Type of comm. (+)	Amount	Type of comm.

* all bovine derived products, excluding MBM, greaves, live animals, milk, semen, embryos, hides and skins

(+) Specify type and intended use of feedstuff and species composition of ingredients

Table 2: Documentation, in the form of the following table, on the audit findings in rendering plants and feed mills **processing ruminant or mixed species containing ruminant material**, related to the prohibition of the feeding to ruminants of meat-and-bone meal and greaves.

Type of plant (renderer or feed mill)	Number of plants processing ruminant material	Number of plants in (A) inspected	Total number of visual inspections in (B)	Total number of plants in (B) with infractions	Total number of inspected plants in (B) with sampling	Total number of plants in (C) with positive test results
	(A)	(B)			(C)	
Renderer						
Feed mill						

Table 3: Documentation, in the form of the following table, on the audit findings in rendering plants and feed mills **processing non-ruminant material**, related to the prohibition of the feeding of meat-and-bone meal and greaves to ruminants.

Type of plant (renderer or feed mill)	Number of plants processing non-ruminant material	Number of plants in (A) inspected	Total number of visual inspections in (B)	Total number of plants in (B) with infractions	Total number of inspected plants in (B) with sampling	Total number of plants in (C) with positive test results
	(A)	(B)			(C)	
Renderer						
Feed mill						

Table 4: Documentation, in the form of the following table, on each plant above processing ruminant material **or mixed species containing ruminant material** with infractions, specifying the type of infraction and the method of resolution.

Type of plant (renderer or feed mill)	Plant ID	Nature of infraction	Method of resolution	Follow up results
Renderer	ID 1			
	ID 2			
	ID 3 etc.			
Feed mill	ID 1			
	ID 2			
	ID 3 etc.			

Table 5: Documentation, in the form of the following table, on each plant above processing non-ruminant material with infractions, specifying the type of infraction and the method of resolution.

Type of plant (renderer or feed mill)	Plant ID	Nature of infraction	Method of resolution	Follow up results
Renderer	ID 1			
	ID 2			
	ID 3 etc.			
Feed mill	ID 1			
	ID 2			
	ID 3 etc.			

Question 2: Please provide documentation explaining why, in light of the findings displayed in the preceding tables, it is considered that there has been no significant exposure of cattle to the BSE agent through consumption of *meat-and-bone meal* or *greaves* of bovine origin.

Table 6: Surveillance efforts

SUMMARY TABLE FOR BSE SURVEILLANCE								
Surveillance subpopulations								
	Routine slaughter		Fallen stock		Casualty slaughter		Clinical suspect	
	Samples	Points	Samples	Points	Samples	Points	Samples	Points
>1 and <2 years	0	0,01	0	0,2	0	0,4	0	0
≥2 and <4 years	0	0,1	0	0,2	0	0,4	0	260
≥4 and <7 years	0	0,2	0	0,9	0	1,6	0	750
≥7 and <9 years	0	0,1	0	0,4	0	0,7	0	220
≥9 years	0	0	0	0,1	0	0,2	0	45
Subtotals	0		0		0		0	
Total points	0		0		0		0	

Table 7: Documentation, based on the following table, of all clinically suspect cases notified complying with the definition in 3.8.4.2§1

Laboratory identification number	Age	Clinical signs	Point of detection (farm, market channels, slaughterhouse)

Question 3: New cases.
Documentation on the origin of each BSE case in respect of the country, zone or compartment. Indicate the birth date and place of birth.

Question 4: please provide the evidence and documentation additionally requested in the country evaluation report

Appendix IV**QUESTIONNAIRE FOR BSE-STATUS RECOGNITION****REVISED VERSION- ~~13 DECEMBER, 2005~~ 23 JANUARY 2008****General introduction**

Acceptance of this submission is based on the compliance of the Veterinary Service of the applicant country, *zone* or *compartment* with the provisions of Chapters 1.3.3 of the *Terrestrial Code* and the compliance of BSE diagnostic laboratories with the provisions of Chapter I.1.2 of the *Terrestrial Manual*. Documentary evidence should be provided to support this based on Chapter 1.3.4 of the *Terrestrial Code*.

The OIE *Terrestrial Code* Chapter on BSE, Article 2.3.13.2. prescribes the criteria to determine the BSE risk status of a the cattle population of a country, *zone* or *compartment*. This document is the means whereby a claim for negligible risk (Article 2.3.13.3.) or controlled risk (Article 2.3.13.4.) can be made to the OIE.

The document comprises the following:

Section 1 – Risk assessment (Article 2.3.13.2. § 1)

Section 2 – Other requirements of Article 2.3.13.2. §2-4

- Ongoing awareness program
- Compulsory notification and investigation
- Diagnostic capability

Section 3 – Surveillance (Article 2.3.13.2 and Appendix 3.8.4.)

Section 4 – BSE history of the country, *zone* or *compartment* (2.3.13.3 and 2.3.13.4)

N.B. Where, during the completion of this questionnaire, the submitting *Veterinary Service* provides documentation regarding the legislation under which it is mandated, it should provide the content of any legal act described (in one of the three official languages of OIE), as well as the dates of official publication and implementation. Submitting countries are encouraged to follow the format and numbering used in this document.

SECTION 1 RISK ASSESSMENT (2.3.13.2§1)

Introduction

The first step in determining the bovine spongiform encephalopathy (BSE) risk status of the cattle population of a country, *zone* or *compartment* is to conduct a *risk assessment* (reviewed annually), based on Section 1.3. of the *Terrestrial Code*, identifying all potential factors for BSE occurrence and their historic perspective.

Documentation guidelines

This section provides guidance on the data gathering and presentation of information required to support the risk release and exposure assessments in respect of:

Release assessment

1. The potential for the release of the BSE agent through importation of meat-and-bone meal or greaves
2. The potential for the release of the BSE agent through the importation of potentially infected live cattle
3. The potential for the release of the BSE agent through the importation of potentially infected products of bovine origin

Exposure assessment

1. The origin of bovine carcasses, by-products and slaughterhouse waste, the parameters of the rendering processes and the methods of cattle feed production
2. The potential for the exposure of cattle to the BSE agent through consumption of meat-and-bone meal or greaves of bovine origin

In each of the five areas of release and exposure assessment that follow, the contributor is guided in terms of the question, the rationale and the evidence required to support the country, *zone* or *compartment* status claim.

Release assessment

1.1. The potential for the release of the BSE agent through importation of meat-and-bone meal or greaves

Question to be answered: Has *meat-and-bone meal*, *greaves*, or feedstuffs containing either, been imported within the past 8 years? If so, where from and in what quantities?

Rationale: Knowledge of the origin of *meat-and-bone meal*, *greaves* or feedstuffs containing either *meat-and-bone meal* or *greaves*, is necessary to assess the risk of release of BSE agent. *Meat-and-bone meal* and *greaves* originating in countries of high BSE risk pose a higher release risk than that from low risk countries. *Meat-and-bone meal* and *greaves* originating in countries of unknown BSE risk pose an unknown release risk.

This point is irrelevant if the exposure assessment outlined below in Article 3.8.5.5. indicates that *meat-and-bone meal* or *greaves* has not been fed, either deliberately or accidentally, in the past 8 years. Nevertheless, documentation should be provided on the control systems (including relevant legislation) in place to ensure that *meat-and-bone meal* or *greaves* has not been fed to cattle.

Evidence required:

- 1.1.1. Documentation to support claims that *meat-and-bone meal*, *greaves* or feedstuffs containing either *meat-and-bone meal* or *greaves* have not been imported, OR
- 1.1.2. Documentation on annual volume, by country of origin, of *meat-and-bone meal*, *greaves* or feedstuffs containing them imported during the past 8 years.
- 1.1.3. Documentation describing the species composition of the imported *meat-and-bone meal*, *greaves* or feedstuffs containing them.
- 1.1.4. Documentation, from the *Veterinary Service* of the country of production, supporting why the rendering processes used to produce *meat-and-bone meal*, *greaves* or feedstuffs containing them would have inactivated, or significantly reduced the titre of BSE agent, should it be present.

1.2. The potential for the release of the BSE agent through the importation of potentially infected live cattle

Question to be answered: Have live cattle been imported within the past 7 years?

Rationale: The release risks are dependent on:

- country, *zone* or *compartment* of origin and its BSE status, which will change as more data become available; this may result from the detection of clinical disease, or following active surveillance, or assessment of geographical BSE risk;
- feeding and management of the imported cattle in the country, *zone* or *compartment* of origin;
- use to which the commodity has been put as apart from representing risk of developing clinical disease, the slaughter, rendering and recycling in *meat-and-bone meal* of imported cattle represents a potential route of exposure of indigenous livestock even if *meat-and-bone meal* and *greaves*, or feedstuffs containing them, have not been imported;
- dairy versus meat breeds, where there are differences in exposure in the country, *zone* or *compartment* of origin because feeding practices result in greater exposure of one category;
- age at slaughter.

Evidence required:

- 1.2.1. Documentation including tables on the country, *zone* or *compartment* of origin of imports. This should identify the country, *zone* or *compartment* of origin of the cattle, the length of time they lived in that country, *zone* or *compartment* and of any other country in which they have resided during their lifetime.
- 1.2.2. Documentation including tables describing origin and volume of imports.
- 1.2.3. Documentation demonstrating that risks are periodically reviewed in light of evolving knowledge on the BSE status of the country, *zone* or *compartment* of origin.

1.3. The potential for the release of the BSE agent through the importation of potentially infected products of bovine origin

Question to be answered: What products of bovine origin have been imported within the past 7 years?

Rationale: The release risks are dependent on:

- the origin of the cattle products and whether these products contain tissues known to contain BSE infectivity (Article 2.3.13.13.);
- country, *zone* or *compartment* of origin and its BSE status, which will change as more data become available; this may result from the detection of clinical disease, or following active surveillance, or assessment of geographical BSE risk;
- feeding and management of the cattle in the country, *zone* or *compartment* of origin;
- use to which the commodity has been put as apart from representing risk of developing clinical disease, the slaughter, rendering and recycling in *meat-and-bone meal* of imported cattle represents a potential route of exposure of indigenous livestock even if *meat-and-bone meal* and *greaves*, or feedstuffs containing them, have not been imported;
- dairy versus meat breeds, where there are differences in exposure in the country, *zone* or *compartment* of origin because feeding practices result in greater exposure of one category;
- age at slaughter.

Evidence required:

- 1.3.1. Documentation on the country, *zone* or *compartment* of origin of imports. This should identify the country, *zone* or *compartment* of origin of cattle from which the products were derived, the length of time they lived in that country, *zone* or *compartment* and of any other country in which they have resided during their lifetime.
- 1.3.2. Documentation describing origin and volume of imports
- 1.3.3. Documentation demonstrating that risks are periodically reviewed in light of evolving knowledge on the BSE status of the country, *zone* or *compartment* of origin.

Exposure assessment

1.4. The origin of bovine carcasses, by-products and slaughterhouse waste, the parameters of the rendering processes and the methods of cattle feed production

Question to be answered: How have bovine carcasses, by-products and slaughterhouse waste been processed over the past 8 years?

Rationale: The overall risk of BSE in the cattle population of a country, *zone* or *compartment* is proportional to the level of known or potential exposure to BSE infectivity and the potential for recycling and amplification of the infectivity through livestock feeding practices. For the *risk assessment* to conclude that the cattle population of a country, *zone* or *compartment* is of negligible or controlled BSE risk, it must have demonstrated that appropriate measures have been taken to manage any risks identified. If potentially infected cattle or contaminated materials are rendered, there is a risk that the resulting *meat-and-bone meal* could retain BSE infectivity. Where *meat-and-bone meal* is utilized in the production of any cattle feed, the risk of cross-contamination exists.

Evidence required:

- 1.4.1. Documentation describing the collection and disposal of fallen stock and materials condemned as unfit for human consumption.
- 1.4.2. Documentation including tables describing the fate of imported cattle, including their age at slaughter or death.
- 1.4.3. Documentation describing the definition and disposal of specified risk material, if any.
- 1.4.4. Documentation describing the rendering process and parameters used to produce *meat-and-bone meal* and *greaves*.
- 1.4.5. Documentation describing methods of animal feed production, including details of ingredients used, the extent of use of *meat-and-bone meal* in any livestock feed, and measures that prevent cross-contamination of cattle feed with ingredients used in monogastric feed.
- 1.4.6. Documentation describing the end use of imported cattle products and the disposal of waste.
- 1.4.7. Documentation describing monitoring and enforcement of the above.

1.5. The potential for the exposure of cattle to the BSE agent through consumption of *meat-and-bone meal* or *greaves* of bovine origin

Question to be answered: Has *meat-and-bone meal* or *greaves* of bovine origin been fed to cattle within the past 8 years (Articles 2.3.13.3. and 2.3.13.4. in the *Terrestrial Code*)?

Rationale: If cattle have not been fed products of bovine origin (other than milk or blood) potentially containing *meat-and-bone meal* or *greaves* of bovine origin within the past 8 years, *meat-and-bone meal* and *greaves* can be dismissed as a risk.

In the case of countries applying for negligible risk status, it will be required to demonstrate that the ruminant feed ban has been effective for at least 8 years following the birth of the youngest case.

Evidence required:

- 1.5.1. Documentation describing the use of imported *meat-and-bone meal* and *greaves*, including the feeding of any animal species.
- 1.5.2. Documentation describing the use made of *meat-and-bone meal* and *greaves* produced from domestic cattle, including the feeding of any animal species.
- 1.5.3. Documentation on the measures taken to control cross-contamination of cattle feedstuffs with the *meat-and-bone meal* and *greaves* including the risk of cross-contamination during production, transport, storage and feeding.

1.5.4a) Documentation, in the form of the following table, on the audit findings in rendering plants and feed mills processing ruminant material or mixed species containing ruminant bovine material, related to the prohibition of the feeding to ruminants of *meat-and-bone meal* and *greaves*.

Year (information should be provided for each of the 8 years for effectiveness is claimed)	Type of plant (renderer or feed mill)	Number of plants processing bovine ruminant material (A)	Number of plants in (A) inspected	Total number of visual inspections in (B)	Total number of plants in (A) (B) with infractions	Total number of inspected plants in (B) with sampling	Total number of plants in (C) with positive test results
		(A)	(B)			(C)	
Year 1	Renderer						
	Feed mill						
Year 2 etc.	Renderer						
	Feed mill						

1.5.4b) Documentation, in the form of the following table, on the audit findings in rendering plants and feed mills processing non-ruminant material, related to the prohibition of the feeding of *meat-and-bone meal* and *greaves* to ruminants.

Year (information should be provided for each of the 8 years for effectiveness is claimed)	Type of plant (renderer or feed mill)	Number of plants processing non-ruminant material	Number of plants in (A) inspected	Total number of visual inspections in (B)	Total number of plants in (A) (B) with infractions	Total number of inspected plants in (B) with sampling	Total number of plants in (C) with positive test results
		(A)	(B)			(C)	
Year 1	Renderer						
	Feed mill						
Year 2 etc.	Renderer						
	Feed mill						

1.5.5a) Documentation, in the form of the following table, on each plant above processing ruminant material or mixed species containing ruminant material with infractions, specifying the type of infraction and the method of resolution.

Year (information should be provided for each of the 8 years for effectiveness is claimed)	Type of plant (renderer or feed mill)	Plant ID	Nature of infraction	Method of resolution	Follow up results
Year 1	Renderer	ID 1			
		ID 2			
		ID 3 etc.			
	Feed mill	ID 1			
		ID 2			
		ID 3 etc.			
Year 2 etc.	Renderer				
	Feed mill				

1.5.5b) Documentation, in the form of the following table, on each plant above processing non-ruminant material with infractions, specifying the type of infraction and the method of resolution.

Year (information should be provided for each of the 8 years for effectiveness is claimed)	Type of plant (renderer or feed mill)	Plant ID	Nature of infraction	Method of resolution	Follow up results
Year 1	Renderer	ID 1			
		ID 2			
		ID 3 etc.			
	Feed mill	ID 1			
		ID 2			
		ID 3 etc.			
Year 2 etc.	Renderer				
	Feed mill				

1.5.6 Documentation explaining why, in light of the findings displayed in the preceding ~~two~~ four tables, it is considered that there has been no significant exposure of cattle to the BSE agent through consumption of *meat-and-bone meal* or *greaves* of bovine origin.

1.5.7 Documentation of husbandry practices (multiple species farms) which could lend themselves to cross-contamination of cattle feed with *meat-and-bone meal* and *greaves* destined to other species.

SECTION 2

OTHER REQUIREMENTS (2.3.13.2 § 2-4)

2.1. Awareness program (Article 2.3.13.2 § 2)

Questions to be answered:

- Is there an awareness programme?
- What is the target audience?
- What is the curriculum and how long has it been in place?
- Is there a contingency and/or preparedness plan that deals with BSE?

Rationale

An awareness program is essential to ensure detection and reporting of BSE, especially in countries of low prevalence and competing differential diagnoses.

Evidence required

- 2.1.1. Documentation indicating when the awareness program was instituted and its continuous application and geographical coverage.
- 2.1.2. Documentation on the number and occupation of persons who have participated in the awareness program (veterinarians, producers, workers at auctions, slaughterhouses, etc.)
- 2.1.3. Documentation of materials used in the awareness program (the manual, supportive documents, or other teaching materials).
- 2.1.4. Documentation on the contingency plan

2.2. Compulsory notification and investigation (Article 2.3.13.2 § 3)

Questions to be answered:

- What guidance is given to veterinarians, producers, workers at auctions, slaughterhouses, etc.) in terms of the criteria that would initiate the investigation of an animal as a BSE suspect? Have these criteria evolved?
- What were the date and content of the legal act making notification of BSE suspects compulsory?
- What are the measures in place to stimulate notification, such as compensation payments or penalties for not notifying a suspect?

Rationale

The socio-economic implications associated with BSE require that there be incentives and/or obligations to notify and investigate suspect cases.

Evidence required

- 2.2.1. Documentation on the date of official publication and implementation of compulsory notification. Including a brief description of incentives and penalties.
- 2.2.2. Documentation on the manual of procedures for investigation of suspect animals and follow-up of positive findings.

2.3. Examination in an approved laboratory of brain or other tissues collected within the framework of the aforementioned surveillance system (Article 2.3.13.2 § 5)

Questions to be answered:

- Are the diagnostic procedures and methods those described in Chapter 2.3.13 of the Manual?

- Have these diagnostic procedures and methods been applied through the entire surveillance period?

Rationale

The OIE only recognizes for the purpose of this submission samples that have been tested in accordance with the Manual.

Evidence required

- 2.3.1. Documentation as to the approved laboratories where samples of cattle tissues from the country, *zone* or *compartment* are examined for BSE. (If this is located outside the country, information should be provided on the cooperation agreement).
- 2.3.2. Documentation of the diagnostic procedures and methods used.
- 2.3.3. Documentation that the diagnostic procedures and methods have been applied through the entire surveillance period.

SECTION 3

BSE SURVEILLANCE AND MONITORING SYSTEM (2.3.13.2 § 4)

Questions to be answered:

- Does the BSE surveillance programme comply with the guidelines in Appendix 3.8.4. of the *Terrestrial Code*?
- What were the results of the investigations?

Rationale

Chapter 2.3.13.2§.4 and Appendix 3.8.4 prescribe the number of cattle, by subpopulation, that need to be tested in order to ensure the detection of BSE at or above a minimal threshold prevalence.

Evidence required

- 3.1. Documentation that the samples collected are representative of the distribution of cattle population in the country, *zone* or *compartment*.
- 3.2. Documentation of the methods applied to assess the ages of animals sampled and the proportions for each method (individual identification, dentition, other methods to be specified)
- 3.3. Documentation of the means and procedures whereby samples were assigned to the cattle subpopulations described in 3.8.4.2., including the specific provisions applied to ensure that animals described as clinical met the conditions of 3.8.4.2§1.
- 3.4. Documentation of the number of animals meeting 3.8.4.2§1 as compared to the numbers of clinical samples submitted in previous years in accordance to the former provisions in the *Code*, and explanation of possible differences.
- 3.5. Documentation, based on the following table, of all clinically suspect cases notified complying with the definition in 3.8.4.2§1

Laboratory identification number	Age	Clinical signs	Point of detection (farm, market channels, slaughterhouse)

- 3.6. Documentation according to the following table, that the number of target points applicable to the country, *zone* or *compartment* and its BSE surveillance requirements (Type A or type B surveillance as a result of the risk assessment of section 1) are met as described in 3.8.4.2 and 3.8.4.4.

SUMMARY TABLE FOR BSE SURVEILLANCE								
Year: (complete a separate table for each year of surveillance)								
	Surveillance subpopulations							
	Routine slaughter		Fallen stock		Casualty slaughter		Clinical suspect	
	Samples	Points	Samples	Points	Samples	Points	Samples	Points
>1 and <2 years								
≥2 and <4 years								
≥4 and <7 years								
≥7 and <9 years								
≥9 years								
Subtotals								
Total points								

- 3.7. Indicate the number of adult cattle (over 24 month of age) in the country, *zone* or *compartment*

SECTION 4

BSE HISTORY OF THE COUNTRY, ZONE OR COMPARTMENT (2.3.13.3 and 2.3.13.4)*Questions to be answered*

Has BSE occurred in the country, *zone* or *compartment*?

How has it been dealt with?

Rationale

The categorization of a country, *zone* or *compartment* in either negligible or controlled risk is dependent upon, the outcome of the risk assessment described in section 1, compliance with the provisions described in section 2, the results of surveillance described in section 3, and the history of BSE in the country, *zone* or *compartment*. This section provides the opportunity to describe the BSE history in the country, *zone* or *compartment*.

Evidence required

4.1. Documentation of whether a case of BSE has ever been diagnosed in the country, *zone* or *compartment*.

In the case of positive BSE findings:

4.2. Documentation on the origin of each BSE case in respect to the country, *zone* or *compartment*. Indicate the birth date and place of birth.

4.3. Indicate the most recent year of birth in relation to all BSE cases

4.3.4. Documentation that:

the case(s) and all the progeny of female cases, born within 2 years prior to or after clinical onset of the disease, and

all cattle which, during their first year of life, were reared with the BSE cases during their first year of life, and which investigation showed consumed the same potentially contaminated feed during that period, or

if the results of the investigation are inconclusive, all cattle born in the same herd as, and within 12 months of the birth of, the BSE cases,

if alive in the country, *zone* or *compartment*, are permanently identified, and their movements controlled, and, when slaughtered or at death, are completely destroyed.

**REPORT OF THE AD HOC GROUP
ON ATYPICAL SCRAPIE AND ATYPICAL BOVINE SPONGIFORM ENCEPHALOPATHY**

Paris, 5 - 7 November 2007

The Director General of the OIE, Dr Bernard Vallat welcomed the *ad hoc* Group, and explained that requests were received from OIE Members asking for guidance in relation to both atypical BSE and scrapie, and questioned whether or not amendments were needed to existing OIE guidance in the *Manual* and related *Terrestrial Animal Health Code (Terrestrial Code)* Chapters and appendices. The Group would therefore have to consider and evaluate the existing requirements in the OIE *Terrestrial Code* and *Manual* against recent findings in relation to atypical scrapie and atypical BSE and propose recommendations to the Scientific Commission for Animal Diseases for further consideration.

The meeting was chaired by Dr Stuart MacDiarmid and Dr Danny Matthews acted as rapporteur.

The terms of reference and agenda were adopted. The agenda and the list of participants are attached as Appendices I and II.

Following a request from the Biological Standards Commission that the Group could consider revising the current tests for TSE's described in the *Manual*, the Group concluded that they did not consider themselves sufficiently competent to deal with questions relating to the approval of diagnostic tests for TSEs and recommended that the OIE convene a separate *ad hoc* Group consisting of members of the previous *ad hoc* Group on TSE tests.

After consideration of available data on both atypical BSE and atypical scrapie, the Group was constrained by the limited epidemiological analyses that have been published so far. This applied particularly to atypical BSE, where the shortage of denominator data meant that current prevalence data, from periods where test methodologies capable of detecting variant strains were in use, were not available. Corrections could not therefore be applied to take into account variations in the power of surveillance strategies.

1. Atypical BSE

The limited available data on atypical BSE were reviewed. While publications have focused on the diagnosis of these variant phenotypes, referred to as H-type and L-type, based upon the molecular weight of the unglycosylated band demonstrated when tested by western blot alongside typical BSE, few have gone beyond this initial stage. There has been no published epidemiological assessment of their relevance so far.

Over 40 cases have now been diagnosed world-wide, primarily in Europe, but extending also to North America and Japan. Transmissibility to laboratory models, and to cattle (H- and L-type) and primates (L-type), has been demonstrated by intracerebral challenge. Oral transmission studies in cattle are in planned (L-type BSE). Only in one instance has it been possible to examine peripheral tissue of a naturally affected case (L-type), but results remain unpublished.

Atypical BSE cases appear predominantly in older cattle. Clinical signs are rarely described, but the few signs described indicate some overlap with those of classical BSE, but without the excitability/hyperaesthesia normally seen with the latter. It is not yet possible to predict the likely incubation period following oral challenge on the basis of the relatively short incubations reported in cattle challenged intra-cerebrally with L-type BSE.

Absence of data on the peripheral distribution of infectivity precludes any recommendation on amendments to the definition of specified risk materials in cattle. At present, although the absence of data on the performance of individual rapid tests on equivalent reference materials precludes recommendations on choice of tests, it would appear that the tests currently in use (both rapid and confirmatory) are able to detect atypical cases. Discrimination of atypical cases from classical BSE is primarily dependent on the use of western blot methodologies, although this reflects the dominance of brain stem sampling as opposed to collection of whole brain, coupled with the use of ELISA and Western Blot technology for primary and confirmatory testing in most countries. The EU CRL Expert Group on Strain Typing has recommended the adoption of the terms C-type (classical BSE), H-type and L-type rather than "atypical" as they more appropriately describe the phenotype as seen on western blot. The UK OIE reference laboratory, in its capacity as EU Community Reference Laboratory, is drafting, along with other EU experts, guidelines for the discrimination of cases. These will be accessible to all other laboratories via its web site.

Under the circumstances the Group considered that there were insufficient data to recommend any changes to current OIE texts on BSE, and considered that until such time as there is evidence for differences in pathogenesis or risk between C-type and either H- or L-type BSE, all such cases should be reported as BSE, and the current rules for BSE applied. Reporting of cases to the OIE and subsequent publication should discriminate between C- and H- / L-type BSE.

2. Atypical scrapie

Despite the detection of several hundred cases in EU surveillance since 2002, and in Norway before this, understanding of atypical scrapie has not yet progressed to the point where alternative risk mitigation measures can be recommended.

Cases are usually found singly, although there are instances of two or more cases in some flocks, especially if large, and there are occasions when both classical and atypical scrapie has been found in the same flock. Some clinical cases have now also been reported, and as with classical scrapie the signs are not pathognomonic and can not be used to discriminate between the two forms. There is currently no epidemiological evidence of an association between classical and atypical scrapie.

Atypical scrapie has been confirmed as a prion disease (or transmissible spongiform encephalopathy), and transmissibility has been demonstrated by parenteral challenge of rodent models and sheep. Oral challenge studies are in progress, but have not yet demonstrated either transmissibility or peripheral distribution of infectivity within the body. The examination of peripheral lymphoid tissue in sheep affected by atypical scrapie has failed so far to demonstrate the likely presence of infectivity through the demonstration of immunostaining.

To a degree the detection of cases is dependent on the market share of individual tests used in the EU surveillance programme, as not all tests are equally effective in detecting atypical cases. It is not possible yet to determine whether the distribution of cases is truly representative of prevalence in each country rather than a reflection of differences in performance of the tests used for surveillance.

Although there is a suggestion that the atypical cases found have strong similarities with Nor98 found in Norway, some variability in phenotype has been described, especially with regard to the targeting of immunostaining in the brain of affected animals. On average, the affected animals are significantly older than the majority of classical scrapie cases, and most cases are seen in genotypes of sheep normally considered to be resistant or partially resistant to classical scrapie. Nevertheless, while certain genotypes (AFRQ, AHQ and ARR) appear to be at particular risk of atypical scrapie, there is no clear-cut segregation of susceptibility between classical and atypical scrapie-affected sheep. The existence of atypical cases in resistant genotypes is however of concern where breeding for resistance has been adopted as a protective measure against classical scrapie and BSE in sheep.

Within the limitations created by the variability in diagnostic applications, surveillance biases and the paucity of published epidemiological studies, evidence from EU surveillance programme has suggested a remarkably uniform, but low, prevalence of atypical scrapie between countries. In some it is as high as, or higher than, the prevalence of classical scrapie, in others lower, but detailed interpretation and comparison between countries

is currently not possible. Although the consistent prevalence of cases could suggest a spontaneous origin for atypical scrapie, a contagious disease that is poorly transmissible can not be excluded. It is however clear that atypical scrapie is distinct from BSE in sheep, and some retrospective studies have confirmed its existence in the UK at least as early as 1989. Such studies continue. This suggests, but does not prove, that risks to humans and animals may not have changed significantly in recent years.

The Group could not affirm that there was sufficient information available that would support the establishment of rules or guidelines specific to atypical scrapie, other than in relation to choice of diagnostic tests used for surveillance. Testing should be capable of detecting all forms of prion diseases of small ruminants, insofar as the range is currently known.

The preparation of guidelines specific to atypical scrapie would imply satisfaction with existing rules for classical scrapie. Indeed, scientific advancements have highlighted that Chapter 2.4.8 and Appendix 3.8.6 are no longer current, particularly with respect to their reliance on passive surveillance which in several countries has been demonstrated to be incapable of detecting scrapie at low prevalence. The Group considered that the most appropriate approach would be to redraft Chapter 2.4.8 to take into account scientific advances and the power of active surveillance, and to acknowledge the existence of atypical scrapie.

The Group recommended that the Appendix 3.8.6 be deleted, as it is no longer appropriate. Chapter 2.4.8 should be redrafted recognizing:

- in the absence of any apparent risk to public health, that the Chapter should deal solely with the protection of animal health;
- nevertheless, it should be structured in a similar way to Chapter 2.3.13 (BSE) and focused on risk mitigation measures, and safe trade in commodities;
- risk assessments need not be as comprehensive as required for BSE, and should focus primarily on demonstrating a true understanding of the scrapie-status of national flocks
- surveillance methods must use tests (for screening and confirmation) that are capable of detecting all forms of prion diseases known to occur in small ruminants;
- this should enable certain commodities to be listed as being safe to trade irrespective of scrapie status, while others may be subject to risk mitigation measures;
- surveillance methods should be devised, based on OIE guidelines on surveillance, and where appropriate targeting surveillance streams which offer maximum efficiency, and/or maximum cost-effectiveness;
- where surveillance is being conducted in countries that are categorised as being “BSE-controlled risk” or “BSE undetermined risk”, test methodologies at National Reference Laboratories should be capable of discriminating between BSE and scrapie. Alternatively, access to such methods should be secured by agreement with other National or OIE reference laboratories;
- guidelines for surveillance should be predicated upon the distribution of the national flock, and possibly take into account representation of genotypes. Passive surveillance alone is considered insufficient, especially in low prevalence countries.

The Group agreed to work out of session to produce a first draft of the Chapter for consultation.

In support of its recommendations regarding the redrafting of Chapter 2.4.8, the Group reviewed the existing chapter to consider the scale of redrafting required. It was clear that the majority of articles are in need of significant revision, and that a minor change is not an option.

3. Issues raised by the ad hoc Group on BSE country risk status evaluation

The Group then considered questions posed by the *ad hoc* Group for evaluation of the BSE risk status of countries, relating to risk assessment, country questionnaires and surveillance. That *ad hoc* Group for the evaluation of country status had identified minor inconsistencies between Chapter 2.3.13 and Appendices 3.8.4 and 3.8.5 and the questionnaire used to gather data for country assessment purposes. In addition, some OIE Members had questioned, in submissions to the Code Commission, the relevance of Appendix 3.8.5 on BSE risk assessment. Nevertheless, the Group considered that there was a clear hierarchy of authority, deriving from the Chapter, through Appendix 3.8.5 to the questionnaire. The latter expanded on Appendix 3.8.5, providing more detail to facilitate the gathering and submission of data.

Nevertheless, it was clear that the prescriptive detail in the chapter regarding conditions to be complied with in order to qualify for specific categorisation was a challenge to the assessors, and required a degree of expert interpretation in order to ensure that the outcome of categorisation was both appropriate and transparent. A punitive interpretation of the rules could be counterproductive. The critical factor is to ensure consistency, and transparency, of decision making. In that context, and in the interest of clearly establishing the hierarchy of authority referred to above, the Group recommended that all time-frames for compliance that are currently used in the questionnaire, should be embedded in the parent articles of the *Terrestrial Code*.

It should be made clear that at times interpretation will necessarily be based upon expert opinion to overcome instances where data shortages would otherwise result in inappropriate dismissal of applications. In particular, applicants should be aware that historical assessments by the EC SSC / EFSA GBR (European Commission Scientific Steering Committee and European Food Safety Authority) may be taken into account to supplement information provided in dossiers. Expert interpretation is also essential in instances where compliance with the matrix provided in Appendix 3.8.4 on surveillance was impeded by the size of the national herd, or absence of key surveillance streams.

Because of some confusion amongst OIE Members regarding the purpose of Appendix 3.8.5, and whether it was intended to enable OIE Members to assess their own risk, or risk arising from trading partners, it was considered that some clarifying text should be introduced at the end of Article 3.8.5.1. The following text is recommended:

“...The following guidelines are intended to assist *Veterinary Services* in conducting such a *risk assessment*. They provide guidance on the issues that need to be addressed when conducting a country-based assessment of BSE risk. They apply equally to self-assessment in preparation of dossiers for categorisation of countries, [or to the evaluation of risk arising from trading partners if OIE categorisation of such countries is considered insufficient before trade rules are agreed.] The guidelines are supported by greater detail in the questionnaire used for the submission of data for country assessment.”

The Group reviewed both Appendix 3.8.5 and the questionnaire in order to ensure consistency, and accepted the case for a standard cut-off of 8 years for the collection of retrospective data, even though there was some justification for variability depending on whether the aim was to detect cases in live animals that were already infected on importation, or whether a delay to enable exposure from the ingestion of imported agent, and subsequent incubation, was necessary. It should not be necessary to reconsider completed assessments that were based on some data covering periods of 7 rather than 8 years.

The Group strongly recommended that Appendix 3.8.5 should refer to BSE throughout and that references to “TSE” be replaced and Article 3.8.5.6 deleted. In the questionnaire there was some lack of clarity concerning the term “products of animal origin”, and it was considered that reference to “all bovine derived products excluding meat-and-bone meal, greaves, live animals, milk, semen, embryos, hides and skins” would assist countries in providing accurate and comprehensive returns.

With regard to other specific questions asked by the *ad hoc* Group for the evaluation of the BSE risk status of countries, the Group concluded with respect to:

Reinstatement of BSE status – The detection of cases in countries categorized as “negligible BSE risk” highlights potential flaws in risk assessments. In certain circumstances it should be possible to provide explanatory data that may quickly resolve a need to change the country status. The Group recommends that after the occurrence of a BSE case in a “negligible BSE risk” country, the country should be classified “controlled BSE risk” unless the criteria of Article 2.3.13.3 continue to be met. A dossier of explanatory data should be submitted to the OIE urgently, at the latest by the November deadline for the submission of annual risk assessment data for reconfirmation of status. The Group recommended that the Terrestrial Code Commission draft an article in the *Terrestrial Code* Chapter to address this issue.

Annual reconfirmation of status – The Group recommended that the Code Commission revise the relevant article in the BSE Chapter to clarify the requirements for annual reconfirmation of the BSE status. The article should follow the format of Article 2.2.10.2 in the FMD Chapter. Specifically it should cover:

- a. Import data in table format (template by countries and quantity)
- b. Data on control /audit of feed ban

- c. Surveillance data
- d. Relevant changes in legislation linked to the risk mitigating measures
- e. Data requested by the report of the *ad hoc* Group for the evaluation of the BSE risk status of countries

It is possible that a “short-form” version of the country assessment questionnaire would facilitate such reporting, and minimise confusion, and the Group recommended that the *ad hoc* Group for the evaluation of the BSE risk status of countries should draft such a form.

Appropriate time frame of a risk assessment - The Group did not accept a proposal to revise the target date for retrospective collection and submission of data to 14 years rather than the 7 or 8 years currently referred to, although it recognised the logic behind doing so. This would be difficult for many countries, and would demand access to data from periods when the compilation of data was unlikely to have been computerised. Its introduction at a time of globally-reducing BSE risk was likely to be unacceptable to OIE Members.

Surveillance points for small cattle populations and progress of epidemiological BSE situation - The Group considered a number of options:

- incorporate provisions in Chapter 2.3.13 to address countries approaching sufficient surveillance points for controlled or negligible risk;
- offer separate matrices for population skewed towards dairy or beef, recognizing that the model had been originally constructed to accommodate the sectors separately;
- status quo, the *ad hoc* Group for the evaluation of the BSE risk status of countries applies the latitude given by the Director General regarding submissions;
- application of zoning by considering the cattle population of a small country as merged with that of an adjacent country with which free movement of livestock occurs (e.g. in the European Union);
- advising the submitters to seek the assistance of an OIE Collaborating Centre to submit their data to be run through the BSurVE-model.

However no agreement could be reached and the Group recommended that the OIE should seek advice from OIE Collaborating Centres and from the developers of the BSurVE-model.

Updating basis for allocation of surveillance points – The Group noted that the BSurVE-model reflects the experience of a BSE epidemic at a given stage in its evolution. Given the passage of time since its creation, its subsequent interpretation into Appendix 3.8.4 and the fact that it was intended to enable the accumulation of points over a 5 year period rather than the 7 applied, the Group recommended that the Scientific and Technical Department ask the developers of the model to review its appropriateness for application in 2007 and onwards, including consideration of whether or not the allocation of points by age remained appropriate, and to offer guidance on the application of the model to countries with small cattle populations.

Use of surveillance points from cattle slaughtered in other countries – The Group considered whether cattle exported for slaughter to other countries could contribute surveillance points to a country assessment. The Group recommended that data from cattle slaughtered in other countries could be recorded, provided these specific export and testing data are available. The Group noted the inappropriateness of a country’s accruing surveillance points from imported slaughter cattle to the assessment of the importing country’s own BSE risk.

Cohort slaughter – surveillance stream - Some OIE Members seeking BSE status recognition submitted data on cohort slaughter and the *ad hoc* Group for the evaluation of the BSE risk status sought guidance on the use of these data. The Group noted that cohorts are the product of control programme intervention and, as such, are an anomaly in respect of the original intention of the BSurvE-model and the surveillance appendix matrix which is derived from it. Testing of cohorts adds little useful information to the country assessment and these animals should be regarded as healthy slaughter cattle.

Questionnaire clarifications – The *ad hoc* Group for the evaluation of BSE risk status proposed the following additions to the questionnaire:

- a) Most recent year of birth in relation to all BSE cases, if applicable. The age of the youngest case is cited in Chapter 2.3.13 as a factor in determining the BSE status of a country, zone or compartment.
- b) Size of adult cattle population. The adult cattle population is not requested but required for each assessment against Table 1 of Appendix 3.8.4.
- c) Clarification that establishments processing mammalian materials are to be reported in Tables 1.5.4. and 1.5.5 of the questionnaire. In order to assess the control over the implementation of the feed ban, it should encompass all establishments.

The Group agreed to the questionnaire modifications.

The next meeting of the *ad hoc* Group was tentatively scheduled for 23 to 25 July 2008.

.../Appendices

**REPORT OF THE *AD HOC* GROUP
ON ATYPICAL SCRAPIE AND ATYPICAL BOVINE SPONGIFORM ENCEPHALOPATHY**

Paris, 5 - 7 November 2007

Agenda

1. Adoption of agenda and appointment of rapporteur(s)
2. Confirmation of terms of reference (see email)
3. Discussion on relevance of “atypical” scrapie and “atypical” BSE, implications for international trade, including official BSE risk status recognition
4. Review of existing Chapters and Appendices for their suitability to address “atypical” scrapie and “atypical BSE” cases, if point 2. identifies a need
5. Scenario 1: Revision of BSE and scrapie Chapter, Appendices and Questionnaire with regard to “atypical” scrapie and “atypical BSE” cases

OR

- Scenario 2: Drafting of a new Chapter and Appendix if required to specifically address “atypical” scrapie and “atypical BSE” cases, either together or separately
6. Revision of BSE Chapter, Appendices and Questionnaire according to the comments of the *ad hoc* Group on BSE country status evaluation
 7. Other matters
 8. Finalisation and adoption of a draft report
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**REPORT OF THE AD HOC GROUP
ON ATYPICAL SCRAPIE AND ATYPICAL BOVINE SPONGIFORM ENCEPHALOPATHY**

Paris, 5 - 7 November 2007

List of participants

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**REPORT OF THE AD HOC GROUP
ON CLIMATE CHANGE AND VECTOR-BORNE DISEASE SURVEILLANCE**

Paris, 20 – 22 November 2007

The meeting of the OIE *ad hoc* Group on Climate Change and Vector-borne Disease Surveillance was held from 20 to 22 November, 2007 at the OIE Headquarters in Paris. The participants were welcomed by Dr Gideon Brückner, Deputy Director General. He indicated that the *ad hoc* Group was convened to advise the OIE on the possible implications of predicted climate change on OIE programs, objectives and its Strategic Plan, and also to consider the development of surveillance guidelines for vector-borne diseases. The Group should take into account that surveillance guidelines for some vector-borne diseases such as for bluetongue and African horse sickness have already been developed as an Appendix to disease specific chapters and if there are in view of this, still a need to develop general guidelines for vector-borne diseases and vectors either as an extension of the existing Appendix 3.8.1 in the *Terrestrial Animal Health Code* (General guidelines for animal disease surveillance) or as a separate Appendix.

The meeting was chaired by Prof. Vincenzo Caporale and Prof. Ted Leighton was appointed as Rapporteur.

The agenda and list of participants are given in Appendices I and II.

1. Terms of reference for the *ad hoc* Group

The Group considered that climate change will have an impact on a broad range of OIE programs and objectives, which are not limited to effects on vector-borne diseases. For this reason, the Group recommended that a broad and complete review would be necessary to assess the potential effects of climate change on the full range of OIE programs and objectives and to facilitate forward planning.

The Group concluded that climate change may be an important factor in the emergence of animal diseases and recommended that the OIE initiate an in-depth study of the risks of disease emergence associated with predicted climate change. The up-coming issue of the *Scientific and Technical Review* on climate change relative to animal diseases will serve as a significant starting point. The Group recommended therefore that a mandate to carry forward the evaluation of the impact of climate change on the full range of OIE programs and objectives be included in the Terms of Reference of the existing or other appointed *ad hoc* Group.

The Group agreed that there is ample and mounting scientific evidence that climate change has the potential to induce substantial changes in the occurrence and distribution of some of the OIE listed diseases or emerging diseases, and their vectors. Therefore, the OIE must be prepared to achieve early detection of such changes. Climate is part of several interconnected ecological and societal factors undergoing rapid and/or substantial change and which are likely to affect animal disease distribution, severity and occurrence.

The *ad hoc* Group recommended the following terms of reference:

1. Assess the relevance of climate change on OIE programs, objectives and Strategic Plan;
2. Advise the OIE on the need and means to respond to predicted climatic change related specifically to vector-borne diseases;
3. Write draft of *General Guidelines for Surveillance of Arthropod Vectors of Animal Disease* to be used as an Appendix to the *Terrestrial Animal Health Code*
4. Assist the OIE to revise or add material, relevant to climate change and to vector-borne diseases, to the *Terrestrial Animal Health Code* and to the *Manual of Diagnostic Tests and Vaccines for Terrestrial Animals*.

2. Appendix on vector surveillance for arthropod vectors of animal diseases

The Group proceeded to write a draft Appendix for the *Terrestrial Animal Health Code* on *General Guidelines for Surveillance of Arthropod Vectors of Animal Diseases*. The Group decided to write guidelines for surveillance of vectors themselves, rather than for vector-borne pathogenic agents.

The Group recommended that the chapters on vector-borne diseases in the *Terrestrial Animal Health Code* be reviewed with respect to congruence with the draft *General Guidelines for Surveillance of Arthropod Vectors of Animal Disease*.

The Group also recommended that detailed methods for collection, enumeration and identification of vector species be written and included in the *Manual of Diagnostic Tests and Vaccines for Terrestrial Animals* as indicated in Appendix III.

The next meeting of the *ad hoc* Group is scheduled for 8 to 10 July 2008.

.../Appendices

Appendix I

**MEETING OF THE OIE AD HOC GROUP ON
CLIMATIC CHANGES AND SURVEILLANCE FOR VECTOR-BORNE DISEASES
Paris, 20 - 22 November 2007**

Provisional Agenda

1. Welcome and introduction of participants
 2. Designation of chairman and rapporteur
 3. Outline of purpose of meeting
 4. Discussion and finalisation of draft terms of reference
 5. The relationship between vector-borne animal diseases and climatic changes and relevance to OIE objectives
 6. Outline of draft Appendix for the *Terrestrial Animal Health Code* on vector-borne disease surveillance
 7. Development of draft Appendix on vector-borne disease surveillance
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Appendix II

**MEETING OF THE OIE AD HOC GROUP ON
CLIMATIC CHANGES AND SURVEILLANCE FOR VECTOR-BORNE DISEASES
Paris, 20 - 22 November 2007**

List of participants

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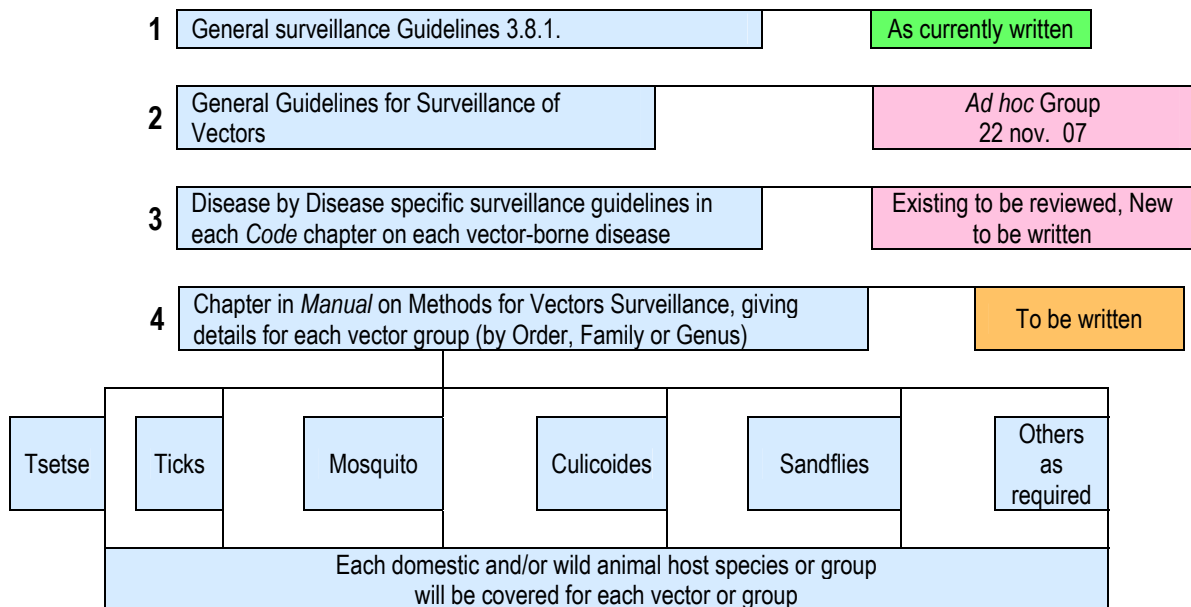
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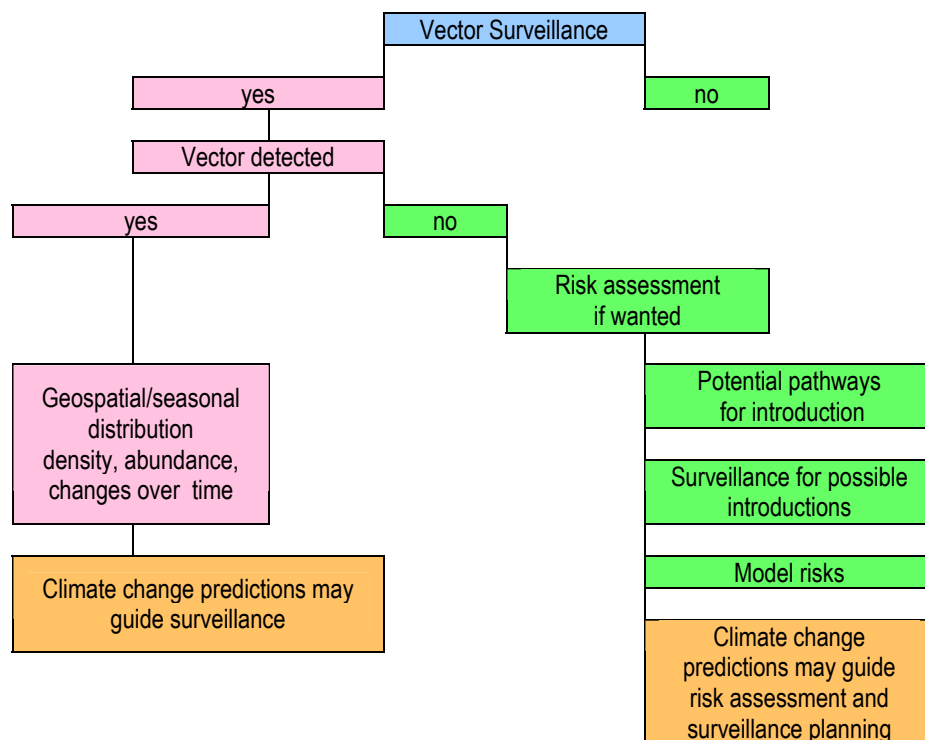
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Appendix III

Proposed Plan to address Vector Surveillance in the context of Vector-Borne Diseases



Decision Tree for Vector Surveillance



**MEETING OF THE
OIE AD HOC GROUP ON WILDLIFE DISEASE SURVEILLANCE**

Paris, 23 – 25 January 2008

The meeting of the OIE *ad hoc* Group on Wildlife Disease Surveillance was held from 23 to 25 January 2008, at the OIE Headquarters in Paris.

The meeting was chaired by Prof. Nick Kriek and Prof. Ted Leighton was appointed as Rapporteur.

The Agenda and List of participants in the *ad hoc* Group meeting are given in Appendices I and II.

1. Outline and purpose of the meeting

Dr. Vallat welcomed the members of the *ad hoc* Group and explained why the Group had been assembled. The OIE is reviewing the place of wild animals in the full range of its programs because of their increasing importance in some areas. This *ad hoc* Group has been assembled to consider the place of wildlife in the sections of the *Terrestrial Animal Health Code* that deal with animal health surveillance. Specifically, the Group is being asked to review the General Guidelines for Animal Health Surveillance (article 3.8.1), the criteria and decision tree used to determine which diseases should be included on the OIE List (article 2.1.1), and Guidelines for the surveillance of one or more diseases of particular current importance to the OIE (e.g. article 3.8.7 - Foot and Mouth Disease). In each case, the Group is asked to consider whether these articles adequately take wildlife into account and, if not, to recommend revisions to more adequately account for wild animal species and diseases in wildlife. The Group also was invited to consider whether there may be diseases in wild animals not currently on the OIE List that should be recommended for addition.

2. Factors influencing the relationship between diseases in wildlife and diseases in domestic animals

The Group reflected on the relationships among diseases of wild and domestic animals, and whether or not the OIE is justified in including wildlife within its purview and, more specifically, within its guidelines for animal health surveillance.

National and international animal health programs are critically important for achieving acceptable levels of public health and food safety, viable animal-based economies, human social and cultural well-being and animal welfare. Wild animals serve both as reservoirs and as sensitive indicators of important human and domestic animal diseases, and wild animals themselves may be important to local and regional economies and ecological stability. Wild animals can carry pathogens across national borders and can be infected by introduced pathogens.

It is not possible to manage and regulate many important diseases in domestic animals, such as Foot and Mouth Disease, Avian Influenza, Newcastle Disease, Rinderpest, or Bovine Tuberculosis, without full knowledge and consideration of the roles of wildlife in the maintenance and transmission of these diseases. Many diseases in wild animals pose health risks to livestock; these risks must be recognized and managed in order to protect trade status. For example, successful establishment of zones in which cattle are accepted internationally as free from Foot and Mouth Disease in southern Africa has required detailed knowledge of the carrier status and distribution of wild animals such as the African Buffalo.

Many emerging diseases have infected humans and domestic animals from wildlife sources; recent examples include Hendra virus, Nipah virus, West Nile virus and SARS coronavirus. Disease outbreaks in wild animals also can serve as early warning indicators of the geographic spread of pathogens to new areas before susceptible domestic species become infected. Wild birds have served as such indicators for Avian Influenza H5N1, particularly in Western Europe.

The Group concluded that the OIE must include in its purview all animal species, domestic and wild, which are susceptible to diseases of concern to the OIE.

3. Review of Appendix 3.8.1 of the *OIE Terrestrial Animal Health Code: General Guidelines for Animal Health Surveillance*

The Group reviewed Appendix 3.8.1 of the *Code* and determined that these Guidelines require revision in order adequately to cover animal health surveillance as it is applied to wild animal species, rather than to write a separate appendix of guidelines specifically for wildlife health surveillance. The Group offered a series of small revisions to adequately incorporate animal health surveillance in wildlife species.

4. Review of the Appendix 2.1.1 of the *OIE Terrestrial Animal Health Code: Criteria and decision tree for including diseases on the OIE List.*

The Group reviewed the criteria (article 2.1.1.1) and the decision tree (article 2.1.1.2) for including diseases on the OIE List. Pacheco's Disease of Psittacines and Chronic Wasting Disease were used as case studies.

In general, the Group concluded that these two articles apply equally well to diseases of domestic animals and of wildlife; no changes were recommended with respect specifically to inclusion of wildlife diseases.

The Group identified several difficulties in the language used in the criteria (article 2.1.1.1).

- a. The term "International spread" is not defined in the General Definitions of *Code* (article 1.1.1.1), and it was interpreted very differently by different members of the Group. Some assumed it to mean spontaneous spread of a disease across an international boundary independent of any human activity such as trade in animals or animal products, while others assumed it to mean movement of a disease across an international boundary directly associated with human activity such as trade in animals and animal products.
- b. The term "Emerging diseases" is defined in section 2.1.1.1 in a manner that is very restrictive and that is not consistent with the definition given in the General Definitions (Article 1.1.1.1) of the *Code*.

Section 1.1.1.1: "means a new infection resulting from the evolution or change of an existing pathogenic agent, a known infection spreading to a new geographic area or *population*, or a previously unrecognized pathogenic agent or disease diagnosed for the first time and which has a significant impact on animal or public health."

Section 2.1.1.1: "... apparent zoonotic properties ... rapid spread"

The Group recommends:

- 1) that the term "international spread" be defined in the General Definitions of the *Code* (article 1.1.1.1) or in Appendix 2.1.1, and
- 2) that article 2.1.1.1 use the full definition of "emerging diseases" found in the 2007 version of article 1.1.1.1 of the *Code*.

The Group identified a significant omission or difficulty in the decision tree (article 2.1.1.2). The current version of the decision tree does not offer a decision option when significant uncertainty exists in the application of a criterion to a disease. It offers only "yes" or "no" as options for judging the criteria listed in article 2.1.1.1. In reality, the current state of knowledge will mean that the correct judgement regarding a criterion from article 2.1.1.1 applied to a particular disease under consideration will be "uncertain", meaning that available data are insufficient to make a definitive judgement as to whether or not the criterion applies.

The Group recommends that a way be found explicitly to include uncertainty, a decision option that is neither “yes” nor “no,” into the decision tree (article 2.1.1.2), and also to state explicitly how the precautionary principle should be applied in such cases of uncertainty in the context of articles 2.1.1.1 and 2.1.1.2. An example is the current discussion within OIE as to whether or not Chronic Wasting Disease should be listed.

5. Review of Appendix 3.8.7 of the *OIE Terrestrial Animal Code: Guidelines for the surveillance of Foot and Mouth Disease*.

The Group reviewed and discussed Appendix 3.8.7 of the *OIE Terrestrial Animal Code: Guidelines for the surveillance of Foot and Mouth Disease*. These are quite general guidelines and they include consideration of wild animal species sufficiently at this general level such that the Group did not feel the present articles require revision. Instead, the Group recommended that an article specifically about wild animal surveillance be added to these guidelines.

The group developed such an article and recommended that it be accepted and included.

6. Discussion and finalization of the draft Terms of Reference

The Group adopted the draft terms of reference ([Appendix III](#)).

The Group recommends that it continue with review of all existing animal disease surveillance guidelines for specific OIE listed diseases and make recommendations regarding other diseases for which wildlife surveillance guidelines should be developed. With adequate advance preparation, this could be completed in one additional meeting.

To proceed, the Group needs feedback on this report from the Working Group on Wildlife Diseases and the *ad hoc* Group on Epidemiology.

7. Additional Considerations

a) Information Document on Wildlife Disease Surveillance

The Group recognized that, while the General Guidelines for Animal Health Surveillance, as revised by the Group, adequately cover health surveillance in wild animal species in a general sense, the actual conduct of surveillance activities in wild animals can differ markedly from the same activities carried out in domestic animals. Many of the details of scope, design and conduct of wildlife surveillance will not be familiar to veterinary service personnel.

For this reason, the Group recommends that the OIE sponsor the writing and publication of an OIE information document, with practical examples, on methods of wild animal disease surveillance.

b) Definitions of “wild animals” or “wildlife

The Group recognized that the terms “wild animal” and “wildlife” require definition. These are not included in the General Definitions of the *Code* (article 1.1.1.1). The group retrieved the definitions of the various categories of wild animal offered by the Working Group on Wildlife Diseases in its 1999 report to the International Committee and considered these to be particularly useful. The group arrived at the following definitions, based on the 1999 report:

Wildlife: For the purposes of these Guidelines, wildlife is defined as mammals and birds which are not directly controlled by humans. This definition includes the categories of “wild animal” (wild animal genotype living outside of controlling human influence) and “feral animal” (domestic animal genotype living outside of controlling human influence), and also includes forms of game farming, ranching or conservancies where there is minimal influence on the animals by human management activities.

Wildlife Community: several populations of different species which are epidemiologically linked with respect to a particular pathogen

Wildlife Population: a group of animals of a single species which exist within an area, reproduce and share a common social organisation

The definitions retrieved from the 1999 report are in Appendix IV.

c) General principles of wildlife epidemiological surveillance

The Group received and reviewed a document prepared by Dr Marc Artois entitled *General principles of wildlife epidemiological surveillance*. This document helped shape and inform the Group's discussion. Dr. Artois' document is Appendix V of this report.

**MEETING OF THE
OIE AD HOC GROUP ON WILDLIFE DISEASE SURVEILLANCE**

Paris, 23 - 25 January 2008

Agenda

1. Welcome and introduction of participants
2. Designation of chairman and rapporteur
3. Outline of purpose of meeting
4. Discussion and finalisation of draft terms of reference
5. Factors influencing the relationship between diseases in wildlife and diseases in domestic animals
6. Outline of draft Appendix for the *Terrestrial Animal Health Code* on wildlife disease surveillance
7. Development of draft Appendix on wildlife disease surveillance

Appendix II

**MEETING OF THE
OIE AD HOC GROUP ON WILDLIFE DISEASE SURVEILLANCE
Paris, 23 - 25 January 2008**

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Appendix III

Terms of Reference

1. Advise on the need for OIE to consider the relevance of wildlife animal health relative to domestic animal health
 2. Assess the need for specific surveillance guidelines in wildlife
(If there is the need, 3. Develop draft guidelines for wildlife disease surveillance)
-

Extract from:
Annual Report of the OIE Working Group on Wildlife Diseases - 1999

4. Definition of 'wildlife' in relation to feral and domestic animals

In response to a request from the International Animal Health Code Commission, the OIE Working Group developed definitions of domestic animals, feral animals, captive wildlife and wild animals. The following is their recommendation:

- For the purposes of the OIE *International Animal Health Code*, the Working Group on Wildlife Diseases proposes that the definition of 'Domestic animal' be based on the definition and discussion of Corbet and Clutton-Brock (1984)*.
- With this as a background, the Group proposes that individual animals be placed in one of four categories defined by two binary selection criteria as follows:

		Phenotype selected by humans	
		Yes:	No:
Animals live	under human	Yes:	No:
		Domestic (a)	Captive wildlife (c)
	supervision or control	No:	No:
		Feral (b)	Wild (d)

- a) Domestic animals:** Animals with a phenotype selected by humans and that live under supervision or control by humans ['Anciently domesticated forms that are distinctive, are rarely bred with their wild ancestors (e.g. common cattle, domestic dog) or distinctive domesticated forms that are readily distinguishable from their wild ancestral species (e.g. reindeer, silver fox)'].
- b) Feral animals:** Previously domestic animals that now live without supervision, control by or dependence on humans.
- c) Captive wildlife:** Animals that have a phenotype not significantly affected by human selection but that are captive or otherwise live under supervision or control by humans ['wild species that are commonly bred or kept in captivity but in which the majority of domesticated individuals are not readily distinguishable as a group from the wild species (e.g. Asian elephant, red deer)', Corbet and Clutton-Brock, 1984].
- d) Wild animals:** Animals that have a phenotype unaffected by human selection and live independent of direct human supervision or control.

* Corbet G.B. & Clutton-Brock J. (1984). – Taxonomy and nomenclature. *In*: Evolution of Domesticated Animals. I.L. Mason, ed. Longman, London, UK, 434-438.

GENERAL CONSIDERATIONS ON WILDLIFE EPIDEMIOLOGICAL SURVEILLANCE

1. Introduction and objectives

Wildlife epidemiological surveillance is distinctive owing to the zoological, behavioural and ecological characteristics of wildlife, as defined below. Wildlife epidemiological surveillance is no different from the animal health surveillance defined in Article 3.8.1, in terms of its objective, concept, or methodology. The definitions, methods and procedures must therefore be adapted to the special conditions of wildlife, with the aim of continuously assessing the health status of a group of wild animals to analyse the risk it may pose to its own health or to the health of the human or domestic animal populations or ecosystems with which the group has epidemiological links. Wildlife epidemiological surveillance must therefore allow prevention or control measures to be introduced to mitigate this risk, or even to reduce it to a negligible probability of occurrence.

2. Definitions

a) Wildlife

Wildlife is defined as vertebrates: mammals, birds, amphibians and reptiles whose movements are not directly controlled by humans, and whose genotype has not been modified by human selection.

b) Wild animal population

A wild animal population comprises a group of animals of a single species which move around an area in such a way as to enable them to breed amongst themselves and to share a common social organisation.

Natural or artificial barriers of a physical or social nature can define subpopulations within a population, in which the individuals in the subpopulation have more frequent contacts with one another than with individuals in the rest of the population.

* In a given ecosystem, several populations of different species which interact with one another constitute a **community**.

c) Wildlife disease surveillance

Wildlife disease surveillance is defined as a set of methods for continuously collecting and analysing information on the health of wild species and the associated risk factors, in order to meet the objectives described in paragraph 1 (Introduction).

3. Definition of a case

A case is a unit for quantifying a health risk subject to epidemiological surveillance.

A case may be individual, when it must denote an individual from an animal species referred to unambiguously by its two-part Latin name (Genus and species and, where appropriate, the subspecies or breed: e.g. fox = European red fox, *Vulpes vulpes*). A case is then defined by recognising that the individual is suffering from a disease, a precisely described syndrome or a pathogen.

A case can refer to a spatial or social unit, when it may be described as an “outbreak”. Details must then be provided in order to define the zone or the group composition considered to be a unit.

An outbreak can refer to an infected population in line with the criteria for defining a population (see definition).

A group or a population is considered to be an outbreak if, during the period chosen as the surveillance time unit, at least one individual has been recognised as suffering from a disease, a syndrome or a pathogen covered by the definition.

Features specific to wildlife:**a) Case of morbidity (disease)**

The clinical signs of disease are particularly difficult to observe in a free-ranging wild animal. Usually the clinical signs cannot be observed by a health professional trained to make a diagnosis. On an other hand, not all veterinarians required to make a remote clinical diagnosis on a free-ranging wild animal have the necessary training to recognise all the normal behavioural patterns of the species under study. Clinical diagnosis is therefore both sensitive and specific in only a limited number of situations where a group of free-ranging wild animals is subject to continuous monitoring by personnel trained in remote clinical diagnosis.

For these reasons, a review of clinical cases is not very reliable for wildlife in general. The Veterinary Services must ensure that the epidemiological information provided to them in the form of quantified clinical data on a group of free-ranging wild animals is reliable and representative. This may be true of health disorders affecting visible parts of the body or ones that profoundly modify the behaviour of individuals of sufficient size which are accustomed to the presence of humans.

b) Case of mortality (recognition of a cause)

An unexplained mortality is an indication that is usually picked up by an epidemiological surveillance network. The Veterinary Services must encourage the collection and analysis of found dead wild animals. The necropsy of a wild animal must be carried out by a pathologist with certified training. The examination must be conducted exhaustively in accordance with a standardised procedure, regardless of the size and state of preservation of the carcass.

The carcasses of animals that have died from a trauma injury may be used to screen for toxic, infectious or parasitic agents, even where the carcass presents no macroscopically visible lesions.

The spatial and longitudinal analysis of wildlife mortality statistics and the results of the associated systematic screening provide a reliable source for analysing the health risk posed by/to wildlife.

c) Case of pathogen carriers

Many zoonotic or economically important pathogens that occur in wildlife cause no clinical manifestations or lesions. Accordingly, disease surveillance for these pathogens must not be based on the collection of clinical data (mortality or morbidity, as stated above).

The most important aspect of wildlife disease surveillance is screening using systematic, random or ad hoc sampling by any means which the Veterinary Services may obtain.

The Veterinary Services should be made aware of the fact that many of the diagnostic kits designed for screening infectious or parasitic pathogens in domestic animals do not have the same degree of sensitivity and specificity when used in wild animals. The OIE reference laboratories for notifiable diseases can tell veterinary laboratories carrying out wildlife screening which are the best tests to use. The OIE Working Group on Wildlife Diseases keeps an updated list of recommended methods for screening wildlife.

4. Epidemiological indicators

The aim of epidemiological surveillance is to determine the probability of an individual or group being infected and thereby exposing human or animal populations to a health hazard. In practice, this ideal situation is difficult to achieve in the case of wildlife because the size of the wild population cannot be measured exactly and precisely. With our current state of knowledge, the size and social composition of the wild population can only be estimated. The proportion of cases in a sample of wild animals only represents the probability of exposure to the health hazard where the method used for such an estimate follows population biology sampling rules.

Although some epidemiological surveys of limited duration can estimate this probability, in general wildlife epidemiological surveillance provides only a distorted image of the situation to be studied. The results can only be assessed in retrospective trend analysis, or by comparing results obtained simultaneously in several places, and by calling upon the expertise of biologists or managers of wild animal populations for their interpretation.

5. Purpose of an indicator

5.1. Indicator of prevalence (3.8.1.7 paragraph, OIE Code)

a) Scale of individuals (in a population)

Prevalence must indicate the number of cases in the population. The Veterinary Services will usually find it difficult to accurately determine the number of cases and the size of the exposed wild animal population.

The problem is compounded by how much impact the spatial and social structuring of wild animal populations has on prevalence. Prevalence is generally influenced by a differing exposure of the social categories of individuals to the pathogen.

The Veterinary Services will therefore need to secure the support of experts capable of estimating prevalence based on data from observations or from appropriate sampling.

b) Scale of an outbreak (spatial unit)

In order to compensate for the lack of sensitivity of an indicator of individual prevalence in wildlife, the data for a population or subpopulation can be analysed (see point 3 above).

c) Indicator of incidence

The measurement of the incidence of a health problem in wildlife is all the more sensitive when the problem is chronic. The early detection of acute problems in wildlife must be based on a dense and targeted sampling grid, where there is frequent repetition of screening. This is possible only on wild species that can be easily captured and recaptured. Systems for the early detection of new cases in wildlife are more effective where the pathogen is transmitted indirectly and where captive or semi-free-ranging sentinel animals can be subjected to regular screening tests.

5.2. Indicator for declaring a zone free from a pathogen (3.8.1.6)

The Veterinary Services must bear in mind that the absence of cases in a sample or in a subpopulation allows a population of wild animals to be classed as free only where:

- The screening methods are sufficiently sensitive.
- The sampling is representative of all the population categories exposed to the pathogen.
- The expected accuracy of the screening is sufficient to give a high level of confidence that the occurrence of cases is below the established frequency threshold for the population to be considered free.

These requirements are rarely all met when the surveillance is based on a small number of individuals subjected to ad hoc sampling.

6. Recruitment of cases, sampling

6.1. Structured non-random sampling

a) Notification

A wildlife disease surveillance network can rely on the periodic collection of results from researchers or experts who study wildlife and report results on the number of cases/outbreaks obtained at a site for a given period. These data are centralised and published. They provide a non-representative indicator of significant trends or events. Although this type of network is not very sensitive, a snapshot analysis and trend analysis can make it possible to start targeted epidemiological monitoring programmes required by the Veterinary Services.

Notification can also be based on continuous recording of the results of diagnoses or examinations conducted as part of regulated activities:

- Results of laboratory diagnoses.
- Examination of game (inspection points) and of wild game meat sold on the market.

b) Ad hoc sampling & routine sampling

A wildlife disease surveillance network can organise the collection of sick animals (or more commonly, dead animals) by the general public or professionals working in the “natural” environment. Collected animals are systematically transferred to a national reference laboratory or local laboratories for pathological examination.

6.2. Structured random sampling (3.8.1.4)

a) Longitudinal surveys & monitoring

The data from transversal or longitudinal epidemiological surveys must be incorporated into the data notified to epidemiological surveillance networks at the request of the Veterinary Services. However, an epidemiological survey on wildlife is not considered as disease surveillance unless the surveys are continuous and are specifically designed to analyse and manage the health risk.

An epidemiological survey, particularly longitudinal monitoring (cohort study), can make it possible to quantify risk factors more accurately and precisely than the normal type of wildlife disease surveillance. The Veterinary Services must encourage and support such surveys in order to provide reliable hypotheses on methods for anticipating, preventing or controlling health risks.

b) Structured sampling in a routine sampling procedure

For logistical or economic reasons, it is not always feasible to exhaustively screen for wildlife health problems on certain large-scale non-random samples such as hunter kill, road accidents, strandings, and so on.

Among these samples, random, or preferably stratified, sub-sampling in accordance with provenance, date, age and gender will provide a reliable indicator of the health problem subject to surveillance.

7. Recording and storage of data

Before data are recorded, they must be codified in order to standardise the designation of a case and to allow comparisons in time and space. The Veterinary Services must help to draw up international standards for defining the most commonly encountered cases in order to allow regional assessments to be made of the health hazards posed by wildlife.

Wildlife epidemiological surveillance data are an essential resource for retrospective analysis to explain health problems.

The use of appropriate statistical tests can reveal factors that are liable to increase incidence level or cause spatially variable prevalence.

Knowledge of these risk factors can be used directly in the management or control of the health risk posed by wildlife.

The data generated by a wildlife disease surveillance network can be sensitive. The Veterinary Services must ensure that the people or organisations involved in data collection are not penalised should they discover a case of notifiable disease or any other sensitive data.

8. Use of data

Data from wildlife disease surveillance are used to prevent or control diseases that threaten the health of human or animal populations (*health management*).

These data serve mainly to map the areas where the health hazard to be managed is rife, or to anticipate seasonal or cyclical resurgences, in order to limit exposure to the source by sanitary or medical means.

Data from wildlife disease surveillance are particularly useful for assessing the exposure risk of a “compartment” (animal subpopulation or branch managed by a single biosecurity system: *Terrestrial Code*, 1.3.5.1) to a pathogen that may circulate among wildlife in the vicinity of the compartment.

The data and hypotheses on risk factors for the emergence and spread of a health problem among wildlife must be integrated into mathematical or computing tools used to test methods for limiting, controlling or preventing any health risk that wildlife might pose. Before they are brought into general application throughout the area occupied by a population or community, these health risk management methods must first be tested in controlled ecosystems or on a limited scale.

MEETING OF THE OIE AD HOC GROUP ON EPIDEMIOLOGY

Paris, 13-15 February, 2008

Dr. Gideon Brückner, Deputy Director General of the OIE, welcomed the group and reviewed the agenda items for the meeting emphasising the urgent need to finalise the revision of the chapter, surveillance guidelines and questionnaire for contagious bovine pleuropneumonia (CBPP). Issues related to a review on the *Terrestrial Code* chapter on foot and mouth disease were also indicated as priority issues on the agenda and he urged the Group to allocate sufficient time for this to advise the Scientific Commission.

The meeting was chaired by Prof. Arnon Shimsony with Dr Cristobal Zepeda as rapporteur.

The agenda and list of participants are indicated in Appendices I and II.

1. Contagious bovine pleuropneumonia (CBPP)

The Group acknowledged that drafting guidelines for surveillance for CBPP presents particular difficulties as the epidemiology of CBPP is complex and not fully understood. The incubation period is very variable depending on history of previous exposure to the agent in a population. Further, the diagnostic tests are not completely reliable, having significant sensitivity and specificity issues, leading to both false positive and false negative results.

The CBPP experts present at the meeting concurred that sequesters do not play an important role in the epidemiology of the infection in the field. However, they recognized that not all CBPP experts agree on this point.

The group agreed to draft guidelines for surveillance for CBPP based on the current guidelines for surveillance for foot and mouth disease (FMD) and the proposed CBPP Chapter. The only status that will be recognized is freedom from infection, the provisionally free status that had been previously recognized will not be considered in the guidelines.

During the drafting of the CBPP guidelines for surveillance, the group noted an inconsistency in the FMD guidelines and decided that Article 3.8.7.3, point 3.d) of the FMD surveillance guidelines should be deleted.

The group agreed to modify Article 2.3.15.3 point 1 to include the use of emergency vaccination. The revised text reads as follows:

“1. 12 months after the slaughter of the last case where a stamping-out policy, surveillance and strict movement control are applied in accordance with appendix 3.8.3; if vaccination was used, 12 months after the slaughter of the last vaccinated animal”.

The group discussed Articles 2.3.15.6 and 2.3.15.7. The current articles provide recommendations for trade of live animals to infected countries that are applying measures to control CBPP. The Group agreed that there is no reason why such countries should accept a higher risk of disease introduction of CBPP than a CBPP free country. The group agreed that the *Code* should only provide recommendations for trade of live animals regardless of the status of the receiving country. The above mentioned articles were modified to reflect this view.

After much discussion the group agreed that for CBPP, trade of live animals that are not intended for direct slaughter, originating from infected countries or zones could not be carried out with an acceptable level of risk. Therefore, it was agreed to provide recommendations for trade for this category of animals, only from free countries, zones or compartments. The articles relating to trade of live animals for purposes other than slaughter were deleted.

The group debated over the available evidence of CBPP transmission through semen, embryos and oocytes and agreed to delete Articles 2.3.15.9 and 2.3.15.10 given that there appeared to be limited scientific evidence indicative of a risk.

The group also reviewed the questionnaire for country and zone status recognition for CBPP that was prepared by the OIE. The questionnaire is attached as Appendix III.

2. Foot and mouth disease

On request of the Terrestrial Animal Health Standards Commission, the Group reviewed the earlier decision related to the current text in the *Terrestrial Code* on the implementation of a buffer zone for the control of FMD.

The group met with the OIE Director General and the president of the Code Commission to clarify changes made to the FMD chapter and provide clearer wording to specify that buffer zones are not mandatory but an option, as long as effective animal health measures to prevent entry of the virus are applied.

The group discussed the rationale for considering the use of buffer zones and reviewed the recommendation provided in the report of its meeting of September 2006:

“the most important factor in ensuring the effective separation between countries or zones of different status is the application of sanitary measures to prevent the introduction of infection. The effect of a buffer zone is to limit the spread of the infection if introduced, but in itself is not a safeguard against the introduction of infection. Further, physical and geographical barriers by themselves are not sufficient to guarantee the separation between zones or countries of different status. Should a country adopt appropriate measures to prevent the introduction of the virus, such as animal movement control, animal identification and increased surveillance (targeted surveillance), the buffer zone requirement could be an optional risk management tool.”

The group felt that this reasoning remains valid and adequately supports its position. In addition there is sufficient empirical evidence that FMD free countries bordering infected countries can remain free without the use of buffer zones. The following change to the wording of the respective articles in current text in Chapter 2.2.10 of the *Terrestrial Code* is proposed:

2.2.10.2. “Susceptible animals in the FMD free country where vaccination is not practiced should be separated from neighbouring infected countries by the application of animal health measures that effectively prevent the entry of the virus, taking into consideration physical or geographical barriers. These measures may include a buffer zone.”

2.2.10.3. “Susceptible animals in the FMD free country where vaccination is practiced should be separated from neighbouring infected countries by the application of animal health measures that effectively prevent the entry of the virus, taking into consideration physical or geographical barriers. These measures may include a buffer zone.”

2.2.10.4. “An FMD free zone where vaccination is not practised can be established in either an FMD free country where vaccination is practised or in a country of which parts are infected. In defining such zones the principles of Chapter 1.3.5. should be followed. Susceptible animals in the FMD free zone where vaccination is not practiced should be separated from the rest of the country and from neighbouring countries if they are of a different animal health status, by the application of animal health measures that effectively prevent the entry of the virus, taking into consideration physical or geographical barriers. These measures may include a buffer zone.”

2.2.10.5. “An FMD free zone where vaccination is practised can be established in either an FMD free country where vaccination is not practised or in a country of which parts are infected. In defining such zones the principles of Chapter 1.3.5. should be followed. Susceptible animals in the FMD free zone where vaccination is practiced should be separated from the rest of the country and from neighbouring countries, by the application of animal health measures that effectively prevent the entry of the virus, taking into consideration physical or geographical barriers. These measures may include a buffer zone.”

The Group also discussed the requirements for transition from FMD free countries or zones where vaccination is practised to FMD free where vaccination is not practised. The group considers the current text adequate. However, an additional statement could be added at the end of Article 2.2.10.3 and 2.2.10.5 stating:

“an FMD free country (or zone) where vaccination is practised that has stopped vaccination will be considered to maintain that status until 12 months have elapsed and an official request to the OIE seeking a change of status is submitted.”

The issue of suspension of officially recognised FMD status was discussed. The group discussed the scenario of a free country bordering a previously free country that has experienced an FMD outbreak. It was resolved that the status of the bordering free country would not be affected and that it would be expected that the free country will institute any necessary appropriate animal health measures to prevent the introduction of disease.

The Group discussed the timeframes for the recovery of free status and concluded that the current text in Article 2.2.10.8 is clear.

3. Epidemiological modelling

The OIE Collaborating Centre for Animal Disease Surveillance and Risk Analysis in Fort Collins, Colorado proposed to the Director General of the OIE to host a workshop on animal disease modelling. The objective of this workshop would be to develop an outline for the development of OIE guidelines for disease modelling focusing on the use and limitations of models, rather than their development.

The group considered the request and agreed that it would be more appropriate to convene a small group of experts to form an ad hoc group on modelling that would meet in Fort Collins following a training course that the Collaborating Centre is organizing in August, 2008. This would be in support of Resolution XXXIII of the 75th General Session of May, 2007.

4. Manual for disease surveillance

The Group was requested by the Scientific Commission to consider the development of a manual for disease surveillance including wildlife and vector surveillance. The Group acknowledged that this is a task that requires a significant time commitment and would be best accomplished by hiring a consultant that could meet with the group to define the contents and approach to follow. The Group would be actively involved in overseeing the progress of the development and finalisation of the *Manual*. The consultant should seek the involvement of the relevant OIE Collaborating Centres in the process of development of the *Manual*.

5. Definition of clinical surveillance

The Group was requested to propose a general definition for clinical surveillance. In Appendix 3.8.1 of the *Terrestrial Code* surveillance is defined in general. Specific disease surveillance guidelines specify requirements for clinical, serological and agent surveillance as appropriate for each disease. The group felt no need to define each term individually in Appendix 3.8.1., as they are well described under each disease surveillance guideline taking into account the differences between susceptible species, production systems and disease agents.

6. Additions proposed to the general guidelines for surveillance by the ad hoc group on wildlife diseases

The Group discussed the report of the ad hoc Group on wildlife surveillance with specific emphasis on the scope and relevance of wildlife involvement in the epidemiology of OIE listed diseases and concluded that there should be a selective approach towards the inclusion of wildlife species in surveillance taking into consideration the nature of the diseases involved, their zoonotic potential and implications to domestic animal populations. The decision on the interpretation of epidemiologically relevant species should be determined at the national or regional level.

The group will review the proposed additions to Appendix 3.8.1 to include wildlife considerations during the next meeting of the group.

7. Timeframe for maintaining active surveillance

On request of the Code Commission the Group discussed the issue of timeframes for the continuation of surveillance after the declaration of freedom from a disease. The Group agreed that it was not possible to prescribe specific timeframes to maintain active surveillance as this may change depending on the epidemiology of each disease. However, the group recognized that intensive surveillance should not be maintained indefinitely and that a gradual change in the surveillance approach is desirable. For example, a country that achieved eradication should be required to conduct fairly intensive surveillance to demonstrate its free status, after some time the surveillance system may shift towards targeted surveillance using clinical, serological and agent detection methods. Finally, provided that the risk of introduction remains low and stable and the disease is clinically recognizable, the surveillance system can rely solely on targeted clinical surveillance followed by investigation of suspect cases. Passive surveillance based on reporting of suspect cases should always be a part of the surveillance system.

.../Appendices

MEETING OF THE OIE AD HOC GROUP ON EPIDEMIOLOGY**Paris, 13 – 15 February 2008**

Agenda

1. Adoption of the agenda and appointment of a rapporteur
2. Review of the revisions on the Chapter, Surveillance Guidelines and Questionnaire for the evaluation of country status for Contagious Bovine Pleuropneumonia (CBPP), based on the revised rinderpest *Terrestrial Code* items and questionnaire
3. FMD related topics:
 - Requirements and time frame for transition from “FMD free status practising vaccination” to “FMD free status not practising vaccination”
 - Suspension officially recognized FMD status: Impact of a FMD outbreak and requirements of presence of between-country buffer zones, if neighbouring countries have a differing or equal official FMD status
 - Clarification on time frames regarding occurrence of last outbreak in Articles 2.2.10.2 to 2.2.10.5 in relation to Article 2.2.10.8. (recovery of status)
4. Issues raised by the report of the *ad hoc* Group on Wildlife Disease Surveillance
5. Guidelines epidemiological modelling for the management of animal diseases
 - Detailed planning of the drafting of the guidelines and discussion of the preliminary draft of Preben Willeberg
 - Possible authors and contributions for a special issue Scientific and Technical Review
 - Planning workshop on epidemiological modelling at OIE Collaborating Centre at Ft. Collins, Colorado
6. Time frame of maintaining active surveillance after declaring freedom from a disease or under conditions of historical freedom from disease. (Referred from SCAD based on Member Country comments on draft Chapter 2.3.3 (bovine tuberculosis))
7. Definition of “clinical surveillance”
8. Guidelines for animal disease control and contingency planning
9. Future working schedule and priority issues for the *ad hoc* Group on Epidemiology:
 - Animal disease surveillance guidelines (planning)
10. Finalisation and adoption of draft report

Appendix II

**MEETING OF THE
OIE AD HOC GROUP ON EPIDEMIOLOGY WITH INVITED EXPERTS
Paris, 13 – 15 February 2008**

List of participants

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Appendix III

CBPP FREE COUNTRY

Report of Country which applies for recognition of status, under Chapter 2.3.15 and Appendix 3.8.3 of the
Terrestrial Animal Health Code, as a CBPP free country

Please address concisely the following topics. National regulations laws and *Veterinary Administration* directives may be referred to and annexed as appropriate in one of the OIE official languages

1. Introduction

- 1.1. Geographical factors. Provide a general description of the country including physical, geographical and other factors that are relevant to CBPP dissemination, countries sharing common borders and other countries that although may not be adjacent share a link for the potential introduction of disease. Provide a map identifying the factors above.
- 1.2. Livestock industry. Provide a general description of the livestock industry in the country.

2. Veterinary system

- 2.1. Legislation. Provide a list and summary of all relevant veterinary legislation in relation to CBPP.
- 2.2. *Veterinary Services*. Provide documentation on the compliance of the Veterinary Service of the country with the provisions of Chapters 1.3.3. and 1.3.4. of the *Terrestrial Code* and I.1.2 of the *Terrestrial Manual* and describe how the veterinary services supervise and control all CBPP related activities. Provide maps and tables wherever possible.
- 2.3. Role of farmers, industry and other relevant groups in CBPP surveillance and control (include a description of training and awareness programs on CBPP)
- 2.4. Role of private veterinary profession in CBPP surveillance and control

3. CBPP eradication

- 3.1. History. Provide a description of the CBPP history in the country, date of first detection, origin of infection, date of eradication (date of last case).
- 3.2. Strategy. Describe how CBPP was controlled and eradicated (e.g. stamping-out, modified stamping-out, zoning), provide timeframe for eradication
- 3.3. Vaccines and vaccination. Was CBPP vaccine ever used? If so, when was the last vaccination carried out?
- 3.4. Legislation, organisation and implementation of the CBPP eradication campaign. Provide a description of the organizational structure at the different levels. Indicate if detailed operational guidelines exist and give a brief summary.
- 3.5. Animal identification and movement control. Are susceptible animals identified (individually or at a group level)? Provide a description of the methods of animal identification, herd registration and traceability. How are animal movements controlled in the country? Provide evidence on the effectiveness of animal identification and movement controls. Please provide information on pastoralism, transhumance and the related paths of movement.

4. CBPP diagnosis

Provide documentary evidence that the provisions in Chapters I.1.2 and 2.1.6. of the *Terrestrial Manual* are applied. In particular, the following points should be addressed:

- 4.1. Is CBPP laboratory diagnosis carried out in the country? If so, provide a list of approved laboratories. If not, provide the name(s) of and the arrangements with the laboratory(ies) samples are sent to, the follow up procedures and the time frame for obtaining results.
- 4.2. Provide an overview of the CBPP approved laboratories, in particular to address the following points:
 - 4.2.1. Procedures for the official accreditation of laboratories. Give details of internal quality management systems, e.g. Good Laboratory Practice, ISO etc. that exist in, or planned for, the laboratory system
 - 4.2.2. Give details of participation in inter-laboratory validation tests (ring tests).
 - 4.2.3. Biosecurity measures applied
 - 4.2.4. Details of the type of tests undertaken including procedures to isolate and identify *M. mycoides* subsp. *mycoides* SC as opposed to *M. mycoides* subsp. *mycoides* LC

5. CBPP surveillance

Provide documentary evidence that surveillance for CBPP in the country complies with the provisions of Appendix 3.8.3. of the *Terrestrial Code* and Chapter 2.1.6 of the *Terrestrial Manual*. In particular, the following points should be addressed:

- 5.1. Clinical surveillance. What are the criteria for raising a suspicion of CBPP? What is the procedure to notify (by whom and to whom) and what penalties are involved for failure to report? Provide a summary table indicating, for the past two years, the number of suspect cases, the number of samples tested for CBPP agent, species, type of sample, testing method(s) and results (including differential diagnosis).
- 5.2. Slaughterhouses, slaughter slabs, abattoirs. What are the criteria for raising a suspicion of CBPP lesion? What is the procedure to notify (by whom and to whom)? Provide a summary table indicating, for the past two years, the number of suspect cases, the number of samples tested for CBPP agent, species, type of sample, testing method(s) and results (including differential diagnosis).
- 5.3. Provide details on training programs for personnel involved in clinical and slaughter facilities surveillance, and the approaches used to increase community involvement in CBPP surveillance programs.
- 5.4. For countries where a significant proportion of animals are not slaughtered in controlled abattoirs, what are the alternative surveillance measures applied to detect CBPP (e.g. active clinical surveillance programs, laboratory follow up)
- 5.5. Livestock demographics and economics. What is the susceptible animal population by species and production systems? How many herds of each susceptible species are in the country? How are they distributed (e.g., herd density, etc.)? Provide tables and maps as appropriate.
- 5.6. Slaughterhouses and markets. Where are the major livestock marketing or collection centers? What are the patterns of livestock movement within the country? How are the animals transported and handled during these transactions.
- 5.7. Provide a description of the means employed during the two years preceding this application to rule out the presence of any *Mmm*SC strain in the susceptible population. Provide criteria for selection of populations for targeted surveillance and numbers of animals examined and samples tested. Provide details on the methods applied for monitoring the performance of the surveillance system including indicators.

6. CBPP prevention

6.1. Coordination with neighbouring countries. Are there any relevant factors about the adjacent countries that should be taken into account (e.g., size, distance from adjacent border to affected herds or animals)? Describe coordination, collaboration and information sharing activities with neighboring countries.

6.2. Import control procedures

From what countries or zones does the country authorize the import of susceptible animals? What criteria are applied to approve such countries or zones? What controls are applied on entry of such animals, and subsequent internal movement? What import conditions and test procedures are required? Are imported animals of susceptible species required to undergo a quarantine or isolation period? If so, for how long and where? Are import permits and health certificates required? What other procedures are used? Provide summary statistics of imports of susceptible animals for the past two years, specifying country or zone of origin, species and volume.

6.2.1. Provide a map with the number and location of ports, airports and land crossings. Is the official service responsible for import controls part of the official services, or is it an independent body? If it is an independent body, describe its management structure, staffing levels and resources, and its accountability to the central veterinary services. Describe the communication systems between the central authorities and the border inspection posts, and between border inspection posts.

6.2.2. Describe the regulations, procedures, type and frequency of checks at the point of entry into the country and/or their final destination, concerning the import and follow up of the following:

- a) animals
- b) veterinary medicinal products (i.e. biologics)

6.2.3. Describe the action available under legislation, and actually taken, when an illegal import is detected. Provide information on detected illegal imports.

7. Control measures and contingency planning

7.1. Give details of any written guidelines, including contingency plans, available to the official services for dealing with suspected or confirmed outbreaks of CBPP.

7.2. Is quarantine imposed on premises with suspicious cases, pending final diagnosis? What other procedures are followed regarding suspicious cases?

7.3. In the event of a CBPP outbreak:

7.3.1. indicate the sampling and testing procedures used to identify and confirm presence of the causative agent.

7.3.2. describe the actions taken to control the disease situation in and around any holdings found to be infected with CBPP,

7.3.3. indicate the control and/or eradication procedures (e.g. vaccination, stamping out, partial slaughter/vaccination etc.) that would be taken,

7.3.4. describe the procedures used to confirm that an outbreak has been successfully controlled/eradicated, including any restrictions on restocking,

7.3.5. give details of any compensation payments made available to farmers etc when animals are slaughtered for disease control/eradication purposes and their prescribed timetable.

8. Compliance with the *Terrestrial Code*

In addition to the documentary evidence that the provisions of appendix 3.8.3 are properly implemented and supervised, the Delegate of the country must submit a declaration indicating:

- 8.1. no clinical CBPP has been detected for at least 2 years;
- 8.2. no CBPP vaccines have been used for at least 2 years in any susceptible species,
- 8.3. the country operates both clinical surveillance and disease reporting systems for CBPP adequate to detect clinical disease if it were present;
- 8.4. all clinical and pathological evidence suggestive of CBPP is investigated by field and laboratory methods (including serological assessment) to refute a possible diagnosis of CBPP;
- 8.5. there are effective measures in force to prevent the re-introduction of the disease.

9. Recovery of status

Countries applying for recovery of status should comply with the provisions of Article 2.3.15.3 of the *Terrestrial Code* and provide detailed information as specified in sections 3.1, 3.2, 3.3, 5.2, 5.3 and 5.4 of this report. Information in relation to other sections need only be supplied if relevant.

CBPP FREE ZONE

Report of a Country which applies for recognition of status, under Chapter 2.3.15.3 and Appendix 3.8.3 of the *Terrestrial Animal Health Code*, for a CBPP free zone

Please address concisely the following topics. National regulations laws and *Veterinary Administration* directives may be referred to and annexed as appropriate in one of the OIE official languages

1. Introduction

- 1.1. Geographical factors. Provide a general description of the country including physical, geographical and other factors that are relevant to CBPP dissemination, countries sharing common borders and other countries that although may not be adjacent share a link for the potential introduction of disease. Provide a map identifying the factors above. The boundaries of the zone must be clearly defined. Provide a digitalised, geo-referenced map with a precise text description of the geographical boundaries of the zone.
- 1.2. Livestock industry. Provide a general description of the livestock industry in the country.

2. Veterinary system

- 2.1. Legislation. Provide a list and summary of all relevant veterinary legislation in relation to CBPP.
- 2.2. *Veterinary Services*. Provide documentation on the compliance of the Veterinary Service of the country with the provisions of Chapters 1.3.3. and 1.3.4. of the *Terrestrial Code* and I.1.2 of the *Terrestrial Manual* and describe how the veterinary services supervise and control all CBPP related activities. Provide maps and tables wherever possible.
- 2.3. Role of farmers, industry and other relevant groups in CBPP surveillance and control (include a description of training and awareness programs on CBPP)
- 2.4. Role of private veterinary profession in CBPP surveillance and control

3. CBPP eradication

- 3.1. History. Provide a description of the CBPP history in the country, date of first detection, origin of infection, date of eradication (date of last case).
- 3.2. Strategy. Describe how CBPP was controlled and eradicated in the zone (e.g. stamping-out, modified stamping-out, zoning), provide timeframe for eradication
- 3.3. Vaccines and vaccination. Was CBPP vaccine ever used? In the entire country? If vaccination was used, when was the last vaccination carried out? Where in the country?
- 3.4. Legislation, organisation and implementation of the CBPP eradication campaign. Provide a description of the organizational structure at the different levels. Indicate if detailed operational guidelines exist and give a brief summary.
- 3.5. Animal identification and movement control. Are susceptible animals identified (individually or at a group level)? Provide a description of the methods of animal identification, herd registration and traceability. How are animal movements controlled in the zone? Provide evidence on the effectiveness of animal identification and movement controls. Please provide information on pastoralism, transhumance and the related paths of movement.

4. CBPP diagnosis

Provide documentary evidence that the provisions in Chapters I.1.2 and 2.1.6. of the *Terrestrial Manual* are applied. In particular, the following points should be addressed:

- 4.1. Is CBPP laboratory diagnosis carried out in the country? If so, provide a list of approved laboratories. If not, provide the name(s) of and the arrangements with the laboratory(ies) samples are sent to, the follow up procedures and the time frame for obtaining results.
- 4.2. Provide an overview of the CBPP approved laboratories, in particular to address the following points:
 - 4.2.1. Procedures for the official accreditation of laboratories. Give details of internal quality management systems, e.g. Good Laboratory Practice, ISO etc. that exist in, or planned for, the laboratory system
 - 4.2.2. Give details of participation in inter-laboratory validation tests (ring tests).
 - 4.2.3. Biosecurity measures applied
 - 4.2.4. Details of the type of tests undertaken including procedures to isolate and identify *M. mycoides* subsp. *mycoides* SC as opposed to *M. mycoides* subsp. *mycoides* LC

5. CBPP surveillance

Provide documentary evidence that surveillance for CBPP in the country complies with the provisions of Appendix 3.8.3. of the *Terrestrial Code* and Chapter 2.1.6 of the *Terrestrial Manual*. In particular, the following points should be addressed:

- 5.1. Clinical surveillance. What are the criteria for raising a suspicion of CBPP? What is the procedure to notify (by whom and to whom) and what penalties are involved for failure to report? Provide a summary table indicating, for the past two years, the number of suspect cases, the number of samples tested for CBPP agent, species, type of sample, testing method(s) and results (including differential diagnosis).
- 5.2. Slaughterhouses, slaughter slabs, abattoirs. What are the criteria for raising a suspicion of CBPP lesion? What is the procedure to notify (by whom and to whom)? Provide a summary table indicating, for the past two years, the number of suspect cases, the number of samples tested for CBPP agent, species, type of sample, testing method(s) and results (including differential diagnosis).
- 5.3. Provide details on training programs for personnel involved in clinical and slaughter facilities surveillance, and the approaches used to increase community involvement in CBPP surveillance programs.
- 5.4. For countries where a significant proportion of animals in the zone are not slaughtered in controlled abattoirs, what are the alternative surveillance measures applied to detect CBPP (e.g. active clinical surveillance program, laboratory follow up)
- 5.5. Livestock demographics and economics. What is the susceptible animal population by species and production systems? How many herds of each susceptible species are in the zone? How are they distributed (e.g., herd density, etc.)? Provide tables and maps as appropriate.
- 5.6. Slaughterhouses and markets. Where are the major livestock marketing or collection centers? What are the patterns of livestock movement within the country and the zone? How are the animals transported and handled during these transactions.
- 5.7. Provide a description of the means employed during the two years preceding this application to rule out the presence of any *Mmm*SC strain in the susceptible population of the zone. Provide criteria for selection of populations for targeted surveillance and numbers of animals examined and samples tested. Provide details on the methods applied for monitoring the performance of the surveillance system including indicators.

6. CBPP prevention

6.1. Coordination with neighbouring countries and zones. Are there any relevant factors about the adjacent countries and zones that should be taken into account (e.g., size, distance from adjacent border to affected herds or animals)? Describe coordination, collaboration and information sharing activities with neighboring countries and zones. If the CBPP free zone is situated in a CBPP infected country or borders an infected country or zone, describe the animal health measures implemented to effectively prevent the introduction of the agent, taking into consideration physical or geographical barriers.

6.2. Import control procedures

From what countries or zones does the country authorize the import of susceptible animals? What criteria are applied to approve such countries or zones? What controls are applied on entry of such animals, and subsequent internal movement? What import conditions and test procedures are required? Are imported animals of susceptible species required to undergo a quarantine or isolation period? If so, for how long and where? Are import permits and health certificates required? What other procedures are used? Provide summary statistics of imports of susceptible animals for the past two years, specifying country or zone of origin, species and volume.

6.2.1. Provide a map with the number and location of ports, airports and land crossings. Is the official service responsible for import controls part of the official services, or is it an independent body? If it is an independent body, describe its management structure, staffing levels and resources, and its accountability to the central veterinary services. Describe the communication systems between the central authorities and the border inspection posts, and between border inspection posts.

6.2.2. Describe the regulations, procedures, type and frequency of checks at the point of entry into the zone and/or their final destination, concerning the import and follow up of the following:

- a) animals
- b) veterinary medicinal products (i.e. biologics)

6.2.3. Describe the action available under legislation, and actually taken, when an illegal import is detected. Provide information on detected illegal imports.

7. Control measures and contingency planning

7.1. Give details of any written guidelines, including contingency plans, available to the official services for dealing with suspected or confirmed outbreaks of CBPP.

7.2. Is quarantine imposed on premises with suspicious cases, pending final diagnosis? What other procedures are followed regarding suspicious cases?

7.3. In the event of a CBPP outbreak:

7.3.1. indicate the sampling and testing procedures used to identify and confirm presence of the causative agent,

7.3.2. describe the actions taken to control the disease situation in and around any holdings found to be infected with CBPP,

7.3.3. indicate the control and/or eradication procedures (e.g. vaccination, stamping out, partial slaughter/vaccination etc.) that would be taken,

- 7.3.4. describe the procedures used to confirm that an outbreak has been successfully controlled/eradicated, including any restrictions on restocking,
- 7.3.5. give details of any compensation payments made available to farmers etc when animals are slaughtered for disease control/eradication purposes.

8. Compliance with the *Terrestrial Code*

In addition to the documentary evidence that the provisions of appendix 3.8.3 are properly implemented and supervised, the Delegate of the country must submit a declaration indicating that in the zone:

- 8.1. no clinical CBPP has been detected for at least 2 years;
- 8.2. no CBPP vaccines have been used for at least 2 years in any susceptible species,
- 8.3. the country operates both clinical surveillance and disease reporting systems for CBPP adequate to detect clinical disease if it were present in the zone;
- 8.4. all clinical and pathological suggestive of CBPP is investigated by field and laboratory methods (including serological assessment) to refute a possible diagnosis of CBPP;
- 8.5. there are effective measures in force to prevent the re-introduction of the disease.

9. Recovery of status

Countries applying for recovery of status should comply with the provisions of Article 2.3.15.3 of the *Terrestrial Code* and provide detailed information as specified in sections 3.1, 3.2, 3.3, 5.2, 5.3 and 5.4 of this report. Information in relation to other sections need only be supplied if relevant.

REPORT OF THE MEETING OF THE OIE WORKING GROUP ON WILDLIFE DISEASES
Paris, 28 – 31 January 2008

The meeting of the OIE Working Group for Wildlife Diseases (WGWD) was held from the 28 to 31 January, 2008, at the OIE headquarters in Paris. The meeting was chaired by Dr Roy Bengis, and Prof. Ted Leighton was appointed as rapporteur.

The agenda and list of participants in the *ad hoc* Working Group meeting are given in [Appendices I and II](#)

1. Outline and purpose of the meeting

Dr. Bernard Vallat, Director General of the OIE, welcomed the members of the Group and emphasized that pathogens that infect wildlife are growing in importance in OIE programs. The OIE has an increasing need for expert advice with respect to wildlife. *Compartmentalization* and *zoning* are two aspects of particular importance with respect to pathogens that infect wild animals. He urged the Group to review the wildlife related aspects of priority diseases such as foot and mouth disease, classical and African swine fever and to assess if all the relevant aspects, especially those related to trade, are sufficiently addressed. Dr vallat emphasised the importance of establishing good working relationships and contacts with non-governmental organisations involved with wildlife such as hunting organisations. He also urged the Group to review their working procedures to enable more direct and interactive input in relation to wildlife related aspects. Dr. Brückner noted that there is also a general need for inclusion of wildlife in various aspects of the OIE Standards. The Group was urged to reflect on the broad needs of the OIE with respect to wildlife, and to propose a program of activities to meet OIE needs.

2. Wildlife in relation to the strategic objectives of the OIE

The Working Group engaged in intensive and detailed discussions about the place and significance of wild animals and their pathogens to the full range of OIE programs and activities. The OIE List of Diseases was reviewed and provisionally categorized with respect to wildlife involvement ([Appendix III](#)). The Working Group also identified several pathogens in wildlife as of particular importance to the OIE program:

First Priority	Second Priority	
Avian influenza (HPAI)	Bluetongue/EHD:	Emerging in Europe and North America
Bovine Tuberculosis		
Classical Swine Fever	CWD:	Emerging in North America
African Swine Fever		
Foot and Mouth Disease	Rift Valley Fever:	Emerging in Africa (Europe at risk)
Newcastle Disease		
Rabies	Tularemia:	Possibly emerging in Europe, North America
	West Nile Virus:	Emerging in several places
	Peste des petits ruminants:	No longer in the shadow of Rinderpest, significant large area affected

The Working Group proposed a list of OIE needs with respect to wildlife and then listed these in order of priority with respect to OIE global responsibilities. Following these discussions, the Working Group developed a list of priority wildlife issues for the OIE and then created a work plan for the Working Group for the next three years that could address these issues. (See item 8, below)

3. OIE Collaborating Centre on Wildlife Diseases - Program proposal

The Working Group reviewed the three-year program proposal of the OIE Collaborating Centre on Wildlife Disease, Surveillance and Monitoring, Epidemiology and Management. Project 1 (Regional Seminars) and the International Wildlife Disease Incident Network are of particular importance to the OIE wildlife priorities identified by the Working Group. The Working Group will seek assistance from the Collaborating Centre to create a global directory of wildlife health and disease expertise to aid the WGWD in identifying international experts on wildlife disease topics. The WGWD fully supports the three-year program proposal of the OIE Collaborating Centre.

4. Response and matters arising from the 2007 report of the WGWD to the OIE international committee

Dr. Artois reported on his presentations on the work of the Working Group to both the Scientific Commission and to the International Committee. The report was well-received and the Working Group was encouraged to continue its work. The Working Group reports to the Scientific Commission and it is anticipated that this will bring the Working Group more directly into the central activities of the OIE. It was also confirmed by the Director General at the general Session that representation from Latin America and Asia would be secured for the Working Group. Delegates were again urged to appoint national wildlife focal points.

5. Global wildlife disease situation

A total of 48 annual wildlife disease questionnaires, out of a possible 172, were received by 30 January 2008. The response rate by Members was lower than in previous years. Forty-one countries which had reported to OIE in previous years did not send in a report this year. It is hoped that by incorporating the reports on wildlife diseases within the WAHIS, it would improve the reporting on the global occurrence of diseases of wildlife. In the reports that were submitted, more than 1,100 different disease occurrences were reported. A complete tabulation of diseases reported is in [Appendix IV](#). Some examples of diseases reported were:

- **Bat Lyssaviruses**

Bat lyssavirus was reported from 4 different countries (Australia, Denmark, Germany, UK). In Australia, six Black Flying Fox (*P. alecto*), one Grey-headed Flying Fox (*P. poliocephalus*) and one Spectacled Flying Fox (*P. conspiciellatus*) tested positive for ABLV in NSW and Queensland. The diagnosis was confirmed using clinical signs, histopathology, PCR and/or FAT.

A fatal human case of Duvenhage virus (Lyssavirus-Genotype 4) was confirmed in the Netherlands, 4 weeks after the victim had been scratched by a small bat while holidaying in Kenya. This is only the third case of human Duvenhage virus infection ever recorded. The two previous cases were recorded in South Africa in 1970 and 2006.

- **Bovine tuberculosis**

Bovine tuberculosis (*Mycobacterium bovis*) was reported from 11 different countries (Canada, El Salvador, Ireland, Italy, Myanmar, South Africa, Taipei China, UK, USA, Zimbabwe, Zambia).

In South Africa, bovine tuberculosis (BTB) in buffalo has now spread throughout the entire length of the Kruger National Park (KNP), with clinical cases finally being detected in the far north, close to the Limpopo river. BTB was also confirmed in 13 lions (*Panthera leo*), 18 buffalo, and 3 greater kudu (*Tragelaphus strepsiceros*) in the KNP. Elsewhere in the country, BTB was confirmed in approximately 50 buffalo and a single lion in Hluhluwe / Imfolosi Park, where a test and slaughter technique is being used to manage BTB in buffalo. On private game ranches in South Africa, BTB was also confirmed in 5 buffalo, a lion, a bushbuck (*Tragelaphus scriptus*) and an impala. *Mycobacterium bovis* infection has also been confirmed to be circulating and maintained in a suricate subpopulation in the Kalahari district of Northern Cape Province in South Africa.

Bovine TB continues to smolder in the Kafue / Lochinvar region of Zambia, and in 2007, 14 cases were confirmed in Kafue lechwe (*Kobus leche*) and one case in an impala. In the Queen Elizabeth National Park in Uganda, BTB continues to cycle in buffalo and warthog (*Phacochoerus africanus*).

In Eastern Africa, BTB has been detected opportunistically in the Serengeti ecosystem, where passive surveillance is being carried out. Bovine tuberculosis was reported in two captive lions in Zimbabwe.

In the United States, in northwestern Minnesota, bovine TB infection has been confirmed in 8 cattle herds and 17 wild white-tailed deer since 2005, including 4 deer taken by hunters during November 2007. In wild deer, BTB prevalence appears very low and confined to a small geographic area. The *M. bovis* isolates from deer and cattle are similar and genetically consistent with strains from the southwestern USA and Mexico. Deer population reduction efforts continue in the affected in order to reduce exposure of susceptible deer and to prevent potential deer to deer and deer to cattle transmission of *M. bovis*. Additional information on countries that detected bovine tuberculosis and the mammalian species involved are in [Appendix IV](#).

Human tuberculosis (*M. tuberculosis* infection)

M. tuberculosis infection was confirmed in three baboons (*Papio ursinus*) in the Western Cape Province of South Africa

- **Cyanobacterial bio-intoxication**

Mortalities involving at least 9 white rhinoceros (*Ceratotherium simum*), 10 zebra (*Equus burchelli*) and 10 blue wildebeest (*Connochaetes taurinus*) were reported in the Kruger National Park, South Africa.

- **Leishmaniasis**

In Australia, in 2000, a novel *Leishmania* sp. that caused cutaneous lesions in captive Red Kangaroos (*Macropus rufus*) was reported in the North. The same *Leishmania* sp. now has been identified in Northern Territory captive Northern Wallaroos (*M. robustus*). A simple Protein A ELISA also has identified circulating antibodies to *Leishmania* antigens in Agile Wallabies (*M. agilis*), Antilopine Wallaroos (*M. antilopinus*) and Northern Wallaroos (*M. robustus*) from the Northern Territory.

- **Simian-associated zoonoses**

Ebola hemorrhagic fever Research in Gabon has demonstrated that Ebolavirus strains A & B, are circulating and may be recombining to form new emerging strains.

An ongoing outbreak of Ebola hemorrhagic fever in the Bundibugyo region of Uganda has claimed the lives of 37 people, including a doctor and 4 health workers. Dead primates (unspecified) also have been found in the area.

An outbreak of Marburg hemorrhagic fever occurred in mine workers in the Kamwenge district of Uganda. In follow up research, the Marburg virus was isolated from a fruit bat for the first time. Most virus isolations have been obtained from primates.

An outbreak of monkey pox in humans was reported from Likouola region in the Democratic Republic of Congo. At least 60 cases have been confirmed. This zoonotic infection appears to be related to the bush meat trade, when infected primates, rodents and squirrels are butchered or eaten.

In the Kruger National Park in South Africa, 7 lions were tested for the presence of Trichinellosis. Three of these lions tested positive – one lion had a pure *Trichinella nelsoni* infection, another had a pure *Trichinella* strain T8 infection, and the third had a mixed infection.

- **Crocodile Diseases**

- Trichinellosis was diagnosed in 6 Nile crocodiles (*Crocodylus niloticus*) in Zimbabwe.
- Deficiency related aortic aneurisms and encephalopathies were diagnosed in captive crocodiles in Zimbabwe.
- Hepatitis caused by *Adenovirus* infection was reported in farmed crocodiles in Zimbabwe.

- Coccidiosis also was diagnosed in farmed crocodiles in Zimbabwe.
- A single outbreak of viral-type meningo-encephalitis was diagnosed at one crocodile facility in Zimbabwe.
- In South Africa, husbandry – related stress resulted in septicaemias caused by *E. coli*, Salmonellas (B Group, Aeromonas and Morganella in farmed crocodiles. *Edwardsiella tarda* pneumonia and *Mycoplasma crocodyli* polyarthritis were also reported.
- Fatal salmonellosis (unspecified) was reported in a crocodile in Botswana

- **Diclofenac in Africa**

The Working Group noted with concern that the non-steroidal anti-inflammatory drug, *diclofenac*, was recently introduced for veterinary use in eastern Africa, placing at risk the many species of vulture in Africa which share the lethal sensitivity to this drug with the *Gyps* vultures of the Indian sub-continent. This drug is fatal to these birds in the very low doses which they receive from consuming carcasses of livestock treated with the drug prior to death. These Asian birds face potential extinction as a direct consequence of the use of this drug. The same fate may face similar species in Africa if the drug is widely used there.

The Working Group recommended to the Scientific Commission that the OIE use its meetings and influence to reduce or eliminate the use of this drug in livestock in Africa as well as the Indian subcontinent, and to work with countries to identify suitable substitutes which do not have important ecological consequences.

5. Diseases of special concern

- **Highly Pathogenic Avian Influenza**

In 2007, the OIE was notified of several HPAI H5N1 outbreaks in wild birds: Peoples' Republic of China, Czech Republic, Egypt, France, Germany, Hong Kong, Japan, Nigeria, Pakistan, Poland as well as the UK early in January 2008.

After the large outbreak in Europe late in the winter of 2005-2006, this continent remained apparently free of the clinical infection in wild birds until the summer of 2007. The OIE was notified of the following outbreaks in wild water birds: 307 in Germany (from 24 June onward), 1 in the Czech Republic (from 26 June onward; now resolved), and 3 in France (from 28 June onward, now resolved).

In addition to the Mute Swan (*Cygnus olor*), a species frequently affected in the winter of 2005-2006, it appears that the Black-Necked Grebe (*Podiceps nigricollis*) was primarily affected in Germany.

Later in the year in Poland, 10 outbreaks were recorded in November (now resolved) and four mute swans recently were found infected in the Southern part of the UK. The sporadic distribution of these outbreaks in Europe suggests that the HPAI H5N1 virus may silently propagate amongst wild waterfowl. Most recent outbreaks in wild birds have no apparent direct (or documented) epidemiological link with outbreaks in proximity to poultry farms.

In Japan HPAI H5N1 was found in a mountain hawk eagle.

On the African Continent, highly pathogenic avian influenza (HPAI) involving the H5N1 virus has been reported in poultry in Benin. No wild bird cases were reported.

Additional information including numbers and scientific names of affected birds, as well as methods of diagnosis ([Appendix IV](#)).

- **Low pathogenic avian influenza**

In Australia, coordinated surveillance of wild birds is providing valuable information concerning circulating AI virus subtypes. During the period 2005-2007 no HPAI viruses were detected among approximately 10,000 samples tested. However, results indicate that many low pathogenic subtypes are present at low a level. Major surveillance activities for avian influenza in wild birds are continuing. Wild bird mortality events have been investigated for the presence of avian influenza virus with negative results.

In New Zealand, a comprehensive surveillance program for avian influenza has been undertaken for many years. Results are similar to Australia. No HPAI has been detected but a range of LPAI subtypes have been found among approximately 5,000 samples tested.

In South Africa, low pathogenicity avian influenza virus infections were detected in ostrich (H6N8) and Egyptian goose (*Alopochen aegyptiacus*) (H1N8), and H5N8 was isolated from a swift tern (*Sterna bergii*) during routine surveillance activities. Low pathogenic avian influenza viruses were detected in samples from 408 waterfowl in Zambia.

In Europe, in France there were 949 dead birds and 1288 live birds tested. Seven H5 subtype viruses of low pathogenicity were detected. More than 3,000 wild birds were sampled in the UK and several viruses of low pathogenicity were recovered.

In the United States, a total of 247,529 samples from wild birds or their environments have been tested for highly pathogenic avian influenza subtype H5N1 since 1 April 2006. From 1 April 2006 – 31 March 2007, some 164,553 samples were tested: 49,000 from live wild birds, 63,100 from hunter-killed birds, 2,200 from wild birds from morbidity/mortality investigations, 600 sentinel birds, and 50,200 environmental samples consisting of feces or water. Since 1 April 2007, a total of 81,993 samples from these same five types of sources were tested. Highly pathogenic avian influenza viruses have not been detected in any of the samples. However, H5N1 avian influenza virus of low pathogenicity has been detected on 12 occasions. Sample collection and testing continue to be conducted through cooperative efforts of numerous state and federal wildlife and animal health agencies.

Additional information on countries that detected LPAI and the avian species involved in surveillance ([Appendix IV](#)).

- **African swine fever**

In Zambia and Kenya, domestic pigs suffered severe outbreaks of African swine fever (ASF) that apparently originated from sylvatic maintenance cycles in wild porcines and argasid ticks. More than 1,000 pigs died in these outbreaks.

In Europe, ASF was reported for the first time in the Caucasus region in June 2007, when several outbreaks were recorded in free-range domestic and family owned pigs from Georgia. Within two months, the disease spread westward in the country and, since then, has been reported also in Armenia and Azerbaijan.

Concern was expressed that the virus could be transmitted by direct or tick-mediated contacts to wild boar (*Sus scrofa*), a widespread species susceptible to ASF infection, and they would become ASF reservoirs, making disease eradicate difficult. Unfortunately, early in November, the infection was diagnosed in several wild boar, both clinically affected and apparently healthy boar culled for control, in the Russian Republic of Dagestan, close to the border of Georgia.

- **Bluetongue and Epizootic hemorrhagic disease**

In Europe, deer have tested seropositively for antibodies against bluetongue virus (BTV) in Germany and Italy, and BTV was isolated from one deer in each of these countries.

In the United States, during late summer and early autumn of 2007, a very large orbiviral epizootic occurred in numerous states in the eastern and central to western portions of the country. The primary species affected was white-tailed deer (*Odocoileus virginianus*) with additional wild ruminants, such as mule deer (*Odocoileus hemionus*), pronghorn (*Antilocapra americana*) and others. Epizootic hemorrhagic disease virus (EHDV) – serotype 2 caused the vast majority of cases. Additional virus types isolated in low numbers included EHDV-1, BTV types-10,11, and 17, as well as EHDV-6, which is not regarded as endemic in the USA, but which also was isolated from white-tailed deer in 2006. Other non-endemic orbiviruses (BTV-1 and BTV-3) have been isolated from wild deer in the USA in the last 4 years emphasizing the importance of thorough wildlife mortality investigations.

- **Rift Valley fever**

Climatically, 2007 was a *La Niña* year, characterized by above average rainfall in eastern and tropical Africa. Typically, outbreaks of vector borne diseases are associated with the wet climatic conditions, and in eastern Africa, three major outbreaks of Rift Valley fever occurred.

Early in the year the first clinical outbreak was reported in the Arusha and Tanga regions of Tanzania where cases were first reported in small stock and later in humans. A total of fifty eight human cases were subsequently identified and these resulted in 14 deaths.

A second major epidemic of Rift Valley fever was reported in livestock and humans in the north eastern Province of Kenya (Garissa and Ijara districts), and in southern Somalia. These areas experienced extremely heavy rainfalls with flooding, which stimulates the hatch of dormant Aedine mosquito eggs which are infected with the RVF virus. A total of 354 human cases were reported which resulted in 106 mortalities.

Later in the year (October), a third RVF outbreak was reported in the White Nile, Sinnar and Gezira states of Sudan. More than 125 human cases were recorded with at least 60 mortalities.

Strangely, there were no reports of disease amongst animals until November, when the outbreak was reported to OIE as a result of ELISA positive reactions in sheep. It is thought that mechanical needle transmission of RVF may have occurred during vaccination campaigns in some affected countries.

Significant numbers of African buffalo have been found to be seropositive for exposure to the causative virus and results of additional serological tests are pending. Of historical note, an abortion storm occurred in 1999 in a buffalo breeding project in South Africa in the Kruger Park and RVF virus was isolated.

6. Review of *ad hoc* Group reports

6.1. *Ad hoc* Group on Climate Change and Surveillance for Vector-borne Diseases

The Working Group reviewed the report from the *ad hoc* Group and recommended its acceptance by the Scientific Commission. It noted the Terms of Reference and the broad mandate with respect to climate change. These terms of reference were considered highly appropriate and necessary for the OIE.

The Working Group agreed with the need for to the OIE to provide practical guidelines for surveillance of vectors to veterinary services. Vector-borne diseases are likely to become increasingly important in association with climate change, and wild animals often contribute to the circulation and maintenance of vector-borne pathogens. Members should be urged to report and investigate the occurrence of vector-borne diseases in wild animals as well as domestic animals. The Working Group reiterated the need to continue to participate in this *ad hoc* Group.

The Working Group wishes to draw the attention of the Scientific Commission to the current world crisis in expertise on vector taxonomy and ecology. The number of competent taxonomists capable of identifying arthropod vectors to the species level is critically small and is decreasing. Experts in the general biology of these species also are very few in number. Global animal health capacity in this area is marginal and requires serious and immediate attention.

6.2. *Ad hoc* Group on Epidemiology/Newcastle Disease/Avian Influenza

The Working Group reviewed the report of the *ad hoc* Group. The Working Group agreed with the general points made in the report but requested a re-consideration of two statements:

Item 3, 1 paragraph, sentence: "The reason countries are carrying out surveillance in wild birds is basically for public health and consumer interest." The Group indicated that surveillance for AI and ND in wild birds is carried out for a range of very legitimate and important reasons beyond those referred to in the sentence in question, including vigilance and early detection of highly pathogenic strains of these viruses and acquisition of information on the prevalence and genetic composition of virus strains in wildlife that inform risk assessment and biosecurity considerations in commercial poultry.

Item 3, paragraph 8:

- “... objectives of the surveillance shall be clearly defined.” - the word “shall” is an inappropriate imperative and the word “should” is more appropriate here.
- “... on the possible exposure of free ranging poultry.” The words “free-ranging” are inappropriate here. Their use assumes fully effective biosecurity in housed poultry, and this certainly often is not true. The words “free ranging” should be removed.

The Working Group recommended that it be given the opportunity to review the OIE Guidelines for surveillance of Avian Influenza and for Newcastle Disease to assess whether wild birds are appropriately included within these Guidelines.

6.3. *Ad hoc* Group on wildlife disease surveillance

The Group reviewed the report of the *ad hoc* Group and noted the proposal to complete review and revision of existing surveillance guidelines for specific diseases in order to include wildlife appropriately in each. It also took note of the proposal that a document be prepared which gives guidelines and practical examples of how to undertake disease surveillance in wild animals.

The WGWD agreed with these two proposals.

7. Epidemic potential of wildlife diseases

The working group discussed the concept and usefulness of weighting various disease determinants to assist in calculating the epidemic potential of infectious diseases in wildlife. It was decided that although it would be useful to be able to rank diseases according to their epidemic potential, the actual weighting of the agent, host, and environmental determinants would require some detailed mathematical modeling, which is beyond the expertise of the working group. The concept will be taken up with an appropriate academic epidemiological department.

8. Reporting of wildlife diseases through WAHIS

The Head of the OIE Animal Health Information Department, Dr. Karim Ben Jebara, joined the meeting and presented a proposal by which the reporting of pathogens in wildlife through the questionnaire of the Working Group could be incorporated into the WAHIS system. The Working Group agreed that the questionnaire, and related data entry and reporting functions, should be implemented on WAHIS and that wildlife focal points should be encouraged to report wildlife disease occurrences through WAHIS. Both paper and WAHIS versions of the questionnaire will be used in 2008.

The Working Group will work with Dr. Ben Jebara to implement this new reporting method during 2008. The Working Group itself will provide some of the information required by the OIE but it is proposed that a small *ad hoc* Group that includes Working Group members/wildlife experts be established to work directly with the Department on the details of implementation. The Working Group should also determine the output on wild animal pathogens that will be needed from the WAHIS system and how this new method of acquiring information on wildlife pathogens will affect future reports by the Working Group to the International Committee.

9. Proposed Terms of Reference and work plan for the Working Group (2008 to 2011)

The Group discussed in detail the formulation of a new work plan for the next three years, including a rationale, renewed terms of reference, and mode of operation. The Work Plan identifies priorities for the Working Group and the specific activities it will undertake in 2008-2011. The full work plan is reflected in [Appendix V](#).

.../Appendices

Appendix I**MEETING OF THE OIE WORKING GROUP ON WILDLIFE DISEASES****Paris, 28 – 31 January 2008**

Agenda

- 1) **Welcome, household matters and analysis of Agenda time-frames** – *Dr Vallat/ Gideon Brückner & Roy Bengis*
 - 2) **Wildlife in the Global OIE Program – strategic discussion between the WDWG and the OIE Central Bureau with regards to OIE needs and the future structure, role, direction and responsibilities of the Working Group for Wildlife Diseases** – *Dr Vallat /Gideon Brückner to lead.*
 - 3) **Collaborating Centre for Wildlife Disease Surveillance and Monitoring, Epidemiology and Management: Review of Program Proposal 2008 – 2010** *Ted Leighton to lead.*
 - 4) **Response and Matters arising from the 2007 report of the WDWG to the General Assembly** – *Marc Artois*
 - 5) **Global wildlife disease situation: Regional wildlife disease reports** – *Torsten Mörner to lead: Each region to report highlights. Also to include:*
Specific Issue updates such as:
 - *Diclofenac – Asia and Africa – Mike Woodford and Roy Bengis*
 - *Avian Influenza – Chris Bunn, Torsten Mörner & Marc Artois*
 - 6) **Vector-born animal and zoonotic diseases of international concern – extra limital emergence and the Climate Change link (*Blue tongue, Rift Valley fever, African swine fever*)- *General Discussion***
 - **Networking with other Working Groups (Epidemiology, Surveillance, Climate Change and Zoonoses). Reports on recent meetings of the Working Groups on 1) Wildlife Disease Surveillance (23 – 25 January, 2008) and 2) Climate Change and Surveillance for Vector – Borne Diseases – brief reports by WDWG members who attended these two meetings**
 - 7) **Epidemic potential of Wildlife Diseases: Concept of weighting disease determinants** – *Roy Bengis to introduce an idea.*
 - 8) **Future changes in reporting and recording Wildlife Diseases: The transition from the Questionnaire to WAHIS.** –*General Discussion*
 - **Sub-group meeting on Thursday (31st) morning with Dr Ben Jabara and WAHIS team to discuss changes and a work plan and time line for transition.** –*Chris Bunn, Marc Artois, Torsten Mörner and Ted Leighton*
 - 9) **Proposed Work Plan for the Wildlife Disease Working Group, (2008 – 2010)- based on discussions under Agenda points #2, #3 & #8.** - *General discussion*
 - 10) **Any other matters** – *Open discussion including dates and time lines.*
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MEETING OF THE OIE WORKING GROUP ON WILDLIFE DISEASES

Paris, 28 - 31 January 2008

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**Provisional Categorization of OIE List Diseases
Working Group on Wildlife Diseases (January 2008)**

OIE Disease List - 2007	Wildlife/feral Infectable ?	Infection source for Domestic	Uncertain	Zoonosis
Multispecies				
Anthrax	Yes	No		X
Aujeszky's disease	Yes	Yes		X
Bluetongue	Yes		X	
Brucellosis (<i>Brucella abortus</i>)	Yes	Yes		X
Brucellosis (<i>Brucella melitensis</i>)	Yes		X	X
Brucellosis (<i>Brucella suis</i>)	Yes	Yes		X
Crimean Congo haemorrhagic fever	Unknown		X	X
Echinococco (granulosus)	Yes	Yes		X
Echinococcus multilocularis	Yes	Yes		X
Foot and mouth disease	Yes	Yes		
Heartwater	Yes	Yes		
Japanese encephalitis	Yes		x	x
Leptospirosis	Yes	Yes		x
New world screwworm (<i>Cochliomyia hominivorax</i>)	Yes	Yes		x
Old world screwworm (<i>Chrysomya b</i>	Yes	Yes		x
Paratuberculosis	Yes		x	
Q fever	Yes	Yes		x
Rabies	Yes	Yes		x
Rift Valley fever	Yes		x	x
Rinderpest	Yes	Yes		
Trichinellosis	Yes	Yes		x
Tularemia	Yes	Yes		x
Vesicular stomatitis	Yes		x	
West Nile fever.	Yes	Yes		x
Cattle				
Bovine anaplasmosis	Yes		x	
Bovine babesiosis			x	
Bovine genital campylobacteriosis			x	
Bovine spongiform encephalopathy	Yes	No		x
Bovine tuberculosis	Yes	Yes		x
Bovine viral diarrhoea	Yes		x	
Contagious bovine pleuropneumonia	No			
Enzootic bovine leukosis	No			
Haemorrhagic septicaemia			x	
Infectious bovine rhinotracheitis/infectious pustular vulvovaginitis			x	
Lumpy skin disease			x	
Malignant catarrhal fever (Wildebeest only)	Yes	Yes		
Theileriosis	Yes	Yes		
Trichomonosis			x	
Trypanosomosis (tsetse-transmitted).	Yes	Yes		x
Sheep and Goats				
Caprine arthritis/encephalitis			x	
Contagious agalactia			x	
Contagious caprine pleuropneumonia	yes		x	
Enzootic abortion of ewes (ovine chlamydiosis)			x	
Maedi—visna			x	
Nairobi sheep disease	Yes	Yes		
Ovine epididymitis (<i>Brucella ovis</i>)			x	

OIE Disease List - 2007	Wildlife/feral Infectable ?	Infection source for Domestic	Uncertain	Zoonosis
Peste des petits ruminants	Yes	Yes		
Salmonellosis (<i>S. abortusovis</i>)			x	
Scrapie	No			
Sheep pox and goat pox.	Yes		x	
Horses				
African horse sickness	Yes	Yes		
Contagious equine metritis			x	
Dourine			x	
Equine encephalomyelitis (Eastern)	Yes	Yes		x
Equine encephalomyelitis (Western)	Yes	Yes		x
Equine infectious anaemia	No			
Equine influenza			x	
Equine piroplasmiasis			x	
Equine rhinopneumonitis			x	
Equine viral arteritis			x	
Glanders			x	x
Surra (<i>Trypanosoma evansi</i>)	Yes	Yes		X (minor zoonosis)
Venezuelan equine encephalomyelitis	Yes	Yes		x
Pigs				
African swine fever	Yes	Yes		
Classical swine fever	Yes	Yes		
Nipah virus encephalitis	Yes	Yes		x
Porcine cysticercosis			x	x
Porcine reproductive and respiratory syndrome			x	
Swine vesicular disease			x	
Transmissible gastroenteritis.			x	
Birds				
Avian chlamydiosis	Yes		x	x
Avian infectious bronchitis			x	
Avian infectious laryngotracheitis			x	
Avian mycoplasmosis (<i>Mycoplasma agalactiae</i>)	Yes		x	
Avian mycoplasmosis (<i>Mycoplasma synoviae</i>)			x	
Duck virus hepatitis			x	
Duck Plague (DVE)	Yes		x	
Fowl cholera	Yes		x	
Fowl typhoid			x	
Highly pathogenic avian influenza/LP H5&H7	Yes		x	x
Infectious bursal disease (Gumboro disease)			x	
Turkey rhinotracheitis			x	
Pullorum disease			x	
Marek's disease			x	
Newcastle Disease	Yes	Yes		
Lagomorphs				
Myxomatosis	Yes	Yes		
Rabbit haemorrhagic disease.	Yes	Yes		
Bees				
Acarapisosis of honey bees				
American foulbrood				
Other				
Camelpox	Yes		x	
Leishmaniasis	Yes	Yes		x
Chronic Wasting Disease	Yes	Yes		

World WDWG disease report for 2007

Country	OIE listed disease	Latin name	Disease seen 2007	# animals/cases	Clinical	Pathology	Culture, agent identification	Serology
UK	Adenovirus enteritis in red squirrels	<i>Sciurus vulgaris</i>	yes	6		Y	EM	
Italy	African Swine Fever	<i>Sus scrofa meridionalis</i>	yes	55		x	x	
France	Anaplasmosis	<i>Capreolus capreolus</i>	oui	14			PCR	
USA	Anaplasmosis	deer	y - subclinical infection					
Zambia	Anaplasmosis	Kudu	yes	4		X	X	
Iran	Anthrax	<i>Ovis gmelini</i> sp	y	<8	x		x	
Botswana	Anthrax	Zebra and Springbok	yes	2				X
Cameroon	Anthrax	Chimpanzee (<i>Pan troglodytes</i>)	1					x
Cameroon	Anthrax	Gorilla (<i>Gorilla gorilla</i>)	3					x
Myanmar	Anthrax	Asian Elephant (<i>Elaphus maximus</i>)	yes	10	x	x	x	
Namibia	Anthrax	Numerous species	yes					
USA	Anthrax	Deer	y - sporadic					
Zambia	Anthrax	<i>Crocodylus niloticus</i>	yes	3	X	X	X	
Zambia	Anthrax	<i>Hippopotamus amphibius</i>	yes	65	X	X	X	
USA	Arboviruses	Multiple wild bird species	y - endemic					
France	Arthritis/encéphalite caprine	<i>Rupicapra rupicapra</i>	oui	5				oui
UK	Aspergillosis	<i>Cygnus cygnus</i>	yes	3	Y	Y		
UK	Aspergillosis	<i>Larus argentatus</i>	yes	1		Y		
France	Aujeszky's Disease	Wild boar (<i>Sus scrofa</i>)	oui	2			isolement viral	
Germany	Aujeszky's Disease	<i>Sus scrofa</i>	yes	unknown			x	x
Italy	Aujeszky's Disease	<i>Sus scrofa</i>	yes	137				x
Poland	Aujeszky's Disease	<i>Sus scrofa</i>	yes	59				X
Portugal	Aujeszky's Disease	<i>Sus scrofa</i>	yes	432			x	
Slovenia	Aujeszky's Disease	<i>Sus scrofa</i>	yes	115				
USA	Aujeszky's Disease	<i>Sus scrofa</i>	Y - Endemic in several states					
Andorra	Avian Chlamydiosis	<i>Columba</i> sp.	yes	5				
Australia	Avian Chlamydiosis	<i>Polytelis swainsonii</i> , <i>Platycercus elegans</i> , <i>Glossopsitta pusilla</i> , <i>Cacatua leadbeateri</i> , <i>C. roseicapilla</i> , Columbidae	yes	13		ü	ü	
Germany	Avian Chlamydiosis	Species not specified	yes	unknown			x	
Namibia	Avian Chlamydiosis	Parrot	yes	13				♪
Poland	Avian Chlamydiosis	<i>Eudocimus ruber</i>	yes	1				
Poland	Avian Chlamydiosis	<i>Philomachus pugnax</i>	yes	1				
Portugal	Avian Chlamydiosis	Parrot	yes	3				x
USA	Avian Chlamydiosis	Numerous spp.	y-endemic					
Canada	Avian Cholera	American crow <i>Corvus brachyrhynchos</i>	yes	1			X	X
Canada	Avian Cholera	Black-legged kittiwake <i>Rissa tridactyla</i>	yes	7			X	X
Canada	Avian Cholera	Common eider <i>Somateria mollissima</i>	yes	45			X	X
Canada	Avian Cholera	Double crested cormorant <i>Phalacrocorax auritus</i>	yes	12			X	X
Canada	Avian Cholera	Double crested cormorant <i>Phalacrocorax auritus</i>	yes	1040		X		
Canada	Avian Cholera	Dovekie <i>Alle alle</i>	yes	1			X	X
Canada	Avian Cholera	Ducks Family Anatidae	yes	1		X		
Canada	Avian Cholera	Glaucous gull <i>Larus hyperboreus</i>	yes	20			X	X
Canada	Avian Cholera	Great black-backed gull <i>Larus marinus</i>	yes	41			X	X
Canada	Avian Cholera	Gulls <i>Larus</i> sp.	yes	6		X		
Canada	Avian Cholera	Herring gull <i>Larus argentatus</i>	yes	1		X		
Canada	Avian Cholera	Herring gull <i>Larus argentatus</i>	yes	3			X	X
Canada	Avian Cholera	Icelandic gull <i>Larus glaucoideus</i>	yes	2			X	X
Canada	Avian Cholera	Mallard <i>Anas platyrhynchos</i>	yes	1		X		
Canada	Avian Cholera	Raven <i>Corvus corax</i>	yes	1			X	X
Canada	Avian Cholera	Raven <i>Corvus corax</i>	yes	1			X	X
Canada	Avian Cholera	Rock Dove <i>Columba livia</i>	yes	1			X	X
Canada	Avian Cholera	Sandpiper <i>Calidris</i> sp.	yes	1		X		
Norway	Avian Cholera	<i>Somateria mollissima</i>	yes	2	x	x		
USA	Avian Cholera	Waterfowl	y-sporadic					
Czech Rep.	Avian Influenza HPAI	<i>Cygnus olor</i>	yes	1				
Germany	Avian Influenza HPAI	<i>Anas</i>	yes	1			x	x

Germany	Avian Influenza HPAI	<i>Anas platyrhynchos</i>	yes	2			x	x
Germany	Avian Influenza HPAI	<i>Anser anser</i>	yes	1			x	x
Germany	Avian Influenza HPAI	<i>Aythya</i>	yes	2			x	x
Germany	Avian Influenza HPAI	<i>Branta canadensis</i>	yes	1			x	x
Germany	Avian Influenza HPAI	<i>Cygnus olor</i>	yes	20			x	x
Germany	Avian Influenza HPAI	<i>Cygnus sp.</i>	yes	2			x	x
Germany	Avian Influenza HPAI	<i>Laridae</i>	yes	2			x	x
Germany	Avian Influenza HPAI	<i>Podiceps cristatus</i>	yes	12			x	x
Germany	Avian Influenza HPAI	<i>Podiceps nigricollis</i>	yes	282			x	x
Germany	Avian Influenza HPAI	<i>Rallidae</i>	yes	1			x	x
Japan	Avian Influenza HPAI	Mountain hawk eagle, <i>Spizaetus nipalensis</i>	yes	0/1	x	o		
Poland	Avian Influenza HPAI	<i>Buteo buteo</i>	yes	2				x
Poland	Avian Influenza HPAI	<i>Ciconia ciconia</i>	yes	1				x
Turkey	Avian Influenza HPAI	<i>Passer montanus</i>	yes	1/1			x	
Australia	Avian Influenza LPAI	<i>Anas spercilliosa</i> , <i>Chenonetta jubata</i> , <i>Anas spp./ Malacorhynchus membranaceus/ A. rhynchotis</i> , <i>A. gracilis</i> , <i>A. castanea</i> , <i>A. rhynchotis</i> , <i>Calidris ruficollis</i> , <i>Anas spp./ A. superciliosa/ Tadorna tadornoides</i> , <i>Anas spp./ A. superciliosa/ A. rhynchotis</i> , <i>M. membranaceus/ Anas spp., Aves</i>	Disease not seen. Evidence of agent detected on routine surveillance	31			ü	
Czech Rep.	Avian Influenza LPAI	<i>Anas platyrhynchos</i>	yes	20				
Denmark	Avian Influenza LPAI	Various birds	yes	34			x	
Finland	Avian Influenza LPAI	<i>Anas platyrhynchos</i>	yes	9			9	
Finland	Avian Influenza LPAI	<i>Larus argentatus</i>	yes	4			4	
Finland	Avian Influenza LPAI	<i>Larus fuscus</i>	yes	1			1	
France	Avian influenza LPAI	<i>Anas clypeata</i>	oui (surv. active)	1			souche H5 FP	
France	Avian influenza LPAI	<i>Anas crecca</i>	oui (surv. active)	1			souche H5 FP	
France	Avian influenza LPAI	<i>Anas platyrhynchos</i>	oui (surv. active)	5			souches H5 FP	
France	Avian influenza LPAI	<i>Anas platyrhynchos</i>	oui (surv. passive)	2			isolement viral	
France	Avian influenza LPAI	<i>Cygnus olor</i>	oui (surv. passive)	5			isolement viral	
Germany	Avian Influenza LPAI	<i>Anas platyrhynchos</i>	y	3			x	x
Germany	Avian Influenza LPAI	<i>Anser albifrons albifrons</i>	y	1			x	x
Germany	Avian Influenza LPAI	<i>Cygnus</i>	y	2			x	x
Germany	Avian Influenza LPAI	<i>Cygnus olor</i>	y	1			x	x
Italy	Avian Influenza LPAI	<i>Anas clypeata</i>	yes	3			x	
Italy	Avian Influenza LPAI	<i>Anas crecca</i>	yes	2			x	
Italy	Avian Influenza LPAI	<i>Anas penelope</i>	yes	1			x	
Italy	Avian Influenza LPAI	<i>Anas platyrhynchos</i>	yes	29			x	
Italy	Avian Influenza LPAI	<i>Anas querquedula</i>	yes	1			x	
Italy	Avian Influenza LPAI	<i>Cygnus atratus</i>	yes	1			x	
Italy	Avian Influenza LPAI	<i>Cygnus olor</i>	yes	1			x	
Italy	Avian Influenza LPAI	<i>Larus ridibundus</i>	yes	1			x	
Italy	Avian Influenza LPAI	<i>Tadorna tadorna</i>	yes	1			x	
Norway	Avian Influenza LPAI	<i>Anas platyrhynchos</i> , <i>Anas crecca</i> , <i>Larus argentatus</i>	no	12		x		
Poland	Avian Influenza LPAI	<i>Larus ridibundus</i>	yes	5				x
Portugal	Avian Influenza LPAI	canards (<i>Anas sp</i>)	yes	3			x	
Sudan	Avian Influenza LPAI	House sparrow (<i>Passer domesticus</i>)	yes					x
Sweden	Avian Influenza LPAI	Various birds	yes					
UK	Avian Influenza LPAI	<i>Anas acuta</i>	yes	1			LPH5	
UK	Avian Influenza LPAI	<i>Anas acuta</i>	yes	1 / 239			H5N2	
UK	Avian Influenza LPAI	<i>Anas crecca</i>	yes	1			H3N8	
UK	Avian Influenza LPAI	<i>Anas crecca</i>	yes	2			H3N8	
UK	Avian Influenza LPAI	<i>Anas crecca</i>	yes	1 / 281			H3N8	
UK	Avian Influenza LPAI	<i>Anas platyrhynchos</i>	yes	1			H3N8	x
UK	Avian Influenza LPAI	<i>Anas platyrhynchos</i>	yes	1/1310			H3N6	x
UK	Avian Influenza LPAI	<i>Anas platyrhynchos</i>	yes	1/1310			H5N2	
UK	Avian Influenza LPAI	<i>Anas platyrhynchos</i>	yes	1/1310			H6N2	
UK	Avian Influenza LPAI	<i>Anas platyrhynchos</i>	yes	1/1310			H1N2	
UK	Avian Influenza LPAI	<i>Anas platyrhynchos</i>	yes	1/1310			H5N1	
UK	Avian Influenza LPAI	<i>Anser anser</i>	yes	1 / 163			H2N9	
UK	Avian Influenza LPAI	<i>Cygnus olor</i>	yes	1			LPH5	
UK	Avian Influenza LPAI	<i>Cygnus olor</i>	yes	1 / 1012			H5	
USA	Avian Influenza LPAI	Waterfowl, shorebirds	Y - Endemic and subclinical					
Zambia	Avian Influenza LPAI	Waterfowl	yes	408			X	X
South Africa	Avian Influenza LPAI H6N8)	<i>Struthio camelus</i>	yes	1				x

South Africa	Avian Influenza LPAI (H1N8)	<i>Alopochen aegyptiacus</i>	yes	1				x
Canada	Avian Influenza LPAI ¹	American black duck <i>Anas rubripes</i>	yes	247				PCR
Canada	Avian Influenza LPAI ¹	American crow <i>Corvus brachyrhynchos</i>	yes	2				PCR
Canada	Avian Influenza LPAI ¹	American wigeon <i>Anas americana</i>	yes	16				PCR
Canada	Avian Influenza LPAI ¹	Anatidae	yes	18				PCR
Canada	Avian Influenza LPAI ¹	Blue winged teal <i>Anas discors</i>	yes	175				PCR
Canada	Avian Influenza LPAI ¹	Canada goose <i>Branta canadensis</i>	yes	3				PCR
Canada	Avian Influenza LPAI ¹	Ducks <i>Anas</i>	yes	5				PCR
Canada	Avian Influenza LPAI ¹	Gadwall <i>Anas strepera</i>	yes	2				PCR
Canada	Avian Influenza LPAI ¹	Glacous gull <i>Larus hyperboreus</i>	yes	2				PCR
Canada	Avian Influenza LPAI ¹	Great horned owl <i>Bubo virginianus</i>	yes	1				PCR
Canada	Avian Influenza LPAI ¹	Green winged teal <i>Anas crecca</i>	yes	141				PCR
Canada	Avian Influenza LPAI ¹	Gull <i>Laridae</i>	yes	1				PCR
Canada	Avian Influenza LPAI ¹	Herring gull <i>Larus argentatus</i>	yes	1				PCR
Canada	Avian Influenza LPAI ¹	Kilder <i>Charadrius vociferus</i>	yes	1				PCR
Canada	Avian Influenza LPAI ¹	Lesser black-backed gull <i>Larus fuscus</i>	yes	1				PCR
Canada	Avian Influenza LPAI ¹	Mallard <i>Anas platyrhynchos</i>	yes	669				PCR
Canada	Avian Influenza LPAI ¹	Mourning dove <i>Zenaidra macroura</i>	yes	1				PCR
Canada	Avian Influenza LPAI ¹	Mute swan <i>Cygnus olor</i>	yes	1				PCR
Canada	Avian Influenza LPAI ¹	Northern gooshawk <i>Accipiter gentilis</i>	yes	2				PCR
Canada	Avian Influenza LPAI ¹	Northern pintail <i>Anas acuta</i>	yes	53				PCR
Canada	Avian Influenza LPAI ¹	Osprey <i>Pandion haliaetus</i>	yes	1				PCR
Canada	Avian Influenza LPAI ¹	Purple finch <i>Carpodacus</i>	yes	1				PCR
Canada	Avian Influenza LPAI ¹	Redhead <i>Aythya americana</i>	yes	3				PCR
Canada	Avian Influenza LPAI ¹	Ring-billed gull <i>Larus delawarensis</i>	yes	5				PCR
Canada	Avian Influenza LPAI ¹	Sharp-shinned Hawk <i>Accipiter striatus</i>	yes	1				PCR
Canada	Avian Influenza LPAI ¹	Shoveler <i>Anas clypeata</i>	yes	1				PCR
Canada	Avian Influenza LPAI ¹	Song sparrow <i>Melospiza melodia</i>	yes	1				PCR
Canada	Avian Influenza LPAI ¹	Trumpeter swan <i>Cygnus buccinator</i>	yes	1				PCR
Canada	Avian Influenza LPAI ¹	Wood duck <i>Aix sponsa</i>	yes	16				PCR
South Africa	Avian Influenza LPAI (H5 N8)	<i>Sterna bergii</i>	yes	1				x
Canada	Avian Malaria	American crow <i>Corvus brachyrhynchos</i>	yes	8			X	X
Canada	Avian Malaria	Merlin <i>Falco columbarius</i>	yes	1			X	
Canada	Avian Malaria	Mourning dove <i>Zenaidra macroura</i>	yes	1			X	X
USA	Avian Malaria	Multiple wild bird species	y - endemic					
Sudan	Avian pox	Guinea fowl (<i>Meleagris</i>)	yes		x			
Sweden	Avian pox	Great tit (<i>Parus major</i>)	yes	1		x	x	
Sweden	Avian pox	Magpie (<i>Pica pica</i>)	yes	1		x	x	
UK	Avian pox	<i>Columba palumbus</i>	yes	9	Y	Y		
UK	Avian pox	<i>Columba livia</i>	yes	1		Y		
UK	Avian pox	<i>Parus major</i>	yes	1				Histopathology
UK	Avian pox	<i>Prunella modularis</i>	yes	1	Y			
UK	Avian pox	<i>Prunella modularis</i>	yes	1 / 2		Y	Y	
UK	Avian pox	<i>Streptopelia decaocto</i>	yes	1	Y	Y		
Australia	Avian Pox	<i>Platycercus elegans</i>	yes	1	ü	ü	ü	
Denmark	Avian Pox	<i>Columba palumbus</i>	yes	2		x		
Finland	Avian Pox	<i>P. caeruleus</i>	yes	2		2		
Finland	Avian Pox	<i>Parus major</i>	yes	3		3		
Finland	Avian Pox	<i>Pica pica</i>	yes	1		1		
Germany	Avian Pox	Falconiformes	yes	1				x
Germany	Avian Pox	Other wild bird species	yes	1				x
Italy	Avian Pox	<i>Asio otus</i>	yes	1	x	x	x	
Philliphines	Avian Pox	Blue eared pheasant (<i>Crossoption aurithum</i>)	yes	1	x			
Philliphines	Avian Pox	Peafowl (<i>Pavo cristatus</i>)	yes	2	x			
Philliphines	Avian Pox	Red jungle fowl (<i>Gallus gallus</i>)	yes	1	x			
Philliphines	Avian Pox	Whit bellied sea-eagle (<i>Halichoerus leucogaster</i>)	yes	1	x			
UK	Avian Pox	<i>Fringilla coelebs</i>	yes	1 / 8	Y			
USA	Avian Pox	Numerous species	y - endemic					
Australia	Avian Tuberculosis	<i>Casuarus casuarus</i>	yes	1		ü	ü	
Denmark	Avian Tuberculosis	<i>Buteo lagopus</i> , <i>Aythya fuligula</i>	yes	2		x		
Finland	Avian Tuberculosis	<i>Bucephala clangula</i>	yes	1		1	1	
Finland	Avian Tuberculosis	<i>Columba palumbus</i>	yes	1		1	1	
Finland	Avian Tuberculosis	<i>Tetrao tetrix</i>	yes	1		1	1	
France	Avian tuberculosis	<i>Anser</i> sp.	oui	1				Ziehl
France	Avian tuberculosis	<i>Ardea cinerea</i>	oui	1				Ziehl
France	Avian tuberculosis	<i>Buteo buteo</i>	oui	1				Ziehl
France	Avian tuberculosis	<i>Capreolus capreolus</i>	oui	4	non	oui	oui	non
France	Avian tuberculosis	<i>Carduelis chloris</i>	oui	1				Ziehl
France	Avian tuberculosis	<i>Columba palumbus</i>	oui	1				x
France	Avian tuberculosis	<i>Falco tinnunculus</i>	oui	1	oui	oui	oui	non

France	Avian tuberculosis	<i>Phasianus</i> sp.	oui	1			Ziehl	
France	Avian Tuberculosis	<i>Sus scrofa</i>	oui (Seine-Maritime et P.Atl.)	28	non	oui	oui	non
Germany	Avian Tuberculosis	Alcedinidae	yes	2			x	
Germany	Avian Tuberculosis	Corvidae	yes	1			x	
Germany	Avian Tuberculosis	Coturnix	yes	1			x	
Germany	Avian Tuberculosis	Dromaiidae (zoo animal)	yes	1			x	
Germany	Avian Tuberculosis	Galliformes	yes	6			x	
Germany	Avian Tuberculosis	Gruidae	yes	1			x	
Germany	Avian Tuberculosis	Laridae	yes	2			x	
Germany	Avian Tuberculosis	Meleagridinae	yes	2			x	
Germany	Avian Tuberculosis	Passerin birds	yes	1			x	
Germany	Avian Tuberculosis	<i>Phasianus colchicus</i>	yes	3			x	
Germany	Avian Tuberculosis	Psittaciformes (zoo animal)	yes	1			x	
Germany	Avian Tuberculosis	<i>Rheidae</i> sp (zoo animal)	yes	1			x	
Ireland	Avian Tuberculosis	Fallow deer (<i>Dama dama</i>)	yes	1			x	
Italy	Avian Tuberculosis	<i>Accipiter nisus</i>	yes	2			x	
Italy	Avian Tuberculosis	<i>Cervus elaphus</i>	yes	2			x	
Italy	Avian Tuberculosis	<i>Falco peregrinus</i> , <i>Circus aeruginosus</i> , <i>Pandion haliaeetus</i> , <i>Ardea cinerea</i> , <i>Tyto alba</i>	yes	29			x	
Italy	Avian Tuberculosis	<i>Meles meles</i>	yes	1			x	
Italy	Avian Tuberculosis	<i>Sus scrofa</i>	yes	3			x	
Norway	Avian Tuberculosis	<i>Alces alces</i>	yes	1	x	x		
Serbia	Avian Tuberculosis	Pheasant (<i>Phasianus colchicus</i>)	yes	2		x	x	
Switzerland	Avian Tuberculosis	Common buzzard (<i>Buteo buteo</i>)	yes	1		x		
UK	Avian Tuberculosis	<i>Anas acuta</i>	yes	1		Y	ZN staining	
UK	Avian Tuberculosis	<i>Anas penelope</i>	yes	2		Y	ZN staining	
UK	Avian Tuberculosis	<i>Anas platyrhynchos</i>	yes	1		Y	Y	
UK	Avian Tuberculosis	<i>Anas platyrhynchos</i>	yes	12		Y	ZN staining	
UK	Avian Tuberculosis	<i>Anser brachyrhynchos</i>	yes	2		Y	ZN staining	
UK	Avian Tuberculosis	<i>Capreolus capreolus</i>	yes	3 / 217		Y	Y	
UK	Avian Tuberculosis	<i>Cervus elaphus</i>	yes	4 / 70		Y	Y	
UK	Avian Tuberculosis	<i>Cygnus cygnus cygnus</i>	yes	1		Y	ZN staining	
UK	Avian Tuberculosis	<i>Cygnus olor</i>	yes	1		Y	ZN staining	
UK	Avian Tuberculosis	<i>Cygnus olor</i>	yes	1		Y		
UK	Avian Tuberculosis	<i>Dama dama</i>	yes	6 cases / 111 examined		Y	Y	
USA	Avian Tuberculosis	Birds and mammals	Y - Ubiquitous					
UK	Avian Tuberculosis, cutaneous	<i>Buteo buteo</i>	yes	1		Y	Y	
USA	Avian Vacuolar Myelinopathy	<i>Haliaeetus leucocephalus</i> (8), <i>Fulica americana</i>	Y - Low activity	GA, SC				
France	Babésiose	<i>Rupicapra rupicapra</i>	oui	2		oui	examen coloration	
France	Babésiose à <i>Babesia capreoli</i> et <i>Babesia EU 1</i>	<i>Capreolus capreolus</i>	oui	21 sur 39 testés	non	non	examen coloration	
Italy	Babesiosis	<i>Capreolus capreolus</i>	yes	18				x
Myanmar	Babesiosis	Asian Elephant (<i>Elaphus maximus</i>)	yes	9			x	
South Africa	Babesiosis	<i>Ceratotherium simum</i>	yes	3			x	
South Africa	Babesiosis	<i>Equus burchelli</i>	yes	2			x	
Sudan	Babesiosis	African buffalo (<i>Syncerus caffer</i>)	yes		x			
Sudan	Babesiosis	Warthog	yes		x			
USA	Babesiosis	Rodents	y - subclinical					
Zambia	Babesiosis	Waterbuck	yes	2			X	
Zimbabwe	Babesiosis	Zebra	yes	1	x			
Australia	Bat Lyssaviruses	<i>Pteropus alecto</i> , <i>P. poliocephalus</i> , <i>P. conspicillatus</i>	yes	8	ü	ü	ü	
Denmark	Bat Lyssaviruses	<i>Chiroptera</i>	yes	2			x	
Germany	Bat Lyssaviruses	<i>Microchiroptera</i>	yes	6			x	
UK	Bat Lyssaviruses	Daubenton's bat (<i>Myotis daubentonii</i>)	yes	1		FAT, RT-CIT, MIT, RT-PCR & sequencing if positive	Y	
Canada	Baylisascaris spp.	Raccoon <i>Procyon lotor</i>	yes	13			X	X

Canada	Baylisascaris spp.	Skunk <i>Mephitis mephitis</i>	yes	10			X	X
Germany	Baylisascaris spp.	<i>Procyon lotor</i>	yes	unknown			x	
USA	Baylisascaris spp.	Raccoon, black bear	Y - Endemic and subclinical					
France	Besnoitiose	<i>Rupicapra rupicapra</i>	souçon	1	oui			
Canada	Besnoitiosis	Caribou <i>Rangifer tarandus</i>	yes	11			X	X
Germany	Bluetongue	Cervidae	yes	7			x	x
Italy	Bluetongue	<i>Camelus dromedarius</i>	yes	6				x
Italy	Bluetongue	<i>Cervus elaphus</i>	yes	4			x	x
Italy	Bluetongue	<i>Cervus elaphus corsicanus</i>	yes	7				x
Italy	Bluetongue	<i>Dama dama</i>	yes	4				x
Italy	Bluetongue	<i>Ovis musimon</i>	yes	1				x
USA	Bluetongue	<i>Antilocapra americana</i>	Y - Sporadic BTV-17	WY				
USA	Bluetongue	<i>Odocoileus virginianus</i>	Y - Sporadic BTV-10, -11	MO				
Australia	Botulism	<i>Anas superciliosa</i> , <i>A. castanea</i> , <i>Angulliformes</i> , <i>Strepera versicolor</i> , <i>Coraciiformes</i> , <i>Cygnus atratus</i>	yes	102	ü		ü	
Canada	Botulism	Black duck <i>Anas rupripes</i>	yes	5		X		X
Canada	Botulism	Blue-winged teal <i>Anas discors</i>	yes	3				X
Canada	Botulism	Green winged teal <i>Anas crecca</i>	yes	4		X		X
Canada	Botulism	Kilder <i>Charadrius vociferus</i>	yes	2				X
Canada	Botulism	Lesser yeallowlegs <i>Tringa flavipes</i>	yes	2				X
Canada	Botulism	Loon <i>Gavia immer</i>	yes	12				X
Canada	Botulism	Mallard <i>Anas platyrhynchos</i>	yes	2		X		X
Canada	Botulism	Mallard <i>Anas platyrhynchos</i>	yes	16		X		X
Canada	Botulism	Northern pintail <i>Anas acuta</i>	yes	6				X
Canada	Botulism	Red-necked grebe <i>Podiceps grisegena</i>	yes	3				X
Canada	Botulism	Ring-billed gull <i>Larus delawarensis</i>	yes	2		X		X
Canada	Botulism	Shoemaker <i>Anas clypeata</i>	yes	2				X
Czech Rep.	Botulism	<i>Anas platyrhynchos</i>	yes	1				
Czech Rep.	Botulism	<i>Larus</i> sp.	yes	2				
Czech Rep.	Botulism	<i>Cygnus olor</i>	yes	2				
Denmark	Botulism	Coot (<i>Fulica atra</i>)	yes	2			x	
Denmark	Botulism	Mallard (<i>Anas platyrhynchos</i>)	yes	1			x	
Italy	Botulism	<i>Anas platyrhynchos</i>	yes	8			x	
Italy	Botulism	<i>Circus aeruginosus</i>	yes	2			x	
Italy	Botulism	<i>Cygnus olor</i>	yes	1			x	
Italy	Botulism	<i>Larus ridibundus</i>	yes	1			x	
Sweden	Botulism	Mallard (<i>Anas platyrhynchos</i>)	yes	1				
UK	Botulism	<i>Anas platyrhynchos</i>	yes	11	Y		ELISA	
UK	Botulism	<i>Larus argentatus</i>	yes	1 / 33 suspect	Y			
UK	Botulism	<i>Larus fuscus</i>	yes	1 / 12 suspect	Y			
USA	Botulism	Waterfowl Types C & E, gulls	y - sporadic epornitics					
Zambia	Botulism	<i>Hippopotamus amphibious</i>	yes	3			X	
UK	Botulism (suspected)	<i>Larus argentatus</i>	yes	2	Y			
UK	Botulism (suspected)	<i>Larus marinus</i>	yes	2	Y			
France	Botulisme (type C uniquement)	<i>Phasianus</i> sp.	oui	2				typage protéine par PCR
France	Botulisme (type C uniquement)	Waterfowl	oui	très nombreux !	x			culture, PCR, test sur souris, ...
El Salvador	Bovine tuberculosis	Mono capuchino (<i>Cebus</i> sp.)	si	4	X			
France	Bovine tuberculosis	<i>Sus scrofa</i>	oui (Seine-Mar itime, P.Atl. et Corse)	122	non	oui	oui	non
Ireland	Bovine tuberculosis	Badger, <i>Meles meles</i>	yes	endemic				
Ireland	Bovine tuberculosis	Fallow deer (<i>Dama dama</i>)	yes	31			x	
Ireland	Bovine tuberculosis	Sika deer (<i>Cervus nippon</i>)	yes	2			x	
UK	Bovine Tuberculosis	<i>Meles meles</i>	yes	0/5		Y		
UK	Bovine Tuberculosis	<i>Meles meles</i>	yes	7/53		Y	Y	
Zambia	Bovine tuberculosis	<i>Aepyceros melampus</i>	yes	1		X	X	
Zambia	Bovine tuberculosis	<i>Kobus leche kafuensis</i>	yes	14		X	X	
Zimbabwe	Bovine tuberculosis	Lion (<i>Panthera leo</i>)	yes	2		x		x
Canada	Bovine Tuberculosis	Elk <i>Cervus elaphus</i>	yes	3			X	X
Italy	Bovine Tuberculosis	<i>Cervus elaphus</i>	yes	2			x	
Italy	Bovine Tuberculosis	Lanner falcon (<i>Falco biarmicus</i>)	yes	1			x	
Italy	Bovine Tuberculosis	Peregrine falcon (<i>Falco peregrinus</i>)	yes	1			x	
Italy	Bovine Tuberculosis	Red Fox (<i>Vulpes vulpes</i>)	yes	2			x	
Italy	Bovine Tuberculosis	<i>Sus scrofa</i>	yes	6			x	x
Myanmar	Bovine Tuberculosis	Asian Elephant (<i>Elaphus maximus</i>)	yes	1	x	x		
Myanmar	Bovine Tuberculosis	Baboon (<i>Papio</i> sp.)	yes	2	x	x		

Myanmar	Bovine Tuberculosis	Leopard (<i>Panthera pardus</i>)	yes	1	x	x		
Myanmar	Bovine Tuberculosis	<i>Macaca fascicularis</i>	yes	2	x	x		
Myanmar	Bovine Tuberculosis	<i>Macaca mullata</i>	yes	6	x	x		
Portugal	Bovine Tuberculosis	<i>Cervus elaphus</i>	yes	24			x	
Portugal	Bovine Tuberculosis	<i>Sus scrofa</i>	yes	2			x	
South Africa	Bovine Tuberculosis	<i>Aepyceros melampus</i>	yes	1		x	x	x
South Africa	Bovine Tuberculosis	African buffalo (<i>Syncerus caffer</i>)	yes	68		x	x	x
South Africa	Bovine Tuberculosis	<i>Panthera leo</i>	yes	14		x	x	x
South Africa	Bovine Tuberculosis	<i>Tragelaphus scriptus</i>	yes	1		x	x	x
South Africa	Bovine Tuberculosis	<i>Tragelaphus strepsiceros</i>	yes	3		x	x	x
Taipei chinois	Bovine Tuberculosis	Formosan sambar (<i>Cervus unicorn swinhoei</i>)	yes	1			X	
Taipei chinois	Bovine Tuberculosis	Aoudad (<i>Ammotragus lervia</i>)	yes	1			X	
Taipei chinois	Bovine Tuberculosis	Formosan sika deer (<i>Cervus nippon taiouanus</i>)		1			X	
UK	Bovine Tuberculosis	<i>Capreolus capreolus</i>	yes	4 / 217		Y	Y	
UK	Bovine Tuberculosis	<i>Cervus elaphus</i>	yes	16 / 70		Y	Y	
UK	Bovine Tuberculosis	<i>Cervus elaphus</i>	yes	3 / 3		Y	Y	
UK	Bovine Tuberculosis	<i>Dama dama</i>	yes	2 / 111		Y	Y	
USA	Bovine Tuberculosis	<i>O. virginianus</i>	Y Northern Minnesota	11 in 2007				
USA	Bovine Tuberculosis	<i>O. virginianus, C. elaphus</i>	Y - Endemic in part of NE Michigan	(~25-30 culture positive per year of ~15,000 examined)				
UK	Bovine Tuberculosis Trapped study site area	<i>Meles meles</i>	yes	4/165		Y	Y	
France	Bovine tuberculosis	<i>Cervus elaphus</i>	oui	15	non	oui	non	non
UK	Bovine Tuberculosis Found dead: study area	<i>Meles meles</i>	yes	2/9		Y	Y	
Italy	Brucella abortus	<i>Sus scrofa meridionalis</i>	yes	1				x
South Africa	Brucella abortus	African buffalo (<i>Syncerus caffer</i>)	yes	6		x	x	
USA	Brucella abortus	<i>Cervus elaphus, Bison bison</i>	Y - Endemic in Greater Yellowstone Area					
France	<i>Brucella ceti</i>	<i>Tursiops truncatus</i>	oui	3			culture	
Italy	<i>Brucella melitensis</i>	<i>Sus scrofa</i>	yes	2			x	
South Africa	<i>Brucella melitensis</i>	<i>Hippotragus niger</i>	yes	1		x	x	x
Czech Rep.	<i>Brucella sp.</i>	<i>Lepus europaeus</i>	yes	5				
Italy	<i>Brucella sp.</i>	Roe deer (<i>Capreolus capreolus</i>)	yes	1			x	
Italy	<i>Brucella sp.</i>	<i>Sus scrofa</i>	yes	112			x	x
Italy	<i>Brucella sp.</i>	<i>Vulpes vulpes</i>	yes	1			x	
UK	<i>Brucella sp.</i>	<i>Lagenorhynchus acutus</i>	yes	6 / 6			Y	Neg
UK	<i>Brucella sp.</i>	<i>Lutra lutra</i>	yes	1 / 35			Neg	Pos
UK	<i>Brucella sp.</i>	<i>Phocoena phocoena</i>	yes	5 / 10			Y	Neg
UK	<i>Brucella sp.</i>	<i>Tursiops truncatus</i>	yes	1			Y	Y
UK	<i>Brucella sp.</i>	<i>Tursiops truncatus</i>	yes	1 / 3			Y	Y
Zambia	<i>Brucella spp</i>	Kobus leche	yes	7			X	X
Canada	<i>Brucella suis</i>	Caribou <i>Rangifer tarandus</i>	yes	3			X	X
Czech Rep.	<i>Brucella suis</i>	<i>Lepus europaeus</i>	yes	3				
Germany	<i>Brucella suis</i>	Leporidae	yes	unknown			x	
Germany	<i>Brucella suis</i>	<i>Sus scrofa</i>	yes	unknown			x	
Italy	<i>Brucella suis</i>	<i>Sus scrofa</i>	yes	34			x	
USA	<i>Brucella suis</i>	<i>Rangifer tarandus</i>	yes	AK				
USA	<i>Brucella suis</i>	<i>Sus scrofa</i>	Y - Endemic in several states					
France	<i>Brucella suis biovar 2</i>	<i>Lepus europaeus</i>	oui	5			culture	
France	<i>Brucella suis biovar 2</i>	<i>Sus scrofa</i>	oui	1			culture	
UK	Capariniosis mange	<i>Erinaceus europaeus</i>	yes	6			Parasitol	
UK	Capariniosis mange	<i>Erinaceus europaeus</i>	yes	85	Y		Micro	
France	Chlamydiae aviaire	<i>Anas platyrhynchos</i>	oui	1				Clearview
Australia	Chytridiomycosis	<i>Litoria aurea</i>	yes, endemic	10			ü	
Canada	Chytridiomycosis	Northern leopard frog <i>Rana pipiens</i>	yes	16			X	
Canada	Chytridiomycosis	Western toad <i>Bufo boreas</i>	yes	2			X	
USA	Chytridiomycosis	<i>Notophthalmus viridescens</i>	yes	VA - 8				
Australia	Circoviruses	<i>Psephotus haematodotus, Trichoglossus haematodotus, Cacatua galerita</i>	yes	6	ü	ü		
Canada	Circoviruses	Pigeon <i>Columba livia</i>	yes	2			X	X
Canada	Circoviruses	Ring-billed gull <i>Larus delawarensis</i>	yes	3			X	X
Italy	Circoviruses	<i>Sus scrofa</i>	yes	9			x	
France	Classical Swine Fever	<i>Sus scrofa</i>	oui	2 sur 11435 sangliers testés			isolement viral	
France	Classical Swine Fever	<i>Sus scrofa</i>	oui	5125 sur 10704 sangliers testés				sérologie
Germany	Classical Swine Fever	<i>Sus scrofa</i>	yes	11			x	x
Italy	Classical Swine Fever	<i>Sus scrofa meridionalis</i>	yes	1				x

Japan	Classical Swine Fever	<i>S. scrofa leucomystax</i>	no	—				x
UK	Colibacillosis (Agent: <i>E. coli</i> O86 profile)	<i>Carduelis spinus</i> and <i>Carduelis carduelis</i>	yes	11 / 145	No	x	yes	No
UK	Colibacillosis (Agent: <i>E. coli</i> Serotype 086)	<i>Carduelis spinus</i> and <i>Carduelis carduelis</i>	yes	Case(s) confirmed at 6 sites	No	Gross pathology	yes	No
Italy	Contagious Ecthyma	<i>Rupicapra rupicapra</i>	yes	3			x	
Switzerland	Contagious Ecthyma	<i>Ibex (Capra ibex)</i>	yes	1		x		
South Africa	Cyanobacterial intoxication	<i>Ceratotherium simum</i>	yes	9		x	x	
South Africa	Cyanobacterial intoxication	<i>Connochaetes taurinus</i>	yes	10		x	x	
South Africa	Cyanobacterial intoxication	<i>Equus burchelli</i>	yes	10		x	x	
UK	Duck Plague (DVE)	<i>Anas platyrhynchos</i>	yes	2		Y		
USA	Duck Plague (DVE)	Waterfowl	Y - Subclin infections detected in survey; mortality in FL, VA	FL-40; VA-18				
UK	DVE	<i>Anas platyrhynchos</i>	yes	6		Y		
UK	E coli 08 K+ colisepticaemia	<i>Carduelis chloris</i>	yes	1 confirmed 5 suspected		Y	Y	
South Africa	Echinococcus granulosus / hydatid disease	African buffalo (<i>Syncerus caffer</i>)	yes	2		x		
South Africa	Echinococcus granulosus / hydatid disease	<i>Equus burchelli</i>	yes	1		x		
South Africa	Echinococcus granulosus tape worms	<i>Panthera leo</i>	yes	3		x		
Australia	<i>Echinococcus granulosus</i>		endemic					
Canada	<i>Echinococcus granulosus</i>	Caribou <i>Rangifer tarandus</i>	yes	1			X	
Canada	<i>Echinococcus granulosus</i>	Elk <i>Cervus elaphus</i>	yes	1			X	
Finland	<i>Echinococcus granulosus</i>	<i>Canis lupus</i>	yes	3			3	
Italy	<i>Echinococcus granulosus</i>	<i>Sus scrofa</i>	yes	1		x		
Poland	<i>Echinococcus granulosus</i>	<i>Sus scrofa</i>	yes	4		x		
USA	<i>Echinococcus granulosus</i>	<i>Canis lupus</i>	yes	AK				
Zambia	<i>Echinococcus granulosus</i>	<i>Hippopotamus amphibious</i>	yes	4		X		
Czech Rep.	<i>Echinococcus multilocularis</i>	<i>Vulpes vulpes</i>	yes	277				
Germany	<i>Echinococcus multilocularis</i>	<i>Nyctereutes procyonoides</i> (final host)	yes	9			x	
Germany	<i>Echinococcus multilocularis</i>	Primates (zoo animal; intermediate host)	yes	1			x	
Germany	<i>Echinococcus multilocularis</i>	<i>Vulpes vulpes</i> (Final host)	yes	293			x	
Japan	<i>Echinococcus multilocularis</i>	<i>Vulpes vulpes</i>	yes	161/—				x
Switzerland	<i>Echinococcus multilocularis</i>	European beaver (<i>Castor fiber</i>)	yes	1		x		
USA	<i>Echinococcus multilocularis</i>	Wild furbearers	y - subclinical infection	Northern Midwest				
France	<i>Echinococcus multilocularis</i>	<i>Ondatra zibethicus</i>	oui	1			PCR	
France	<i>Echinococcus multilocularis</i>	<i>Vulpes vulpes</i>	oui	147			Sedimentation Counting Technique	
France	Ecthyma contagieux	<i>Rupicapra rupicapra</i>	oui	1			microscope électronique	
USA	Epizootic Hemorrhagic Disease (EHD)	<i>O. virginianus</i>	Y - Large outbreak in 2007 in multiple states	EHDV-1: AR, MO, MS EHDV-2: CO, GA, IL, IN KS, MD, MO, MS, NC, NJ, NY, PA, VA, WV TX; EHDV-6: IL, IN				
Taipei chinois	Equine Herpesvirus	Przewalskii Horse (<i>Equus przewalski</i>)	yes	1			X	
UK	<i>Erysipethothrix rhusiopathiae</i>	<i>Sciurus vulgaris</i>	yes	1 / 8		Y	Y	
Denmark	European Brown Hare Syndrome (EBHS)	European brown hare (<i>Lepus europaeus</i>)	yes	4		x		
Finland	European Brown Hare Syndrome (EBHS)	European brown hare (<i>Lepus europaeus</i>)	yes	8		8	7	
Finland	European Brown Hare Syndrome (EBHS)	Mountain hare (<i>Lepus timidus</i>)						
France	European Brown Hare Syndrome (EBHS)	<i>Lepus europaeus</i>	oui	40		oui pour 3	ELISA Ag pour 37	
Italy	European Brown Hare Syndrome (EBHS)	<i>Lepus europaeus</i>	yes	501		x	x	
Slovenia	European Brown Hare Syndrome (EBHS)	<i>Lepus europaeus</i>	yes	7			X	
Sweden	European Brown Hare Syndrome (EBHS)	Brown hare (<i>Lepus europaeus</i>)	yes	endemic				
USA	Feline Leukaemia (FLV)	<i>Felis concolor</i>	yes					
Portugal	Feline Panleucopenia	<i>Panthera tigris</i>	yes	2			x	
USA	Fibropapillomatosis in sea turtles	<i>Chelonia mydas</i>	yes	FL, HI				

Phillippines	Fibropapillomatosis in sea turtles	Green sea turtle (<i>Chelonia mydes</i>)	yes	1	x	x		
France	Fievre catarrhale du mouton	<i>Cervus elaphus</i>	oui	2			PCR	
Botswana	Foot and Mouth Disease	Buffalo (<i>Syncerus caffer</i>) Surveys	yes	19				X
Israel	Foot and Mouth Disease	<i>Gazella gazella</i>	yes	69	y	y	y	
South Africa	Foot and Mouth Disease	African buffalo (<i>Syncerus caffer</i>)	yes	227				
South Africa	Foot and mouth disease	African buffalo (<i>Syncerus caffer</i>)	yes	49				x
Sudan	Foot and Mouth Disease	African buffalo (<i>Syncerus caffer</i>)	yes	2	x			
UK	Gastropathy&/or Enteropathy Salmonellosis	<i>Phocoena phocoena</i>	yes	4		Y		
UK	Generalised Bacterial Infection - Erysipelas	<i>Phocoena phocoena</i>	yes	1		Y	Y	
France	Grande douve du foie (<i>Fasciola hepatica</i>)	<i>Capreolus capreolus</i>	oui	5		x		
France	Hantavirus	<i>Chletrionomis glaeolus</i>	oui	18				ELISA Ag
Finland	Hantaviruses	<i>Myodes (Clethrionomys) glareolus</i>	yes	endemic			x	
Germany	Hantaviruses	<i>Myodes glareolus</i>	yes	unknown			x	
USA	Hantaviruses	Wild rodents	y - endemic and subclinical					
Phillippines	Histomoniasis	Peafowl (<i>Pavo cristatus</i>)	yes	1	x			
USA	Histomoniasis	<i>Meleagris gallopova</i>	y - endemic					
	Histomoniasis	<i>Phasianus colchicus</i>	yes	3				
Cameroon	Immunodeficiency viruses (Simian)	Chimpanzee (Pan troglodytes)	34					x
Cameroon	Immunodeficiency viruses (Simian)	Gorilla (<i>Gorilla gorilla</i>)	3					x
Australia	Inclusion Body Disease	<i>Morelia bredli</i> , <i>Morelia spilotes variegata</i> , <i>Morelia spilotes spilotes</i>	yes	4		ü		
Canada	Inclusion Body Hepatitis	Great horned owl <i>Bubo virginianus</i>	yes	1			X	PCR
Cameroon	Insuffisance rénale	Lion (<i>Panthera leo</i>)	2	1				x
USA	Iridovirus diseases	<i>Rana clamitans</i>	yes	FL - 150				
Canada	Large Liver Flukes	Caribou <i>Rangifer tarandus</i>	yes	10			X	X
Canada	Large Liver Flukes	Elk (<i>Cervus elaphus</i>)	yes	1			X	X
Canada	Large Liver Flukes	Muskox (<i>Ovibos moschatus</i>)	yes	12			X	X
Myanmar	Large Liver Flukes	Asian Elephant (<i>Elaphus maximus</i>)	yes	226			x	
Sudan	Large Liver Flukes	African buffalo (<i>Syncerus caffer</i>)	yes			x		
USA	Large Liver Flukes	<i>O. virginianus</i>	y - endemic and subclinical					
Zambia	Large Liver Flukes	Kobus leche	yes	58			X	
Australia	Leishmaniasis	<i>Macropus agilis</i>	yes	6		ü	ü	ü
USA	Leishmaniasis	Wild furbearers	y - endemic/ subclinical					
Australia	Leptospirosis	<i>Sus scrofa</i>	endemic					
Canada	Leptospirosis	Raccoon <i>Procyon lotor</i>	yes	2				X
Canada	Leptospirosis	Skunk (<i>Mephitis mephitis</i>)	yes	1				X
Italy	Leptospirosis	<i>Dama dama</i>	yes	1				x
Italy	Leptospirosis	<i>Sus scrofa</i>	yes	2			x	
Myanmar	Leptospirosis	Asian Elephant (<i>Elaphus maximus</i>)	yes	1		x	x	
Myanmar	Leptospirosis	Tiger (<i>Panthera tigris</i>)	yes	1		x	x	
Portugal	Leptospirosis	<i>Suricata suricata</i>	yes	2			x	
UK	Leptospirosis	<i>Vulpes vulpes</i>	yes	1 cub		Y	PCR	
USA	Leptospirosis	Wild furbearers	y - endemic/ subclinical					
France	Listériose	<i>Capreolus capreolus</i>	oui	7			x	
France	Listériose	<i>Lepus europaeus</i>	oui	2			x	
France	Listériose	<i>Oryctolagus cuniculus</i>	oui	1			x	
France	Listériose	<i>Sus scrofa</i>	oui	1			x	
Denmark	Listeriosis	Hedgehog (<i>Erinaceus europaeus</i>)	yes	2			x	
Finland	Listeriosis	Mountain hare (<i>Lepus timidus</i>)	yes	1		1	1	
Germany	Listeriosis	Alces (zoo animal)	yes	1			x	
Germany	Listeriosis	Dama	yes	4			x	
Germany	Listeriosis	Non human primates	yes	1			x	
Germany	Listeriosis	Other zoo animals	yes	2			x	
Germany	Listeriosis	Passeri	yes	1			x	
Germany	Listeriosis	Psittaciformes (zoo animal)	yes	1			x	
Germany	Listeriosis	Roe deer (<i>Capreolus capreolus</i>)	yes	2			x	
Taipei chinois	Listeriosis	Sugar glider (<i>Pteropus brevicauda</i>)	yes	1			X	X
UK	Listeriosis (monocytogenes)	<i>Lutra lutra</i>	yes	1			Y	
UK	Louping ill	<i>Lagopus lagopus scoticus</i>	yes	67 / 1428				Y
UK	Louping ill	<i>Lepus timidus</i>	yes	17 / 109				Y
Sudan	Lumpy skin disease	Reedbeek (<i>Redunca</i> sp.)	yes	>150	x			
Sudan	Lumpy skin disease	Tiang antelope	yes	>150	x			
Italy	Lyme borreliosis	<i>Cervus elaphus</i>	yes	1				x
Italy	Lyme borreliosis	Roe deer (<i>Capreolus capreolus</i>)	yes	30				x
Italy	Lyme borreliosis	<i>Rupicapra rupicapra</i>	yes	1				x

USA	Lyme borreliosis	<i>Peromyscus maniculatus</i>	y - subclinical reservoir					
Ghana	Lyssavirus	Straw-colored fruit bat (<i>Eidolon helvum</i>)	yes	endemic				x
France	Lyssavirus des chiroptères	<i>Eptesicus serotinus</i>	oui	3			Immunofluorescence	
Germany	Malignant Catharral Fever	Bovidae (zoo animal)	yes	2			x	
Norway	Malignant Catharral Fever	<i>Alces alces</i>	yes	2	x	x		
Taipei chinois	Malignant Catharral Fever	Formosan sika deer (<i>Cervus nippon taiouanus</i>)	yes	1			X	X
Sweden	Meningeal worms of cervides	Moose (<i>Alces alces</i>)	yes	1				
Canada	Meningeal worms of cervids	Moose <i>Alces alces</i>	yes	4			X	X
Canada	Meningeal worms of cervids	Moose <i>Alces alces</i>	yes	1			1	
Norway	Meningeal worms of cervids	<i>Cervus elaphus</i> , <i>Alces alces</i> , <i>Rangifer tarandus</i>	yes	10	x	x		
USA	Meningeal worms of cervids	<i>O. virginianus</i>	y - endemic and subclinical					
France	<i>Mycobacterium "dassie bacillus"</i>	<i>Procapra capensis</i>	oui	1	oui	oui	oui	non
France	<i>Mycobacterium microti/pinnipedii</i>	<i>Lutra lutra</i>	oui	1	oui	oui	ou	non
France	<i>Mycobacterium pinnipedii</i>	<i>Arctocephalus australis</i>	oui	2	oui	oui	oui	non
France	Myxomatose	<i>Oryctolagus cuniculus</i>	oui	10	oui	histo sur 1		
Australia	Myxomatosis	<i>Lepus europaeus</i> , <i>Oryctolagus cuniculus</i>	yes, endemic	2			ü	
Portugal	Myxomatosis	<i>Oryctolagus cuniculus</i>	yes	1			x	
UK	Myxomatosis	<i>Oryctolagus cuniculus</i>	yes	33		Y		
UK	Myxomatosis	<i>Oryctolagus cuniculus</i>	yes	50		Y		
UK	Myxomatosis	<i>Oryctolagus cuniculus</i>	yes	193		Y		
Italy	Newcastle Disease	<i>Alectoris rufa</i>	yes	19				x
Italy	Newcastle Disease	<i>Phasianus colchicus</i>	yes	18				x
Portugal	Newcastle Disease	<i>Anas sp.</i>	yes	4				x
South Africa	Newcastle disease	<i>Bucorvus leadbeateri</i>	yes	1		x	x	x
South Africa	Newcastle Disease	<i>Struthio camelus</i>	yes	2		x	x	x
Sudan	Newcastle Disease	Guinea fowl (<i>Meleagris</i>)	yes	300	x			
Turkey	Newcastle Disease	<i>Columba livia</i>	yes	7/5				
USA	Newcastle Disease	<i>Phalacrocorax auritus</i>	yes	WI - 39				
Zimbabwe	Newcastle Disease	Ostrich (<i>Struthio camelus</i>)	yes	>10	x		x	x
Armenia	No diseases observed in wildlife							
Bulgaria	No diseases observed in wildlife							
Costa Rica	No diseases observed in wildlife							
Guinea Bissau	No diseases reported in wildlife							
Lesotho	No diseases reported in wildlife							
Marocco	No diseases reported in wildlife							
Mozambique	No diseases reported in wildlife							
Swaziland	No diseases reported in wildlife							
Vietnam	No diseases reported in wildlife							
Algeria	No report							
Angola	No report							
Argentina	No report							
Austria	No report							
Belarus	No report							
Benin	No report							
Bolivia	No report							
Boznia Herzeg	No report							
Brunei	No report							
Chile	No report							
Colombia	No report							
Congo	No report							
Cook islands	No report							
Croatia	No report							
Estonia	No report							
Ethopia	No report							
Greece	No report							
Guatemala	No report							
Iceland	No report							
India	No report							
Ivory coast	No report							
Kenya	No report							
Kuwait	No report							
Luxembourg	No report							
Madagascar	No report							
Mauritius	No report							
Moldavia	No report							

Netherlands	No report							
New Caledonia	No report							
New Zealand	No report							
Niger	No report							
Pakistan	No report							
Peru	No report							
Slovakia	No report							
Spain	No report							
Sri Lanka	No report							
Tanzania	No report							
Thailand	No report							
Tunisia	No report							
Uganda	No report							
Ukraine	No report							
Canada	Paramyxoviruses	Double crested cormorant (<i>Phalacrocorax auritus</i>)	yes	1			X	X
Canada	Paramyxoviruses	Pigeon <i>Columba livia</i>	yes	1			X	X
Norway	Paramyxoviruses	<i>Anas crecca</i>	no	1	x			
Phillippines	Paramyxoviruses	Flame breasted fruit dove (<i>Phoenicopustus marchei</i>)	yes	1	x			
Phillippines	Paramyxoviruses	North luzon slender tailed rat (<i>Phloemys pellicus</i>)	yes	10	x			
USA	Paramyxoviruses	Waterfowl APV-1	y - endemic					
Canada	Paramyxoviruses (Bat, Canine, Cetacean, Phocine)	Common dog (<i>Canis Familiaris</i>)	yes	4				
Canada	Paramyxoviruses (Bat, Canine, Cetacean, Phocine)	Opossum (<i>Didelphidae</i>)	yes	1			X	X
Canada	Paramyxoviruses (Bat, Canine, Cetacean, Phocine)	Raccoon (<i>Procyon lotor</i>)	yes	4			X	X
Canada	Paramyxoviruses (Bat, Canine, Cetacean, Phocine)	Skunk (<i>Mephitis mephitis</i>)	yes	4			X	X
Italy	Paramyxoviruses (Bat, Canine, Cetacean, Phocine)	Badger, <i>Meles meles</i>	yes	13		x	x	
Italy	Paramyxoviruses (Bat, Canine, Cetacean, Phocine)	Red Fox (<i>Vulpes vulpes</i>)	yes	37	x	x	x	
Italy	Paramyxoviruses (Bat, Canine, Cetacean, Phocine)	Wolf (<i>Canis lupus</i>)	yes	4				x
USA	Paramyxoviruses (Bat, Canine, Cetacean, Phocine)	Procyonids and canids	Y - Sporadic single cases and epizootics					
UK	Paramyxoviruses Paramyxovirus 1	<i>Columbia livia</i>	yes	13	Y	Y	Y	
France	Paratuberculose	<i>Capreolus capreolus</i>	oui	1				PCR
France	Paratuberculose	<i>Capreolus capreolus</i>	oui	4				Ziehl
Germany	Paratuberculosis	Bovidae (zoo animal)	yes	2			x	
Italy	Paratuberculosis	<i>Cervus elaphus</i>	yes	37		x		x
Italy	Paratuberculosis	<i>Cervus elaphus</i>	yes	2			x	
Italy	Paratuberculosis	Roe deer (<i>Capreolus capreolus</i>)	yes	3			x	x
Poland	Paratuberculosis	<i>Cervus elaphus</i>	yes	10				X
Poland	Paratuberculosis	<i>Oryx dammah</i>	yes	1		x	x	
Turkey	Paratuberculosis	<i>Ovis gmelinii anatolica</i>	yes	15/7	x	---	---	x
USA	Paratuberculosis	<i>Odocoileus virginianus</i>	Y - Florida Keys-Endemic;	Few deer				
UK	<i>Pasteurella multocida</i> + <i>Strep. equisimilis</i>	<i>Lutra lutra</i>	yes	1 / 6		Y	Y	
France	Pasteurellose à <i>Mannheimia hemolytica</i>	<i>Capra ibex</i>	oui	2				culture
France	Pasteurellose à <i>M. hemolytica</i>	<i>Capreolus capreolus</i>	oui	14				culture
France	Pasteurellose à <i>M. hemolytica</i>	<i>Lepus europaeus</i>	oui	38				culture
France	Pasteurellose à <i>M. hemolytica</i>	<i>Rupicapra rupicapra</i>	oui	6				culture
France	Pasteurellose à <i>M. hemolytica</i>	<i>Sus scrofa</i>	oui	1				culture
France	Pasteurellose à <i>Pasteurella multocida</i>	<i>Capreolus capreolus</i>	oui	6				culture
France	Pasteurellose à <i>P. multocida</i>	<i>Lepus europaeus</i>	oui	29				culture
France	Pasteurellose à <i>P. multocida</i>	<i>Pipistrellus pipistrellus</i>	oui	1				culture
France	Pasteurellose à <i>P. multocida</i>	<i>Rupicapra rupicapra</i>	oui	2				culture
France	Pasteurellose à <i>P. multocida</i>	<i>Sus scrofa</i>	oui	3				culture
France	Pasteurellose à <i>P. multocida</i>	<i>Vulpes vulpes</i>	oui	2				culture
France	Pasteurellose à <i>P. pneumotropica</i>	<i>Lepus europaeus</i>	oui	7				culture
France	Pasteurellose à <i>Pasteurella sp.</i>	<i>Capra ibex</i>	oui	1				culture

France	Pasteurellose à <i>Pasteurella</i> sp.	<i>Capreolus capreolus</i>	oui	6				culture	
France	Pasteurellose à <i>Pasteurella</i> sp.	<i>Lepus europaeus</i>	oui	10				culture	
France	Pasteurellose à <i>Pasteurella</i> sp.	<i>Oryctolagus cuniculus</i>	oui	1				culture	
France	Pasteurellose à <i>Pasteurella</i> sp.	<i>Rupicapra rupicapra</i>	oui	5				culture	
France	Pasteurellose à <i>P.a trehalosi</i>	<i>Lepus europaeus</i>	oui	1				culture	
France	Pasteurellose à <i>P. trehalosi</i>	<i>Rupicapra rupicapra</i>	oui	1				culture	
Czech Rep.	Pasteurellosis	<i>Phasianus colchicus</i>	yes	1					
Denmark	Pasteurellosis	European brown hare (<i>Lepus europaeus</i>)	yes	4				x	
Denmark	Pasteurellosis	Roe deer (<i>Capreolus capreolus</i>)	yes	1				x	
Finland	Pasteurellosis	Mountain hare (<i>Lepus timidus</i>)	yes	4			x	x	
Finland	Pasteurellosis	Rabbit (<i>Oryctolagus cuniculus</i>)		1			x	x	
Finland	Pasteurellosis	Ruff (<i>Philomachus pugnax</i>)		1			x	x	
France	Pasteurellosis	<i>Bubulcus ibis</i>	oui	3					culture
France	Pasteurellosis	<i>Columba palumbus</i>	oui	2					culture
France	Pasteurellosis	<i>Cygnus olor</i>	oui	1					culture
France	Pasteurellosis	<i>Gallinula chloropus</i>	oui	1					culture
Italy	Pasteurellosis	<i>Lepus europaeus</i>	yes	28		x		x	
Italy	Pasteurellosis	<i>Oryctolagus cuniculus</i>	yes	1				x	
Italy	Pasteurellosis	<i>Ovis musimon</i>	yes	4				x	
Italy	Pasteurellosis	<i>Phasianus colchicus</i>	yes	2				x	
Italy	Pasteurellosis	Roe deer (<i>Capreolus capreolus</i>)	yes	1				x	
Italy	Pasteurellosis	<i>Rupicapra rupicapra</i>	yes	2				x	
Italy	Pasteurellosis	<i>Sus scrofa meridionalis</i>	yes	2				x	
Myanmar	Pasteurellosis	Asian Elephant (<i>Elaphus maximus</i>)	yes	2		x	x	x	
Myanmar	Pasteurellosis	Serow (<i>Capricornis</i> sp)	yes	1		x	x	x	
Myanmar	Pasteurellosis	Snake (<i>Niga</i> sp)	yes	1		x	x	x	
Namibia	Pasteurellosis	Black Rhino (<i>Diceros bicornis</i>)	yes	1					♫
Poland	Pasteurellosis	<i>Branta leucopsis</i>	yes	1		1	x	x	
Portugal	Pasteurellosis	<i>Columba livia</i>	yes	8				x	
Portugal	Pasteurellosis	<i>Phyllopteryx taeniolatus</i>	yes	5				x	
Portugal	Pasteurellosis	Parrot	yes	1				x	
Portugal	Pasteurellosis	<i>Tragelaphus angasii</i>	yes					x	
Slovenia	Pasteurellosis	<i>Lepus europaeus</i>	yes	1					X
South Africa	Pasteurellosis	<i>Aepyceros melampus</i>	yes	2			x	x	
Sweden	Pasteurellosis	Lynx (<i>Lynx lynx</i>)	yes	1				x	
Sweden	Pasteurellosis	Wolf (<i>Canis lupus</i>)	yes	1				x	
Taipei chinois	Pasteurellosis	Red necked wallaby (<i>Macropus rufogriseus</i>)	yes	1				X	X
UK	Pasteurellosis (<i>P. multocida</i>)	<i>Pipistrellus pipistrellus</i>	yes	1				Y	
UK	Pasteurellosis (<i>P. multocida</i>)	<i>Carduelis spinus</i> , <i>Passer domesticus</i>	yes	2 / 2		No	x	y	No
Sudan	Peste de Petits Ruminants	Reedbuck (<i>Redunca</i> sp)	yes	outbreak		x			x
France	Pestivirus	<i>Rupicapra rupicapra</i>	oui	2					oui: viropositifs à Liège (B)
France	Pestivirus	<i>Rupicapra rupicapra</i> , <i>Ovis gmelini musimon</i>	oui dans les Hautes-Alpes et les Pyrénées	30% séropos					oui
Andorra	Pestiviruses	<i>Rupicapra pyrenaica</i>	no						
Italy	Pestiviruses	<i>Cervus elaphus</i>	yes	1					x
Italy	Pestiviruses	Roe deer (<i>Capreolus capreolus</i>)	yes	1				x	x
UK	Pigeon Paramyxovirus 1 (PPMV-1)	<i>Columba livia</i>	yes	two		y	y		
Canada	PMV-1	American black duck <i>Anas rubripes</i>	yes	4					X
Canada	PMV-1	Green winged teal <i>Anas crecca</i>	yes	4					X
Canada	PMV-1	Mallard <i>Anas platyrhynchos</i>	yes	1					X
Czech Rep.	Pseudotuberculosis	<i>Capreolus capreolus</i>	yes	4					
Czech Rep.	Pseudotuberculosis	<i>Lepus europaeus</i>	yes	5					
Denmark	Pseudotuberculosis	Badger (<i>Meles meles</i>)	yes	1				x	
Denmark	Pseudotuberculosis	European brown hare (<i>Lepus europaeus</i>)	yes	2				x	
Denmark	Pseudotuberculosis	Roe deer (<i>Capreolus capreolus</i>)	yes	3				x	
Finland	Pseudotuberculosis	European brown hare (<i>Lepus europaeus</i>)		9			x	x	
Finland	Pseudotuberculosis	Mountain hare (<i>Lepus timidus</i>)		2			x	x	
Finland	Pseudotuberculosis	White tailed deer (<i>Odocoileus virginianus</i>)	yes	1			x	x	
Germany	Pseudotuberculosis	Leporidae	yes	1				x	x
Italy	Pseudotuberculosis	<i>Dama dama</i>	yes	1			x	x	
Italy	Pseudotuberculosis	<i>Lepus europaeus</i>	yes	15			x	x	
Italy	Pseudotuberculosis	<i>Rupicapra rupicapra</i>	yes	8				x	
UK	Pseudotuberculosis	<i>Lepus europeaus</i>	yes	1			Y	Y	
France	Pseudotuberculose à <i>Yersinia pseudotuberculosis</i>	<i>Castor fiber</i>	oui	1					culture
France	Pseudotuberculose à <i>Yersinia pseudotuberculosis</i>	<i>Lepus europaeus</i>	oui	35					culture

France	Pseudotuberculose à <i>Yersinia pseudotuberculosis</i>	<i>Oryctolagus cuniculus</i>	oui	1			culture	
France	Pseudotuberculose à <i>Yersinia pseudotuberculosis</i>	<i>Perdrix perdrix</i>	oui	1			culture	
France	Pseudotuberculose à <i>Yersinia pseudotuberculosis</i>	<i>Sciurus vulgaris</i>	oui	2			culture	
Canada	Pseudotuberculosis	Blue jay <i>Cyanocitta cristata</i>	yes	1			X	X
UK	Pseudotuberculosis	<i>Fringilla coelebs</i> , <i>Sylvia atricapilla</i> and <i>Hirundo rustica</i>	yes	3	No	y	y	No
France	Psoroptic Mange	<i>Vulpes vulpes</i>	oui	1			examen	
Myanmar	Psoroptic Mange	Asian Elephant (<i>Elaphus maximus</i>)	yes	9			x	
South Africa	Psoroptic Mange	African buffalo (<i>Syncerus caffer</i>)	yes	3		x	x	
Sudan	Psoroptic Mange	Oribi gazelle	yes	endemic	x			
Sudan	Psoroptic Mange	Reedbuck (<i>Redunca</i> sp)	yes	endemic	x			
USA	Psoroptic Mange	Big horn sheep	yes					
France	Q fever	<i>capra ibex</i>	oui	2				elisa
Germany	Q-fever	Bovidae (zoo animal)	yes	3			x	x
Italy	Q-fever	<i>Canis lupus</i>	yes	2				x
Italy	Q-fever	<i>Cervus elaphus</i>	yes	2				x
Italy	Q-fever	Roe deer (<i>Capreolus capreolus</i>)	yes	1				x
Italy	Q-fever	<i>Ursus arctos marsicanus</i>	yes	1				x
Italy	Q-fever	<i>Vulpes vulpes</i>	yes	1			x	
Taipei chinois	Q-fever	Formosan sambar (<i>Cervus unicolor swinhoei</i>)	yes	2				X
Albania	Rabbit Haemorrhagic Disease	European rabbit (<i>Oryctolagus cuniculus</i>)	yes	5			x	
Australia	Rabbit Haemorrhagic Disease	<i>Oryctolagus cuniculus</i>	endemic					
Cyprus	Rabbit Haemorrhagic Disease	Rabbit (<i>Oryctolagus cuniculus</i>)	yes	47			x	x
France	Rabbit Haemorrhagic Disease	<i>Oryctolagus cuniculus</i>	oui	10	oui	oui		ELISA Ag
Italy	Rabbit Haemorrhagic Disease	<i>Eryctolagus cuniculus</i>	yes	5				x
Italy	Rabbit Haemorrhagic Disease	<i>Lepus europaeus</i>	yes	32				x
Sweden	Rabbit Haemorrhagic Disease	Wild rabbit (<i>Oryctolagus cuniculus</i>)	yes	endemic				
Botswana	Rabies	Black backed jackal (<i>Canis mesomelas</i>)	yes	3				
Botswana	Rabies	Common duiker	yes	1		X		X
Botswana	Rabies	Genet, Caracal	yes	1				
Botswana	Rabies	Honey badger (<i>Mellivora capensis</i>)	yes	1				
Botswana	Rabies	Mongoose (unspecified)	yes	1				
Botswana	Rabies	Wild cat (<i>Felis silvestris</i>)	yes	2				
Brazil	Rabies	Canído salvaje	yes	4				
Brazil	Rabies	Quiróptero	yes	102				
Brazil	Rabies	Raposa (<i>Canis</i> sp)	yes	25				
Brazil	Rabies	Sagui (<i>Callitrichidae</i> sp)	yes	7				
Iran	Rabies	<i>Canis aureus</i>	yes	3	x	x	x	
Iran	Rabies	<i>Gazella dorcas</i>	yes	1	x	x	x	
Iran	Rabies	<i>Panthera pardus</i>	yes	1	x	x	x	
Iran	Rabies	Red Fox (<i>Vulpes vulpes</i>)	yes	12	x	x	x	
Iran	Rabies	Wolf (<i>Canis lupus</i>)	yes	27	x	x	x	
Israel	Rabies	<i>Canis aureus</i>	yes	1		y	y	
Israel	Rabies	<i>Herpestes ichneumon</i>	yes	1		y	y	
Israel	Rabies	<i>Vulpes vulpes</i>	yes	4		y	y	
Latvia	Rabies	<i>Lutra lutra</i>	yes	1				+
Latvia	Rabies	<i>Martes martes</i>	yes	4				+
Latvia	Rabies	<i>Meles meles</i>	yes	3				+
Latvia	Rabies	<i>Mustela lutreola</i>	yes	1				+
Latvia	Rabies	<i>Mustela nivalis</i>	yes	2				+
Latvia	Rabies	<i>Mustela putorius</i>	yes	5				+
Latvia	Rabies	<i>Nyctereutes procyonides</i>	yes	33				+
Latvia	Rabies	Roe deer (<i>Capreolus capreolus</i>)	yes	1				+
Latvia	Rabies	<i>Vulpes vulpes</i>	yes	95				+
Lithuania	Rabies	Badger, <i>Meles meles</i>	yes	2				
Lithuania	Rabies	European beaver (<i>Castor fiber</i>)	yes	1				
Lithuania	Rabies	Marten (<i>Martes foina</i>)	yes	25				
Lithuania	Rabies	Musk rat (<i>Ondatra zibethicus</i>)	yes	1				
Lithuania	Rabies	Otter, <i>Lutra lutra</i>	yes	1				
Lithuania	Rabies	Polecat (<i>Mustela putorius</i>)	yes	13				
Lithuania	Rabies	Raccoon dog, <i>N procyonides</i>	yes	122				
Lithuania	Rabies	Red fox, <i>Vulpes vulpes</i>	yes	142				
Lithuania	Rabies	Roe deer (<i>Capreolus capreolus</i>)	yes	5				
Lithuania	Rabies	Squirrel (<i>Squirus vulgaris</i>)	yes	1				
Namibia	Rabies	Antelope	yes	1				♪
Namibia	Rabies	Jackal (<i>Canis mesomelas</i>)	yes	11				♪
Namibia	Rabies	Kudu (<i>Tragelaphus strepsiceros</i>)	yes	70				♪
Namibia	Rabies	Mongoose (<i>Suricata suricatta</i>)	yes	2				♪

Namibia	Rabies	Oryx (<i>Taurotragus oryx</i>)	yes	3					♫
Poland	Rabies	Chiroptera	yes	2					
Poland	Rabies	<i>Eptesicus serotinus</i>	yes	1					
Poland	Rabies	<i>Martes foina</i>	yes	1					
Poland	Rabies	<i>Meles meles</i>	yes	1					
Poland	Rabies	<i>Mustela nivalis</i>	yes	1					
Poland	Rabies	<i>Nyctereutes procyonoides</i>	yes	7			x	x	
Poland	Rabies	<i>Vulpes vulpes</i>	yes	42					
Serbia	Rabies	Marten (<i>Martes martes</i>)	yes	1			x		x
Serbia	Rabies	Red fox (<i>Vulpes vulpes</i>)	yes	13			x		x
Serbia	Rabies	Weasel (<i>Mustela nivalis</i>)	yes	1			x		x
Slovenia	Rabies	<i>Vulpes vulpes</i>	yes	3					X
South Africa	Rabies	<i>Canis adustus</i>	yes	2			x	x	
South Africa	Rabies	<i>Canis mesomelas</i>	yes	14			x	x	
South Africa	Rabies	<i>Crocuta crocuta</i>	yes	2			x	x	
South Africa	Rabies	<i>Cynictus penicillata</i>	yes	12			x	x	
South Africa	Rabies	<i>Equus burchelli</i>	yes	1			x	x	
South Africa	Rabies	<i>Felis lybica</i>	yes	1			x	x	
South Africa	Rabies	<i>Herpestes sanguinia</i>	yes	2			x	x	
South Africa	Rabies	<i>Otocyon megalotis</i>	yes	15			x	x	
South Africa	Rabies	<i>Proteles cristata</i>	yes	2			x	x	
South Africa	Rabies	<i>Suricata suricata</i>	yes	7			x	x	
South Africa	Rabies	<i>Taurotragus oryx</i>	yes	1			x	x	
South Africa	Rabies	<i>Vulpes chama</i>	yes	2			x	x	
Turkey	Rabies	<i>Canis lupus</i>	yes						
Turkey	Rabies	<i>Meles meles</i>	yes						
Turkey	Rabies	<i>Vulpes vulpes</i>	yes	1,1,1				x	
USA	Rabies	Bats and carnivores	Y - Endemic						
Zambia	Rabies	Jackal	Yes	1				X	
Zimbabwe	Rabies	Baboon (<i>Papio</i> sp)	yes	1		x			
Zimbabwe	Rabies	Jackals sp.	yes	4		x			
Zimbabwe	Rabies	Spotted hyena	yes	1		x			
Zimbabwe	Rabies	Wild dogs	yes	2 packs		x			
Canada	Rabies ³	Big brown bat <i>Eptesicus fuscus</i>	yes	85				X	X
Canada	Rabies ³	Raccoon <i>Procyon lotor</i>	yes	53					
Canada	Rabies ³	Red fox <i>Vulpes vulpes</i>	yes	8				X	X
Canada	Rabies ³	Skunk <i>Mephitis mephitis</i>	yes	50					X
UK	Rana virus - significance uncertain	<i>Triturus vulgaris</i>	yes	1			Y	Y PCR	
Portugal	salmonella	Pigeon <i>Columba livia</i>	yes	8				x	
Portugal	salmonella	reptiles	yes	9				x	
Portugal	salmonella	canards (<i>Anas</i> sp)	yes	2				x	
Portugal	salmonella	lemur	yes	1				x	
Portugal	salmonella	greater koudou	yes	1				x	
France	Salmonellose à <i>Salmonella</i> O 4,5	<i>Carduelis chloris</i>	oui	5				culture	
France	Salmonellose à <i>Salmonella</i> O 4,5	<i>Fringilla coelebs</i>	oui	1				culture	
France	Salmonellose à <i>S. arizonae</i>	<i>Buteo buteo</i>	oui	1				culture	
France	Salmonellose à <i>S. coeln</i>	<i>Serinus serinus</i>	oui	4				culture	
France	Salmonellose à <i>S. enteritidis</i>	<i>Cygnus olor</i>	oui	1				culture	
France	Salmonellose à <i>Salmonella</i> groupe B	<i>Carduelis spinus</i>	oui	2				culture	
France	Salmonellose à <i>S. groupe B</i>	<i>Carduelis chloris</i>	oui	2				culture	
France	Salmonellose à <i>Salmonella</i> sp.	<i>Bubo bubo</i>	oui	1				culture	
France	Salmonellose à <i>Salmonella</i> sp.	<i>Buteo buteo</i>	oui	1				culture	
France	Salmonellose à <i>Salmonella</i> sp.	<i>Carduelis spinus</i>	oui	8				culture	
France	Salmonellose à <i>Salmonella</i> sp.	<i>Carduelis chloris</i>	oui	8				culture	
France	Salmonellose à <i>Salmonella</i> sp.	<i>Coccothraustes coccothraustes</i>	oui	2				culture	
France	Salmonellose à <i>Salmonella</i> sp.	<i>Fringilla coelebs</i>	oui	1				culture	
France	Salmonellose à <i>Salmonella</i> sp.	<i>Serinus serinus</i>	oui	1				culture	
France	Salmonellose à <i>Salmonella</i> sp.	<i>Streptopelia decaocto</i>	oui	1				culture	
France	Salmonellose à <i>Salmonella</i> sp.	<i>Sturnus vulgaris</i>	oui	1				culture	
France	Salmonellose à <i>S. typhimurium</i>	<i>Carduelis spinus</i>	oui	5				culture	
France	Salmonellose à <i>S. typhimurium</i>	<i>Carduelis carduelis</i>	oui	1				culture	
France	Salmonellose à <i>S. typhimurium</i>	<i>Carduelis chloris</i>	oui	8				culture	
France	Salmonellose à <i>S. typhimurium</i>	<i>Passer domesticus</i>	oui	4				culture	

Australia	Salmonellosis	<i>Bufo marinus</i> , <i>Litoria caerulea</i> , <i>Setonix brachyurus</i> , <i>Macropus giganteus giganteus</i> , <i>Tiliqua scincoides scincoides</i> , <i>Varanus varius</i> , <i>Tiliqua nigrolutea</i> , <i>Egernia major</i> , <i>Cavia porcellus</i> , <i>Notomys alexia</i> , <i>Oxyuranus microlepidota</i> , <i>Boiga irregularis</i> , <i>Notechis scutatus</i> , <i>Pseudechis porphyriacus</i> , <i>Austrelaps superbus</i> , <i>Pseudonaja textilis</i> , <i>Morelia bredli</i> , <i>Morelia spilotes variegata</i> , <i>Morelia spilotes spilotes</i> , <i>Liasis childreni</i> , <i>Hoplocephalus bungaroides</i> , <i>Physignathus lesueurii howittii</i> , <i>Pogona barbata</i> , <i>Pogona vitticeps</i> , <i>Trachydosaurus rugosus</i>	yes	79			ü	
Canada	Salmonellosis	American robin <i>Turdus migratorius</i>	yes	1			X	X
Canada	Salmonellosis	Gulls <i>Laridae</i>	yes	6			X	X
Canada	Salmonellosis	Herring gull <i>Larus argentatus</i>	yes	2			X	X
Canada	Salmonellosis	House sparrow <i>Passer domesticus</i>	yes	21			X	X
Canada	Salmonellosis	Raccoon <i>Procyon lotor</i>	yes	1			X	X
Canada	Salmonellosis	Ring-billed gull <i>Larus delawarensis</i>	yes	4			X	X
Canada	Salmonellosis	Songbirds Passeriformes	yes	13			X	X
Czech Rep.	Salmonellosis	<i>Phasianus colchicus</i>	yes	3				
Czech Rep.	Salmonellosis	<i>Squius vulgaris</i>	yes	2				
Denmark	Salmonellosis	Brambling (<i>Fringilla montifringilla</i>)	yes	1			x	
Denmark	Salmonellosis	Greenfinch (<i>Carduelis chloris</i>)	yes	3			x	
Denmark	Salmonellosis	Hedgehog (<i>Erinaceus europaeus</i>)	yes	17			x	
Denmark	Salmonellosis	Herring gull (<i>Larus argentatus</i>)	yes	1			x	
Denmark	Salmonellosis	Scarlet (<i>Carpodacus erythrinus</i>)	yes	2			x	
Denmark	Salmonellosis	Siskin (<i>Carduelis spinus</i>)	yes	9			x	
Denmark	Salmonellosis	Tree sparrow (<i>Passer montanus</i>)	yes	2			x	
Finland	Salmonellosis	Bullfinch (<i>Pyrrhula pyrrhula</i>)		3		x	x	
Finland	Salmonellosis	<i>Carduelis chloris</i>		2		x	x	
Finland	Salmonellosis	<i>Carduelis flammea</i>		25		x	x	
Finland	Salmonellosis	<i>Carduelis spinus</i>		2		x	x	
Finland	Salmonellosis	Eurasian jay (<i>Garrulus glandarius</i>)		1		x	x	
Finland	Salmonellosis	Hedgehog (<i>Erinaceus europaeus</i>)		2		x	x	
Finland	Salmonellosis	<i>L. ridibundus</i>		1		x	x	
Finland	Salmonellosis	<i>Larus argentatus</i>		15		x	x	
Finland	Salmonellosis	Lynx (<i>Lynx lynx</i>)	yes	1		x	x	
Finland	Salmonellosis	<i>Parus major</i>		1		x	x	
Germany	Salmonellosis	<i>Dama</i>	yes	1			x	x
Germany	Salmonellosis	<i>Erinaceidae</i>	yes	3			x	x
Germany	Salmonellosis	<i>Meles</i>	yes	1			x	x
Germany	Salmonellosis	<i>Mustela</i>	yes	1			x	x
Germany	Salmonellosis	Non human primates	yes	2			x	x
Germany	Salmonellosis	Roe deer (<i>Capreolus capreolus</i>)	yes	1			x	x
Germany	Salmonellosis	<i>Sus scrofa</i>	yes	3			x	x
Germany	Salmonellosis	Wild bird species	yes	7			x	x
Germany	Salmonellosis	<i>Vulpes</i>	yes	2			x	x
Italy	Salmonellosis	Birds	yes	2			x	
Italy	Salmonellosis	<i>Cervus elaphus</i>	yes	1			x	
Italy	Salmonellosis	<i>Cervus elaphus corsicanus</i>	yes	4				x
Italy	Salmonellosis	<i>Coturnix coturnix</i>	yes	1			x	
Italy	Salmonellosis	<i>Dama dama</i>	yes	2				x
Italy	Salmonellosis	<i>Larus argentarius</i>	yes	1		x	x	
Italy	Salmonellosis	<i>Lutra lutra</i>	yes	1		x	x	
Italy	Salmonellosis	<i>Martes martes</i>	yes	1			x	
Italy	Salmonellosis	<i>Meles meles</i>	yes	1			x	
Italy	Salmonellosis	<i>Ovis musimon</i>	yes	2				x
Italy	Salmonellosis	<i>Passer domesticus</i>	yes	2			x	
Italy	Salmonellosis	Roe deer (<i>Capreolus capreolus</i>)	yes	2			x	
Italy	Salmonellosis	<i>Sturnus vulgaris</i>	yes	1			x	
Italy	Salmonellosis	<i>Sus scrofa</i>	yes	120			x	
Italy	Salmonellosis	<i>Vulpes vulpes</i>	yes	3			x	
Myanmar	Salmonellosis	Asian Elephant (<i>Elaphus maximus</i>)	yes	4	x	x	x	
Norway	Salmonellosis	Passeriformes	yes	79	x	x		
Philliphines	Salmonellosis	Rufous hornbill (<i>Bruceros hydrocorax</i>)	yes	1	x			
Philliphines	Salmonellosis	Tarctic hornbill (<i>Penelopides panini</i>)	yes	1	x	x		
Poland	Salmonellosis	<i>Pelecanus crispus</i>	yes	1	2	x		
Poland	Salmonellosis	<i>Tetraogallus himalayensis</i>	yes	1				
Switzerland	Salmonellosis	Hedgehog (<i>Erinaceus europaeus</i>)	yes	1			x	
Taipei chinois	Salmonellosis	Red-bellied parrot (<i>Poicephalus rufiventris</i>)	yes	1			X	X
UK	Salmonellosis	<i>Carduelis carduelis</i>	yes	1 / 3		Y	Y	

UK	Salmonellosis	<i>Carduelis chloris</i>	yes	3		Y	Y	
UK	Salmonellosis	<i>Carduelis chloris</i>	yes	1 / 12		Y	Y	
UK	Salmonellosis	<i>Lutra lutra</i>	yes	1			Y	
UK	Salmonellosis	<i>Passer domesticus</i>	yes	5		Y	Y	
UK	Salmonellosis	<i>Pyrrhula pyrrhula</i>	yes	2 / 4		Y	Y	
USA	Salmonellosis	Passerine birds	yes					
USA	Salmonellosis	<i>Sterna hirundo</i> , <i>Larus atricilla</i>	yes	625				
Sweden	Salmonellosis	Bullfinch (<i>Pyrrhula pyrrhula</i>)	yes	10		x	x	
Sweden	Salmonellosis	Redpoll (<i>Carduelis flammea</i>)	yes	5		x	x	
Sweden	Salmonellosis	Siskin (<i>Carduelis spinus</i>)	yes	4		x	x	
UK	Salmonellosis (<i>Salmonella</i> sp)	<i>Halichoerus grypus</i>	yes	1 / 3				
UK	Salmonellosis (<i>S. bovismorbificans</i>)	<i>Halichoerus grypus</i>	yes	1		Y	Y	
UK	Salmonellosis (<i>S. typhimurium</i> DT56)	<i>Carduelis flammea</i>	yes	1		Y	Y	
UK	Salmonellosis (<i>S. typhimurium</i> DT56)	<i>Carduelis carduelis</i>	yes	2		Y	Y	
UK	Salmonellosis (<i>S. enteritidis</i> PT11)	<i>Erinaceus europaeus</i>	yes	2 / 2				
UK	Salmonellosis (<i>S. enteritidis</i>)	<i>Erinaceus europaeus</i>	yes	28		Necropsy & culture		
UK	Salmonellosis (<i>S. enteritidis</i>)	<i>Mus musculus</i>	yes	6 / 11				
UK	Salmonellosis (<i>S. enteritidis</i>)	<i>Rattus norvegicus</i>	yes	2 / 9				
UK	Salmonellosis (<i>S. hindmarsh</i>)		yes	1 / 1				
UK	Salmonellosis (<i>S. typhimurium</i> DT 40 & DT56)	<i>Pyrrhula pyrrhula</i> , <i>Fringilla coelebs</i> , <i>Carduelis carduelis</i> , <i>Carduelis chloris</i> , <i>Passer domesticus</i> , <i>Carduelis spinus</i> and <i>Passer montanus</i>	yes	Multiple mortality incidents confirmed at 33 sites.	No	Gross pathology	Confirmation through microbiological examination and phage typing	No
UK	Salmonellosis (<i>S. typhimurium</i> DT104)		yes	1 / 1				
UK	Salmonellosis (<i>S. typhimurium</i> DT40)	<i>Carduelis carduelis</i>	yes	1 / 3				
UK	Salmonellosis (<i>S. typhimurium</i> DT41)	<i>Passer domesticus</i>	yes	1 / 1				
UK	Salmonellosis (<i>S. typhimurium</i> DT56var)	<i>Carduelis carduelis</i>	yes	1 / 4				
UK	Salmonellosis (<i>S. typhimurium</i> DT56var)	<i>Carduelis chloris</i>	yes	3 / 3				
UK	Salmonellosis (<i>S. typhimurium</i> DT40 & DT56v)	<i>Fringilla coelebs</i> , <i>Carduelis carduelis</i> , <i>Carduelis chloris</i> , <i>Passer domesticus</i> , <i>Carduelis spinus</i> and <i>Passer montanus</i>	yes	43 / 166	No	Gross pathology	Confirmation through culture and phage typing	No
Botswana	Salmonellosis (<i>Species not specified</i>)	Crocodile (<i>Crocodylus niloticus</i>)	yes	1				X
Sudan	Sarcoptic mange	African buffalo (<i>Syncerus caffer</i>)	yes	endemic	x			
Sudan	Sarcoptic mange	Reedbuck (<i>Redunca</i> sp)	yes	endemic	x			
Sweden	Sarcoptic mange	Lynx (<i>Lynx lynx</i>)	yes	8				
Sweden	Sarcoptic mange	Red fox (<i>Vulpes vulpes</i>)	yes	endemic				
Sweden	Sarcoptic mange	Wolf (<i>Canis lupus</i>)	yes	1				
Albania	Sarcoptic Mange	European brown hare (<i>Lepus europaeus</i>)	yes	7	x			
Andorra	Sarcoptic Mange	<i>Vulpes vulpes</i>	yes	3				
Australia	Sarcoptic Mange	<i>Vombatus ursinus</i>	yes, endemic	10	ü		ü	
Canada	Sarcoptic Mange	Chipmunk <i>Tamias</i>	yes	1			X	X
Canada	Sarcoptic Mange	Coyote <i>Canis latrans</i>	yes	1			X	
Canada	Sarcoptic Mange	Red fox <i>Vulpes vulpes</i>	yes	2			X	X
Canada	Sarcoptic Mange	Wolf <i>Canis lupus</i>	yes	2			X	X
Finland	Sarcoptic Mange	Raccoon dog (<i>Nyctereutes procyonoides</i>)	yes	1		1	1	
Finland	Sarcoptic Mange	Red Fox (<i>Vulpes vulpes</i>)	yes	5		5	5	
France	Sarcoptic Mange	<i>Sus scrofa</i>	oui	2			examen	
France	Sarcoptic Mange	<i>Vulpes vulpes</i>	oui	17			examen	
Italy	Sarcoptic Mange	<i>Capra ibex</i>	yes	4		x	x	
Italy	Sarcoptic Mange	<i>Ovis musimon</i>	yes	1		x	x	
Italy	Sarcoptic Mange	<i>Rupicapra rupicapra</i>	yes	551		x	x	x
Italy	Sarcoptic Mange	<i>Vulpes vulpes</i>	yes	18		x	x	
Myanmar	Sarcoptic Mange	Asian Elephant (<i>Elaphus maximus</i>)	yes	10			x	
Norway	Sarcoptic Mange	<i>Nyctereutes procyonoides</i>	yes	1	x	x		

Slovenia	Sarcoptic Mange	<i>Rupicapra rupicapra</i>	yes	10				X
South Africa	Sarcoptic Mange	<i>Panthera pardus</i>	yes	1		x	x	
Switzerland	Sarcoptic Mange	Red fox (<i>Vulpes vulpes</i>)	yes	7		x	x	
UK	Sarcoptic Mange	<i>Vulpes vulpes</i>	yes	20	Y		Y	
UK	Sarcoptic Mange	<i>Vulpes vulpes</i>	yes	8/138	Y			
USA	Sarcoptic Mange	<i>Vulpes vulpes</i> , <i>Canis latrans</i>	y-endemic					
Myanmar	Scrapie	Rabbit (<i>Lepus oisialus</i>)	yes	1			x	
UK	Squirrel Pox Virus	<i>Sciurus carolinensis</i>	yes	439/1424				Y
UK	Squirrel Pox Virus	<i>Sciurus vulgaris</i>	yes	9 / 32		Y	Y	
UK	Squirrel Pox Virus	<i>Sciurus vulgaris</i>	yes	10/121				Y
UK	Squirrel Pox Virus	<i>Sciurus vulgaris</i>	yes	3 / 4	Y			
UK	Squirrel Pox Virus	<i>Sciurus vulgaris</i>	yes	3 / 6		Y	Y	
UK	Squirrel Pox Virus	<i>Sciurus vulgaris</i>	yes	9/62 examined	Y	Y	Y	
UK	Staphylococcal septicaemia	<i>Lepus europeus</i>	yes	1		Y	Y	
UK	Staphylococcal septicaemia	<i>Sciurus vulgaris</i>	yes	1		Y	Y	
USA	Sylvatic Plague	Wild rodents	yes					
Italy	Tick Borne Encephalitis	<i>Cervus elaphus</i>	yes	3				x
Italy	Tick Borne Encephalitis	Roe deer (<i>Capreolus capreolus</i>)	yes	16				x
Italy	Tick Borne Encephalitis	<i>Rupicapra rupicapra</i>	yes	3				x
France	Toxoplasmosis	<i>Dasyatis novemcinctus</i>	oui	3				ADHS
France	Toxoplasmosis	<i>Hydrochoerus hydrochaeris</i>	oui	1				ADHS
France	Toxoplasmosis	<i>Myoprocta acouchy</i>	oui	1				ADHS
France	Toxoplasmosis	<i>Sus scrofa</i>	oui	200				ADHS
France	Toxoplasmosis	<i>Sus scrofa</i>	oui	3				
France	Toxoplasmosis	<i>Tayassu sp.</i>	oui	20				ADHS
Australia	Toxoplasmosis	<i>Macropus rufogriseus rufogriseus</i>	yes	2	ü	ü		ü
Finland	Toxoplasmosis	Capercaillie (<i>Tetrao urogallus</i>)	yes	9		9	2	
Finland	Toxoplasmosis	Squirrel (<i>Sciurus vulgaris</i>)						
Finland	Toxoplasmosis	European brown hare (<i>Lepus europaeus</i>)						
Finland	Toxoplasmosis	Mountain hare (<i>Lepus timidus</i>)						
Germany	Toxoplasmosis	<i>Vulpes vulpes</i>	yes	1			x	
Italy	Toxoplasmosis	<i>Lepus europaeus</i>	yes	8				x
Italy	Toxoplasmosis	<i>Ovis musimon</i>	yes	1				x
Italy	Toxoplasmosis	Roe deer (<i>Capreolus capreolus</i>)	yes	10				x
Italy	Toxoplasmosis	<i>Sus scrofa</i>	yes	117				x
Italy	Toxoplasmosis	<i>Vulpes vulpes</i>	yes	1			x	
Norway	Toxoplasmosis	<i>Alopex lagopus</i>	yes	1	x	x		
Taipei chinois	Toxoplasmosis	Red necked wallaby (<i>Macropus rufogriseus</i>)	yes	4				X
Taipei chinois	Toxoplasmosis	Squirrel monkey (<i>Samiri oerstedii</i>)	yes	3				X
USA	Toxoplasmosis	Numerous species	yes					
USA	Transmissible Spongiform Encephalopathies (TSE, CWD)	<i>O. virginianus</i> , <i>O. hemionus</i> , <i>C. elaphus</i>	Y - Endemic					CO, IL, NE, NM, SD, UT, WI, WV, WY
Canada	Transmissible Spongiform Encephalopathies (TSE, CWD)	Mule deer <i>Odocoileus hemionus</i>	yes	16				X
Canada	Transmissible Spongiform Encephalopathies (TSE, CWD)	White-tailed deer <i>Odocoileus virginianus</i>	yes	6				X
South Africa	Trichinella nelsoni and strain T8	<i>Panthera leo</i>	yes	3				X
France	Trichinellose	<i>Vulpes vulpes</i>	oui (en Savoie)	10				Digestion pepsique
France	Trichinellose (<i>T. britovi</i>)	<i>Sus scrofa</i>	oui	1 en Ariège				Digestion artificielle, (abattoir)
Andorra	Trichinellosis	<i>Vulpes vulpes/Sus scrofa</i>	yes	1 / 20%				
Canada	Trichinellosis	Domestic dog <i>Canis familiaris</i>	yes	1				X
Canada	Trichinellosis	Walrus <i>Odobenus rosmarus</i>	yes	3				X X
Finland	Trichinellosis	<i>Lynx lynx</i>	yes	31				31
Finland	Trichinellosis	<i>Vulpes vulpes</i>	yes	35				35
Finland	Trichinellosis	<i>Canis lupus</i>	yes	11				11
Finland	Trichinellosis	<i>Nyctereutes procyonoides</i>	yes	44				44
Finland	Trichinellosis	<i>Sus scrofa</i>	yes	1				1
Finland	Trichinellosis	<i>Ursus arctos</i>	yes	2				2
Germany	Trichinellosis	<i>Sus scrofa</i>	yes	1				x
Israel	Trichinellosis	<i>Canis aureus</i>	yes	9				y
Israel	Trichinellosis	<i>Canis lupus</i>	yes	2				y
Israel	Trichinellosis	<i>Sus scrofa</i>	yes	?				y
Italy	Trichinellosis	<i>Canis lupus</i>	yes	6				x
Italy	Trichinellosis	<i>Mus musculus</i>	yes	24				x
Italy	Trichinellosis	<i>Sus scrofa</i>	yes	16				x
Latvia	Trichinellosis	<i>Lynx lynx</i>	yes	1				+
Latvia	Trichinellosis	<i>Sus scrofa</i>	yes	15				+
Lithuania	Trichinellosis	Red fox, <i>Vulpes vulpes</i>	yes	1				
Lithuania	Trichinellosis	Wild boar, <i>S. Scrofa</i>	yes	57				

Poland	Trichinellosis	<i>Sus scrofa</i>	yes	238			x	
Serbia	Trichinellosis	Wild boar (<i>Sus scrofa</i>)	yes	24		x		
Sweden	Trichinellosis	Lynx (<i>Lynx lynx</i>)	yes	6			x	
Sweden	Trichinellosis	Red fox (<i>Vulpes vulpes</i>)	yes	2			x	
Sweden	Trichinellosis	Wild boar (<i>Sus scrofa</i>)	yes	2			x	
Sweden	Trichinellosis	Wolf (<i>Canis lupus</i>)	yes	1			x	
UK	Trichinellosis	<i>Vulpes vulpes</i>	yes	1 / 150				
USA	Trichinellosis	Numerous species	yes	endemic				
Zimbabwe	Trichinellosis	Nile crocodile (<i>C. niloticus</i>)	yes	6		x		
UK	Trichomoniasis	<i>Columba oenas</i>	yes	1	Y			
Australia	Trichomoniasis	<i>Accipiter cirrhocephalus</i> , <i>Eudypitula minor</i> , <i>Ninox novaeseelandiae</i> , <i>Accipiter fasciatus</i>	yes	5	ü	ü	ü	
Canada	Trichomoniasis	Purple finch <i>Carpodacus purpureus</i>	yes	2				X
Denmark	Trichomoniasis	<i>Columba palumbus</i>	yes	26				x
Italy	Trichomoniasis	<i>Streptopelia turtur</i>	yes	1		x		
Norway	Trichomoniasis	<i>Columba livia</i>	yes	3				
Philliphines	Trichomoniasis	Luzon red tailed rat snake (<i>Elaphae erythrura</i>)	yes	2	x	x		
Philliphines	Trichomoniasis	Phillipine eagle (<i>Pithecophaga jefferyi</i>)	yes	1	x	x		
Philliphines	Trichomoniasis	Philliphines hawk eagle (<i>Spizelus phillipensis</i>)	yes	1	x		x	
Philliphines	Trichomoniasis	Spotted dove (<i>Streptopelia chinensis</i>)	yes	1	x	x		
UK	Trichomoniasis	<i>Accipiter nisus</i>	yes	2	Y			
UK	Trichomoniasis	<i>Athene noctua</i>	yes	2				Microscopic confirmation
UK	Trichomoniasis	<i>Carduelis carduelis</i>	yes	1 / 3		Y	Y	
UK	Trichomoniasis	<i>Carduelis chloris</i>	yes	7 / 12		Y	Y	
UK	Trichomoniasis	<i>Carduelis carduelis</i>	yes	3		Y	Y	
UK	Trichomoniasis	<i>Columba livia</i>	yes	10	Y			
UK	Trichomoniasis	<i>Columba livia</i>	yes	3 / 12	Y			
UK	Trichomoniasis	<i>Columba livia</i>	yes	5 / 81	Y			
UK	Trichomoniasis	<i>Columba palumbus</i>	yes	13	PM			Microscopy
UK	Trichomoniasis	<i>Columba palumbus</i>	yes	28				Microscopic confirmation
UK	Trichomoniasis	<i>Columba palumbus</i>	yes	104	Y			
UK	Trichomoniasis	<i>Columba palumbus</i>	yes	14 / 575	Y			
UK	Trichomoniasis	<i>Falco finnunculus</i>	yes	2				Microscopic confirmation
UK	Trichomoniasis	<i>Fringilla coelebs</i>	yes	1 / 1		Y	Y	
UK	Trichomoniasis	<i>Parus major</i>	yes	1		Y		
UK	Trichomoniasis	<i>Pica pica</i>	yes	1		Y		
UK	Trichomoniasis	<i>Pica pica</i>	yes	1		Y	Y	
UK	Trichomoniasis	<i>Prunella modularis</i>	yes	1 / 2		Y	Y	
UK	Trichomoniasis	<i>Pyrrhula pyrrhula</i>	yes	1 / 4		Y	Y	
UK	Trichomoniasis	<i>Streptopelia decaocto</i>	yes	8	PM			Microscopy
UK	Trichomoniasis	<i>Streptopelia decaocto</i>	yes	11				Microscopic confirmation
UK	Trichomoniasis	<i>Streptopelia decaocto</i>	yes	26	Y			
UK	Trichomoniasis	<i>Streptopelia decaocto</i>	yes	5 / 147	Y			
UK	Trichomoniasis	<i>Strix aluco</i>	yes	2	PM			Microscopy
UK	Trichomoniasis	<i>Strix aluco</i>	yes	4				Microscopic confirmation
UK	Trichomoniasis	<i>Strix aluco</i>	yes	9	Y			
USA	Trichomoniasis	Columbids and raptors	y - Endemic					
UK	Trichomoniasis (Agent: Trichomonad parasite)	<i>Turdus merula</i> , <i>Pyrrhula pyrrhula</i> , <i>Fringilla coelebs</i> , <i>Columba decaocto</i> , <i>Prunella modularis</i> , <i>Carduelis carduelis</i> , <i>Parus major</i> , <i>Passer domesticus</i> <i>Columba palumbus</i> and <i>Emberiza citronella</i>	yes	Multiple mortality incidents confirmed at >100 sites.	No	Gross pathology	Confirmation through culture and/ or PCR	No
France	Trichomonose	<i>Columba livia</i>	oui	1				x
France	Trichomonose	<i>Columba palumbus</i>	oui	1				x
France	Trichomonose	<i>Streptopelia decaocto</i>	oui	2				x
UK	Trichomonosis (Agent: trichomonad parasite) in garden birds	<i>Fringilla coelebs</i> , <i>Prunella modularis</i> , <i>Carduelis carduelis</i> , <i>Carduelis chloris</i>	yes	71	No	x	x	No
UK	Trichomonosis (Agent: trichomonad parasite) in raptors or pigeons/doves	<i>Accipiter nisus</i> , <i>Tyto alba</i> , <i>Streptopelia decaocto</i> and <i>Columba palumbus</i>	yes	4	No	yes		No
UK	Trichomonosis/trichomoniasis	<i>Carduelis chloris</i>	yes	15		Y		
UK	Trichomoniasis	<i>Carduelis chloris</i>	yes	9		Y		
Zambia	Trypanosomosis	<i>Hippopotamus amphibious</i>	yes	3				X
South Africa	Tuberculosis Human	<i>Papio ursinus</i>	yes	3		x	x	x
Canada	Tularemia	Canadian beaver <i>Castor canadensis</i>	yes	3				X
Canada	Tularemia	Snowshoe hare <i>Lepus americanus</i>	yes	3				X
Czech Rep.	Tularemia	<i>Lepus europaeus</i>	yes	14				X
Finland	Tularemia	Squirrel (<i>Sciurus vulgaris</i>)	yes	1		1	1	

Finland	Tularemia	European brown hare (<i>Lepus europaeus</i>)	yes	10		10	10	
Finland	Tularemia	Mountain hare (<i>Lepus timidus</i>)	yes	21		21	21	
Germany	Tularemia	Leporidae	yes	5			x	
Italy	Tularemia	<i>Sus scrofa</i>	yes	11				x
Sweden	Tularemia	European brown hare (<i>Lepus europaeus</i>)	yes	2		x		
Switzerland	Tularemia	Brown hare (<i>Lepus europaeus</i>)	yes	1		x	x	
USA	Tularemia	<i>Sylvilagus</i> spp, <i>Castor canadensis</i> , <i>Ondatra zibethicus</i>	Y - Endemic					
France	Tularémie	<i>Lepus europaeus</i>	oui	56			44 cultures + 12 PCR	non
France	Tularémie	Rodent	oui	1			culture	
France	Tularémie	<i>Sus scrofa</i>	oui	1			PCR	
UK	Tyzzers Disease	<i>Lutra lutra</i>	yes	1 / 42	Y	Y	Y	
USA	Tyzzers Disease	<i>Ondatra zibethicus</i>	Y - Endemic					
France	Variolè aviaire	<i>Columba palumbus</i>	oui	1		x		
France	Variolè aviaire	<i>Grux grux</i>	oui	1		x		
France	Variolè aviaire	<i>Streptopelia</i> sp.	oui	2		x		
Canada	West Nile Virus	American crow <i>Corvus brachyrhynchos</i>	yes	132			X	X
Canada	West Nile Virus	American robin <i>Turdus migratorius</i>	yes	1			X	X
Canada	West Nile Virus	American white pelican <i>Pelecanus erythrorhynchos</i>	yes	2			X	X
Canada	West Nile Virus	Blue jay <i>Cyanocitta cristata</i>	yes	7			x	x
Canada	West Nile Virus	Gooshawk <i>Accipiter gentilis</i>	yes	2			X	X
Canada	West Nile Virus	Great grey owl <i>Strix nebulosa</i>	yes	1			X	X
Canada	West Nile Virus	Great Horned owl <i>Bubo virginianus</i>	yes	3			X	X
Canada	West Nile Virus	Hawk <i>Buteo</i> sp.	yes	1			X	X
Canada	West Nile Virus	Lesser scaup <i>Aythya affinis</i>	yes	3			X	X
Canada	West Nile Virus	Maggie <i>Pica pica</i>	yes	12			X	X
Canada	West Nile Virus	Merlin <i>Falco columbarius</i>	yes	20			X	X
Canada	West Nile Virus	Northern harrier <i>Circus cyaneus</i>	yes	1			X	X
Canada	West Nile Virus	Pied-billed grebe <i>Podilymbus podiceps</i>	yes	1			X	X
Canada	West Nile Virus	Red-tailed hawk <i>Buteo jamaicensis</i>	yes	1			X	X
Canada	West Nile Virus	Ruffed grouse <i>Bonasa umbellus</i>	yes	1			X	X
Canada	West Nile Virus	Sharp-shinned hawk <i>Accipiter striatus</i>	yes	1			X	X
Canada	West Nile Virus	Snowy owl <i>Nyctea scandiaca</i>	yes	2			X	X
Israel	West Nile Virus	<i>Accipiter nisus</i>	yes	1				y
Israel	West Nile Virus	<i>Aquila pomarina</i>	yes	1				y
Israel	West Nile Virus	<i>Ardea cinerea</i>	yes	1				y
Israel	West Nile Virus	<i>Asio otus</i>	yes	1				y
Israel	West Nile Virus	<i>Bubo bubo</i>	yes	1				y
Israel	West Nile Virus	<i>Burhinus oedicnemus</i>	yes	2				y
Israel	West Nile Virus	<i>Buteo buteo</i>	yes	8				y
Israel	West Nile Virus	<i>Buteo rufinus</i>	yes	1				y
Israel	West Nile Virus	<i>Ciconia ciconia</i>	yes	2				y
Israel	West Nile Virus	<i>Ciconia nigra</i>	yes	1				y
Israel	West Nile Virus	<i>Circaetus gallicus</i>	yes	4				y
Israel	West Nile Virus	<i>Circus aeruginosus</i>	yes	1				y
Israel	West Nile Virus	<i>Crex crex</i>	yes	1				y
Israel	West Nile Virus	<i>Falco subbuteo</i>	yes	1				y
Israel	West Nile Virus	<i>Falco tinnunculus</i>	yes	5				y
Israel	West Nile Virus	<i>Hieraaëtus fasciatus</i>	yes	1				y
Israel	West Nile Virus	<i>Larus armenicus</i>	yes	1				y
Israel	West Nile Virus	<i>Larus fuscus</i>	yes	1				y
Israel	West Nile Virus	<i>Larus ridibundus</i>	yes	1				y
Israel	West Nile Virus	<i>Pelecanus onocrotalus</i>	yes	1				y
Israel	West Nile Virus	<i>Pernis apivorus</i>	yes	3				y
Israel	West Nile Virus	<i>Strix aluco</i>	yes	1				y
Israel	West Nile Virus	<i>Tyto alba</i>	yes	4				y
Italy	West Nile Virus	Nightjar (<i>Caprimulgus europaeus</i>)	yes	2				x
Italy	West Nile Virus	Sylvatic birds	yes	1				x
USA	West Nile Virus	<i>Pelecanus erythrorhynchos</i>	Y - Endemic	4047				

Appendix V**OIE Working Group on Wildlife Diseases****Terms of Reference and Work Plan**

January 2008

Rationale for a Permanent Working Group:

It is important to a wide range of OIE responsibilities and programs that OIE have a permanent Working Group devoted to wildlife matters¹. The OIE must be well informed and proactive on many health and disease issues in which wild animals are significant components. Active foresight in this area is essential to the evolution of effective OIE programs globally and in each OIE Region. Rapid environmental changes on an unprecedented scale involving climate, deforestation, surging global populations of people and livestock, and depletions of fresh water and fertile soil are creating new zoonotic conditions world-wide which require active anticipation and management. A permanent Working Group, charged by the OIE with oversight and foresight for the full spectrum of wildlife health and disease issues, will permit the OIE to continue to provide effective and credible international leadership in animal health.

Composition of the Permanent Working Group on Wildlife Diseases:

The composition of the Working Group on Wildlife Diseases should be based on expertise, and not only on geographic or sectoral representation. Members should have broad expertise in wildlife health, wildlife biology and natural history, and disease ecology, and in the programs and obligations of government veterinary services. The Working Group may request the Director General to invite other experts representing specific issues to participate in its activities on a term basis. One representative from each OIE Collaborating Centre on wildlife should be a regular member of the Working Group. As members change over time, continuity in expertise should be maintained. The number of regular members of the Working Group on Wildlife Diseases should be the same as for the other permanent Working Groups.

It is proposed that, for now, the composition of the Working Group consist of the current membership, with addition of a new member with appropriate expertise appointed from each of Asia and Latin America. The president will be appointed by the Director General of the OIE.

Terms of Reference for the Working Group on Wildlife Diseases:

1. Maintain a global perspective and foresight on wildlife health and disease issues on behalf of OIE.
2. Assist the OIE to incorporate wildlife into all OIE Standards, as appropriate
3. Assist Members to build or improve their capacity to detect and manage diseases in wild animals
4. Assist the OIE to receive, record and assess information on wildlife disease occurrence from official sources, and to maintain an international network to track and record information on wildlife disease occurrences from non-official sources.
5. Advise the OIE on risks, surveillance, responses and management with respect to emerging and zoonotic diseases, and other disease issues associated with wildlife.
6. Address specific issues brought to the Working Group by the OIE
7. Communicate and disseminate information about wildlife disease issues

¹ Wild animals can be important reservoirs and sources of infection for many of the most important diseases of livestock: e.g. Foot and Mouth Diseases, Avian Influenza, Bovine Tuberculosis, Newcastle Disease, and Classical Swine Fever. Wild animals also play prominent roles in important zoonotic diseases such as rabies, and in the majority of emerging diseases. Effective management of animal health requires that wildlife be fully included in the management system; this now is a firm expectation of societies world-wide.

8. Assist OIE to incorporate wildlife appropriately in its educational and scientific programs
9. Encourage and support the activities of Collaborating Centres on wildlife diseases
10. Report directly to the Scientific Commission

Mode of Operation for the Working Group on Wildlife Diseases

1. The Group normally will hold one face-to-face meeting each year.
2. The Group will meet by teleconference two or more times each year. These teleconferences will include representation from the Scientific and Technical Department of the OIE.
3. The Group will establish a secure Internet forum through which to manage discussion, document reviews and related matters and through which OIE personnel also can access output from the Group's activities.
4. The Group President will maintain additional regular communication with the OIE Scientific and Technical Department, as appropriate.
5. The operating language of the Group will be English.

Work Plan for the Working Group on Wildlife Diseases: 2008 - 2011
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Statement of Priorities:

Over the next three years, the Group will give priority attention to the following four issues:

1. Contribute to the evolution of the OIE Standards, particularly with respect to validity of diagnostic tests applied to wild species and to relevant *Code* chapter reviews.
2. Wildlife considerations with respect to *Compartmentalization* and *Zoning* for priority diseases: Foot and Mouth Disease, Classical Swine Fever, Avian Influenza, Newcastle Disease, African Swine Fever, and Bovine Tuberculosis
3. Building wildlife disease surveillance and management capacity in member countries through wildlife focal points and Regional Offices.
4. Tracking and reporting on wildlife diseases world-wide

Work Plan

1. OIE Standards:

- a) *Initiatives to be taken under guidance of the Scientific Commission*

2008 to 2009:

- The Working Group will request that the Scientific Commission inform the Working Group as to which sections of OIE Standards will be reviewed or revised over the next three years, and to identify appropriate roles for the Working Group in these reviews and revisions.
- Request the Scientific Commission to contact other Commissions, explain the Working Group's mandate and offer its assistance to the other Commissions as required
- The Working Group will request the Scientific Commission to engage the Working Group in the formulation of ad hoc Groups for which wildlife is relevant.

- The Working Group will prepare a synthesis of its past work on issues associated with the application of standard diagnostic tests to specimens from wild animal species and offer the synthesis for review by the Scientific Commission with the request that these concerns be transmitted to the Biological Standards Commissions. If requested, the Working Group will work with the Commissions to ensure that the *OIE Manual of Diagnostic Tests and Vaccines for Terrestrial Animals* correctly addresses the issue of test validity with respect to wildlife.
- The Working Group will remain vigilant on behalf of OIE for diseases that may be candidates for inclusion on the OIE Disease List by virtue of their impact on wild animals. Any such candidate diseases will be brought to the attention of the Scientific Commission.

2009 to 2011:

- The initiatives taken in 2008/09 will set the Working Group's agenda for work on this topic in the subsequent two years. This work will involve a range of consultations, reports, reviews, and participation by Working Group members on OIE *ad hoc* Groups.
 - The Working Group will review the *Terrestrial Code* chapter on the evaluation of veterinary services and will make recommendations, where appropriate, for adequate inclusion of considerations specific to wild animals.
- b) *Working Group on Animal Production Food Safety*, *Working Group on Animal Welfare and the Aquatic Animal Commission with respect to wildlife issues*
- The Working Group requests the Director General to make the other Working Groups (*Working Group on Animal Production Food Safety* and *Working Group on Animal Welfare*, and the *Aquatic Animal Commission* with respect to wildlife issues aware of its mandate and to invite these other Working Groups and Commission to seek its assistance on wildlife matters.
2. **Wildlife considerations with respect to *Compartmentalization* and *Zoning* for priority diseases: Foot and Mouth Disease, Classical Swine Fever, African Swine Fever.**

2.1. *Foot and Mouth Disease*

2008-09: The Working Group will review the *Terrestrial Code* sections on General Guidelines on *Compartmentalization* and *Zoning*, and on Foot and mouth disease with respect to the epidemiology of the disease in wild animal hosts. If deemed necessary by the Working Group, modifications to the chapter will be proposed to better account for wildlife factors. The Working Group will seek the advice of experts on the disease in its review and recommendations, and will participate in relevant *ad hoc* Groups if requested

The Working Group notes that there is to be an OIE conference on this disease in Paraguay in 2008/09 and will seek participate or to benefit from the outcomes of this conference in this work.

2009-10: Complete work on Foot and mouth disease

2.2. *Classical Swine Fever and African Swine Fever*

2009-10: The Working Group will review the *Terrestrial Code* chapter sections on Classical swine fever and African swine fever together with respect to *compartmentalization* and *zoning* and the epidemiology of the diseases in wild and feral animal hosts. If deemed necessary by the Working Group, modifications to the chapters will be proposed to better account for wildlife factors. The Working Group will seek the advice of experts on the disease in its review and recommendations, and also may recommend to OIE to participate in relevant *ad hoc* Groups if requested.

2010-2011: Complete work on Classical swine fever and African swine fever

3. Building Capacity in Members

3.1. *Veterinary Medical Training Curricula*

2009-10: The Working Group will propose inclusion of wildlife in the OIE Conference on veterinary medical curricula planned for 2009. If this is agreed to, the Working Group will be willing to make a presentation on this aspect.

3.2. *Seminars on Wildlife Disease Surveillance, Response and Management at OIE Regional Meetings*

2008-2011: The Working Group will work with the Collaborating Centre on Wildlife Disease Surveillance and monitoring, Epidemiology and Management to establish the curriculum, advise on regional participants and otherwise support the presentation of seminars at Regional Meetings as described in the program proposal of the Collaborating Centre.

3.3. *OIE Conference on Wildlife Health Management and Policies*

2008-11: The Working Group will work with OIE and with the Collaborating Centre on Wildlife Disease Surveillance and monitoring, Epidemiology and Management to propose such an OIE global conference. If accepted by the OIE, the Working Group will work with the Collaborating Centre to plan this conference. A conference in 2010 is envisioned.

3.4. *Educational programs and materials on Wildlife Health and Disease*

2009-2010: The Working Group will contact the OIE Collaborating Centres on education and training to determine what materials already are available within the OIE system and also what these Centres perceive to be their greatest needs in this area. The Working Group will catalogue and report on the results of this survey.

2010-11: The Working Group will establish priority for production of new educational materials on wildlife health and disease, and seek mechanisms by which the production and distribution of such materials can be realized.

4. Wildlife Disease tracking and reporting

4.1. *Assist the Animal Health Information Department and WAHIS*

2008-09: The Working Group will provide direct assistance to the Department to modify the WAHIS system to accommodate direct reporting of pathogens in wild animals.

2009-11: The Working Group will review the reporting of disease occurrences in wildlife through WAHIS and work with the Department on evolution of the reporting, presentation and mapping systems.

4.2. *International Network of Informal Wildlife Disease Reporting*

2008-11: The Working Group will advise and support the Collaborating Centre on Wildlife Disease Surveillance and Monitoring.

5. Communication with OIE

5.1. *Enhance communications between the Working Group and the OIE Central Bureau.*

2008-11: The Working Group will work closely with the Central Bureau to achieve a regular exchange of information on a monthly or bi-monthly basis.

5.2. *Communication with OIE Regions and OIE-FAO Animal Health Centres*

2008-11: The Working Group members will make contact with 1) the OIE Regional offices and 2) the OIE-FAO Animal Health Centres. Working Group members will offer participation of the Working Group in Regional activities where inclusion of wildlife considerations is appropriate.

5.3. *Technical Report: Document on Wildlife Disease Surveillance*

2008-10: The Working group will support the OIE in producing practical guidelines for undertaking surveillance for diseases in wild animals, as recommended by the ad hoc Group on Wildlife Disease Surveillance.

5.4. *Directory of International Wildlife Health Expertise*

2008-11: The Working Group will ask the Collaborating Centre on Wildlife Disease Surveillance and Monitoring, Epidemiology and Management to compile a directory of international experts on various aspects of wildlife health and disease. The Working Group will participate with the Collaborating Centre in assembling this directory.

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