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REPORT OF THE MEETING OF THE OIE WORKING GROUP ON WILDLIFE

Paris (France), 4 – 7 December 2018

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1. Opening

The meeting of the OIE Working Group on Wildlife (the Working Group) was held from 4 to 7 December 2018 at the OIE Headquarters in Paris, France and was chaired by Dr William Karesh.

Dr Matthew Stone, Deputy Director General of the OIE, welcomed the members. He pointed out that the Working Group on Wildlife was the only OIE Working Group currently in existence until other new Working Group(s) had been nominated. He described the restructuring of the OIE Headquarters departments and informed the Working Group that the Programmes Department would be assigned to its management. He mentioned that climate change, biodiversity, and emerging diseases would be important themes for the Working Group and highlighted the importance of having the Working Group involved in the elaboration of the OIE's 7th Strategic Plan. He added that there was a need to develop general principles on wildlife surveillance, outbreak investigation in wildlife, and the management of diseases in wildlife. Finally, he described the role of the OIE Specialist Commissions to the new members of the Working Group.

2. Adoption of agenda and designation of rapporteur

Dr Rupert Woods was appointed as rapporteur for the meeting. The agenda and the list of participants are provided in Appendices I and II, respectively.

3. Feedback from the meetings of the Scientific Commission for Animal Diseases

The Working Group was provided with information and guidance from the Scientific Commission for Animal Diseases (SCAD) meetings of February and September 2018.

Vaccination of animals of high conservation value: The SCAD considered the report from the Working Group on whether it was a feasible option to protect animals of high conservation value against Transboundary Animal Diseases through vaccination, without affecting the official disease status of the country. The SCAD concluded that the paper addressed identified needs, but it did not take into consideration the possible consequences of the proposed strategy against the requirements of the *Terrestrial Code* for certain diseases where wildlife is involved. The Working Group discussed the comments and decided to revise the document for reconsideration by SCAD, recognising that a case by case approach (including risk assessment) was called for, rather than a blanket statement.

***Ad hoc* Group on animal African Trypanosomoses, 6-8 March 2018:** The Working Group was informed about the outputs of the *ad hoc* Group on Animal African Trypanosomoses which had discussed a proposal to declare a country or zone free from infection in susceptible domestic animals, regardless of the status of susceptible wildlife, even in the presence of competent vectors. SCAD sought the Working Group's opinion on the role of wildlife and feral animals in the epidemiology of the disease. The Working Group recognised that most trypanosomes have two life cycles, one in the mammalian host and another in the vector. The trypanosomes reproduce in the mammalian host by binary fission. In order to survive in the vector binary fission ceases when the trypanosomes become mature (preadapted form). In theory, if there were no tsetse (Glosina spp.) vectors to carry these preadapted forms, in the absence of the vector the parasite would be self-limiting in the individual host; but scientific data were not available to support this. However, because some trypanosomes such as *T. vivax, T. evansi and T. equiperdum* can be mechanically transmitted from a host by hematophagous insects such as tabanid flies, the Working Group did not agree with the proposal and noted that the role played by wildlife in the epidemiology of the disease is equivalent to that of livestock in the presence of the tsetse vector.

4. Newly approved Terms of reference of the Wildlife Working Group and discussion on future activities of the Working Group

The Working Group took note of its revised Terms of Reference. It was asked to advise OIE on ways to achieve more engagement in the new subject areas and to contribute to the development of the OIE 7th Strategic Plan.

5. Disease reporting

5.1. Information on submitted Voluntary Reports for Wildlife through *WAHIS*

Dr Belén Otero, from the OIE World Animal Health Information and Analysis Department (WAHIAD), presented the quantitative and qualitative reporting situation of the Voluntary Report for Wildlife from 2008 to date. The Working Group agreed that WAHIS-Wild has the potential to be an important international resource for decision making about wildlife. It is a unique global database for relevant wildlife diseases that not only threaten biodiversity and wildlife conservation, but could also impact human and livestock health, and trade. For example, lack of information on *Batrachochytrium salamandrivorans* has led to a ban on importation of salamanders from all countries, whereas through increased reporting to WAHIS-Wild the impact on trade could be reduced to only those species or countries affected by the fungus. The Working Group encouraged Member Countries to continue to submit their voluntary reports for the benefit of all.

Even though during 2018 there has been a slight increase in the number of reports received for 2016 (from 29 to 47 countries) and 2017 (40 countries so far), it is still a significant concern that only 22% of OIE Member countries have submitted this report. Furthermore, among the countries submitting this report, half of them reported all non-listed diseases as *absent* or with *no information*, raising questions about the quality of the information provided. Following the presentation, there was a discussion about whether this report should continue in its current format, taking into account the current lack of data and the fact that reporting is voluntary. The Working Group discussed the value and possibility of making this report compulsory or at least making it compulsory to report some of the non-listed diseases in wildlife. Likewise, the Working Group discussed the possibility of eliminating the report due to the lack of engagement of the Member countries. The Working Group recognised that comprehensive and good-quality information was essential for understanding the disease situation in wildlife and for optimizing the impact of risk assessment/management initiatives. The Group's members see the voluntary nature of wildlife reporting as an impediment to this. Consequently, they recommended that OIE continues allocating resources to activities aimed at increasing both the quality and quantity of reports. Activities such as the delivery of specific training for the Focal Points for Wildlife (FPWs) and sending reminders to submit reports. The Group also advocated the need to increase awareness among Member countries about the importance of sharing this information with the international community (in particular, Delegate's awareness and engagement in submitting the report).

5.2. Update on the agreed actions to increase the number of countries reporting

Dr Otero presented the WAHIAD actions implemented during 2018 agreed upon during the previous meeting with the Working Group in December 2017. This included sending reminders more frequently to the FPWs with the OIE Delegate always in copy. Several tools were included to facilitate reporting including, an Excel spreadsheet for the reporting of non-listed diseases (when online access to WAHIS is not available); detailed instructions for the Delegate on how to create an individual login access to WAHIS for their FPWs; a Fact Sheet for the reporting of non-listed diseases containing practical information on why, what, when, where and how to report; and a highlights briefing provided by the Member Countries on the occurrence of non-listed diseases during 2017. This latter document would be included in the final reminder sent to the FPWs in 2018. In addition, and in collaboration with the Communication Unit, an Infographic to encourage reporting on non-listed diseases had been produced for the FPWs Workshops. The Working Group expressed its appreciation for the work and recommended that the Infographic and other communications materials be sent to all Delegates and FPWs at least twice per year. It also suggested that the index file for the Infographic be included so that the Member Countries could add the logo of their National Veterinary Services and send it to local partners involved in the gathering information about wildlife diseases. This request will be delivered to the Communication Unit.

5.3. Feedback from the Focal Points for Wildlife attending the 5th Cycle of Training Workshops in 2018

Dr Otero presented feedback from the FPWs on challenges faced when submitting information about non-listed diseases, this included:

- the fear of potential negative repercussions on trade following the submission of the voluntary report;
- communication problems between different government authorities, particularly when the FPWs were under institutions other than the OIE Focal Points for Disease Notifications or the OIE Delegates. As a result, the FPWs submitted information to another responsible person and did not receive feedback on whether the data had been submitted to the OIE;
- FPWs who did not have an individual password for WAHIS, because the Delegate wished to review all information before it was reported. The information sometimes did not reach the OIE because the Delegate was busy and didn’t have time to review it;
- the lack of resources in the National Veterinary Services to monitor wildlife diseases, because budget was focused on livestock. Wildlife was often regarded as a source of infection to domestic animals rather than a valuable asset to protect and monitor.

In addition, Dr Otero delivered some of the requests made by the FPWs, including:

- to develop case definitions for the non OIE-listed diseases in wildlife to allow for standardised detection of these diseases within a country, and ultimately among all OIE Member countries;
- to address confusion created because non-listed diseases were named by their etiological agent instead of by how the disease is commonly known;
- to develop specific guidelines for the reporting of non OIE-listed disease in wildlife; some participants suggested the production of a short video to show how to submit the report as opposed to a document.

The Working Group agreed to provide case definitions to assist the FPWs. However, the non-listed diseases were intentionally named by their etiological agent, to differentiate them from the OIE-listed diseases. Specific guidelines and tutorials would be produced for the new on-line notification system. The Working Group also pointed out the importance of conveying the value of submitting the voluntary reports on wildlife disease.

5.4. Validation of new susceptible host species added in WAHIS

Dr Otero presented the table with the newly added species in WAHIS (n=17), for the Working Group's comment and approval. The Working Group agreed to specify that Infection with ranaviruses applied in reptiles for non-listed diseases (as in amphibians its notification is already mandatory). In future to save time, the Working Group suggested reviewing and validating changes by email prior to its meeting and deferring key points or unresolved issues for discussion during its meeting.

5.5. Update on OIE-WAHIS project

Dr Otero presented progress on the OIE-WAHIS project. The Working Group was interested, particularly in the voluntary report for wildlife. Questions were raised about the possibility to upload information directly to the future OIE-WAHIS when creating a new report, rather than manually entering the data, and whether the information displayed in the WAHIS-Wild interface would be publicly available and updated in line with changes applied on the new reporting system. The Working Group emphasised the value in retaining methods of submitting data offline (e.g. by excel files).

6. Emerging and noteworthy wildlife issues and disease occurrences: reports from members of the Working Group on Wildlife

AFRICA

Arboviruses in South Africa in wildlife: Arbovirus (various types) were increasingly becoming a source of wildlife morbidity and mortality. This was mainly being experienced in South Africa due to the intensification of wildlife management practices associated with increased value of farmed wildlife. Diagnostics remain a challenge and further research is required to improve diagnostics and understand the epidemiology of the diseases. Endangered species such as white rhinoceros (*Ceratotherium simum)* have died from arbovirus infections.

African swine fever (ASF): African swine fever was an endemic and silent infection in most native wild porcines in sub-Saharan Africa. Outbreaks of ASF in domestic pigs were reported from Malawi, South Africa and West Africa. The source of infection in these outbreaks was probably infected ticks and native wild suids. Thereafter pig to pig transmission resulted in spread amongst herds and between pig farms. The source of infection of pigs in South Africa was not confirmed as the outbreak occurred outside the endemic ASF area of the country.

Anthrax: Various Anthrax outbreaks in Africa occurred – both in wildlife (Namibia, Zambia, South Africa and Malawi – all endemic areas of anthrax) and livestock (Uganda, Kenya, Namibia and Zimbabwe). Anthrax outbreaks were again reported from northern-eastern Namibia (Bwabwata National Park) where a small number of buffalo (*Syncerus caffer*) died. No hippopotamus (*Hippopotomus amphibius*) mortalities were reported during this outbreak. Livestock vaccinations were initiated both in Botswana and Namibia around the affected area and no livestock deaths were reported. Hippopotamus mortalities associated with anthrax were reported form Malawi and Zambia (Luangwa Valley). The Zambian Government have initiated a plan to cull 2000 hippopotamus to try and reduce anthrax cases – it is doubtful if this going to be effective in controlling anthrax outbreaks as the disease is endemic in the Luangwa Valley.

Recently in Zimbabwe numerous human cases were also reported after people had handled or eaten meat from cattle. There have also been numerous cases in livestock, mainly in the central region of Zimbabwe. Zimbabwe is currently going through major financial crises and without NGO support many basic vaccinations are not taking place. In November 2018 an outbreak in Mana Pools National Park (part of a Unesco World Heritage Area) in Impala was recorded. As it is in a national park far from the boundary livestock health is unlikely to be threatened.

Uganda and Kenya also had human cases after people ate infected livestock carcasses.

Thirteen human anthrax cases were recorded at Sesfontein in the Kunene Region in Namibia after 35 residents consumed the meat of livestock which died of unknown disease. No human deaths were reported, and the disease had since been contained. A total of 92 small stock died from the outbreak in Sesfontein. Post-exposure prophylactic medicines have been administered to 44 people in the areas of Omiriu and Okamba yozongombo in Kunene. These human cases were unrelated to the wildlife anthrax cases in NE Namibia.

There needed to be a better understanding why human anthrax (and livestock) cases are on the rise as prevention is simple. The rise points to a general breakdown of human and veterinary primary health care functions in affected countries. In most cases the anthrax outbreaks in wildlife populations this year had not had major population effects and remain an endemic population regulation driver, particularly in hippopotamus.

Avian Influenza: South Africa continues to have sporadic outbreaks of Highly Pathogenic Avian Influenza (HPAI) in 2018. There were also wild bird mortalities due to HPAI (sea birds – swift terns (*Thalasseus bergii*) with mortality, antibodies were found in other seabirds including endangered African Penguin) in South Africa. The impact in African wild birds has not yet been established and further surveillance is required.

Bovine tuberculosis: Bovine Tuberculosis (BTB) continued to be diagnosed in an increasing number of wildlife species – particularly in South Africa. Due to regulatory restrictions and unvalidated diagnostic tests in wildlife for BTB this has had a direct impact on the ability to move wildlife species. This had direct consequences for conservation of certain species, including those described below.

No additional cases of BTB in white rhinoceros (*Ceratotherium simum)* and black *rhinoceros (Diceros bicornis)* were found in the Kruger National Park, South Africa in 2018. The regulatory requirement to test rhino before they are lifted had been developed through a rhinoceros BTB management plan but it had not yet been implemented. Therefore, no rhinoceros had been moved out of Kruger National Park where they continued to be poached relentlessly. There also had been no further evidence demonstrating that rhino could maintain TB under wild free-range conditions. A BTB management plan for the test and movement of rhino was being developed and had been approved by the National Department of Agriculture, Forestry and Fisheries of South Africa in August 2018 but had not yet been implemented by the South African National Parks.

This was an example where the regulatory requirements were preventing endangered species from being moved despite all evidence showing that rhino were unlikely to be susceptible to clinical TB and therefore only posed minimal risk of transmitting BTB if the rhino were moved out of Kruger. Pragmatic risk management approach that could allow movement of rhino from Kruger National Park with minimal risk of disease transmission would be possible.

(Human BTB was diagnosed in working elephants (*Loxodonta africana*) in Zimbabwe most likely after infection from handlers to the elephants).

Bubonic Plague – Madagascar: Madagascar health officials reported in an update [of] Wed 26 Sep 2018 that the plague case count had now risen to 22 cases in 10 districts from 1 August 2018 to 24 September 2018. To date, 5 deaths have been reported.

Plague was known to be endemic in Madagascar and a seasonal upsurge (predominantly the bubonic form) usually occurs early every year between September and April.

Congo Crimean Haemorrhagic Fever (CCHF): There were cases in South Africa, Uganda and Namibia again in 2018 and remains a low incidence but serious disease in southern Africa and is most likely under diagnosed. CCHF is transmitted from wildlife or livestock to humans by the bont-legged tick (*Hyalomma spp*). It may also be transmitted to humans by contact with tissues or body fluids of infected animals.

Ebola virus: The Ebola virus disease outbreak in North Kivu and Ituri provinces, Democratic Republic of the Congo was on-going. The epidemiological situation of the Ebola virus disease in the provinces of North Kivu and Ituri dated 2 December 2018:

- Since the beginning of the epidemic, the cumulative number of cases was 444, of which 396 were confirmed and 48 were probable. In total, there were 260 deaths (212 confirmed and 48 probable) and 140 people recovered.
- 72 suspected cases were under investigation.
- 4 new confirmed cases, including 2 in Beni, 1 in Katwa, and 1 in Kalunguta [North Kivu].
- 5 new deaths, including 3 in Beni, 1 in Butembo and 1 in Kalunguta.
- 1 new person healed and released from the Ebola treatment centre in Butembo.

The fear factor and investment associated with the outbreak had been perversely influenced by local criminal and conflict groups – something worth considering in future emerging disease outbreak scenarios as the investment and flow of money into poor and unstable areas can have unintended worsening destabilising effects if not managed properly.

The impact on great apes survival requires a critical wildlife surveillance program focus as the disease can threaten endangered great ape species.

Foot and Mouth Disease: Foot and mouth disease (FMD) outbreaks in cattle were reported from several African countries. A number of outbreaks were recorded in Malawi on the border of Tanzania possibly through the introduction of cattle from the neighbouring countries. In June Sero Type 2 was identified as the causative FMD virus and the transmission was indicative of cattle to cattle transmission without immediate contact with Buffalo.

Botswana experienced an outbreak of FMD (Serotype 2) in cattle in Ngamiland with increases evidence that the disease was being propagated mainly through cattle to cattle transmission and smouldering infection in cattle themselves.

Algeria and Kenya had a livestock associated type O FMD outbreak in 2018.

There was evidence building that in southern Africa cattle are able to harbour and transmit FMD (mainly SAT 2 subtype) and transmissions are not associated with buffalo contact. There were however outbreaks in South Africa that could be associated with cattle/buffalo contact.

Noteworthy initiatives that were happening included epidemiological studies in buffalo in the Kruger National Park and livestock wildlife coexistence projects as part of livelihood improvement initiatives in a number of countries under the “Herding for Health” banner – jointly funded by Conservation International and Peace Parks Foundation. In Kenya and Zimbabwe similar projects were underway with significant success. The aim of these projects is to train professional herders so that herders can improve rangeland through rotational grazing approaches. Other benefits will be to reduce predator related livestock losses, kraal cattle in strategic locations to improve soil fertilisation and prevent buffalo / cattle contact.

Lassa Fever: Outbreaks of Lassa fever occurred in Nigeria (West Africa) again in 2018. Human mortalities were recorded. The Lassa fever virus is carried by rodents (Genus *Mastomys*) and control of this disease has been focused on rodent control at the village level. From 1 Jan-18 Nov 2018, a total of 3086 suspected cases were reported from 22 states. Of these, 562 were confirmed positive, 17 probable, 2507 negative (not a case). Since the onset of the 2018 outbreak, there had been 144 deaths in confirmed cases and 17 in probable cases. Case fatality rate (CFR) in confirmed cases was 25.6 percent.

There were also cases of Lassa Fever in Liberia.

It will be interesting to understand how the outbreak can be controlled under the rural and very difficult conditions in west and central Africa where rodent / human interaction may be impossible to prevent.

Lassa virus was found in an African civet (*Civettictis civetta*) from Tanzania, which poses important question if this virus circulates in other wildlife species other than rodents.

Monkeypox: Since the re-emergence of monkey pox (MPX) in Nigeria in September 2017, Nigerian Centre for Disease Control had continued to receive reports and respond to cases of the disease from states across the country. Between September 2017 when the outbreak started and 31 August 2018, a total of 262 suspected cases had been reported from 26 states. Of these, 113 had been confirmed in 16 states with 7 deaths. The highest number of cases had been reported from states in the South-South region of Nigeria.

There were also 2 confirmed cases of MPX in the United Kingdom (UK), in patients with a recent travel history from Nigeria.

In 2018 further cases of monkey pox were found in CAR. These sporadic cases of MPX were not new to the Central African Republic (CAR). Since 2013, CAR had been experiencing at least one MPX outbreak every year, especially in its eastern region. Since the beginning of 2018, outbreaks had been reported in 3 health districts, namely, Bambari in the centre, Bangassou in the eastern part of the country, Mbaiki in the southwest, and now Bagandoun in the south. The case fatality rate continued to be very low.

Prevention of MPX virus infections would not be possible without knowing the source of infection. The question remained about the source of these recent infections within Nigeria, Cameroon, Liberia and more recently in CAR. One wondered whether there was an MPX virus epizootic in rodent hosts across a relatively wide geographic area in CAR and the other affected countries. Studies of prevalence of MPX virus in populations of rodent hosts were not mentioned in this or in previous reports. The main reservoirs of MPX virus were suspected to be rodents, including rope squirrels (*Funisciurus* spp., an arboreal rodent) and terrestrial rodents in the genera *Cricetomys* and *Graphiurus*. Humans become infected by bites or contact with tissues of infected animals, and hence bush meat may be an important source of infection.

Halting the bush meat trade and consumption of wild animals to halt MPX virus exposure would be culturally and economically difficult, so continued occurrence of cases could be expected.

The virus clade from the Congo basin appeared to be much more virulent than the clade from West Africa (Ghana Nigeria & Sierra Leone).

Newcastle Disease: A case of wild doves (cape turtle dove (*Streptopelia capicola*) and laughing doves (*Spilopelia senegalensis*)) dying of Newcastle disease was reported from Botswana.

Rabies: Rabies continued to have serious zoonotic impacts with human deaths reported form a number of African countries, best documented currently in South Africa. Sylvatic reservoir/smouldering infections continued to infect livestock and domestic species.

A pack of endangered African wild dog (*Lycaon pictus*) in the National Park of Hwange died after becoming infected with rabies (possibly form a jackal or domestic dog). Fortunately, only one pack was affected in the population.

A large scale vaccination project in the Kruger National Park in African wild dog after a rabies infection scare in 2016 would be published with sound recommendations on prevention through vaccination in free-range wild dog populations. The most effective control mechanism would be vaccination with a combination of spaying of domestic dogs and cats. Sustained vaccination and spaying programs of feral dogs were key to long-term rabies control.

Rift Valley Fever: Rift Valley Fever (RVF) cases were diagnosed again in a number of African countries in 2018, particularly in East Africa.

The sylvatic cycle of RVF involved low grade circulation of virus between *Aedine* mosquitoes and wild ruminants. It appeared as though virus maintenance relied upon transovarial transmission from infected female Aedine mosquitoes to their environmentally resistant ova. The epidemic cycle involved rapid circulation of virus between many haematophagous insects and ruminant livestock, and most human infections occurred through handling tissues or contact with body fluids of infected livestock.

Taenia hydatigena: A case was identified in a warthog in Skukuza in the Kruger National Park in South Africa and is of importance because of the zoonotic potential when warthogs were eaten as source of food.

ASIA

Avian Influenza: Outbreaks of High & Low Pathogenic Avian Influenza (HPAI/LPAI) of domestic poultry and wild birds still occurred in several Asian countries. The cases of HPAI infection of wild birds were reported from India, Hong Kong and Japan from January to November 2018. In Indonesia, avian influenza outbreaks have continuously occurred.

In Hong Kong, H5 avian influenza virus was detected from a black-headed gull (*Chroicocephalus ridibundus*) and a crested myna (*Acridotheres cristatellus*) in 2018.

In South Korea, HPAI had not occurred in wild birds since April, 2018, when an HPAI (H5N6) outbreak occurred at 22 farms between November 17, 2017 and March 17, 2018. The field fecal collection and test for early detecting of HPAI had been conducted by many laboratories systemically. All fecal samples were collected in wild where the migratory birds were staying. The test results using 15 samples collected until 20 November, had revealed LPAI. However, H7N7 subtype, a zoonotic avian influenza virus, was detected from 2 fecal samples of wild birds collected at Asan-si, Chungcheongnam-do in 11 and 21 November. No wild birds infected with HPAI were found since November, 2018.

In Chinese Taipei, no wild birds infected with HPAI were found since November, 2018. However, HPAI virus was detected from land fowl and captive waterfowl, H5N2: 43 land fowl and 6 waterfowl flocks; H5N8: 1 waterfowl flocks, during the winter season of November 2017 to October 2018.

In Japan, HPAI virus (H5N6) had been detected from 46 dead wild birds during winter season from October 2017 to November 2018.

LPAI virus was detected from a fecal sample of wild birds in Chiba Prefecture in October, 2018. Surveillance for Avian Influenza of wild birds in Japan using fecal samples or dead birds had been conducted since 2013. Total number of fecal samples examined is more than 67,700 during this period and total number of HPAI virus detected from fecal samples and dead birds reached 276 from 2013 to 2018. H5N6 subtype virus was detected from 46 wild birds consisting of 5 species from November 2017 to March 2018. The highest prevalence was observed in October to November (autumn migration, ranging 2.8 – 6.5%) and then the prevalence decreases sharply. The temporal change pattern was repeated except for the 2016-2017 season. The greatest number of HPAIV positive cases were observed in Japan during this season. A database of avian influenza information had been developed by National Institute for Environmental Studies and was used for ecological niche modelling. And then, HPAI outbreak patterns were simulated within some climate change scenarios. This modelling system of avian influenza in Japan could be widely applicable to Asian region.

Tick-Borne Infectious Diseases: The cases of tick-borne infectious diseases, such as Lyme disease, Scrub typhus, Tick-borne encephalitis virus infection *etc*. has been monitored nationwide in Japan, and the cases of Severe Fever with Thrombocytopenia (SFTS) have gradually increased, especially among over 50 years old people.

SFTS were maintained in ticks by transovarial transmission. SFTSVirus-infected ticks bite animals and the virus is transmitted to the animals. Many animals including humans are infected with SFTSV, but only humans and cats showed the severe diseases. In the lifecycle of SFTSV, wild animals play an important role. The increasing number of tick-borne diseases correlate to the population growth of wild sika deer (*Cervus nippon*) which are natural hosts of blood suckling ticks. However, there has been no concrete scientific evidence.

Sero-surveillance had been conducted in Wakayama Prefectures of Japan. The sera were collected from hunted animals under harmful animals control, dead animals by car accident, and similar convenience sampling approaches. Almost all animals except for fox were positive for SFTSV. Fifteen percent of wild monkeys' samples were positive. In 11 years from 2007 to 2017, 29.2% of raccoons (*Procyon lotor*), an invasive alien species in Japan, were infected with SFTSV. After 2013, the sero-prevalence rapidly increased and it became approximately 50% after 2015. SFTSV was spreading among wild animals since 2014, followed by the SFTS patients found in this area. In 2017, the first SFTS cats infected with SFTS were discovered in the same area. This result indicated human risk was correlated with spread among domestic and wild animals.

Possible transportation of tick-borne viruses into Japan was suspected to be carried by migratory birds from the continent. Some Chinese genotypes of SFTS virus had been found in Japan and they were supposed to spread by wild deer and the other animals,

The other tick-borne viruses such as TRBV (Tribeč virus) had been found in the pale thrush (*Turdus pallidus*). Further investigation of the relationship between migratory birds and tick-borne viruses including the association with climate change (global warming) should be required.

Rabies: Rabies in wild animals occurred in several Asian countries during 2018.

A case of rabid outbreak in 7 grey wolves (*Canis lupus*) occurred at 3 areas of Kazakhstan and one wolf died.

Two human cases of rabies caused by a Chinese ferret-badger (*Melogale moschata*) was reported in Chinese Taipei on February 17 and 18, 2018. There were 99 positive Chinese ferret-badger cases during 2017 to 2018. No other animals were infected by rabies in Chinese Taipei.

Rat hepatitis E: World's first case of a human infected with the rat hepatitis E virus was reported from Hong Kong in September, 2018. And the second case was reported 2 months after the first occurrence at 3km away where the patient lived. It was supposed that the rat hepatitis E virus, distantly related to human hepatitis E virus variants, could be transmitted to people with illnesses and/or immunodeficiency.

African Swine Fever: African Swine Fever (ASF) is spreading amongst domestic pigs rapidly in China. ASF in China was first found in August, 2018. Until 30 November 2018, more than 70 ASF cases among domestic pigs had been confirmed in 20 provinces and more than 600,000 pigs were culled. A virus from ASF-positive pig samples had been analysed phylogenetically. The results of analysis indicated that the causative strain belonged to the p72 genotype II and CD2v serogroup 8.

ASF virus was detected in the luggage of a traveller from China at a Hokkaido Airport on 1 October 2018. It was also detected in pork filled dumplings and sausages brought by a traveller from Shanghai at Tokyo Haneda Airport on 14 October 2018 and from Dalian at Narita Airport on 22 November 2018. ASF virus was also finally identified by the customs of Chinese Taipei in pork products carried out by travellers from China.

A case of ASF in a wild boar was reported in Baishan City, northeast China's Jilin Province on 16 November, 2018.

The Group agreed that the fast spread of the infection was highly unlikely to be due to wild boar (*Sus scrofa*) because of the distances between the different infected farms and the short time between the reports. OIE WGW should advise enhance biosecurity measures to avoid ASF virus transmission between domestic and wildlife.

Classical Swine Fever: An outbreak of Classical Swine Fever (CSF) in a pig farm of Gifu Prefecture, Japan was reported officially in September, 2018. Although CSF was endemic in Asia, it was the first time since 1992 that an infection had been found in Japan. The second case of CSF outbreak in domestic swine occurred at Livestock Centre Park 8km far from the initial place on 16th November.

CSF had also been detected from 62 dead or alive wild boars within the restriction areas until 30 November, 2018.

CSF viruses detected from infected pigs confirmed in Gifu Prefecture on 9 September 2018 belonged to the Sub-genotype 2.1 group. As it was detected in Europe and Asia, it seemed likely that the virus had invaded from overseas.

Genotype of CSF viruses detected from affected pigs and wild boars were identical. The strain of Gifu2018 (JPN/1/2018) was different from ALD (high pathogenic isolated at USA) and virulence of this strain was weak comparing with ALD, due to the experimental infection of wild boars with the both strains.

The population of wild boar was increasing and distributing more widely in Japan. Some researchers indicated that tick-borne infectious diseases relate closely to the growth of wild boar and also deer populations in Japan. In that case, wildlife management could be a key to control CSF and other tick-borne infectious diseases in Japan.

OCEANIA

Novel nidovirus identified as likely cause of a mass freshwater turtle mortality event in Australia: The paper identifying a novel nidovirus (*Bellinger River Virus*) as the potential cause of the Bellinger River snapping turtle mass mortality in 2015 has now been published [ref: Zhang J et al (2018). PLoS ONE 13(10): e0205209]. A second paper summarises the potential environmental and ecological factors which may have rendered the species susceptible to this infection [ref: Spencer RJ et al (2018). Biological Conservation, 221, 190-197].

Extract from Zhang et al 2018 Abstract: "In mid-February 2015, a large number of deaths were observed in the sole extant population of an endangered species of freshwater snapping turtle, *Myuchelys georgesi*, in a coastal river in New South Wales, Australia. Mortalities continued for approximately 7 weeks and affected mostly adult animals. More than 400 dead or dying animals were observed and population surveys after the outbreak indicated that only a very small proportion of the population had survived. At necropsy, animals were in poor body condition, had bilateral swollen eyelids and some animals had tan foci on the skin of the ventral thighs. Histological examination revealed peri-orbital, splenic and nephric inflammation and necrosis. The most significant pathological change in affected turtles were in the kidneys. A novel nidovirus was isolated in cell culture from a range of tissues. Real time PCR assays demonstrated very high virus loads in affected tissues and in situ hybridisation studies confirmed the presence of viral nucleic acid in tissues in association with pathological changes. Collectively these data suggest that this virus was the likely cause of the mortalities. Bellinger River Virus was the name proposed for this new virus."

Risk assessment and Preparedness activities: A National Priority List of Exotic Environmental Pests and Diseases was currently being developed in Australia. The purpose of developing the national priority list would be to facilitate activities that help prevent the entry, establishment and spread of exotic pests, weeds and diseases that had the potential for nationally important negative impacts on Australia's environment and/or social amenity.

National Emergency Wildlife Disease Response Guidelines: Australia's Veterinary Emergency Plan, AUSVETPLAN, provided the basis for the management of responses to diseases in production animals. Using the AUSVETPLAN framework, these guidelines provide an initial draft high level document for the management of a response to an emergency wildlife disease in Australian native animals.

National guidelines for wildlife biosecurity: The Guidelines were developed to assist all people who work with wildlife and provide the information needed to ensure biosecurity risks of wildlife engagement are appropriately assessed and managed. The Guidelines acknowledged the wide range of circumstances under which people work and interact with wildlife in Australia and could be tailored by wildlife workers to suit their individual circumstances.

SOUTH AMERICA

Infection with *Sarcoptes scabiei*: mange infections in wild South American camelids, vicuña (*Vicugna vicugna*) and guanaco (*Lama guanicoe*) were being increasingly reported in Chile, Argentina, Bolivia and Peru. In countries where vicuña are live-sheared for wool (i.e. Bolivia and Peru), mange infections were causing significant negative socio-economic and livelihoods impacts. Improper treatments might have also been leading to parasite resistance. In addition, an ongoing outbreak of mange (first detected in late 2014) had caused severe population declines in guanaco and vicuña (over 90 and 80%, respectively) in San Guillermo National Park and San Guillermo Biosphere Reserve in Argentina, a stronghold for vicuña conservation in their southernmost distribution. The importance of mange infections had recently been addressed by parties and wildlife health experts during the XX Technical Meeting and the XXXIV Ordinary Meeting of the Agreement for the Conservation and Management of Vicuña, held in early November 2018. Contact with domestic camelids and inter-species parasite transmission is being assessed.

Mange infections were also increasingly reported in foxes and other small mammals in Chile and investigations are ongoing to establish the species range and distribution of infections across the country. Spillover from domestic animals is suspected.

Infection with *Corynebacterium pseudotuberculosi*s var. Ovis: Infection with Corynebacterium pseudotuberculosis var. Ovis in huemul deer (*Hippocamelus bisulcus*) had been reported in southern Chile since 2015. The infection was traced back to contact with domestic sheep. The disease was estimated to affect about 40% of the huemul population in some protected areas (i.e. Cerro Castillo reserve in Aysen) and was of increasing concern. Government agencies, academia and non-governmental partners were working closely to address this conservation problem.

Infection with Parapoxvirus: Infection with Parapoxvirus in huemul deer (*Hippocamelus bisulcus*) in southern Chile was recently confirmed. The Parapoxvirus DNA identified showed high identity (98%) with bovine stomatitis virus and pseudocowpoxvirus. An initial outbreak occurred between 2005 and 2010 in Bernardo O'Higgins National Park and new cases had been detected in the area since 2017. In the 2005-2010 outbreak affected deer developed severe, proliferative and/or suppurative disease with partial or complete loss of the hoof. Animals showed signs of intense pain and reduced mobility followed by loss of body condition and recumbency, which often preceded death. Morbidity and mortality reached 80% and 40%, respectively. Given the threatened status of the species, these infections were of conservation concern.

Rabies: Rabies remained of concern in South America. Of relevance, two cases of bat rabies were detected in Argentina affecting wild carnivore species, a Culpeo fox (*Lycalopex culpaeus*) and a Geoffroy's cat (*Leopardus geoffroyi*) (in southern and central Argentina, respectively). Both had important human contact leading to post-exposure prophylaxis**.**

Yellow fever: the jungle yellow fever epidemic in Brazil (2016-2018) had a significant impact on non-human primates from the Atlantic Forest, with deaths estimated near 5,000 animals including vulnerable and threatened species. Some species such as the northern brown howler monkey (*Alouatta guariba guariba*) might be near extinction after this epizootic. Harassment and killing of non-human primates by the public had added to the direct impacts of the disease. Moreover, loss of sentinel species for yellow fever virus circulation further threatens public health early warning systems, increasing risks for the human population.

Morbillivirus: An unusual mortality event affecting Guiana dolphins (*Sotalia guianensis*) began in Rio de Janeiro, Brazil in November 2017 and was currently ongoing at the time of reporting. A cetacean morbillivirus was found to play a major role in this die-off. As of January 2018, this event had resulted in the deaths of >200 Guiana dolphins in southern Rio de Janeiro state, with mortality apparently extending southward. The environmental consequences and conservation effects were expected to be significant. A Cetacean morbillivirus (CeMV) closely related to that found in the Guiana dolphins had recently been identified, for the first time, in Southern right whales (*Eubalaena australis*) stranded in Brazil. This raised concern for the conservation of this species.

An outbreak of distemper affecting crab eating foxes (*Cerdocyon thous*) was detected in El Palmar National Park in Argentina. As in previously reported events in Argentina and Brazil in 2009, the outbreaks were linked to domestic dog morbillivirus strains.

Feral dogs: Feral dogs are of increasing conservation concern in Chile and Argentina. Current evidence shows that human-subsidized free-ranging dogs were the main cause of animal losses in small-scale farms in Chile. Nationwide, in a single year, free-ranging dogs attacked 25% of the ca. 8500 farms surveyed, killing or injuring about 10,000 small ruminants. The magnitude of the problem has also been escalating in Tierra del Fuego island, Argentina over the last decade. The area affected by feral dogs has increased from 2.5% in 1990 to 69.3% in 2012-2013. The most evident consequence had been the drastic reduction in sheep production on the island and a 13.7% loss in income associated to this industry. The impact of feral dogs had forced farmers to replace sheep stock with cattle, a change that had yet to prove successful in reducing livestock loss and that would likely be accompanied by important socio-economic and cultural implications. The impact of feral dogs on wildlife had yet to be quantified. Moreover, significance of feral dogs for disease transmission remained to be assessed.

Salmon aquaculture: An escape of circa 700,000 farmed Atlantic salmon (*Salmo salar*) from aquaculture facilities near Puerto Montt in Chile occurred in early July 2018. The environmental consequences had not yet been assessed and warrant attention.

NORTH AMERICA

Chronic Wasting Disease: In 2018, the documented distribution of Chronic Wasting Disease (CWD) in the United States continued to expand. CWD had been detected in free-ranging cervid populations and/or commercial captive cervid facilities in 25 of 50 states (free-ranging: 23 states; commercial captive: 17 states). In 2018, to date, CWD had been detected in 11 new counties in free-ranging herds (out of a total of 230 CWD+ counties). As hunting seasons in the U.S. were in the late fall/early winter it was likely that CWD would be detected in additional counties prior to year's end. In 2018, to date, CWD had been detected in 12 additional commercial captive cervid facilities (out of a total of 102 total CWD+ facilities). This included new detections in Montana (two different areas), Mississippi (two different areas), the Upper Peninsula of

Michigan, the first captive reindeer in North America, and first detection of CWD in Quebec. The latter involved 3 captive red deer (*Cervus elaphus*) that tested positive and 300 animals were depopulated on the farm. White-tailed deer (*Odocoileus virginianus*) population reduction around the farm was conducted. No cases in free-ranging cervids had been detected in this region. The current CWD distribution map was also available from the U.S. Geological Survey's (USGS) National Wildlife Health Center at https://www.usgs.gov/centers/nwhc/science/chronic-wasting-disease.

Hemorrhagic Disease: Hemorrhagic Disease **(**HD) activity had been light to moderate in 2018 As of 11/21/18, the Southeastern Cooperative Wildlife Disease Study (SCWDS) had isolated 59 HD viruses from wild deer from 14 of 23 states submitting samples. EHDV-2 was isolated from 52 white-tailed deer (*Odocoileus virginianus*) in Florida, Georgia, Idaho, Kansas, Kentucky, Louisiana, Mississippi, Missouri, North Carolina, North Dakota, Pennsylvania, and West Virginia. EHDV-2 also was isolated from 5 mule deer (*Odocoileus hemionus*) from Nebraska, Montana, and North Dakota. An EHDV-6 was isolated from a white-tailed deer in Kentucky and a BTV-1 from a white-tailed deer in West Virginia. BTV-1 was regarded as exotic to the United States. By PCR SCWDS also detected EHDV in a white-tailed deer from Tennessee and an elk from Missouri. BTV was detected by PCR from 11 white-tailed deer submitted from Florida, Idaho, Maryland, Mississippi, North Carolina, Pennsylvania, and South Carolina, an elk from Missouri, and a mule deer from Nebraska.

National White-nose Syndrome and *Pseudogymnoascus destructans* (Pd) Surveillance: Surveillance conducted in 2018 documented an expansion in the distribution of *Pseudogymnoascus destructans* (Pd), the fungus that causes White-nose Syndrome (WNS), and an increase in the number of North American bat species on which the fungus had been detected. Specifically, WNS was confirmed in two new states (Kansas and South Dakota) and two additional Canadian provinces (Manitoba and Newfoundland). Thus, the disease is known to occur in 33 U.S. states and seven Canadian provinces as of 29th January, 2019. Additionally, Pd in absence of clinical signs of WNS was detected on bats from Mississippi, Texas, and Wyoming.

Detections of WNS (Pd and disease) in South Dakota, and of Pd alone in Wyoming, resulted from bat sampling efforts conducted after spring emergence and were thus not associated with specific hibernacula. Environmental sampling at several hibernacula in the Black Hills region of South Dakota earlier in the spring failed to detect the fungus, suggesting Pd was recently introduced to the area. In Kansas, WNS (Pd and disease) was detected at hibernacula and bat mortality was observed indicating the fungus may have been present in previous seasons. New detections of Pd alone in Texas were from multiple species of bats sampled at hibernacula, and in Washington state, Pd was detected on bats in a second county (Lewis).

With respect to bat species impacted in 2017/2018 surveillance season, the cave bat (*Myotis velifer*) and long-legged bat (*Myotis volans*) were confirmed positive for WNS. Four additional species or subspecies, including the western small-footed bat (*Myotis ciliolabrum*), Townsend's big-eared bat (*Corynorhinus townsendii*), the Ozark big-eared bat (*C. t. ingens*), and the Mexican free-tailed bat (*Tadarida brasiliensis*), were reported to harbor Pd in the absence of clinical disease. In all, 11 species of North American bats were known to develop WNS, and presence of Pd had been confirmed on seven additional species in the absence of clinical signs diagnostic for WNS.

Also, beginning in winter 2017/2018, the NWHC assisted partners from the National Autonomous University of Mexico with efforts to initiate WNS/Pd surveillance at bat hibernacula in Mexico. No evidence of the fungus was detected at the three sites surveyed. Species sampled included cave bats, long-legged bats, and Arizona bats (*Myotis occultus*).

Coordination of White-Nose Syndrome Diagnostics: Coordination of laboratory diagnostics for official reporting is well established within the fields of human and domestic animal health. By forming a network of laboratories that standardizes their work, this collaboration provides certainty of diagnostic results for infectious diseases of consequence to animal welfare, the economy, and society. Although a formal diagnostic network does not currently exist for wildlife pathogens in the United States, the need for accurate and comparable results for wildlife had been detailed in previous documents such as the National White-Nose Syndrome Plan. To that end, the USGS National Wildlife Health Center began discussions with laboratorians conducting white-nose syndrome diagnostics to explore opportunities to harmonize laboratory protocols, interpretation standards, and reporting procedures for diagnostic test results for *Pseudogymnoascus destructans* (Pd), the causative agent of white-nose syndrome (WNS).Using the collective expertise of laboratorians would increase access to WNS diagnostics while still promoting consistency and accuracy of results. These efforts would reduce the amount of uncertainty managers face when considering actions based on diagnostic results.

Surveillance for *Batrachochytrium salamandrivorans*: Between January 2016 and December 2017, the U.S. Geological Survey's (USGS) National Wildlife Health Center and USGS Amphibian Research and Monitoring Initiative (ARMI) sampled 10,000 amphibians in 34 U.S. states for *Batrachochytrium salamandrivorans* (Bsal). The majority of samples from the eastern and western U.S. were from eastern newts (*Notophthalmus viridescens*) and Pacific newts (*Taricha* spp.), respectively. USGS also tested species from 15 other salamander and frog genera at sites where they were opportunistically available. Because Bsal was not detected in any of the samples, the results increased the confidence that Bsal was not present in the U.S., but this did not reduce future introduction risk. Continuous efforts to (1) develop mitigation plans in the event of a Bsal introduction, (2) increase knowledge of susceptible North American species, and (3) iteratively use surveillance information to direct ongoing monitoring would be necessary to decrease the risk Bsal was introduced into North America and that Bsal existed undetected.

***Haemaphysalis longicornis* Detected in the United States:** The presence of the exotic tick *Haemaphysalis longicornis* (longhorned tick) was confirmed in several states in 2018. *Haemaphysalis longicornis* is native to East Asia (Japan, China, Korea, and the former USSR) but had established invasive populations in Australia, New Zealand and several Pacific islands. Infestations with *H. longicornis* were initially confirmed in four states, including Benton County, Arkansas; Hunterdon, Union, Middlesex, and Mercer Counties, New Jersey; Warren and Albemarle Counties, Virginia; and Hardy County, West Virginia. Multiple affected and surrounding states increased passive and active surveillance efforts, animal and pathogen testing, and education, outreach, and training. The full extent of the tick's presence in North America was unknown. In the United States, infestations of *H. longicornis* were thought to have first occurred in May 2017. However, subsequent review of archived samples from a dog in Union County, New Jersey indicated an initial infestation in 2013. These infestations are of concern to domestic animal, public, and wildlife health in North America. *Haemaphysalis longicornis* is a pest of livestock and can cause severe infestations leading to weakness, decreased production and growth, exsanguination, and death. Outside of the United States, the tick species had been found to carry *Anaplasma*, *Ehrlichia*, and *Borrelia* spp. and studies suggested that it could also transmit Oriental spotted fever caused by *Rickettsia japonica*, cattle theileriosis caused by *Theileria orientalis*, and Severe Fever with Thrombocytopenia Syndrome caused by a bunyavirus. However, the potential for this species to carry these tick-borne pathogens in the United States was not yet known. Additionally, *H. longicornis* could be parthenogenetic (i.e., able to reproduce without a male). Worldwide, *H. longicornis* had been found on a wide range of domestic animals, livestock, and wildlife hosts including both avian and mammalian species. In the United States, hosts to date had included: dog, cow, goat, sheep, horse, white-tailed deer (*Odocoileus virginianus*), opossum (*Didelphis virginiana*), and raccoon (*Procyon lotor*). Additionally, in both invasive and native populations outside the United States, previous reports described *H. longicornis* parasitizing humans.

Harmful Algal Blooms and Wildlife: To investigate the effects of algal toxins on wildlife, the U.S. Geological Survey's (USGS) National Wildlife Health Center (NWHC) had examined over 300 dead animals collected during freshwater and marine Harmful Algal Blooms (HAB) events since 2000. Varying levels of algal toxins were found in over 100 of these animals. In some cases, the history, clinical signs, and high toxin levels had allowed attribution of mortality to algal toxicosis. Events had included Kittlitz's murrelets (*Brachyramphus brevirostris*) in Alaska that died after consuming sand lance (*Ammodytes hexapterus)* high in saxitoxin, green tree frogs (*Hyla cinerea*) in Texas with suspected brevetoxicosis in association with a red tide event, and little brown bats (*Myotis lucifugus carissima*) in Utah found dead during a HAB event at a reservoir commonly used for recreation and as a source of municipal drinking water.

In other cases, algal toxins had been detected in wildlife, but their contribution to mortality remained unclear. Part of the reason these detections had been difficult to interpret was that the toxic dose of many algal toxins in wildlife species was unknown and the microscopic lesions, if any, particularly in birds, had not been well described. To better understand the effects of saxitoxin, an algal toxin that can occur in both marine and freshwater environments, on avian species, the NWHC would be conducting two laboratory exposure trials: one to determine the lethal dose of saxitoxin in waterfowl and another to examine the effects of repeated exposure of waterfowl to sub-lethal saxitoxin ingestion. In addition to the exposure trials, a retrospective review of algal toxin detections from NWHC's case archives is underway to identify demographic, spatiotemporal, and diagnostic features associated with wildlife exposure to algal toxins.

Double-crested Cormorant Mortality in the Northeast and Great Lakes States: The U.S. Geological Survey's National Wildlife Health Center began receiving reports of sick and dead double-crested cormorants (*Phalacrocorax auritus*), predominantly juveniles, from the Northeast and Great Lakes regions of the United States in late July 2018. Affected birds were observed at established rookeries as well as along shorelines and in urban settings; some were taken to wildlife rehabilitation centres. Neurologic signs exhibited included neck weakness, unilateral wing paralysis, incoordination, and tremors. Virulent Newcastle Disease virus (vNDV), an avian paramyxovirus serotype-1 (APMV-1), was confirmed in cormorants examined from Plymouth County, Massachusetts and Otter Tail County, Minnesota, and was suspected in cormorant mortalities from Barnstable County, Massachusetts; Leelanau County, Michigan; and Marshall County, Minnesota. Although outbreaks of APMV-1 were also reported in backyard poultry flocks in California and Eurasian collared doves (*Streptopelia decaocto*) in Central Plains states that summer, detailed sequence analysis completed by the U.S. Department of Agriculture Animal and Plant Health Inspection Service Veterinary Services National Veterinary Services Laboratories showed that the outbreaks were caused by distinctly different phylogenetic varieties of APMV-1. Further, there may had been other factors contributing to the observed widespread mortality of cormorants as specimens from two locations in Maine (Lincoln and York Counties) and rookeries in Dodge County, Wisconsin and Cass and Fairbault Counties, Minnesota were all negative for APMV-1 based on initial molecular screening tests. In addition, APMV-1 was detected in double-crested cormorants in Ontario and the Maritime Provinces in Canada.

Avian Schistosomiasis Outbreak in Montana: In April 2018, the Montana Department of Fish, Wildlife and Parks received reports of approximately 235 dead waterfowl on two ponds of neighbouring properties in Madison County, Montana. The primary species involved included mallards (*Anas platyrhynchos*), unidentified teal species, Canada geese (*Branta canadensis*), and snow geese (*Chen caerulescens*). Approximately 30 additional waterfowl were reported dead on a third pond five days later. Six carcasses (three mallards and three Canada geese) were examined at the U.S. Geological Survey's (USGS) National Wildlife Health Center (NWHC) and found to be infected with avian schistosome parasites. Although this was the first case of schistosomiasis documented by NWHC in Montana, it has previously been associated with at least 18 other avian mortality events from all four flyways in the United States. The morphology of the parasites and associated pathology observed in the examined birds from this event was consistent with *Trichobilharzia physellae*, which was the most common schistosome species in waterfowl. Resident and migratory ducks and geese are among the natural hosts for this schistosome. Infected birds pass eggs in their feces and the parasites then infect and develop in mollusk hosts. Free- swimming cercariae are then released from the mollusks and re-infect avian hosts by penetrating their skin and migrating to the blood vessels. Humans could also be infected by the free-swimming cercariae, causing a form of self-limiting dermatitis known as "swimmer's itch."

Sea Otter Mortality on the Alaska Peninsula and Unalaska: The U.S. Fish and Wildlife Service (USFWS) Region 7 Marine Mammals Management program (MMM) reported unusual morbidity and mortality in northern sea otters (*Enhydra lutris kenyoni*) near Port Moller-Nelson Lagoon on the southern Alaska Peninsula, January through April 2018. A total of 195 dead otters were counted by local residents on a 35-mile stretch of the southern Bering Sea during January, 2018. Additional reports, including a few dead otters in Unalaska (starting in February) and observations of ~30-40 dead otters around Port Heiden (March-April) were also received. In March 2018, USFWS Migratory Bird Management (MBM) flew a reconnaissance survey of the southern Alaska Peninsula shoreline, from Cold Bay to Pilot Point, Alaska searching for dead or dying sea otters and other marine mammals. Fifty-six dead sea otters were observed on the survey, the majority of which (91%) were in the Nelson Lagoon/ Port Moller area. Through the assistance of the local community members, three carcasses and selected tissue samples from five additional carcasses were expedited to the U.S. Geological Survey (USGS) National Wildlife Health Center, Madison, WI. *Streptococcus lutetiensis* (formerly known as *Streptococcus infantarius ssp. coli* - a member of the *S. bovis-equinus* complex) was confirmed as the cause of death or suspected to have contributed to the cause of death of all animals examined. This mortality event involved more sea otters than previous events for the area and time frame, and the effect to the listed Southwestern stock of sea otters was unknown at that time. In previous years, *Streptococcus* spp. related mortality has occurred across the sea otter range in Alaska, including Kachemak Bay, Kodiak Island, Unalaska, Prince William Sound, and Southeastern Alaska. This bacteria complex is a common cause of septicemia in Alaska sea otters in the Southcentral Alaska stock. It has also been reported as a cause of endocarditis and septicemia in other mammalian species, including humans. The source of the bacteria in the marine ecosystem was unknown.

Avian Cholera Mortality Events in the Mississippi and Pacific Flyways: Avian cholera was confirmed as the cause of waterfowl mortality in Arkansas, Illinois, Indiana, Kentucky, Missouri, and Tennessee in the Mississippi Flyway, and Utah and California in the Pacific Flyway. This represented the first known detection of avian cholera in wild birds in Indiana. Mortality in the recent events ranged from dozens of waterfowl to an estimated 50,000 eared grebes (*Podiceps nigricollis*) in Utah. Avian cholera, caused by the bacteria *Pasteurella multocida*, is a common, contagious disease that has been documented in over 100 species of wild birds. Large outbreaks generally occur in the fall and winter and primarily involve wild waterfowl. Acute mortality is typical in avian cholera outbreaks, and common clinical signs displayed by infected birds include lethargy, convulsions, swimming in circles, and erratic flight. Birds may also exhibit mucous discharge from the mouth and nose, and soiling of the feathers around the vent, eyes, and bill. The disease often spread to other waterfowl and shorebirds, although many additional avian species are susceptible. Avian scavengers such as eagles, hawks, and owls are known to become infected by consuming infected waterfowl.

Gull Mortality Caused by *Bisgaard* Taxon 40 in Southern Maine for Second Consecutive Year: In September 2016 and September 2017, mortality in herring (*Larus smithsonianus*) and greater black-backed (*L. marinus*) gulls was observed in Portland, Maine and investigated by the U.S. Department of Agriculture Wildlife Services and the U.S. Geological Survey's National Wildlife Health Center (NWHC). In 2016, 48 sick or dead gulls were observed, and it was estimated that 45 gulls were affected in 2017. All specimens collected were juveniles and most were emaciated. The NWHC determined that the cause of sickness and death in the gulls was septicaemic infection with *Bisgaard* taxon 40 bacteria. *Bisgaard* taxon 40 was identified with bacterial culture and molecular sequencing, along with identification of microscopic lesions consistent with bacterial infection in heart, spleen, liver, and muscle tissue. Several of the gulls also had secondary aspergillosis infection. *Bisgaard* taxon 40 is a *Pasteurella*-like bacterium and was first identified as a pathogen of gulls in 2003; however, it has only recently been recognized as a primary cause of wildlife mortality. The NWHC has sporadically diagnosed *Bisgaard* taxon 40 as a cause of death of waterbirds across the country (including gulls, terns, puffins, and auklets). This was the first recurring *Bisgaard* mortality event that the NWHC had investigated, suggesting that the bacteria may have been endemic and capable of causing regular mortality. The NWHC is currently reviewing previous instances where *Bisgaard* taxon 40 was identified in the laboratory, as well as trying to determine the extent of this bacterium's occurrence among apparently healthy gulls.

2017 Alaska Seabird Mortality Event: Between June and September 2017, the U.S. Fish and Wildlife Service (USFWS) received reports of higher than normal dead and dying seabirds from the Bering and Chukchi Sea regions of Alaska. Specifically, carcasses were observed from Point Hope south to Bristol Bay, with highest onshore counts recorded near Nome. Nearly 1,600 beached seabird carcasses were counted by local responders and agency personnel since early June 2017. Recovered bird carcasses were sent to the U.S. Geological Survey's (USGS) National Wildlife Health Center (NWHC) where cause of death for nearly all birds was determined to be emaciation, similar to the common murres (*Uria aalge*) that died in the Gulf of

Alaska in 2015-2016. The majority of dead birds in the recent mortality event were northern fulmars (*Fulmarus glacialis*) and short-tailed shearwaters (*Puffinus tenuirostris*), which were abundant in the region during the summer, but a wide range of species had been affected. Additional species found dead or lethargic included crested auklets (*Aethia cristatella*), black-legged kittiwakes (*Rissa tridactyla*), murres (*Uria.* sp.), gulls (Family *Laridae*), tufted (*Fratercula cirrhata*) and horned puffins (*F. corniculata*), and others; these species represented both zooplanktivorous and piscivorous birds. There was no microscopic or laboratory evidence of infectious disease, with one exception; a single horned puffin collected at the Bering Land Bridge National Preserve tested positive for *Bisgaard* taxon 40, a bacterium associated with pneumonia and septicaemia in seabirds, and was the presumptive cause of death.

In October 2017, the USGS Alaska Science Center and the National Oceanic and Atmospheric Administration's Beaufort Laboratory completed testing of 29 seabird carcasses for biotoxins (saxitoxin and domoic acid) associated with Harmful Algal Blooms. Results indicated that birds were exposed to saxitoxin via the marine food web, but levels detected did not provide clear evidence of acute toxicity as a cause of death. Gastrointestinal tract samples from three fulmars had concentrations ≥12 µg/100 g, with one bird from St. George Island measuring at 63 µg/100 g. As most carcasses had no stomach or gastrointestinal tract contents for testing, liver and muscle tissues were also tested to provide some inference on exposure to biotoxins. Liver samples from five fulmars (including two of the birds with elevated levels detected in gastrointestinal contents) had detectable levels of saxitoxin, ranging from 1.6 – 5.9 µg/100 g. There was no available research on rates of excretion, tissue routing, or sensitivity to saxitoxin in birds, and it was not possible to determine the specific timing of exposure and what effects, if any, these concentrations may have had on seabirds. The USFWS has posted an updated one-page information sheet on the 2017 mortality event: (https://www.fws.gov/alaska/pdf/BeringSea_DieOff_Info_September2017Update.pdf).

Ranavirus Outbreak in Canada: A massive mortality of wood frogs (*Rana sylvatica*) and spotted salamanders (*Ambystoma maculatum*) was reported in Quebec, Canada. Frog Iridovirus by PCR (probably Frog Virus 3) was detected in association with the outbreak. Although the presence of ranavirus had already been documented in Quebec, it is, to our knowledge, the first report of a mortality episode associated with this viral infection in amphibians in the Province. Ranavirus was also diagnosed in turtles in Ontario.

West Nile virus (WNV) Activity in Canada: WNV was detected in three wild crows (*Corvus brachyrhynchos*) from Prince Edward Island. It had been previously detected in wild birds in the Canadian Maritime Province in 2002 and 2003. This marked the first time that WNV had been identified in wild birds found dead in Prince Edward Island. Birds in New Brunswick and Nova Scotia were also confirmed to be infected with WNV, representing the first avian cases since 2003 in those Atlantic Provinces. WNV was also seen in British Columbia in wild birds this year, a Province where WNV is sporadic. Occurrences in Prairie Provinces, Ontario and Quebec were ongoing but were not considered unusual this year.

7. GF-TADS – FAO and OIE joint strategy for PPR eradication

The Peste des petits ruminants (PPR) Global Control and Eradication Strategy (GCES) was adopted during the International Conference on PPR organised by FAO and the OIE in Abidjan, Côte d'Ivoire, in April 2015. Its aim is to eradicate PPR globally by 2030. The Working Group was informed about the achievements of the GCES in 2018.

This included the PPR Global Conference (Brussels, Belgium, in September 2018) which had a high level of Ministerial attendance. Through a Ministerial Declaration, more than 45 countries renewed their political commitment to globally eradicate PPR by 2030 and encouraged resource partners to join the fight against the disease.

The Working Group took note of the following PPR issues related to wildlife that had been raised by partners/stakeholders during PPR meetings:

– clarification of role of wildlife in the epidemiology of PPR;
– validation of diagnostic tests in wild animals which are normally used for the serological surveillance of PPR in domestic animals;
– PPR outbreak response in wildlife.

The Working Group discussed the PPR epidemic in saiga antelope in Mongolia in 2017, which followed the disease´s first incursion into the country in sheep and goats in 2016. Considering the devastating impact of PPR on saiga population, the Working Group stressed that wildlife species were the victims of disease spill-overs from livestock and highlighted that control and eradication of PPR in domestic small ruminants, through the implementation of effective vaccination campaigns, would be critical to safeguard wildlife.

The Working Group expressed its support of the efforts to eradicate PPR and its willingness to actively participate in activities under GCES. It recommended that a representative from the Working Group should attend future PPR meetings, such as the PPR Global Research and Expertise Network (GREN) meeting scheduled for October 2019 and the "PPR at domestic/wildlife interface" meeting planned for March 2019.

The Working Group agreed to undertake the task of developing guidelines for outbreak management in wildlife, specifically for PPR in collaboration with the PPR GREN.

8. Wildlife as a livelihood opportunity for rural communities

The Working Group agreed that it had generally been accepted that a fundamental cause of biodiversity loss worldwide was that those communities in a position to preserve biodiversity rich areas lack sufficient incentives to do so because their livelihoods were not directly benefitted by the biodiversity they live with. Disease regulations often compounded the limited access to opportunity from biodiversity when livestock or agricultural market access was influenced by geographic disease separation due to the presence of wildlife. Often under these circumstances illegal trade in wildlife (IWT) became the most important (albeit illegal) economic driver resulting in perverse economic growth and biodiversity loss. Such illegal wildlife crime activities posed serious risk to disease control as animal products were moved without control and often spread-out into the global arena.

As a measure to counter these real socio-economic disparities and promoting livelihood opportunities where livestock and wildlife can co-exist, a number of wildlife friendly beef initiatives had been initiated in Africa with multi-stakeholder involvement. Proof of concept projects were being rolled out in several countries – in particular in Botswana. The focus was to allow co-existence with wildlife & livestock and access to markets otherwise restricted by compartmentalized and geographic separations resulting in communities and livestock living "behind" the line not having access to markets requiring freedom of disease for their products. A more integrated - One Health approach was proposed to ensure that livelihoods could benefit from living with wildlife and owning livestock. Perhaps the greatest contribution that a One Health approach could bring to the debate about land use, fences and disease management in such areas was the importance of interdisciplinary and cross-sectorial approaches to resolving critical issues of development, system health and sustainability.

The Working Group recognised that commodity-based trade was allowed for in the Terrestrial Animal Health Code and that veterinary services should encourage this.

The Working Group proposed (consistent with the Animal Health Strategy for Africa and One Health approach) that OIE should encourage Member Countries to:

1) use OIE standards rather than adopting non-harmonised standards that are stricter and more complex, so that trade barriers are minimised and internationally acceptable

2) recommend exposure of the OIE and Members to land use options to demonstrate how this could support both wildlife and sustainable livestock production.

3) nominate OIE National Focal Point for Wildlife to attend “herding for health and/or one health networking meetings / symposia”. As an example, South Africa was planning to host a One Health symposium in February 2019 and at the least the OIE National Focal Points for wildlife from Africa should attend. Dr Misheck Mulumba was the contact person of this event.

and, for the OIE’s consideration:

4) The Working Group recommended that the 6th cycle of training workshops for FPWs should include aspects of One Health and integrated land use approaches involving wildlife/livestock co-existence, and showcase proof of concept projects that are working to demonstrate effectiveness.

5) The Working Group recommended that it supports OIE in working with relevant FPWs in countries to assist them in exploring ideas for non-geographic disease control methods particularly where livelihoods could be helped and where wildlife co-existence could be an important part of livelihood improvement.

9. World Bank One Health Operational Framework and Environment Health Assessment Tool

Dr Karesh updated the Working Group on the publication of the *World Bank Operational Framework for Strengthening Human, Animal, and Environmental Public Health Systems at their Interface*. This guidance document provided step-by-step approaches and entry points to developing One Health approaches at National and sub-national levels. In follow-up to this Framework, an Environmental Health Capacity Assessment Tool was currently under development and would be piloted at country level to provide assessment of needs for wildlife and broader environmental health capabilities to supplement information provided by IHR/JEE and PVS Pathway efforts. The Working Group recommended further discussion with OIE staff to explore possible synergies between OIE PVS activities and the further testing of the Environmental Health Capacity Assessment Tool.

10. Case definition and recommended diagnostic methods in wildlife

OIE FPWs expressed a need for information on case definitions and recommended diagnostic test methods for pathogens from the non OIE-listed wildlife diseases.

The Working Group proposed to develop case definitions for the non-OIE-listed wildlife diseases in 2019. A work plan agreed by the Working Group for completing this task would be presented by 30 April 2019 to the OIE for approval.

The Working Group commented that a number of fact sheets with diagnostic method recommendation for infectious diseases in wildlife species had already been produced by different groups, such as the Diagnosis Cards of the European Wildlife Disease Association (www.ewda.org), the Wildlife Health Fact Sheets of Wildlife Health Australia (www.wildlifehealthaustralia.com.au), or the fact sheets in the Transmissible Diseases Handbook of the European Association of Zoo and Wildlife Veterinarians (www.eazmv.org). The Working Group undertook to search for on-line sources of reliable information on diagnostic methods that could be applied to specimens from wild animals for each of the non-listed pathogens for which annual voluntary reporting is requested from Member Countries by the OIE. This information would be provided to the OIE to be used to assist OIE Member Countries with wildlife disease surveillance and diagnosis.

11. Implication of CITES and Nagoya Protocol on Wildlife

The Working Group was updated on the steps being taken by CITES to ensure regulations do not unintentionally hinder disease investigations needed to promote healthy wildlife populations and protect domestic animals and humans. The Working Group noted that CITES was considering a resolution at its next Convention of the Parties to be held in May of 2019 on "Simplified Procedures For Permits And Certificates" which included expedited permitting processes and the use of OIE Reference Centres. The Working Group suggested that all OIE Member Countries contact their respective national counterparts who will serve as delegates to the 2019 Convention of the Parties to support the resolution at the time of voting.

The Working Group discussed its support of the principles and goals of the Nagoya Protocol and also noted possible adverse ramifications on the rapid international movement of diagnostic samples needed for managing healthy wildlife populations and protecting domestic animals and humans from diseases that may be occurring in wildlife. The Working Group suggested that OIE should work with the Secretariat of the Convention on Biodiversity and its Nagoya Protocol section to develop mechanisms to facilitate the timely international movement of emergency diagnostic specimens.

12. New application from Spain/Italy for an OIE Collaborating Centre for Health of marine mammals

The Working Group reviewed and supported the application from Spain/Italy for an OIE Collaborating Centre for Health of Marine Mammals.

Should the application be successful and the Collaborating Centre be adopted by Resolution, the Working Group had a number of suggestions for the applicants: that they considered linking with global bodies such as the International Whaling Commission and established marine mammal regional networks; encouraged reporting to the OIE via appropriate mechanisms (WFPs, WAHIS) in the OIE Member Countries they service; and considered exploring ways in which their activities could further enhance global biosecurity (i.e. by providing timely information for risk mitigation).

13. Matters of Interest for Information

13.1. Reports of the OIE Collaborating Centres for Wildlife

The Working Group noted that both Collaborating Centres were active in meeting the needs of OIE Member Countries and in supporting OIE programmes. The Working Group noted with interest the proposal for the Collaborating Centre for Research, Diagnosis and Surveillance of Wildlife Pathogens to formally 'twin' with Mahidol University, Thailand through the OIE Twinning Programme. The strategic objective of the Twinning Project was the Development of Wildlife Diagnostic and Surveillance Capacity for the Thailand National Wildlife Health Centre (Thailand-NWHC)/Monitoring and Surveillance Centre for Zoonotic Diseases in Wildlife and Exotic Animals (MoZWE). The proposal had received initial feedback from the Biological Standards Commission and was undergoing revision for resubmission.

Collaborating Centre for Research, Diagnosis and Surveillance of Wildlife Pathogens (Canada/USA): The annual report from 2017, sent to the OIE, was reviewed.

Collaborating Centre for Training in Integrated Livestock and Wildlife Health and Management (South Africa): The annual report from 2017, sent to the OIE, was reviewed.

13.2. Training of Wildlife Focal points (5th Cycle of Workshops)

Dr François Diaz, OIE Programme Department, and Dr Jonathan Sleeman updated the Working Group on the fifth cycle of training workshops for FPWs. The theme for this cycle was wildlife health information management with specific modules on opportunities and challenges of sharing wildlife health data, key factors in establishing and maintaining partner and stakeholder networks, development of effective data collection and curation of wildlife health information, use of tools for managing and disseminating wildlife health information (developed and presented by the Collaborating Centre on Research, Diagnosis, Surveillance of Wildlife Pathogens [USA and Canada]), and communication planning. The workshop also included basic information on the OIE, presentations and discussion on regional wildlife health issues, and hands-on instruction in the use of *WAHIS-Wild*. The first two workshops were held in Lithuania in June, 2018 and Botswana in November, 2018. The next workshop was planned for Cote d'Ivoire in March, 2019. The Collaborating Centre on Research, Diagnosis, Surveillance of Wildlife Pathogens (USA and Canada) presented the scientific sections and prepared a training manual for these segments of the workshop. The manual would be available online soon. The Working Group stated its appreciation to the OIE for continuing to hold these important training workshops, and to the Collaborating Centre on Research, Diagnosis, Surveillance of Wildlife Pathogens for the extensive work they are investing in these workshops. The Working Group offered to provide suggestions for local or regionally based examples for the exercises for future fifth cycle workshops.

Dr Diaz also provided suggestions for themes for future workshops based on feedback from FPWs who attended the first two workshops. The Working Group discussed options for planning curricula for future cycles and agreed to review the Terms of Reference for the FPWs and develop a list of core competencies that could be used as the basis for the development of workshop themes. The Working Group offered to work collaboratively with the OIE and Collaborating Centre on development of themes for the next cycle of workshops.

13.3. Collaborative Partnership on Sustainable Wildlife Management: update

Collaborative Partnership on Sustainable Wildlife Management (CPW) is a voluntary partnership of 14 international organisations with substantive mandates and programmes to promote the sustainable use and conservation of wildlife resources. OIE had been a member in this organisation since its inception in 2009. The CPW met on a regular basis, often in conjunction with other meetings like CITES, CBD and CMS. It had produced several fact sheets covering different topics related to wildlife management including one fact sheet on Wildlife Health. The OIE had participated in the production of these fact sheets and made sure that the issues of wildlife health and diseases were not overlooked. The work within CPW and the role of OIE was discussed during the meeting of the Working Group and Dr Markus Hofmeyr agreed to be the contact person for the OIE.

13.4. Update on the International Council for Game and Wildlife Conservation and OIE joint project

Members of the Working Group assisted in the organisation and implementation of a conference in Bulgaria in December 2017 for a training program for hunters on wildlife disease surveillance, with the focus on African swine fever (ASF). The training course included 20 representatives from hunting associations, and 10 OIE National Focal Points for Wildlife. The programme included surveillance of diseases in wildlife, epidemiology, biosecurity, ASF, and communication between the hunting community and veterinary authorities on a national and international level.

13.5. Performance of Veterinary Services Tool

Dr Maud Carron updated the Working Group on the status of OIE PVS Pathway activities. PVS Tool Critical Competencies of greater relevance for wildlife were highlighted, as well as the foundational role of OIE international standards for the PVS Pathway. The Working Group shared their experience regarding PVS-related activities, leading to a discussion on ways to increase references to wildlife in the PVS Pathway. Integrating environment/wildlife components into International Health Regulations (IHR)/PVS National Bridging Workshops was put forward for consideration, to further support a true One Health approach.

13.6. Rabies and its impact on biodiversity

A paper on rabies and its impact on biodiversity was written by the Working Group members and was published in the October 2018 issue of the OIE Scientific and Technical Review.

14. Other business

14.1. Relationship between OIE and the World Association of Zoos and Aquariums

The possibility of entering into a partnership with WAZA (World Association of Zoos and Aquariums) was discussed and proposal to sign an MOU (memorandum of understanding) between OIE and WAZA was encouraged by all members of the Working Group.

WAZA is the international association for zoos and aquariums. This association started as International Association of Directors of Zoological Gardens in 1935 and changed its name into IUDZG (International Union of Directors of Zoological Gardens), WZO (World Zoo Organization) and finally WAZA in 2000. WAZA includes more than 330 zoos and aquariums from over 50 countries. The main objectives of WAZA are to serve as a network among the zoos and aquariums of the world and also to encourage animal care and welfare, environmental education and global conservation. Therefore, WAZA had signed an MOU with IUCN (International Union for Conservation of Nature), FSC (Forest Stewardship Council), and RSPO (Roundtable on Sustainable Palm Oil) to achieve common objectives.

The science of understanding emerging infectious diseases with wildlife as part of their ecology had gained much attention over recent years, but it was often difficult to conduct meaningful surveillance in this area. The Australian zoo based wildlife disease surveillance program used a collaborative approach involving government and the zoo industry, with a focus on collecting and reporting of wildlife disease events with potential impact on human health, livestock health and biodiversity. It provided a strong model for a disease surveillance program for free-ranging wildlife that could be adapted and utilized in other contexts.

Entering into a partnership such as signing an MOU could be beneficial for OIE and WAZA for two primary reasons:

1. To utilize the global network among zoos and aquariums of the world for monitoring wildlife health and contributing this information to *WAHIS*. There were skilled zoo-based veterinarians involved not only zoo medicine but wildlife medicine such as the monitoring networks for West Nile virus and HPAI.
2. To collaborate on maintaining the health & welfare of wild, domestic and zoo animals.

The Working Group suggested that a formal relationship with WAZA include 1) sharing of wildlife disease data with OIE FPWs, and 2) supporting the development of biosecurity manuals in each regional society of zoos and aquariums that are members of WAZA consistent with OIE Standards.

14.2. EBO-SURSY Project: Supporting the Veterinary Services in wildlife surveillance activities: Beyond the Project

A presentation of the EBO-SURSY Project was made by Ms Sophie Muset. The main challenges in project implementation were discussed (along with solutions to those challenges), and the Working Group was asked for its comments and suggestions. The Working Group asked about the relevance and feasibility of involving veterinary services in wildlife surveillance. Ms Muset clarified that the project was not about implementing general wildlife surveillance systems, but rather it was about building capacity to better prepare the Veterinary Services to implement improved protocols for surveillance to identify and manage early warning signs to better prevent human outbreaks of Ebola. One or two countries may be chosen by one of the EBO-SURSY implementing partners to conduct and pilot community-based surveillance. Finally, the Working Group suggested reviewing the formulation of the overall objective of the EBOSURSY project to clarify its intent, and made themselves available to review and advise on project technical documents.

15. Work programme and priority setting for 2019

The Working Group identified the following list of activities as priorities for its work in 2019, in line with the newly proposed Terms of Reference. In addition to this list, the Working Group will respond to requests from the OIE as these are received.

- Provide science-based and technical support for OIE broadly on wildlife issues, terrestrial and aquatic species and wild bees.
- Communicate with the OIE Commissions regularly to ensure the Working Group responds to new and on-going priorities and needs of the OIE.
- Assist the OIE in maintaining and developing partnerships and activities with relevant international organisations, providing contacts and insights as to OIE participation and representation.
- Support the WAHIAD department to encourage focal points on wildlife to report annually on non-listed wildlife diseases including:
  - Providing case studies where information submitted to WAHIS-Wild had contributed to wildlife conservation and health outcomes;
  - Development of case definitions for non-OIE list wildlife diseases
  - Develop a circular presenting highlights from the annual face-to-face meeting of the WGW to be shared with OIE Focal Points for Wildlife
  - Encourage collaborating centres to provide wildlife health data to their Focal Points for Wildlife
  - Compile references to diagnostic methods appropriate for each pathogen on the non-listed wildlife pathogen and disease list
  - Review the Terms of Reference for the national Focal Points for Wildlife, to develop a set of proposed core competencies to inform curricular content/needs for future FP training workshops.
- Work through OIE with PPR GREN to develop guidelines for prevention and control of PPR in wildlife.
- Develop a concept note for development of an expert workshop and guidelines focussed on the management (particularly risk) of diseases in wildlife.
- Contribute to 7th OIE strategic plan including exploration of:
  - climate change and biodiversity as related to animal health, and continue to inform the OIE about issues associated with wildlife, including emerging diseases
  - strategies to enhance or improve wildlife disease reporting through WAHIS
  - alternative options for coexistence and livelihood opportunities both through wildlife and livestock
  - wildlife health components of disaster risk reduction, preparedness and response.
- Plan and possibly conduct a Working Group strategic planning workshop to focus and improve the effectiveness of the Group's efforts and to contribute to the 7th OIE strategic plan as outlined above.
- Support:
  - OIE in its work with the Collaborative Partnership on Sustainable Wildlife Management.
  - OFFLU in its efforts to gather information on surveillance for avian influenza viruses in wildlife.

16. Date of next meeting

The Working Group proposed the following dates for its next meeting: from Tuesday 10 to Friday 13 December 2019.

17. Adoption of report

The report was adopted by the Working Group.

…/Appendices

Appendix I

MEETING OF THE OIE WORKING GROUP ON WILDLIFE

Paris (France), 4 – 7 December 2018

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Agenda

1. Opening

2. Adoption of agenda and designation of rapporteur

3. Feedback from the meetings of the Scientific Commission for Animal Diseases

4. Newly approved Terms of reference of the Wildlife Working Group and discussion on future activities of the Working Group

5. Disease reporting

5.1. Information on submitted Voluntary Reports for Wildlife through *WAHIS*

5.2. Update on the agreed actions to increase the number of countries reporting

5.3. Feedback from the Focal Points for Wildlife attending the 5th Cycle of Training Workshops in 2018

5.4. Validation of new susceptible host species added in WAHIS

5.5. Update on OIE-WAHIS project

6. Emerging and noteworthy wildlife issues and disease occurrences: reports from members of the Working Group on Wildlife

7. GF-TADS – FAO and OIE joint strategy for PPR eradication

8. Wildlife as a livelihood opportunity for rural communities

9. World Bank One Health Operational Framework and Environment Health Assessment Tool

10. Case definition and recommended diagnostic methods in wildlife

11. Implication of CITES and Nagoya Protocol on Wildlife

12. New application from Spain/Italy for an OIE Collaborating Centre for Health of marine mammals

13. Matters of Interest for Information

13.1. Reports of the OIE Collaborating Centres for Wildlife

13.2. Training of Wildlife Focal points (5th Cycle of Workshops)

13.3. Collaborative Partnership on Sustainable Wildlife Management: update

13.4. Update on the International Council for Game and Wildlife Conservation and OIE joint project

13.5. Performance of Veterinary Services Tool

13.6. Rabies and its impact on biodiversity

14. Other business

14.1. Relationship between OIE and the World Association of Zoos and Aquariums

14.2. EBO-SURSY Project: Supporting the Veterinary Services in wildlife surveillance activities: Beyond the Project

15. Work programme and priority setting for 2019

16. Date of next meeting

17. Adoption of report

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MEETING OF THE OIE WORKING GROUP ON WILDLIFE

Paris (France), 4 – 7 December 2018

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