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

Paris, 18 – 20 February 2002

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The meeting of the Working Group on Wildlife Diseases was held from 18 to 20 February 2002 at the OIE Central Bureau.

Dr B. Vallat, Director General of the OIE, and Dr J. Pearson, Head of the Scientific and Technical Department, welcomed the participants and opened the meeting. Dr M.H. Woodford was elected chairperson of the meeting and Drs M. Artois and T. Mörner were appointed rapporteurs; they were assisted by Dr Stephanie Haigh. The agenda and list of participants are given at Appendices I and II, respectively.

1. Epidemiological review of selected wildlife diseases 2001

List A diseases

African swine fever

In 2001, African swine fever (ASF) outbreaks were reported in several African countries including Kenya, Nigeria, South Africa, Tanzania, Zambia and Mozambique. The outbreaks in the Dar-es-Salaam region of Tanzania and the Nampula Province of Mozambique were particularly severe, involving thousands of domestic pigs. Soft ticks of the genus *Ornithodorus* are the definitive maintenance hosts, but wild suids, and occasionally localised resistant populations of free-range domestic pigs may act as secondary hosts and vectors. Once infected, domestic pigs act as amplifiers and 'super-shedders' of virus in all their secretions and excretions. There is no effective treatment or vaccine, and stamping out procedures are generally used to control outbreaks.

Bluetongue

Cases of bluetongue were reported in white-tailed deer (*Odocoileus virginianus*) and wild ruminants in the United States of America (USA) in 2001. Bluetongue also was reported in four deer from Peru.

Classical swine fever

One case of classical swine fever (CSF) was reported in a white-lipped peccary (*Tayassu pecari*) in Peru.

CSF continues to be present in wild boar (*Sus scrofa*) populations in some parts of Europe, and in 2001 this disease was reported from Austria, Germany, Luxembourg, the Slovak Republic and the Ukraine. These outbreaks were restricted to wild boars and no related outbreak was observed in domestic pigs. Vaccination of wild boars through a baiting system is currently in progress in Germany.

Foot and mouth disease

In the outbreak of foot and mouth disease (FMD) in Europe in 2001, free-ranging deer were investigated by serology in the United Kingdom (UK) and deer and wild boars in the Netherlands. However, while the sample size was small in the UK, but substantial in the Netherlands, no evidence of FMD infection was reported. In Ireland, stamping out of wild deer in areas around the outbreak was carried out.

In South Africa, major floods severely damaged sections of the Kruger National Park's (KNP) veterinary perimeter fence, resulting in numerous incidents involving vagrant buffalo (*Syncerus caffer)* straying into adjoining communal farming areas. In January 2001, an outbreak of FMD in cattle in the Mhala and Mapulaneng districts adjoining the KNP was confirmed. An SAT2 virus, found by genetic finger-printing to have a close homology with a KNP buffalo strain, was isolated. This cattle outbreak was eventually brought under control in September, using a combination of cloven-hoofed animal movement control and mass vaccination.

In Zimbabwe, an outbreak of FMD in cattle caused by an SAT2 virus was reported in September in the southern and south-western regions of Zimbabwe. No further news has been forthcoming.

In Botswana, an outbreak of FMD in cattle, also caused by a SAT2 virus, has recently occurred in the south-eastern region of the country adjacent to Zimbabwe.

In India, two of 27 Asian elephants (*Elaphus maximus*) in a captive herd in New Delhi showed clinical signs of FMD for two weeks. Two more animals died within six weeks, with one showing signs typical of FMD. Samples were sent from infected animals for viral typing and antibody titre determination, and surviving animals were screened for antibodies. Results are pending.

Peste des petits ruminants

Antibodies to peste des petits ruminants (PPR) were found in sera from buffalo and antelope from West African countries.

Rinderpest

An outbreak of rinderpest has been reported in the northern buffalo herds in the Meru National Park in Kenya. Clinical evidence of disease, including mouth lesions, eye discharges, corneal lesions and loss of condition, was seen to affect about 75% of young buffalo (under 5 years old) in these herds. Many of the clinical signs were suggestive of recovery, rather than an acute phase of infection. The disease was confirmed serologically by serum VNT[1] and competitive ELISA[2] and by PCR[3]. Sequence analysis confirmed lineage II virus, with 99% homology to material submitted during the 1994-97 outbreaks in Kenya. The Group strongly recommends that surveillance for rinderpest be continued and increased as this may provide the first evidence of a pending outbreak. It is very important for follow-up monitoring to be maintained in order to evaluate any epidemiological changes in the patterns of this important disease.

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1 VNT: Virus neutralisation test
2 ELISA: Enzyme-linked immunosorbent assay
3 PCR: Polymerase chain reaction

List B diseases

Anaplasmosis

Anaplasmosis has been diagnosed in wild cattle and buffalo (*Bubalus bubalis*) in Australia.

Anthrax

Several cases of anthrax were reported in deer and livestock on ranches in Edwards, Uvalde, and Val Verde counties in south-west Texas, USA, during the summer of 2001.

In South Africa, several focal outbreaks involving small clusters of cases occurred in the anthrax endemic area of Northern Cape Province. Species affected were kudu (*Tragelaphus strepsiceros)*, eland (*Taurotragus oryx)*, African buffalo, springbok (*Antedorcas marsupialis)*, gemsbok (*Oryx gazella)*, and Burchell's zebra (*Equus burchelli)*. Several human cases were reported in people who had utilised infected carcasses. A single case in a Burchell's zebra was also confirmed in the endemic region of the northern KNP.

In Namibia, anthrax cases were also reported from the northern region, predominantly from the Etosha National Park.

In Tanzania, anthrax was reported in 30 Burchell's zebra and a Topi (*Damaliscus lunatus)* in the Serengeti region.

Anthrax occurred in several hundred American bison (*Bison bison*) in Wood Buffalo National Park in Western Canada.

Avian tuberculosis

New Zealand reported one case in a kakariki (*Cyanoramphus novaezealandiae*), a native New Zealand parrot. Australia has seen the disease in captive budgerigars (*Melopsittacus undulatus*), little penguins (*Eudyptula minor*), and a scarlet chested parrot (*Neophema splendida*). Avian tuberculosis was commonly found in ducks, geese, swans, raptors and other birds in Europe.

Bovine tuberculosis

Bovine tuberculosis (TB) is present in wapiti (*Cervus elaphus*) in one National Park in Canada. Prevalence and transmission among wild and domestic animals is now under investigation.

Since 1994, the state of Michigan has recognised a problem with bovine TB, caused by *Mycobacterium bovis*, in wild white-tailed deer from a five-county area in north-eastern lower Michigan. Intensive surveillance since 1995 has detected deer with tuberculosis in 12 Michigan counties with 397 confirmed cases among the more than 70,000 deer carcasses examined. Additionally, single cases were confirmed in free-ranging wapiti in 2000 and 2001. The disease has been found in six other carnivorous or omnivorous wildlife species, in one herd of captive deer, a feral domestic cat, and in several herds of domestic cattle. Efforts to eradicate *M. bovis* from Michigan are continuing. Primary strategies to eliminate the bacterium from free-ranging deer include elimination of supplemental feeding and baiting of deer in counties in which TB has been confirmed in deer, as well as reduction in deer population density via liberalised hunting regulations.

Bovine TB continues to be a major problem in wildlife in South Africa, Zambia and Uganda. The disease has been confirmed in buffalo, lechwe (*Kobus leche*), greater kudu, warthog (*Phacochoerus africanus*), bushpig (*Potamochoerus larvatus*), baboon (*Papio ursinus*), lion (*Panthera leo*), leopard (*Panthera pardus*), cheetah (*Acinonyx jubatus*) and spotted hyaena. Of these species, only buffalo, lechwe and kudu appear to be maintenance hosts. In the KNP, the disease was also diagnosed for the first time this year, in a honey badger (*Mellivora capensis*) and a common genet (*Genetta genetta*). Bovine TB was also cultured from two wildebeest (*Connochaetes taurinus*), a topi (*Damaliscus lunatus*) and a baboon (*Papio anubis*) in the Serengeti ecosystem in Tanzania. A buffalo TB vaccination trial using BCG[4] was completed in 2001.

[4] BCG: Bacille-Calmette-Guerin

Bovine TB was reported not only in traditional foci in badger (*Meles meles*) in the UK but also in wild ungulates in Andorra (single case), Hungary, Italy and Spain. Wild boar appear to be the species most commonly infected, but the disease was also reported in red deer (*Cervus elaphus*) from Spain, France and Austria.

New Zealand reported five cases of bovine TB in possums (*Trichosurus vulpecula*).

Brucellosis

Brucellosis in wapiti (already mentioned) and bison (*Bison bison*) near Yellowstone National Park remains a significant animal health issue.

Brucella suis type 2 is commonly found in wild boar in Europe and causes problems for domestic pigs confined on pastures where crossbreeding can occur where fences are not properly designed. A single case of *Brucella melitensis* was reported in a chamois (*Rupicapra rupicapra*) in the Alpine region of Europe.

In Australia *Brucella suis* was reported from feral pigs from a specific area in Queensland.

Echinococcosis

Echinococcus multilocularis has been reported from several European countries including Austria, Denmark, France and Switzerland. The adult parasite was most commonly found in the red fox (*Vulpes vulpes*), but larval infection was reported from France in a marmot (*Marmota marmota*) and a European beaver (*Castor fiber*).

Echinococcus granulosus infection was reported in macropod marsupials, wombats (*Vombatus ursinus*), feral pigs (*Sus scrofa*), red foxes, wild dogs (*Canis familiaris*), dingo (*Canis lupus dingo*), and hybrids in Australia. Larvae are present in pigs, wombats and macropod marsupials. Adult worms are present in canids.

Equine herpesviruses

In a serological survey undertaken in the Serengeti ecosystem, 1/21 Burchell's zebra tested positive for equine herpesvirus 1.

Equine viral arteritis

In the Serengeti ecosystem, 9/21 Burchell's zebra tested serologically positive for equine viral arteritis.

Leishmaniosis

There was an unconfirmed report of leishmaniosis in captive red kangaroos (*Macropus rufus*) in the Northern Territory, Australia. The signs included chronic skin lesions, interstitial nephritis, and granulomatous dermatitis containing small single-celled parasites within macrophages throughout the dermis. Electron microscopy is now underway.

Leptospirosis

Leptospirosis is endemic in Northern Australia in rodents, feral pigs, wombats and possums Feral pigs are known to excrete *Leptospira tarassovi* in their urine, and it is possible that they are a source of infection of this serovar for humans.

Myxomatosis

Australia reported the results of a survey of wild rabbits (*Oryctolagus cuniculus*) tested in southern Australia: 354 of 620 tested were positive for myxomatosis. The disease was seen very frequently in pet rabbits in late summer and autumn in a semi-rural area in Sydney. Myxomatosis kills 53% of susceptible rabbits.

Paratuberculosis

A recent study on Kangaroo Island, South Australia found that the prevalence of paratuberculosis in Kangaroo Island kangaroos (*Macropus fuliginosus)* and in tammar wallabies *(M. eugenii)* may be more than 1.7%. The presence of free-ranging macropods at ovine paratuberculosis endemic sites could therefore compromise control strategies.

Rabies

Terrestrial rabies is enzootic in several species of wild terrestrial carnivores in the USA. Oral rabies vaccination programmes for raccoons (*Procyon lotor*) and other species are ongoing in parts of five states. Rabies was reported in 11 bats from Peru as well as bats and 'foxes' in Colombia.

In South Africa, the majority of rabies cases occurred in the central plateau region of the Orange Free State and Northern Cape Provinces, predominately in viverrid species, including yellow mongoose (*Cynictis penicillata*) (32 confirmed cases), slender mongoose (*Herpestes sanguinea*) (four confirmed cases) and suricates (*Suricata suricata*) (three confirmed cases). There were also 12 confirmed cases of rabies in bat-eared fox (*Otocyon megalotis*), and two cases in aardwolf (*Proteles cristata*). In the Northern and North-West Province, the black-backed jackal (*Canis mesomelas*) was the main species involved in rabies outbreaks; the canid virus biotype was the causative agent. It must be remembered that in South Africa, wildlife rabies comprises only about 20% of all reported and confirmed cases.

In Namibia, rabies was confirmed in 18 jackal, three greater kudu (*Tragelaphus strepsiceros*) and one small rodent.

In Tanzania where rabies is endemic and many species have been affected in the past, an interesting recent report indicates that spotted hyaenas (*Crocuta crocuta)* may become subclinical carriers of a lyssavirus that differs by only 8.5% (sequence divergence) from the common canid biotype. 37% of hyaenas were found to be seropositive, and virus could be isolated from the saliva of 45.5% of these seropositive hyaena. None of these hyaena showed any clinical signs, and several infected individuals have been monitored for several years.

In 2001, rabies in Europe was observed and reported from Bulgaria, Croatia, the Czech Republic, Estonia, Federal Republic of Yugoslavia, Germany, Hungary, Latvia, Lithuania, Poland, Romania, Russian Federation, the Slovak Republic, Slovenia and Turkey. Rabies was most commonly observed in red foxes, Raccoon dogs (*Nyctereutes procyonoides*), mustelids and deer.

An outbreak of rabies was reported in Indonesia on the island of Flores.

Bat Lyssavirus

European Bat Lyssavirus was reported from serotine bats (*Eptesicus serotinus*) from Denmark, France, Germany, the Netherlands and Poland.

The first confirmation was made in 2001 that bat Lyssavirus occurs in Western Australia in *Pteropus scapularis* (little red flying fox) and *P. alecto* (black flying fox). There is recent serological evidence of a non-fatal Australian Bat Lyssavirus in megachiropteran and microchiropteran species.

Surveillance for lyssaviruses was conducted among populations of bats in the Philippines. The presence of past or current *Lyssavirus* infection was determined by use of direct fluorescent antibody assays on bat brains and VN assays on bat sera. While no bats were found to have active infection with a *Lyssavirus*, 22 had evidence of neutralising antibody against the *Australian Bat Lyssavirus* infection *(*ABLV*)*. Seropositivity was statistically associated with one species of bat*, Miniopterus schreibersi.* Results from the VN assays are consistent with the presence in the Philippines of a naturally occurring *Lyssavirus* related to ABLV.

Rabbit haemorrhagic disease

Two epidemiological studies in rabbits were carried out in southern Australia; one in semi-arid inland South Australia, and the other in a higher rainfall area near Melbourne, Victoria. The conclusions from these studies were that both rabbit haemorrhagic disease (RHD) and myxomatosis affect these populations each year and few rabbits over one year old remain seronegative for either disease. There is serological evidence that antibodies raised against the related calicivirus may be protective against the pathogenic RHD virus. However this nonpathogenic virus has not been isolated. The disease is most effective in controlling rabbit numbers in arid zones where there is poor recruitment of young into the breeding population.

Seronegative rabbits are less likely to survive RHD outbreaks than seropositive rabbits of the same age. RHD virus remains highly virulent, killing 86% of fully susceptible rabbits that contract the virus. 369 rabbits of 700 tested in southern Australia were positive.

It has been noted that 18 months or longer after the introduction of RHDV there are reductions in the numbers of feral predators, especially cats. At one site, the absence of rabbits led to increased fox predation of mallee fowl (*Leipoa ocellata*) eggs, and at another site to reduction of brush-tail possums. At inland sites where RHD virus has been very effective, at least four species of raptor may be at risk due to reduced reproductive potential due to food shortage.

Trichinellosis

Trichinella pseudospiralis was reported in Tasmanian devils (*Sarcophilus harisii*) in Australia.

Wildlife list diseases

Angiostrongyliasis

In Australia, in 2001, ongoing cases were seen of fatal neurological disease due to the rat lungworm *Angiostrongylus cantonensis* in abnormal mammalian hosts. These included: tammar wallaby, parma wallaby (*Macropus parma*) hybrid, purple necked rock wallaby (*Petrogale lateralis*), alpaca (*Lama glama paca*), brush tail possum a tawny frogmouth (*Podargus strigoides*), and a captive squirrel monkey (*Saimiri sciureus*).

Arboviruses

Arboviruses were implicated in the tammar wallaby sudden death epizootic reported from Queensland, Australia, in December 1998. An Orbivirus of the Eubenangee serogroup was isolated.

Avian circovirus

Avian circovirus has been detected in Northwest crows, rock doves and ring-billed gulls in Canada and in herring gulls (Larus argentatus) in Europe..

Circoviral infection and disease is endemic in sulphur crested cockatoos (*Cacatua galerita*) in western Sydney, Australia. In some flocks the prevalence is 80%. The disease has been identified by Environment Australia as a Key Threatening Process to endangered parrot species under the Biodiversity Conservation Act 1999. A Threat Abatement Plan is currently being tendered.

Avian malaria

In Australia, avian malaria was seen in two wild little penguins (*Eudyptula minor*) in New South Wales. Avian malaria was also seen in a captive Fiordland crested penguin (*Eudyptes pachyrhynchus*) in New South Wales.

Avian malaria was seen in a yellow-eyed penguin (*Pygoscelis adeliae*) juvenile from the Otago Peninsula in New Zealand. *Plasmodium* sp. infection was seen in captive-reared New Zealand dotterel (*Charadrius obscurus*) chicks due to be released onto Stewart Island. The eggs had been taken from the wild, but as there was no indication of the disease in 30 wild birds, the chicks were withheld from release.

Avian paramyxovirus

Avian paramyxovirus caused mortality of Eurasian collared doves (*Streptopelia decaocto*) in the panhandle of Florida, USA. The Eurasian collared dove is an introduced species that is not native to North America.

In Argentina, virus isolates were obtained from cloacal swabs from 3/50 wild birds sampled.

Paramyxovirus-1 (PMV-1) has been seen in confiscated Houbara bustards (*Chlamydotis undulata*) that were trapped in Pakistan, Iran and Afghanistan. Between 60 and 70% of traded birds are seropositive for PMV-1. Viral screening of both live and dead birds at the quarantine unit of the National Avian Research Centre in Abu Dhabi, United Arab Emirates, confirms that PMV-1 can be isolated from individuals in most consignments.

Avian pox

Australia reported pox in wild silvereyes (*Zosterops lateralis*). New Zealand reported one case in a New Zealand Wood Pigeon (Kereru) (*Hemiphaga novaeseelandiae*).

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Avian vacuolar myelinopathy

Avian vacuolar myelinopathy (AVM) was confirmed in three bald eagles (*Haliaeetus leucocephalus*) and is suspected in another three eagles that died from mid-November 2001 through mid-January 2002, at Clarks Hill Lake in eastern Georgia, USA. The lake lies along the border with South Carolina and is also known as Lake Strom Thurmond. During the current mortality event, AVM was also confirmed in numerous American coots (*Fulica americana*), and 13 Canada geese (*Branta canadensis*). This lake was the site of an AVM outbreak during the winter of 2000-2001 that killed 13 bald eagles. During the previous outbreak, AVM was found for the first time in great horned owls (*Bubo virginianus*) and a killdeer (*Charadrius vociferus*).

Lesions of AVM were reproduced experimentally for the first time when researchers fed tissues from affected coots to unreleasable, rehabilitated red-tailed hawks (*Buteo jamaicensis*). Hawks receiving a combination of several tissue types from coots collected during an AVM outbreak developed lesions by 4 weeks despite the absence of observable signs of neurological disease. It had long been suspected that eagles acquire AVM via ingestion of other affected birds.

First recognised when it killed 29 bald eagles in the winter of 1994-95 in Arkansas, USA, AVM has to date, been confirmed or suspected in the deaths of at least 85 eagles in Arkansas, Georgia, North Carolina, and South Carolina, USA. Lesions of AVM were confirmed in several duck species in 1998 at an affected site in North Carolina. The cause of AVM remains undetermined despite extensive diagnostic and research investigations. A natural or manmade neurotoxin is suspected because there has been no evidence of viruses, bacteria, prions, or other infectious agents, and the lesion is consistent with toxicosis. To date, lesions of AVM have not been confirmed in mammals and the effects on mammals, including humans, are unknown.

Babesiosis/*Theileria* infections in black rhinoceros

In the Serengeti ecosystem in Tanzania, five black rhinoceros (*Diceros bicornis michaeli*) died with clinical signs, gross and microscopic lesions indicative of piroplasmosis. It is not certain whether this piroplasm is a *Babesia* or *Theileria*.

In the Addo National Park in South Africa, deaths of black rhinoceros as a result of babesiosis were also recorded. It would appear that stress activates latent infection in this species.

Bat paramyxoviruses

Nipah and Hendra viruses have been grouped into the genus *Henipavirus*, within the family *Paramyxoviridae*. Menangle and Tioman viruses are grouped within the genus *Rubulavirus*. The other two genera in this family include *Morbillivirus* and *Respirovirus*. A serological survey of 100 herds of domestic commercial pigs in Queensland for Hendra virus and Nipah virus was negative.

Tioman virus was isolated from the urine of a fruit bat (*Pteropus hypomelanus*) during a search for Nipah virus on an island off the east coast of peninsular Malaysia. This virus is similar to, but distinguishable from, Menangle virus in Australia.

Botulism

Type E botulism continues to cause high mortality among fish-eating birds, including the common loon (*Gavia immer*) on Lake Erie (USA and Canada).

Canine distemper

In the Serengeti ecosystem a suspected outbreak of canine distemper has occurred in captive wild dogs (*Lycaon pictus*). The disease is suspected on the basis of clinical signs and histopathology. The results of virus isolation and PCR are awaited. Ten free-ranging lions in the same ecosystem were opportunistically bled for a random sero-survey and nine were positive for canine distemper. No clinical signs of disease were evident.

Chytridiomycosis

Chytridiomycosis appears to be wide-spread in frogs in Canada. An iridovirus (Reginavirus) has been recognised as an important pathogen in Tigre salamander throughout the salamander's range in Western Canada.

A part from the east coast, Adelaide and the south west, Australia reported no new areas with chytridiomycosis infection.

In New Zealand, chytriodiomycosis was previously reported only in the introduced Australian green and gold frog (*Litoria raniformis)* in 1999-2000, and then later sporadically in other *Litoria* sp. Five cases were reported in the green and gold bell frog in 2001. Diagnosis was by histopathology.

The cutaneous, diphtheric and septicaemic forms of the disease were found in July 2001 in New Zealand in an Archey's frog (*Leiopelma archeyi*). This native frog was found dead in the Coromandel, an isolated mountain refuge of this and other native frog species. This represents the first time the disease has been seen in native New Zealand frogs.

Recent cloning and sequencing work done in the USA shows that there is little variation among isolates of *Batrachochytrium dendrobatidis*. These results support the epidemiological data that *B. dendrobatidis* is an emerging agent recently detected and spreading throughout the globe, and that pathogen pollution is a major factor in emergence. These findings justify country surveys for classification of chytrid status and international quarantine measures.

Chronic wasting disease

Chronic wasting disease (CWD) was detected for the first time in free-ranging wildlife in Canada in 2001. It was recognised in two mule deer (*Odocoileus hemionus*) in the Province of Saskatchewan; one killed in November 2000, and the second, from the same geographical area, killed in April 2001. The source of infection for these deer is unknown. The disease is under eradication in farmed wapiti in Saskatchewan.

In the USA, prior to 2000, the endemic focus of CWD in wild cervids was found in small, contiguous portions of south-eastern Wyoming and north-eastern Colorado. However, in 2000-2001, CWD infections were confirmed for the first time in three wild mule deer in Kimball County and in a single wild deer in adjacent Cheyenne County, Nebraska. This area of south-western Nebraska is adjacent to the previously recognised endemic focus. However, in Sioux County in north-western Nebraska, CWD infections have been found in wild deer inside and outside a high fence enclosure adjacent to a captive wapiti facility in which seven cases of CWD have been detected since December 2000. Additional surveillance for CWD is underway in the area.

Some level of targeted surveillance and/or harvest-based surveys for CWD in free-ranging cervids has been conducted and reported in at least 30 US states in recent years. Other than the recent findings in Sioux County, Nebraska, no evidence of CWD has been detected in samples collected outside the endemic area. Surveillance is conducted via examination of 'target profile' cervids of at least 18 months of age with emaciation and a combination of neurological signs, as well as via testing of hunter-harvested animals or wild cervids collected for examination by wildlife management agencies. In December 2001, animal health and wildlife authorities from Colorado, Nebraska, South Dakota, and Wyoming met to discuss regional objectives and to develop plans to control CWD in free-ranging cervid populations.

In captive cervids, CWD infection was found for the first time in Kansas. The infection was diagnosed in December 2001 in a captive wapiti that had been shipped from a CWD-positive commercial wapiti facility in Colorado. This facility shipped exposed animals to captive wapiti operations in 15 states as well as to more than 40 other operations within Colorado. Positive animals were found among the shipped animals on two of the Colorado facilities. To date, CWD infections have been found in captive wapiti in Colorado, Kansas, Montana, Nebraska, Oklahoma, and South Dakota.

On 21 September 2001, the US Secretary of Agriculture issued a declaration of emergency concerning CWD in captive cervids. This declaration will allow the United States Department of Agriculture (USDA)'s Animal and Plant Inspection Service (APHIS) to obtain US$2.6 million in special funds to purchase positive and exposed captive cervids from CWD-infected or exposed herds, enhance surveillance and diagnostic testing for CWD, and increase training for producers and veterinarians. In February 2002, the USDA published an interim rule in the Federal Register regarding federal indemnification for captive cervids destroyed in CWD control efforts, and made available another US$12.5 million for this purpose. Additionally, APHIS is cooperating with the captive wapiti industry and others to develop a federal programme for the elimination of CWD in captive wapiti.

CWD of cervids is a transmissible spongiform encephalopathy (TSE) related to, but distinct from, scrapie of sheep and bovine spongiform encephalopathy, (also known as mad cow disease). CWD was first recognised as a syndrome in cervids in the 1960s and was identified as a TSE in the 1980s. To date there has been no evidence that CWD is transmissible to humans and research studies carried out suggest that the transmissibility to other species, such as cattle, is unlikely.

Ebola haemorrhagic fever in West Africa

During November and December 2001 and January 2002, several outbreaks of Ebola haemorrhagic fever were reported in humans in Gabon and the Congo. These have been confirmed by the WHO[5]. Animal mortalities in these regions were also reported, and one survey by the Wildlife Conservation Society found the carcasses of 30 low-land gorillas, eight common chimpanzees and four circopithecus monkeys, but most had deteriorated/putrified to the point of no diagnostic value. The carcasses of other species not generally associated with Ebola were also found. These included 12 duiker (*Sylvicapra* sp.), two genets (*Genetta* sp.), two porcupines (*Hystrix cristata*), one pangolin (*Manis temmincki*), one elephant (*Loxodonta cyclotis*) and two forest hogs (*Hylochoerus meinertzhageni*). Diagnostic samples from one gorilla (*Gorilla gorilla*), and two genets have been sent for analysis.

[5] WHO: World Health Organization

Feline immunodeficiency disease

There is serological evidence of the feline immunodeficiency disease in feral cats (*Felis catus*) in Australia. In one study of cats living near rubbish tips in Canberra, 50% were found to be positive. Ten free-ranging lions in the Serengeti ecosystem were opportunistically bled for a random sero-survey. Eight were seropositive for feline immunodeficiency virus (FIV). No clinical signs of disease were evident.

Feline viral diseases in feral cats

There is serological evidence of feline leukaemia and feline panleukopaenia in feral cats in Australia. However, in a study of feline leukaemia in feral cats in Canberra, the disease was not seen.

Haemonchosis in Sable antelope in South Africa

Clinical verminosis with anaemia, caused by *Haemonchus contortus*, was diagnosed in farmed sable antelope (*Hippotragus niger)* in the Northern Cape Province of South Africa.

Japanese encephalitis

For the first time in 1998 sentinel pigs on the Australian mainland seroconverted to Japanese encephalitis (JE). This corresponded with two human infections, one on Badu Island in the Torres Strait and one in a fisherman in Mitchell River, 550 km south of the Torres Strait. Following two wet seasons in 2000 and 2001, sentinel pigs again seroconverted in the Torres Strait, but there were no clinical cases in humans or animals.

In parts of India, JE is encroaching into areas in which a closely related virus (West Nile virus), is endemic and both viruses appear to be able to co-circulate. JE is now enzootic in PNG (Papua New Guinea) despite the presence of co-circulating flaviruses MVE (Murray Valley encephalitis), KUN (Kunjin), KOK (Kokobera), Dengue and Sepik virus.

In Australia over 75 arboviruses have been identified, with 12 viruses being of public health concern.

Malignant catarrhal fever

With the expansion of the game ranching industry in South Africa, the interface between cattle and wildebeest is progressively enlarging. This has resulted in an increased incidence of Alcelaphine herpes 1-associated malignant catarrhal fever in cattle.

Mass mortality of frogs

Mass mortality among common frogs (*Rana temporaria*) was reported in the UK in 2001. The mortality was demonstrated to be caused by a ranavirus (family *Iridoviridae*). How this virus was introduced into the frog population in the UK is uncertain, but it may have been through importation of infected amphibians or fish.

Mycobacteriosis

A fat tailed dunnart (*Sminthopsis crassicaudata*) from the Northern Territory Australia, has been found to have widespread mycobacterial infection.

Two cases of pyogranulomatous pneumonia due to mycobacteriosis were seen in New Zealand sea lions (*Phocarctos hookeri*) from the Auckland Islands. Culture results are pending. These represent the first report of the disease in New Zealand sea lions.

Salmonellosis

In Australia, health authorities are currently investigating a cluster of *Salmonella typhimurium* phage type 170 in people in Victoria, New South Wales and Queensland. The majority of infected individuals became ill in October and November 2001. There are reports of exposure to livestock, and some affected people live in rural areas. The national database records phage type 170 being isolated from a tammar wallaby, antelopine kangaroo (*Macropus antilopinus*), a wallaroo (*Macropus robustus*), and emus (*Dromaius novaehollandiae*). There is no link with the New Zealand phage type 160.

Salmonella typhimurium phage type 160 caused two cases of gastroenteritis in New Zealand in 1998 and 1999, 1802 cases in 2000, and 2275 cases in 2001. Affected individuals were likely to have contacted wild birds. The human disease followed extensive outbreaks in passerines in New Zealand. New Zealand reported 100 passerine cases of salmonellosis in 2001.

Two wild magpie larks (*Grallina cyanoleuca*) in New South Wales died from fibrinous coelomitis associated with *S. typhimurium* infection. Phage typing indicated the latter was different to the rainbow lorikeet type.

Sarcoptic mange

Sarcoptic mange is still reported to be a common disease in the Northern European red fox and raccoon dog and to be occasionally observed in lynx (*Lynx lynx*), pine marten (*Martes martes*) and wolf (*Canis lupus*). In central and southern Europe sarcoptic mange was reported to occur in red deer, roe deer (*Capreolus capreolus*), chamois and hedgehog (*Erinaceus europaeus*).

Australia reported a new sarcoptiform mite (from a genus other than *Sarcoptes*) in a short beaked echidna (*Tachyglossus aculeatus*).

Trichomoniasis

Trichomoniasis cases were reported in several avian species in the USA and in Peru. The disease also was commonly encountered in wild columbids submitted during surveillance for West Nile virus.

The disease was seen in wild king parrots (*Alisterus scapularis*) in Victoria, Australia, and was associated with epizootics of emaciation, dehydration and enteritis. It was also reported from pigeons (*Columba livia*), little penguins (*Eudyptula minor*) and boobook owls (*Ninox novaeseelandiae*).

Toxoplasmosis

Pademelons (*Thylogale billardieri*) in Tasmania were reported with blindness due to severe chorioretinitis associated with *Toxoplasma* sp. infection. A wild southern brown bandicoot (*Isoodon obesulus*) was reported with systemic toxoplasmosis.

Additional diseases

West Nile virus

West Nile virus (WNV) occurred in American crows and in Blue Jays in one region of southern Ontario, Canada, in the summer of 2001. 128 positive birds were detected in a sample of about 3,000 tested.

WNV mortality occurred in wild birds throughout the eastern and mid-western USA this year. WNV is a mosquito-borne flavivirus that had not been reported in the Western Hemisphere until autumn 1999 when it was recognised in wild birds, humans, and horses in the greater New York City area.

The virus continues to expand both geographically and in the number of species infected. WNV has been isolated from over 80 species of birds, including 62 free-ranging species from Washington, D.C., and from 28 states of the USA. During 2001, additional human cases occurred with five deaths, and infections were documented in 347 domestic horses from 18 states. The virus has been isolated from 21 mosquito species since 1999, including species active at dawn and dusk, species active during the day, and species that feed on both avian and mammalian hosts.

Wild bird mortality is a key indicator of WNV activity in an area. Several native bird species, particularly the American crow (*Corvus brachyrhynchos*), appear to be highly susceptible. In 2001, WNV infections were confirmed in more than 4,500 crows. An enhanced passive surveillance system for reporting and testing dead birds has been the leading surveillance tool for public health agencies. Preliminary results of WNV studies at the National Wildlife Health Center indicate that crows die within 4-7 days after inoculation and that bird-to-bird viral transmission occurs in the absence of mosquito vectors under experimental conditions. The impact of WNV on the American crow and other wild bird populations is unknown.

An outbreak of WNV disease was observed in horses in France, in 2000. Serological surveillance has been carried out in waterfowl in 2001 and no evidence of WNV circulation has been detected[6].

Adelie penguin (*Pygoscelis adeliae*) mortality

A total of 99 of 15,000 birds from two island colonies at Mawson Station, Antarctica, were found dead in November 2001. Deaths in such numbers are rare according to historic records. The numbers of Adelie penguins have been gradually declining in Antarctica, and it is thought that climate change may be the cause. There is also the possibility of skuas (*Catharacta maccormicki*) introducing disease.

Focal alopecia in sea lions (*Phocarctos hookeri*)

Focal alopecia was noted in New Zealand in sea lion pups, juveniles, and some adults. Pathology suggested a fungal lesion, but the only fungi cultured included *Fusarium* sp., *Phoma* sp., and a coelomycete fungus. All of these are likely soil contaminants. The severity of the histological lesion suggests that the fungus is not well host-adapted to sea lions.

***Gyps* genus vultures**

Gyps genus vultures have almost disappeared from India, possibly from an unknown viral disease. The disease appears to be spreading towards Afghanistan. Some factors may include the recent massive expansion of the Indian poultry industry as a potential source of novel avian viruses for vultures. The decrease in vulture numbers is already leading to an increase in the number of semi-feral dogs around villages, and a rise in rabies cases is feared. The loss of the major scavenger will have multiple effects on humans, domestic and wild animals through disease and other factors.

Lymphoma/retrovirus infection

Six cases of lymphoma were seen in wild native snakes over the past 6 months in Australia. The Pathology Registry at Taronga Zoo is procuring funding to investigate whether these are associated with retrovirus infections.

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[6] Websites with additional information on WNV:
http://nationalatlas.gov/virusmap.html
http://www.umesc.usgs.gov/http_data/nwhc/news/westnil2.html
http://www.cdc.gov/ncidod/dvbid/westnile/index.htm
http://www.health.state.ny.us/nysdoh/westnile/index.htm
http://www.wildlife.usask.ca

Papilloma virus

In Australia, multiple proliferative masses have been seen on mucocutaneous junctions of captive and wild Western barred bandicoots (*Perameles bougainville*) morphologically consistent with papillomas. Reports of the disease were received from around the country as animals were moved from the island population to recovery team members on the mainland. Animals with lesions have only been seen from a specific area of one island (Bernier Island). There has been no evidence of the disease in any other mammal species on other islands in the group.

Spirochetosis-Potoroo - Australia

Spirochetosis due to large numbers of spirochete-like bacteria (possibly *Treponema* sp.) was seen in cases of balanoposthitis in captive and wild Gilbert's potoroo (*Potorous gilbertii*). There was a good response to treatment with penicillin. There appeared to be no adverse effects on fertility.

Wobbly possum disease

Wobbly possum disease was first identified in a captive research colony in New Zealand in *Trichosurus vulpecula* in 1995. Affected possums show progressive neurological signs and the disease results in 95% mortality. The disease has also been seen in free-ranging possums. It has been associated with virus-like particles in tissues of affected animals and an unclassified enveloped RNA virus has been isolated. Experimental inoculations have reproduced the disease, however the identity of the agent has yet to be determined. Infection in the wild can be spread by social contact.

2. Review of progress of Wildlife Disease Working Group over the past 10 years

The Group is satisfied to notice that the awareness of the significance of wildlife diseases has increased world-wide during the ten years that the Group has been in operation. The number of countries reporting wildlife diseases has also increased, but is still only around 25% of the total number of OIE Member Countries.

The Working Group on Wildlife Diseases first met in 1993 and held its 10th meeting in February 2002. Every year the Group has reviewed the occurrence of wild animal diseases. Some of the other main topics addressed by the Group at each of its meetings are as follows:

March 1993

The Working Group was established to identify those wildlife diseases of concern to Member Countries and those that should be considered for reporting to the OIE. The first questionnaire was sent to Member Countries, and 38% responded. The first wildlife disease list containing 30 diseases was established. The Working Group recommended that in addition all List A and B diseases should be reported. Translocation of wildlife was recognised as an activity that had important animal health risks including spread of List A and B diseases. It was recommended that OIE establish a list of wildlife diseases consultants and a database of relevant scientific literature.

February 1994

The Group recommended that the Delegate of each Member Country should assign to an appropriate person the responsibility of facilitating wildlife disease surveillance and reporting to the OIE. The health risks to Member Countries associated with wild animal translocations, including animal exchanges among zoos, were highlighted. The Group discussed the major problem of the validity of standard diagnostic tests when applied to different animal species. Most diagnostic tests have not been validated for more than a small number of domestic species and some tests give false results when applied to other species. Five recommendations regarding vaccination of wildlife were made. In addition, the Group strongly discouraged development and deployment of contraceptive vaccines unless they are species-specific and do not employ transmissible vectors such as genetically engineered viruses.

June 1995

Disappointing levels of responses to the wildlife disease questionnaire from Member Countries were discussed and some mechanisms for improvement were recommended. Health risks associated with international translocation of wildlife were a major focus of the meeting. Health risk assessment was recommended as an essential pre-condition to translocation and some elements of risk assessment were outlined.

September 1996

The environmental safety of contraceptive vaccines was discussed. Several diseases of emerging international importance were discussed at length with emphasis on transmissible spongiform encephalopathies and bovine tuberculosis in both farmed and free-ranging wildlife. Recommendations were made to the International Committee regarding bovine tuberculosis and wildlife contraception technologies.

October 1997

The current status of transmissible spongiform encephalopathies, bovine tuberculosis, canine distemper and rabies in wildlife were discussed. Emerging diseases were defined and several diseases in wildlife were considered to meet the defining criteria.

June 1998

Wild animal translocation was again discussed at length, and the health risks associated with such translocations were again emphasised to Member Countries and preliminary plans were made to prepare guidelines to assess health risks in wildlife translocations. Member Countries were urged to establish formal programmes of wildlife disease surveillance. Data requirements to demonstrate freedom from a disease in wild animals and intervention strategies for wildlife, such as vaccination, were discussed.

October 1999

The compartmentalisation of diseases between wild and domestic animals was discussed at length. The Group concluded that the occurrence in one compartment does not automatically imply occurrence in the other and each situation must be evaluated separately. Compartmentalisation was considered possible for both Newcastle disease and classical swine fever if criteria of separation of the compartment can be met. Definitions were established for the terms ‘domestic’, ‘feral’, ‘captive wildlife’ and ‘wild’, as applied to wild and domestic animals. A draft of guidelines for health risk assessment in wild animal translocations was reviewed and approved, and expansion of List B to include several diseases of Cervidae was recommended.

April 2000

The Group recommended that a Reference Laboratory for tularaemia be established. The final internet-accessible version of Guidelines for Health Risk Assessment in Wildlife Translocations was approved. Chapter topics for a wildlife issue of the OIE *Scientific and Technical Review* were identified, together with appropriate authors and reviewers. A draft of ‘Post-mortem-procedures for Wildlife Veterinarians and Field Biologists’ was reviewed.

March 2001

The Group discussed the health risks associated with the use of wild animals and products as food for domestic animals. It urged the OIE to make a formal evaluation of these health rules. The OIE Standards Commission agreed to survey Reference Laboratories with respect to the validation of standard diagnostic procedures when applied to wildlife species. The Group requested to the Code Commission that the definition of the word ‘animal’ be expanded to include wild animals explicitly. Several amphibian diseases were highlighted as an emerging disease of international significance. The Group recommended to the Fish

Diseases Commission that they incorporate these diseases within its remit. Foot and mouth disease in European wildlife was discussed. The absence of any historical information on this topic, particularly with respect to wild boar, was identified as a major problem in evaluation of wildlife risks in the current epizootic.

In conclusion the assembly and review of wildlife disease occurrence data from around the world each year has been a useful undertaking that has highlighted internationally important diseases, significant problems in diagnosis of disease, and emerging disease issues. The annual discussion of these data has permitted the Group to inform the International Committee on these issues.

The Group is concerned that the OIE receives very little information on wild animal diseases from much of the world: Asia, South and Central America, Africa and the Middle East. Mechanisms to achieve information flow from these areas are greatly needed.

The dominant concerns of the Group have been the surveillance of wild animal diseases, and the application of knowledge gained from surveillance to health issues within the scope of the OIE. The Group has addressed these concerns through recommendations to the OIE and Member Countries, through cooperative interaction with the OIE Specialist Commissions and through a series of direct or cooperative publications: Guidelines for Health Risk Analysis in Wild Animal Translocations (2000), Post-mortem Procedures for Wildlife Veterinarians and Field Biologists (2001), Quarantine and Health Screening Protocols for Wildlife Prior to Translocation and Release into the Wild (2001), and one issue of the OIE *Scientific and Technical Review* (Vol. **21**(1), parts 1 and 2, April-August 2002).

3. Compartmentalisation

The Group discussed the situation regarding compartmentalisation of diseases that occur in wildlife but present no threat of spread to domestic animals. The Group recognises the definition of compartment as an autonomous epidemiological entity defined on the basis of either geography (zone), such as the situation with FMD confined to African buffalo within the KNP and adjacent game reserves in South Africa, or management (enterprise) for the purpose of international trade. The Working Group reviewed the 1999 report on compartmentalisation and concurred with the previous conclusions that:

1) One generalised OIE position is not appropriate to address all List A diseases with wildlife involvement;

2) There should be a general procedure to address the potential significance of wildlife involvement with List A diseases;

3) There should be specific guidelines for assessing the risk represented by wildlife involvement with respect to each disease.

Consequently, the Group recognised the impossibility of compartmentalisation of highly infectious disease when there is a diffuse interface between livestock or poultry and infected wildlife. However, when an enterprise is managed to preclude introduction of diseases from wildlife, as may be the case with highly developed production facilities that block the wildlife/domestic animal interface, it may be possible to maintain disease-free status in the domestic animal compartment. This status will be based on thorough knowledge of the disease epidemiology, particularly regarding wildlife, and demonstration that all risks have been mitigated.

In view of these statements, the Working Group stands by its previous positions regarding compartmentalisation of the domestic animal enterprises and maintenance or establishment of disease-free status when Newcastle disease virus is present in wild birds or classical swine fever virus is present in wild suids.

4. National preparedness for exotic/foreign disease incursion into wildlife populations

The Working Group urges Member Countries to recognise the importance of wild animals as potential reservoirs and targets of exotic diseases, and to include wild animals when planning possible responses to incursions of such diseases. National preparedness for incursions of exotic diseases must include assembling up-to-date information on the demography of susceptible wild animal species and development of a range of feasible procedures that can be used to prevent transmission of diseases between livestock and wildlife and spread of disease within wild animal populations.

During an incursion of an exotic animal disease, susceptible wild animals may become infected and act as reservoirs and sources of new infections for livestock, thereby prolonging outbreaks and trade embargoes, complicating eradication and control efforts and thereby magnifying the economic damage to livestock and related industries. Wild animals themselves can be harmed by exotic diseases. They can experience morbidity and mortality, reproductive loss, and increased predation when an exotic disease to which they are susceptible is introduced. As a result, a nation's natural capital, its natural resources and associated ecologies and economies, can be significantly affected through the impact of disease on wild animals. Wild animals also can be harmed and diminished by exotic disease in control activities when these include destruction, confinement or harassment of wildlife.

Effective planning for responses to exotic diseases incursions must accord to wildlife the same degree of thought and detailed attention now given only to livestock. Complete information about a country's susceptible wildlife populations must be assembled. This is the information required to evaluate the risk and rates of disease transmission between livestock and wildlife, and the potential of disease to spread within wildlife populations. A wildlife consultative network of wildlife and veterinary expertise should be created and deployed to develop a range of methods that could be used to reduce the risk of transmission of disease from livestock to wildlife in the event of an exotic disease outbreak, or to limit or prevent its spread among wild animals. These actions will establish the necessary information, lines of communication, and science-based plans to achieve exotic disease preparedness with respect to wild animals. It was reported that Australia has recently created an organisation precisely to address this issue. Under the existing Wildlife Exotic Disease Preparedness Programme, the Australian Wildlife Heath Network is being established. The network will include dissemination of surveillance information, and a national data base of diagnostic data and wildlife experts.

5. Emerging diseases of wildlife

The Group is aware that there will always be emerging diseases, both in domestic animals and wildlife. The Group is also convinced that monitoring wildlife diseases is the best tool to discover novel diseases and new agents. It is also of great importance to have an early warning system to be able to discover an emerging disease, and to have specimen and serum banks to be able to evaluate the status of newly discovered diseases. Good communication between scientists concerning novel diseases is also important in order to ascertain the status of emerging diseases. The Group wishes to point out the importance of these diseases. This area is therefore covered in several chapters in the newly published OIE *Scientific Technical Review*, Infectious Diseases of Wildlife, Vol. **21**(1).

6. Veterinary Public Health in developing countries: bush meat – food security and food safety

a) Food security

Bush meat is recognised as a very important component of the diet of many of the world's rural poor.

However, it has been suggested that the current rates of exploitation, especially where these are on a commercial basis, are probably non-sustainable in the long-term and may even lead to the local extinction of some endangered species, such as the great apes (gorillas and chimpanzees) and forest elephants in Western Africa.

b) Food safety

There are also important health implications associated with bush meat. The potential food safety issues regarding the handling and consumption of bush meat should therefore be recognised.

Evidence of simian immunodeficiency virus (SIV) infection has been reported for 26 different species of African non-human primates, many of which are regularly hunted and sold as bushmeat. Additional reports are beginning to connect non-human primates with Ebola virus and deaths have resulted from outbreaks of diarrhoea linked to the consumption of bushmeat.

In the southern forests of the Central African Republic there are reports of a 41.6% seroprevalence for Ebola virus and fatal cases of Ebola virus infection have resulted from the butchering and consumption of a chimpanzee which was found dead..

In East and West Africa, Rift Valley fever (RVF) is endemic in the pastoral zones. RVF is responsible for serious morbidity and mortality in humans and in wild and domestic animals. Meat from RVF infected animal is generally considered safe to consumers, however, there is danger of exposure during butchering and handling.

Proposals to introduce domestic livestock into the cleared forests of Western Africa as an alternative food source to wild bush meat could have negative ecological impacts and could amplify local endemic infections of public health concern.

The OIE Working Group recommends that the disease implications of novel substitutes for bush meat be carefully considered and evaluated with regard to food security and food safety.

7. Sensitivity and specificity of diagnostic tests for wildlife diseases

In May 2000, at the request of the OIE Working Group on Wildlife Diseases and the Standards Commission, the OIE Central Bureau sent a letter to the OIE Reference Laboratories asking them which diagnostic tests they are using for wildlife species, whether the test had been validated for use in species other than the common domestic animals, and whether any differences had been observed in the sensitivity and specificity of the tests between domestic and wild species.

Of the 119 Reference laboratories, 36 replied giving the list of tests known to be used in wildlife. There are 173 tests for 32 diseases listed. Among these, very few had been actually validated for specific use in wildlife[7], and those that are validated have involved direct characterisation of the pathogen, not the immune response.

[7] ASF direct immunofluorescence, CSF virus isolation in wild boars, Rabies FAT, Rabies fluorescent focus inhibition test, Rabies ELISA in foxes, tuberculosis ELISA in seals, Brucellosis rose bengal test in bison and cervids, TSE (CWD ?) in mule deer and elk, Contagious caprine pleuropneumonia in wild goats, Parapox virus characterisation by various methods excluding PCR, and trichinellosis detection by direct methods.

The Group is not concerned by the diagnostic methods for the detection of the antigen or its genome, but expresses concern for those tests designed to detect antibodies or cytokines. The Group decided to pursue the evaluation of diagnostic test specificity and sensitivity in wildlife by focusing on a limited list of diseases that are considered important for reporting, international trade and/or food safety. The diseases to be considered are: FMD, rinderpest, peste des petits ruminants, Rift Valley fever, bluetongue/haemorrhagic disease, classical swine fever and pestivirus infections, all forms of brucellosis, bovine tuberculosis and equine viral arteritis. For this purpose each relevant OIE Reference Laboratory will be directly contacted by the OIE, and Group members will communicate directly with the Reference Laboratories to evaluate more precisely which tests can or cannot be recommended for the detection of these diseases in non-domestic species, and possibly to recommend the development of new tests. The Standards Commission will be kept informed of the results of these queries and their input on future actions will be requested.

8. Feedback from the Wildlife Disease issue of the OIE *Scientific and Technical Review*

This wildlife issue is 98% complete, is on track and will be published on time in April. Due to the size of the volume (420 pages), it was decided to split the volume into two parts, Vol. **21**(1) as the April 2002 release and Vol. **21**(2) as the August 2002 release.

9. Other matters

Web site

Dr Marc Artois and Members of the Ad hoc Group met with the Head of the Information Department of the OIE, Dr Karim Ben Jebara, and discussed various possibilities for the layout and organisation of the Web site. Dr Artois will meet with Dr Ben Jebara at a later date to discuss and plan the Web site further.

Frog diseases

The Group noted with concern the recent UK frog mortality event. The severity of amphibian viral and fungal disease justifies country surveys for classification of chytrid and iridovirus disease status and international quarantine measures. The Group recommends that the next steps for the OIE would be to establish:

- quarantine requirements
- movement restrictions
- in-country monitoring requirements
- classification of countries by diseases status.

The Fish Diseases Commission has scheduled an expert to meet with the Group to discuss future activities on this area.

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.../Appendices

MEETING OF THE OIE WORKING GROUP ON WILDLIFE DISEASES

Paris, 18 – 20 February 2002

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Agenda

1. Epidemiological review of selected wildlife diseases 2001
2. Review of progress of Wildlife Disease Working Group over the past 10 years
3. Compartmentalisation
4. National preparedness for exotic/foreign disease incursion into wildlife populations
5. Emerging diseases of wildlife
6. Veterinary Public Health in developing countries: bush meat – food security and food safety
7. Sensitivity and specificity of diagnostic tests for wildlife diseases
8. Feedback from the Wildlife Disease issue of the OIE *Scientific and Technical Review*
9. Other matters

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MEETING OF THE OIE WORKING GROUP ON WILDLIFE DISEASES

Paris, 18 – 20 February 2002

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