

SUPPLEMENT TO THE JOURNAL OF WILDLIFE DISEASES

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Wildlife Diseases Newsletter

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PRESIDENT'S CORNER

As I suspect many of you are also doing, I have been following with great interest the recent debate on the *Nature*, *Science*, and *Scientific American* web sites regarding online science publishing, i.e. the "publish free or perish" debate. (See: SciAm: <http://www.scientificamerican.com/explorations/2001/042301publish/>

Nature: <http://www.nature.com/nature/debates/e-access/>

Science: <http://www.sciencemag.org/feature/data/hottopics/plsdebate.shtml>).

Last fall, a group of prominent scientists called for a boycott of any scientific journals which fail to release their papers to a free public online archive within a few months of publication (Boycott: <http://www.publiclibraryofscience.org/>). As of May 24, over 22,000 scientists had signed an open letter agreeing to a strike beginning in September, 2001. These scientists have vowed that they will not publish in, edit or review for, or personally subscribe to scientific journals that have not agreed to grant unrestricted, free distribution rights to any and all original research reports that they have published, through PubMed Central and similar online public resources, within 6 months of their initial publication date.

As a research scientist that frequently searches the literature, the concept of a central online repository for scientific publications and the ability to instantly access a paper over the internet sounds very appealing and is a laudable goal. However, the issue is much more complex than that. I have very grave concerns about how this movement may impact the Wildlife Disease Association and other small, non-profit scientific societies like ours that publish journals for specialists. Producing a high quality, peer-reviewed journal like the *Journal of Wildlife Diseases* is costly, and the WDA, like most small scientific societies, relies on income from membership subscriptions to offset these costs. Proponents of free access have indicated that the costs of participation in open archives will be minimal, but that is unrealistic. If publications are available free within 6 months, subscriptions to many journals will eventually decline, especially among libraries and other institutional subscribers that face budget constraints, as well as a shortage of shelf space. To recoup these costs, publishers will raise page charges and submission fees for authors. Consequently, some authors will be excluded from publishing, in particular those in developing countries or those without large research budgets. Page charges are already causing problems for many scientists outside the U.S. The subsequent loss of subscriptions and submitting authors may drive smaller societies out of business, reducing publishing options in highly specialized fields like ours. Some have suggested that the free access movement could essentially result in a "culling of the existing journals", giving rise to something close to a monopoly, as only the large publications survive (Gannon, EMBO reports, vol.2, no.3, 2001).

That outcome is certainly not the intent of those interested in promoting the free availability of scientific literature, nor is it in the best interests of anyone involved in the communication of science - publishers, librarians, and, most of all, scientists. The publishing business is facing a major upheaval as it is very likely that a transition to integrated on-line literature will eventually take place, but the potential consequences must be carefully analyzed. It is up to us, as scientists and an Association, to determine how best to meet this challenge, explore alternatives, and to protect our collective interests. In the meantime, the discussion continues on the web and within scientific editorial boards. I urge you all to enter this debate in a constructive spirit and express your opinion; it will likely be a major topic of discussion at WDA council meeting this year.

And while we are on the subject - even though it is inevitable that printed journals will eventually be replaced by electronic versions, I have to say that I will lament their passing. I am always pleasantly surprised to find the *JWD* in my mailbox and am eager to open it. I like the long line of muted blue journals that fill a shelf in my bookcase. I enjoy thumbing through the journal, browsing it randomly, and reading articles I might not otherwise search for. I like the way

it smells and the way it feels, sensations that are lacking in my keyboard. The *Journal* can often be found on my night stand; it is the perfect size to carry with me to waiting rooms, airplanes, coffee shops, and many other places conducive for reading. I am fully aware of the advantages a computerized version of the *Journal* offers (not to mention the savings in paper and trees), and yes, one could always print it out, but there is something to be said for holding a book in your hands, and I believe I will always prefer turning pages to pushing down arrows.

This is my last few months as WDA President and, thus, my last President's Corner. While I have immensely enjoyed my tenure as President, I am equally pleased to be passing the gavel to the exceptionally capable hands of Paul Barrows. Many thanks to the other officers, the editors, council men and women, and numerous committee members for all your hard work. I am especially grateful to Bill Samuel, outgoing Vice President, who has been my personal fount of wisdom, good counsel, and inspiration the last couple of years. Thanks again, Bill! Tag, you are "it", Paul.

Tonie E. Rocke, WDA President.

WDA ACTIVITIES

South Africa!!! As this issue of the *Journal of Wildlife Diseases* arrives in your mail, hopefully, many of you will be joining the Wildlife Disease Association (WDA) and the Society for Tropical Veterinary Medicine (STVM) for their annual conference. This year's joint meeting, "Wildlife and Livestock Disease and Sustainability: What Makes Sense?," is from July 22-27, 2001 at Kwa Maritane in the Pilansberg National Park, South Africa. Conference information, travel information, and registration are being handled by Event Dynamics, P.O. Box 411177, Craighall 2024, South Africa. Telephone: 27 11 442 611; FAX: 27 11 442 5927. Email: sandra@eventdynamcis.co.za We hope you have the opportunity to join us for this year's conference. A summary and list of papers presented at the conference will be in the October issue of the *JWD*.

WDA Student Activities. The Wildlife Disease Association offers a scholarship and two awards to encourage student participation in the Association and our annual conference, and to recognize outstanding student research. Students are defined as undergraduate or graduate students in the basic or veterinary sciences, and veterinary interns or residents. Potential recipients must be members of the Wildlife Disease Association or must apply for membership at the time of application for the award. Student supervisors are encouraged to bring these awards to the attention of their students well in advance of deadlines. The scholarship and awards are as follows:

Wildlife Disease Graduate Student Research Recognition Award is given to the student judged to have the best research project in the field of wildlife disease, based on written communication and scientific achievement. The winner receives a plaque and up to \$2000 US to cover travel, housing, registration, etc. related to the annual conference.

Wildlife Disease Association Scholarship acknowledges outstanding academic and research accomplishment, commitment, and potential in pursuit of new knowledge in wildlife disease or health. The scholarship has a value of \$2000 US and is awarded annually to an outstanding student who is pursuing a master's or doctoral degree specializing in research on wildlife disease.

Terry Amundsen Student Presentation Award acknowledges outstanding oral presentation of research findings. Winner receives \$250.00 and a plaque. To be considered, the student must give an oral presentation (13-15 min) of their topic of choice to the WDA meeting participants in the special student session.

These awards are non-renewable and can be received only once by a given candidate. Information on the details of applying for these awards can be found in past issues of the *Supplement*, but interested students are encouraged to watch for the October, 2001 issue of the *Supplement* as requirements may change. Additional information can be obtained from Dr. Thierry M. Work, Chair of the Student Awards Committee, USGS-NWHC-HFS, PO Box 50167, Honolulu, HI 96850, USA.

Reminder: WDA Web Site Now Password-Protected!! The WDA web site has been partially password-protected to reflect the WDA Council's desire to provide access to some information to WDA members only, as a member benefit. If you are a current member, and have not received the password, and want it, please contact the business office at WDA@allenpress.com. The password will be changed annually, and that information will be provided to members.

HAPPENINGS IN THE FIELD

Foot and Mouth Disease!!! Although foot-and-mouth disease (FMD) is endemic in many parts of the world, the

current outbreak of the disease in the United Kingdom and elsewhere in Europe has raised disease alerts among countries free of the disease. Since many wildlife species also are susceptible to the disease, wildlife disease professionals should increase their awareness and understanding of this important viral disease. Currently, FMD is endemic in Africa, and parts of South America and Asia, where it causes intermittent morbidity and mortality in wild and domestic ruminants and swine. North America, Central America, Australia, New Zealand, Chile are considered free of FMD.

Foot-and-mouth disease or FMD, caused by a picornavirus, is a highly infectious acute febrile disease that can affect all cloven-hoofed animals, domestic and wild, including cattle, sheep, swine, goats, deer, and other cervids. Horses are not affected, but horses as well as humans can carry the virus in their upper respiratory tracts for several days, making them a source of virus to susceptible animals. Affected animals typically develop blisters (vesicles) on the mouth, feet, mammary glands and teats, resulting in lameness and excessive salivation. Although morbidity is high, mortality is usually restricted to young animals; adults typically recover. However, in addition to reduced productivity, FMD causes severe economic hardship through trade restrictions of livestock and products. The virus is persistent in the environment and can survive several weeks, and is easily transmitted from site to site via infected animals or fomites such as boots, tires, and feed, making control difficult. Even meat products and hides can harbor the virus for weeks. Isolated outbreaks in the British Isles have been ascribed to the virus being carried by the wind. Efforts to prevent the spread of the disease in the United Kingdom and other parts of Europe have included the slaughter of over 3 million affected and exposed animals (as of end of the May, 2001), banning of animal movement, cancellation of livestock shows, and reduction of human traffic in national parks and public footpaths in affected areas.

Control of the virus through vaccination is difficult as the virus is antigenically heterogenous and genetically unstable. There are seven classical FMD serotypes that exist worldwide, but these serotypes are sufficiently different immunologically that infection or vaccination with one type does not confer resistance to the remaining serotypes. Antigenic drift has been demonstrated experimentally, and numerous antigenic strains have been identified among the seven main serotypes. One problem with foot and mouth disease is the differentiation of the disease from other similar vesicular diseases, such as vesicular stomatitis, bluetongue, bovine viral diarrhea, foot rot in cattle, vesicular exanthema of swine, and swine vesicular disease, many of which are endemic in North America and other parts of the world.. Because of the ease of mis-identification of the disease based on physical appearance alone, laboratory confirmation is required.

While foot-and-mouth disease is primarily an economically devastating disease of domestic livestock, experimental studies have clearly demonstrated the FMD is a threat to wildlife as well. Many species have been shown to carry the virus without showing signs of the disease, making them a threat to livestock and other wildlife species. The virus may also be transmitted mechanically by animals such as rodents and birds. While these animals do not become infected with the virus, experimental studies have also shown that the virus can survive for a short time on their bodies (up to 91 hours on the feathers of live birds). Experimental studies also demonstrated that the virus could pass unaltered through bird digestive systems. These findings suggest that these animals may facilitate the spread of virus for a short time and distance in the vicinity of an outbreak. Should an FMD outbreak occur in North America, wild cervids (deer, moose, elk), bison, antelope, peccary and feral pigs, would be susceptible and would be a target of eradication efforts to stop the spread of the virus. In the early 1920's in the United States, over 22,000 deer were killed in California in an effort to stop the spread of FMD. In the United States, the U.S. Department of Agriculture is legislated to monitor, regulate, and control foreign animal diseases that threaten domestic animals. However, many agencies such as the U.S. Department of Interior (DOI), as well as many state, local and other federal land management and conservation agencies have worked with the Department Agriculture to develop contingency plans for dealing with a potential outbreak of FMD. In order to protect U.S. livestock from the introduction of FMD, the USDA has implemented an interim rule prohibiting or restricting the importation into the United States of live swine and ruminants and any meat (chilled or frozen) or associated products from Great Britain or Northern Ireland. Ports of entry have been notified to enhance surveillance of travelers coming from Europe, particularly the United Kingdom (UK), because this area is now considered to be at high risk for FMD. All international travelers must state on their Customs declaration form whether or not they have been on a farm or in contact with livestock and if they are bringing back any meat or dairy products from their travels. Any soiled footwear must be disinfected with detergent and bleach. In addition, soiled clothing must be washed and disinfected prior to returning to the United States. Animal and Plant Health Inspection Service (APHIS) officials will inspect the baggage of all travelers who indicate they have been on a farm or in contact with livestock. Any ruminant or swine products (cattle, sheep, goats, deer, and other cloven-hoofed animals included), with the exception of hard cheeses and canned products with a shelf life, will be confiscated. The USDA has also issued a temporary ban on the importation of all swine and ruminants, meat (chilled or frozen) and other associated products from Argentina. APHIS has established a toll-free telephone number that cooperators

can call to obtain information on FMD and APHIS response efforts (1-800-601-9327).

For web based information connect to:

USDA APHIS/FMD at <http://www.aphis.usda.gov/oa/fmd/index.html>

APHIS Emergency Operations Center: Telephone: (800) 601-9327; email:

emoc@aphis.usda.gov

Great Britain Agriculture Ministry at:

<http://www.maff.gov.uk/animalh/diseases/fmd/default.htm>

Office International des Epizooties:

http://www.oie.int/eng/flash/en_norme_fa_czi.htm

National Wildlife Health Center at <http://www.nwhc.usgs.gov/>

Hemorrhagic Disease in the United States in 2000. Reports for the 2000 Hemorrhagic Disease (HD) Surveillance Questionnaire have been received from 39 states, and a Preliminary Report has been issued to all contact persons for final verification. Activity that fits at least one of the four HD criteria (late summer/ early fall death losses, compatible necropsy findings, isolation of an HD virus, or chronic HD lesions in hunter-killed deer) has been reported by 21 states. Hemorrhagic disease death losses that were confirmed by virus isolation and/or polymerase chain reaction (PCR) tests occurred in 11 states (AR, CA, GA, ID, KS, MD, NE, NC, SC, TX, VA). Epizootic hemorrhagic disease virus serotype 2 (EHDV-2) was the most common virus isolated. EHDV-1 was isolated in California, and both EHDV-1 and EHDV-2 were found in Texas. North Carolina had one deer infected with both EHDV-2 and bluetongue virus serotype 13. In addition, California had a small episode of the unrelated deer adenovirus infection in one county. Notable mortality was reported in CA, GA, ID, KS, KY, MD, MT, NE, NC, ND, and SC. A final report will be prepared after the comments are received from the participating biologists and veterinarians.

- Vic Nettles, *SCWDS Briefs 17(1)*. April 2001.

Screening for Potential Human Pathogens in Fecal Material Deposited by Resident Canada Geese on Areas of Public Utility. A study was conducted to determine the presence of some selected organisms that could cause disease in humans exposed to fecal material of Canada geese collected at sites with a history of high public use and daily use by Canada geese in the northeastern United States. The methods used for transect delineation, site preparation, and sample collection, preservation and transportation were very successful. Attempts to isolate four bacterial organisms resulted in no isolates of *Campylobacter* spp. or *Escherichia coli* O157:H7; two isolates of *Salmonella*, one *S. typhimurium* and one *S. hartford*; and forty-seven isolates of *Listeria* spp., including 13 isolates of *Listeria monocytogenes*. Attempts to detect two viruses and chlamydia resulted in no isolation of paramyxovirus; one detection of a rotavirus, and 13 samples that are suspected to contain *Chlamydia* spp. Parasitological examinations resulted in detection of four samples with *Giardia* spp. and three samples with *Cryptosporidium* spp. Bacteria and viruses were successfully isolated in 24 hour and 5 day samples. There were decreasing numbers of samples positive for bacteria in five day samples, particularly in the second and third sample periods as drought conditions continued. A rotavirus was detected in a 24 hour sample and a total of 13 *Chlamydia psittaci* positive samples were detected in both 24 hour and 5 day samples. Eleven *Chlamydia psittaci* positive samples were detected in those collected after 24 hours while only two were detected after 5 hours. The detection methods used in this study do not differentiate between infectious and noninfectious *Chlamydia psittaci* or rotaviruses. Both of these agents, in an infectious state, pose a serious human health threat. As soon as possible further field and laboratory studies should be carried out to determine whether the fecal material, found where urban Canada geese congregate, contains infectious *Chlamydia psittaci* or rotaviruses.

There was no consistent distribution of positive samples over time, within sample periods or geographic locations. Low frequency of positive cultures indicate that risk of humans to disease through contact with Canada goose feces appeared to be minimal at the four sites in Massachusetts, New Jersey and Virginia during the summer and early fall of 1999. We suggest further studies be conducted in other areas with resident Canada geese during different seasons to detect differences in prevalence and survival of organisms.

-Kathryn Converse, Mark Wolcott, Douglas Docherty, and Rebecca Cole. See the full report of this study at: http://www.nwhc.usgs.gov/pub/canada_goose_report.html

Howler Monkey Mortality. More than 20 howler monkeys (*Alouatta* sp.) have been found dead in April, 2001, in forests in the municipalities of Santo Antonio das Missoes & Garruchos, in the Missoes region of Rio Grande do Sul (RGS), Brazil. The cause is suspected to be either yellow fever or poison. Specialists from the virus laboratory of the Evandro Chagas Institute at Belem, Para, the RGS state health secretariat and Ibama (Forestry Department) are investigating. Yellow fever vaccination has been carried out among residents of the area near the Rio Uruguai and of the forests inhabited by howler monkeys. Deaths in howler monkeys in South America have historically indicated the emergence of a new sylvan yellow fever outbreak, transmitted between monkeys by *Haemagogus* mosquitoes. Humans become tangentially infected when working in or travelling through forests where a monkey epizootic is occurring.

- Extracted from ProMed, May 2001

Vultures in Decline? Methods of Study and Investigation. A workshop on the status and health of East African vultures was held in Uganda on April 17 - 18, 2001. The workshop was organized through the Department of Wildlife & Animal Resources Management (WARM) of Makerere University. The objective of the Workshop was to focus attention on East African vultures and to develop protocols for monitoring their status and health. This was partly in response to current concerns about the decline of certain vulture species in India, the hypothesis that an infectious agent might be involved and the suggestion that vultures elsewhere in the world might be at risk.

Lectures by biologists, veterinarians and a lawyer were complemented by practical sessions. Finally, protocols and codes of practice were drawn up for use by those working with vultures in East Africa and elsewhere. A full report is in preparation.

Further information can be obtained from Dr. Christine Dranzoa, Department of Wildlife & Animal Resources Management (WARM), Faculty of Veterinary Medicine, Makerere University. PO Box 7062, Kampala, Uganda. Email: warm@swiftuganda.com

- submitted by Professor John E. and Mrs Margaret E. Cooper; Wildlife Health Services;

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Rabies in Arizona Skunks. Since late January, state public health authorities have found 17 rabid skunks in the vicinity of Flagstaff, compared with 17 confirmed cases of rabid skunks throughout Arizona last year. Fifteen of the rabid skunks were found in one neighborhood in Flagstaff. "This is the first time rabid skunks have ever been documented in northern Arizona," Dr. Mira Leslie, a veterinarian with the Arizona Department of Health Services, said. "It's a pretty intense outbreak, and it's epidemic in southern as well as northern Arizona." In southern Arizona, 29 rabid skunks have been found so far. The disease is believed to have spread to the north when a skunk was bitten by a rabid bat. Leslie said 65 rabid animals have been found statewide this year, compared with 22 for the same time last year. She expects the numbers to grow if left unchecked. "There are more rabies cases this year, from January to May, than for any other documented period," Leslie said. "Usually this is a slow time, and we're seeing 3 or 4 cases daily."

Public health workers in Flagstaff, Arizona USA will spend the next 6 weeks trapping, vaccinating, and releasing skunks in an effort to stop a rabies epidemic in the area. In Flagstaff, trapping and injecting skunks with a rabies vaccine is believed to be the only way to rid the area of the disease. Workers are setting 400 traps in a 35 mile radius around Flagstaff.

- Adapted from ProMed, May 2001.

National Wildlife Health Center's Quarterly Mortality Report

Atlantic Brant in New Jersey. Atlantic brant mortality, first noted at Edwin B. Forsyth NWR in New Jersey in November 2000, occurred again in mid-January of 2001, along the coast near Atlantic City. Over 700 brant were collected during each wave of mortality for a total of over 1400 birds. Necropsy observations during both events included tissue hemorrhage and lung edema. Attempts by a variety of methods, including electron microscopy, failed to detect viral or bacterial etiologic agents including West Nile virus, duck plague, Newcastle disease and avian influenza. Tests for

botulinum toxins and rodenticides were negative and brain acetylcholinesterase activity was within normal limits. Multiple state and federal agencies collaborated on the diagnostic and field response to this event. Media interest was very high.

Pelican and Turtle Morbidity and Mortality in Florida. Brown pelican morbidity and mortality was first noted in the Marquesas Keys, Florida, in late December and continued intermittently through March. Affected birds appeared lethargic with droopy heads, had difficulty flying and swimming or were unable to move at all. There were no consistent necropsy findings in the several pelicans necropsied at the National Wildlife Health Center (NWHC). No significant bacteria or viruses were isolated, and tests for avian botulism type C and E were negative. However, two birds had moderate brain acetylcholinesterase activity depression (39% and 51%) and toxicology analysis will be pursued. Mortalities in loggerhead turtles have also occurred in southern Florida with nearly 150 sick and dead turtles found since September. Marine animal specialists have been working to determine the cause of this turtle mortality. A link between the pelican die-off and loggerhead deaths has not been established.

Avian Vacuolar Myelinopathy. Avian vacuolar myelinopathy (AVM) occurred in various locations during 2000, with the majority of cases occurring at Woodlake in North Carolina and J. Strom Thurmond/Clark's Hill Lake on the Georgia-South Carolina border. Each year, there seems to be a change in the epizootiology of this disease. The Southeastern Cooperative Wildlife Disease Study (SCWDS) documented the first loss of several bald eagles outside of Arkansas from AVM at J. Strom Thurmond/Clark's Hill Lake as well as AVM in several new species including 2 great horned owls, 1 killdeer and 3 Canada geese. Wildlife Disease Specialists from SCWDS and NWHC conducted a field investigation at the site in late November, 2000. Based on diagnostic and research work to date, the cause of AVM is thought to be due to either a naturally occurring or man-made chemical. NWHC research with sentinel birds in North Carolina has shown that the occurrence of AVM is site specific and has a fairly rapid onset. A variety of agencies will continue research efforts to determine the cause of this disease and route of exposure.

Avian Cholera in Arkansas. Over 200 American coots died over a 2-week period in early January in Arkansas County, Arkansas. The SCWDS confirmed the mortality was due to avian cholera. This is the first record of avian cholera mortality in Arkansas in either the NWHC or SCWDS databases.

Louisiana Bird Mortality. Cowbird and blackbird mortality was noted in January and February of 2001, over an extensive area of southern Louisiana. Salmonellosis was diagnosed by Louisiana State University. An estimated 100 cowbirds and blackbirds found dead and dying on a golf course in East Baton Rouge Parish appear to be unrelated mortalities as brain acetylcholinesterase activity was significantly depressed in several birds examined at NWHC. This is suggestive of recent exposure to an organophosphate compound.

Quarterly Wildlife Mortality Report

January 2001 to March 2001

State	Location	Dates	Species	Mortality	Diagnosis	Reported by
AR	Arkansas Co., Little Sierra Duck Club	01/09/01-01/16/01	American Coot Unidentified Grebe Ring-necked Duck Gadwall	206(e)	Avian cholera	SC
AR	Baxter Co., Mountain Home	03/14/01-03/30/01	Common Grackle	20(e)	Toxicosis: organophosphorus cmpd. Suspect	NW
CA	Kings Co., Lake Success	02/05/01-02/06/01	American Coot Canada Goose Pied-billed Grebe	260(e)	Avian cholera	CA

			American Wigeon Double-crested Cormorant			
CA	Klamath Basin NWR	02/01/01-04/15/01	Snow Goose Ross' Goose White-fronted Goose American Coot Unidentified Duck	1,879	Avian cholera	NW
CA	Los Angeles, Ventura & Santa Barbara Counties		01/22/01-03/15/01 American Goldfinch House Finch	Pine Siskin25 (e)	Salmonellosis	NW
CA	Sonny Bono Salton Sea NWR	01/01/01-03/01/01	Ruddy Duck	22	Bacterial infection: Riemerella anatipestifer	NW
CA	Sonny Bono Salton Sea NWR	03/05/01-04/15/01	Ruddy Duck Ring-billed Gull American White Pelican American Wigeon Northern Shoveler	442	Avian cholera	NW
CO	Jefferson Co., Crown Hill Open Space Park & Kendrick Lake	02/01/01-03/01/01	Canada Goose	100	(e) Open	CO
FL	Monroe Co., Everglades NP	02/02/01-02/02/01	Turkey Vulture	100(e)	Drowning	NW
FL	Monroe County, Various locations	12/31/00-ongoing	Brown Pelican Common Loon Great Blue Heron	250(e)	Open	NW
GA	Effingham Co., Springfield	01/13/01-01/13/01	American Robin	10	Toxicosis: Chlorpyrifos	SC
GA	Morgan Co., Madison	01/22/01-01/23/01	Common Grackle	15	Toxicosis: diazinon	SC
IA	Black Hawk Co., Waterloo	12/24/00-01/02/01	Mallard	67	Aspergillosis	NW
ID	Caribou Co., Smoky Canyon	07/18/00-08/10/00	Tiger Salamander	2	Viral infection: Iridovirus	NW
ID	Jefferson Co., Mud Lake	03/18/01-03/26/01	Snow Goose Tundra Swan Canada Goose Unidentified Gull American Wigeon	22	Avian cholera	NW
LA	Cameron County	01/06/01-01/15/01	Snow Goose White-fronted Goose	18	Avian cholera	NW
LA	Several Counties	01/26/01-02/02/01	Red-winged Blackbird Brown-headed Cowbird	600(e)	Salmonellosis, Toxicosis: organophosphorus cmpd. Suspect	NW, LU

NM	Bosque del Apache NWR	11/01/00-02/28/01	Snow Goose Mallard Sandhill Crane American Coot Northern Pintail	1,848	Avian cholera	BA
OH	Toledo, Maumee River	01/11/01-01/15/01	American Black Duck Mallard Canvasback	250(e)	Open	NW
OK	Tillman Co., Hackberry Flat WMA	01/02/01-02/14/01	Mallard Northern Pintail American Wigeon Green-winged Teal Canada Goose	2,100(e)	Mycotoxicosis suspect	NW, OW
OR	Lincoln Co., near Toledo	02/05/01-02/13/01	Hooded Merganser Beaver Mallard Unidentified Kingfisher Lesser Scaup	11*	Toxicosis: petroleum (oil)	NW
SC	Dorchester County	12/14/00-12/14/00	Common Grackle	17	Toxicosis: carbamate suspect	SC
TX	Aransas, Kendall, Harris & Wood Counties	02/03/01-03/01/01	Brown-headed Cowbird Pine Siskin Northern Cardinal Red-winged Blackbird American Goldfinch	43(e)	Salmonellosis suspect	TX, HZ
TX	Kenedy Co., King Ranch	01/09/01-01/17/01	White-fronted Goose Snow Goose Unidentified Grackle Northern Pintail American Coot	958	Avian cholera	NW
TX	Laguna Atascosa Lake	01/10/00-02/10/00	Snow Goose Green-winged Teal American Avocet Sandhill Crane	200(e)	Open	NW
TX	Nueces Co., Gulf beach	01/28/01-03/15/01	Double-crested Cormorant	100(e)	Salmonellosis	NW
TX	Terrell, Dimmit & Briscoe Counties	03/15/01-03/19/01	Mourning Dove	800(e)	Open	NW
VA	Frederick County Park	02/25/01-03/25/01	Mallard Canada Goose American Crow European Starling Unidentified Blackbird	35(e)	Toxicosis: CHE inhibiting compound	NW
VT	Bennington Co., Lake Parin	12/25/00-01/03/01	Canada Goose	30	Open	NW
WA	Whatcom County	11/15/00-02/28/01	Trumpeter Swan	260(e)	Lead poisoning	WA

WI	Brown, Dane & Rock Counties	12/01/00-03/01/01	House Sparrow	70(e)	Salmonellosis (S. typhimurium)	WI
WI	Milwaukee Co., Lake Michigan	03/18/01-04/28/01	Lesser Scaup Greater Scaup Herring Gull Canada Goose	39	Parasitism: Sphaeridiotrema, Cyathocotyle bushiensis	NW, WI
Updates:						
AR	Clark Co., De Gray Lake	11/27/00-02/01/01	American Coot	5	Avian vacuolar myelinopathy	SC
CA	Sacramento NWR Complex	11/01/00-03/26/01	Snow Goose American Coot Ross' Goose American Wigeon White-fronted Goose	1,109	Avian cholera	NW
CA	San Joaquin River NWR	12/07/00-01/16/01	Ruddy Duck Northern Shoveler Canada (Aleutian) Goose	200	Avian cholera	NW
CO	Park Co., near Guffey	08/19/96-08/30/96	Tiger Salamander	100(e)	Viral infection suspect: Iridovirus	NW
GA	Lincoln Co., J. Strom Thurmond Lake	11/13/00-03/30/01	American Coot Bald Eagle Canada Goose Killdeer	125	Avian vacuolar myelinopathy	SC
MI	Monroe Co., West Sister Island	10/12/00-10/15/00	Double-crested Cormorant	7	Emaciation, Parasitism	NW
NC	Moore Co., Woodlake	11/04/00-03/01/01	American Coot Canada Goose	250(e)	Avian vacuolar myelinopathy	NW, SC
NJ	Edwin B. Forsythe NWR	11/09/00-02/01/01	Atlantic Brant	1,400(e)	Open	NW,NJ
SC	McCormick Co., Lake Murray; Edgefield Co., J. Strom Thurmond Lake	11/13/00-02/15/01	Bald Eagle Canada Goose Great-horned Owl American Coot Killdeer	25(e)	Avian vacuolar myelinopathy	NW,SC

(e) = estimate, * = morbidity and mortality

Bosque del Apache NWR (BA), California Fish & Game (CA), Colorado Division of Wildlife (CO), Houston Zoo (HZ), Louisiana State University (LU), National Wildlife Health Center (NW), New Jersey Dept. of Fish & Wildlife (NJ), Oklahoma Dept. of Wildlife Conservation (OW), Southeastern Cooperative Wildlife Disease Study (SC), Texas Park & Wildlife Dept. (TX), Washington Dept. of Fish & Wildlife (WA), Wisconsin Dept. of Natural Resources (WI).

Written and compiled by Kimberli Miller, Kathryn Converse and Audra Schrader, National Wildlife Health Center (NWHC). The Quarterly Wildlife Mortality Report is also available on the Internet at <http://www.nwhc.usgs.gov/>. To report mortality or if you would like specific information on these mortalities, contact one of the following NWHC staff: Western US—

Kathryn Converse; Eastern US--Kimberli Miller; Hawaiian Islands--Thierry Work. Phone (608) 270-2400, FAX (608) 270-2415 or E-mail kathy_converse@usgs.gov. National Wildlife Health Center, 6006 Schroeder Road, Madison, WI 53711.

WDA SECTION NEWS

NEWS FROM AUSTRALASIA

Australian Registry of Wildlife Pathology Summary of Cases (Karrie's Corner). The following are some interesting cases from free-ranging wildlife that were recently submitted to the registry.

DECEMBER 2000

- _ Magpie Larks - NSW - 2 nestlings died with fibrinous coelomitis - *Salmonella typhimurium*. Phage typing indicated that the *S. typhimurium* in the lorikeets differed from that in the magpie larks.
 - _ Great barred frog tadpoles - several tadpoles were euthanised due to the presence of spindly hind legs. Malacic lesions were identified within the brains and spinal cords. It is suspected that the legs failed to develop due to inadequate nervous supply (a requirement for normal muscle development). Due to a lack of concurrent inflammatory change, nutritional deficiency is suspected.
 - _ Little Penguins - NSW - died with hepatosplenomegally and miliary red foci within the myocardium. Histopathology revealed an acute infection with a malaria-like parasite. *Clostridium perfringens* was also isolated within the tissues, however, it was the malarial-like organisms that were evident histologically at the margins of foci of necrosis in the heart, liver and spleen of each bird.
- _ Southern Giant Petrel - young bird, thin, fibrous material filling gizzard.
- _ Ringtail possum - rodenticide toxicity and extensive subcutaneous and abdominal haemorrhage

JANUARY 2001

- _ Pigeon - NSW - found emaciated with a severe head tilt and green faeces pasted in the feathers surrounding the vent. NSW Agriculture was notified that the bird may have been infected with Newcastle's Disease Virus. Histopathology, however, revealed no evidence of viral infection, and severe bacterial enteritis.
- _ Kookaburra - wild bird with a deformed foot also had severe mite infestation.
- _ Platypus - juvenile male found emaciated, anaemic and with a massive tick infestation.
- _ Short tailed shearwater - emaciated. Had a severe infection throughout the renal collecting ducts with trematode parasites.
- _ Tawny frogmouth - euthanased due to seizures, paralysis and emaciation. Roundworm larvae, confirmed by Dave Spratt to be *Angiostrongylus cantonensis*, were found throughout the brain and spinal cord.
- _ Tawny frogmouth - NSW - gunshot wounds.
- _ Red Kangaroo - Northern Territory - Reported to have annually recurring pruritic skin lesions. Lesions consistent with insect bites were present within the skin and were surrounded with mononuclear cells containing small single-celled parasites.

FEBRUARY 2001

- _ Green & golden bell frogs: ongoing health monitoring of tadpoles prior to release of large groups of spawn to the wild. Several groups of tadpoles have been prevented from being released due to mycobacteriosis (*M. gordonae*, *M. marinum*, *M. fortuitum*).
- _ Regent honeyeater - part of recovery program - bacterial ventriculitis. Secondary dehydration and urate nephrosis.
- _ Green sea turtle - euthanasia due to chronic weight loss, debility and buoyancy problems. Intestinal tract blocked with faeces - common occurrence in green sea turtles, but the cause is not understood. We received several written and verbal comments after describing a similar case in the last report. It seems that there are many factors that may contribute to severe constipation in sea turtles and we do not fully understand the pathogenesis involved. If you have a favourite theory, please let me know and I'll put a summary of possibilities into the next report. Similarly, we have been seeing a variety of green turtles with abnormal buoyancy. Lesions in the gastrointestinal tract, respiratory tract, nervous system, and the shell can all be related to clinical signs of abnormal buoyancy in sea turtles, adding to the complexity of achieving an accurate diagnosis in the live animal.
- _ Common bentwing bat - found injured in NSW. Dislocated finger. Interesting fungal infection in the skin.
- _ Fat-tailed dunnart - NT - widespread mycobacterial (tuberculosis) infection - this organism seems quite common in this captive group of dunnarts.
- _ Wedgetail eagle - western NSW - emaciated, evidence of a possible viral infection throughout the intestinal tract. Unfortunately no samples were retained frozen to allow viral culture.

MARCH 2001

- _ Ringtail possum - 2 young ringtail possums found in separate incidents with extensive thickening of the skin and hyperkeratosis associated with *Candida* sp. infection.
 - _ Green sea turtle - biopsy of a segment of intestine that was removed due to a narrowing of the lumen due to chronic inflammation.
 - _ Flathead frog - NT - cloacal prolapse - a very rare species of frog known to occur in only one remnant location
 - _ Agile wallaby - NT - suppurative inflammation in the kidneys, incidental infection with single celled parasites *Klossiella* sp. within cytoplasmic vacuoles within the renal tubular epithelium
- Karrie Rose, Veterinary & Quarantine Centre, PO Box 20, Mosman, NSW 2088. Telephone: 02-9978-4749; FAX:02-9978-4516.

New Zealand Wildlife Health Center: Some Interesting Cases from Massey University (November 2000-April 2001).

Avian Cases. Maurice Alley, IVABS

Cryptococcosis in a Kiwi. An adult female, North Island brown kiwi in very good condition, died suddenly without any sign of previous ill health. The bird was housed for captive breeding purposes but had never bred successfully. On post mortem examination the main finding was a severe, diffuse, dark red consolidation of both lungs. Segments of the lung that were removed were firm on incision and sank in water. Microscopically, the lung tissue had been replaced by numerous large, cystic granulomatous lesions which had become confluent and occupied almost 80% of the lung capacity. Within the lesions large numbers of ovoid yeast-like organisms were present and these had a thick mucinous capsule through which some of the organisms could be seen budding. The inflammatory reaction to the yeasts consisted only of small aggregations of macrophages and a few irregular lymphoid accumulations at the periphery of the lesions. Occasional organisms were seen infiltrating pulmonary blood vessels but no evidence of infection was found in other tissues. *Cryptococcus neoformans* var. *gattii* was isolated from the lung tissue and confirmed by the Mycology Reference Centre at Auckland Hospital.

This is the second case of cryptococcosis reported in captive kiwi in New Zealand. The first case occurred in a 22 year-old female kiwi housed on mulched gum leaves (Hill et al; 1995). The type of mulching material was particularly significant because of the well documented association between this variety of yeast, (var. *gattii*) and the flowers of the red river gum, *Eucalyptus camaldulensis*, in both Australia and California.

A similar association with gum leaves has not been established in the present case. It is not surprising that kiwi are predisposed to respiratory yeast infections as their feeding habits and terminally located nostrils must result in the inhalation of a certain amount of soil and organic material. Since cryptococcosis is a zoonotic disease we should be aware that handling sick kiwis could pose a health risk to susceptible (immunosuppressed) individuals. The only other isolate of this variety of *C. neoformans* reported in New Zealand was from the sputum of a human male with leukaemia who lived in the Gisborne region of the North Island.

Reference:- Hill FJ, Woodgyer AJ, Lintott MA 1995. Cryptococcosis in a North Island brown kiwi (*Apteryx australis mantelli*) in New Zealand. *Journal of Medical & Veterinary Mycology*. 33: 305-309.

Avian Malaria in a Yellow-eyed Penguin. A juvenile Yellow-eyed penguin raised on the Otago Peninsula was feeding well until it went missing from the nest site. It was found dead the following day. No gross abnormalities were observed at necropsy and the animal was in excellent body condition. Histologically, however, there were extensive lesions in the liver, spleen and myocardium. The liver showed a severe, generalized, predominantly centrilobular inflammatory necrosis of recent duration. Some of the Kupffer cells contained intracytoplasmic, protozoal-like organisms resembling *Plasmodium sp.* Similar disseminated foci of inflammatory necrosis associated with intracellular protozoal organisms were found in the spleen. Numerous clumps of organisms were also present within the sarcoplasm of some myocardial fibres where they were associated with focal areas of inflammatory necrosis.

Avian malaria has now been identified in a variety of New Zealand birds. Penguins in particular have been shown to be previously infected by the demonstration of positive serological reactions (Graczyk et al, 1995). However, there are few reports of clinical cases of *Plasmodium* infection in which pathological lesions have been demonstrated in association with the organism. It is possible that penguins are similar to many other avian species and show only minor clinical signs unless the infection is exacerbated by environmental factors or immunosuppression.

Reference:- Graczyk TK, Cockrem JF, Miller JD, Court GS. 1995. Avian malaria seroprevalence in wild New Zealand penguins. *Parasite*. 2: 401-405.

Lead poisoning in Kea. This summer two further cases of lead poisoning have been confirmed in kea; one from the Mt. Cook region and the other from Nelson Lakes. Both of these were in free-living birds showing non-specific signs of illness such as depression, ruffled feathers, muscular weakness and reluctance to move. On post mortem examination both birds were found to be in very poor body condition although their plumage still looked good. The main gross lesions were muscle atrophy and the presence of very pale swollen kidneys. Their crops were loosely distended with floccular, mucoid material and in one bird rubber fragments and a lead shot pellet showing blackened areas of superficial erosion (indicating digestion) was found in the stomach. Histologically, the main finding was degeneration and necrosis of renal proximal tubules together with the presence of refractile intranuclear inclusion bodies in tubular epithelial cells.

Since they are curious animals, kea are attracted to rubbish dumps and alpine villages where they often scavenge for food, chewing and manipulating with their prehensile beak. While foraging they may encounter lead based paint, galvanised metal, lead roof and window flashings or batteries that contain lead. Once a diagnosis has been made (confirmation by radiographic evidence of lead in the stomach or the detection of elevated blood lead concentrations would be useful) treatment can be attempted using metal chelating agents. Dramatic response to CaEDTA given intramuscularly twice daily at 10-40mg/kg body weight has been reported in the literature (Kirk's Current Veterinary Therapy).

Reference:- Jarrett M. 1997. Evidence of lead toxicity in wild kea (*Nestor notabilis*). *Eclectus* 3: 39-40.

Egg Peritonitis in a Free-living Hibi (Stitchbird). Egg related peritonitis is a common cause of mortality in breeding kiwis and other ratites. It also occurs in a variety of psittacine species and occasionally in ducks. The first case of egg peritonitis in a free-living hibi from Mokoia Island was seen this summer. The bird was a young female aged 9 months

which was found dead in a nest box. It was in good condition but on opening the abdomen extensive organising fibrinous adhesions were immediately apparent. In addition, there was a 12mm diameter multilobular cystic structure attached to the dorsal peritoneal wall and the parietal surface of the liver. Microscopically, large amounts of yolk material were found throughout the intestinal mesentery and this was undergoing organization by an early inflammatory reaction composed of macrophages and fibroblasts. In another area there was a fibrinous exudate and necrosis of mesenteric fat. The oviduct was well developed and active but showed congestion and haemorrhage in the infundibular region and ovary. The lower oviduct was dilated with proteinaceous material but there was no evidence of inflammation in this organ.

Because of the absence of infection in this case it was assumed that the condition arose from extrusion of ova into the peritoneal cavity due to either a mechanical obstruction, rupture of the oviduct or damage to the infundibulum. The presence of haemorrhage in the infundibular region supports the possibility that trauma to this region may have occurred.

Marine Mammals. Pádraig Duignan.

New Zealand sea lions. Focal alopecia was noted on sea lion pups, juveniles and some adults. The lesions are generally up to 15cm diameter but on occasional pups they are focally extensive covering up to 20% of the body surface. The lesions are characterized by broken hair shafts, hyperkeratosis with flaking of skin. The foci may be tan coloured with erythema or markedly hyperkeratotic with hyperpigmentation. The lesions occur on the head around the ears and eyes and on the crown. They are also frequent on the dorsal thoraco-lumbar region, fore flippers and belly. Lesions can be multifocal. Opportunistic biopsy samples from an anaesthetised juvenile indicated dermatophyte invasion of the epidermis with marked superficial dermatitis. The hyphae were septate and branching with endothrix arthrospores. Hair and scrapings were collected from six animals but the only fungi cultured and identified by the Mycology Reference Laboratory in Auckland included *Fusarium* sp., *Phoma* sp. and a coelomycete fungus. All of these are likely soil contaminants. The prevalence of lesions on pups of the year for Dundas Island, the main rookery, was 6% (29/500) and 16% (21/130) for Enderby Is. The significance of infection is unknown. However, the severity of the histological lesion suggests that the fungus is not well host adapted to sea lions. Occasional pups were observed with extensive alopecia that may compromise survival in the subantarctic.

Two cases of tuberculosis were recently confirmed in NZ sea lions from the Auckland Islands. An emaciated adult female died on Sandy Bay rookery, Enderby Is in February. On post mortem, she had marked pyogranulomatous pneumonia involving over 80% of her lung volume. There was marked lymphadenopathy throughout the body. Histopathology with acid fast staining confirmed the diagnosis. Similar but less severe pulmonary lesions were found in an adult male that was submitted to Massey University as bycatch from the southern squid fishery that operates in the vicinity of the Auckland Is. Culture results on both animals are pending. Tuberculosis was previously confirmed in NZ fur seals in NZ waters but this is the first report for sea lions. For further details see the poster at the conference in Sydney.

A rare strap-toothed whale, *Mesoplodon layardii*, was examined in April. The juvenile whale was observed alive in Gisborne harbour with an apparently fractured rostrum that was bleeding profusely. Two days earlier an adult female of the same species had beached in the same area. The juvenile was found dead the following morning and sent to Massey University for autopsy. Radiography confirmed the fractures of the mandibles and maxillae and also the species, based on morphology and placement of the two un-erupted teeth. There were no other significant lesions but anatomical features suggested that the calf was not more than a few months old and probably still dependant. The cause of the trauma is unknown but boat strike or entanglement were suspected.

NEWS FROM EUROPE

New Conditions: If you are investigating a disease or condition with an unknown or previously unreported aetiology, why not provide a short preliminary report and leave your contact details; perhaps someone else is working in a similar field. The condition for this issue comes from Madrid:

Multifactorial Parasitic (?) Disease of Scops Owls in Madrid City Parks (Spain). The Scops owl (*Otus scops*) is the smallest nocturnal raptor in Southern Europe. The species undergoes summer migration and nests mainly in the vicinity of

human buildings in parks, riverine forests, singular trees or ruins. Since 1997, a mostly fatal condition is being observed among fledglings, with severe diptheronecrotic lesions throughout the whole of the oral mucosa, including the tongue. The lesions macroscopically resemble those observed in trichomoniasis, candidiasis and avian tuberculosis. Bacterial contamination of the lesions and myiasis are frequent. Birds are in fair to poor condition upon necropsy, and oral lesions and liver enlargement are the only macroscopic lesions observed. Cases were first observed in a particular park in the city of Madrid and in consecutive years seems to have been spreading to other parks. The condition has not been observed in birds from the rest of Spain or outside Madrid.

Eighty-six live Scops owls were examined between 1998 and 2000, 52 of which (37 nestlings, 15 adults) were free-living from a nestbox project installed in 1999, also 29 affected owls were necropsied. Prevalence of oral lesions among free-living nestlings was 24.3%, while about 50 % of clinically admitted birds presented lesions. Findings in live and dead birds include normal oral flora, including highly antibiotic resistant *Staph. aureus*. Cultures for *Candida* spp. and *Trichomonas* spp. have been negative, as well as coprological analysis for parasites (flotation). In about 50% of the necropsies, nematode larvae are present on deep mucosal scrapings. Histologically severe ulceration, necrosis, inflammation and reactive hyperplasia of the epithelium are prominent. Cross sections of larval stages of a nematode parasite can be observed in the epithelium and mucous glands.

Using chicken embryo fibroblasts, a reovirus was isolated from different locations in seven birds, while a herpesvirus was isolated from one bird. Eighty-one sera were analysed for presence of antibodies against owl herpesvirus by means of virus neutralisation. Seroprevalence was 11.1% among all tested birds (5.9% among birds with oral lesions), and seropositive birds presented low antibody titres (1:8 and 1:6). From the present results the nematode larvae (possibly *Porrocaecum* spp.) seem to be related to the aetiology of the disease, but the source of infection and the role of other factors, such as herpesvirus, host immune response, or toxic substances from park fertilization/pesticide fumigation are unclear. Current investigations include identification of the parasites, studies on prey species of the owls, characterization of the isolated herpesvirus and investigation of other (e.g. toxic) factors.

- Ursula Hoefle and Juan Manuel Blanco, *ESVA Asistencia veterinaria, S. L.*

Centro de Estudios de Rapaces Ibericas, 45671 Sevilleja de la Jara, Spain. Telephone/FAX: ++34-925-455004; email: Uholfeh@nexo.es

European Section Website. The first few pages of the long-awaited EWDA website are now available on line. Unfortunately owing to a problem with the registration of the domain name you can only access the site at the moment by using the following URL address: <http://193.133.84.101>

Try it and see what you think of the first few pages. The site is still under construction so any contributions and/or suggestions for future content would be much appreciated. Send these via my email address on the site.

- Richard Delahay, *Central Science Laboratory, Wildlife Disease Ecology Team, Woodchester Park, Nympsfield, Glos GL10 3UJ, UK.*

European Section. Material suitable for publication includes news of recent wildlife disease outbreaks and new diseases in Europe, short case reports, announcements and reports of relevant meetings in Europe, and job and scholarship announcements. Submissions should be in English, but members for whom English is a second language, will be accommodated as far as possible. The deadline for the next issue is August 2001. Please mail, fax or e-mail submissions to me (I am currently on Foot and Mouth Disease operations but occasionally get back to my office),

Paul Duff, VLA Penrith, Merrythought, Calthwaite, PENRITH, Cumbria, CA11 9RR, United Kingdom, *email* p.duff@vla.maff.gsi.gov.uk *Fax* ++44(0)-1768-885314.

WDA SECTION CHAIRS AND CONTACT INFORMATION

Australasian Section. For information regarding the Australasian Section, contact Peter Holz, Healesville Sanctuary, P.O. Box 248, Healesville, Victoria 3777 Australia. Telephone: 61 3 5957 2864; fax: 61 3 5957 2870; email: pholz@zoo.org.au

European Section. For information regarding the European Section, contact Torsten Morner, The National Veterinary Institute, Department of Wildlife, Box 7073, S750 07, Uppsala, Sweden. Telephone: +46-1867-4214; fax: +46-1830-9162; email: Torsten.Morner@SVA.SE

Latin American Section. For information regarding the Latin American Section, contact Alonso Aguirre, TUSVM Wildlife Clinic, 200 Westboro Road, North Grafton, MA 01536, USA. Telephone: (508) 839-7918; fax: (508) 839-7930; email: aguirre@wpti.org

Nordic Section. For information regarding the Nordic Section, contact Hans-Henrik Dietz, Danish Veterinary Laboratory, Department of Fur Animal and Wildlife Diseases, 2 Hangovej, DK-8200 Aarhus N, Denmark. Telephone: 45-89-37-24-17; fax: 45-89-37-24-70; email: hhd@svs.dk

Wildlife Veterinarian Section. For information regarding the Wildlife Veterinarian Section, contact Dr. Terry Kreeger, Wyoming Game and Fish Department, 2362 Highway 34, Wheatland, Wyoming 82201 USA. Telephone: 307-322-2571; FAX 307-766-5630; email: tekreege@wyoming.com

RECENT PUBLICATIONS

Postmortem Procedures for Wildlife Veterinarians and Field Biologists. Compiled by D.F. Keet, R.G. Bengis, and M. Woodford. Drs. Keet and Bengis are wildlife veterinarians at the Kruger National Park in South Africa. This booklet was prepared in cooperation with the Office International des Epizooties (OIE), Paris, FR, and Care for the Wild International (CFTWI) in the UK. It is available for purchase from the office of Care for the Wild International, 1 Ashfolds, Horsham Road, Ruspur, West Sussex RH12 4QX, UK at UKP L5 or US\$7.50, post free.

TRAINING/EDUCATIONAL OPPORTUNITIES

Post-Graduate Studies in Wild Animal Health and Management: A Second Year for the Course in Uganda - and a New Masters Course. A one-year post-graduate training course in Wild Animal Health and Management has been introduced in Uganda, East Africa. It is organized by the Faculty of Veterinary Medicine, Makerere University.

The course provides specialized instruction in such fields and animal ecology, wildlife disease, protected areas management and conservation legislation. Formal lectures are supplemented with fieldwork and students undertake their own research projects. Some modules take place in the field, in the stimulating and attractive atmosphere of Lake Mburo National Park, about four hours' drive from Kampala, where students and lecturers are able to work with indigenous wildlife and to interact with the Park's staff and local communities. The language of instruction is English, and lecturers are drawn from Europe as well as Uganda itself. A more extensive Masters (Msc) Course will start in 2001.

At a time when health management and utilization of wildlife are attracting both interest and debate, these new courses provide much needed training opportunities for those planning to work in these fields, especially in Africa or other tropical regions.

Further information is available from Dr. Christine Dranzoa, WARM, Faculty of Veterinary Medicine, Makerere University, P.O. Box 7062, Kampala, Uganda. Email: warm@uga.healthnet.org. Additional information can be obtained from Professor John E. Cooper, Wildlife Health Services, P.O. Box 153, Wellingborough, NN8 2ZA, UK. Email: NGAGI@compuserve.com or the British Veterinary Association, 7 Mansfield Street, London W1G 9NQ, UK. Email: press@bva.co.uk

2001 American College Of Zoological Medicine Certification Examination. October, 2001; Yulee, Florida. The American College of Zoological Medicine Certification Examination will be offered at White Oak Conservation Center, Yulee, Florida in October 2001. An applicant must be a licensed veterinarian and senior author on at least five refereed publications. Candidates who have completed a two-year ACZM-approved post-graduate training program must have an additional year of experience under the supervision of an ACZM Diplomate. An alternate route requiring a minimum of six years post-graduate experience in zoological medicine also exists. A mentor program to assist all candidates is in place.

The two-part examination consists of a qualifying examination on the first day, which includes the medicine of avian, aquatic, reptilian, mammalian, and wildlife species. Candidates who pass may take the certifying examination in either general zoological (birds, reptiles, and mammals), wildlife, aquatic, avian or herptile (reptile and amphibian) medicine offered on the following day. Successful candidates for Diplomate status must pass both the qualifying and certifying examinations.

The deadline for receipt of completed applications is March 31, 2001. For application materials, specific qualification requirements, or other questions concerning ACZM, contact Dr. Joanne Paul-Murphy, Secretary, ACZM, School of Veterinary Medicine, 2015 Linden Dr West, University of Wisconsin, Madison, WI 53706. Telephone (608) 265-2608, FAX (608) 263-7930, or email: jpmurphy@svm.vetmed.wisc.edu. An examination packet can also be downloaded from the ACZM web site at www.worldzoo.org/aczm/aczmindex.htm

Preceptorships at Willowbrook Wildlife Center. Willowbrook is a wildlife rehabilitation and education center located in DuPage County, west of Chicago, IL. Preceptors receive training and significant hands-on experience in the diagnosis and treatment of wildlife species native to Illinois. Preceptors are expected to perform routine veterinary procedures under the supervision of Willowbrook's staff veterinarian. In the absence of the veterinarian, the preceptor will be expected to assist the wildlife keepers in their animal care duties. Qualifications include being a veterinary student or veterinarian, willingness to handle wild animals, ability to cooperate with staff, volunteers, and the public, and the ability to work independently.

Veterinary students receive a stipend (\$260 per week in 2000), paid every two weeks. The length of commitment is a minimum of 4 weeks (40 hrs/wk) to a maximum of 16 weeks. Housing arrangements and transportation are not provided and are the preceptor's responsibility. Tetanus toxoid and rabies pre-exposure vaccinations are also required. Veterinary students are asked to submit a Curriculum Vitae, official copy of their transcript, two written recommendations, and dates of availability.

This is an excellent opportunity for veterinary students to augment their training in non-domestic species. For further information, contact Dr. Catherine Brown at (630) 942-6204 ext.21 or email: kbrown@dupageforest.com

Directory of Post-Graduate Educational Opportunities in Zoo and Wildlife Medicine. The World Association of Wildlife Veterinarians has recently produced a Directory of Post-Graduate Educational Opportunities in Zoo and Wildlife Medicine. The Directory covers opportunities in over fifty countries and is a must for veterinary students or graduates interested in furthering their careers in the field of wildlife medicine. For further information, please contact the Secretary of the WAWV at: F.Scullion@zoo.co.uk

MEETING ANNOUNCEMENTS

Veterinary Conservation Biology: Wildlife Health and Management in Australasia. July 2-6 2001; Taronga Zoo, Sydney, NSW, Australia. This will be a combined meeting of the Australasian WDA, Australian Association of Veterinary Conservation Biology, World Association of Wildlife Veterinarians, and the Wildlife Interest Group of the New Zealand Veterinary Association. The focus of the conference will be a range of issues crucial to wildlife health and management and the conservation of biodiversity in the Australasian region. For general conference information, please

contact the Program Convenor: Dr Larry Vogelnest, Taronga Zoo, PO Box 20, Mosman NSW 2088, Australia. Fax: 61 2 99784516; E-mail: lvogelnest@zoo.nsw.gov.au

Wildlife Disease Association and the Society for Tropical Veterinary Medicine (STVM) Conference. July 22-27, 2001; Kwa Maritane, Pilansberg National Park, South Africa. The Wildlife Disease Association (WDA) and the Society for Tropical Veterinary Medicine (STVM) will hold a joint meeting with the theme "Wildlife and Livestock Disease and Sustainability: What Makes Sense?" from July 22-27, 2001 at Kwa Maritane, Pilansberg National Park, South Africa.

Conference information, travel information, registration and the call for papers will be handled by Event Dynamics, P.O. Box 411177, Craighall 2024, South Africa. Telephone: 27 11 442 611; FAX: 27 11 442 5927. Email: sandra@eventdynamcis.co.za Further information will be available on the WDA and STVM websites and upcoming newsletters.

Workshop on the Pathology of Tuberculosis. July 2001, Kwa Maritane Lodge, Pilanesberg National Park, South Africa. A one-day workshop on the comparative pathology of bovine tuberculosis will take place on the 27th of July 2001 at the Kwa Maritane Lodge, Pilanesberg National Park, South Africa, following the Joint Conference of the Society for Tropical Veterinary Medicine and Wildlife Disease Association. For information about the conference please visit the web site: www.eventdynamics.co.za/stvm.

The purpose of the workshop is to improve communication between pathologists in the field of tuberculosis, to "exchange" histological sections, to compare the pathology of tuberculosis as relevant to diagnosis in a number of natural hosts with emphasis in wildlife species, and to discuss novel techniques that support pathology. The workshop will be divided by species: domestic animals, deer, wild boar, badgers, elephants, buffaloes, possums, other free-ranging species (kudu, antelops, primates) and zoo animals. It will involve short presentations, histopathological examination of sections and general discussions.

Dr. Leon Prozesky (Head of Pathology, Vet. Faculty, Onderspoort) will open the workshop with an introduction on pathology of tuberculosis in cattle, Prof. Kriek (specialist on tuberculosis in South African wildlife and Dean of the faculty at Onderspoort) will contribute with presentations on the South African species, Christian Gortazar (IREC, Spain) will discuss the pathology and distribution of tuberculosis in the wild boar, and Dr Gavier-Widen (wildlife pathologist, Uppsala, Sweden) will describe tuberculosis in badgers and deer. Prof Kriek and Dr Gavier-Widen will be moderators.

Cost: Vacancies are limited to 20 participants. The participation fee is US\$ 40 for International delegates and ZAR 250 for South African delegates. This fee includes attendance at the workshop, morning tea, lunch at Kwa Maritane and afternoon tea.

For further information please contact Dr. Dolores Gavier-Widen, National Veterinary Institute, Box 7073, S-75007 Uppsala, Sweden, telephone : 46 18 674000, fax: 46 18 309162, E-mail: dolores@sva.se.

American Association of Zoo Veterinarians. September 18-23, 2001; Orlando, Florida. The American Association of Zoo Veterinarians will hold its' annual conference in Orlando, Florida, September 18-23, 2001, in conjunction with the Association of Reptilian and Amphibian Veterinarians, the American Association of Wildlife Veterinarians, and the Nutritional Advisory Group. Sessions include reptilian, avian and aquatic animal medicine, environmental activism, clinical pathology, anesthesia, behavior/escapes, megavertebrates, small mammals, nutrition, field project reports, and case reports. There will also be a poster session, veterinary student paper competitions, and workshops/wet labs.

For additional conference or membership information, please contact Wilbur Amand, VMD, Executive Director/AAZV, 6 North Pennell Road, Media, PA 19063 USA. Telephone (610) 892-4812; FAX: (610) 892-4813. Email: aazv@aol.com

The Wildlife Society 8th Annual Conference. September 25-29, 2001; Reno, Nevada. The Plenary session is entitled “The Endangered Species Act – How do we make it work?” Other symposia include: remote photography in wildlife research and management, methods and applications for monitoring wildlife in National Parks, avian interactions with utility structures, restoration and maintenance of the sagebrush steppe ecosystem, understanding and conserving black-tailed prairie dogs, toxicologic effects of mining on wildlife species, and others. For information, please contact: The Wildlife Society, 5410 Grosvenor Lane, Bethesda, Maryland 20814 USA. Telephone: (301) 897-9770; Email: tws@wildlife.org. Web: www.wildlife.org

Symposium on the Medical Management and Captive Care of Chiroptera. May 15 - 18, 2002;

Gainesville, Florida. This symposium is hosted by Lube Foundation, Inc., the American Zoo and Aquarium Association Bat Taxon Advisory Group, and University of Florida Veterinary Medical Teaching Hospital.

The program includes presentations on medical management, emerging diseases, field programs, conservation, education and captive husbandry and management of Chiroptera. A separate two day Zoo Educators Workshop, a one day Florida Teachers Workshop and a Rodrigues Fruit Bat Family Extravaganza will also be held in conjunction with this conference.

Preliminary Agenda:

Wednesday, May 15	Zoo Educators Workshop Registration No Host Social
Thursday, May 16	Zoo Educators Workshop Emerging Disease Symposium
Friday, May 17	Ecology and Captive Management Symposium Banquet Dinner
Saturday, May 18	Ecology and Captive Management Symposium Florida Teachers Workshop
<u>Special Activity</u> Sunday, May 19	AZA Rodrigues Fruit Bat Species Survival Plan Family Extravaganza

Symposiums will be held at the Holiday Inn. Workshops, banquet dinner and Rodrigues Fruit Bat Family Extravaganza will be held at the Lube Foundation, Inc., 1309 NW 192nd Avenue, Gainesville, FL 32609

For further information on this conference or the workshops, please contact one of the following:

John Seyjagat, Lube Foundation at 352 485-1250 or LUBEEBAT@aol.com

Peter Riger, Nashville Zoo at 615 746-2526 or priger@email.msn.com

Denise Tomlinson, OBC Florida Bat Center at 941 637-6990 or DRTomlinsn@aol.com

Note from the Editor: Please send meeting announcements, diagnostic riddles, position and grant announcements, miscellaneous items, etc. for the Supplement to the Journal of Wildlife Diseases to Charlotte F. Quist, Wildlife Health Associates, P.O. Box 109, Dillon, MT 59725 USA. Telephone: (406) 683-8325; FAX: (406) 683-8325. Email: cquist@bmt.net Double spaced typewritten or electronic mail files in WordPerfect or Microsoft Word are preferred. The deadline for submission of articles for the next issue (October 2001, JWD Vol. 37, No. 4) is August 25, 2001.

LATE POSTINGS!!

BOOK REVIEW. OIE Diagnostic Manual for Aquatic Animal Diseases, 3rd Edition, 2000, and the International Aquatic Animal Health Code, 3rd Edition, 2000. The *Diagnostic Manual for Aquatic Animal Diseases (Manual)* from the Office International Des Epizooties (OIE) is an excellent reference for those interested in detailed laboratory protocols using scientifically recognized and accepted methods for the isolation, identification, and confirmation of selected pathogens of importance in commercially raised aquaculture species worldwide. Also included are the history and geographic range of the pathogen, clinical signs of the disease, sampling procedures for both diagnostic and population screening purposes, and an extensive list of references in each section.

Many of the identification and confirmation protocols in the *Manual* include the use of positive control material. Some forms of this material may be unavailable or prohibited in countries where the pathogen is considered exotic; therefore, procedural modifications and the utilization of laboratories in other areas may be necessary for confirmation. Polymerase chain reactions protocols are included in this edition as an acceptable confirmatory method for many of the organisms, along with the fluorescent antibody and serum neutralization methods used previously.

Not all the pathogens considered to be of major importance to US Aquaculture are included in the *OIE Manual*. However, protocols and techniques for many of these other disease may be found in the *Suggested Procedures for the Detection and Identification of Certain Finfish and Shellfish Pathogens* (Bluebook), 4th Edition, 1994, which is published by the Fish Health Section of the American Fisheries Society.

The *Manual* is the source of technical support information for the *International Aquatic Animal Health Code*. The *Code* contains the Regulatory Guidelines for movement of fish, mollusks, and crustaceans. It also contains information on notifications, risk analysis, and transport considerations.

This new edition of the *OIE Manual* will be a valuable addition to the libraries of both diagnosticians and laboratory personnel, and the *Code* will be useful for anyone involved with regulatory inspections or movement of aquatic species.

- Reviewed by Joy Evered DVM, Olympia Fish Health Center, US Fish and Wildlife Service, 3704 Griffin Lane S.E. Suite 101, Olympia, WA USA 98501. Telephone: (360) 753-9046; FAX: (360) 753-9403. Email: joy_evered@fws.gov

Training Available in Fish Diagnostics, Inspections, and Laboratory Methods. The US Fish and Wildlife Service Fish Health Centers provide laboratory and field examination services to the National Fish Hatcheries. Our main emphasis is to assist the hatcheries in producing quality fish that will contribute to the enhancement and restoration of aquatic ecosystems.

At the Olympia and Idaho Fish Health Centers, the work may involve travel to field sites to perform diagnostic examinations and collect samples that are then evaluated in our laboratories. Routine testing procedures include bacteriology (biochemical, ELISA, and PCR methods), virology (cell culture, serological, and PCR methods), parasitology (microscopic and PCR methods), histology, and clinical chemistry.

Training may be arranged for one day or several weeks at one or both of these laboratories depending on the interests and availability of the individual. In general, most broodstock inspections are performed from September through November, juvenile inspections are performed from January through April, and wild fish surveys are conducted from March through September. Routine diagnostic examinations are performed year round and special projects are conducted as time and necessity permit.

For more information, please contact Joy Evered DVM, at the Olympia Fish Health Center; email joy_evered@fws.gov or Marilyn Blair DVM, at the Idaho Fish Health Center; email marilyn_j_blair@fws.gov.

INTERNSHIP IN WILDLIFE MEDICINE AND SURGERY. The Progressive Animal Welfare Society (Wildlife Department) is offering a 12-14 month internship in wildlife rehabilitation medicine and surgery. PAWS is a private, non-profit organization consisting of two wildlife hospitals and rehabilitation facilities, a companion animal shelter, adoption and spay/neuter clinic and animal advocacy, located in the beautiful Pacific Northwest, 12 miles north of Seattle, Washington.

PAWS receives over 6,000 wildlife each year, representing approximately 200 species, including marine mammals and marine birds. It is one of the few facilities in the country to rehabilitate large carnivores such as black bears and cougars. The wildlife rehabilitation facilities include a fully equipped hospital with radiology, surgery and laboratory. The veterinary intern will be involved in all aspects of rehabilitation medicine from intake to release, including physical exam, critical care, radiology, surgery, anesthesia, medical treatments, dietary analysis and husbandry.

The Center has 20 permanent staff members including two veterinarians, nine seasonal employees, several wildlife interns, and over 300 volunteers. The intern will work closely with veterinarians and other staff, and will supervise senior veterinary students and undergraduate interns.

Interested candidates should possess strong clinical, diagnostic and interpersonal skills. A background in wildlife medicine or biology is helpful but not required. Candidates must be eligible for licensure to practice veterinary medicine in Washington State.

Application materials required are: letter of intent, curriculum vitae, veterinary school transcripts and three letters of recommendation. Application deadline is October 1, 2001. Starting date is February 1, 2002. The salary is \$25,000/year, plus full medical/dental benefits and paid vacation.

Please address all inquiries and application materials to Dr. Darlene DeGhetto, PAWS Wildlife Center, 15305 44th Avenue West, Lynnwood, WA 98037, (425) 787-2500 x 265. Email: darlened@paws.org