

SUPPLEMENT TO THE JOURNAL OF WILDLIFE DISEASES

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PRESIDENT'S CORNER

I would like to begin, this first of an anticipated eight "President's Corner" contributions over the next two years, with some heartfelt thanks and hearty congratulations. Heartfelt thanks are extended to Tonie Roche, our immediate Past President, for her superb leadership and dedication over the past two years. As has been so typical of the many talented individuals who have guided the WDA over the past half-century, Tonie epitomized both commitment and selfless service. Thank Tonie when you see or talk to her. Bill Samuel, our outgoing Vice President, who has been one of WDA's most valued leaders and mentors for decades, deserves the Association's special thanks as well.

To the Council-members-at-large, Committee and Section Chairs and members, both those concluding their terms, and those beginning, the WDA has been, and will be, a better Association as a result of your service. It takes many, many quality individuals to insure an organization's success, and the WDA has been the special recipient of same, in spades!

I also want to extend our collective congratulations to those who received awards at this year's annual meeting, particularly the students, who will be tomorrow's WDA leaders! Additional details regarding award recipients appear elsewhere in the Supplement.

I would like to say that it truly is an honor for me to serve as your current President and I thank you, in advance, for your continued support of our Association and everything for which it stands. To those who are relatively new among our midst, as well as to the more seasoned veterans, I invite and encourage you to seek out one or more of the many opportunities available to you to serve your WDA.

For those of you who were able to attend this July's joint meeting of the WDA and the Society for Tropical Veterinary Medicine (STVM), you were most fortunate, indeed! For those unable to attend, we eagerly anticipate a similarly outstanding meeting, in a truly beautiful part of our country, Humboldt, California, this next year. Hopefully, we will see many more of you next year! (Special appreciation is extended to Dave Jessup for his untiring efforts regarding this year's meeting and to Rick Botzler who is similarly preparing for 2002!)

This year's meeting in Pilanesberg National Park, South Africa, was significant in many respects. It marked our 50th Anniversary, was our first meeting on the African continent, constituted our first joint meeting with the STVM, and resulted in the development of a strongly supported joint WDA/STVM Resolution. The resolution will hopefully lead to some long term, positive impacts upon wildlife, livestock, and people in the international community. The jointly approved "Pilanesberg Resolution" targets the many worldwide "donor organizations" responsible for funding projects directed toward improvement of human communities and their resultant quality of life, throughout the world. The Resolution, which will be sent to appropriate "donor" organizations under a joint WDA/STVM cover letter, will encourage the inclusion of clearly identified planning factors, addressing the many critical agricultural (livestock), wildlife, and human interfaces, as a routine aspect of their review and funding processes. In a competitive world trying to cope with ever more limited resources, both WDA and STVM thought it appropriate to encourage a renewed focus on this aspect of international development project funding. (Both organizations recognize Steve Osofky's exceptional dedication in the development of this resolution). The joint cover letter and the Resolution can be viewed elsewhere in the *Supplement*.

By now you have undoubtedly received your new *Supplement to the JWD*, '00-01 Membership Directory. It is an excellent resource for all of us! Of particular interest is the inclusion of the WDA's Constitution and Bylaws, as well as Standing Committee and Section Guidelines, etc. Ready access to this information will allow for a better understanding of

the administrative architecture of our Association. One certainly need not sit down and consume the contents of the Directory from ‘cover to cover’, but it most certainly will be constantly within arm’s reach for most of us!

Torsten Morner, your new Vice President, will serve as the primary liaison between the Chairs of the Standing and Ad Hoc Committees, and the President and other members of Council. I encourage those having a desire to serve on standing or ad hoc committees to contact Torsten or me at any time.

The next year promises to bring unforeseen challenges, new excitement, and unlimited opportunities to excel within the wildlife disease arena. The WDA is clearly positioned to be an important player as we look toward the future. Along with the parent organization, the ever-increasing strength and involvement of our European, Nordic, Australasian, newly forming African, and Wildlife Veterinarian Sections will help to assure our global relevance in the years ahead.

With those thoughts in mind, let’s enthusiastically continue our pursuit of WDA’s mission “. . . to acquire, disseminate, and apply knowledge of the health of diseases of wild animals in relation to their biology, conservation and ecology, including interactions with human and domestic animals.”

- Paul L. Barrows, WDA President

WDA ACTIVITIES

Annual Conference Summary – “The Pilanesberg Meeting”!! The Wildlife Disease Associations golden (50th) anniversary meeting, and eighth international meeting, was held jointly with the Society for Tropical Veterinary Medicine (STVM) at Kwa Maritane in Pilanesberg National Park, South Africa July 22-29. And what a meeting it was !!!!

The setting was spectacular. Pilanesberg National Park lies within a rims of ancient volcanic cones about 2 ½ hours drive north from Johannesburg, in what used to be the black homeland of Boputaswana. This park has a fascinating and instructive history. For hundreds of years, Copper Age people thrived in large well organized settlements on what are now the signature escarpments of the park. During the early part of this century, when it was part of a segregated homeland, the park was developed for agriculture and marginal cattle grazing. About 30 years ago the land was seconded for a new national park. It was game fenced, wildlife species and predators including the “big five” were introduced, and luxury lodgings and accommodations were built. It is now one of the more popular parks in southern Africa. One of only a very few that makes a profit, it provides jobs for hundreds of people. Thus, it was the perfect setting to consider the conferences themes “Wildlife and Livestock Diseases and Sustainability: What Makes Sense ?”.

Kwa Maritane and Bakubung Bush Lodge, each holding about 110 delegates, served as home base, with fantastic meals, beverages (including vintage South African wines), and snacks available all the time as part of the registration and lodging packages. Nobody lost any weight at this meeting!! The meeting attracted 104 members of either WDA and/or STVM, 64 non-members, 29 sponsored delegates, and 36 accompanying persons (233 people). Delegates were almost exactly evenly split between WDA and STVM. Thirty-five (or thirty-six if you consider Scotland as independent from United Kingdom) nations were represented. There were 111 people from North America, 93 from 15 African nations, and 43 from 10 European nations. Exactly what an international meeting should be! The venue as well as the nature and design of the meeting served to encourage many new collaborations and friendships.

The WDA Council meeting was held on Sunday afternoon, July 22nd, with President Tonie Rocke presiding with a quorum present (see WDA Council minutes). The meeting was concluded in record time to allow officers of both WDA and STVM to meet and greet. An icebreaker and indoor/outdoor dinner rounded out the evening that featured the music of Ladysmith Black Axes. Monday’s program was made up of joint plenary sessions (Introductory, Posters, Disease Scourges of Wildlife and Livestock, Sustainability). The later session featured several very thought provoking and unusual presentations whose messages appeared again later in the meeting.

Tuesday’s sessions were split, with WDA having its usual excellent student papers (13) in the morning followed by a session on emerging infectious diseases. STVM had papers on bacterial and viral diseases and ticks. Sessions broke early for a 3-hour game drive through the park. For people who had not yet taken time to view kudu, warthog, waterbuck, zebra, impala, etc, etc, at the waterhole immediately in front of Kwa Maritane, this was a chance to see those species, plus eland, elephant, white rhino, giraffe, wild dog, lion, dassie and many, many bird species. The drive ended at the Bakubung boma (corral) where fires, Motswana native dancers, sherry or hot drinks awaited. A brai, a South African BBQ with fresh cooked traditional foods, game meats, local wines and drinks, followed. As the meal wound to a close, the “Theater for

Africa” gave a presentation of vignettes from several of their award-winning stories and plays under the stars.

Wednesday was held in split sessions with WDA considering tools for management, surveillance, marine and immobilization sessions, while STVM considered tick-borne diseases, antigens and vaccines, babesia and student presentations. The joint gala banquet and awards were held at the Main Hotel in Sun City (the Las Vegas of South Africa - also called “Sin City”) just outside the park. There were many awards including students (Melissa Miller, Lori Sheeler-Gordon, Joe Gaydos, and Darryn Knobel) as well as the WDA Emeritus Award (Vic Nettles), the Distinguished Service Award (Torsten Morner), and the Duck Award (guess who). The meal and entertainment were spectacular (local jazz group Dimpy Tshabalala, show music of Argos Mogai and Anne Power, and dancing after dinner), maybe even “over the top” as Tom Thorne danced longer and with more enthusiasm than at any time in the last 25 years. Tonie gave a touching and hilarious pictorial review of WDA’s past 50 years and passed the gavel to WDA’s new President Paul Barrows. A very, very good time was had by all.

Thursday saw the rejoining of the two groups and started with a session on tuberculosis, followed general papers, and a very appropriate and challenging session on “What Makes Sense”. A resolution, developed initially by Steve Osofsky and modified by many hands, calling for NGO’s to consider the interactions and impacts of wildlife and livestock diseases when funding development projects was considered and adopted. The meetings were closed by out-going WDA President Tonie Rocke and STVM President Paul Gibbs, and a final social gathering occurred on the veranda outside the meeting rooms. Although many people left on Friday, there was an excellent half day workshop “Pathology of Tuberculosis in Wildlife” was hosted by Dolores Gavier-Widen.

Another high point of the meeting was a lunch with representatives from African nations where the potential for an expanded and improved African WDA Section was discussed. Special kudos to Jonna Mazet (WDA Scientific Program Chair), Pat Conrad, Richard Kock, Torsten Morner, Jim Sikarskie, Mike Kock, Thierry Work, Billy Karesh and many, many others for program development help and organization, and to Event Dynamics and our friends and colleagues in STVM. Special thanks to Tonie Rocke for having the courage and vision to make this meeting happen. Good luck in topping this one to Rick Botzler, Rick Brown and the Humboldt crew !!!

- Dave Jessup, 2001 WDA International Program Chair

WDA Student Activities. Conference Report: The Student Activities Committee received 10 and 5 applications for the scholarship and research awards, respectively (all from the US or Canada except for one research application from the Sudan). Applications were reviewed and a decision made within a month of receipt of the applications. Letters informing applicants of the outcome of the committee’s decision were sent on 15 May, 2001. Ms. Lori Sheeler-Gordon won the **Scholarship Award**. She is a PhD candidate at Texas Tech University working on modeling of wildlife rabies in raccoons.

Dr. Melissa Miller (a.k.a. Chechowitz) won the **Graduate Student Research Recognition Award**. She is a PhD candidate at the University of California, Davis working on the pathophysiology of protozoal encephalitis in California sea otters. [Editor’s note: Dr. Miller received the WDA Scholarship Award in 1998, which assisted her in financing this research.]

We had two winners of the **Terry Amundsen Student Presentation Award**. Mr. Darryn Knobel, a PhD candidate at the University of Pretoria (South Africa), won for his presentation on oral vaccination of African wild dogs for rabies. Mr. James Lloyd-Smith, a PhD candidate at University of California, Berkeley, won for his presentation on modeling dynamics of disease invasion in a metapopulations. At the WDA meeting, there were 13 student presentations, 11 of which qualified for the Award competition. Presentations were judged by a panel of 14 people representing government, non-government, and academic institutions. Student presentations were scored 0-4 on various aspects of content and delivery technique, and the scores were tallied to determine the winner.

Guidelines for the 2002 WDA Student Awards.

Wildlife Disease Graduate Student Research Recognition Award: DEADLINE: April 15, 2002.

This 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 \$1000 US to cover travel, housing, registration, etc. related to the annual conference. The student will be the featured presenter during the Student Presentation Session at the conference.

Applicants should submit three items:

- 1) A summary of their research (10 pages double spaced written in type face font 10 or larger) structured as follows: Title, abstract, introduction, methods, results, discussion, references, tables and figures. The title page should be separate, and the 10-page limit applies only the Title, abstract, introduction, methods, results, and discussion.
PLEASE ENCLOSE 3 COPIES.
- 2) A cover letter stating how the research relates to WDA objectives (see inside back cover of WDA journal).
- 3) A letter of support from the faculty advisor indicating degree of student involvement in planning and execution of the research project.

Selection criteria: Each item (1-3) will receive a score and the sum of these scores will determine the rank of the candidate. **GROUND FOR DISQUALIFICATION INCLUDE:**

- Items missing.
- Summary exceeds 10 pages (excluding tables, figures, and references).
- Submissions postmarked beyond deadline date.

Wildlife Disease Association Scholarship: DEADLINE: April 15, 2002. This 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.

To be considered, the candidate must have completed a four-year baccalaureate degree. Candidates with an overall grade point average of 3.5 or above in 4.0 system or 80% or better in percentage system will receive priority. The candidate should be committed to leadership, scholarship, and service in the wildlife health profession. To be considered, you should submit the following items:

- 1) One *Original* and two *photocopies* of all relevant transcripts. *Original* transcripts means: Official transcripts (i.e. with the imprint or official seal of the institution and signature of the responsible university officer) or copies signed by the student's faculty advisor.
- 2) 3 copies of a single page giving cumulative grade point average for all undergraduate degrees, graduate degrees, and ongoing coursework.
- 3) Up to 3 letters of support, including a letter from the student's faculty advisor, that address the following specific abilities of the applicant: academic achievement, scholarly promise, research ability, verbal and writing skills, industriousness, leadership abilities, judgment and potential for contribution to the field of wildlife diseases.
- 4) Evidence of superior scholastic achievement (course work, scholarships, awards, publications)

GROUND FOR DISQUALIFICATION INCLUDE:

- Items missing.
- Submissions postmarked beyond deadline date.

Terry Amundsen Student Presentation Award DEADLINE: WDA MEETING, 2002. This 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 a special session. Upon completion of the presentations, evaluation forms will be handed out to the audience who will be asked to score the presentations for the following:

- Quality of science
- Quality of visual aids
- Delivery
- Relevance to management of wildlife health

The student with the highest score will receive the award. Members of the WDA Student Activities Committee will adjudicate tied scores.

These award are non-renewable and can be received only once by a given candidate. Applications must be submitted by April 15, 2002 to: Thierry M. Work, USGS-NWHC-HFS, PO Box 50167, Honolulu, HI 96850, USA

(thierry_work@usgs.gov).

WDA ACTIVITIES.

Call for Nominations. This year the Association has several important vacancies. These include: Secretary, Treasurer, two seats on Council and for the first time a Student seat on Council. Please consider candidates for these important jobs and send your nominations to Dr. Scott Wright at swright@usgs.gov.

Pilanesberg Resolution. In July, 2001, at an international scientific meeting held in Pilanesberg National Park in South Africa, the Wildlife Disease Association and the Society for Tropical Veterinary Medicine jointly prepared and released a resolution calling for the recognition of animal health sciences as critical to the design and management of sustainable programs for both livestock and wildlife. This resolution, which is targeted at the international government or government-related donor community, encourages agencies to consider potential wildlife health impacts when development projects (particularly livestock development) are being planned or implemented. The two societies, meeting together to address the issue of diseases transmitted between domestic livestock and wild animals, wished to emphasize the interrelatedness of development actions and the environment, the potential for adverse consequences in projects that neglect to consider wildlife disease issues, and the importance of considering the true and overall costs and benefits to natural as well as human-made production systems when evaluating or defining sustainable projects. The resulting “Pilanesberg resolution” reads as follows:

Resolution by the Wildlife Disease Association and the Society for Tropical Veterinary Medicine calling for international donor community recognition of animal health sciences as critical for the design and management of sustainable wildlife and/or livestock-based programs.

Whereas, contact and resource competition between wildlife and livestock continuously expand as more and more land comes under some form of human use;

whereas, wild and domestic animals have many diseases in common and both groups can and do play different roles in disease epidemiology, and recognizing that these interrelationships can have significant implications for disease prevention or control schemes;

whereas, livestock-based and wildlife-based activities are undertaken separately as well as jointly as primary modes of sustenance, economic betterment and support of rural livelihoods, with the sustainability thereof inextricably linked to ecologically appropriate land-use choices;

whereas, the sustainable management of livestock as well as the conservation of wildlife require ground-level stewardship, including disease surveillance, by those communities closest to and most dependent on these resources;

whereas, numerous governmental and non-governmental organizations worldwide provide financial resources, incentives, leadership, and advice targeted at boosting productivity and sustainability of the livestock and/or natural resource management sectors without always recognizing concomitant disease implications, which can be significant and complex;

whereas, limited funding streams for wildlife and/or livestock initiatives require prudent use;

whereas, donor organizations seldom possess sufficient internal expertise regarding the myriad disease issues implicit in ensuring the success of wildlife and/or livestock-based programs; and

whereas, the Wildlife Disease Association and the Society for Tropical Veterinary Medicine, along with other local, national, and international organizations, represent professionals who possess unique skills, knowledge, and experience with wild and domestic animal diseases and their underlying causes, ecological relationships, and economic implications.

Now, therefore, be it resolved that, the Wildlife Disease Association and the Society for Tropical Veterinary Medicine urge those organizations contemplating the funding and implementation of programs involving wildlife or livestock resources to:

* encourage projects that foster integrative approaches to livestock production, food security, human health, economic growth, democracy and governance, biodiversity conservation, and natural resource management in order to

build upon synergies among these sectors while precluding conflicting policies and/or negative impacts on either livestock or wildlife health;

- * formalize steps in their project design, environmental impact assessment, and implementation processes which address wildlife, livestock, and rangeland health issues and their implications for sustainability and thus success, recognizing that these projects may alter fundamental relationships between animal hosts and potential pathogens and parasites;

- * when contemplating projects involving domestic and/or wild animals, establish relationships with appropriate wildlife and domestic animal health-oriented organizations and recognized local, national, regional, and international experts, thereby identifying an appropriate pool of professionals who can assist in ensuring the inclusion of timely, science-based advice in planning, implementation, and monitoring processes; and

- * put a premium on local human capacity-building to address the long-term technical needs of development activities that require expertise in domestic animal health and wildlife health by building adequate support into project design and implementation so as to engage local expertise and to foster capacity-building at professional as well as community levels as a first-tier priority within and beyond the life-spans of such programs.

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.

OTHER MEMBER NEWS

Late Notice! Roy C. Anderson, long-time WDA member died on in his sleep at age 76 on August 26, 2001. Anyone wishing to write expression of sympathy can to :Mrs. Phyllis Anderson and Sons, 40 Westminster Ave., Guelph, Ontario, Canada.

Obituary: Stephen H. Richards. Stephen Richards, long-time member of the Wildlife Disease Association, died after a long illness on June 17, 2000. Steve was born in 1918 in Jew Jersey, and later moved to New York where he went to high school. He received his B.S. degree in Forestry and Wildlife Management from the University of Massachusetts in 1942. After serving in the US Army during World War II, he attended graduate school at the University of Wisconsin, studying under Aldo Leopold, the "father" of modern-day wildlife management. He worked for the Wisconsin Conservation Department in the late 1940's and early 1950's, and joined the North Dakota Game and Fish Department in 1953 as a wildlife disease biologist. He retired from the Department in 1988 after 35 years of service. Steve's research included studies on epizootics of hemorrhagic disease in deer and parasites of carnivores as well as a number of other wildlife disease and management topics. Steve was a faithful attendee at the annual meetings of the WDA during the 1960's, 1970's, and early 1980's. Those of us who know Steve will miss his friendly smile and his wise understanding and input at the WDA meetings. Steve is survived by his wife Kay, two sons, a daughter, and one grandson. Kay lives at 1415 3rd Avenue NW, Jamestown, North Dakota 58401.

- Contributed by Don Forrester.

HAPPENINGS IN THE FIELD

Rabies-Vaccinia Infection from Oral Vaccine. In what health officials say is the first documented case of its kind, a pregnant woman from northeastern Ohio (USA) was infected by a rabies vaccine used in a wildlife bait program. The case was reported by staff from the Centers for Disease Control and Prevention (CDC) [and published in the New England Journal of Medicine 2001; 345(8): 582-582. See also at: <http://content.nejm.org/cgi/content/full/345/8/582>]. The 28-year-old woman became ill 3 days after being bitten by her pet dog, which had been chomping on a chunk of rabies vaccine bait. The bait, scattered by public health officials to prevent the spread of rabies in wild animals, contained a genetically modified oral vaccine called vaccinia-rabies glycoprotein virus.

The woman developed fever, swelling of the arm [with blistering], and inflamed red skin. She was given antibiotics and had the infected wound surgically drained. She suffered no [long term] adverse effects, the researchers say, and there was

also no effect on her unborn child.

The incident happened in September, 2000. The woman had been pulling the bait out of her dog's mouth when the animal bit her finger and grazed her arm, says Dr Charles Rupprecht, chief of CDC's rabies section and author of the case report in the Aug 23 issue of the New England Journal of Medicine. "She thoroughly washed her bitten finger, but where the dog grazed her arm, she probably did not pay as much attention," he says. "And that's where the virus impregnated the skin. And so we have the first documented infection with this recombinant virus."

Rupprecht says the dog must have punctured the packet of vaccine hidden within the bait. "The vaccine is enclosed in something like a ketchup packet within the bait, which looks like a charcoal briquette. It uses a polymer, which binds together fish meal and fish oils attractive to raccoons. Most carnivores, in fact, are attracted to the bait," he notes. The genetically modified virus was developed in the 1980s as a way to orally inoculate raccoons and foxes against rabies. It was used successfully in Europe before it was field-tested in the United States in 1990. The Food and Drug Administration (FDA) approved the rabies vaccine bait in 1995, and since then planes have dropped tens of millions of these packets in wildlife areas throughout the eastern half of the United States.

Dr Michael Auslander, public health veterinarian for the state of Kentucky, says the case is an anomaly. "We've had extensive experience with this bait, and this is the first known case of transmission from vaccinia," he notes. "Handling the bait has always been safe, and it's been going on for 10 years in Texas, which has the most experience." Auslander says the bait is "used where there are naturally occurring epidemics of rabies in foxes and raccoons. These animals can pass rabies on to cattle and dogs, and that's what we are trying to avoid -- the spread of the disease from wildlife to domesticated animals or to people."

In 1999, there were 7067 reported cases of rabies in animals in the United States, 11 per cent less than in 1998. Rabies in raccoons was virtually unheard of before the 1950s, but has spread since the 1970s. Last year, 5 Americans died of rabies; 4 of them came into contact with bats and the fifth was bitten by a dog while traveling in Africa. The case study presents "sort of a mixed message," Rupprecht says. "It shows the relative safety of this vaccination approach, since this is the first case [of infection] we've been able to document in 10 years. And remember [the use of these baits has] been going on in Europe since 1986, where it helped to eliminate rabies in foxes in France." The mixed part of the message is that every year we've been putting out more and more doses in more geographic areas as part of a national plan," Rupprecht continues. "And we have data showing that the vaccine bait is controlling rabies." The report, for instance, says that no rabies cases were found among raccoons in 2000. Rupprecht says that when public health officials scatter the bait, every effort is made to alert the public. "It's usually accompanied by a whole media campaign -- press, radio, letters to public health officials and veterinarians. But we've been doing it for 10 years, and the news starts to become old hat. "We don't want to become cavalier, and we want to remember the things we learned in childhood, such as washing all animal bites with soap and water," Rupprecht advises. "And contacting our primary care provider, if illness results."

According to the report in the New England Journal of Medicine, swabs, serum, and eschar from the woman, and both placenta and umbilical cord serum were examined. Electron microscopy revealed the morphological features of orthopoxviruses, polymerase chain reaction yielded products 100 per cent homologous with those expected for vaccinia-rabies glycoprotein virus in all samples apart from placenta, and serological tests identified high titers of antibodies against both vaccinia and rabies. The authors note that "the vaccinia-rabies glycoprotein virus is a self-replicating agent... ..and may cause adverse events, particularly in hosts with altered immunocompetence and in persons for whom smallpox vaccination is contraindicated, such as pregnant women or patients with an exfoliative skin condition".

- Adapted from *ProMed*, August 2001.

National Wildlife Health Center's Quarterly Mortality Report

West Nile Virus. West Nile virus (WNV) dead bird surveillance is underway. USGS National Wildlife Health Center (NWHC) is continuing to provide WNV testing for several states. NWHC is primarily focusing on testing birds in the Corvidae family (crows, jays and magpies), and raptors, due to the high prevalence of WNV in these species in previous years.

The first positive case this year was reported by New Jersey and involved a crow collected in Bergen County, New Jersey on 30 April 2001. Through the end of June 2001, US states that have had birds/mammals test positive for WNV are Connecticut, Florida, Georgia, Maryland, New Jersey, New York, and Rhode Island. Florida and Georgia are new

locations for confirmed WNV cases. Current maps showing states that are participating in WNV surveillance and locations for positive WNV cases can be found on the Center for Integration of Natural Disaster Information (CINDI) website at http://cindi.usgs.gov/hazard/event/west_nile/west_nile.html#2001. Please also go to the Centers for Disease Control and Prevention (CDC) website at <http://www.cdc.gov/ncidod/dvbid/westnile/index.htm> for up-to-date information on WNV. For information on how to submit a bird for WNV testing in your state, please contact your local public health department or visit our website at http://www.nwhc.usgs.gov/research/west_nile/west_nile.html. If you are unable to find the information you need, please call Kathryn Converse or Kimberli Miller at (608) 270-2400 for directions on how and where to submit a dead bird for WNV testing.

Amphibian Morbidity and Mortality. From late April to early June, there were 10 reports of morbidity and mortality in immature and adult amphibians. Mortality sites in six states ranged from vernal pools, seasonal and permanent ponds, kettle ponds, stock ponds to impoundments and affected a range of species of terrestrial and tree frogs, toads, newts and salamanders. Causes of illness or death varied as well and included suspect and confirmed iridovirus, chytrid fungus and yeast-like infections, trauma and parasitism.

California Least Terns. In mid-June 2001, the U. S. Fish and Wildlife Service, Carlsbad California Field Office, reported the mortality of endangered California least tern chicks in several nesting colonies along the southern California coast. By late June, the mortality had increased to nearly 400 chicks. Tern biologists suggest the chick mortality could be due to infectious disease, predation, starvation due to food scarcity, disturbance by predators, or intoxication by naturally occurring marine biotoxins. The only significant finding in two chicks submitted to the NWHC was emaciation. An investigation of this event is ongoing and additional submissions are anticipated.

Avian Botulism at Sonny Bono Salton Sea NWR. Avian botulism type C was confirmed at Sonny Bono Salton Sea NWR in a herring gull collected 15 May 2001, and a brown pelican on 07 June 2001. To date, 31 dead birds have been collected. Twenty-four (80%) were pelicans with 21 (67%) endangered California brown pelicans. In addition to the pelican mortalities, 60 sick brown and 3 sick American white pelicans were retrieved and placed in rehabilitation. An estimated 3,895 pelicans were at risk during this quarter. During June, there were concurrent fish mortalities that included over 2.2 million tilapia, croaker and orange-mouth corvina.

Diazinon in Atlantic Brant. The New Jersey Department of Fish and Wildlife reported a mortality event involving approximately 85 Atlantic brant. The event occurred 30 April 2001 – 5 May 2001, at the southern tip of New Jersey in Cape May County. Diazinon, an organophosphate pesticide, was detected upon toxicological analysis. The source of the poison is unknown. Nearby Cape May NWR was unaffected by the event and did not report any dead birds. The New York Wildlife Pathology Unit has documented at least 3 brant die-offs in New York due to diazinon from the late 1970's to mid 1990's.

Quarterly Wildlife Mortality Report

April 2001 to June 2001

State	Location	Dates	Species	Mortality	Diagnosis	Reported by
AK	Juneau Co., Mendenhall Peninsula	05/22/01-06/24/01	Red-breasted Sapsucker	8(e)	Predation, Emaciation	NW
AL	Escambia Co., Damacus	01/28/01-01/28/01	American Robin	3	Toxicosis: Plant (Pennyroyal Oil)	SC
AR	Praire Co., Peckerwood Lake	04/04/01-04/30/01	American Alligator	6(e)	Undetermined, Weather suspect	AR
CA	Orange Co., near San Diego	04/13/01-04/25/01	Western Spadefoot Toad Pacific Tree Frog	200(e)	Open, Parasitism: Protozoonosis	NW
CA	San Diego Co., Anza Borrego Desert SP	05/15/01-05/20/01	California Tree Frog California Red-legged Frog Pacific Tree Frog	20(e)	Parasitism: Trematodiasis	NW

CA	San Diego Co., North Is.	06/08/01-ongoing	California Least Tern	381(e)	Emaciation	NW
CA	Sonny Bono Salton Sea NWR	05/18/01-ongoing	Brown Pelican American White Pelican Ring-billed Gull	31, 63*	Botulism type C	NW
FL	Brevard Co., Crane Creek	05/01/01-05/31/01	Brown Pelican American White Pelican	100(e)	Open	FL
FL	Marion Co., Oklawaha Prairie	05/31/01-07/01/01	American White Pelican	16	Botulism type C	NW
FL	Okeechobee Co., Lake Okeechobee	12/01/00-05/21/01	American White Pelican	24(e)	Open	NW, SC
FL	Hillsborough County, Pinellas County	05/22/01-ongoing	Eurasian Collared Dove	894	Parasitism: Trichomonosis	FL
GA	Peach Co., Fort Valley	03/28/01-03/28/01	Cedar Waxwing	50(e)	Trauma	SC
GA	Polk Co., Cedartown	04/07/01-04/13/01	White-throated Sparrow Northern Cardinal Unidentified Passerine	5	Salmonellosis	SC
ID	Ada Co., Meridian	04/15/01-04/20/01	Mallard	12	Undetermined	NW
MA	Barnstable Co., Long Pond	04/23/01-05/04/01	Bull Frog	1,670 (e)	Fungal Infection: Chytrid	NW
ME	Hancock Co., Acadia NP	06/10/01-ongoing	Green Frog Bull Frog Spring Peeper	600(e)	Viral Infection suspect: Iridovirus	NW
MI	Monroe Co., Monroe	05/30/01-06/15/01	Herring Gull	2,900(e)	Open, Predation	NW
MI	Wayne Co., Detroit	06/01/01-ongoing	Herring Gull	500(e)	Dehydration suspect	MI
MS	Warren Co., Jackson	03/01/01-03/29/01	Brown-headed Cowbird Northern Cardinal Unidentified Sparrow	12(e)	Salmonellosis	SC
ND	Stark Co., Schnell RA	05/10/01-05/16/01	Tree Swallow	5	Open	NW
NJ	Cape May Co., Wildwood	04/30/01-05/03/01	Atlantic Brant	85	Toxicosis: Diazinon	NJ
NY	Genesee Co., Elba	01/15/01-02/15/01	Mallard American Black Duck Domestic Duck Domestic Goose Gadwall	200	Aspergillosis	NY
OK	Tulsa Co., Tulsa	12/15/00-03/31/01	Common Grackle European Starling Northern Cardinal Unidentified Dove	200(e)	Trauma: Impact	NW
OR	Deschutes County	02/16/01-06/18/01	European Starling Unidentified Sparrow Black-billed Magpie	47	Undetermined	NW
OR	Douglas Co., Roseburg	12/21/00-01/04/01	Pine Siskin	8	Salmonellosis	SC
PA	Allegheny County , Westmoreland County	05/08/01-06/01/01	Muscovy Duck	20(e)	Duck plague	NW
PA	Erie Co., Presque Isle SP	06/23/01-ongoing	Ring-billed Gull	36(e)	Botulism suspect	EH, CC
CAN	Ontario; Long Point & Dover Point		Great Black-backed Gull Herring Gull Redhead Duck Accipiter Hawk Fish (1000s)			
PA	Erie Co., Presque Isle Bay, Lake Erie	04/01/01-ongoing	Spiny Softshell Turtle Map Turtle	9	Pneumonia, Aeromonas,	NW

TN	Blount Co., Gourley Pond	04/01/01-04/30/01	Mudpuppy Salamander Eastern Red-spotted Salamander Four-toed Newt	3*	Plesiomonas Open	NW
TN	Coffee Co., Wartrace	03/15/01-07/15/01	Mourning Dove Brown-headed Cowbird	35(e)	Parasitism: Trichomoniasis	SC
TN	Great Smokey Mountains NP	02/01/01-02/28/01	Wood Frog Chorus Frog Eastern Red-spotted Newt	63	Open, Trauma, Emaciation	NW
TN	Lewis Co., Naco Lake	06/01/01-06/04/01	Canada Goose	15	Open	SC
TX	Travis Co., Austin	05/29/01-05/29/01	White-winged Dove Rock Dove	5	Trauma: Powerline suspect	NW
VA	Augusta Co., George Washington & Jefferson Nat'l Forest	06/09/01-06/12/01	Wood Frog	200(e)	Fungal Infection: Systemic yeast-like	NW
VA	Eastern Shore of Virginia NWR	04/10/01-05/17/01	Tree Swallow Eastern Bluebird	7	Emaciation, Open	NW
WA	Pierce Co., Wapato Creek	05/01/01-05/03/01	Mallard	10(e)	Toxicosis: Organophosphate	NW
WI	Shawano Co., Shawano	05/30/01-06/07/01	Muscovy Duck	200(e)	Duck plague	AH, NW
WY	Campbell Co., near Gillette	05/20/01-05/24/01	Tiger Salamander	80(e)	Viral Infection: Iridovirus	NW
WY	Carbon Co., Cow Creek	05/30/01-05/30/01	Tiger Salamander	33	Viral Infection suspect: Iridovirus	NW
Updates:						
CA	Fresno Co., Sierra Nat'l Forest	06/15/00-09/01/00	Mountain Yellow-legged Frog	100(e)	Fungal Infection: Chytrid	NW
FL	Monroe Co., Florida Keys	12/31/00-05/17/01	Brown Pelican Common Loon Great Blue Heron	250(e)	Open	NW

(e) = estimate, * = morbidity not mortality

Arkansas Fish & Game Commission (AR), Canadian Co-operative Wildlife Health Centre at University of Guelph (CC), Erie County Health Dept. (EH), Michigan Dept. of Natural Resources (MI), National Wildlife Health Center (NW), New Jersey Dept. of Fish & Wildlife (NJ), New York State Dept. Environmental Conservation (NY), Southeastern Cooperative Wildlife Disease Study (SC), University of Florida Laboratory of Wildlife Disease Research (FL), Wisconsin Animal Health Lab (AH).

Written and compiled by Audra Schrader, Kathryn Converse, Kim Miller, Grace McLaughlin and Rex Sohn, NWHC. This report is also available on the Internet at <http://www.nwhc.usgs.gov>. To report mortality or if you would like to obtain specific information on these mortalities, contact one of the following NWHC staff: Eastern US - Kimberli Miller; Western US - Kathryn Converse; 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 THE NORDIC SECTION

Mass-mortality among sea birds in Sweden. Increased mortality among waterfowl, particularly herring-gulls (*Larus argentatus*), has been observed in Swedish coastal waters (both the western and eastern coasts of Sweden), and inland lakes, during June and July. It is estimated that several thousand birds have been found dead. Clinical signs in sick birds have included ataxia, dropped wings, convulsions and diarrhoea. Birds die acutely or after a period of illness. The condition of birds examined at post-mortem have ranged from a good state of nutrition to emaciation. Several birds have been submitted to the National Veterinary Institute in Uppsala for post mortem examination. No clear marked

macroscopic lesions have been observed in dead birds. Histologically, minor inflammatory reactions including necrosis have been observed in liver and kidney. Bacteriological, virological, and parasitological investigations have so far been negative. Investigations for botulism have been negative. Investigations for Newcastle disease as well as influenza virus have also been negative. No indication of any toxic compound is demonstrated. Based on the spread of the disease and other epidemiological data a viral disease cannot be excluded and specimens are presently being examined in our laboratories for virus. Collaboration has also been established with colleagues in the Netherlands, where mortality in gulls and other sea birds have also been observed.

For further information please contact Torsten Morner, DVM, PhD, Senior Veterinary Officer, Department of Wildlife, National Veterinary Institute, Uppsala, Sweden. Telephone +46 18 67 42 14 or +46 70 5679 352 (where you can leave messages). FAX +46 18 30 91 62, E-mail Torsten.Morner@sva.se

NEWS FROM EUROPE

New conditions? Please see Dr Torsten Morner's report on herring gull deaths, in the Nordic Section.

A European Perspective on the WDA Meeting in South Africa. Around 20 European participants attended the International Joint Conference between the Wildlife Disease Association and the Society for Tropical Veterinary Medicine in Pilanesberg National Park, South Africa in July this year. A very good meeting was held at an excellent place. The introduction session was chaired by Torsten Morner; and European colleagues Marc Artois, Kai Frolich and Sarah Cleaveland presented three introduction talks. Further European papers were presented from Spain, France, United Kingdom, Germany, Italy, Norway, Sweden and Switzerland. Ursula Hoefle from Spain took part in the student presentation contest. Europe was further featured as Torsten Morner became vice president of the WDA and also received the Distinguished Service Award from WDA. The WDA-meeting was then followed by two workshops on FMD and tuberculosis and the relevance of these diseases to European Wildlife was discussed.

- Kai Frohlich, Institut for Zoo and Wildlife Research, Berlin, Germany

The Second European Wildlife and Zoo Pathology Workshop. (31 May -1 June 2001) and the post-conference tour to Wildpark Eekholt (Schleswig-Holstein) (2-3 June 2001) was organized jointly by the research group for wildlife diseases at the Institute for Zoo and Wildlife Research, Berlin, Germany (IZW), the National Veterinary Institute of Wildlife, Uppsala, Sweden and the Centre for Fish and Wildlife Health, Bern, Switzerland. Altogether 40 participants from 13 different countries attended the workshop at the IZW. The three day workshop covered the following main sections: (1) non-infectious diseases and causes of death in zoo and wild animal species, (2) mycobacterial infections and foot and mouth disease and (3) viral diseases in carnivores. Each day was divided into a morning and an afternoon session.

The first day (section 1) included the sessions "poisoning" (Tataruch, Kenntner), "predation" (Giacometti, Janovsky, Hard af Segerstad) and "anthropogenic factors to wildlife (large birds)" (Krone). The second day (section 2) included the talks "introduction to mycobacterial infections" (Brunner), "Mycobacterium bovis" (Brunner, Gavier-Widen), "Mycobacterium avium" (Mörner, Brunner), "Mycobacterium microti" (Begon), as well as "M. paratuberculosis" and "foot and mouth disease" (Kaandorp). The last day (section 3 and 1) included talks about "distemper" (Frölich, Hofer), "parvovirus" (Latz, Frölich), "other viral diseases" (Gortazar, Artois) and "metabolic diseases" (Wisser, Jakob). The theoretical part of each section was followed by a 75-min. practical session which was performed in the modern post-mortem hall and the room for the reference collection of histological and anatomical specimens at the IZW.

Most participants used the evening events to meet and to continue discussions while enjoying the relaxed atmosphere in the restaurants in Berlin's "Mitte". Twelve participants used the chance to visit Wildpark Eekholt (post-conference tour) to share information about keeping European species, and diseases of European species.

- Kai Frohlich, Institut for Zoo and Wildlife Research, Berlin, Germany (IZW).

The New National Research Institute on Game Biology, Ciudad Real, Spain. A new institute, the National Research Institute on Game Biology (IREC) was set up in 1999 in Ciudad Real, central Spain. A few weeks ago we got our new building, with over 3,000 m² of laboratories and other facilities, and we also share with the University a nice 1,000-hectare field station close to the main building.

In the year 2000 we have been working on projects dealing with red deer and wild boar (tuberculosis; heterozygosity-reproduction-FA-parasites), rabbits (restocking, RHD) and particularly with gamebirds (red-legged partridge), but any

species that is affected by the hunting activity may become the subject of future research. Despite the short life of the IREC, last year's output included over 30 papers in SCI-journals.

Our aim is to build a multidisciplinary team with experts in ecology, physiology, pathology, genetics and other subjects. During this year, one or two full-time positions for experts in veterinary medicine will probably be announced. Therefore, I am interested to make contact with people with the following characteristics:

- a.. Interested in joining a multidisciplinary research institute devoted to game species.
- b.. Having a PhD degree or equivalent, veterinarian, biologist or similar.
- c.. Accredited experience in writing scientific papers.
- d.. Research/expertise fields: microbiology, immunology, histopathology, wildlife diseases and other related fields.

Those that may be interested should send me an E-mail (gortazar@irec.uclm.es) including a Curriculum Vitae and a brief description of their experience and research interests.

- *Christian Gortazar, Instituto de Investigacion en Recursos Cinegeticos, IREC (CSIC-UCLM-JCCLM), P.O. Box 535, 13080 Ciudad Real, Spain. Telephone (+34) 926 225659; Fax (+34) 926 225184. <http://www.uclm.es/IREC/index.htm>*

European Section. Material suitable for publication includes news of recent wildlife disease outbreaks in Europe, short case reports, job and scholarship announcements, announcements and reports on relevant meetings in Europe. Submissions should be in English, but members for whom English is a second language and who send material in basic English or in their own language, will be accommodated as far as possible. The deadline for submission of articles for the next issue is November 2001. *Please mail, fax or e-mail submissions to Paul Duff, VLA Penrith, Merrythought, Calthwaite, PENRITH, Cumbria, CA11 9RR, United Kingdom, e-mail (p.duff@vla.defra.gsi.gov.uk).*

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

JOB ANNOUNCEMENT

Staff Veterinarian. The Operations Department of the Forest Preserve District of DuPage County, Illinois, has an opening for a Staff Veterinarian (#413) at our Willowbrook Wildlife Center. The responsibilities of the position include: provides comprehensive medical care including initial physical examinations and diagnostic procedures of orphaned and

injured wildlife; surgical and medical treatment of patients; administers medications; health maintenance of animals in exhibit collection; post-mortem examinations; maintenance of animal records; maintenance of clinic and surgery rooms and corresponding medical equipment; medical supply inventory and ordering; assistance with wildlife keeping activities and volunteer training; and other miscellaneous duties as assigned.

Position requirements include: completion of a degree in Veterinary Medicine from an accredited institution, and one year of experience as a veterinarian; or an equivalent combination of training and experience. Additional requirements: maintain in good standing appropriate Illinois State professional veterinary licensure, and ability to acquire Drug Enforcement Agency and Illinois controlled substance certificates, and possession of a valid Illinois drivers' license. The preferred candidate will have experience with wild animals and wildlife rehabilitation.

The starting salary range is: GR73 = \$42,220 - \$52,775 - \$63,330. Applications will be accepted until the position is filled. The Human Resources Contact person is Kathy Kowalski. Mail applications to 3 S. 580 Naperville Road, Wheaton, Illinois 60187. E-mail address: foresth@dupageforest.com. The Forest Preserve District of DuPage County is an equal opportunity employer.

Staff Veterinarian Wanted: A full time, permanent position exists for a veterinarian at International Bird Rescue Research Center (IBRRC), a private nonprofit organization located in the San Francisco Bay area. IBRRC was founded in 1971 with the primary goals of developing oiled wildlife cleaning and rehabilitation techniques, promoting ongoing research in this field, and providing oiled wildlife response capabilities. As IBRRC has responded to over 150 oil spills, both nationally and internationally and has cared for over 120 species of oiled birds, mammals, reptiles and amphibians. IBRRC operates 2 rehabilitation facilities, one in San Francisco Bay that serves as administrative headquarters and the other in Los Angeles. They both provide ongoing rehabilitation for sick, injured, and orphaned aquatic birds and collectively receive over 2500 animals per year not including oil spill patients. An ongoing clinical research program focuses on improving medical techniques in oiled wildlife care.

IBRRC is the lead avian response organization for the California Oiled Wildlife Care Network (OWCN), a division of the Office of Spill Prevention and Response, California Department of Fish & Game. IBRRC also heads up the oil spill unit of the international emergency relief team for The International Fund for Animals, IFAW. Together IFAW and IBRRC have responded to 9 international spills including the Jessica, Galapagos Oil Spill and the Treasure spill in South Africa where 21,000 penguins were rehabilitated. For more information on IBRRC, please visit our web site at ibrrc.org.

The staff veterinarian will be located at the San Francisco Bay Area facility and is responsible for the medical care of all animals admitted to the rehabilitation clinic in both facilities as well as during all oil spill responses nationally and internationally. In addition, this person will help organize and participate in trainings presented by IBRRC both nationally and internationally. They will also work with The Wildlife Health Center at the University of California at Davis to oversee and develop an internship program for veterinary students. The successful candidate will also have the opportunity to pursue and conduct clinical research trials in areas of particular interest pertaining to oiled wildlife and seabird care.

Applicants for this position should have a D.V.M. or equivalent degree, previous experience in avian medicine and surgery, and an interest in wildlife species and conservation medicine. In addition, this person should possess strong organizational skills, adaptability under changing conditions, the ability to work as part of a team, and a sense of humor. Competitive salary and full benefits offered. Please submit a letter of interest, curriculum vitae and three letters of reference to Director, IBRRC at 4369 Cordelia Rd., Suisun City, CA 94585. Application deadline is November 15, 2001.

TRAINING/EDUCATIONAL OPPORTUNITIES

Clinical Residency in Zoological Medicine. The Wildlife Conservation Society of Bronx, NY is offering a 3-year clinical residency in zoological medicine starting 1 July 2002. The program consists of medicine, surgery, treatment, anesthesia, pathology and preventive medical programs for aquatic and terrestrial animals. Training takes place at the WCS facilities, including the Bronx Zoo, New York Aquarium and 3 Wildlife Centers/Zoos in the City of New York. Collateral programs at local

universities and specialty animal clinics are also included. The clinical residents assume increasing clinical responsibilities during the 3 year training period. There is an emphasis on an area of academic interest and preparation of materials for scientific publication and presentation to peers. This residency was approved by the ACZM as meeting the criteria for board eligibility. Competitive salary

and benefits are offered. During the first year, the resident must obtain a license to practice veterinary medicine in the State of New York.

Applicants must have a DVM, VMD or equivalent degree from an accredited veterinary school. At least 1 year of practical experience with emphasis on non-domestic animal medicine, an internship, or similar training is strongly recommended. Interested persons should submit a letter of interest, curriculum vitae, 3 letters of recommendation and professional school transcripts by 16 November 2001 to: Attn. Clinical Veterinary Residency, Ms. Tawanda Williams, Human Resources Department, Wildlife Conservation Society, 2300 Southern Boulevard, Bronx, NY 10460-1099.

Additional information may be obtained by calling Drs. P. Calle or B. Raphael at 718-220-7104 or by email at: braphael@wcs.org or pcalle@wcs.org.

Equal opportunity employer M/F/H/V.

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

Zoo Medicine Course. June 10-14, 2002. The University of Tennessee, College of Veterinary Medicine; Knoxville, Tennessee. A five-day course on zoological medicine will be held at the University of Tennessee's College of Veterinary Medicine from June 10-14, 2002. The program, consisting of lectures and laboratories, will be conducted in conjunction with the Knoxville Zoological Gardens. It is the fourth year of the program, which has attracted veterinarians and veterinary students from throughout the world.

The course will include a wide range of topics in captive wildlife medicine, focusing on those aspects of zoo animal medicine and husbandry not covered by other continuing education programs.

Topics will include zoo animal nutrition, infectious diseases of reptiles and felids, raptor medicine, non-human primate preventive medicine, immobilization, darting systems and elephant and rhinoceros medicine.

The cost is \$1,000 (U. S.) for veterinarians and \$500 (U. S.) for veterinary students. Enrollment is limited to 15 people. For additional information, contact Dr. Ed Ramsay at 865/974-5576 (e-mail: eramsay@utk.edu). To register, contact Barbara Campbell at 865/974-7264 (e-mail: bcampbe4@utk.edu). Registration deadline is Mar. 15, 2002. Further details are available on the college's web site at http://www.vet.utk.edu/avi_zoo/zooschool.html.

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

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

Training Position in Zoological Pathology. The Department of Pathobiological Sciences, School of Veterinary Medicine, University of Wisconsin - Madison, in association with Research Animal Resources Center, University of Wisconsin - Madison, and the Milwaukee County Zoo is seeking a trainee in Zoo Pathology. Qualified applicants must hold a DVM or equivalent degree from an accredited College of Veterinary Medicine and be eligible for licensure in Wisconsin. Since residency training at the University of Wisconsin-Madison School of Veterinary Medicine involves the practice of veterinary medicine on privately owned animals, resident trainees are required to be licensed in the state of Wisconsin at the time they begin their residency program. Prospective resident trainees who are graduates of schools that are not accredited by the AVMA must have passed either the NBE and CCT, or the NAVLE in order to obtain a license in Wisconsin. Graduates of schools that are not AVMA approved may register for the NAVLE examination through a limited number of states in the United States. (Some states require enrollment or completion of the ECFVG or similar program) You may want to visit the following web sites to learn more about licensing examinations and processes: <http://www.aavsb.org> and <http://www.nbec.org> .

Preference will be given to individuals with two or more years of residency training in anatomical pathology. The 2 year program, scheduled to begin July 2002 is designed to provide training and experience to prepare the trainee for a career in zoo, wildlife, avian, aquatic or exotic animal pathology and eligibility to sit the certification examination in anatomic pathology of the American College of Veterinary Pathologists. Stipend is \$25,000/yr.

Send curriculum vitae and the names of at least three references to: Dr. R.D. Schultz, Professor and Chair, Department of Pathobiological Sciences, School of Veterinary Medicine, University of Wisconsin – Madison. 2015 Linden Drive West, Madison, Wisconsin 53706-1102. Telephone: (608) 2623-9888.

The University of Wisconsin is an Equal Opportunity and Affirmative Action Employer. Minorities and women are strongly urged to apply. Names, titles and/or occupation and addresses of applicants or nominees cannot be kept confidential.

Postdoctoral Training in Zoo Animal Pathology. The Smithsonian National Zoological Park, Washington, D.C., has an anticipated 2-year traineeship in pathology available July 1, 2002. The annual stipend is approximately \$25,000 plus some benefits. Time in training may be applied to ACVP eligibility. Training will emphasize gross and microscopic diagnoses of case material originating from the zoo's collection, with opportunities to conduct pathologic investigations of diseases in a wide variety of zoo animals. The zoo has a strong program in clinical and comparative medicine. Members of the veterinary staff have affiliations with the Armed Forces Institutes of Pathology and maintain academic appointments at Johns Hopkins and George Washington Universities, and the Uniformed Services University of the Health Sciences where participation in comparative pathology training and formal course work are available. Applicants must have a DVM or equivalent degree from an accredited veterinary college and should send academic transcripts, 3 letters of recommendations, and a resume with a short narrative of prior pathology experience and goals by December 30, 2001 to: Dr. Richard Montali, Department of Pathology, Smithsonian National Zoological Park, 3001 Connecticut Ave. N.W., Washington, D.C. 20008.

This program is provided through the Friends of the National Zoo (FONZ) and is subject to funds availability; it is not a federal position. Equal Opportunity Employer.

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

The 10th Annual Mid-Western Exotic Animal Medicine Conference. November 3-4, 2001; Manhattan, Kansas. Topics include the medicine and surgery of birds, reptiles, and exotic mammals (9.5 CE hours). Dr. Teresa Lightfoot will be among the 8 speakers. An optional masterclass (4 CE hours) on diagnostic and surgical procedures in small exotic mammals and a wet lab (3.5 CE hours) on laser surgery will be offered. For information, contact De. James W. Carpenter, College of Veterinary Medicine, Kansas State University, Manhattan, Kansas 66506 USA. Telephone: (785) 532-5690; FAX: (785) 532-4309. Email: carpentr@vet.ksu.edu

12th Annual International Rabies in the Americas Meeting. November 12-16, 2001; Peterborough, Ontario, Canada. The Ontario Ministry of Natural Resources is pleased to host the this international rabies conference, featuring presentations on all aspects of rabies research and rabies control. In keeping with the conference theme "A Holistic Approach to Rabies and Rabies Control" emphasis will be placed on presentations which feature synthesis and discussion on aspects of rabies and rabies control in the Americas. The conference will feature a special session on raccoon rabies in Northeastern United States and Canada, as well as sessions on bats, oral vaccination of wildlife, legal, economic and political aspects of rabies control programs and North-South dialogue around rabies control.

A significant feature of this conference is longer 20 minute presentations, which will allow participants to fully explore their subject. As with previous meetings simultaneous English-Spanish translation will be available. Also, special 3 hour "informal working" sessions will be featured at this conference for the first time in 2001, allowing participants to fully explore a particular subject. (Note: translation will not be available for informal working sessions). For more information: www.mnr.gov.on.ca/MNR/rabies/conf.html or contact: Sarah Crosgrey, Rabies in The Americas 2001 Conference Co-ordinator. Telephone: (705) 322-9608; fax: (705) 322-0381). Email: foxtrot@simcoe.net

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

Special Activity
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 Lubee 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, Lubee Foundation at 352 485-1250 or LUBEEBAT@aol.com, Peter Riger, Nashville Zoo at 615 746-2526 or riger@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 (January 2002, JWD Vol. 38, No. 1) is November 25, 2001.

2001 WDA/STVM Annual Conference Presentations. The following is a list of presentations and posters that were presented at the Pilanesberg meeting in July, 2001. The presentation list is first, followed by the list of posters. Only the name of the presenting author is listed.

1. Surveillance of Wildlife Diseases on the Global Scale. M. Artois
2. Diseases of Humans and their Domestic Mammals: Pathogen Characteristics, Host Range and the Risk of Emergence. M.K. Laurenson
3. Mutual Transimission of Important Infectious Diseases between Livestock and Wildlife in Europe. K. Frölich
4. Conflicts of Authority and Strategies to Address Wildlife Diseases. E.T. Thorne
5. The Role of Deer in the Spread of Foot-and-Mouth Disease. P. Gibbs
6. Animal Diseases Scourges Affecting Wildlife and Livestock. E. Camus
7. Studies on Rinderpest in East, West and Central Africa 1994-2000. R.A. Kock
8. A Review of Peste des petits Ruminants in Wildlilfe in United Arab Emirates. J.M. Mwanzia
9. Implications of Tuberculosis on African Wildlife and Livestock. A.L. Michel
10. Buffalo-associated *Theileria parva*: The Risk of Buffalo Translocation into the Highveld of Zimbabwe. A. A. Latif
11. Avian Cholera on Northcoastal California (USA) - A 50-year Retrospective. R.G. Botzler
12. Epidemiology of >50 Amphibian Morbidity and Mortality Events in the USA, 1996-2000. D.E. Green
13. Brucellosis in Free-ranging Impala Sharing the Same Rangeland with Cattle in Lake Mburo National Park, Uganda. J. Okori
14. 500 yrs of Non-Sustainability: Reversing Historical Under-Development in Latin America. M. Uhart
15. Post-Millennium Depression: People, Parks and Politics in Tropical Africa. R.B. Martin
16. Achieving Ecological and Socio-economic Objectives in Pilanesberg National Park: Lion Re-introduction Project. G. Van Dyk
17. A Review of the Wildlife Management Systems in Kenya with a View to the Role of Pastoralism in Sustainable Utilization of Wildlife. E.N. Wambwa
18. Yankui's Dilemma - Conservation Versus the People in Ghana. M. Murphree
19. Ownership Begins Here! Theatre as a Communications Key in Wildlife and Livestock Management Systems. N. Ellenbogen
20. PCR and Molecular Detection for Differentiating *Vibrio* Species. O.A.E. Sparagano
21. Molecular Immunogenetics in Susceptibility and Resistance to Bovine Dermatophilosis - A Functional Candidate Gene Approach and a Concrete Field Application. J-C. Maillard
22. Basis for the Extraordinary Genetic Stability of Anthrax. J.L. Kiel
23. Development of Studies in Current Challenges of Dourine and Differentiation of *Trypanosoma equiperdum* / *T. evansi*. L. Touratier

24. Efficacy of *Balanites aegyptiaca* (L.) Del balanitaceae as Anthelmintic and Molluscicid used by Traditional Veterinarians in Burkina Faso. H. Tamboura
25. Early Diagnosis of John's Disease in the American Bison by Monoclonal Antibodies Directed Against Antigen 85. C.A. Speer
26. Outbreaks of *Trypanosoma evansi* in Mauritania. M.L. Dia
27. Epidemiological Features of African Swine Fever in Madagascar. F.L.M. Roger (presented by C.Y.M. Rahantamalala)
28. The Evolving Transmission Pattern of RVF in the Arabian Peninsula. S. Fagbo
29. Experimental Vesicular Stomatitis in Horses. E.W. Howerth
30. Use of Sentinel Herds to Study the Epidemiology of Vesicular Stomatitis in Colorado, USA. B.J. McCluskey
31. The Possible Role that Buffalo Played in the Recent Outbreaks of Foot and Mouth Disease in South Africa. W. Vosloo
32. Effects of the Association of Cattle and Rusa Deer (*Cervus timorensis russa*) on the Maintenance of Viable Cattle Tick *Boophilus microplus* Population. N. Barre (presented by M. De Garine-Wichatitsky)
33. Eradication of the Tropical Bont Tick in the Caribbean: Is the Caribbean *Amblyomma* Program in a Crisis? R.G. Pegram
34. Control and Eradication of Reptilian Tick Infestations, with Particular Reference to Vectors of Heartwater. M.J. Burridge
35. Tick-borne Diseases (TBDS) of Dairy Cows in a Mediterranean Environment: A Clinical, Serological and Haematological Study. P. Tassi
36. Ticks Associated with Armadillo *Euphractus sexcinctus* and Anteater *Myrmecophaga tridactyla* of Emas National Park, State of Goias, Brazil. G.H. Bechara
37. Transmission of American Canine Hepatozoonosis by Ixodids. S.A. Ewing
38. Protozoal Meningoencephalitis in Harbor Seals (*Phoca vitulina richardsi*) and Sea Otters (*Enhydra lutris nereis*) in California. M.A. Miller
39. Modeling the Effects of Host Movement and Vaccination on the Control of Bovine Tuberculosis in African Buffalo. P.C. Cross
40. Innate Host Resistance and Differences in Clinical Disease Severity between Two Groups of White-Tailed Deer Experimentally Infected with Epizootic Hemorrhagic Disease Virus (Reoviridae: orbivirus) J.K. Gaydos
41. Leptospirosis Epidemics in California Sea Lions, 1995-2000. G. Ghneim
42. Hematozoa and Arthropod Parasites of Turkey Vultures in Humboldt County, California. P.C. Halpin
43. Tuberculosis Survey in Cape Buffalo (*Syncerus caffer*), Cattle and Humans at the Wildlife / Domestic Interface in Uganda. G. Kalema
44. Serologic Survey of Selected Viral, Bacterial, and Protozoal Agents in Captive and Free-Ranging Ungulates from Central Kenya. K.R. Kimber
45. Oral Rabies Vaccination of African Wild Dogs (*Lycaon pictus*): Vaccine Testing and Bait Development. D.L. Knobel
46. Dynamics of Disease Invasion in a Metapopulation. J. Lloyd-Smith
47. A "Cervus" Genotyping Kit Based on Automated Fluorescent Multiplex PCR for Rapid Characterisation of Genetic Diversity in Several Deer Populations: A Tool for Wildlife Management. S. Thévenon
48. Effects of Thin and Released Timber Management Practices on Abundance of Woodrats, Chipmunks, Mice, and Ticks within the Hoopa Valley Indian Reservation, Humboldt County, California (USA). D.A. Whitaker
49. Parasites of *Clarias gariepinus* (Burchell, 1822) (Pisces: clariidae) from a Small "Satellite" Lake, Lake Malimbe, Mwanza, Tanzania. C.J. Mwita
50. Sero-Prevalence of Viral Infections in Captive and Free-living Birds of Prey in Spain - Implications for Conservation and Management of Wild and Captive Populations. U. Höfle
51. Susceptibility of Wildlife Hosts in North America to West Nile Virus. R.G. McLean
52. West Nile Virus Serologic Surveys of WCS New York City Zoological Collections. P.P. Calle
53. An Epidemic of West Nile Fever in South of France: Results of an Epidemiologic Survey on Wild Birds. J. Hars
54. Comparative Pathology of Iridovirus Infections in Tadpoles, Frogs and Salamanders. D.E. Green
55. Diagnosis of Chronic Wasting Disease in a Captive Elk Herd in Montana. L.H. Creekmore
56. Use of Tonsillar Biopsies for Ante-Mortem Diagnosis of Chronic Wasting Disease in Captive Mule Deer. M.A. Wild
57. Antigenic Variation of *Anaplasma marginale* in Persistently Infected Ticks. K.M. Kocan
58. Cerebral Theileriosis in African Short-horn Zebu Cattle is caused by *Theileria taurotragi* and not by *Theileria parva*.

G. Lynen

59. Pan Mediterranean Comparison for the Molecular Detection of *Theileria annulata*. O.A.E. Sparagano
60. An Assay to Evaluate the Role of *Anaplasma marginale* Major Surface Proteins 1a and 1b in Infection of Cultured Tick Cells. E.F. Blouin
61. Comparison of Specificity and Sensitivity of the MAP 1B recombinant protein with a synthetic MAP 1B peptide for diagnosis of *Cowdria ruminantium* infection. S. Semu (presented by S.M. Mahan)
62. Diagnostic Tests for the Detection of *Theileria* spp. Carrier Infections and their Implications for Translocation of African Buffalo (*Syncerus caffer*) in South Africa. W.H. Stoltz
63. The Innate Resistance of Kenana Cattle to Tropical Theileriosis (*Theileria annulata* infection) in the Sudan. M.A. Bakheit
64. Collaborative Research Initiatives in Botswana. U. Bechert
65. Mapping Wildlife and Human Disease as a Conservation Medicine Tool: The Yellowstone to Yukon Project with Implications to Africa. C.M. Gillin
66. Occupational Health Programs for Primate Fieldworkers. F.B. Nutter
67. Parenteral Delivery of Vaccines to Free-ranging Bison in Yellowstone National Park. T.J. Roffe
68. Evaluation of *Brucella abortus* Strain RB51 and Strain 19 in Pronghorn Antelope. P.H. Elzer
69. A Vaccination Trial Using an Experimental Recombinant Canine Distemper Vaccine in Island Foxes (*Urocyon littoralis*). S.F. Timm
70. Restoration of Elk (*Cervus elaphus*) in Ontario, Canada. R.C. Rosatte
71. Wildlife Rabies Control in North America. R.C. Rosatte
72. Use of the Mannan Receptor to Selectively Target Vaccine Antigens for Processing and Antigen Presentation through the MHC Class I and II Pathways. W.C. Davis
73. Contributions of MHC II, TLR4 and NRAMP1 Genes in Conferring Cellular Immunity to *Ehrlichia chaffeensis*. G.R. Reddy
74. Function and Evolution of Major Surface Protein 1A of the Ehrlichial Pathogen *Anaplasma marginale*. J. De la Fuente (presented by K.M. Kocan)
75. Tick Cell Culture Derived *Anaplasma marginale* as an Immunogen for Cattle. K.M. Kocan
76. *Cowdria ruminantium* Antigens of Around 15kda are Potent Inducers of IFN- γ . I. Esteves
77. DNA Vaccines Encoding MAP 1 Genes of *Cowdria ruminantium*, the Agent of Heartwater, Protect DBA/2 Mice Against Lethal Challenge. A. Nyika (presented by S.M. Mahan)
78. An Inactivated Vaccine Protects Cattle, Sheep and Goats Against Heartwater. S.M. Mahan
79. Safety of *Brucella abortus* and RB51 and Strain 19 Vaccines in Coyotes (*Canis latrans*). D.S. Davis
80. Construction and Evaluation of a Recombinant Foot-and-Mouth Disease Virus: Implications for Inactivated Vaccine Production. H.G. van Rensburg
81. Health Surveillance of Rocky Mountain Bighorn Sheep (*Ovis canadensis*) in Idaho: The Aftermath of an Outbreak of Pneumonia. M.L. Drew
82. Isolations of EHD and BT Viruses from White-tailed Deer in the Southeastern United States, 1990 to 2000. D.E. Stallknecht
83. Epizootiological Investigations on Bovine Viral Diarrhea Virus (BVDV) in Moose (*Alces alces*) and Roe Deer (*Capreolus capreolus*) from Sweden. T. Mörner
84. Evil Eyes: Infectious Keratoconjunctivitis in Mule Deer (*Odocoileus hemionus*). E.S. Williams
85. Disease Interactions in Native Mara (*Dolichotis patagonum*) and Exotic Herbivores in the Patagonio Steppe. M.M. Uhart
86. Avian Vacuolar Myelinopathy in Southeastern US: The Search for the Causative Agent. T. Rocke
87. A comparison of Endangered Southwestern Willow Flycatcher Blood Parasites: Arizona, USA and Chomes, Costa Rica. C. van Riper III
88. Duck Plague Field and Vaccine Virus Carrier Waterfowl Identified by PCR in England, UK and Maryland, USA. W.R. Hansen
89. Epidemiological and Clinical Study of an Outbreak of Avian Pox in Red-legged Partridges (*Alectoris rufa*) in Southern Spain. C. Gortazar
90. Survey of Classical Swine Fever in the Northern French Vosges Wild Boar Population. S. Rossi
91. Reproductive Behaviour of Captive White-tailed Deer in Relation to Progesterone Level in Does, Mexico. R.M. Mercado

92. Function of Scent-marking Behaviour in South African Oribis (*Ourebia ourebi*). V. Adameczak
93. Impact and Control of Vector-Borne Diseases in the Livestock-Wildlife Interface of Transmara District, Kenya. P. Mukiria
94. Phylogenetic Relationships of Piroplasm isolates from Humans and Animals Inferred from the 18s Nuclear Small Subunit RNA Gene. P.A. Conrad
95. A Genotypically Unique *Babesia gibsoni*-like Parasite Recovered from a Dog in Oklahoma. A. Kocan
96. The Age-related Innate Immune Response in Calves to *Babesia bovis* Involves IL-12 Induction and IL-10 Modulation. W. Goff
97. Sequestration of Parasitised Erythrocytes in Canine Babesiosis. A. Pardini
98. Nitric Oxide Metabolites in Naturally Occurring Canine Babesiosis. L.S. Jacobson (presented by F. Reyers)
99. Serum Tumour Necrosis Factor in Naturally Occurring Canine Babesiosis. T. Vaughan-Scott (presented by F. Reyers)
100. Feline Babesiosis in South Africa: An Update. B.L. Penzhorn
101. The Dynamics of Maternal Antibodies to Hemorrhagic Disease Viruses (Reoviridae: orbivirus) in White-tailed Deer at an enzootic site. J.K. Gaydos
102. The Expression of Rotat 1.2 Variable Antigen Type in *Trypanosoma evansi* and *T. equiperdum*. F. Claes
103. IFN γ as an Indicator of Immunization in Goats Vaccinated with a Killed *Cowdria ruminantium* Vaccine. I. Esteves
104. Challenges of Regulating the Importation of Reptiles into the United States. D.D. Wilson
105. Sustainability of Dairy Heffer Calf Production in Smallholder Dairy Farms in the High Potential Areas of Kenya. G.K. Gitau
106. Major Outer Membrane Proteins of *Cowdria ruminantium* Encoded by a Multigene Family. H. van Heerden
107. Increasing Risks of Introduction of Heartwater onto the American Mainland Associated with Animal Movements. M.J. Burridge
108. Development of Tools to Monitor Health of Coral Reefs. T.M. Work
109. Emerging Morbillivirus Infections of Marine Mammals: Diagnostic Approaches. J.T. Saliki
110. Seroprevalence of *Toxoplasma gondii* in Canadian Phocids - An Example of Pathogen Pollution? L.N. Measures
111. Update on the Southern Sea Otter (*Enhydra lutris nereis*): Are they Trying to Tell us Something about Marine Ecosystem Health? D.A. Jessup
112. Chemical Immobilization of Free Ranging South American Fur Seals (*Arctocephalus australis*). M.D. Stetter
113. Risk Assessment of Etorphine Immobilization in Moose: A Review of 1,347 Captures. J.M. Arnemo
114. Using A3080, Medetomidine and Ketamine for Anesthesia of Problem Free-ranging African Hoofstock. M. Bush
115. Bovine Tuberculosis in Michigan Wildlife and Livestock. S.M. Schmitt
116. The Spectrum of Pathology from *M. bovis* Infection in European Badgers (*Meles meles*) and its Implications for Disease Control. D. Gavier-Widen
117. Scientific Tools as a Practical Aid in the Management of Tuberculosis in African Wildlife. M.L. Coetzee
118. The Hook Lake Wood Bison Recovery Project: Preliminary Results of an Attempt to Eradicate Bovine Tuberculosis and Brucellosis from Free-ranging Bison in Northern Canada. J.S. Nishi
119. Wildlife and Agricultural Policy as it Relates to Eradication of Bovine Tuberculosis and Brucellosis in Free-ranging Bison of Northern Canada. J.S. Nishi
120. The Zoonotic Importance of *Mycobacterium tuberculosis*: A Potential Threat to Free-ranging Wildlife Populations? K.A. Alexander
121. Mycobacterial Isolations in Captive Elephants in the United States. J.B. Payeur
122. Bovine Tuberculosis in Michigan Wildlife. J.B. Payeur
123. Balancing International Animal Movement Restrictions with Animal Health Status and Veterinary Infrastructure. B.H. Bokma
124. Adult tick burdens and habitat use of sympatric wild and domestic ungulates in a mixed ranch of Zimbabwe: no evidence of a direct relationship. M. DeGariné-Wichatitsky
125. Domestic sheep but not Alpine Chamois is a reservoir of *Mycoplasma conjunctivae* in Switzerland. M. Giacometti
126. Aujeszky Disease in a Wild Boar Population from Central Spain. C. Gortazar
127. Public Health Considerations of Human Consumption of Wild Game. A.S. Ahl
128. Serosurvey for Selected Infectious Disease Agents in Free-Ranging Gray Brocket Deer (*Mazama gouazubira*) and Domestic Cattle and Goats in the Gran Chaco, Bolivia. S.L. Deem
129. Equine Infectious Anemia in Free Roaming Horses in the Uintah Basin region of Utah, USA. L.E. Rogers

130. Buffalo in Botswana: Political Football, Disease Threat or a Rural Asset? M.D. Kock
 131. Relating National Veterinary Services to the Country's Livestock Industry: Case Studies from four Countries - Great Britain, Botswana, Peru, and Vietnam. R.S. Windsor
 132. Health Monitoring and Conservation of Wildlife in Sweden and Northern Europe. T. Mörner
 133. Wildlife and Pastoral Society - Shifting Paradigms in Disease Control. R.A. Kock
 134. What makes sense? Disease Aspects of the Fencing Issue. Suttmoller
 135. Livestock Wildlife Interactions in the Marine Environment. M.K. Stoskopf
 136. New Interactive Web- and CD- based Teaching Modules on International Animal Health Problems of Wildlife, Livestock and Horses. P.A. Conrad
 137. Wildlife Disease? Livestock Disease? Who Pays the Bills? W.R. Lance
 138. Can the Wildlife Disease Association (WDA) and the Society for Tropical Veterinary Medicine (STVM) Help the International Donor Community Reevaluate "What Makes Sense" in Regards to Wildlife and Livestock Diseases and Sustainability? S.A. Osofsky

The following were poster presentations.

139. The Pharmacokinetics and Tissue Residues of Diminazene, Diminazene-liposomes and Trypan in Rabbits. A.J. Bourdichon
 140. Residual Effect of Anti-Babesial Drugs on the Live Redwater Blood Vaccines. M.P. Combrink
 141. Rapid Genotyping of B. Anthracis Strains by Real-time PCR. V.G. DelVecchio
 142. Global Analysis of *Brucella melitensis* proteomes: Its Potential Use in Vaccine Development, Identification of Virulence Proteins and Establishing Evolutionary Relatedness. V.G. DelVecchio
 143. Goat Immune Response to Capripox Vaccine Expressing the Hemagglutinin Protein of Peste des petits Ruminants. A. Diallo (presented by G. Libeau)
 144. Tick Reference Collection of the Late Dr P.C. Morel: A Tool for Tick Taxonomists and Veterinarians. S. Ducornez (presented by M. De Garine-Wichatitsky)
 145. Patterns of Variation in Herbivore Fecal Egg Counts Explained by Diet Type and Cumulative Rainfall. V. Ezenwa
 146. An Outbreak of Salmonella Dublin in Free-living Chamois (*Rupicapra rupicapra*); Epidemiological Investigation using DNA-fingerprinting. W. Glawischnig
 147. Classical Swine Fever in Wild Boar in France. Results of a Serological Study of Gruntlings Captured in the Northern Vosges Mountain Range. J. Hars
 148. Management of Wild Dog (*Lycaon pictus*) Populations with Particular Reference to the Prevention of Rabies by Vaccination. M. Hofmeyr
 149. Immunolocalization of Vesicular Stomatitis Virus in Black Flies. E.W. Howerth
 150. Vaccine Development Against Mycoplasma conjunctivae Infections in Sheep. M. Janovsky
 151. Amino Acid Content of Cell Cultures Infected with *Cowdria ruminantium* Propagated in a Protein-free Medium. A.I. Josemans
 152. Lessons Learned in Conservation Medicine at Tufts University School of Veterinary Medicine. C. Jost
 153. A BacLight Based Quantitative and Viability Assay for *Ehrlichia canis* in in Vitro Cultures. I. Kakoma
 154. Integrating Epidemiology into Population Viability Analysis: Managing the Risk Posed by Rabies and Canine Distemper to the Ethiopian Wolf. M.K. Laurenson
 155. Sequencing of a 15kb *Cowdria ruminantium* Clone and Evaluation of the CPG1 Open Reading Frame for Protection Against Heartwater. E. Louw
 156. Elimination of *Brucella abortus* from Infected Domestic (*Bos taurus*) and Wild (*Bos gaurus*) Cattle and Buffalo (*Syncerus caffer*) Semen Without Compromising Sperm Viability. K.A. Morfeld
 157. Cutaneous Hypersensitivity Induced in Dogs by Nymphal Extract of *Amblyomma cajennense* Ticks (Acari: ixodidae). L.S. Mukai
 158. Development of Resistance in Dogs to Nymphs of *Amblyomma cajennense* Ticks (Acari: ixodidae). L.S. Mukai
 159. Emergency Response Planning for Anthrax Outbreaks in Bison Herds of Northern Canada: A Balance between Science and Policy. J.S. Nishi
 160. Ultrastructural Features of Erythrocytes and Endothelium in Canine Babesiosis. A. Pardini
 161. Rabies Vaccine in Captive Capuchin Monkeys (*Cebus apella*). Evaluation of Immune Response after Vaccination with Inactivated Suckling Mouse Brain Rabies Vaccine. E.C. Passos

162. Genetic Immunisation with *Cowdria* GroEL and GroES Homologues. A. Pretorius
163. Sequence Analysis of Three *Cowdria ruminantium* Lambda GEM11 Clones. A. Pretorius
164. Temperature Stability of a SDS Treated *Babesia caballi* Antigen Dried on Plates for use in a cELISA. A. Rhalem
165. Intestinal Parasites of the Research Group of Mountain Gorillas in Bwindi Impenetrable National Park, Uganda: Preliminary Results. J. M. Rothman
166. Cattle Tick-Borne Disease Seroprevalence in Morocco. H. Sahibi
167. Detection and Identification of Piroplasms in Carrier Cattle in Menorca by a PCR-based Reverse Line Blot Hybridization Assay. O. Sparagano
168. Dog Mononuclear Cells at Feeding Sites of the Tick *Rhipicephalus sanguineus* (Acari: ixodidae). M.P.J. Szabo (presented by G.H. Bechara)