



AMERICAN ASSOCIATION OF WILDLIFE VETERINARIANS

SPRING 2008

President's Corner

LOOKING FORWARD TO EDMONTON AND BEYOND

By Jonathan Sleeman

Plans are well under way for our forthcoming joint meeting with the Wildlife Disease Association and the Canadian Association of Zoo and Wildlife Veterinarians in Edmonton, Canada this coming August. In particular, we are very pleased to announce that Dr. Sue Haseltine, Associate Director for Biology at the U.S. Geological Survey, has agreed to be our Cutting Edge Speaker this year (see biography, page 3). She will talk on the critically important topic of global climate change, which I am sure will stimulate much discussion and debate. In fact, it is refreshing to see issues such as climate change, which professional organizations such as the AAWV have been concerned about for some time, become mainstream news; however, I believe the AAWV can and should do more on this issue. Consequently, the AAWV Board of Governors and Advisory Council have drafted a position statement on climate change and wildlife health (see article, this page) outlining the AAWV's opinion on climate change as well as the actions we believe need to be taken to prevent and mitigate the wildlife health impacts of climate change. We are soliciting comments and input from the membership with the goal of finalizing the document for ratification at the annual business meeting. Please read and consider the draft statement, and send your comments to me at jonathan.sleeman@dgif.virginia.gov.

I also believe it takes more than words, and it is important that the AAWV look honestly at its own operations and determine how we, as an organization, can become more "green." One method would be to move to solely electronic communications: in particular, our newsletter. Many other organizations now communicate with their members by electronic methods only. Not only is this the environmentally correct course of action, it will also result in considerable cost savings for the AAWV. Printing the newsletter is our largest single expense, and the cost savings would allow the AAWV to maintain the annual dues at a relatively low level as well as allow us to use the funds to serve the membership in other ways. While the 2006 member questionnaire survey indicated

(Continued, page 2)

AAWV DEVELOPS POSITION STATEMENT ON CLIMATE CHANGE

As noted in the President's Corner, the AAWV Board of Governors and Advisory Council have developed the following draft position statement regarding Climate Change and Wildlife Health. Please read and consider this draft statement, and send any comments or suggestions to jonathan.sleeman@dgif.virginia.gov.

AAWV Position Statement on Climate Change and Wildlife Health

There is widespread scientific agreement that the world's climate is changing and that the weight of evidence demonstrates that anthropogenic factors have and will continue to contribute significantly to global warming and climate change. It is anticipated that continuing changes to the climate will have serious negative impacts on public, animal and ecosystem health due to extreme weather events, changing disease transmission dynamics, emerging and re-emerging diseases, and alterations to habitat and ecological systems that are essential to wildlife conservation. Furthermore, there is increasing recognition of the inter-relationships of human, domestic animal, wildlife, and ecosystem health as illustrated by the fact the majority of recent emerging diseases have a wildlife origin. Consequently, there is a critical need to improve capacity to identify, prevent, and respond to climate-related threats. The following statements present the American Association of Wildlife Veterinarians (AAWV) position on climate change and wildlife health.

The American Association of Wildlife Veterinarians recognizes that climate change has:

- » Serious far-reaching negative implications for wildlife health and conservation.
- » The potential to place unprecedented demands on government agencies and other entities responsible for managing and conserving wildlife in North America.

(Continued, page 2)

(President's Message—from page 1)

there was support from only 50% of the membership for an electronic-only newsletter, it is my hope that with further debate and discussion we can achieve support from the vast majority of members. Consequently, I am planning to introduce a motion for membership discussion and vote at the upcoming annual business meeting that the AAWV move to electronic-only newsletters commencing with the Summer 2008 edition. We will, of course, continue to provide a printed copy of the newsletter for those members unable or unwilling to receive an electronic version.

So we have a lot of work to do at this meeting, but it also promises to be a fun and stimulating time. The conference organizing committee has worked hard to develop an excellent social and scientific program, and this will be a great opportunity to interact with our WDA and Canadian colleagues. I look forward to seeing as many of you as possible in Edmonton!

(Climate Change—from page 1)

The AAWV supports:

- » The One Health approach with strong coordination and collaboration among all tiers of public health, agriculture, and wildlife management government agencies to address climate change issues of mutual concern.
- » Enhancing the capacity of federal, state, and local wildlife agencies, tribal nations, and non-governmental organizations to prepare for and respond to wildlife health impacts linked to climate change.
- » Funding research to increase understanding of the potential impacts of climate change on wildlife and ecosystem health as well as to develop and enhance early warning, surveillance and response systems to mitigate the wildlife health impacts of climate change.
- » The development of educational initiatives to raise the awareness of the link between climate change and wildlife health among all stakeholders.

The American Association of Wildlife Veterinarians urges:

- » That wildlife management agencies and professionals inform communities, policy makers, other government agencies, and industry of the wildlife and ecosystem health impacts of climate change.
- » Active engagement with all stakeholders by wildlife management agencies and professionals to ensure consideration of the potential negative wildlife health and conservation impacts of all aspects of human behavior, consumption, and decision making that may contribute to climate change.
- » The active promulgation of policies towards preventing and mitigating the wildlife health impacts of climate change.
- » That the wildlife management and conservation communities be at the forefront of all planning, policy guidance, decisions and responses related to the impacts of climate change on wildlife health.

PROPOSED CHANGES TO AAWV BYLAWS

Jonathan Sleeman, AAWV President

The AAWV executive and advisory boards have generated some proposed changes to the AAWV bylaws pertaining to membership. Most significantly, the student membership category has been expanded to include veterinarians in postgraduate training and a new emeritus membership category has been created. These proposed changes will be put to a vote by the AAWV membership at the annual meeting in Alberta, Canada this August. All comments or edits are welcome and encouraged. [Editor's note: the new text is shown in *blue italics*.]

ARTICLE I - MEMBERS

Section 1 Active members - A veterinarian who meets the requirements set forth in Article III of the Constitution may become an active member by making application in writing to the Secretary of the Association along with payment of dues to the Treasurer as provided in Section 43 of this Article. Active members shall be the voting members of the AAWV.

Section 2 Student members - A veterinary student of a school or college of veterinary medicine *or a veterinarian enrolled at least half-time in a recognized graduate, residency, or internship program* may become a student member by making application in writing to the Secretary of the Association along with payment of dues to the Treasurer as provided in Section 43 of this Article. Student members shall not be voting members.

Section 3 Emeritus members - *A veterinarian who has been an active member for at least 10 years, is in good standing with the Association, and is either retired, or has reached the age of 65, may become an emeritus member by making application in writing to the Secretary of the Association. Furthermore, a veterinarian who has provided extraordinary service to the Association may be granted emeritus membership by the Board of Governors in consultation with the Advisory Council. Emeritus members shall be voting members.*

Section 4 Dues - Dues for active members shall be payable for each calendar year on or before the first day of January and shall be \$ 40 per annum. Dues for student members shall be payable for each calendar year on or before the first day of January and shall be \$ 20 per annum. *Emeritus membership shall be gratis.*

Section 5 Delinquent members - A member shall be delinquent if dues are not paid by June 1 of the calendar year for which they are payable.

Section 6 Subscribing members and other members - Individuals or institutions may subscribe to the Newsletter for \$ 40 per annum. *Subscribing members shall not be voting members.*

57th Annual Meeting of the WDA/AAWV/CAZWV Aug. 3-8, 2008, Edmonton, Alberta

The conference web site at www.biology.ualberta.ca/parasites/WDA08 has all the information you need to get started:

- » Register for the WDA conference - note the great rates for students and reduced rates for WDA, AAWV, and CAZWV members! (AAWV members need to check the WDA member box to receive the reduced price, even if you are not a WDA member.)
- » Submit your abstract (oral and poster presentations)
- » Choose accommodation
- » Register for pre-conference Wildlife Immobilization Course
- » Register for the post-conference CWD Workshop
- » Pre-order conference T-shirts and toques
- » See some of the items submitted for the annual auction. (Proceeds benefit wildlife disease initiatives. Contributors, please send scanned images of auction items to the conference web master [al.shostak@ualberta.ca] so we can post them for pre-conference viewing on the conference pages.)

An exciting new element for this year—we are offering a unique one-day float trip on the North Saskatchewan River on Aug. 9, 2008. Online bids are accepted until July 1 so bid early and bid often for this great river trip.

Other program elements already lined up include:

- » Plenary Symposium: Wildlife Health in a Changing North
- » Carleton Herman speaker - Dr. Mark Hafner
- » Veterinary Continuing Education credits
- » Picnic and field trips in historic Elk Island National Park
- » Student activities and opportunities to make connections

... and did I mention one-of-a-kind conference t-shirts and toques (who else but the Canadians can offer you a chance to buy a toque)? We look forward to seeing you in Edmonton!

Margo Pybas, Edmonton 2008 Program Chair

Meet the 2008 conference Cutting Edge Speaker, Dr. Susan Haseltine

Dr. Haseltine is the Associate Director for Biology at the U.S. Geological Survey. She began her federal career as a researcher with the U.S. Fish and Wildlife Service at the Patuxent Wildlife Research Center in Laurel, MD. After more than a decade as a researcher and research manager, she moved to the Northern Prairie Wildlife Research Center in Jamestown, ND, as Center Director. With the exception of a brief period as Assistant Regional Director for Wildlife in Minneapolis for FWS, she has remained in research administration at the regional and national level for the National Biological Service and the USGS. Dr. Haseltine grew up in a small town in Maine and received a Bachelor of Science degree in wildlife science from the University of Maine. She earned an M.S. and Ph.D. in zoology from Ohio State University, investigating the physiological mechanisms of eggshell thinning in wild birds.

Online Input Requested for NRC Study of the Veterinary Profession

The National Academy of Sciences (a branch of the National Research Council) is currently conducting a study to determine the current and future needs of the veterinary workforce. The study will explore historical changes in the size and characteristics of the veterinary workforce, adequacy of the current supply of veterinarians in different occupational categories and employment sectors, and the factors that are likely to affect the numbers of veterinarians seeking jobs in different sectors in the future. The study will examine the current and future capacity of universities and colleges to provide sufficient numbers of adequately trained veterinarians and identify training needs relative to the demand for specific expertise. A report will present the findings of the study, and identify options for meeting requirements for a veterinary workforce.

One facet of this issue is to consider the work done by veterinary specialists in jobs related to environmental health, wildlife (terrestrial and aquatic) health, and ecosystem health. If your work falls under any of these categories - even part-time - please assist in the study by participating in a short online survey.

Please go to www.surveymonkey.com/s.aspx?sm=diKYLsyhDzFL2Cpvz5nEhg_3d_3d. Once you have begun the survey, you can return to it (on the same computer) if necessary to edit your response. The Academy asks for participation in the survey before June 20, 2008, and expects to publish the report in the fall of 2008.

For more information, go to www8.nationalacademies.org/cp/projectview.aspx?key=48772.

Report from the AVMA Animal Welfare Committee

David S. Miller, AAWV representative to the AVMA Animal Welfare Committee

In the last edition of the AAWV Newsletter we reported on an AAWV Position Statement concerning the use of foothold traps on wildlife developed in response to a Policy Statement written by the AVMA Animal Welfare Committee (AWC) which was felt did not adequately address the issue from a wildlife veterinary perspective (see page 4 of the Winter 2008 newsletter for the AAWV Position Statement). In February 2008, after consideration of the AAWV Position Statement and after viewing a presentation on trapping provided by representatives of The Wildlife Society (TWS) and the Association of Fish and Wildlife Agencies (AFWA), the following statement was accepted by the AWC and in April 2008 was adopted as AVMA policy by the AVMA Executive Board:

AVMA Policy on Trapping and Steel-jawed Leghold Traps

The AVMA opposes the use of conventional, unmodified steel jaw leghold traps. Legitimate science and management practices that necessitate the capture of wildlife should employ the most humane traps and techniques. Such traps and techniques should reduce injury and stress, minimize pain and suffering to wildlife, and prevent capture of non-target animals.

Although this revised AVMA Policy Statement is considerably shorter than the AAWV statement, it is consistent with the AAWV's perspective and eliminates the broad condemnation of trapping that was present in the original AVMA version. The AVMA has also recently started the practice of developing "backgrounders" (literature reviews) as an adjunct to support policy statements. The AVMA backgrounder on trapping is being developed with input from AAWV representative Jim Sikarskie and representatives from TWS and AFWA, and will be posted on the AVMA web site.

A number of other wildlife issues were discussed by the AWC during the February meeting: as with the foothold trapping issue, representatives from the AAWV and the AVMA's AWC and Committee on Environmental Issues (CEI) provided recommendations on a proposed bill intended to prevent trafficking of bear bile so that legitimate harvest, research, and diagnostic activities are not affected, as well as to prevent overlap with existing laws; thanks to Dave Jessup and others, there was a general acceptance of the adverse impact free-ranging cats can have on wildlife; and other topics such as issues surrounding euthanasia of wildlife, proposed legislation to ban the vertebrate control products 1080 and M44, and proposed legislation to ban aerial shooting of carnivores were addressed.

The successful adoption of the revised AVMA Policy Statement on leghold traps demonstrates that the AAWV can be effective in influencing policy when it effectively uses its position as an allied veterinary group and when it provides

UPCOMING MEETINGS IN 2008

- May 29-31** Avian Diseases and Conservation Conference. CVM-Western University of Health Sciences, Pomona CA. More info at www.westernu.edu/avianconference
- Jun 8-12** Council of State and Territorial Epidemiologists Annual Conference. Denver CO. Info at www.cste.org/annualconference/index08.asp
- Jul 19-22** Annual Convention of the American Veterinary Medical Association. New Orleans LA. For more info see www.avma-convention.org
- Jul 27-31** 29th World Veterinary Congress. Vancouver, British Columbia. For more info see www.worldveterinarycongress2008.com.
- Jul 28-Aug 1** Immunity and Disease Resistance in Fish, a special symposium as part of the 8th International Congress on the Biology of Fish. Portland OR. For more info go to <http://fishbiologycongress8.usgs.gov>.
- Aug 3-8** Joint Conference of the AAWV, WDA and the Canadian Association of Zoo and Wildlife Veterinarians. University of Alberta, Edmonton, Alberta. For more info go to www.biology.ualberta.ca/parasites/WDA08/.
- Sep 6-9** Fish Diseases and Immunology Conference. Radisson SAS Hotel Saga, Reykjavik, Iceland. For more information go to <http://www.yourhost.is/content/view/210/140/>
- Oct 11-17** The Annual Conference of the American Association of Zoo Veterinarians/Association of Reptile and Amphibian Veterinarians. Los Angeles, California. For more info see <http://www.aazv.org/displayconvention.cfm?conventionnr=4584>.
- Oct 21-28** US Animal Health Association Annual Meeting. The Sheraton Greensboro Hotel, Greensboro, North Carolina. For more info go to <http://www.usaha.org/meetings/>.

input based on scientific literature. In addition, the AVMA statement will also be posted on its web site with a link to the full AAWV statement. This will provide the AAWV with wide exposure to the public to promote our activities and perspectives. Other wildlife issues that need AAWV input will continue to arise, and the ability of the AAWV to effectively and appropriately respond to these issues both within the professional field and in the public eye is proportionate to the contributions of its membership. Let the AAWV Board of Governors know how you can help, and pitch in to strengthen the AAWV's contributions to society.

PUBLICATIONS OF INTEREST

[Editor's note: articles and abstracts appearing in this section of the newsletter are synopses of journal publications considered to be of special interest to AAWV members. All synopses have been approved by the authors and publishers for use in the AAWV newsletter. For full text, please refer to the cited source material.]

Prion protein in sheep urine

Andrievskaia O. et al. *J Vet Diagn Invest.* 2008. 20:2, pp. 141-146

The misfolded form of cellular prion protein (PrPC) is the main component of the infectious agent of transmissible spongiform encephalopathies and the validated biomarker for these diseases. The expression of PrPC is highest in the central nervous system and has been found in peripheral tissues. Soluble PrPC has been detected in cerebrospinal fluid, urine, serum, milk, and seminal plasma. In this study, attempts were made to characterize prion protein in urine samples from normal and scrapie-infected sheep. Urine samples from scrapie-infected sheep and age-matched healthy sheep were collected and analyzed by Western blot following concentration. A protease K-sensitive protein band with a molecular weight of approximately 27–30 kDa was visualized after immunoblotting with anti-PrP monoclonal antibodies to a C-terminal part of PrPC, but not after immunoblotting with monoclonal antibodies to an N-terminal epitope of PrPC or with secondary antibodies only. The amount of PrPC in the urine of 49 animals (control group: n = 16; naturally scrapie-infected group: n = 33) was estimated by comparison with known amounts of ovine recombinant PrP in the immunoblot. Background concentration of PrPC in urine was found to be 0–0.16 ng/ml (adjusted to the initial nonconcentrated volume of the urine samples). Seven out of 33 naturally scrapie-infected animals had an elevated level (0.3–4.7 ng/ml) of PrPC in urine. The origin of PrPC in urine and the reason for the increased level of PrPC in scrapie-infected sheep urine has yet to be explored.

Metal-induced impairment of the cellular immunity of newborn harbour seals (*Phoca vitulina*)

Kakuschke A. et al. *Arch Environ Contam Toxicol.* 2008. Jan 1 [Epub ahead of print].

The cellular immunity of newborn harbor seals and the influence of pollutants are rarely investigated. This study evaluated the lymphocyte proliferation using a lymphocyte proliferation test (LTT) to understand the dynamics of immune response in seal pups of varying ages from the moment they arrived in a seal center after active beaching until their release into wildlife 3 months later after rehabilitation. Moreover, the effect of various metals (Ag, Al, Au, Be, Cd, Co, Cr, Cu, different Hg compounds, Mo, Ni, Pb, Pd, Pt, Sn, Ti) on lymphocyte proliferation in terms of immunosuppression and hypersensitivity was investigated. First, a strong lymphocyte proliferation in newborns as a reflection of relative immunocompetence was found. Second, different metal-induced influences on lymphocyte proliferation such as specific inhibition by Be, Cd, Hg, and Sn as well as stimulation induced by Mo and Ni were determined. For seals tested repeatedly, the suppressive effect was detected in newborns but not found in the same animals when they were older and had become immunologically competent. Summarizing, the lymphocyte proliferation used as a marker in this investigation provided useful immunological information on these developing animals, and its application for toxicological studies on pollutants can be recommended.

Hunter perceptions of similarity and trust in wildlife agencies and personal risk associated with chronic wasting disease

Needham M. and Vaske J. *Society and Natural Resources.* 2008. 21:3, pp. 197-214

Theory suggests that risk perceptions are influenced by trust in managing agencies. Shared goals and values (i.e., perceived similarity) are foundations of trust. This article examines the extent to which hunters perceive personal health risks associated with chronic wasting disease (CWD) (e.g., become ill from CWD) and the influence of perceived similarity and trust in state wildlife agencies as determinants of risk. Data were obtained from surveys (n = 9567) of resident and nonresident deer and elk hunters in eight states. Structural equation models showed that across all strata, hunters' perceptions of similarity with agencies positively influenced trust in agencies to manage CWD, explaining up to 49% of the variance in trust. Hunters who trusted agencies perceived less risk associated with CWD, but trust only explained up to 8% of the variance in risk. Hunters perceived similarity with and trust in wildlife agencies, but still perceived risks associated with CWD.

Red Rim Elk Suffer From Toxic Lichen

University of Wyoming Press Release, March 2008

University of Wyoming researchers are collaborating with the Wyoming Game and Fish Department (G&F) to identify toxins in lichen that are apparently weakening elk in the Red Rim area southwest of Rawlins, to the point they are unable to stand. Approximately 80 affected elk have been killed by G&F personnel since the beginning of March. A similar die-off occurred in early 2004, when more than 400 recumbent elk were found in the Red Rim-Daley Wildlife Habitat Management Area (WHMA). "We were hoping we would never see this again, but we are. It seems to be reoccurring this year," said Becky Dailey of Cheyenne, a Ph.D. student in UW College of Agriculture's Department of Veterinary Sciences. Dailey, who has visited the site twice this month, added, "The elk are alert, but they are not able to get up. It's pretty depressing to see."

Researchers are confident the culprit is *Xanthoparmelia chlorochroa*, a lichen common to many areas of Wyoming and the West. Dailey, who is focusing her research on the lichen, is working with Merl Raisbeck, a professor in the Department of Veterinary Sciences, to identify and quantify metabolites in *X. chlorochroa*. Researchers collected *X. chlorochroa* from the Red Rim-Daley WHMA in 2004 and 2005, and from areas near Cody and south of Laramie in 2006; one group of sheep at UW's Wyoming State Veterinary Laboratory (WSVL) was fed a 100-percent diet of the '04 lichen, another group received a 100-percent diet of the '05 lichen, and others the '06 collections. According to Dailey, all the sheep produced red urine but only the group fed lichen collected from the Red Rim in 2004 was severely affected. Those sheep also displayed similar symptoms as the Red Rim elk. Sheep fed lichen collected from Red Rim in 2005 were least affected, while the Cody and Laramie lichen groups displayed some incoordination but nothing as severe as seen in the 2004 group.

One of the more puzzling aspects is why *X. chlorochroa* in a given area like the Red Rim be poisonous one year and not another. "That's a really good question, but I don't think anyone has an answer yet," said Todd Cornish, an associate professor in the UW Department of Veterinary Sciences who is assisting in the study. "My guess is that it has something to do with environmental conditions. That is something that should eventually be pursued, possibly out of our department or someone else's, but right now we're trying to identify the toxins."

Dailey said several long-time ranchers in the Cody, Douglas and Jeffrey City areas told her they had cattle in areas where the lichen occurs show similar signs of incoordination, but once the cattle were fed hay, most recovered. Testing at the WSVL determined that several of these cattle had consumed *X. chlorochroa*. In contrast, attempts to feed sick elk at the Red Rim area did not result in their recovery. Cornish suggests that this may be because the elk were in such a weak state when they started consuming the lichen. "Both of those winters were heavy snow years, and the elk were in poor nutritional condition going into this," Cornish said. The 2003-04 and 2007-08 winters were particularly harsh in the Red Rim area, so grass was scarce and elk ate whatever they could find. This is borne out by Dailey's observations that large amounts of lichen and cactus are being found in the elks' rumens during necropsies

Dailey is hopeful that once the toxic compounds are identified in the lichen, a treatment can be discovered to aid game managers and ranchers treat stricken animals. "It's frustrating that we can't do anything yet," Dailey said. "We are working on answers, but we don't have them yet."

Rare Gharials Die From Gout

from National Geographic News (edited), March 2008

Invasive fish carrying industrial chemicals likely triggered the recent die-off of 110 critically endangered gharials in a central Indian river sanctuary. Since December, officials have found the crocodile-like animals washed ashore dead along the banks of the largely pristine Chambal River, one of the few unpolluted rivers in India; however, the bulk of reptile fatalities occurred along a 22-mile (35-kilometer) stretch near the Chambal's confluence with the Yamuna, considered to be of the dirtiest rivers in the world. Researchers think an unidentified substance might be affecting the gharials' food supply.

Conservation groups say that no more than 1,400 gharials are left in the wild, living in pockets in India and Nepal. More than 300 of these individuals live in the National Chambal Sanctuary along the Chambal River, which contains the largest of the world's three breeding populations. When the reptiles began to wash up dead in December, post-mortem examinations revealed chemical-laced lesions on the animals' kidneys and evidence of gout (buildup of uric acid crystals in the joints).

The animals were also found to have a surprisingly large amount of fat in their tissues, which may be explained by the growing abundance of tilapia in Indian rivers. Tilapia were introduced in the region a few years ago to boost Indian aquaculture, and have since grown so plentiful that gharials now feed on them almost exclusively. As tilapia move from polluted rivers into the Chambal, they bring with them the contaminants they've ingested and stored in their tissues. As the gharials subsequently feed on the abundant fish, these toxins bioaccumulate in their adipose tissue. "When cold temperatures came, the uric acid precipitated and began causing problems," said Paolo Martelli, one of four veterinarians with the World Conservation Union sent in to examine the dead reptiles. "So winter coupled with excess food could have made the gharials more susceptible to the toxin. As the temperatures warm up, the animals will improve. But next winter may again be a delicate time for the gharials."

Two Indian laboratories are still trying to determine exactly what kind of chemical is to blame. Experts think that the agent is either an industrial chemical being released into the Yamuna by a new facility or one that was used by an older plant that shut down and illegally dumped its waste in the river.

Drug-Resistant Bacteria Found in Wild Arctic Birds

From National Geographic News (edited), Jan 2008

Bacteria resistant to commonly used antimicrobials have been found inside birds living in some of the planet's most remote regions, scientists say. The research suggests that antibiotic resistance has spread deep into the natural world, and human activity is likely to blame.

The researchers sampled waste from 97 birds belonging to a dozen different species from the Arctic tundra of northeastern Siberia, northern Alaska, and northern Greenland. Eight birds, including sandpipers, geese, and gulls, carried *Escherichia coli* that was resistant to one or more commonly prescribed antibiotics. The researchers speculate that the birds contracted drug-resistant *E. coli* from contact with human sewage or waste in lower latitudes before migrating north.

“This is an indication how far we have pushed antibiotic resistance,” said study leader Björn Olsen, a professor in the department of infectious diseases at Uppsala University Hospital in Sweden. “Many of these antibiotics are used at hospitals against severe infections such as pneumonia, urinary tract infections, or septicemia.”

“This is not a natural resistance,” Olsen said. “I believe what we found on the tundra is a reflection of pickup from human activity... We collected penguin samples [in Antarctica] and never found this kind of resistance down there. If it was a naturally circulating resistance, then we should have found it.” Also, only a fraction of the Arctic birds sampled carried drug-resistant bacteria; if the immunity had developed naturally, the researchers noted, more birds should have carried the resistant strain.

Although unlikely, the researchers say it’s possible that the bacteria developed resistance spontaneously. “In nature you have a lot of circulating natural resistance,” Olsen said. “This resistance has been circulating for billions of years as a means for fungi and bacteria and other microorganisms to control each other.” Michael Yeaman, a pathologist at the University of California at Los Angeles who was not involved in the study, says the idea that the birds caught the bacteria from humans is interesting but that he would have been more surprised if no resistant microbes were found at all. “There are microbes in existence today that are resistant to antibiotics that have yet to be discovered or developed.” Terry Hazen, a senior scientist at Lawrence Berkeley National Laboratory in California, adds that some bacteria are known to be resistant to substances with which they have never come into contact. “There’s a lot of compounds in the environment that are actually quite similar in structure to antibiotics,” Hazen said.

Olsen et al.’s research is reported in the January issue of *Emerging Infectious Diseases*.



OPPORTUNITIES

Graduate Studies in Reproductive Science and Medicine - University of Saskatchewan

- An opportunity is available to pursue graduate studies (MSc or PhD) in Reproductive Science & Medicine through the Department of Veterinary Biomedical Sciences at the Western College of Veterinary Medicine, as part of the national collaborative study Preservation of threatened Canadian species: Reproductive biotechnology as a solution to endemic disease in Wood Bison. The Reproductive Science and Medicine research group (www.rsm.usask.ca) takes a trans-disciplinary approach to reproductive research, incorporating human health science, veterinary science, biomedical engineering and computational science.
- The program offers a comprehensive range of technical capabilities from whole-animal to bench-top approaches, and includes medical imaging, in vitro fertilization and embryo production, cryopreservation, light and electron microscopy, and a variety of immunological, molecular and biochemical techniques.

- A degree in veterinary medicine and eligibility for licensure to practice in Canada will be an asset and provide eligibility for a scholarship of \$31,000/year with annual increases of \$1000. Applications will be accepted until a suitable candidate is found, with a start date on or before September 1, 2008. Send curriculum vitae to Gregg P. Adams, DVM PhD, Professor, Veterinary Biomedical Sciences, Co-Director Reproductive Science & Medicine, University of Saskatchewan, or email gregg.adams@usask.ca.

Field Veterinarian, Southeast Asia - Wildlife Conservation Society

- The Wildlife Conservation Society seeks candidates to assist in coordinating and advising a program of avian influenza surveillance in wild birds. This initiative will build a system of health monitoring with a focus on avian influenza that will expand understanding of pathogen prevalence and dynamics in wild birds, both free-flying and in the wildlife trade. The program requires a veterinarian for field-based activities who would be responsible for helping implement program priorities and approaches; oversee training and biological monitoring efforts; and communicate with NGOs, governmental organization and with other institutions. This position is based in Southeast Asia, with extensive international travel.

- The successful candidate will have a DVM or equivalent, 3 years experience in working with non-domestic species, and the abilities and adaptability to work in complex foreign cultural settings. For more information contact Suheil Vargas at sVargas@wcs.org.

DON'T FORGET THE AUCTION!

BID! Remember to save your shekels for this year's joint WDA-AAWV auction! There promises to be some great stuff to bid on, including a very James Bond-looking dart gun from Pseudart. Be the coolest scientist in the field!



DONATE! You can help on the supply side as well by contributing an item or activity to auction off. All proceeds for the AAWV will be put into a fund to support student activities to help our organization grow. Email al.shostak@ualberta.ca for more information about contributing an item for auction.

Get your T-shirts here, folks!

AAWV joins the online shopping crowd! Now you can purchase all sorts of stuff proudly emblazoned with the AAWV logo at our NEW ONLINE STORE! From t-shirts, tote bags, mugs and more, you can find all sorts of AAWV items. And a portion of the profits go to the AAWV!

Visit the store at www.cafepress.com/aawv, or you can link to it through the AAWV website (www.aawv.net). Get some great new duds and help support your organization. And just think how handy that AAWV stein will be at the Conference!

WWW.CAFEPRESS.COM/AAWV

AAWV NEWSLETTER

IS PUBLISHED BY THE
AMERICAN ASSOCIATION OF
WILDLIFE VETERINARIANS

Founded in 1979, the AAWV is a national, non-profit organization of veterinarians interested in all aspects of wildlife health.

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