The Vector
The Newsletter of The Wildlife Society
Wildlife Diseases Working Group

From the Chair
The Votes are In!!!

It is my pleasure to announce that the first elections of the TWS Wildlife Diseases Working Group has been completed. Your newly elected officers and board members are:

Chair - Keith Wehner (2007-2009)
Chair-Elect - Scott Hygnstrom (2007-2009)
Secretary/Treasurer - Tim Algeo (2007-2009)
Board Members
Bob McLean (2007-2009)
Sarah Hamer (2007-2009)
John Fischer (2007-2008)
Richard Chipman (2007-2008)
Graham Hickling (2007-2008)

We had a great turnout by our members; nearly 90% cast a vote. Every race was very close, which speaks to the strength of all of our candidates. There was even a tie among board members. Two individuals received the same number of votes; each would receive either a one-year or a two-year position. The current board members were then asked to vote specifically for one of these two individuals to break the tie and it was still extremely close.

Congratulations to all of the people who won a position and thank you to all of those who ran! As you already know, this election marks the last benchmark to official status of our working group. This request has been made to TWS Council and should be discussed and approved at the upcoming meeting in Tucson.

The newly elected executive board is already working to establish new committee chairs and discussing the creation of a couple of new committees. In addition, it is working with Mi-

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Current Wildlife Disease Issues
The downside of wildlife translocation

The translocation of wild animals plays an important role in the management of wildlife in the United States. Translocation (sometimes referred to as relocation or transplantation) is defined as the capture and transfer of a wild animal from one area to another. Translocation has been used to accomplish a variety of important wildlife management objectives that include enhancing populations or reintroducing rare or locally extirpated wildlife, providing hunting or wildlife viewing opportunities, farming wild game, and reducing local human-wildlife conflicts. Hundreds of thousands of individual animals, usually representing common species, are intentionally moved across the landscape each year in the United States. Although poorly documented, it can be reasonably assumed that a substantial number of animals are also unintentionally relocated in trucks, trains, and boats associated with, among other things, interstate movement of solid household waste.

Wildlife remains a highly valued resource in the U.S. Although a variety of birds and mammals may be captured and intentionally moved for conservation purposes, the majority of animals translocated by the public or their designated agents are the result of attempts to resolve local human-wildlife conflicts in urban and suburban environments. These human-altered habitats often support...
**Wildlife translocation** (continued from pg. 1)

lower diversity of wildlife species, but often the increased availability of anthropogenic food and den sites can result in high densities of some mesocarnivore populations including the raccoon, skunk, red fox, gray fox and even the coyote. Overabundant wildlife in association with concentrated human populations results in an increased demand by the public for assistance in mitigating nuisance wildlife problems. These circumstances may require unique or specialized wildlife damage management approaches that historically have included translocation. However common mesocarnivores remain the “poster child” that highlight translocation problems in the U.S., particularly in relation to the spread of disease.

Few studies have been published on the scale or scope of translocation in the U.S. or the specific entities other than State and Federal wildlife management agencies that translocate wildlife. The public may attempt to resolve wildlife conflicts themselves using live trapping and release off site; however, many turn to Nuisance Wildlife Control Operators (NWCO) or local wildlife rehabilitators for assistance. These three groups often are associated with concentrated human populations results in an increased demand by the public for assistance in mitigating nuisance wildlife problems. These circumstances may require unique or specialized wildlife damage management approaches that historically have included translocation. However common mesocarnivores remain the “poster child” that highlight translocation problems in the U.S., particularly in relation to the spread of disease.

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Disease ecology and immunology of the spotted hyena

Canine distemper virus (CDV) and rabies epizootics have killed large numbers of lions (Panthera leo) and wild dogs (Lycaon pictus) in East Africa in recent decades. These outbreaks were a major reason for extirpation of wild dogs in the Masai Mara National Reserve in Kenya. In spite of these epizootics in sympatric carnivores, spotted hyenas (Crocuta crocuta) showed few signs of disease and suffered little mortality, despite testing seropositive for both CDV and rabies. The reason the hyena mortality rate was minimal is currently unknown. One possible reason for decreased mortality and illness is that the hyena immune response was capable of a quick and effective response to pathogenic challenge.

Hyenas are extremely capable hunters, but are also well known scavengers. Scavenging and the ability to crush bones in order to consume nutritious bone marrow allow hyenas to co-exist with lions and survive in times when prey is scarce due to drought or other stochastic events. Scavenging animals are likely exposed to higher levels of pathogens and toxins and need to have a robust immune system to neutralize the deleterious effects of increased pathogen exposure.

The first questions to be addressed are whether or not hyenas actually scavenge at a higher rate than other carnivores, and subsequently if they are exposed to more pathogens. To answer these questions, I used motion sensor cameras with night vision capabilities to determine scavenging rates in the Masai Mara study area. I also collected samples from prey, carrion, and meat that was allowed to decompose for up to five days under normal ecosystem conditions. The samples will be analyzed in the lab for lipopolysaccharide (LPS) concentrations, a cell wall component of gram-negative bacteria, which will be used as an indicator of bacterial exposure. As part of the Michigan State University Hyena Research Project, I have access to nearly twenty years worth of blood, serum, and fecal samples. Thus, in addition to quantifying LPS concentrations on decomposing prey in nature, I will analyze the archived hyena samples for LPS concentration.

The second question I will address is the immunological response of hyenas to LPS and other pathogens. LPS by itself does not exert pathogenic effects on the host, but may initiate a massive immune response that leads to the possibly fatal condition of sepsis. In most animals, LPS causes the immune system to induce fever in the host and an inflammatory immune response. Extended elevated body temperature and inflammation can have many adverse effects on the host, including tissue damage and high energetic costs. It is therefore in the interest of the host to minimize fever and inflammation, yet effectively respond to the foreign antigen. I hypothesize that hyenas commonly exposed to high levels of LPS enter a tolerant state, minimizing the production of inflammatory cytokines and fever. In vitro cell proliferation assays will be conducted to determine immune cell proliferation and cytokine production in response to LPS. Alternative response pathways to LPS, including antibody production and cell signaling mechanisms, will also be analyzed.

These assays are the tip of the iceberg for the larger goal of elucidating the mechanisms of the spotted hyena’s resilience to disease. Continuing work will delve further into the immunological mechanisms of disease resistance and may provide important information that can be applied to conservation efforts not only for spotted hyenas, but also for other animals, including humans, that face similar threats.

If you would like to learn more about this project, you can contact Andy at andyflies@gmail.com and/or visit his website at http://www.msu.edu/user/fliesand/index.htm.

Article by Andy Flies, Ph.D. candidate, Michigan State University
Wildlife Disease Organization Focus

Wildlife Disease Association

History of the Wildlife Disease Association
In March 1951, a group of 28 U.S. and Canadian wildlife biologists attending the 16th North American Wildlife Conference in Milwaukee, Wisconsin, met informally for discussion and founded an organization called the Wildlife Disease Committee.

The rest, as they say, is history - eventually becoming what we know as the Wildlife Disease Association in 1952.

For a complete history of the Association, please visit the WDA website at: http://www.wildlifedisease.org/Documents/WDA_History.pdf.

Focus of the Wildlife Disease Association

Endangered Species – WDA members with international, state, provincial, federal, and private agencies have been intimately involved in efforts to preserve and improve the status of endangered species populations. Efforts include monitoring the status of the black-footed ferret in Wyoming, determining the impact of diseases on eagles in the West and of gray wolves in the North Central states.

Game and Furbearing Animals – Extensive research and surveillance have provided untold benefits to wildlife through private and public agencies by enhancing understanding of the impact of diseases on wild animal populations.

Wildlife Conservation – Many members, working as and/or with wildlife biologists, investigate the effects of environmental toxins, habitat alterations, and introduction of exotic species on the health of native wildlife.

Wildlife Relocation – Many members are engaged in the reintroduction of wildlife species into areas from which they have been extirpated. Efforts are being made to prevent the introduction of disease and to monitor the health of these animals.

Wildlife Rehabilitation – Veterinarians and other clinically oriented specialists affiliated with the WDA have been increasingly interested in the rehabilitation of sick and injured wildlife, especially raptors.

Zoological Parks – Zoo veterinarians supervise the care of a large variety of species and provide husbandry and veterinary care for many threatened and endangered species from all over the world.

Public Health – WDA members have contributed substantially to knowledge about arthropod-borne encephalitis, rabies, tularemia, Lyme disease, hantavirus, environmental toxicants, and many other diseases affecting human health.

Livestock and Poultry – Wildlife specialists participate in research, clinical and field efforts to control diseases that not only infect our wildlife species but may be economically devastating to domestic livestock as well. Among these diseases are malignant catarrhal fever, brucellosis, tuberculosis, viscerotropic velogenic Newcastle disease, and African swine fever.

Comparative Medicine – Many WDA members with specialty training in the health and biological sciences are involved in basic research using wildlife as models of diseases found in humans or domestic animals.

Ecosystem Health – Because no species exists independently of its environment many WDA members are addressing the complex issues of overall ecosystem health. One topic of special concern is aquatic animal health, as many marine mammals and sea birds serve as biomarkers for the assessment of the health of the marine environment.

Publications of the WDA

Journal of Wildlife Diseases - The Journal includes reports of wildlife disease investigations, research papers, brief research notes, case and epizootic reports, book reviews and information concerning the WDA’s activities.


For more information on the WDA, how to join, or how to submit manuscripts, please visit the WDA website at http://www.wildlifedisease.org/.

Source: WDA website

The Votes are In!!! (continued from pg. 1)

chael Hutchins, TWS Executive Director to establish relationships with several other professional organizations with similar interests to ours and TWS as a whole. Website construction will begin soon and the newsletters continue to be a huge success.

The working group has organized a symposium for the upcoming annual conference and has been working on next year’s proposal as well.

What other ideas do you have? What topics should this working group focus on? What projects should we be participating in? What positions should we be taking on various issues? Each member’s input is extremely important so make your voice heard. Contact an officer or board member with your suggestions or take on a leadership position. It is your working group. Make sure that it represents you.

Article by: K. Wehner, WDWG Chair
The 2007 Wildlife Disease Association Meeting in Estes Park, Colorado

The mission of the Wildlife Disease Association (WDA) is “to acquire, disseminate, and apply knowledge of the health and diseases of wild animals in relation to their biology, conservation, and interactions with humans and domestic animals.” The 2007 WDA Annual Conference, which was held recently in beautiful Estes Park, CO, held true to this mission. In the heart of the Rocky Mountains, hundreds of oral presentations and poster presentations were provided to the largest audience ever in attendance at a WDA Conference—perhaps an indication of the growing recognition of the importance of wildlife diseases worldwide.

The Conference provided a scenic venue for the transfer of information on diseases of birds, mammals, amphibians, and even cnidarians. Disease agents included bacteria, viruses, prions, environmental toxins, and even some diseases of unknown etiology. Yes, there was something for everyone at this conference—well, everyone with an interest in wildlife diseases.

The WDA uses the Annual Conferences to recognize achievement in the field of wildlife disease by presenting the following awards:

- **Distinguished Service Award** - Les Uhazy, Antelope Valley College (Lancaster, CA)
- **Emeritus Award** - Randy Davidson, SCWDS/Univ. of Georgia
- **Tom Thorne/Beth Williams Memorial Award** - Mike Miller, CO Div. of Wildlife
- **Graduate Student Research Recognition Award** - Shell Lachish, Univ. of Queensland, Australia
- **Graduate Student Scholarship Award** - Leslie Reperant, Princeton Univ.
- **Terry Amundson Student Presentation Award** - David Edmunds, Univ. of Wyoming
- **Student Poster Award** - Johan Lindsjo, Univ. of Saskatchewan

Congratulations to all of these awards recipients.

Participants at the Conference came from numerous countries from around the globe—the WDA is, after all, and international organization. This added to the many rich and rewarding opportunities for networking and camaraderie within this small but growing field of wildlife diseases. Next year’s WDA Annual Conference could be even bigger—perhaps we’ll see you in Edmonton, Canada, August 3rd-8th, 2008.

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**Call for papers:**

**Ingestion of Spent Lead Ammunition: Implications for Wildlife and Humans**

Large scale (global or broad regional) reviews of ingested lead ammunition in wildlife.

Large scale (global or broad regional) reviews of ingested lead ammunition in humans.

Modeling studies on the rates, amounts, health or population effects, etc. of ingestion of spent lead ammunition in wildlife or humans.

The Conference will conclude with a workshop on volunteer and legislative responses to the risk of ingestion of spent ammunition by wildlife and humans.

If you would like to submit a paper on a related topic that is not listed here, please email us to offer your subject for special consideration.

**Abstract Submission**

You may submit the abstract of your paper either online or via email. For instructions on submission, and for our online submission form, please go to our Abstract Submission page on our website. The deadline for abstract submission is 1 March 2008. You will be notified of acceptance or rejection of your paper and presentation format (oral or poster) by 14 March 2008.

**Paper Submission**

All participants whose papers are accepted will be required to present them at the conference and publish them in the proceedings. Exceptions may be considered - please email us to discuss.

For instructions on submitting your paper, and for paper formatting requirements, please visit the Paper Submission Guidelines page from our website. The deadline for paper submission is 30 May 2008.

Source: Peregrine Fund website
Mission Statement

Coming soon.

Meetings, Dates, and Deadlines

October - The American Association of Wildlife Veterinarians will hold its annual meeting in conjunction with the American Association of Zoo Veterinarians in Knoxville, Tennessee during 20-26 October, 2007. For more information visit their website at http://www.aawv.net/meetings.html.

The European Section of the Wildlife Disease Association will hold its annual meeting 2-5 October 2008 in Croatia. Dr. Ivan Vickovic, WDA member of the Department of Pathology, Croatian Veterinary Institute, Zagreb has the meeting website up and running. The site will be further populated with important meeting information as the year progresses. For more information, visit their website at: www.ewda2008.org

March 2008 - The deadline for submission of papers to be presented at the Ingestion of spent lead ammunition: Implications for wildlife and humans is March 31, 2008. For details on topics and related information, see call for papers on page 6 of this newsletter.

May 2008 - Ingestion of spent lead ammunition: Implications for wildlife and humans will be held on 12-15 May, 2008, at Boise State University, Boise, Idaho. The conference is being organized by the Peregrine Fund. The goal of the conference is to promote a better understanding of ingested spent lead ammunition as a source of lead exposure and to reduce its effect on wildlife and humans. For additional details on the conference, visit their website at: http://www.peregrinefund.org/Lead_conference/.

July 2008 - The 29th World Veterinary Congress will be held in Vancouver, Canada, from July 27 - 31, 2008. For more information, visit: www.worldveterinarycongress2008.com

The latest issue of the Wildlife Professional is available at www.wildlife.org