AMERICAN ASSOCIATION OF WILDLIFE VETERINARIANS

FALL 2004

OFFICIAL AAWV ELECTION 2004 RESULTS

Number of ballots distributed in July 2004 to current members: n=219

Numbers of ballots cast: n=99 (45.2% response)

Number of unmarked ballots returned: n=3 (not included in number of ballots cast)

VOTE TALLY

Ballots tallied independently by AAWV officers Jessup, Gilardi and Ziccardi on 9/7/04 in Davis, CA

Votes = 60 In support of proceeding with a merger of the AAWV with the AAZV to form a new organization, the American Association of Zoo and Wildlife Veterinarians (AAZWV).

Votes = 39 Not in support of proceeding with a merger of the AAWV with the AAZV to form a new organization, the AAZWV.

60.6% in favor of merger (60/99)

39.4 % opposed to merger (39/99)

Annual Business Meeting Minutes

September 2, 2004
Prepared by Kirsten Gilardi
First part of meeting, 12:00 – 1:00 pm:

1. Introduce officers

Called to order/welcome by Dave Jessup. Jessup introduced himself and other officers (VP K. Gilardi present; Secretary K. Mansfield and Treasurer M. Ziccardi in absentia), Chairperson of the President's Council B. Lance, website editor C. Gillin, and newsletter editor J. Gaydos (in absentia). Jessup thanked the conference organizers and officers of WDA and AAZV, thanked the AAWV members and others who taught workshops (T. Work, W. Karesh, M. Miller, J. St. Ledger, K. Quigley, W. Lance, M. Kock, D. Hunter and J. Arnemo) and thanked Wildlife Pharmaceuticals for supporting the Wildlife Immobilization Workshop.

2. Approve minutes of last year's meeting

Dave reminded members that a copy of the minutes of the July 2003 annual business meeting were printed in the Fall 2003 AAWV newsletter. Jessup asked for a motion to approve the minutes of the 2003 meeting. Jonna Mazet made the motion; Pam Yochem seconded the motion. There was no opposition to the motion.

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President's Message

"Never underestimate what a small group of dedicated people can do."

—Margaret Mead

The AAWV can be very proud of the quality of its contributions to the recent joint meetings with WDA and AAZV in San Diego. The three workshops we sponsored were fully subscribed and very well received. I want to thank Billy Karesh and Thierry Work for their thoughtful contributions to "So you want to be a wildlife veterinarian". We may want to see if we can put their PowerPoint presentations and mine on our website. Bill Lance organized and Wildlife Pharmaceuticals sponsored the workshop on "Chemical Immobilization of Wildlife" and although the venue precluded work with live animals or a firing range (funny how sensitive big hotels near airports are about firearms these days), the presentations of Kathy Quigley, Jon Arnemo, Dave Hunter and Mike Kock seemed to provide sufficient content to entertain and inform the attendees. "Marine Mammal Pathology" was outstanding and the only entirely "hands-on" workshop and Melissa Miller and Judy St. Ledger pulled it off with some help from several students and technicians including Heather Harris and Elizabeth Wheeler. We also thank SeaWorld for allowing us to use their property and the OWCN facility there despite liability concerns.

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3. Approve 2004 treasurer's report

Jessup reminded members that the Treasurer's Report had been distributed by electronic mail in August. The AAWV's current balance is approximately $26,000. Jessup asked for a motion to approve the Treasurer's report. Marguerite Pappianou made the motion; Bonnie Raphael seconded the motion. There was no opposition to the motion.

4. Call for other items of "old business"

None.

5. Adjournment of first section of business meeting and reconvene at 5:45 pm

Jessup asked for a motion to adjourn the first half of the business meeting and reconvene at 5:45 pm. Jonna Mazet made the motion; Linda Munson seconded the motion. There was no opposition to the motion.

Second half of meeting, reconvened at 5:55 pm

There were approximately 50 members present during this part of the meeting. Officers present included Dave Jessup, Kirsten Gilardi, Mike Ziccardi..

6. New Business

Jessup reviewed organization membership and this year's efforts to increase the membership.

In August 2003, the AAWV had approximately 100 paid members. A concerted effort on the part of officers and members to increase membership via direct phone calls and solicitation letters increased the membership to approximately 240 paid members currently. Sharon Taylor and other members and officers were thanked for their efforts on this.

7. Treasurer's report

Ziccardi summarized the Treasurer's Report.

8. New website management

Colin Gillin reported that the server for the AAWV website has been moved from the National Wildlife Health Center to a California Dept of Fish and Game (DFG) server. Additions to the website include a new Student Chapter section, which at present contains information from chapters at University of Georgia, Tufts University and North Carolina State University. Gillin is working with Miles Reed at DFG to make some design changes. Jessup and Gillin are soliciting suggestions from the membership on design changes, and will forward those suggestions to council for review. Gillin asked members to submit photos so that this can by a more dynamic aspect of the website. Photos of officers will be added. Gillin would like to build the links list, and would like to add job announcements, so he asked membership to please forward this type of information to him.

9. Newsletter

No report (newsletter editor Joe Gaydos not present)

10. 2003/2004 AAWV Activities - Highlights

Feral cats: Jessup represented the AAWV at the AVMA's Animal Welfare Forum on feral cats. Papers from this forum will be published in the Journal of the AVMA. The members were made aware of several rounds of letters to the editor in JAVMA on this subject. John Fischer thanked Dave for "fighting the feral cat fight."

USDA Wildlife Services Initiative: The AAWV submitted a letter to Ron DeHaven to express the wildlife veterinary community's support for the proposed program, and to share the concerns of the AAWV membership that veterinarians be integrally involved in the program as it is rolled out. Ben Gonzales also met with the USDA on this issue.

National Veterinary Services Act: The NVSA proposes to provide debt relief (from student loans) to veterinarians practicing in parts of the country currently underserved by the veterinary profession, as well as to veterinarians working in areas critical to biosecurity, terrorism, food safety, etc. Jessup wrote a letter to Secretary of Agriculture Ann Venemann to press for including wildlife veterinarians as potential recipients of the financial relief proposed by the NVSA. Dean Goeldner reported that the U.S. Senate has not yet passed the appropriations portion of the bill.

AVMA Euthanasia guidelines: Dave Miller has been working on behalf of both the AAZV and the AAWV to ensure that revised euthanasia guidelines of the AVMA adequately represent the needs of zoo and wildlife practitioners. Miller and colleagues (from the AAZV, ARAV, AAV, IAAAM, etc) are currently drafting a document that will address these problems according to taxonomic groups. Mark Drew has the lead for AAWV 's contribution to this document. Miller is presently editing the first drafts from contributing authors. Rick Brown asked if euthanasia from remote range would be addressed. Jessup responded that not only would that issue be included, but the need to efficiently and appropriately kill wildlife by means others than those strictly defined as euthanasia would too.

11. Strategic Affiliations Options and vote

Jessup briefly reviewed the past two years' history of the organizations assessment of its strategic affiliations with other organizations. He reminded the membership that after last year's vote not to accept the Ad Hoc Strategic Affiliations committee report, the subject was left alone for three months while membership and feral cat issues were dealt with. Many AAWV members expressed dissatisfaction with not being allowed to view the committee's findings. It has also become clear that some members had an alternative vision for AAWV's future and some well articulated arguments. The Ad Hoc Strategic Affiiliations Committee was re-stafffed to include members with dissenting views and Jessup stepped off the committee. The Committee's new re-

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The AAWV Cutting Edge speaker, Dr. Rick Ostfeld, was simply outstanding. His talk also served as the conference's keynote (see summary, page 5). Not only did he highlight the connection between human health and wildlife health in the northeastern woodlands, but he clearly showed that both are promoted and served by ecological diversity. Dr. Ostfeld made the point that ecologists are increasing interested in emerging diseases and accelerated ecological change and the connection between disease processes and conservation; now it is up to us to reach out and meet them halfway.

The AAWV/WDA sessions on "Diseases at the Wildlife/Livestock Interface" and "In Situ Conservation" were very good, in my opinion two of the best four or five sessions of the joint meetings. Jack Mortenson and Mike Kock did a fine job organizing and shaping them. Behind all of this were Jonna Mazet and Pam Yochem, the WDA co-chairs of the meeting who also helped edit and organize our sessions and see to it that presentations were loaded up and ready to go. Over several days I watched Pam work with each WDA and AAWV session chair and at the back of the room with the technical staff to make sure all presentations went off as flawlessly as possible.

Our AAWV business meeting started at noon and reconvened at 5:45 PM on Thursday. The minutes of that meeting can be found in this newsletter, page X. A Presidents and Treasurers Report summarizing the past year were e-mailed to all members ahead of the meeting and posted on our website. To make more effective use of the limited time we have for meetings, we will increasingly rely on our newsletter, website and e-mail to inform the membership and conduct business. We are getting hundreds of hits per day on our website and Colin Gillin, our website editor, reported on the improvements recently made and planned including moving the website to a location where we have better access and reliability. Kirsten Gilardi and Mike Ziccardi were extremely supportive and helpful with all aspects of our meeting. All of the above teamwork shows what we (AAWV), a relatively small group, can do and how we can do it. Good job team !!!

The Strategic Affiliations balloting was closed at the end of the business meeting and the votes were counted on September 7, 2004 in Davis, CA by three AAWV officers. These ballots will be shipped to the AAWV Secretary for archiving for at least one year. About 47 percent of the ballots sent out were returned marked. The results were that 61 percent of members voted in favor of the merger with AAZV, 39 percent opposed it and favor remaining an independent organization. This majority falls short of the 2/3 needed to change AAWV's Constitution and Bylaws, but clearly speaks to an interest of the membership in closer ties with our zoological colleagues. The leadership of AAWV will seek ways to accomplish this while we remain a stand-alone organization. I would like to thank all the AAWV members who have called, e-mailed, written letters, worked on position papers, voiced issues and concerns over the last two years while we worked through this process.

"Crow, if well prepared, can be quite delicious."

Winston Churchill's response to a reporters question about a political reversal.

At the meetings I found out that Arizona Game and Fish recently hired a new veterinarian Lisa Shender (in addition to Ole Alcumbrac who remains on contract) and I want to call your attention to the efforts of the State of Virginia to recruit a wildlife veterinarian (see jobs listings this Newsletter). I also call your attention to the article in this issue by Steve Schmitt on the growth and changes of Michigan Department of Natural Resources wildlife health program. As many of you know a long-time wildlife veterinarian and AAWV member, Leslie Dierauf is the new Director of the National Wildlife Health Center. Our ranks continue to grow and we continue to provide leadership and influence decision making.

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port was published in the January 2004 AAWV Newsletter along with arguments pro and con. A second set of arguments on both sides were printed in the April 2004 AAWV Newsletter. Both sides were invited to contribute final arguments not to exceed 500 words for the July 2004 Newsletter and neither did. Based on procedures and policies developed by the Board of Governors and as described in the AAWV Constitution, the two options before the membership in the form of a mailed ballot were sent out on or around July 1 regarding whether or not the AAWV should remain a stand-alone organization or merge with the AAZV to form a new organization. That election is scheduled to close at the end of this business meeting. Votes will be tallied, and the results shared with the membership via an electronic mail announcement, as well as in the Fall 2004 newsletter.

12. Open up to members' questions and issues

There were no items for discussion brought forth by the membership

13. Adjournment.

Jessup asked for a motion to adjourn. John Fischer made the motion; Ted Leighton seconded the motion. Meeting adjourned at 6:30 pm.

Michigan DNR Opens $58 Million Wildlife Disease Laboratory

The Michigan Department of Natural Resources (MDNR) recently opened its new Wildlife Disease Laboratory. They will share this $58 million, 152,500 square foot facility with the College of Veterinary Medicine's Diagnostic Center for Population and Animal Health (DCPAH). This building consolidates activities from five separate locations on the Michigan State University (MSU) campus, on the agricultural campus of MSU in East Lansing. Approximately 10 percent of the building is occupied by MDNR's Wildlife Disease Lab. Recognized as leaders in wildlife disease, the MDNR Wildlife Disease Lab had started at MSU (then Michigan State College) in 1934. By 1957, wildlife disease problems outgrew the original facility, and the MDNR Lab moved to a facility at the Rose Lake Wildlife Research Center. In August 2004, the MDNR Lab has come full circle and returned to MSU.

The MDNR has a long history of involvement with health concerns of wildlife, and the relationship between wildlife and livestock disease. The "Fourth Biennial Report of 1927-1928" states:

"As the value of our wild life resources increases, and as the deliberate management of those resources is intensified, we shall no doubt parallel the previous experience with domestic birds and mammals, and shall have to contend with an unending series of diseases and parasites.

Successful development of the livestock industry has been in large measure dependent upon the ability to recognize and control the many pests, parasites and diseases which attack domestic and range animals. It is now becoming evident that the diseases of domestic stock are often related to those of wild animals.

Foot-and-mouth disease starting in hogs fed on infected garbage, in California, recently spread to cattle, spread from the cattle to range sheep, and from the sheep to the wild deer.

Under these circumstances it is highly desirable that Michigan should develop at home, first class facilities for research in connection with the pests, parasites and diseases of game and other wild life forms. It should not be necessary for us to depend upon Washington, or upon laboratories in other states, for the service of this sort."

As recent outbreaks of "mad cow" disease, bovine tuberculosis, West Nile virus, and avian flu continue to make animal and food safety issues a critical national concern, the need for top-level animal testing facilities becomes imperative. Now, the State of Michigan has a new premier veterinary diagnostic laboratory that will provide rapid and accurate diagnostic testing on a variety of animal tissues.

Contact information:
MDNR Wildlife Disease Lab
4125 Beaumont Road, Room 250
Lansing, MI 48910-8106
T 517-336-5030; F 517-337-4920

Dr. Stephen Schmitt, Veterinarian in Charge of the MDNR's Wildlife Disease Lab sees the benefits of co-locating the agencies in one facility at MSU, "The new facility houses those dealing with animal disease, domestic or wild, under one roof. The lines between the groups are crossing, as a number of diseases are shared. When we work shoulder to shoulder, we have the opportunity to discuss research and collaborate, which helps foster new ideas. The new facility provides more space, a safe, modern environment, and the ability to handle the large volume (20,000-30,000) of deer heads."

The state-of-the-art testing laboratory provides services in areas such as necropsy and surgical pathology, bacteriology/mycology, virology/serology, toxicology, nutrition, immunodiagnostics, parasitology, and endocrinology. The layout of laboratory space follows a systematic pattern for processing and testing animal tissue. The laboratory system institutes new biotechnological examination procedures, supports applied research projects, and facilitates automation and computerization. The five necropsy areas, comprising nearly 1/3 of the total building's gross footage, are provided with sophisticated filtration and sterilization systems. The center also includes four livestock containment barns.

New information generated from the MDNR Lab and DCPAH is used for adaptations and improvements in programs for reducing and eliminating a variety of diseases in animals and wildlife. The facility will also continue to develop new and improved testing capabilities while expanding its capacity to meet growing demands.

The center houses a current staff of 115, including veterinary professionals and technicians, as well as 12 MDNR personnel and 1 representative from the Michigan Department of Agriculture. In addition, a setting is provided for the training of undergraduate and graduate veterinary students at MSU.

AAWV Sponsors Cutting Edge Speaker Dr. Rick Ostfeld at AAZV-WDA-AAWV Joint Meeting

Once again, the AAWV sponsored the Cutting Edge and keynote speaker for the recent AAZV/WDA/AAWV joint meeting in San Diego, California. This year, Dr. Rick Ostfeld of the Institute for Ecosystem Studies, gave a talk entitled "Biodiversity Loss, Missing Weapons of Mouse Destruction, and Lyme Disease Risk."

During his talk, Rick presented a summary of his research on the interactions among organisms in northeastern forest ecosystems that influence the risk of human exposure to Lyme disease. He showed that human-induced environmental changes, such as habitat fragmentation, can inadvertently increase disease risk by reducing both predators and biodiversity. Clearly higher predator densities can reduce numbers of white footed deer mice, but also, because many of the other species upon which the various stages of *Ixodes* spp. ticks feed are considerably less competent vectors than deer mice, the Dilution Effect also protects people against exposure to this zoonotic disease.

Intensive study of the ecology of Lyme disease has been instrumental in developing this theory, which could be applicable to a number of other diseases and ecosystems. This is a great example of how increased biodiversity not only protects a number of sensitive species, but also protects human health by reducing the probability of human exposure to wildlife disease agents.

For those of you that are interested, but were unable to attend this lecture, the following publications by Dr. Ostfeld's might be of interest.

Van Buskirk, J. and R. S. Ostfeld. 1995. Controlling Lyme disease by modifying density and species composition of tick hosts. *Ecological Applications* 5:1133-1140.

Ostfeld, R.S. 1997. The ecology of Lyme-disease risk. *American Scientist* 85:338-346.

Van Buskirk, J. and R.S. Ostfeld. 1998. Habitat heterogeneity, dispersal, and local risk of exposure to Lyme disease. *Ecological Applications* 8:365-378.

Schmidt, K.A, R.S. Ostfeld, and E.M. Schauber. 1999. Infestation of *Peromyscus leucopus* and *Tamias striatus* by the blacklegged tick, *Ixodes scapularis* (Acari: Ixodidae), in relation to the abundance of hosts and parasites. *Journal of Medical Entomology* 36:749-757.

Ostfeld, R.S. and F. Keesing. 2000. Biodiversity and disease risk: the case of Lyme disease. Conservation Biology 14:722-728.

Giardina, A.R., K.A. Schmidt, E.M. Schauber, and R.S. Ostfeld. 2000. Modeling the role of rodents and songbirds in the ecology of Lyme disease. *Canadian Journal of Zoology* 78:2184-2197.

Ostfeld, R.S. and F. Keesing. 2000. The role of biodiversity in the ecology of vector-borne zoonotic diseases. *Canadian Journal of Zoology* 78:2061-2078.

Tabor, G.M., R.S. Ostfeld, M. Poss, A.P. Dobson, and A.A. Aguirre. 2001. Conservation biology and the health sciences: research priorities of conservation medicine. Pages 155-174 in M.E. Soule and G.H. Orians, eds., *Conservation biology: research priorities for the next decade.* Island Press, Washington, DC.

Schmidt, K.A. and R.S. Ostfeld. 2001. Biodiversity and the dilution effect in disease ecology. *Ecology* 82:609-619.

Harvell, C.D., Mitchell, C.E., Ward, J.R., Altizer, S., Dobson, A., Ostfeld, R.S., and Samuel, M.D. 2002. Climate warming and disease risks for terrestrial and marine biota. *Science* 296:2158-2162.

Ostfeld, R.S., F. Keesing, E.M. Schauber, and K.A. Schmidt. 2002. The ecological context of infectious disease: diversity, habitat fragmentation, and Lyme disease risk in North America. Pages 207-219 In: A. Aguirre, R.S. Ostfeld, C.A. House, G. Tabor, and M. Pearl, eds. *Conservation medicine.*

Webmaster Requests

- Photos to enhance the Website
- New and interesting links to other Websites
- Articles
- Opinions
- Upcoming events, conferences, parties

For more information and details, contact the AAWV Webmaster, Colin Gillin at colin.m.gillin@state.or.us.

Wildlife Disease News

Avian influenza in Asia

Source USAHA News and ProMED (edited)

The avian influenza epidemic in Asia is a "crisis of global importance" and will continue to demand the attention of the international community for some time to come, the UN Food and Agriculture Organization (FAO) and the World Organization for Animal Health (OIE) said in a joint statement recently.

New lethal outbreaks of H5N1 among poultry were reported by Cambodia, China, Indonesia, Malaysia, Thailand, and Vietnam and human deaths from confirmed avian influenza H5 infection have been reported in Vietnam and Thailand. Recent outbreaks show that the virus continues to circulate in the region and will not probably be eradicated in the near future. More research is urgently needed as the role of wildlife, domestic ducks and pigs in transmitting the virus among animals is still not fully understood.

Agence France-Presse reported that China recently found a deadly strain of bird flu for the first time in pigs, a development that could further hamper efforts to restrict the disease's spread to humans.

While much progress has been made in early detection and reaction, a permanent threat to animal and human health continues to exist and countries still need to step up proactive surveillance and control measures. Major investments are required to strengthen veterinary services, in particular for surveillance, early warning, detection, reporting and response and for the rehabilitation and restructuring of the poultry sector, FAO/OIE said.

The newly published FAO Recommendations on the Prevention, Control and Eradication of Highly Pathogenic Avian Influenza (HPAI) in Asia, prepared in close collaboration with OIE, review the factors that should be taken into account in designing and implementing control programs and explain how countries can adopt a strategy appropriate to their situation.

In response to recent controversies on vaccination against bird flu, OIE and FAO reiterated that the slaughter of infected animals is the best way of controlling and ultimately stamping out the disease. However, FAO/OIE acknowledged that this policy may not be practical or adequate in certain countries because of social and economic reasons or because of high viral challenge due to infection in villages, wild birds or domestic waterfowl. In such cases, countries wishing to eradicate the disease may choose to use vaccination as a complementary measure to the stamping out policy.

The two agencies stressed that vaccines, if used, should be produced in accordance with the international guidelines prescribed in the OIE Manual of Diagnostic Tests and Vaccines for Terrestrial Animals. The OIE Terrestrial Code states that a country may be considered free from HPAI based on the absence of virus irrespective of whether vaccination has been carried out. Therefore, the two organizations confirm that the use of vaccines does not imply automatic loss of export markets.

It has been shown that the use of such vaccines does not only protect healthy birds from disease but also reduces the load of viruses excreted by infected birds and thus the likelihood of transmission of the virus to other birds and to humans. However, the decision on whether to use vaccines has to be made by each country based on its own situation, OIE/FAO said. The factors countries should consider in making their decision include their ability to detect and react to the disease as early as possible and the need for transparent and timely notification; this will have to be supported by a good institutional framework and sound legislation underpinning veterinary services.

Any vaccination strategy should be developed in consultation with all stakeholders, including the private sector. The types of poultry and production sectors to be vaccinated must be determined and clearly documented. Infected poultry and those in contact with the virus should not be vaccinated.

The two agencies said vaccination should be carried out under the supervision of official veterinary services and be accompanied by a parallel surveillance strategy. This would include the capacity of the veterinary services to identify and monitor the circulating virus as well as the response to vaccination, by means including the use of non-vaccinated sentinel birds and the application of serological tests capable of differentiating infected from vaccinated animals.

Brown Pelican Deaths in California

Source: ProMED and Dr. Judy.St.Leger (edited)

This past June and July, young of the year brown pelicans (*Pelicanus occidentalis*) were found debilitated and thin in multiple sites in San Diego County (California). Over 250 of the birds were brought to SeaWorld, San Diego for rehabilitation. This represented 7-10 times the expected number for pelicans at this time of year. Birds were emaciated and weak. Although some respond to supportive care, many did not and died soon after being admitted.

Emaciation and anemia were the most consistent findings. Birds had typical parasite loads and most did not demonstrate signs of trauma. One bird (of 20) has had incidental histologic changes suggestive of an adenoviral infection.

Poisoning with domoic acid (a toxin produced by the red tide dinoflagellate *Pseudonitzshia australis*) is a concern for coastal pelicans Algal toxin testing performed for domoic acid, saxitoxin, and brevetoxin was negative. West Nile virus was present in the local bird population at the time of this event. No birds had histologic signs consistent with West Nile virus and PCR testing on four birds was negative. Viral isolation attempts were negative. Botulism is a significant cause of morbidity and mortality for brown pelicans at the nearby Salton Sea, but it is not, typically, a concern for the coastal population. Samples collected for botulinum toxin screening were negative for the toxin.

The working diagnosis is starvation. Egg counts and population assessments for anchovies in the area suggest abundant numbers of the primary food fish of this population. However, changing sea surface temperatures may have resulted in lower availability due to schools swimming lower in the water column and further from shore.

Population assessments from breeding grounds on the islands off of California and in the Gulf of California demonstrated particularly abundant breeding, nesting, and fledging success this year. It is likely that the markedly expanded population of young birds learning to fend for themselves in conjunction with minor changes in anchovy availability led to the large numbers of starving young birds identified.

FIV in Kruger Lions

Source: ProMED (edited)

Feline Immunodeficiency Virus (FIV) has infected lions in Kruger National Park (South Africa), which forms part of the Great Limpopo Transfrontier Park. The mega-park, joining Gonarezhou (in Zimbabwe), Kruger (in South Africa), and Gaza (in Mozambique), is the world's largest wildlife sanctuary.

A lentivirus, FIV occurs worldwide in domestic cats where prevalence has been reported to range from 1 to 28 percent. FIV has not been found, so far, to infect humans, and, due to structural and biological similarities, it represents a promising model for human immunodeficiency virus (HIV) and AIDS.

The Zimbabwe Parks and Wildlife Management Authority was aware of the disease, in South Africa and said that it was closely monitoring its development. The authority's chief warden, Mr. Lovemore Mungwashu, said the disease was still in the southernmost part of Kruger National Park, and, that Zimbabwe was still safe. "Yes, the (virus) has

been discovered in South Africa, and we are carefully watching it. Although Kruger is part of the transfrontier park, the disease is still confined to the southern-most part of the park, and Zimbabwe is still safe," said Mr. Mungwashu.

The primary mode of FIV transmission is sexual contact and bite wounds. On rare occasions, infection is transmitted from mother to cub, usually upon passage through the birth canal, or, when newly-born cubs ingest contaminated milk.

Infected animals usually appear normal for a few years, until infection eventually leads to the gradual collapse of the immune system, leaving the animal without protection from other subsequent infections. Common among the symptoms are persistent fever; diarrhea, with a loss of appetite; poor coat condition; chronic, or recurrent, infection of the skin and urinary bladder; abortions; behavior changes; and seizures. All of this is followed by slow, but progressive, weight loss and neurological disorders.

Other sympatric felids, the leopard and cheetah, also have FIV, but, are said to be less susceptible, because they are more solitary. Lion prides are more affected by the disease, because they are highly sociable and are in constant physical contact with each other.

Anthrax Outbreaks in Africa

Source: ProMED and Nature News (edited)

BOTSWANA

On September 20, 2004, Botswana's wildlife authorities closed Chobe National Park to tourists after discovering an anthrax outbreak in one of the country's largest game reserves. Since the outbreak began on September 8th, game rangers have found the carcasses of 180 buffaloes, 10 elephants, and a hippo in park, which borders Namibia, said Wildlife and National Parks acting district coordinator Obert Gwapela. "We have communicated with tour operators that they should stop taking tourists into the park until we contain the disease," he said. No other animal species have died so far, but officials are worried that predators, such as lions, vultures, jackals, and hyenas, may feed off the flesh of the dead animals. "We need time to assess how the disease is spreading and how it can be contained," Gwapela said.

Chobe National Park is a major tourism draw in Botswana, attracting tourists interested in game viewing because of its abundant wildlife, including elephants, buffaloes, and lions. It also boasts most of the country's safari camps. Wildlife authorities are trying to nail down the origin of the acute infectious bacterial disease, which mainly affects wild and domestic animals, but, can also pose a risk to humans exposed to infected animals or their tissue. Gwapela stressed, however, that there is no danger to humans. "It is too early to say when the park may be opened, as our teams are currently on the ground assessing the situation," Gwapela added.

Annually, tourism brings in about USD 104 million in revenue to the arid Southern African country. The anthrax outbreak has sparked fears within the tourism and hospitality industry of major financial losses. Anthrax has broken out before in the Chobe National Park, the latest outbreak being in 1996. That outbreak was attributed to buffaloes that had strayed from Namibia.

IVORY COAST

Anthrax recently killed at least six wild chimpanzees in the tropical rainforest of the Ivory Coast - the first time the disease has been seen in these animals and in this type of habitat. As well as threatening great ape populations, the discovery raises fears that the disease could spread to humans through the illegal trade in bushmeat.

Researchers studying chimps (*Pan troglodytes verus*) in the Taï National Park saw 8 animals disappear or die suddenly between October 2001 and June 2002. Healthy animals became weak, vomited and died within a few hours of symptoms appearing.

Post mortem examinations revealed that the animals suffered massive internal bleeding, suggesting bacterial infection as a possible cause. Genetic analysis of 6 animals showed *Bacillus anthracis*, the bacterium that causes anthrax, to be the culprit.

"Finding anthrax was a big surprise," says Georg Pauli from the Robert Koch Institute in Berlin, Germany, who studied the primates. There have been no previous reports of anthrax in wild chimps, and the bacterium, which also infects humans and hoofed animals, has not been found in Africa's tropical rainforests before.

NAMIBIA

The anthrax outbreak that has killed buffaloes, elephants, and a hippo in Botswana has spread to Namibia, where it is posing a serious threat to livestock, officials said.

The permanent secretary in the Namibian Ministry of Environment and Tourism, Malan Lindeque, said 5 elephants and 4 buffaloes have died but added that officials suspect the animals contracted the disease in Botswana and died shortly after crossing the border to Namibia.

Game parks in the Caprivi region in Namibia are not in danger for now, Lindeque said, but expressed concern about livestock, which can contract the disease if they come into contact with the carcasses of the dead animals. "Our concern now is the livestock of the rural people. Our officials of veterinary services are busy vaccinating the livestock and are burning all carcasses found to prevent the spread of anthrax in Namibia."

UGANDA

Over 100 hippopotamus were reported dead in Uganda, but only one fresh carcass was examined post mortem. The gross pathology of this single case was suggestive of anthrax with a lack of blood clotting, severe edema in tissues, splenomegally and hemorrhages. Blood smears showed numerous rods, which with methylene staining showed capsules. Attempts to culture the bacterium were negative, but in Berlin, Fabian Leendertz did DNA isolation and Real-Time PCR on 2 Plasmids (PX01 and PXO2) and the rpoB gene, showing the blood and spleen were clearly positive for *B. anthracis*.

ZIMBABWE

An anthrax outbreak has killed at least 1500 wild animals in the once busy tourist region of southeast Zimbabwe, the country's veterinary department said. The area, which includes the Gonarezhou National Park on Zimbabwe's border with South Africa, has been devastated by outbreaks of diseases in recent years, such as foot and mouth disease, following the cutting of fences by farm invaders loyal to the ruling Zanu-PF party.

"About 1500 animals have died in one of the largest outbreaks of anthrax we've experienced in a wildlife area," said the head of Zimbabwe's veterinary services department, Stuart Hargreaves. Hargreaves said teams had been sent to the area to vaccinate wildlife, including some of Zimbabwe's most valuable game. He said wildlife officials were using helicopters to administer dart vaccinations into rare and endangered populations of rhino.

Editor's note: While the outbreaks in Botswana and Namibia appear related, the outbreaks in Ivory Coast, Uganda, and Zimbabwe appear to be isolated events.

Wildlife Disease News

Fish No Exception to Trend In Marine-organism Disease

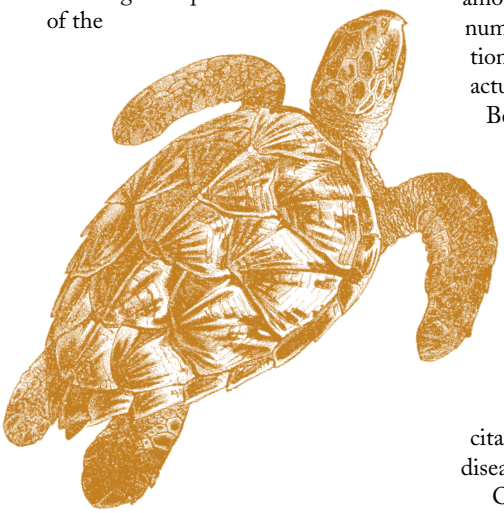
Source: Science Daily News (edited)

Disease is increasing among most kinds of marine organisms, according to a long-term study by Cornell University and the National Center for Ecological Analysis and Synthesis in Santa Barbara, Calif. And fish are no exception to the troubling trend, despite fewer reports of fish disease over the years.

The analysis of hundreds of previous studies of marine-ecosystem disease is published this month in the journal Public Library of Science Biology (available without charge at http://www.plos.org). The report finds the rate of disease increasing in some taxa, such as in turtles, mammals, mollusks and urchins, but declining in fish.

However, says Jessica Ward, a Cornell doctoral student in ecology and evolutionary biology and lead author of the published study, "Disease in fish populations is decreasing only because their numbers are decreasing, due to over-fishing and other factors." Says Ward, "Undoubtedly there are fewer and fewer cases of pneumonia among veterans of World War I, but that doesn't mean the veterans are becoming healthier. They are becoming fewer in number, and so are populations of wild fish." Indeed, she notes, for many populations, there are too few fish left for disease to be observed.

The study was conducted by the 15-member Marine Disease Working Group of the National Center for Ecological Analysis and Synthesis, a Santa Barbara, Calif., ecology think tank. Heading the marine disease group is C. Drew Harvell, a Cornell professor of ecology and evolutionary biology. She comments, "This is the first quantitative study to provide solid evidence that rates of disease do seem to be increasing in the ocean. It has been hard to tell if disease is increasing because we didn't have proper baselines. It's been much tougher to understand the frequency of marine disease than it is to monitor for SARS , for example, because the ocean is out of sight and out of mind." Harvell points to trends revealed by the study:



- Sea turtles are suffering from large tumors caused by a herpes virus that has spread over the last two decades.
- Marine mammals have a variety of viral and bacterial ailments, some of which also seem linked to human activities.
- Mollusks, such as commercially farmed oysters, could be experiencing increasing stresses from both climate and aquaculture practices.
- Corals had an increase in bleaching, although not in actual disease.
- Only sea grasses and sharks display no apparent increases in disease levels; both groups have disease, but it does not appear to be increasing.

Ward worked with collaborators to develop a literature-based research method to test the increasing-disease hypothesis, a widespread concern among ecologists. The analysts used the number of times diseases were mentioned in the literature as a proxy for actual prevalence of disease over time. Besides making statistical adjustments to account for the increase of scientific publications in recent years, the researchers verified their methodology with raccoon rabies, a widely reported disease of land animals. Because mentions in the literature and the cases of raccoon rabies matched, the researchers concluded the literature citations and the actual cases of marine disease should be consistent as well.

One future application of the study method might be as a management tool for marine ecosystems in need of conservation, or as an aid for trend spotting and finding underwater populations that need to be studied, Ward notes. "We are seeing so many emerging diseases that it can be overwhelming, and certainly we have to be careful about how dire we make the risk out to be," Ward says. "There are so many things we have yet to understand about the sea. My hope is that the methods developed in our paper can be used to identify those groups most in need of conservation."

For more information on climate change and marine diseases, readers also might enjoy the following review manuscript:

Harvell et al., 2002. Climate warming and disease risks for terrestrial and marine biota. *Science* 296: 2158-2162

Retrovirus in Koalas

Source: ProMED (edited)

Australian researchers have found that a virus that jumped to koalas, possibly within the past 200 years, is responsible for the astonishingly high incidence of cancer in koalas.

In a peculiar scientific twist, the virus is similar to those that trigger leukemia in cats and gibbons. The virus is not known in other marsupial species. "The initiating factor is the viral infection itself," said Dr. Young, leader of the University of Queensland team that identified the virus. "That leads to cancers like leukemia and lymphoma, and, also, to immune suppression and subsequent infections like chlamydia."

According to Dr. Young and his colleagues, doctoral student Rachael Tarlinton and veterinary scientist Joanne Meers, fewer than 1 percent of humans die of leukemia or lymphoma. However, up to 70 percent of captive koalas, and 3 to 5 percent of wild koalas, die of cancer.

The virus, an endogenous gamma retrovirus called KoRV, was identified 4 years ago by another UQ group. Dr. Young and his colleagues then looked for the virus in 150 koalas, half of which were wild animals brought to clinics, including Moggill Koala Hospital near Brisbane. The remaining koalas live in the colony at Dreamworld, on the Gold Coast, which helped fund the research. Every koala tested positive for KoRV, which is inherited. But, those with cancers, and immunosuppressive diseases, had high viral levels. "What we're trying to do now is find [out] if certain strains of the virus are more or less likely to cause disease, and, try to select those animals for breeding or translocation programs," Ms. Tarlinton said.

Endogenous retroviruses are thought to have arisen as a result of infection of germ-line cells and now are inherited as Mendelian genes. It was established previously by Hanger et al. in Brisbane that the Koala retrovirus (KoRV) is an endogenous retrovirus, morphologically similar to mammalian C-type retroviruses. KoRV was detected initially by electron microscopy in mitogen-stimulated peripheral blood mononuclear

cell cultures from numerous koalas and in lymphoma tissue from others. Viral mRNA, viral genomic RNA, and reverse transcriptase activity were present in koala serum and cell culture supernatants. Sequences analysis of these RNAs and Southern blot analysis of koala tissue genomic DNA using labelled KoRV probes demonstrated banding consistent with an endogenous retrovirus.

Complete (and truncated) proviruses were detected in DNA of both clinically normal koalas and those with hematopoietic disease. KoRV-related viruses were not detected in other marsupials, and phylogenetic analysis showed that KoRV clustered with gibbon ape leukemia virus. The close similarity between gibbon ape leukemia virus and KoRV indicated unexpectedly that these viruses are closely related and that cross-species transmission may have occurred in the recent past. Gibbon leukemia virus is a replication competent member of the genus Gammaretrovirus, which includes both exogenous viruses (like murine leukemia virus) and endogenous viruses like KoRV. The new data presented in the above report do not shed any direct light on the origin of KoRV. A striking finding of this new research is the difference in disease incidence between wild koalas and those maintained in captivity. It remains to be established whether this difference is determined by genetic divergence or by environmental factors.

West Nile Epicenter in Phoenix, Arizona

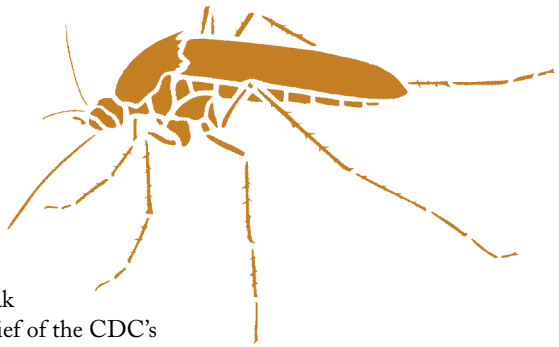
Source: AP (edited)

Federal health officials say Arizona is the only state where the West Nile virus is an epidemic. "Minnesota may be the land of a thousand lakes, but we're the land of thousands of abandoned swimming pools," says Will Humble, head of disease control for the Arizona Department of Health Services. Those swimming pools, plus irrigation canals that slice through parts of the city, patio misters and lush lawns designed to remind transplants of gardens they left behind have inadvertently turned neighborhoods into oases for mosquitoes.

"It didn't use to be this bad. You never saw a mosquito," said resident Gary Clark, 62, who takes his morning walk in an area where a high number of cases have been reported. "It's even trouble sitting out in your backyard now."

So far this year, at least 290 of the nation's more than 500 West Nile cases are in Arizona; three of the 14 deaths were in Arizona. Nearly all the cases have been in the state's most populous county, Maricopa, which includes the Phoenix metro area. State health officials estimate at least 30,000 Arizonans may have the virus without knowing it. Some people never have symptoms at all. Only about 1 percent of West Nile victims develop the potentially dangerous inflammation of the brain or spinal cord - meningitis or encephalitis.

Last year was the first time the virus appeared in areas west of the Continental Divide. It hit Colorado hard and drifted slowly into Arizona's northeastern tip, then down south. It's now spreading in California, where at least 116 cases have been reported and at least five people have died. Several factors have contributed to Arizona's outbreak.



"It's like the planets, everything has to align for an outbreak to occur," said John Roehrig, chief of the CDC's arboviral diseases branch in Fort Collins, Colorado. While more humid climates have more mosquitoes, they are also more prepared to deal with "nuisance mosquitoes," while Arizona isn't.

And while Arizona doesn't have a lot of mosquitoes because of long stretches of 100-plus degree days, one type of mosquito thrives here: *Culex tarsalis*. The species is one of the best carriers of West Nile virus. It does well in suburban settings and likes to feed on humans. The species can breed in small pools of standing water, such as in wheelbarrows, kiddie pools and plant saucers. Since the species is so dominant here, it doesn't have to compete with other types of mosquitoes for breeding spots.

The water that people surround themselves with to combat the heat can be another major factor. From the air, pools form a checkerboard pattern across the desert landscape.

Of the approximate 600,000 residential swimming pools in the state, state health officials estimate about 10,000 are capable of breeding mosquitoes. "What we've done is create miniature swamps in our back yard," said David Ludwig, who oversees county health inspectors treating so-called green pools with larvicides.

Backyard pools are to Arizonans what ice scrapers are to Alaskans. Pools are everywhere and considered a necessity by some. But sometimes they are neglected—by cash-strapped owners who may have a broken pump or owners who have moved before the house has sold. The pools can turn to stagnant pond green in no time.

Also, many of the city's older neighborhoods still use irrigation flooding for lawns, sometimes leaving standing water for days. They also have tall, mature trees. Besides mosquitoes, birds love these spots, and they can carry West Nile, too.

So far, the primary weapon has been to spray pesticide at night with fogging trucks that roam the neighborhoods. Maricopa County officials recently voted to spend more money to increase the spraying. But they also opted against the aerial spraying recommended by the CDC. "I think it was the right choice," Humble said. "If you spend $3 to $6 million on aerial spraying, your whole budget is gone in a matter of days. What are you going to do for the rest of season?"

The CDC's Roehrig said his agency still believes aerial spraying is superior. However, that recommendation was made before county officials decided to beef up spraying efforts, he said. Federal officials are watching to see if the county is able to slow the virus' spread.

Wildlife Veterinarian
Virginia Department of Game and Inland Fisheries
Richmond Virginia

Principle Duties

Serves as the Department's wildlife veterinarian. Investigates, monitors, and researches diseases and other factors affecting the health and survival of wild birds and mammals across the state. Monitors wildlife for diseases transmissible to domestic animals and humans; interprets and evaluates findings; and implements control programs as they relate to the conservation and management of wildlife resources. Coordinates veterinary services as well as the care and use of animals in research and management projects of the Department as well as in education and outreach services to various groups. Also serves as the Department's liaison to various state, federal, and private health organizations, as directed.

Requirements

- A working knowledge of anatomy, physiology, epidemiology, pathology, bacteriology, virology, toxicology, and genetics for a wide range of host and vector species; of state-of-the-art disease management techniques and programs that apply to free-ranging and captive avian and mammalian populations in North America; and of veterinary regulatory procedures and methods, including those for controlled substances, chemical immobilization, pharmaceuticals, and interstate transport.
- Some knowledge of federal and state laws and policies regarding migratory birds and endangered/threatened species.
- Skill in use of a personal computer with MS Office or similar software.
- Demonstrated ability to develop positive public relations with various state and federal agencies, universities, and special interest groups on issues concerning wildlife diseases and management.
- Demonstrated ability to manage, including committee leadership, delegation of work, establishing priorities, program review and control.
- Demonstrated ability to communicate effectively, both orally and in writing; solve unusual problems; resolve conflict; train and develop others; prepare long-range management plans; and to manage time effectively.
- A knowledge of wildlife management, biology, and ecology for native and non-native North American species, including the ability to identify their specific requirements, is preferred.
- A Doctor of Veterinary Medicine, including license to practice veterinary medicine in Virginia, or eligibility for license within 6 months of hire. Some work experience with free-ranging and/or captive non-domestic animal species.
- Possession of, or eligibility for, a controlled substance permit with the Drug Enforcement Agency; and possession of, or eligibility for, a valid Virginia driver's license, as occasional overnight travel is required.
- Prefer experience in research and diagnosis of wild animal or bird diseases. Prefer Board certification, or eligibility for certification, by the American College of Zoological Medicine; or Wildlife Biologist certification through the Wildlife Society.

Position Closing

A state application for employment, or a resume and a cover letter must be received at the following address prior to 4PM, October 15, 2004:

Department of Game and Inland Fisheries
4010 West Broad Street
Richmond, VA 23230-1104
ATT: Human Resource Office
e-mail: humanresources@dgif.state.va.us

Visit www.dgif.virginia.gov for a state employment application.

Editor's note

While the closing date for this job will occur prior to the mailing of this newsletter, we elected to post the job opening so that students and other members could better understand what state agencies might be looking for in a veterinarian and what requirements they have for such a job.

Conservation Director
Woodland Park Zoo
Seattle, Washington

Essential Duties and Responsibilities

- Plans, develops and implements a program to identify, research, and address issues affecting the management and conservation of animal species and their habitats.
- Leads the selection of a suite of field-based conservation projects in which the zoo can deepen its investment and impact over the next decade.
- Works with Animal Management curatorial staff and Animal Health staff to link conservation work and findings with activities and program needs of animal collection especially with regard to SPP and TAGs.
- Works with Education staff to help develop messages that will inspire our visitors to care and take actions to help sustain wildlife and their habitats.
- Oversees conservation research grants.
- Serves as liaison to Conservation Committee of the zoo Board of Directors.
- Raises funds in coordination with Development Department to meet program and zoo wide goals.
- Conducts independent research and publishes the results.
- Serves as a member of the zoo's Executive Leadership Team.
- Manage an annual Conservation Department annual budget of approximately $500,000 and a small staff.
- Perform other duties as assigned.

Qualifications

To perform this job successfully, an individual must be able to perform each essential duty satisfactorily. The requirements listed below are representative of the knowledge, skill, and/or ability required. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions.

- Advanced knowledge of international conservation efforts and various scientific issues surrounding those efforts.
- Ability to clearly articulate a vision of what a zoo's responsibility and opportunity for wildlife conservation in the future ought to be, and to provide the leadership required to muster board and staff support of that vision.
- Demonstrated success in building partnerships with individuals, local communities, and others to develop and implement conservation programs.
- Interpersonal and professional skills necessary to establish and maintain strong working relationships with zoo departments, staff members, board members, volunteers and community organizations and individuals.
- Demonstrated success in raising funds to support research and conservation projects.
- Research experience and a record of successful publication in related fields.
- Experience with research projects that help solve conservation problems.
- Zoo, aquarium or museum experience is preferred.
- Demonstrated ability to assist organizations through time of organizational change.
- At least 3 years of direct supervisory and management experience of other professional staff.
- Ability to work with a large number of people in a team-oriented culture. This includes leading teams in solving problems, setting priorities, meeting deadlines and implementing programs.
- Excellent management, organizational and problem solving skills.
- Strong proficiency in both written and oral communication skills.
- Competence and proficiency in the use of computers and a wide variety of software programs, particularly as related to conservation work.
- Commitment to the mission of the zoo and the institution's Core Values.

Application for Employment

http://zoo.org/zoo_info/involved/cons_dir.html

UPCOMING MEETINGS

2004

Nov 6–7	13th Annual Mid-Western Exotic Animal Medicine Conference, Manhattan, KS; for more information contact James Carpenter at T: (785) 532-5690; F: (785) 532-4309; e-mail: carpentr@vet.k-state.edu

2005

May 14–18	36th Annual International Association of Aquatic Animal Medicine Conference, Seward, AK; for more information: http://www.iaaam.org/
Jun 26–Jul 1	International Wildlife Disease Association Conference, "Wildlife Health in a Shrinking World: Ecology, Management and Conservation Implications," Cairns, Australia; for more information: http://137.227.245.195/Meetings.htm
Jul 12–14	Second International CWD Symposium, Madison, Wisconsin; For more information: http://dnr.wi.gov/org/land/wildlife/whealth/issues/CWD/conference.htm
Jul 15–19	19th Annual meeting of the Society for Conservation Biology, Universidade de Brasília, Brasília, Brazil; for more information: http://conbio.net/SCB/Activities/Meetings/
Sep 25–29	12th Annual Conference of The Wildlife Society, Madison, Wisconsin; for more information: http://www.wildlife.org/
Oct 16–21	Annual Meeting of the American Association of Zoo Veterinarians hosted by the Henry Doorly Zoo, Omaha, Nebraska; for more information: http://www.aazv.org/meetings.htm

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.

AMERICAN ASSOCIATION OF WILDLIFE VETERINARIANS

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University of California
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FALL 2004

ADDRESS SERVICE REQUESTED