



NEWSLETTER

April 2019

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An Interview with Lisa Wolfe

Lisa Wolfe was the 2018 winner of the Tom Thorne and Beth Williams Memorial Award. She is a veterinarian for Colorado Parks and Wildlife, and is well known and respected for her work in wildlife health. She has over 50 peer-reviewed publications, which have over 1500 citations, and they encompass a wide range of species and focus, including her work on black bear, several ungulates, prairie dogs, and more with disease and anesthesia methodology predominating. She has also been integral in the implementation of successful methods of reintroduction for the critically endangered black footed ferret population. To learn more from this brilliant and successful veterinarian, we asked a few questions:



AN INTERVIEW WITH LISA WOLFE

1. What is your background – schooling, personal experience, etc – that helped prepare you for the career you have?

As a Colorado native I grew up hiking, biking, camping, and loving the outdoors. I also rode horses (a lot). My first true wildlife experience was raising pronghorn fawns as an undergraduate. I received my DVM as well as my Masters in animal nutrition from Colorado State University. After graduation I spent over 10 years in small and exotic animal practice where I learned clinical skills. An early stint in shelter medicine with the Boulder Humane Society was especially useful in developing my surgical skills and a good command of practical “field medicine” techniques. In time I was fortunate enough to be hired on as a field veterinarian for a post doc fellow at CSU — there I got on-the-job training in wildlife capture. From there I was hired on by Colorado Division of Wildlife (now “Parks and Wildlife”) as a field veterinarian. My husband also works in our agency’s wildlife health program and we often team up for projects—yes my husband and I actually work well together.

2. Please explain your title and the primary goals of your work.

As the terrestrial field veterinarian for Colorado Parks and Wildlife my primary goal is to conduct or facilitate humane and safe capture, handling and sampling of wildlife for research and management purposes. I also do independent research, primarily devoted to improving capture methods and developing or evaluating field tools and techniques. I’m also the clinical veterinarian for our captive wildlife research facility.

3. What has been your favorite project thus far?

There have been several favorites for both captive work at our research center as well as field work with moose, elk, deer, sheep, bears, lions, lynx and foxes. Each species and each habitat has so much to teach us and the work can be very humbling. I love working bear dens in the winter. There is nothing like snowshoeing in the Rocky Mountains and then digging through snow down to a warm den with a big sleeping black bear. Squeezing through rocks or under tree roots to get to the den is one of the times being a small woman is a big advantage. I have also had the privilege to raise and train three captive mountain lions.





4. What changes have you observed throughout your career in wildlife medicine and disease management?

More drug options and better delivery systems are available. We also have a better understanding of the various ways drugs can be used to aid wild animals in the course of capture and handling. And the staff keeps getting younger.

5. What would you like to see change next?

I would like to see improvements in radio tracking. Especially more attention paid to developing lighter weight collars with better ergonomic design. I have seen a number of badly fit collars over my career and we owe it to these animals to track them without impacting them. I also hope we give more thought to the impacts of capture, handling, and telemetry on wild animals because these are not completely benign activities.

6. What are your priorities in the next 5, 10, or 15 years?

To have more adventures with my family and friends.

7. Do you have any tips for dealing with multiple agencies to work together for a common goal?

We have had good luck working with multiple agencies. I think the key is good communication and respect for the goals of each agency.

8. What advice would you give to students/young professionals trying to follow in your footsteps?

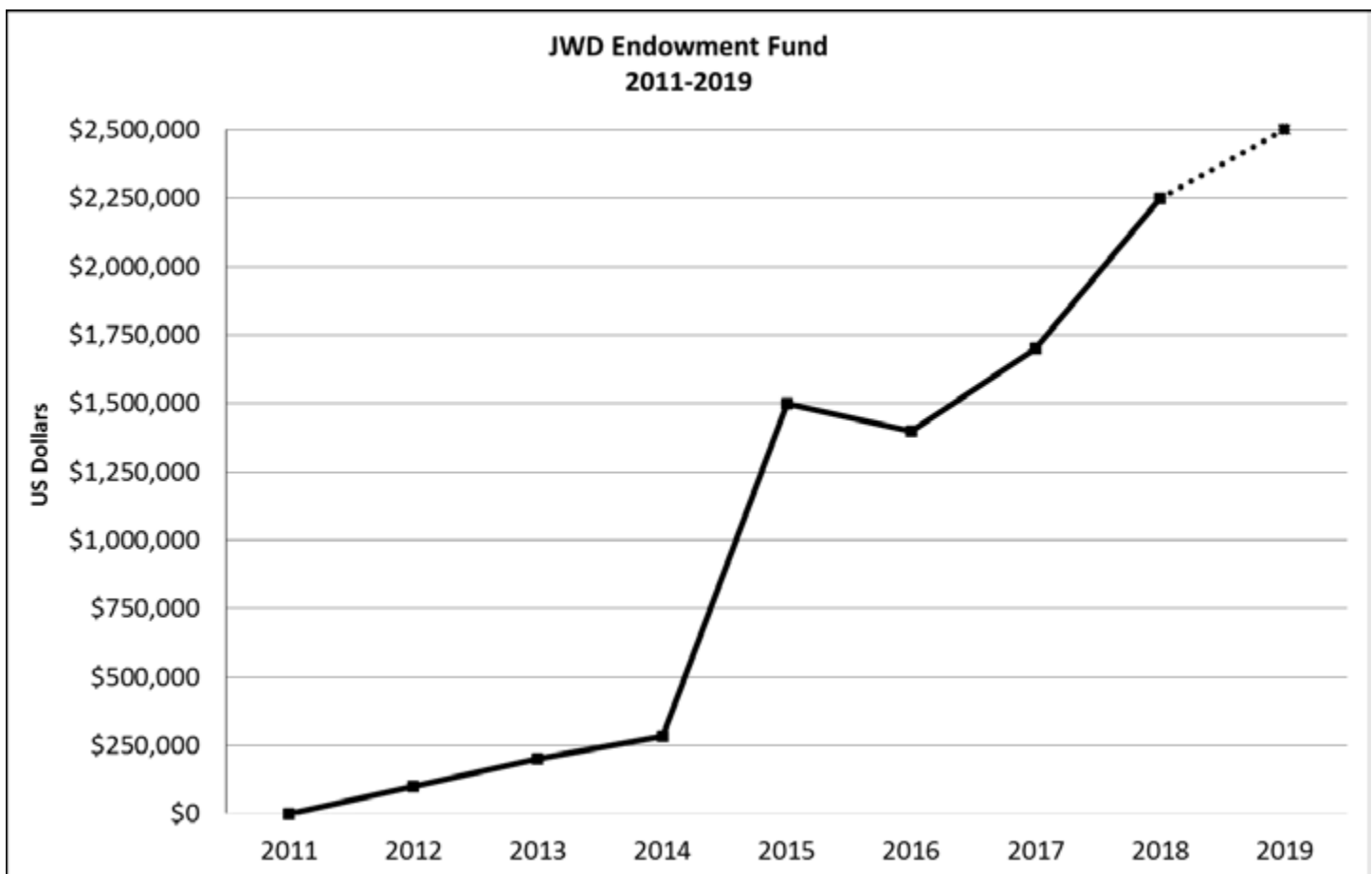
Don't wait for anyone to hand you the job you are looking for. Just jump in and make it happen. Also, don't take yourself too seriously—this is a very humbling job.

2019 WILL BE THE YEAR!

We are getting very close to the goal WDA set about 10 years ago, that of raising \$2.5 million to endow the costs of publishing the *Journal of Wildlife Disease* and continuing to allow free access to it in 124 nations with medium to low per capita GDP. The income from this endowment will provide WDA with a third steady source of funding that will allow us to add member benefits and programs in the future, while:

- Keeping all current member benefits
- Keeping membership costs low
- Supporting students
- Supporting grants and international Sections

Wouldn't you like to be part of this landmark event ? If you contribute now, your name will be on the donors list that will appear in *JWD* for 5 years. You can give back to wildlife health and conservation, and help WDA accomplish the greatest financial goal it has ever set. One that benefits the entire one health community.



Another way you can help is to find a sponsoring agency, organization, company or university (contact jkgaydos@ucdavis.edu).

We thank all who have donated so far! *

If you haven't, there are still about 9 months to help WDA reach its greatest goal ever, so please consider being part of it ... or maybe increasing your part ?

Cumulative gifts totaling...

\$1000 and above

E. M. Addison, AAWV, Anonymous, R. Clark, T. J. DeLiberto, A. Fairbrother, IWVS, D. Jessup, W. B. Karesh, L. Locke, J. Mills, C. Pinney, S. Raverty, V. R. Simpson, H. Schwantje, USDA-APHIS-WS, Wildlife Conservation Society, C. Wyckof,

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N. E. Anderson, E. Agren, A. Aguirre, M. Anderson, N. Anderson, C. T. Atkinson, L. Baeten, P. Barrows, S. Bender, R. A. Bloch, T. Bollinger, D. Bourne, D. Buckle, K. Burek, M. K. Campbell, S. Carver, K. Castle, M. Cattet, D. G. Constantine, T. Cornish, J. Ducrocq, B. Elkin, D. Gavier-Widen, J. K. Gaydos, J. Gillespie, C. Gillin, D. Goeldner, B. Gonzales, T. Grillo, C. Harms, C. Harris, S. M. Hernandez, C. Hilton, T. Hull, K. Huntington, S. W. Jack, A. Justice-Allen, K. Keel, T. G. Ksiazek, T. Kuiken, J. Langenberg, D. Ley, K. Mansfield, I. Marco, J. Mazet, D. McAloose, M. Miller, E. Miller, S. Ostrowski, A. Peters, T. Portas, M. Poss, J. Powers, K. Prager, Ranjibar Orthodontics, A. Reiss, C. Rennie III, T. E. Rocke, J. J. Root, K. Rose, S. Schafer, M. Souza, D. Spratt, M. Stoskopf, E. Thompson, M. Uhart, L. Uhazy, C. Van Riper III, Veterinary Information Network Inc., R. Wack, P. Whiteley, Wildlife Health International, B. Wolfe, P. Wolff, S. Wright, B. Zimmerman

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M. Alley, A. Atkins, K. Bagamian, A. Ballman, T. Barnes, V. Beasley, P. Belinsky, T. Bellamy, L. Berger, T. Besser, S. Bjorck, A. Bjornstad, P.

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Currently approximately 15% of WDA members have made one or more gifts to endow production of the *Journal of Wildlife Diseases* and its free distribution in developing nations. If you have not yet made a gift toward the sustainability of *JWD* in perpetuity, please consider doing so now. If you would like to make a donation of stocks or bonds, or discuss options for making similar donations, please email Angela Behm through abehm@jandsadvisers.com or call her at 608-662-7500.

*Note: If you have donated and do not see your name above, or we have gotten your total giving as of March 1, 2019 wrong, please notify us at jkgaydos@ucdavis.edu and we will correct our records.



DANNY B. PENCE 1943 – 2019

Dr. Danny B. Pence, a former Editor for the *Journal of Wildlife Diseases (JWD)*, passed away on 14 February 2019 in Cookeville, Tennessee, following a long-term illness. Few members of the Wildlife Disease Association (WDA) have made the number of contributions to and have had an impact on the society that Danny Pence did. In 1982, Dan began his service for WDA, serving on the Editorial Board of *JWD* through 1986. In that year, he was elected to his first term as Editor of *JWD*. He guided the journal through many changes until he stepped down in 1991. Not to let his service sit on the back burner, the following year Dan co-chaired the WDA annual meeting in El Paso, Texas, and then in 1993 served as the WDA Awards Committee Chairperson. From 1993 through 1996 he served as a WDA council member at large. Then in 1996, Dan unselfishly accepted a second 5-year term as Editor of *JWD*, serving until 2001.

During his two terms as Editor of *JWD*, Dan mentored a number of new authors and encouraged them to continue contributing to the *JWD*. One effort that Dan made as *JWD* editor was to encourage more lengthy articles, thus resulting in the submission of more ecological studies of wildlife diseases. These efforts certainly benefited following Editors of the journal. Dan always saw the bigger picture of any wildlife disease issue, and with a twinkle in his eyes always asked seminal questions that helped to refocus issues, especially during Council Meetings.

Dan was born in Louisville, Kentucky in 1943. He spent much of his childhood exploring the natural history on the land of his family farm. It was here that he developed a deep interest in the insect world, and this interest followed him throughout his life. Dan was a well-known parasitologist, who had a focus on wildlife diseases. His education began in Kentucky where, in 1965, he received his B.S. in Chemistry and Biology from Western Kentucky State College. Dan then began his focus on parasitology receiving his M.S. in 1967 (Parasitology) from Louisiana State University Medical Center, and subsequently a Ph.D. in 1970 (Parasitology, Microbiology, Invertebrate Zoology) from Louisiana State University Medical Center. His postdoctoral training in 1970 included Traineeship in Tropical Medicine and Parasitology at Louisiana State University International Center for Medical Research, with training in Costa Rica, Panama, and Guatemala. During 1971–1972, he was a research associate with the Department of Tropical Medicine and Parasitology at Louisiana State University Medical Center.

In 1973 Dan secured a position as Assistant Professor, Department of Veterinary and Zoological Medicine, Texas Tech University Health Sciences Center, Lubbock, Texas (TTUHSC). He was also appointed as a Research Associate in Natural History, with The Museum of Texas Tech University. While at TTUHSC, he taught courses to medical students including parasitology, microbiology, general pathology and systems

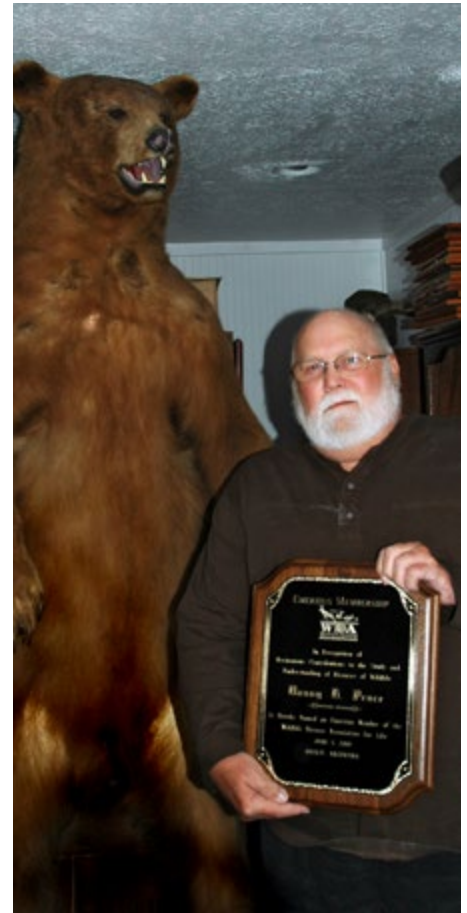
pathology, and diagnostic and clinical parasitology. In addition, he taught at TTU College of Arts and Sciences (helminthology) and TTU College of Agriculture (wildlife diseases and several special problems courses focused on wildlife diseases). He authored/co-authored 153 scientific articles, 10 book chapters, and 48 presentations reaching regional, national, and international audiences as well as 18 popular articles. He served as chairperson for 10 graduate students and was a member on 25 graduate committees.

Because of his interest in parasites, Dan also was involved with related professional societies including his service with the American Society of Parasitologists, where he was on the Editorial Board of *The Journal of Parasitology* (1990–1995), Nominating Committee (1982, 1989), Priorities Committee (1991–1995), and the Business Advisory Committee (1992–1995). In addition, Dan served as the Nominating Committee Chairperson of Southwestern Association of Parasitologists (1987), Representative to American Society of Parasitologists Council for Southwestern Association of Parasitologists (1990–1994), Editorial Board for the *Proceedings of the Helminthology Society of Washington* (1984–1989), Editorial Board of the Bulletin of the Society for Vector Ecology (1986–1996), Editorial Board of *Comparative Parasitology* (1999–2002), and Affiliate Editor of *Animal & Human Health* (1987–1988), among others.

In addition, Dan was an excellent artist and used his artistic abilities to draw newly found species of helminths and arthropods. Many of his hand drawings of these species were published in a variety of scientific publications.

Dan retired in 2008 as professor from Texas Tech University Health Sciences Center in Lubbock, Texas and moved to Tennessee with his wife Cynthia. He kept up his medical entomology collection while in Tennessee and continued writing popular articles about his bear hunting activities. Dan also liked to saltwater fish and throughout his adult life collected rocks and mineral spheres (geodes). Dan was an excellent cook and enjoyed carpentry and gardening. During his retirement in Tennessee, Dan also resumed his painting focusing on pastel landscapes. The WDA was certainly fortunate to have Danny Pence as a member and benefited greatly from the many years of his service to our organization. To acknowledge his work with the WDA and his lifetime accomplishments in contributing to the study and understanding of wildlife diseases, Dan received the WDA's Emeritus Membership award in 2010.

Contributors: Alan M. Fedynich, Charles van Riper, III, Richard G. Botzler, Donald J. Forrester, and Scott E. Henke



WDA-Asia Pacific (WDA-AP) is a new section just established January 1, 2019. Before then, WDA Asian members had an organizational meeting on October 31, 2018, during the Asian Society of Conservation Medicine (ASCM) and WDA-Australasia Joint Annual Meeting in Bali, Indonesia. The WDA Vice President Carlos Das Neves and many WDA-A members were there. Thanks to Carlos, Pam Whiteley, and Peter Andrews for their support.

Currently the WDA-AP officers are as follows, Chair: Dr. Tokuma Yanai (Japan), Vice Chairs: Dr. Toshio Tsubota (Japan) and Dr. Boripat Siriaronrat (Thailand), Secretary: Dr. Chen-Chih Chen (Taiwan), Treasury: Dr. Ho-Seong Cho (Korea), Auditor: Dr. Joko Pamungkass (Indonesia), Student Representatives: Dr. Alice Lau (Malaysia) and Newsletter Editor: Dr. Liesbeth Frias (Chile/ Japan).

The goal of WDA-AP is to establish a network for wildlife health in Asia and the Pacific regions. We also have cooperation with ASCM, Japanese Society of Zoo and Wildlife Medicine (JSZWM) and other related organizations for conservation medicine including wildlife, as well as “One Health” education.

We are trying to host some workshops on Asian wildlife conservation; (i) Asian Zoo and Wildlife Forensic Workshop at ASCM (Cambodia in 2019), (ii) Asian Wildcat Conservation Workshop with ASCM (Taichung in 2019), (iii) One Health

Educational Workshop for Students with ASCM (Cambodia in 2019)

The Second Asian Wildcat Conservation Workshop by WDA Asian members

Asian countries have several species of endangered wild cats including leopard cats and clouded leopards. To exchange and share the information as well as the research work on conservation, ecology, pathology, management, and others of wild cats, WDA Asian members started the workshops on Asian wildcat conservation from 2017. In 2017 the first workshop for Asian Wildcat Conservation joined with Tsushima Forum 2017 was held. Tsushima Island has one of two endangered leopard cat habitats in Japan. In 2018, the second workshop was held in Iriomote Island which is another habitat of leopard cat in Japan. From 2019, WDA-AP will organize the first in series of annual workshops for Asian Wildcat conservation. The 3rd Workshop for Asian Wildcat Conservation will be in Taiwan in 2019, and the 4th, in 2020, is planned for Vietnam.

Outline of the 2nd Asian Wild Cat Conservation Workshop in Iriomote was as follows:

Twenty-five participants from Japan, Korea, Thailand, Taiwan, Vietnam, Sri Lanka, and Malaysia joined the meeting in Iriomote Island from December 8-11, 2018. We organized the leopard cat habitat tour, visited the National Iriomote Wildlife Conservation Center, and had a session with the citizen participation on Iriomote



Leopard cat conservation at Uehara Elementary School. During the session with the citizen participation, the pupils of Iriomote Yamaneko (Leopard Cat) Club for Nature Observation had an excellent presentation on their activities for Iriomote wildcat conservation. Our participants and the representatives from Iriomote gave excellent presentations covering many aspects, such as

the nature of Iriomote Island, about the Iriomote leopard cat, breeding of leopard cats in Japan, citizen awareness survey, conservation efforts and so on. The international participants also shared their work on wildcat conservation status in each respective country. We also organized many get-together sessions for networking and information exchange.



Iriomote Island and Iriomote Leopard cat



Self-introduction during the welcome party.



Habitat tour including the place of the first discovery of Iriomote wildcat.



A lecture on "What is Iriomote Leopard cat?" by Mr. Kitaura at the Iriomote Wildlife Conservation Center.



Keynote lecture on Iriomote wildcats and nature of Iriomote by Dr. Naoki Suzuki and Dr. Hironori Toyama.



Information exchange meeting at Uehara Elementary School between workshop participants and local people and children who were working for Iriomote Wildcat conservation.



Nature Observation at Urauchi River where was a nice spot to experience the biodiversity.



Farewell Party at the Guest House of Ryukyu University.



The 3rd Asian Wildcat Conservation Workshop

The 3rd Workshop will be held in Taichung in Taiwan during December 7-9 in 2019. Professor Dr. Liang Kong Lin at Tunghai University will be co-host of the workshop in Taiwan.



Dr. Liang-Kong Lin and Tokuma Yanai (February 28, 2019).

WDA-AP Annual Meeting 2019

WDA-AP will have 2019 Annual Meeting during the Asian Society of Conservation Medicine (ASCM) Annual Meeting in Phnom Penh in Cambodia as a jointed or satellite session. Shortly ASCM and WDA-AP will announce the 2019 annual meeting in Cambodia.



DO YOU WANT TO BE A WDA CELEBRITY?

Calling all wildlife folks! The WDA Wildlife Veterinary Section is putting together a video of YOU, our membership! **THIS IS NOT JUST FOR VETERINARIANS! All members qualify.**

We want short videos (1-2 minutes) of you and your staff/team doing what you do best—working with, researching, or helping wildlife in all shapes and forms.

We will compile this into a 1-3 min video that we will use on the WDA website, and social media to educate others about what wildlife professionals do. When filming, keep in mind that we will likely only keep a few seconds of your video. We would like to have as many members participate as possible. Keep the mission of the WDA in mind—*“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.”* How is your work illustrating the mission?

What makes a good video? Videos of you, working outdoors with wildlife; images that are not likely to cause controversy; good lighting, balanced composition, clear/simple images. Indoor work is also an important component of what we do, but more attention to lighting is needed.

A subset of you will be contacted to add specific content. For example, we may ask you to please film yourself saying something specific that fits the script of the video.

The people ultimately chosen for this video will receive a prize (TBA) from the WDA WVS. The type of prize will be determined based on the number of people ultimately chosen.

How to Submit:

When do I submit: Please submit videos as soon as possible and as late as May 15th, 2019. As wildlife work tends to be seasonal, don't wait! We want to edit and have the video ready for the WDA

annual conference in August, 2019; however, if a particular field opportunity is likely to happen after this date, please contact us for an extension.

Who do I send it to: Please share your video with Sonia M. Hernandez. It will likely be too big to be emailed, but you can put it on DropBox, Google Drive, etc and share it with us. When you share a video, please send Sonia an email alerting her that you have done so. On the subject heading, please write WDA WVS VIDEO. Sonia's email is shernz@uga.edu.

What format and quality: Most iPhone and other smart phones create video that will suffice for this venture. Any format will work, but we prefer MPG files. Ultimately, we will be choosing videos of the highest quality, which also refers to lighting, composition, colors etc.

How about still images? We will likely end up using still images extracted from videos to fill in material. If you have a good photo of you at work, send it!

What about sound: It is likely that we will NOT preserve the original sound, thus, don't hesitate to submit a good video even if the sound content or quality is not ideal.

What will you do with the videos: The videos will be stored in a server at the Warnell School of Forestry, University of Georgia. Sonia and the Warnell IT team will edit them to fit a script. We will contact you if you are chosen to be in the video. At the completion of the project we will delete/discard all video not used.

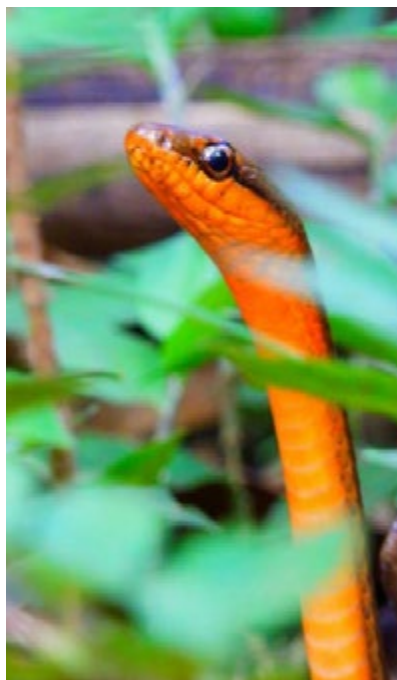
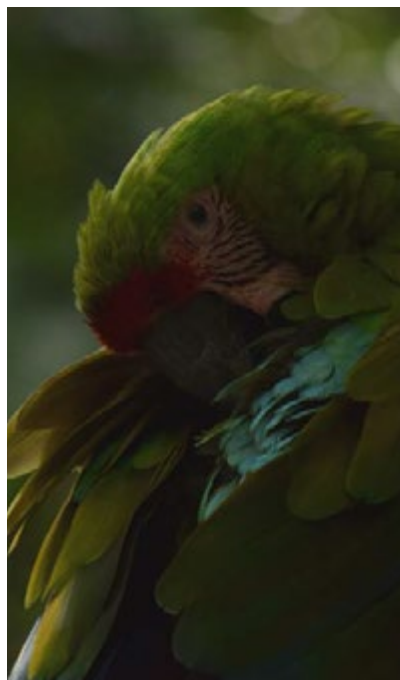
Do I need permission from my boss? We urge you to speak to your institution/agency and make sure that you are permitted to appear in a promotional video conducting professional work. We cannot be responsible for this task. Please do not submit a video if you are not certain that your agency will allow it.



IV Biennial Conference

WILDLIFE DISEASE ASSOCIATION SECTION LATIN AMERICA

Opening bridges for the conservation
of wildlife in Latin America



JULY
16 - 19
2019

SAN JOSÉ
COSTA RICA

EARLY REGISTRATION FEES:

Member - \$160

Student member - \$100

Non-Member - \$200

Student Non-Member - \$150

until - 04.30.2019

TOPICS:

Conservation Medicine

Diseases Ecology

Ecosystemic Health

One Health

Wildlife Infectious and
Non-infectious diseases



THE ROLE OF THE WORLD ORGANIZATION FOR ANIMAL HEALTH (OIE) IN WILDLIFE DISEASE SURVEILLANCE

How You Can Help

The need to fight animal diseases at a global level led to the creation of the Office International des Epizooties (World Organisation for Animal Health; OIE) through an international agreement signed on January 25th, 1924. The OIE is the intergovernmental organization with 182 Member Countries responsible for improving animal health and welfare worldwide and is the relevant organization for Animal Health to the World Trade Organization. The OIE maintains permanent relations with nearly 75 other international organizations and has regional and sub-regional offices on every continent. The OIE recognizes the threats to public, animal, and environmental health from wildlife diseases and encourages all countries to increase capacity to conduct surveillance, early detection, and initiate appropriate response to outbreaks and spread of diseases in wildlife. Specific activities of the OIE related to wildlife diseases include a standing Working Group on Wildlife to provide the OIE with scientific expertise on wildlife diseases, the development of science-based standards related to disease risks at the interface among wildlife, domestic animals, and humans, support to Member Countries to strengthen their Veterinary Services to protect animal health including aspects related to wildlife and biodiversity, and surveillance of wildlife diseases and notification of animal diseases through the global OIE information systems WAHIS and WAHIS-Wild. In that regard each Member Country is encouraged to appoint a National Focal Point for Wildlife with several responsibilities, including but not limited to:

1. Establish a network of wildlife experts within his/her country or to communicate with the existing network
2. Establish and maintain a dialogue with the Competent Authority for wildlife in his/her country, and to facilitate cooperation and communication among several authorities where responsibility is shared
3. Under the authority of the OIE Delegate of his/her country, to support the optimal collection and submission of wildlife disease information to the OIE through WAHIS (immediate notifications and follow-up reports, six-monthly reports, and annual questionnaires) to enable the OIE Delegate to more efficiently manage his/her OIE Member obligation

Specifically, there are approximately 50 non-OIE listed wildlife diseases of interest (http://www.oie.int/wahis_2/public/wahidwild.php/Diseaseinformation/popup/diseaselist) and the National Focal Point for Wildlife is responsible for submission of the annual voluntary report for wildlife to the OIE concerning any detections of these diseases. The national and international reporting of wildlife diseases is important to build situational awareness regarding wildlife disease and health, build national knowledge capacity, increase coordination among agencies, and integrate wildlife health into other surveillance frameworks. For more information please see the associated OIE infographic (© World Organisation for Animal Health [OIE]), and to report a detection of a wildlife disease of interest please contact your National Focal Point for Wildlife:

Dr. Jonathan Sleeman

OIE National Focal Point for Wildlife for the United States

Center Director

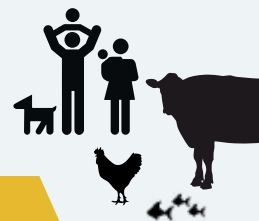
USGS, National Wildlife Health Center, Madison, WI 53711; Tel: (608) 270 2401; Email: jsleeman@usgs.gov

ANNUAL REPORT FOR WILDLIFE: A WIN-WIN INVESTMENT!



AROUND 50 DISEASES:
selection based on their impact
on humans, domestic animals
and wildlife

INFORMATION ON:
disease status, quantitative information,
diagnostic test used and
control measures applied



The collection of data allows
a better response to the following threats:

HUMANS

- Decline in health and wellbeing
- Increase in healthcare costs
- Depletion of protein source for rural communities

LIVESTOCK & AQUATIC ANIMALS

- Economic loss due to a reduction in animal production
- Risks to food security

BIODIVERSITY & WILDLIFE

- Decline in the biodiversity and the health of the ecosystems
- Loss of revenue from eco-tourism

KEY POINTS OF REPORTING

WHO? The Focal Points for Wildlife (FPW)

HOW? Create and submit the Annual Report for Wildlife through WAHIS

WHEN? After the end of each year and pending reports for previous years can always be submitted

WHERE? The information is publicly available at WAHIS Wild, a specific platform separated from WAHIS Interface, to ensure no potential impact on trade

OIE RECOMMENDATIONS

- Network with other wildlife-related organisations in your country to access available data
- Network with the other OIE National Focal Points of your country
- Creation by the Delegate of an individual access for the FPW
- Attendance to the OIE trainings for the FPW
- Report to the OIE any available information



WORLD ORGANISATION FOR ANIMAL HEALTH
Protecting animals, preserving our future

www.oie.int/wahiswild





68th Annual International Conference **WILDLIFE DISEASE ASSOCIATION** August 4-9, 2019 | Tahoe City, CA | USA



REGISTRATION NOW OPEN

REGISTER FOR THE CONFERENCE

Early-Bird Registration Deadline: June 15, 2019

WDA 2019 will be held at the beautiful Granlibakken Lodge in Tahoe City, CA. We encourage you to register early to reserve a space at the conference as well as lodging.

Register online at <https://wda2019.exordo.com>

BECOME A SPONSOR

Conference sponsorship helps keep costs as low as possible for attendees, and underwrites participation by students and international colleagues.

As well, it gives your organization or business a chance to share your name and mission with several hundred conference-goers. There are several sponsorship levels and benefits to suit all needs: visit the conference website to learn more.



For more information visit:

<https://wda2019.ucdavis.edu>

SUPPORT FOR STUDENT ACTIVITIES IN 2019

At last August's Council meeting, concern was voiced that the differences between the many (more than 20) smaller student chapters associated with individual educational institutions in North America, and the three large Section based student chapters (Europe, Australasia and Latin America), and real or perceived disparity in funding of the chapters via the current grant process, requires reconsideration and revision. The Student Activities Committee (SAC) is currently working on this.

The student chapter competitive grants process generally takes about 4-5 months and usually begins in November or early December. Due to late elections for Student Member of Council in 2018, thus a late start in various SAC processes, as well as the above, there was no call for competitive student chapter grant proposals in 2018-19.

Because of the above and because the amount of funding for SAC had already been approved as part of the yearly WDA Budget, a consultation between WDA Officers, Executive Manager and SAC chair Marianthi Ioannidis developed a disbursement plan for the budgeted \$5500. The goal, which was to benefit the largest number of student chapters, and largest number of WDA students, resulted in the following decisions:

\$ 1250 will be provided to the Student Workshop and Symposium of European Section of WDA to be held in Lyon, France April 2019. Informal communication with workshop organizers indicated these funds would be very helpful as the budget is currently in a slightly negative balance.

\$ 1250 will be provided to the first ever North American Student Workshop to be held in Davis, CA in August immediately preceding the WDA Annual International Conference. That workshop was also in need of support.

\$750 will be provided to the Latin American Student Chapter to support student attendance at the Latin American Section Conference in Costa Rica in July. The application process, judging and selection of winners will be done by the SAC in coordination with the Latin American Student Chapter.

\$1000 will be provided to the Australasian Student Chapter to support student attendance at the Australasian Section Conference. The application process, judging and selection of winners will be done by the SAC in coordination with the Australasian Student Chapter.

\$1250 will be provided for travel grants for students attending the Annual International Conference in Lake Tahoe, CA August 4-9, the application process for this is being advertised, and the SAC will do the evaluations and select the winners.

Note: The discrepancy between amounts provided to Latin American and Australasian student chapters for conference attendance is a result of significant difference in number of students in those chapters. The Student – Mentor Mixer at the 2019 Annual International Conference in Lake Tahoe has support as part of the conference budget and will not come from SAC funds.

NEW AWARD FOR BEST STUDENT AQUATIC ANIMAL ARTICLE IN *JOURNAL OF WILDLIFE DISEASES*

As part of renewing the MOA between International Association of Aquatic Animal Medicine (IAAAM) and Wildlife Disease Association (WDA) the idea arose of jointly providing an award for the best student authored aquatic animal paper in any previous years *Journal of Wildlife Diseases* (JWD). Both WDA and IAAAM have a strong student mentorship culture, both are international, and both organizations are open to all backgrounds, so have a wide variety of members and students. It was proposed that each organization provide \$750 for a total award of \$1500. WDA Council approved this, as did the IAAAM Executive Board in December 2018.

So, beside similar values, a number of shared members, and a WDA Aquatic Animal membership category that supports that, WDA and IAAAM now have a shared award. Members of organizations that do things together tend to understand and appreciate each other more, so this award is more than just an honor for the recipient, it showcases respect and cooperation between organizations.

With the publishing of JWD 54(4) and end of the 2018 year, implementation was begun. The Student Awards Committee was already well into its yearly cycle and felt they could not take on a new, and as yet somewhat undefined award. Frances Gulland agreed to chair an ad hoc joint committee, and Joe Gaydos and Terry Norton agreed to join her to represent WDA. Allison Tuttle chaired the IAAAM side of the joint committee.

The committee agreed a 'student paper' would be defined as having a student as either first or anchor author, that 'students' did not include post docs, and that, if possible, the award would be given at either the WDA or IAAAM conference, depending on plans of the recipient.

The winner of the new joint WDA-IAAAM award for best student led aquatic animal paper published in *Journal of Wildlife Diseases* in 2018 is **Jason Ferrante for Development and Validation of Quantitative PCR Assays to Measure Cytokine Transcript Levels in The Florida Manatee (*Trichechus Manatus Latirostris*)**, Jason A. Ferrante, Margaret E. Hunter and James F.X. Wellehan, JWD 54(2): 283-294. Our understanding is that Jason will be attending the WDA conference in California to receive the award.

It should be noted that Frances Gulland has been the Assistant Editor for the selection of Aquatic Animal articles from JWD for five years and knows these articles and authors as well or better than anyone. Despite a heavy schedule that included dealing with retirement as head veterinarian at The Marine Mammal Center after 25 years in that role, she screened all the 2018 Aquatic Animal papers (approximately 50) for those authored by students in only about a week. She has been an important part of the glue between WDA and IAAAM and deserves special recognition. Maybe this new award should be called 'The Franny'?



WDA Australasia 2019

Little Swanport, Tasmania

The next Wildlife Disease Association Australasia (WDA-A) conference will be held at **Gumleaves Bush Holidays** in Little Swanport, Tasmania from the 29 September until the 4 October 2019. Registration to open in mid-late April - Watch this space!

SALMONELLA HESSAREK FROM STURNUS VULGARIS IN NORTH ITALY



Salmonella enterica, serotype Hessarek represents an unusual serotype isolated for the first time in the 1950's from a common raven

(*Corvus corax*) in Iran (Neel et al. 1953). Thereafter, numerous outbreaks of septicemic salmonellosis occurred in starlings (*Sturnus vulgaris*) in Europe (Singer et al. 1977). In central Italy two outbreaks in starlings caused by *S. Hessarek* have been previously reported (Magistrali et al. 2008).

From the middle November 2018 for about a month, an unusual massive mortality of starlings was observed in North Italy, in several sites of Brescia, Mantua and Bergamo provinces, especially close to the Iseo and Garda Lakes. A total of 215 dead starlings were sampled in open countries or in urban areas along the main streets,



below trees, in parks or directly along the shore of the lake, and then analyzed in order to identify the cause of the death.

Necropsy findings were similar for all the examined starlings: good body condition, splenomegaly, liver enlargement with presence of small necrotic foci and hemorrhagic spots.

The birds were submitted for bacteriological examination with standard cultural techniques. Liver, spleen and brain were plated onto blood agar and Gassner agar, then incubated at 37°C in aerobiosis for 24h. Specific method for *Salmonella* enrichment isolation was applied from the liver (ISO 17604:2015).

The isolation of typical *Salmonella* sp. colony on agarized medium using direct and enrichment methods both highlight the septicemic nature of the lesions.

The isolated *Salmonellae* were biochemically confirmed with the GnA System (Microgen TM) and then serologically typed as *Salmonella enterica* sub *enterica* serovar *hessarek* (ISO/TR 6579-3:2014). At the moment *S. hessarek* isolates were submitted to genotyping by pulsed-field gel-electrophoresis (PFGE) together and with other collection isolates, for a total of 17 strains.

At the same time, the virological examinations performed (specific PCRs for West Nile Virus, Usutu Virus and correlated Flaviviruses, Avian Flu and Newcastle Disease Virus) were all negative.

Our report confirms the high pathogenicity of *S. hessarek* in starling, whose gregarious behavior further improve the infection spread. This bacteria is considered highly specific for starling and only sometimes able to cause epidemics in other wild birds like the song thrushes and House sparrow (Singer et al. 1977).

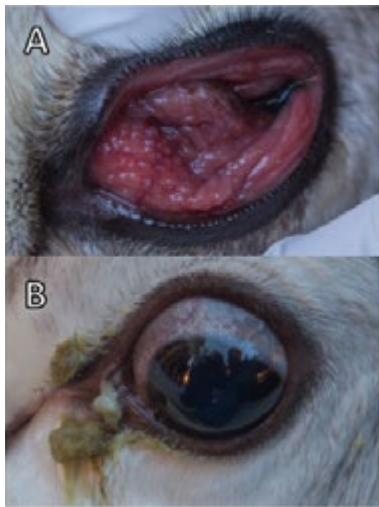


The disease in mammals is quite rare (Handeland et al., 2008; Gomez Laguna et al., 2011), and related to an increasing frequency of isolation in wild birds. *S. hessarek* has been associated from disease in humans only in Israel in 1977. The reports of the ECDC and EFSA published in 2017 did not consider *S. hessarek* among important serotypes for human health. Other investigations are ongoing on wild birds and wild mammals found dead in the involved area.

Christian Salogni, Tiziana Trogu, Mario D'Incau, Alessandra Gaffuri, Carlo Rosignoli, Ana Moreno, Antonio Lavazza Istituto Zooprofilattico Sperimentale Della Lombardia E Dell'emilia Romagna (Izsler), Brescia, Italy

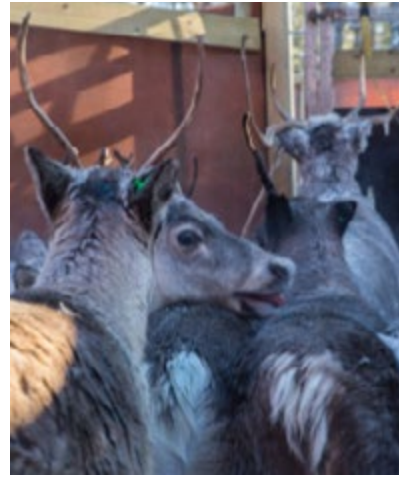
CHLAMYDIA PECORUM ASSOCIATED WITH AN OUTBREAK OF INFECTIOUS KERATOCONJUNCTIVITIS IN SEMIDOMESTICATED REINDEER IN SWEDEN

Infectious keratoconjunctivitis (IKC), the most common ocular disease in wild and domestic ruminants worldwide, has affected semidomesticated Eurasian reindeer (*Rangifer tarandus tarandus*) for over 100 years. Even though the disease is often limited to 1-5 animals displaying mild clinical signs, sometimes large outbreaks affecting tens to hundreds of animals appear. Stress and high animal densities are considered the most important risk factors for the development of clinical signs.



Recurrent IKC outbreaks have been affecting a semi-domesticated reindeer herd in Östra Kikkejaure (Norrbotten county, Sweden) since 2014. The latest outbreak, in winter 2016/2017, was investigated in this study. Clinical findings were in line

with previous reports of IKC in semi-domesticated reindeer and the clinical signs displayed by the affected animals included increased lacrimation, follicular conjunctivitis (A), purulent secretions around the affected eyes (B) and corneal oedema. Laboratory analyses of the samples revealed the presence of Chlamydiaceae in 98.3 % of the samples obtained from the clinically affected animals, but also a high seroprevalence of cervid herpesvirus 2 (CvHV2) antibodies (56.6 %) and the presence of *Moraxella bovoculi* in 35.0 % of the clinically affected reindeer sampled for bacteriological cultivation.



16S rRNA gene sequencing of selected samples revealed that *Chlamydia pecorum* was the dominant Chlamydiaceae species during the outbreak. All affected animals were treated with the long-acting antibiotic gamithromycin

(150 mg/25 kg; Zactran®) and fully recovered from the disease, testing negative for the presence of Chlamydiaceae DNA by PCR 16 days and three months after the initial treatment.

For the first time, *Chlamydia pecorum* was identified in semi-domesticated reindeer, and the involvement of Chlamydiaceae in a clinical outbreak of IKC is reported. The CvHV2 seroprevalence (56.6 %) and the data obtained from a previous outbreak in 2014 (95.8 % seroprevalence and 100 % CvHV2 prevalence by PCR) also suggest the involvement of the reindeer alphaherpesvirus in the recurrent outbreaks.

Javier Sánchez Romano UiT The Arctic University of Norway. Manuscript under review in Frontiers in Veterinary Medicine – Veterinary Infectious Diseases. Co-authors: M. Leijon, Å. Hagström, T. Jinnerot, U.K. Rockström & M. Tryland

STUDENT NEWSLETTER APRIL 2019

Dear International Students,

We are very happy to share with you some news concerning the Student Section. First of all, please keep in mind that the **applications** for the **Student Travel Grant** for the **2019 WDA Annual International Conference near Lake Tahoe, California** are now officially open. The deadline for submission is 15th April, all information can be found here: <https://wildlifedisease.org/wda/STUDENTS/StudentAwards.aspx>

The applications for 2019 AAWV Graduate Student Scholarship Award Competition are running as well and will be accepted until 3rd of May 2019 and can be found on the same website page.

We already wish you good luck!

Congratulations to **Chris Cleveland** from University of Georgia and SCWDS, the winner of the WDA 2019 Student Research Recognition Award. And to **Kaylee Byers** from University of British Columbia, and **Viviana Gonzalez-Astudillo** from University of California-Davis and CAHFS, winners of the WDA 2019 Student Scholarship Awards. Thanks to **Tiggy Grillo** and the **Student Awards Committee** for their hard work in judging the *many* excellent entries!

Regarding the **upcoming international conference in Tahoe City** (<https://wda2019.ucdavis.edu/>), the Student Activities Committee will be in charge of the Photo Contest and the Student/Mentor Event in collaboration with the local student chapter. All info for the photo contest can be found here: <https://wda2019.ucdavis.edu/photo-contest-registration> All profits from the photo contest and the auction go to support WDA student activities. The Student/Mentor Event will be held on Monday, August 5. We are looking forward to meeting you there and having a look at your talented pictures!

Let's have a look now on the worldwide student community:

Europe:

The **7th EWDA Student Symposium** "Conflict or Coexistence: Facing the Human Wildlife Interface" is coming very soon! You can still register for the event and join us in Lyon (France): <http://conflict-or-coexistence.com/>



If you're attended to one or both events you can join this facebook group to stay up to date:

https://www.facebook.com/groups/2119414294805593/?notif_id=1552422374019761¬if_t=group_r2j_approved

The Belgian PhD candidate Sandro Volpe (University of Liege, Belgium) is telling us his amazing experience in South Africa, you can have a look on his travel diary. He will be happy to answer to all your questions!



A journey in the Limpopo province (South Africa): Travel Diary

As many vet students are, I'm thirsty of curiosity about animal behaviour in its environment, interactions within it and with other species, like predators or other threats : diseases, vectors-borne diseases, and so on. That's why I always try to add a "vet mission" to my holidays.



Pregnancy diagnostic on Cape buffalo

In this context, I had the opportunity to visit the beautiful country of South Africa at the beginning of New Year 2019. More than a "simple" tourist trip around the countryside (Johannesburg to Cape Town by driving, alongside the Indian and Atlantic Oceans), I profited from 5 days being in the region of the Kruger National Park to follow a wildlife vet and a private game park owner. Many days in the wild, working and growing in the South African bush was a wonderful experience for me. The programme gave me the opportunity to follow the daily work of a Game Park Owner with his veterinarian through anti-poaching missions, daily observation and care of wild animals (injuries due to fences, for instance, or abnormal mortality). In this kind of experience, you can learn about wild animal population by monitoring, protected area management, field disease investigation, human-wildlife interface, wildlife crime, forensic and wild animal contention and anaesthesia. I actually learned that in South Africa, like in border countries, private game parks can have different aims. For some of them, they are hunting areas, but for others, like the ones where I almost spent one week, reproduction is the ultimate goal to rehab and refaun National Reserves which suffer from poaching. In this way, one of the missions was to track and count specific species in restricted areas (White rhinos, Sable Antelope, lions, painted dogs and many others).



Lions tracking

Via this newsletter, I want to share my vet experience and boost the curiosity of the younger because of the critical period we live in (human conflicts, extinctions, pollution, overgrowth population, ...). Being involved in a project, for wildlife in our case, even for a short time, is of strong interest for everyone and for his own education.

With my experience in South Africa, I can invite young scientists (veterinarians, biologists, and other specialists but also common people) to pursue their aims, their dreams and stay curious of the wonderful planet we live in. As Leonard de Vinci said, many centuries ago, "Go into Nature, that's there you will find our future." For me, now it's time to finalize my PhD thesis, but I stay available for this kind of experience.

Rosario VOLPE, DMV, PhD in progress

Faculty of Veterinary Medicine, University of Liege, Belgium. veterinaire.volpe@gmail.com

Southern Africa:

We are pleased to introduce you to the new board of the Southern Africa Wildlife Disease Association Student Chapter (University of Pretoria). We wish them lots of success!

https://wdaamesc.wixsite.com/southernafricaup/board?fbclid=IwAR1vIKObTqBZNYwKeb_1gKiTbo7KjMvjWMw8VvbOtQNXMwKcJTVc5AVLenM

Latin America:

The WDA-LA student chapter is collaborating to the organization of the **One Health Workshop “Wildlife Disease Risk Analysis”** which will be held in Teresina-Piauí (Brazil), on 25th-28 April.

INSCRIÇÕES JÁ DISPONÍVEIS!

SIMPÓSIO EM SAÚDE ÚNICA
DESAFIOS E NOVAS ABORDAGENS PARA AS REGIÕES NORTE E NORDESTE

Site do evento:
<http://simposiosaudeunica.wixsite.com/simposiosaudeunica>

WORKSHOP DE ANÁLISE DE RISCO DE DOENÇAS EM ANIMAIS SILVESTRES

25 A 28 de Abril de 2019
TERESINA – PIAUÍ

Instituições Confirmadas:

Ministério de Saúde
FIOCRUZ
Fundação Oswaldo Cruz

PIBSS

WDA
Associação Brasileira de Doenças de Animais Silvestres

IUCN

SSC
Sociedade para a Conservação das Espécies

CONSERVATION PLANNING

PPGEMA

CRMV-PI

USA:

The first North American Student Workshop “Sustaining Healthy Wildlife” will be held on the UC Davis Campus from August 1st through August 4th, the website is available with a preliminary program: www.wdastudentworkshop.org as well as the facebook event <https://www.facebook.com/events/409212389850295/>

1st North American Wildlife Disease Association
Student Workshop

SUSTAINING HEALTHY WILDLIFE:

Current Approaches and Future
Directions in Conservation Research

August 1-4,
2019



**ACCEPTING APPLICATIONS AT
WWW.WDASTUDENTWORKSHOP.ORG:
February 1, 2019-March 3, 2019**



WDA is all wildlife diseases, all
conservation, all one health, all the time!

Minnesota: The Student Chapter from the University of Minnesota is sharing with us a description of their latest events “Wildlife Veterinary Field Methods trip in Grand Portage, Minnesota”. Keep in your mind they are planning a similar session next summer!

May 16th-17th 2018, the University of Minnesota Wildlife Disease Association student chapter hosted our first Wildlife Veterinary Field Methods trip. This was in collaboration with the Natural Resources division of the Grand Portage Tribal Authority, and our student chapter advisor, Dr. Tiffany Wolf of the Department of Veterinary Population Medicine at UMN. This trip was funded thanks to a WDA student chapter grant.

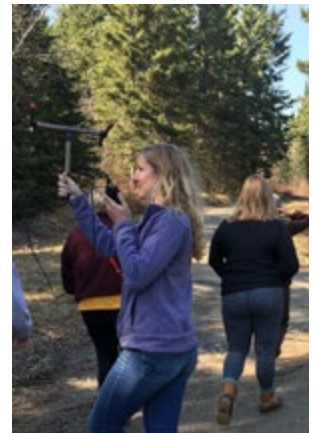
The first day we toured the Grand Portage freshwater fish hatcheries, and reviewed capture techniques for research purposes. We worked through the setup of clover traps, foot holds, and barrel traps, use of for pole-dart chemical immobilization in large mammals.

At the office we worked with GPS data and interpreting movement patterns. Using a recent moose calving as a case study, we suspected calf mortality and initiated a field investigation. We located the radio collars using GPS and VHF, and found clues to diagnose a wolf kill.

The second day we tracked radio collared white-tailed deer and collected fecal samples. These were used for the investigation of *Parelaphostrongylus tenuis*, the meningeal brain worm carried by deer that is negatively affecting Minnesota moose populations. Along the way we came across a pile of adult moose bones, and got to experience the beauty of the Minnesota arrowhead region.

It was a fun, enriching experience, with hands-on activities and a unique opportunity to learn from wildlife biologists and discuss the role of veterinarians in wildlife research.

We are planning another session in August/September 2019!



Michigan: we are happy to introduce you to the website of the Student Chapter from Michigan State University <http://msuwda.org/>

Don't forget to check their calendar event! http://msuwda.org/calendar/action~agenda/time_limit~1541394000/request_format~json/

This chapter has been very busy and here are a few pictures from their previous events.



Picture1: tour of the veterinary clinic and amphibian area of the Detroit Zoo with Dr. Ruth Marcec-Greaves to talk about their research endeavors.



Picture2: We collaborated with the One Health club during one health week to put on a series of events, that we promoted by painting the rock



Picture3 And the last two was a panel we co-hosted with the CVM ZEW club, the Bat Association of MSU, and the CVM One Health club talking about the threats from bats and the threats to bats (Rabies and White Nose). With Dr. Allen Kurta and Dr. Kim Signs from the MDHHS.

Pennsylvania: The Student Chapter from the University of Pennsylvania was very busy organizing two major events: a training for PennVet students to assist with long- term rehabilitation of wild turtles, and a two part necropsy lab where students collected samples during the necropsy and then with the help of our anatomical pathologist, students viewed histology slides from the specimens a few days later.

Their events from last semester included a wildlife necropsy wet lab, a lunch talk with guest speaker Dr. Jan Lovy on how climate change impacts the health of fish and a dinner panel where we had a few exotics and zoo veterinarians come in and talk about their work and the steps they took to end up in their current positions.



Pictures Pennsylvania 1 et 2: careers in Wildlife Medicine panel

STUDENT NEWSLETTER APRIL 2019

Australia:

In February, the WDA-Australasia Student Chapter offered the opportunity for five students to attend the Wildlife Health and Pathology Short Course, hosted by the Australian Registry of Wildlife Health in Sydney, Australia. The students that were awarded the scholarship, each submitted an idea they wanted to share with a broader audience:

- Sarah Jean Whaltinez - PhD Candidate, University of Florida, using artificial intelligence to benefit wildlife: Can machine learning be used as a tool for understanding challenges of wildlife in the Anthropocene?
- Stephen Mansour - 4th Year DVM, University of Sydney. What if we could gather, record and share a wildlife patient's history like we do a domestic pet's?
- Erin D'agnese - PhD Candidate, University of Tasmania. Following the microbes: Exploring the intersection of humans, aquaculture and wild predators
- Katy Seddon - 3rd Year BVSc, Massey University. A global online knowledge transfer platform for NGOs: Information sharing for better conservation outcomes
- Jess Winfield - 4th Year DVM, University of Melbourne. Following in New Zealand's footsteps: Can Melbourne eradicate its population of feral newts (*Lissotriton vulgaris*) to safeguard native amphibian health?

Thanks to all the entrants and congratulations again to the students who presented their ideas.

Make sure to follow us on facebook "WDA Australasia Students", go check out our website <https://australasianstudentchapter.weebly.com/> or email us at wdaastudent@gmail.com!



left to right: MC Kimberley Woods, Katy Seddon, Stephen Mansour, Erin D'agnese, Jess Winfield, Sarah Whaltinez

Congratulations to all those Student Chapters for their great work!

Don't forget to join our Facebook group to learn more:

https://www.facebook.com/groups/179217258777710/?epa=SEARCH_BOX

Marianthi Ioannidis, for the WDA Student Activities Committee



Written and compiled by members of the U.S. Geological Survey National Wildlife Health Center - Wildlife Epidemiology & Emerging Diseases Branch.

Controlling invasive corallimorphs at Palmyra Atoll

Beginning in 2007, the U.S. Geological Survey's (USGS) National Wildlife Health Center (NWHC) Honolulu Field Station (HFS) documented the spread of an invasive corallimorph (Order *Corallimorpharia*) on the coral reefs at Palmyra Atoll National Wildlife Refuge, U.S. Minor Outlying Islands. After determining that a wrecked longline vessel on the western shelf of the atoll had contributed to the phase shift from corals to corallimorphs on the atoll, the wreck was removed in 2013 by the U.S. Fish and Wildlife Service (USFWS). Surveys performed in 2016 demonstrated marked declines in corallimorphs near the wreck site but also revealed new infestations to the southwest and increasing encroachment towards a particularly diverse patch of corals located to the east of the island. In 2018, HFS and USFWS initiated treatment trials to test biodegradable toxic paste or hot water to control the corallimorphs. Treatments were successful and, moreover, the treatments had limited to no adverse collateral effects on native biota (clams and corals). The next step is to scale up treatment to medium size areas in preparation for a broader atoll-wide control effort. For additional information contact: Dr. Thierry Work (thierry_work@usgs.gov).

References:

- Work TM, Aeby GS, Maragos JE. 2008 Phase shift from a coral to a corallimorph-dominated reef associated with a shipwreck on Palmyra Atoll. PLoS One. 3: e2989.
<https://doi.org/10.1371/journal.pone.0002989>.
- Work TM, Aeby GS, Neal BP, Price NN, Conklin E, Pollock A. 2018. Managing an invasive corallimorph at Palmyra Atoll National Wildlife Refuge, Line Islands, Central Pacific. Biological Invasions 20: 2197.
<https://doi.org/10.1007/s10530-018-1696-1>.

Canine distemper outbreaks at multiple locations in gulf-coast states

Canine distemper has been confirmed as the cause of raccoon (*Procyon lotor*) and gray fox (*Urocyon cinereoargenteus*) mortalities in multiple suburban areas in Texas and Louisiana between October 2018 and March 2019. The U.S. Geological Survey's (USGS) National Wildlife Health Center (NWHC) received submissions from animal rehabilitation facilities near Houston, Texas, that were receiving multiple calls per week about animals with poor motor coordination and extreme hind-end weakness. Post-mortem diagnostics attributed the deaths to canine distemper in two of five raccoon carcasses and one gray fox carcass. Others were not tested but are believed to have died of the same cause given observed clinical signs and timing of deaths. Concurrently in early February 2019, Dallas Animal Services (promedmail.org alert 20190213.6314579) and the Louisiana Department of Wildlife and Fisheries (promedmail.org alert 20190212.6312349) reported multiple detections of canine distemper in raccoons from the city of Dallas, Texas and South-Central to South-Eastern Louisiana, respectively.

Distemper is a highly contagious viral disease that infects a wide variety of mammals including unvaccinated domestic dogs (*Canis lupus familiaris*). The disease is common and can cause significant outbreaks in susceptible wildlife species (raccoons [*Procyon spp.*], fox [Canidae], skunks [Mephitidae], coyotes [*Canis latrans*], etc.). It is caused by a single-stranded RNA virus in the family Paramyxoviridae that is closely related to the viruses that cause measles and rinderpest. Distemper is usually fatal and can spread quickly in a population when other animals come into contact with the bodily fluids, such as saliva, urine, feces, or respiratory discharge of an infected animal. The clinical signs of distemper mimic rabies and are characterized by fever, emaciation, seizures, nasal discharge, foaming at the mouth, and inflammation of the brain. As distemper affects the central nervous system, infected mammals may also exhibit unusual behaviors such as stumbling and lack of fearfulness. The onset of neurologic signs can cause spasms leading to slight or complete paralysis. While distemper cannot be transmitted to humans, it is extremely contagious to domestic pets, so owners are highly encouraged to vaccinate against it. It is also advised to contact a local veterinarian or wildlife management agency if you encounter an animal exhibiting these unusual signs and behaviors. For additional information contact: Dr. Dan Grear (dgrear@usgs.gov).

For additional information on the USGS National Wildlife Health Center see the following links:

- Main website: www.usgs.gov/nwhc.
- Disease Investigation Services: www.usgs.gov/nwhc/services.
- Report Mortality Events and Submit Specimens: www.usgs.gov/NWHC/submit.

To view, search, and download historic and ongoing wildlife morbidity and mortality event records nationwide visit the Wildlife Health Information Sharing Partnership event reporting system (WHISPers) online database: <https://www.nwhc.usgs.gov/whispers/>