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Newsletter

January 2019



Duck Award Takes a Gap Year

As many may know the WDA Duck Award has a long and distinguished history (which Mark Drew is working on). It has been the companion of many notable WDA members, has assured that many memorable moments and good laughs were not forgotten, and has served to acknowledge the quintessential truth, that we learn more, and faster, from our mistakes, errors in judgement and embarrassments, than from getting everything just right all the time. Duck Award captures the fact that we are all human, and, up to a point, the more human we are, the better we are.

The Duck Award was deeply disappointed that at the 2018 WDA Annual International Conference the consensus was that, despite a few goofs, gaffs and guffaws, there was simply no behavior (seen) that seemed worthy of this august award.

And rather than tarnish 'Mr. Quack', cheapen the award, or hand it over to someone not *really worthy*, it was decided it would be best for all if the Duck Award took a gap year. And here is what has happened so far.....



From Florida the Duck Award traveled to California, and first just decided to chill at the beach.



And there he met a dog friend.



His dog friend invited him to hang out, and they became good buddies.

Mr. Dog even saved his life when he found out he can't really swim.



They get along great until the Duck is overcome by the urge to nest on his head.

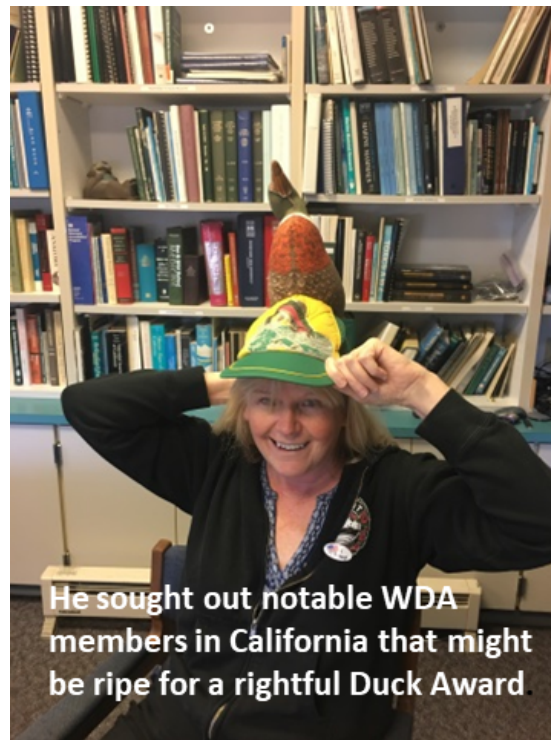


So Mr. Duck hit the road looking
for more suitable nesting
habitats.



But, with Fall coming on he found
them all too cold and wet.





So, my friends, don't be surprised if, when you are at the 2019 WDA Conference at Granlibakken, if you see him, peering around a tree, or lurking in the potted plants. The Duck Award is determined to find a truly deserving winner to go home with. Someone who is very human, laughably human, and proud of it.

Wildlife Disease Association Asia-Pacific (WDA-AP)

On December 6, 2018, the WDA Council officially approved the new WDA Asia Pacific Section. The history of this section's fruition was detailed in the July Newsletter. The mission of this new section, consistent with the mission of WDA as a whole, is "to acquire, disseminate, and apply knowledge of the health and diseases of wild animals in relation to their biology, conservation, and interactions with humans, domestic animals, and the environment." The WDA-AP was formed with the cooperation of the Asian Society of Conservation Medicine (ASCM) and the Japanese Society of Zoo and Wildlife Medicine (JSZWM) as well as other related organizations for wildlife and conservation medicine, as well as one health education.

The goals of this new section are many, and they include:

1. Promotion of wildlife disease surveillance in Asia and Pacific.
2. Networking for wildlife disease surveillance in Asia and Pacific



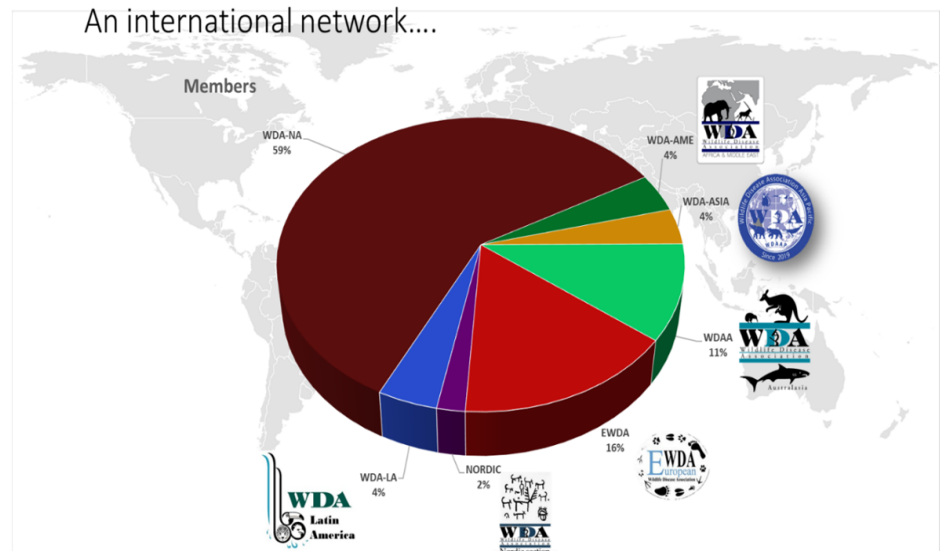
3. Establishment of special expert groups for wildlife disease surveillance in Asia and Pacific such as Rabies, Avian Influenza, Mycobacteriosis, forensic pathology and others
4. Annual joint meeting with ASCM or WDA Australia Section
5. Workshops
6. Hosting a WDA Annual International Conference in future

The geographic boundaries include all countries and territories in the Asian continent as far West as the borders of India, Mongolia and China as well as all countries and territories located in the Pacific Micronesia region: Palau, Federated States of Micronesia, Marshall Islands, Kiribati, Nauru. The Polynesian Sovereign States – Tonga, Tuvalu, and Samoa – affiliation will be determined later.



Wildlife Disease Association

An international network....



Dr. John Fischer to Retire from SCWDS

David A. Jessup
WDA Executive Manager

The Southeastern Cooperative Wildlife Disease Study (SCWDS) was established in 1957 by the directors of 11 State wildlife agencies, primarily in response to large scale white-tailed deer die-offs across much of the Southeast, due to what we now know was epizootic hemorrhagic disease (EHD, then called Killer X). It was the first regional center for wildlife disease research and diagnosis in the US. It pre-dated the founding of the now USGS-National Wildlife Health Center by about 18 years.

The current Director of SCWDS, John Fischer retired January 1, 2019, after 18 years in the position. He is a wildlife biologist and veterinarian with a PhD in pathology. Following are selected portions of a recent conversation with John.

DJ: What did SCWDS look like when it was established under Frank Hayes?

JF: It first was called the Southeastern Cooperative Deer Disease Study, but as EHD mortality declined, Frank quickly recognized that the broader array of species and wildlife diseases could be addressed by the regional structure that had been developed to deal with epidemic deer mortality. SCWDS began receiving a Federal appropriation in 1963 through the Dept. of the Interior. Originally there were 11 States but no territories. USDA-APHIS-Veterinary Services came in as cooperators after SCWDS participated in emergency responses to exotic Newcastle disease in California in the early 1970's and Avian Influenza in the Chesapeake Bay area in the early 1980's.

DJ: What happened when Frank retired?

JF: He was succeeded by Vic Nettles, DVM, PhD who had been one of the lead researchers at SCWDS and he essentially co-directed with Randy Davidson, a PhD parasitologist. They continued the services valued by the States and SCWDS grew to 14 States and Puerto Rico. SCWDS continued receiving support from USDA and USFWS, handling regional disease outbreak investigations, and deer health evaluations on Federal lands under Department of Interior in the region. We saw increasingly sophisticated research and an increased call for training of biologists and professionals.



Dr. John Fischer, at the microscope.

DJ: What services does SCWDS provide?

JF: I'll hit a few of them as there's too many to list here. A general description of SCWDS mission would be providing wildlife health 'research, diagnostics and support services.' State wildlife agencies can submit animals and samples for pathologic examination. In return, they get diagnostic reports that include implications for wildlife populations, domestic animal and human health as well as advice on management. SCWDS conducts applied research of wildlife health issues of concern to the members of the cooperative. Many graduate students who get their practical training and skills at SCWDS end up being hired by State and Federal agencies as wildlife health specialists or veterinarians. In-service training on wildlife diseases and parasites, and other wildlife health-related subjects are provided for biologists of member states. SCWDS also consults with State and Federal wildlife management agencies on policy, public outreach and legal issues. We work within large groups like Association of Fish and Wildlife Agencies (AFWA) and United States Animal Health Association (USAHA) to protect and understand health challenges that involve wildlife, people and domestic animals.

DJ: How has SCWDS grown and changed since you became Director in 2000.

JF: We increased from 13 to 18 States; we've added some and dropped other programs. Grant funded research plays a much larger role than it did years ago. Our budget has grown commensurate with new programs. Administratively we were able to add a number of tenure track faculty positions, technical and administrative staff, and graduate student shared positions. This has been very good for recruitment and retention of the finest people working in the field of wildlife health.

DJ: Do regional wildlife health cooperatives provide a stepping stone for States developing their own wildlife health and veterinary programs, or do they act as an 'easy out' barrier, as some have stated?

JF: SCWDS has really increased the recognition and concern about wildlife health/disease. Right now, ten of our member states have their own wildlife veterinarian and/or wildlife disease programs (up from 0 in the beginning and 2 in 2000), so SCWDS certainly doesn't seem to have retarded employment in, or support for, work in the wildlife health field. The relationship between SCWDS and wildlife health professionals in our member states is mutually beneficial.

DJ: Could you give some examples of SCWDS accomplishments that have benefitted regional wildlife conservation?

JF: On a national level our assistance with confirmation of the diagnosis and yearly mapping of outbreaks of hemorrhagic disease (HD) in deer have made a huge contribution to everyone's understanding of the epidemiology of that disease complex. It has allowed us to recognize exotic serotypes of EHD and bluetongue viruses as well as observe the northern expansion of HD. We have done similar work in diagnosis and coordination of response to Avian Influenza in the Southeastern region, including isolation of some high pathogenicity strains. We have been a regional center for the study of several tick-borne blood parasites that have human health implications. We also work as a regional center for other wildlife parasites, like *Baylisascaris*, the raccoon roundworm that gets into people and other animals and can be pretty devastating.

DJ: What do you see as the greatest wildlife health challenge we currently face?

JF: Without a doubt it is chronic wasting disease (CWD). It's a huge problem that is growing and for which we currently have inadequate laws, policies, and management strategies to contain it. It is complicated by a poor understanding of it by the general populace, and differing information being provided to hunters and others regarding the magnitude of the threat that CWD poses. CWD has the potential to lower wild deer population resilience to other forms of mortality, resulting in decline in deer numbers in heavily infected populations. This has serious consequences for hunting, for people who make a living from hunting-related businesses, and since hunting licenses are a major source of income for many State wildlife agencies, negative implications for wildlife management in general.

DJ: What would you like to say to sum up your feelings about your work with SCWDS?

JF: As Director of SCWDS I have accepted many awards, both national and regional, and I have

accepted them on behalf of everyone who has worked, studied, or collaborated with SCWDS since its founding in 1957 because they all have contributed to the enviable reputation we enjoy today. I feel lucky, honored and privileged to have been part of, and served, SCWDS and our supporters.

DJ: What now?

JF: I have a great passion for wildlife conservation and the people in it, and I plan to work in this area in other capacities. I have too much skin in the game and love for our natural resources to hang it up now.



"SCWDS Mafia," WDA Conference in Arcata 2002



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



SUBMIT AN ABSTRACT

Submission Deadline: February 28, 2019

We invite you to submit abstracts on all topics relevant to wildlife health and conservation. General and concurrent themed oral sessions will be developed based on the focuses and number of abstracts accepted by the Scientific Review Committee. As well, poster sessions will provide additional opportunities for sharing your research.

REGISTER FOR THE CONFERENCE

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.

Submit an abstract and 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>



Opioid Shortage and the Impacts on Wildlife Anesthesia

Sarah Sirica, WDA newsletter manager

In the United States, narcotics are regulated by the Drug Enforcement Administration (DEA) as mandated by the Controlled Substances Act passed in the 1970's. The DEA along with guidance from the Food and Drug Administration (FDA) (on efficacy and food safety) determine where substances are listed on a "schedule" of controlled drugs. These classifications are based on potential for abuse, accepted medical use, safety, and international treaties. Many of the narcotics used in immobilization of wildlife are categorized as schedule II controlled substances, particularly commonly used opioids such as fentanyl.



Google image

At present, there is an opioid epidemic in the United States, leading to a declaration of a public health emergency by the US Department of Health and Human Services in October 2017. Over 130 people die *daily* in the US from opioid-related drug overdoses¹. This crisis is affecting all parts of the nation, and is in the news almost daily, as communities and various organizations struggle to stem the mortality rate and offer strategies to combat the problem. The NIH launched an initiative to promote strategies in three separate areas: overdose prevention and reversal, treatment of opioid-use disorders, and treatment of chronic pain². The FDA published a 6-step plan for what veterinarians need to know about the opioid epidemic³. Meanwhile, politicians and stakeholders are trying to utilize current infrastructure to stem the problem.

The Controlled Substances Act has a mandated quota system, Aggregate Production Quotas (APQ), with the goal to reduce/eliminate diversion from legitimate channels of trade, affecting schedule I and II drugs. This quota system determines supply by allowing only a certain amount of production from various manufacturers. For 2018 there was a 20% reduction in opioid production mandated by the APQ. At the same time, Pfizer, a leading pharmaceutical manufacturer, had to decrease production during upgrades in a manufacturing plant. One step taken to deal with the shortage was to suspend sales to veterinary distributors until production increases. The DEA later altered the production quota on certain manufacturers to help with the lack of supply, but the availability concerns are not likely to improve until at least a few months into 2019^{4, 5, 6}.

With a public health crisis, changes to manufacturing quotas, and changes to the distribution of opioids, dealing with these shortages have surely affected many facets of veterinary anesthesia. Some of the shortages may be improved in 2019, but perhaps there are long-lasting changes – like the sunset on carfentanyl – that will necessitate changes to various protocols⁷.

There are in fact already signs of adaptation to a new world of opioid availability. In a recent edition of *JWD*, Hansen and Beckmen describe using a BAM (butorphanol, azaperone, medetomidine) protocol for immobilization of caribou, a species which would previously have received carfentanyl with an alpha-2 agonist for immobilization⁸.

Should we be sounding alarm bells, hoarding supplies, and modifying every anesthetic protocol with schedule II drugs? Let's turn to some experts for their opinions:

- *Have you noticed the opioid crisis affecting your job and/or immobilization protocols?*
 - o BL: Thiafentanil and etorphine are inadequate supply. There are no shortages of class 3 or 4 controlled substances for use in zoo and wildlife.
 - o LW: No, we have always followed the strict regulatory requirements in handling and use of potent opioids. We have decreased the use of potent opioids in the field over the last decade for regulatory compliance as well as using other drugs that have improved efficacy for the species we routinely handle.
 - o AJA: The most significant change in Arizona is a requirement for CE on opioid prescribing for all veterinarians. For those that dispense opioids, there are additional reporting requirements but since I don't dispense, that isn't an issue for me.
 - o MD: Assuming that the high potency narcotics are not readily available for human use (or misuse) and are largely only available legally from one compounding pharmacy in the USA (Wildlife Pharmaceuticals Inc), these drugs are affected more by FDA and importation and production issues than anything else. At present, there is only one drug in this group that is available – Etorphine. At present, Carfentanil is no longer available and Thiafentanil is only available with an INAD through Wildlife Pharmaceuticals. That severely restricts the drugs that wildlife people can get access to in this drug class.
- Do you think this will be a long-lasting problem in the US (and internationally)?
 - o BL: No.
- Name one change you have implemented?
 - o LW: Over the last decade we shifted use from the potent opioids to other immobilization compounds such as medetomidine/ketamine as well as investigating and refining combinations such as butorphanol/azaperone/medetomidine (BAM), and nalbuphine/azaperone/medetomidine (NalMedA), which offers the advantage of being completely unscheduled.

- o AJA: When I started with the agency, we were using thiafentanil for some immobilizations on ungulates. With the development of BAM and now NAM, I have been moving the agency away from highly potent opioids. Right now, the only species we would use Thiafentanil on would be elk and only when darting with a transmitter and maybe pronghorn. Usually pronghorn are netted but we occasionally will drug them for transport in a helicopter.
- Where would you recommend people in the field look for guidance in adapting their protocols?
 - o LW: Wildlife Pharmaceuticals is a good resource for drug options and dosing charts as well as contacts with field practitioners. The Journal of Wildlife Diseases has extensive publications on drug options. Examples of record keeping and compliance can be found with WAFWA (Western Association of Fish and Wildlife Agencies) and AVMA.
- Other opinion/ knowledge:
 - o BL: Carfentanil was withdrawn due to pending approval of thiafentanil, and abuse and deaths from illegal Chinese sources, and the fact thiafentanil is a superior drug to carfentanil
 - o LW: BAM has been available for a decade. Also, a new combination of NalMedA (NAM) offers the advantage of being completely unscheduled.
 - o MD: A bigger challenge is the move in the human world to limit prescriptions and use of the low potency narcotics (opioids) that have been used as pain killers for many years. If veterinarians get caught up in this regulatory response, we may or may not be able to use the compounded drugs we get from Wildlife Pharmaceuticals. Changes in prescription laws, patient identification rules, the definition of a patient in the veterinary world (herds, flocks, groups rather than individual animals with ID numbers or names), etc could affect our ability to acquire, dispense and use these high potency drugs. And if that happens, we would no longer have the best drugs for some of the animals that we need to work with, which would greatly impact our ability to provide the needed care and level of care that we can provide to the animals in our charge. The issue is not the opioid crisis itself that affects wildlife people. It's our access to compounded high potency drugs. We may get caught up in state rules that clamp down on opioid prescriptions etc. But we still need to be able to function as veterinarians to take care of the animals we have as patients

Special thanks to the team of expert wildlife veterinarians who were generous with their time and knowledge for editing and answering of questions:

BL: Bill Lance, CEO of Wildlife Pharmaceuticals, INC

LW: Lisa Wolfe, Colorado Department of Natural Resources

AJA: Anne Justice-Allen, Arizona Game and Fish

KB: Kimberlee Beckman, Alaska Department of Fish and Game

MD: Mark Drew, Idaho Fish and Game

- 1 - <https://www.hhs.gov/opioids/sites/default/files/2018-09/opioids-infographic.pdf>
- 2 - <https://www.nejm.org/doi/full/10.1056/NEJMs1706626>
- 3 - https://www.fda.gov/AnimalVeterinary/ResourcesforYou/ucm616944.htm?utm_campaign=8-15-2018-Opioid&utm_medium=email&utm_source=Eloqua
- 4 - <https://atwork.avma.org/2018/02/26/opioid-shortage-expected-to-continue-into-2019/>
- 5 - http://vasg.org/opioid_shortage.htm
- 6 - <https://www.modernhealthcare.com/article/20180414/NEWS/180419944>
- 7 - https://www.fda.gov/NewsEvents/Newsroom/PressAnnouncements/ucm617007.htm?utm_campaign=8-15-2018-Opioid&utm_medium=email&utm_source=Eloqua
- 8 - <http://www.jwildlifedis.org/doi/pdf/10.7589/2017-12-312>

WDA Membership Renewal Time!

Don't wait, please renew your WDA membership now! *Late fees begin January 15*
 You may renew online at <http://wildlifedisease.org/wda/MEMBERAREA/JoinRenew.aspx> or return your completed [Renewal Form](#) along with payment via mail.

Benefits of Membership

- Immediate access to the Journal of Wildlife Diseases
- Weekly 'WDA News and Announcements' email with information on jobs, educational opportunities and now, access to WDA Conference presentations, and our quarterly 'WDA Newsletter'
- Reduced conference registration and JWD author page charges
- Multiple conferences and workshops (at least 3 small, friendly conferences across the globe yearly)
- WDA Website with many free features and member benefits (*out of print texts, the 1950-1975 'Wildlife Disease' collection, gross and histopath slide collections, unique perspective papers published nowhere else, an allometric scaling app...*)
- Electronically accessible membership directory
- Fellowship and collaboration with distinguished peers, a student mentorship program, and now also Facebook, Twitter and Google Group
- Opportunity to contribute to wildlife health, disease discovery, one health and conservation

Congratulations to the six winners of free WDA memberships for the 2019 calendar year!!

They are: Rachel Grey (Sydney, Australia), Christy Wyckoff (California, USA), Camille LeBarbenchon (Reunion Island), Andrew Allison (Florida, USA), Cora Singleton (California, USA), Kami Fox (Indiana, USA).

Everyone who renewed their memberships on or before December 15th were automatically entered into a random drawing.

If you missed out this year, be sure to renew earlier next year!

Questions about renewing? Please contact wda@allenpress.com or call (785) 865-9404.

Awards Committee Call for Nominations 2019



Jim Mills presents Ellis Greiner with the 2018 WDA Emeritus Award

The WDA Awards Committee is seeking nominations for recipients for two WDA awards to be presented at the 2019 annual meeting. The names and purposes of these awards are:

- a) The Ed Addison Award is the highest award of the Wildlife Disease Association. Its purpose is to honor a WDA member of long standing who, by his/her outstanding accomplishments in research, teaching, and other activities, including participation in WDA affairs, has made a noteworthy contribution furthering the aims of the WDA.
- b) The Emeritus Award: Emeritus status is an honorary category of membership awarded by Council to members of the WDA who have retired from their profession and who, in the opinion of Council, have contributed significantly to the study of wildlife diseases. Emeritus Award recipients are full voting members who receive the *Journal of Wildlife Diseases* without further payment of dues.

These awards are the way the membership recognizes and encourages those WDA members who have "gone the extra mile" to support and contribute to WDA and its goals. Although the award need not be presented every year, we strongly encourage you to consider nominating potential recipients that you believe are deserving. The closing date for receipt of nominations by the Awards Committee is March 15th, 2019. But *please* don't wait until the last minute.

Documentation should include the following for each nomination:

- a) Letter of nomination that will specifically address the selection criteria for the specific award that are not otherwise represented in the candidates CV. Criteria will include:
 - 1. Ed Addison Award:
 - a. Long-standing member of WDA.
 - b. Demonstrated significant contributions to the field of wildlife disease research or management.
 - c. Significant contributions to WDA
 - 2. Emeritus Award:
 - a. Candidate must be retired.
 - b. Demonstrated significant contributions to the field of wildlife disease research or management throughout career.
- b) Curriculum vitae or equivalent.

Please email nominations and documentation to the Chair of the WDA Awards Committee, Jim Mills (WildlifeDisease@gmail.com)



IV BIENNIAL CONFERENCE WDA - 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

TOPICS:

Conservation Medicine

Disease Ecology

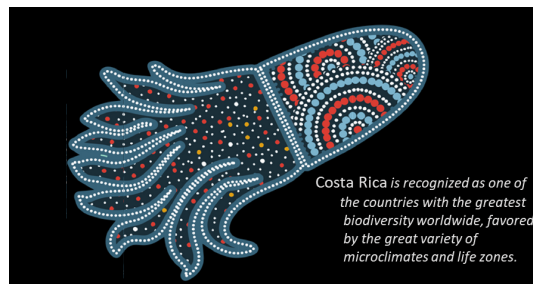
Ecosystem Health

One Health

Wildlife Infectious and
Non-infectious diseases



info@wdalatinamerica2019.org wdalatinamerica2019.org IV conferencia bienal wildlife disease latinoamericana



and is known for having great landscapes for ecological tourism.

It has beautiful beaches in the Pacific and the Caribbean, with impressive volcanoes, mountains, forests and rivers, where without much effort you can see birds, mammals, reptiles and amphibians.



It is a country with environmental awareness, which seeks the protection of its natural resources, so that 25% of the Costa Rican territory is under some category of environmental protection. In addition, since 2017 Costa Rica produces 100% of its electric power in an environmentally sustainable manner, complying with the proposed goals for the development of the country.

Costa Rica is a peaceful country that has not had an army since 1948, enjoys sharing its natural beauty with tourists



Costa Rica is worth knowing from north to south and from coast to coast, appreciate its natural wealth, its human warmth and its paradisiacal climate. Por favor, únete a nosotros:
<https://www.wdalatinamerica2019.org/wpconf/>

(all photo credit: wdalatinamerica2019.org)

WDA Small Grants – Call for Proposals

The mission of WDA is "to acquire, disseminate and apply knowledge of the health and diseases of wild animals in relation to their biology, conservation and interactions with humans and domestic animals."

Recipients of this award will receive funding to accomplish a measurable project that supports the WDA mission.

Proposals are due by January 15, 2019

Successful proposals will be awarded May 2019

Please see the submission guidelines and example proposal on the links above.

Submit proposals to: wdasmallgrants2019-2020@gmail.com



What is AFWA?

There are lots of acronyms floating around and some are important, others less so. AFWA is the Association of Fish and Wildlife Agencies, and arguably, for wildlife health professionals, it is one of the most influential groups in North America. AFWA is made up of the Directors of all 50 States game and fish (or conservation) agencies, top executives on all Federal agencies with wildlife or land management responsibilities (USGS, USDA, NPS, USFS, BLM, NOAA, USFWS), and some you might not think of (DOD, BIA), and includes representatives of similar Canadian agencies. They meet twice a year to review common or emerging problems, review and set policies, and stay apprised of progress on initiatives they have implemented. One of the permanent committees under AFWA is the Wildlife Health Committee. WDA and AAWV are 'Affiliate Members' of AFWA and can comment or pose questions.

For those who are not familiar with AFWA, by way of comparison, it is to wildlife management and conservation in North America a bit like what USAHA is to food animal health and management. However, there are important differences. AFWA does not put on 4-5 day meetings where research and investigative findings are presented by academic researchers. Presentations are by invitation only, but the decisions made can be far reaching. For example, last year AFWA endorsed the findings of the Western State Governors listing 'white nose syndrome', chytrid fungus, and feral cats among the top 20 most damaging invasive species.

AFWA now keeps track of the employment of wildlife health professionals in State agencies (see below). It's interesting to note that there are now 50, 47 of whom are veterinarians or have a doctorate, up from 5 forty years ago. AFWA seeks input from wildlife health professionals from the State and various Federal Agencies (acronyms above, but particularly USDA-Wildlife Services, United States Geologic Survey, National Park Service, and US Fish and Wildlife Service), as well as Southeastern Cooperative Wildlife Disease Study, Northeastern Wildlife Health Cooperative, and Canadian Wildlife Health Cooperative. These agencies and cooperatives employ at least another 70 wildlife health professionals and veterinarians, a total of well over 100, whose jobs are to investigate and make recommendations on, and deal with management of health and disease in free-ranging fish and wildlife in North America.

AFWA deals with many things other than wildlife health. Among these are law enforcement, economic trends, endangered species, public perceptions and trends. It's important to remember that most of AFWA' leadership are appointed to their jobs (like most State veterinarians), may not themselves have a strong biological sciences background, and seldom does that include wildlife health. AFWA tends to move slowly and study issues for a considerable time before acting. And recognizing that many problems are local, or regional, or have political ramifications, AFWA may not step in as a body, but may offer support to member agencies when asked. AFWA is a powerful organization and one that wildlife health professionals should know about. It is the one organization where essentially all government agency decision makers in North America are represented and can be reached.

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AFWA deals with many things other than wildlife health. Among these are law enforcement, economic trends, endangered species, public perceptions and trends. It's important to remember that most of AFWA' leadership are appointed to their jobs (like most State veterinarians), may not themselves have a strong biological sciences background, and seldom does that include wildlife health. AFWA tends to move slowly and study issues for a considerable time before acting. And recognizing that many problems are local, or regional, or have political ramifications, AFWA may not step in as a body, but may offer support to member agencies when asked. AFWA is a powerful organization and one that wildlife health professionals should know about. It is the one organization where essentially all government agency decision makers in North America are represented and can be reached.

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AFWA State Wildlife Vets and Professionals 2018

Last Name	First Name	State/Province/Agency
BECKMEN	KIMBERLEE	ALASKA
JUSTICE-ALLEN	ANN	ARIZONA
JENNIFER	BALLARD	ARKANSAS
CLIFFORD	DEANA	CALIFORNIA
MUNK	BRANDON	CALIFORNIA
MILLER	MELISSA	CALIFORNIA
MARET	JOE	CALIFORNIA
KWAK	KEVIN	CALIFORNIA
RICHEY	CHRISTINE	CALIFORNIA
MILLER	MICHAEL	COLORADO
WOLFE	LISA	COLORADO
FOX	KAREN	COLORADO
WOLF	DAN	FLORIDA
SHENDER	LISA	FLORIDA
DEWIT	MARTINE	FLORIDA
CUSACK	LARA	FLORIDA
CUNNINGHAM	MARK	FLORIDA
DUFFORD	DOUG	ILLINOIS
BOEDEKER	NANCY	INDIANA
TBD		IOWA
DREW	MARK	IDAHO
DUVALL	FERN	HAWAII
HESTING	SHANE	KANSAS
TBD		KENTUCKY
BERRY	RUSTY	LOUISIANA
LACOUR	JIM	LOUISIANA
DRISCOLL	CINDY	MARYLAND
O'BRIEN	DAN	MICHIGAN
STRAKA	KELLY	MICHIGAN
CARSTENSEN	MICHELLE	MINNESOTA
RUSSELL	SHERRI	MISSOURI
BATTEN	JASMINE	MISSOURI
RAMSEY	JENNIFER	MONTANA
NORDEEN	TODD	NEBRASKA
WOLFF	PEREGRINE	NEVADA
		NEW JERSEY
MOWER	KERRY	NEW MEXICO
MARTIN	PATRICK	NEW YORK
BUNTING	ELIZABETH	NEW YORK, CORNELL
Vacant		NORTH CAROLINA
BAHNSON	CHARLIE	NORTH DAKOTA
BURCO SPETEN	JULIA	OREGON
REED	AIMEE	OREGON
GILLIN	COLIN	OREGON
BROWN	JUSTIN	PENNSYLVANIA
GROVE	DAN	TENNESSEE
SEGARS	AL	SOUTH CAROLINA
DITTMAR	BOB	TEXAS

ROUG	ANNETTE	UTAH
KIRCHGESSNER	MEGAN	VIRGINIA
MANSFIELD	KRISTIN	WASHINGTON
CRUM	JAMES	WEST VIRGINIA
LONG	LINDSEY	WISCONSIN
WOOD	MARY	WYOMING
FISCHER	JOHN	SCWDS (eighteen states)
RUDER	MARK	SCWDS
open		NPS
DELIBERTO	TOM	UDSA WS
SLEEMAN	JONATHAN	USGS NWHC
KLEIN	PATRICE	USDA USFS
GIBBS	SAM	USFWS
SCHWANTJE	HELEN	BRITISH COLUMBIA
PYBUS	MARGO	ALBERTA
VANDERKOP	MARY	YUKON
FENTON	HEATHER	NORTHWEST TERRITORIES
STASTIAC	INGA	SASKATCHEWAN

1st North American Wildlife Disease Association
Student Workshop

SUSTAINING HEALTHY WILDLIFE:

Current Approaches and Future
Directions in Conservation Research

August 1-4,
2019

UC DAVIS

For more information, please visit:
www.wdastudentworkshop.org

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

It's Happening! We are officially announcing the 1st North American WDA pre-conference Graduate Student Workshop titled "Sustaining Healthy Wildlife: Current Research and Future Directions in Conservation" This workshop is aimed towards rising graduate students in wildlife disease to help them network and transition into future independent researchers.

When: Thursday, Aug 1, 2019 - Sunday, Aug 4, 2019. This will be a full three day event starting Thursday evening and ending conveniently at the onset of the International Annual Meeting, Sunday Afternoon.

Where: The entire workshop will take place at UC Davis, including room board and event space. Transportation from the workshop to the meeting at Lake Tahoe will be available to help with travel arrangements.

Sustaining Healthy Wildlife: Our world is changing and is presenting us with a variety of challenges in wildlife disease. Many diseases are emerging while others are becoming endemic. How do we deal with these challenges? What tools are out there? What kind of research is being done? Where should we move our focus in the future?

This workshop will bring together top researchers and rising graduates in the broad field of wildlife disease and conservation. Our two and a half day program will include interactive learning through lectures, discussions, and updates on important analyses and novel technologies. This event will ultimately facilitate sharing of ideas between current leading professionals, post-docs, and students.

What is included? Registration is all inclusive! Your fee will include a once in a lifetime experience, your lodging, and all meals on campus. You will also receive a free ride up to the WDA conference at Lake Tahoe on Sunday. Our registration fee is TBD pending sponsorship but we anticipate a maximum total fee of \$250 per student. Participants will be responsible for their own travel to campus.

How Can I Apply? Applications can be submitted starting early 2019 and closes mid-February. Exact dates TBD. If you are interested please go to our website and sign up on our list serve for updates and newsletters as we start the registration process. You can also check out our website for more information and ongoing updates on confirmed speakers: www.wdastudentworkshop.org.

Want an Affordable Experience?

We are still actively looking for sponsor to keep costs as low as possible, if you have any leads please let us know at wdastudentworkshop@gmail.com

WDA and IAAAM Announce New Joint Student Award

The Wildlife Disease Association (WDA) and International Association of Aquatic Animal Medicine (IAAAM) share many things. Under a Memorandum of Agreement (MOA) with IAAAM, WDA established an Aquatic Animal Membership classification that allows IAAAM members access to articles in JWD about the species they are most interested in for a nominal fee. Both are open to wildlife health professionals of various degrees and backgrounds, and both strongly support and stress mentoring of students.



WDA and IAAAM have recently agreed to a new joint award. It is for the best article published in *Journal of Wildlife Diseases* in any one year on an aquatic animal health problem for which the first author is a student. The award will be \$1500 and the winner will be determined by a joint panel of judges. 'Student' is defined as including undergraduate, graduate and professional students but does not include those in post-doctoral positions. The panel of judges has been formed and we hope to be able to announce a winner for 2018 by March of 2019.

Wildlife Disease Association

Student Corner:

Marianthi Ioannidis



Here's the latest news from the Student Section:

1) The EWDA Student chapter is now officially counting a new country: Greece! You can follow all the events on their Facebook page: <https://www.facebook.com/groups/208244266736268/>



2) The next symposium of the EWDA Student chapter will be held next April in Lyon, in France. The registrations are now open and you can follow the event on the [official website](#) or on the [Facebook event](#):



3) Last year the EWDA country representative of Austria, Julian Keles, had the opportunity to take part in the Rocky Mountain Wildlife Veterinary Externship with Ilya Slizovskiy and they share their great experience in a feature below. You will also find all the information to apply [here](#).



4) Good news: the Australasian Student Chapter is back with a new website, don't miss it: https://australasianstudentchapter.weebly.com/?fbclid=IwAR3ivuwXqli1SUyQg5DovfX67K469Ae2htYweqJo_VFExML-bgImBQxHmGU



5) The UC Davis student chapter is preparing a nice event: The Wildlife and Exotic Animal Symposium on March 9-10, 2019. More details will follow very soon, stay tuned...

6) The next WDA conference is happening in California, this year a student event will be held prior the conference at UC Davis, more details will come soon... You can already have a look at the Conference website: <https://wda2019.sf.ucdavis.edu>

7) For those interested in taking part in webinars there is the Journal Club group on Facebook with regular free online webinars. This group has been created in order to share information and topics related to zoo and wildlife medicine. Feel free to contact the administrator, Alejandro, if you would like to present something.

<https://www.facebook.com/groups/studygroup.zoomedicine/about/>

8) Applications for WDA Student Awards are due Friday, February 15, 2019! See below for more details.

Applications welcome for WDA Students Award Competition 2019

(<http://www.wildlifedisease.org/wda/STUDENTS/StudentAwards.aspx>)

The WDA offers a research recognition award, two scholarship awards in addition to a number of presentation and poster awards at the annual international WDA conference.

The aim of these awards is to recognize outstanding student research and scholarship in the field of wildlife health, to encourage student participation in the Association and attendance at our annual international conference.

Applications for the WDA Student Awards are due Friday, February 15th, 2019. Applicants for all WDA Student Awards must be [eligible students](#) AND [members of the WDA](#).



Poster Presentation Award Winner, 2018.

Questions? Contact Tiggy Grillo, Chair of the WDA Student Awards Committee: tgrillo@wildlifehealthaustralia.com.au

The Wildlife Experience of a Lifetime:

From bears, elk, bison and bighorn sheep, to prairie dogs and black-footed ferrets

Ilya Slizovskiy and Julian Keleş

We were ecstatic to be accepted into the first-ever Rocky Mountain Wildlife Veterinary Medicine Externship (RMWVME), an externship formed on the basis of inter-agency cooperation, involving state partners including Colorado Parks and Wildlife and the Wyoming Game and Fish Department, as well as federal agencies, including the U.S. National Park Service, and the U.S. Fish and Wildlife Service. A total of seven veterinary medical students were selected and appointed to a home agency based on professional interest, to gain hands-on wildlife experience while engaging with various veterinary public health, wildlife ecology and management, and conservation medicine experts for 4 weeks in September, 2017.



Bison in Yellowstone

"Perspectives"

The Foothill Wildlife Research Facility, set in the beautiful foothills of Northern Colorado (Fort Collins), served as the point of origin for this fast-paced, hands-on, interdisciplinary externship. An extremely welcoming first day included an overview of the paramount work performed by wildlife and public health experts at each agency. A strong career-oriented focus was used to convey much of the information, which was quite useful for many of the externship participants that were contemplating career placement upon graduation from their veterinary training. An interactive overview of wildlife capture and immobilization as well as a hands-on pathology and sampling lab was given, and a tour of the research facility (bighorn sheep, moose, and mountain lion, oh my!) was provided. We were quite lucky, as a young black bear had been wandering the city limits of Fort Collins and had to be immobilized. The bear was brought to the research facility, students received the opportunity to perform a general physical exam, take samples and tag the bear, prior to his release to a different (safer) location.

Imagine you are a veterinarian at the National Park Service, and a prairie dog colony in one of your national parks is suspected of having tularemia(!). What do you do? What public health considerations must you have? Which wildlife-health actions should be taken? Which stakeholders should be involved? How do you continue to promote public interest in a park that is at the nexus of an infectious disease outbreak? Such a scenario was made very real by wildlife and public health veterinarians Michelle Verant and Danielle Buttke of the National Park Service, on day two. As we went through case studies of such events, we received an important glimpse into the role of the

veterinarian in protecting wildlife, public health, and continued public interest and support of the enjoyment and use of our natural resources.

Our first introductory week was concluded by visiting the Wyoming State Veterinary Diagnostic Lab in Laramie, Wyoming, performing examinations, sampling, and biopsies on several bighorn sheep at the Tom Thorne and Beth Williams Research Facility in the Sybille Canyon, and practicing more immobilization and field anesthesia procedures. Prior to splitting up to our assigned agencies, the students and agency mentors capped-off this amazing first week with a great barbeque, friendly banter, and many laughs. Though students felt some mild trepidation about having to disperse to different locales to begin work on individual projects at their respective home agencies, we were reassured with the prospect of seeing each other on a beautiful multi-day excursion to the Greater Yellowstone Area in northwestern Wyoming, the following week.



Black Bear

"No rest for the weary..."

"Alright, guys, follow me!" We intently grabbed our packs, sleeping bags, bear spray, and water and tailed Dr. Mary Wood (Chief Wildlife Veterinarian for the Wyoming Game and Fish Department), as we drove to do fieldwork with the endangered black-footed ferret reintroduction research group in Meeteetse, Wyoming. Hardly exceeding 330 people, Meeteetse is the last known location of wild black-footed ferrets, discovered in 1981. Today, it is home to the largest black-footed ferret re-introduction and conservation effort in the U.S. While there, we met biologist Jesse Boulter and his team, who updated us on the status of the black-footed ferret population as well as their monitoring fieldwork. We spent two nights venturing out into the field equipped with all-terrain vehicles, spotlights, bear spray, and ferret traps, and we were also fortunate to join the *Working Dogs for Conservation* team, who are training dogs to aid Wildlife workers in locating and monitoring ferret re-population efforts (<https://wd4c.org/>).



Clinical examination of the immobilized black bear

"Elk Refuge and the Tetons"

Within the first two weeks of the externship, we traveled more than 1200 miles, and had covered many miles on foot exploring the majestic back country of northern Wyoming. Though we were tired

and overwhelmed by the sites and experiences— in the parlance of the locals, it was time to “cowboy up!” We trekked even further to meet some of the other students at the Wyoming Game and Fish Jackson District’s elk feeding grounds. Interactive lectures on chronic wasting disease, brucellosis, and the social /political challenges in management of free range wildlife were given. The federal perspective of wildlife management was provided by the U.S. Fish and Wildlife Service, who took us on a tour of the National Elk Refuge grounds. At the end of our stay, we helped restore one of the large elk trap systems that are used on the elk feeding grounds. We camped at the Gros Ventre feeding grounds with some of the biologists and wildlife managers, and witnessed the changing of the seasons as rain, wind, sun, and snow intermittently appeared. Surrounded by the majestic Tetons, we were kept warm by a roaring camp fire, the gracious company of the Wyoming Game and Fish workers, and the wise words of wildlife biologist Brandon Scurlock, who reminded us that, “Home is where your sleeping bag is.”



Elk refuge, camping in the Tetons

“Work and Play”

The two of us left the Gros Ventre in earnest, to embark on a two-week period assisting Dr. Mary Wood in her research efforts. While back at the Sybille Canyon Research Center we conducted preliminary evaluations of remotely-operated drones for use in wildlife management activities and evaluated efficacy of commercial devices to measure activity in captive wildlife (elk and bighorn sheep). Though our remaining time was dedicated to these research efforts, our schedule was speckled with additional activities, including visiting a fish hatchery and assisting with antibiotic injections and necropsy / diagnostic work, gaining hands-on training in sampling and laboratory diagnostic tools for wildlife disease surveillance at the Wyoming Veterinary Diagnostic Laboratory, and assisting teaching two practical labs on wildlife medicine and immobilization to students at the University of Wyoming. Additionally, we joined a team of wildlife experts acting as advisors, and witnessed first-hand how they provided recommendations on re-introduction and conservation efforts of bighorn sheep.



Julian and Ilya with a scent dog

“Conclusion”

We rejoined the other students to present our research projects to a professional audience at the Foothill Research Facility, where we formally ended our externship. A sampling of other research projects that were conducted during the externship included:

- Diagnostic testing recommendations for wild turkeys and other wild galliform species
- Summary of BAM immobilizations of black bears in Colorado
- Effects of hemolysis on *Yersinia pestis* V antibody lateral flow assay

- Development and validation of a field portable CO2 euthanasia system
- Physiologic adaptations to elevation in *Peromyscus* sp. in Rocky Mountain National Park and development of a small mammal capture and handling protocol for the Institutional Care and Use Committee

The RMWVM Externship was unique in its impact on our lives both as budding wildlife veterinarians and as those passionate about learning those things that one will never find in a textbook. Whether in you are in final year of veterinary medical training and wish to embark on an incomparable wildlife medicine training experience, or have never considered this field but are open to finding out what wildlife medicine is all about, we strongly urge you to consider this externship and apply! For application details visit:

http://wildlifedisease.org/wda/Portals/0/Education/RMWVE%20brochure_2019.pdf



Extern Group

Quarterly Wildlife Mortality Report

January 2019

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

Summary of Greater Sage-grouse Submissions to the National Wildlife Health Center

Investigating the causes of mortality and identifying diseases of greater sage-grouse (*Centrocercus urophasianus*) provides documentation of threats to their populations and guidance for sound management decisions by natural resources agencies. Between January 1986 and August 2018, 61 greater sage-grouse were submitted to the U.S. Geological Survey's (USGS) National Wildlife Health Center (NWHC) for cause of death determination. The majority of submissions were from Montana, along with several from California, Idaho, Nevada and Oregon. The most common cause of mortality was trauma due to predation, followed by emaciation. Infectious disease made up 13% percent of the mortality causes (n=8). West Nile virus (WNV) infection was confirmed or suspected in six of these mortalities (two adult females, one hatch-year female and three adult males). *Clostridium perfringens* caused the death of one adult female. An individual hatch-year bird died due to a *Staphylococcus* infection. Cause of death could not be determined for nine young-of-the-year and five adult carcasses, primarily due to postmortem condition. NWHC has also assisted partners with determining greater-sage grouse exposure to WNV, which has been found in other grouse species. Of the 91 samples from wild-caught and dead sage grouse tested at NWHC, only two were positive for WNV. The primary findings of predation and emaciation are consistent with other reports of threats to sage grouse populations; habitat loss can contribute to loss of cover from predators and also loss of food sources, which can lead to emaciation. Human activity can also contribute to death by non-specified trauma, such as fence and vehicle collisions. There has been significant improvement in conservation efforts for the greater sage-grouse in recent years; however, sage brush habitat requires over 20 years to recover. It will continue to be important to monitor and investigate causes of greater sage-grouse mortality over time as their primary habitat continues to change. For additional information on greater sage-grouse submissions to the NWHC contact Barb Bodenstein at bbodenstein@usgs.gov.

Vaccine Research at the National Wildlife Health Center

Success stories involving disease management in free-ranging wildlife populations are rare, but active vaccine research ongoing at the U.S. Geological Survey's (USGS) National Wildlife Health Center (NWHC) holds the potential to alter the outcome for three wildlife diseases: sylvatic plague in black-footed ferrets (*Mustela nigripes*) and prairie dogs (*Cynomys* sp.), white-nose syndrome (WNS) in North American bats, and rabies in vampire bats (*Desmodus rotundus*). For more information on wildlife vaccine research at the NWHC contact: Dr. Tonie Rocke at trocke@usgs.gov.

Sylvatic plague vaccine

Plague, caused by the bacterium *Yersinia pestis*, is widespread throughout the Western U.S. and frequently occurs in wild rodents. All four species of prairie dogs in the US are susceptible to plague, suffering high mortality rates during outbreaks (> 90%). The loss of prairie dogs negatively impacts numerous other species that depend on them for food or shelter, including endangered black-footed ferrets. The NWHC conducted a large, collaborative field test (from 2013 to 2015 in seven western states) of the sylvatic plague vaccine (SPV). This study involved state, federal, tribal and non-government agencies organized under the Black-footed Ferret Recovery Implementation Team, a multi-agency effort led by the US Fish and Wildlife Service (USFWS). We found that vaccine treatment increased prairie dog abundance and also increased survival at sites with plague

outbreaks. Ongoing field research is being conducted by partners in USFWS and state agencies to scale-up SPV use and further test it on a landscape scale (sites with 1,000 acres or more) as a management tool for threatened and endangered species, including black-footed ferrets.

Development of a vaccine for white-nose syndrome

The NWHC is investigating the potential for a virally-vectored vaccine to protect bats against *Pseudogymnoascus destructans*, the cause of white-nose syndrome. This experimental vaccine uses a recombinant raccoon poxvirus vector (which the NWHC successfully used for the sylvatic plague vaccine) and includes two potential antigens, calnexin and serine protease. Initial testing showed promise in reducing morbidity and mortality of bats from WNS. Survival of orally vaccinated bats in a laboratory was much higher and the lesions and impact of WNS were less severe than unvaccinated control bats. Work to register WNS vaccines with the U.S. Department of Agriculture's Center for Veterinary Biologics is in progress to clear the path for eventual field studies.

Oral delivery of vaccine to control rabies in vampire bats

Rabies transmitted by vampire bats to cattle or people is a tremendous economic burden in Central and South American countries. Vampire bats are also moving north and in the next decade are expected to disperse into southern Texas. Currently, managers cull vampire bats to reduce their populations by applying a poison to the skin of captured bats and releasing them for transfer of the poison to other bats via mutual grooming. Using this effective transfer mechanism as a basis for vaccine delivery, the NWHC is developing an oral vaccine for rabies that can be applied to the skin and transferred to other bats during grooming. An experimental trial is underway to confirm efficacy of the vaccine and determine the minimum required dose. The intended goals of this project are to find better ways to manage rabies in bats and reduce risks to humans and domestic animals while protecting bat populations. This work is being conducted in close collaboration with the U. S. Department of Agriculture's Animal and Plant Health Inspection Service in Mexico.

Check out the new USGS National Wildlife Health Center website at: www.usgs.gov/nwhc.

To learn more about the NWHC investigation services, go to: www.usgs.gov/nwhc/services.

To request disease investigation services or report wildlife mortality: 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/>

