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NEWSLETTER

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AF-WhAt?

An in-depth explanation of AFWA and its importance to WDA members

Sarah Sirica

The Association of Fish and Wildlife Agencies (AFWA) is a collective organization based in Washington, DC., made up of US State and Territorial Fish and Wildlife Agencies, US Federal agencies and Services, Canadian Natural Resource and Wildlife Services and Divisions, Affiliate Members, and Contributors.

AFWA was created back in the “Teddy Roosevelt Era,” around 100 years ago, when national park interest was really kicking off, and the association would gather for meetings in the national parks around the United States. At that time, the state fish and game agencies were looking for more coordination in response to conservation issues which were arising.

There has been a lot of growth since then. It has opened to Canadian provinces; and in addition to the state agencies that got it off the ground, it is inclusive to US federal agencies that manage wildlife or habitat or are involved in the science of wildlife – Fish and Wildlife Service, Park Service, Bureau of Land Management, Forest Service, Natural Resources Conservation Service, United States Geological Survey (the Wildlife and Ecosystem Division), USDA Wildlife Services. There are also affiliate members, such as WDA, whose contributions can take various forms.

AFWA’s mission is “to support and advocate for State, Provincial, and Territorial responsibility for science-based fish and wildlife conservation.” There is a strategic plan with four initiatives, including Fish and Wildlife Funding, Policy and Legislative Advocacy (consistent with the [North American Model of Wildlife Conservation](#)), Coordinated Conservation Initiatives (on a national and international level), and Member Support and Coordination.

AFWA as an association is highly-structured. There is a governing board, comprised of the directors of the 50 state fish and wildlife agencies, and within that there is

an Executive Committee made up of 12 people from different regions and jurisdictions within the US and Canada. There are many committees through which AFWA coordinates their efforts. Currently there are 22 active committees, each one chaired by a state director, and a variety of subcommittees and working groups. The number of people on the committees varies- the Resolutions Committee has 10 people who are officially appointed, whereas the Bird Conservation Committee has hundreds.

The committee which WDA members will be most interested in is the Fish and Wildlife Health Committee (FWHC). The chair is Paul Johansen, wildlife chief for the West Virginia Department of Natural Resources, and Colin Gillin, wildlife veterinarian for the Oregon Department of Fish and Wildlife, is the vice chair. Jonathan Mawdsley, science advisor of AFWA, is the staff liaison. The membership of the committee is rounded out with high-level decision makers



AF-WhAt?

from different federal and state agencies that have jurisdiction over fish and wildlife health. According to the leaders, it makes for a big-tent with lots of perspectives. There are two meetings annually where the committee members convene – the AFWA annual meeting in September, and the North American Wildlife and Natural Resources conference in March. The committee has become a place where people and groups from all over North America, and sometimes globally, come to ask questions about wildlife health and to get input from the state agencies at the same time – a one-stop-shop approach.

There are four specific charges the FWHC is meant to achieve:

- 1) Provide expert advice and counsel to members of AFWA and its officers on fish and wildlife health matters.
- 2) Monitor and evaluate state and federal animal health legislation and administrative action in light of possible impacts to fish and wildlife.
- 3) Maintain a close relationship with the US Department of Agriculture and Department of Interior to facilitate assurance of fish and wildlife management interests in the development of emergency animal disease control programs.
- 4) Provide input on health issues impacting wildlife management and conservation

The first charge is relevant during this global pandemic. AFWA and the FWHC act as a key source for SARS-CoV-2 wildlife information that could impact wildlife. For example, collaborating with the US Centers for Disease Control and Prevention (CDC) on their language relating to COVID-19 and wildlife. The FWHC have also developed fact sheets and guidance on handling of bats, felids, and mustelids as well as a guide on sampling wildlife for COVID-19. These resources are available on the WDA website ([link](#)). These statements get passed directly to the directors within the federal and state governments.

AFWA is critically important to state agencies in that they can mobilize a team of experts when there are health issues that are important or even nationally

contentious, and the state agency directors need guidance on how to proceed. For example, the effects of Chronic Wasting

Disease (CWD) are felt well beyond the cervids it infects, impacting stakeholders such as hunters, the captive cervid industry and others with captive cervids such as zoos, and rehabilitation centers as well as industries supported by deer, elk and moose hunters. For example the decision to ban urine scent lures will require balancing many interests when developing regulations or management strategies.

To provide the agencies with the best available science, for the complex wildlife management issues, such as CWD, AFWA has compiled a best management practices document. The manual, which includes 29 chapters beginning with an executive summary and including sections on animal movement, carcass management, disinfection and decontamination, etc. It is based on over two decades of research and experience and written specifically to give state agencies a comprehensive guidance document. Thus, if decisions on wildlife health threaten to be based on politics and not science, this type of document, produced by the AFWA FWHC and approved and ratified by the directors of the 50 state wildlife agencies, gives a bit more weight to the scientific perspective.

A key accomplishment of the committee has been the Wildlife Health Initiative and its comprehensive [National Fish and Wildlife Toolkit](#). This was published in 2008, and an updated version is in discussion. The toolkit was aimed at senior leadership within state fish and wildlife agencies. The people appointed to these positions do not always have a background in fish and wildlife, and the toolkit provided a reference document to help them get up to speed on key wildlife health issues, including a list of who to call,



AF-WhAt?

how to get the right people engaged, and where to find the right person to reference in a particular disease or management situation.

One of the chapters in the toolkit was a job description for a state wildlife veterinarian/ disease specialist. Before the toolkit there were less than 5 state wildlife veterinarians, and now there are closer to 40. The toolkit helped states figure out how to hire and add that skillset into their agencies. It encouraged agencies to set up a formal wildlife health program including, adding an animal welfare aspect that often was not considered in the past.

Just recently, the executive committee of AFWA voted to revitalize the Wildlife Health Initiative and put resources behind it, including federal partners with financial backing, to go towards things like regenerating the toolkit. More resources will also now be available through the CDC and other organizations, whom they haven't interacted with much in the past, due to the awareness that SARS CoV-2 has origins in wildlife. The hope is that federal agencies may now pay more attention to surveillance and research on wildlife disease, which have historically been underfunded. Members of the Wildlife Health Initiative met in Athens in January of this year. There they discussed updating the toolkit as well as other areas of focus including increased wildlife surveillance initiatives domestically and internationally to prevent the introduction of foreign pathogens.

AFWA not only works on large, national/international issues, but also more regional concerns are addressed. Similar to WDA's structure with different sections, there are regional associations of state fish and wildlife agencies such as the Western (WAFWA), Midwestern (MWAFWA), Southeastern (SEAFWA), and Northeastern (NEAFWA). States can belong to two or more regional associations when addressing regional species management issues or initiatives. The regional associations are defined as separate non-profits, and each of them has a seat on the board of the national association. Their boards are comprised of the same directors who sit on the main AFWA board, so it is a very close collaboration. States pay dues to their regional association (WAFWA, NEAFWA, etc) and the parent association

(AFWA). Each of the Regions also has some form of wildlife health group that addresses regional health issues such as bighorn sheep pneumonia complex or mule deer management in WAFWA; or there is crossregion collaboration on topics such as health testing for translocation of Galliformes.

This framework of AFWA and the four regional associations provides flexibility for states to work on coordinated inter-regional strategies for health and management issues as well as allowing members to have a state specific processes for addressing wildlife health concerns.

A benefit to the AFWA structure is variety of strengths in the membership with regards to addressing wildlife health issues. Veterinarians, biologists, researchers, managers public information officers, habitat specialists, government affairs, education, and many other people who care about fish and wildlife health and disease. It is helpful to have access to this bank of people with their various knowledge to determine how to direct resources towards an emerging or reemerging problem. The idea is that in this "big tent" made up of well-informed people with various perspectives, information can be distilled into action and management recommendations. This structure ensures that if the director or other agency leader is called to discuss a wildlife health problem with their governor, or with a congressperson, for example, they have rapid access to many resources available to quickly become knowledgeable in the technical aspects of a wildlife health concern.

AFWA has been having more conversations about prevention, including ways to keep diseases present in other parts of the world out of the North America. They are focused on ensuring expanded surveillance and monitoring for new and emerging diseases. The next step is to provide information to the agencies and to help them define and implement strategies and tools to address an emerging wildlife threat. This is an example of where WDA member knowledge and expertise can be very helpful, particularly because it is a global organization.

This strategy can be seen in action with the work that AFWA has done to keep *Batrachochytrium*



Photo credit: salamanderfungus.org

salamandrivorans (Bsal) out of the US. AFWA presented statements to legislative committees, and there was a tweak made to the Lacey Act (a US law that pertains to conservation and prohibits certain trade in wildlife, fish, and plants), to prevent importation of some of the salamanders that could potentially be pathways to have it emerge in the US.

Bsal spread has been monitored over years, but what happens when something emerges at a rapid pace. The SARS-CoV-2 pandemic has demonstrated AFWA's ability to spring into action – not usually an easy feat for a highly structured organization. When the pandemic started, the CDC reached out and asked for a point of contact. That contact was Jonathan Mawdsley, and he developed internal coordination, for example, picking experts to vet for comments, and people in geographically appropriate areas (major cities, etc), who could give well-informed, science-backed statements on the subject. It doesn't all have to be from the wildlife health committee, some is ad hoc – if the member is known to be an appropriate source, they may be called upon.

AFWA as a source of knowledge for state and federal directors is also critically important when there are huge global concerns, such as potential disease spread at the human-wildlife interface and how to manage those concerns while making good decisions about the legal wildlife trade. With the likelihood that SARS-CoV-2 emerged from wildlife in wet markets, there has been a lot of pressure to shut down trade in wildlife products. To address this, and management around the virus in general, Deborah Hon, International Director of AFWA, has been convening

members to form guidance statements. AFWA is involved also because there are state directors involved in CITES discussions and the Convention on Biological Diversity – both of which are international mechanisms that exist to govern trade in wildlife.

Some of the bans are suggesting shutting down all trade – whether or not it is sustainable. This can be contrary to what needs to be done for conservation of species in many areas of North America. There are states that are critically dependent on trade in wildlife as a mechanism to support conservation – alligator recovery in Florida, paddlefish recovery in Missouri, etc. AFWA will likely come out with a position statement soon, describing how illegal trade and non-sustainable harvest are dangerous, and what mechanisms we have to focus on those problems, as well as how even legal trade may be contributing to the spread of disease, and how to address that.

According to AFWA science leadership, WDA should be a part of that conversation, because within the organization there is a vast knowledge of wildlife disease, including at the international level, and members can offer input in an authoritative way. WDA in the past has worked on some of the statement making, in an informal matter. Information coming out of WDA and the JWD is often ground-breaking research on emerging disease, and not common knowledge, and having WDA as a resource will continue to be helpful for input. The goal is to get good, science-based information out to people. It is easy for policy recommendations to be made in the absence of science, AFWA is there to ensure that science is placed front and center.

OIE WILDLIFE DISEASE TECHNICAL CARDS AVAILABLE ONLINE



Marie Bucko, Erin Furmaga, and Samantha Gieger from the University of Wisconsin-Madison with the assistance

of the USGS National Wildlife Health Center and the OIE Working Group on Wildlife have developed 20 Wildlife Disease Technical Cards for the World Organisation for Animal Health (OIE) that are now available online: <https://www.oie.int/animal-health-in-the-world/technical-disease-cards/>. The technical cards contain information on non OIE-Listed diseases of wildlife including the etiology, epidemiology, diagnosis, prevention and control, and potential impacts of the disease agent. The cards provide guidance on case and disease definition and facilitate reporting of these diseases to the OIE. Additional technical cards are under development. They are currently available in English.

2015 WDA EMERITUS AWARD WINNER DAVID SCHULTZ HONORED IN AUSTRALIA

The Queen's Birthday Honours List was recently released in Australia, and David Schultz, a well-known member of the WDA and 2015 Emeritus Award recipient, has been made a Member of the Order of Australia (AM) "For significant service to veterinary medicine, to zoological societies, and to philanthropy".



Above: David Schlutz, fortuitously wearing a WDA hat in the announcement photo

The entire honor list can be found here: <https://www.gg.gov.au/australian-honours-and-awardsaustralian-honours-lists/queens-birthday-2020-honours-list>.



WDA CROWDFUNDING GRANTS

WDA is once again partnering with the crowdfunding site Experiment to run a challenge grant for Wildlife Health and Disease. During the 2018 and 2019 challenge grants researchers raised more than \$80,000 in support of 17 projects.

To be eligible proposals must meet the following criteria:

1. Involve a significant health or disease issue in free-ranging marine or terrestrial wildlife.
2. Have implications for wildlife populations and ecosystems in which wildlife live.
3. Emphasize species conservation and application of a One Health approach.

The crowdfunding process is different from traditional grant funding. Successfully crowdfunded grants are typically smaller grants for smaller projects, and they should be written to appeal to the public rather than to scientists. The median amount raised for successful proposals is \$4000-5,000.

Experiment puts out the initial call and coaches' researchers through the process of getting their grants ready for the crowdfunding campaign. WDA and Experiment will review each proposal for eligibility and clarity. Campaigns will launch on September 1, 2020 and it is the responsibility of the researcher to take advantage of the coaching provided by Experiment to ensure that their grant succeeds.

WDA Crowdfunding Grants

Although both Experiment and WDA publicize the campaign, grant submitters bare the primary responsibility to find supporters and advocates as well as to promote and publicize their grants. On-going coaching by Experiment will be provided.

In addition to the amount raised from the crowdfunding, WDA will provide 6 incentive prizes.

On the 21st day of the campaign, \$1,000 will be awarded to the project with the greatest number of donors, and \$500 will be awarded to the project with the second greatest number.

On the 30th day of the campaign, an additional four, \$100 prizes will be awarded to the top 4 proposals (excluding the 2 winning proposals from the 21st) with the greatest number of supporters and whose primary investigator is a WDA member.

For more information about the WDA crowdfunding grant visit <https://experiment.com/grants/wda2020>.

Key Dates are:

July 15 - August 15 – Grant preparation and Submission (August 15 submission deadline)

August 15 – August 31 – campaign coaching and strategy development period with Experiment staff.

September 1 – Crowdfunding campaign kick-off

September 21 - day 21 of the crowdfunding campaign – bonus funds awarded by WDA

September 30 – Crowdfunding campaigns end – bonus funds awarded by WDA

Check out the following links to see what grants were successful during the [2018 HERE](#) and [2019 HERE](#) campaigns. If you have questions concerning the process please contact support@experiment.com or Nicole Sharpe nicolesharpe@experiment.com.

REPORT ON GLOBAL ONLINE TRAINING NEEDS SURVEY FOR WILDLIFE DISEASE RISK ANALYSIS (DRA)

Richard Jakob-Hoff

*CPSG Conservation Planning Facilitator
and Disease Risk Analyst*

Summary

A global survey conducted in April-May, 2020 received 290 responses that confirmed widespread concern with the disease risks associated with wildlife. Causes of greatest concern related to wildlife health management (>50%). Other concerns were for domestic animal and public health (>40%) and environmental health (>30%). Disease risk analysis is being used to inform and guide a range of actions associated with health management, research, teaching and policy development. Diseases of concern listed most frequently were avian influenza, rabies, tuberculosis, African swine fever, coronaviruses and foot and mouth disease. Ecotoxicology was the most frequently listed non-infectious disease and zoonotic disease the most cited of several other, more general, issues for which DRA is considered of value. One third



of respondents were aware of the 2014 IUCN-OIE publications on the applications of wildlife disease risk and over 80% indicated an interest in taking an online course based on these publications.

Background

The current Covid-19 pandemic is a reminder of how closely human health is linked to the health of animals and the environment. Recognising this, the International Union for Conservation of Nature's Species Survival Commission (IUCN-SSC), in collaboration with the World Organisation for Animal Health (OIE), published *Guidelines and a Manual of Procedures for Wildlife Disease Risk Analysis* in 2014. Application of this DRA framework and associated analytical tools, provides a systematic, science-based methodology specifically suited to the multiple

Survey for Wildlife DRA

stakeholder environment typical of the majority of wildlife disease-associated situations requiring an assessment of risks. Prior to their publication a global survey to assess the need for such a resource demonstrated that “wildlife disease concerns are global, broad in scope and involve a wide diversity of people from multiple disciplines.”

These publications have been cited in at least 28 wildlife disease-related publications to date¹. This, together with subsequent wildlife DRA workshops and training events held in New Zealand, Australia, India, Singapore and Brazil, indicate that interest continues to grow and that training in the applications of this tool markedly increases its use. As a result, and to significantly increase global capability in the application of wildlife-focused DRA, an online training course, based on these and subsequent publications, is in development.

To inform the content and delivery of the course a short survey was conducted between mid-April and mid-May, 2020 to identify the demand for this training and, specifically, who is working in this space and what is driving their needs.

Results

A total of 290 responses were received with an 86% completion rate. Respondents were located in the ten geographic regions listed in Table 1.

Table 1: Geographic location of survey respondents

Region	# respondents
Europe	76
Australia	74
Asia	70
Africa	61
South America	39
North America	25
Pacific Islands	17
Middle East	10
Central America	9
Antarctica	4

Table 2 lists responses to a request to select the occupation category(ies) most relevant to their work.

Table 2: Categories or respondents' work

Work category	# respondents
Wildlife management- zoos/captive	112
Research	103
Veterinary practice	97
Wildlife management- in situ	89
Teaching	64
Biosecurity	59
Wildlife management- rehabilitation	55
Environmental health	41
Public health	37
Policy development	33
Other	60

Occupations listed under ‘Other’ varied widely and included epidemiology, One Health, community-based conservation, disease ecology, diagnostics and academic administration.

The range of applications of DRA are shown in Table 3.

Table 3: Respondents' applications of wildlife DRA

DRA application	# respondents	%
Animal translocations- wildlife	107	55.73%
Animal health management- wildlife, zoo/captive	102	53.13%
Animal health management- wildlife in situ	98	51.04%
Animal health management- domestic	45	23.44%
Public health management	41	21.35%
Environmental health management	34	17.71%
Animal translocations- domestic	17	8.85%
Other	20	10.42%

Survey for Wildlife DRA

Responses listed under 'Other' included

- Teaching risk communication on zoonotic diseases
- Guiding
- Livestock-wildlife spillover
- Disease surveillance
- Animal health – wildlife rehabilitation
- Export of embryos

Diseases of concern

In response to the request to list specific wildlife disease issues of greatest concern, respondents named a total of 155 infectious diseases, of which 17 were listed by ten or more respondents (Table 4).

Table 4: Infectious diseases most frequently cited by respondents

Infectious disease	# respondents
Avian influenza	48
Rabies	42
Tuberculosis	34
African swine fever	30
Covid-19/coronaviruses	24
Foot and Mouth Disease	24
Chytridiomycosis	22
Chlamydiosis/Psittacosis	20
Anthrax	13
Brucellosis	12
Ebola virus	12
Leptospirosis	11
Toxoplasmosis	11
West Nile Virus	11
Sarcoptic mange	10
Yellow Fever	10

Seventeen non-infectious diseases were also listed, eco-toxins being the most frequently cited (6), followed by 'respiratory diseases' (4) predation, bushfires and trauma (3 each).

In addition to specific diseases, over 40 broader areas of DRA application were identified. The most frequently cited are listed in Table 5.

Table 5: Most frequently listed broad areas of DRA application

Wildlife risk-associated issues of concern	# respondents
Zoonoses	28
Wildlife disease surveillance	13
Translocation-associated diseases	12
Biosecurity (in situ, ex situ, borders)	11
Multi-drug resistance	7
Emergent wildlife diseases	7
Bushmeat consumption	6
Disease impacts on wildlife decline	6

Approximately one-third of all respondents were aware of the IUCN-SSC/OIE publications but over 80% indicated an interest in taking the Online course (Figure 1)

Figure 1: Interest in taking the online DRA training course



Conclusions

1. Concern for wildlife disease impacts on wildlife, domestic animals and people remains global,
2. Applications of DRA are very broad and,
3. There is a strong interest (>80%, N=286) in an online training course focused on the application of wildlife disease risk analysis.

These results will be used to guide the format and content of the online course including the selection of case studies.

References:

1. https://www.researchgate.net/publication/285228171_Manual_of_Procedures_of_Wildlife_Disease_Risk_Analysis/citations

OUTCOMES AND CAUSE OF MORTALITY OF HEDGEHOGS (*ERINACEUS EUROPEUS*) IN NORTH PORTUGAL (2002-2019)

Andreia Garcês^{1*}, Vanessa Soeiro², Sara Lóio², Roberto Sargo³, Luis Sousa³, Filipe Silva³ and Isabel Pires³



The main aim of this study was to collect data from hedgehog admittance records from the main two wildlife rehabilitation centres located at the north of Portugal (Wildlife Rehabilitation Centre of Parque Biológico de Gaia and the Wildlife Rehabilitation Centre of the University of Trás-os-Montes and Alto Douro), describing admissions causes, outcomes, primary causes of death and main lesion observed in the post mortem exam.

The Western European hedgehog (*Erinaceus europaeus*) is one of the most common and widely distributed mammal by the European continent. Hedgehogs are one of the most common species of mammals that are admitted to wildlife rehabilitation centres or veterinary hospitals. The main causes of admission include skin, respiratory, gastrointestinal diseases, malnutrition, hypothermia and traumatic injuries. Due to their preference to inhabit urban areas, hedgehogs are subjected to the highest risk of human-related traumatic injuries, that can include drowning, injuries inflicted by domestic pets, poisoning, entrapment and roadkill.

Over 17 years (2002-2019) a total of 740 animals were admitted. Most of the animals were adults, with the highest number of admissions during summer (36.8%) and spring (33.2%). Main reasons for admission were casual encounters (41%) and orphaned young (19%). In total, 66.6% of the individuals that arrive at the centres were released successfully to the wild.



The main three cause of death was by the trauma of unknown origin (32.7%), non-traumatic of unknown origin (26.6%) and nutritional disorders (20.2%). The main lesion observed were related to trauma, with skeletal and skin lesions (fractures, haemorrhages, wounds) and organ damage, particularly of the lungs and liver.

The hedgehog is a highly resilient and adaptable animal. This is the first time that such a long study related to outcomes and mortality has been performed in this specie. The urban environment has benefits for hedgehogs, offering supplementary sources of food and shelter, yet, the human presence has a negative impact on them. In the future is important that the public become even more involved in the activities of the wildlife centres and similar environmental associations, which will make a positive difference for hedgehog populations.



1: Inno – Serviços Especializados em Veterinária, Braga, Portugal.

2: Wildlife Rehabilitation Centre of Parque Biológico de Gaia, Avintes, Portugal.

3: University of Trás-os-Montes and Alto Douro (CRAS-UTAD), Vila Real, Portugal.

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BLUE TIT DISEASE RE-EMERGES IN FINLAND

Marja Isomursu*, Minna Nylund, Petra Heikkinen

Suttonella ornithocola has been found in Finnish Blue tits (*Cyanistes caeruleus*) after three years of absence.



Reports of blue tit morbidity and mortality were received from the Southwest coast of Finland near a feeding place in April 2020. Affected birds were lethargic, fluffy and dizzy and would not fly away when approached by people. In addition, bird ringers witnessed unusual deaths of weak blue tits after handling

and ringing. Around the same time, news from Germany told that blue tits were dying in large numbers.

Five blue tits were received for post mortem examination from a bird ringer in early May 2020. Bacteriological cultures revealed *Suttonella ornithocola* in lungs of two individuals. On histology, necrotic foci with clusters of rod bacteria were observed in the lung tissue of these birds. Other organs showed no specific pathology. Three birds were in poor condition, showed no specific pathology and were negative in bacteriology.

A third finding of *S. ornithocola* was made from the intestine of a blue tit found dead in a feeding place ca. 600 km north of the first outbreak. There, symptoms like head shaking and gasping were seen in two diseased blue tits.

Other cases have not been confirmed in 2020 and reports of blue tit mortality have been rare.



Previous incidents of exceptional blue tit mortality were observed in Finland in the spring of 2017, when two separate outbreaks of *S. ornithocola* were confirmed in blue tits and one in coal tits (*Periparus ater*). These outbreaks occurred far apart from each other which indicated a wide geographical spread of the bacterium.

The blue tit is a new-comer in Finnish nature. The first brood was confirmed in 1856. Initially, the species occurred only in the southern part of the country but it has successfully increased its range toward the north and breeds now even in some parts of Lapland. Estimated population size is 1,3 million individuals. In Finnish wildlife disease surveillance, epidemics in blue tits are uncommon. *S. ornithocola* seems to be one of the few pathogens affecting our blue tits.

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SUMMER AWARD ANNOUNCEMENTS – GREAT JOB STUDENTS!!!



WDA-IAAAM

Congratulations to the winner of the WDA / IAAAM best student-authored aquatic animal paper: IAAAM and the WDA congratulate **Dr. Jennifer Niemuth** of North Carolina State University on being selected as the winner of the 2019 WDA-IAAAM joint award for the best student-authored aquatic animal paper published in the Journal of Wildlife Diseases, for her paper ***Sea Turtle Tears: A Novel, Minimally Invasive Sampling Method for 1H-NMR Metabolomics Investigations with Cold Stun Syndrome as a Case Example***. The award includes a scholarship of \$1,500 which can be applied to educational expenses or to support conference travel!



Congratulations to WDA's Student Award Winners for 2020

The Student Activities Committee is pleased to announce the selected winners for the 2020 Student Scholarship Award (SSA) and Student Research Recognition Award (SRRA). It was a tough competition this year with many impressive student applicants.

The WDA Graduate Student Scholarship Award (SSA) acknowledges outstanding academic and research accomplishment, productivity, and future potential in pursuit of new knowledge in wildlife health or disease. Two scholarships were available in 2020 and were awarded to:

Dr. Andreas Eleftheriou, PhD candidate at the University of Montana

Dr. Sarah Michael, PhD candidate at the University of Sidney and Massey University

The SSA winners will be able to choose either of the following options:

Option 1: Distribute the funds this year as normal; SSA winners can use the funds to support elements of their education.

Option 2: Each winner has the option to use the funds to assist travel to the international conference. If one or both winners request to use the funds in this way, the funds for this year will be carried over so they are available for the students to use for travel to the 2021 WDA conference.

The WDA Graduate Student Research Recognition Award (SRRA) is given to the student judged to have the best research project in the field of wildlife health or disease. The selected student is the keynote speaker during the student presentation session at the annual conference.

Dr. Elliot Chiu, PhD candidate at Colorado State University was chosen for the strength of his graduate research project entitled "Feline leukemia

Quarterly Wildlife Mortality Report

virus (FeLV): an emerging threat to wild felids without protection from endogenous feline leukemia virus (enFeLV)". This impressive, multi-dimensional research project focuses on a novel disease threat to an endangered species.

This was an extremely tight race and everyone scored highly. Elliot had the top score with general agreement in scores among all reviewers. Elliot has been an active, contributing student member of the WDA throughout his education and he had an impressive, multi-dimensional research project that focuses on a novel disease threat to an endangered species.

The SRRA winner receives funds to attend the annual conference. The SRRA winner will be offered the opportunity to present at the 2021 WDA Conference instead and use the funds next year to support

travel to the conference. If the winner accepts this arrangement, we will then work with the 2021 conference organizing committee to arrange the schedule for two SRRA presentations. We recognize the value of allowing the winner to attend and present their work in person at the WDA conference, so want to reserve this opportunity for them if they choose. If the SRRA winner does not accept this arrangement, we will discuss other options for recognition and use of funds (e.g. allow use of funds similar to the SSA award, rather than travel to the conference to present).

Plaques will be sent to the winners by mail. If the winners attend the 2021 WDA Conference, they will be recognized during the awards banquet.

QUARTERLY WILDLIFE MORTALITY REPORT

July 2020

Written and compiled by members of the U.S. Geological Survey's National Wildlife Health Center.

SARS-CoV-2 Bat Risk Assessment

The novel coronavirus, SARS-CoV-2, causes COVID-19 in humans and is genetically similar to strains of coronavirus found in bats in China (Tang et al. 2020). Given the rapid spread of the virus, there is concern among natural resource management agencies that it may pose a threat to North American bat populations if: 1) bats are exposed to the virus through interaction with infected people, 2) the virus can subsequently infect bats and be transmitted among them, and 3) the virus causes illness or mortality in bats. Additionally, if sustained transmission of SARS-CoV-2 can occur in native bat populations, it could possibly become a source for new infection in humans, domestic animals, or other wild animals.

Out of an abundance of caution multiple and state and federal wildlife management agencies have issued interim guidance regarding bat handling; many have paused all direct handling of bats. To assist these agencies in their decision-making process, the



U.S. Geological Survey (USGS), U.S. Fish and Wildlife Service, and the EcoHealth Alliance conducted a rapid risk assessment using a combination of expert elicitation, published data, and unpublished data previously collected by bat biologists. The risk assessment has just been published by USGS (<https://doi.org/10.3133/ofr20201060>).

Based on the input from the expert panel, the risk assessment indicates that there is a non-negligible risk of transmission of SARS-CoV-2 from infected humans to bats. The level of risk varies across different groups that encounter bats, based largely on the type and

Quarterly Wildlife Mortality Report

amount of handling they engage in. Proper use of personal protective equipment, however, especially use of an N95 respirator, is expected to reduce the exposure risk from researchers by roughly 95%, but will not eliminate the risk altogether. If a bat were to become infected with SARS-CoV-2, the expert panel estimated that there is approximately a 33% chance the virus could spread within a bat population, however, there was considerable uncertainty associated with this estimate. Ongoing work by USGS and other partners is focused on reducing some of the key uncertainties and expanding the scope of this assessment. For additional information, contact Dr. Jonathan Sleeman (jsleeman@usgs.gov).

References:

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WNS/Pd Surveillance U.S. Update for the 2019/2020 Season

A new surveillance approach for white-nose syndrome (WNS) in bats was initiated this season. The approach was developed using 10 years of surveillance data and is based on a dynamic diffusion model that identified high risk areas where *Pseudogymnoascus destructans* (Pd) was predicted to spread this year in western and southern states. Model development was a collaboration between the U.S. Geological Survey's National Wildlife Health Center (NWHC), the University of Kansas, and the University of Wisconsin-Madison, and included input from an 18-member advisory team comprised of multiple state and federal partners. Benefits of this data-driven approach compared to previous years include improved surveillance efficiency by focusing limited resource allocation on areas predicted to be high risk for Pd emergence, reducing time to find new hotspots of Pd on the landscape, and allowing for quantitative analyses at a landscape scale for more coordinated disease response planning and management actions across jurisdictions.

Between December 2019 and May 2020, over 200 sampling kits were distributed to partners in 21 states to conduct hibernacula surveys and spring trap surveys at bat roost sites. Unfortunately, the SARS-CoV-2 pandemic response halted much of the planned spring surveillance activity this year (see the above SARS-CoV-2 bat risk assessment summary for more details). As of mid-May, only approximately 25% of distributed kits had been returned for analysis. To accommodate reduced sampling efforts, partners with unused surveillance kits may elect to collect guano and environmental swabs at above ground summer roosts as it does not require the direct handling of bats. Earlier experimental field studies coordinated by NWHC demonstrated the ability of guano sampling to detect the presence of Pd at summer roosts (Association of Fish and Wildlife Agencies Reports [Sep 2019](#), [Mar 2020](#)).

This season, the fungus has been detected in new counties in Georgia (Carroll, Clarke, Monroe), Oklahoma (Major), and for the first time in Montana (Daniels, Fallon, Richland). Passive surveillance, consisting of opportunistic reports of sick or dead bats by the general public, confirmed WNS for the first time in North Dakota (Billings County) and in 17 counties in south central Texas (Bandera, Bastrop, Bell, Burnet, Comal, Gillespie, Guadalupe, Kerr, Kimble, Lampasas, Llano, Mason, McCulloch, Sutton, Travis, Uvalde, Williamson). The number of states with confirmed cases of WNS is now up to 35. The disease has yet to be confirmed in California, Mississippi, Montana, and Wyoming where the fungus has been detected. For additional information, contact Dr. Anne Ballmann (aballmann@usgs.gov).

Rabbit Hemorrhagic Disease Virus 2 in North American Wild Rabbits

Rabbit Hemorrhagic Disease Virus 2 (RHDV2), a foreign animal disease not previously detected in wild North American rabbits, was identified in black-tailed jackrabbits (*Lepus californicus*) and desert cottontail rabbits (*Sylvilagus audubonii*) in New Mexico in March 2020. RHDV2 was concurrently detected in domestic European rabbits (*Oryctolagus cuniculus*) in the same region. Detections in wild and domestic rabbits quickly

Quarterly Wildlife Mortality Report

followed in Arizona and Texas; RHDV2 has now been identified in seven southwest U.S. states and six northern Mexico states (initial reports from Mexico to OIE were “untyped” RHDV but recent reports have confirmed RHDV2; see <https://whispers.usgs.gov>- ‘Popular Searches’ for wild rabbit event information). Mortality has also been confirmed in wild antelope jackrabbits (*L. alleni*), Eastern cottontail (*S. floridanus*), and mountain cottontail (*S. nuttallii*) rabbits.

Initial outbreaks of RHDV2 in North America involved feral and domestic European rabbits in British Columbia, Canada in 2018 and in the United States in Ohio (2018), Washington (2019), and New York (2020) (USDA 2020). Based on the current widespread regional distribution of RHDV2 in wild rabbits, it is possible that this disease is now established in North America, and consequently that the disease will likely spread to new regions. It is currently unknown what impacts this disease will have on North American rabbit populations; state- or federally-listed threatened or endangered species are of particular concern. Partners are encouraged to immediately report any wild rabbit morbidity and mortality and review biosafety plans during response to outbreaks as this virus is very easily spread and persists in the environment and on equipment.

The U.S. Geological Survey’s National Wildlife Health Center (NWHC) is working with the U.S. Department of Agriculture (USDA) to assess rabbit mortality events by conducting cause of death determinations (necropsy and laboratory analyses) and submitting tissue samples to the USDA Foreign Animal Disease Diagnostic Laboratory for RHDV2 testing. We are also partnering with state and federal wildlife managers to assess potential impacts of this disease through the development of species and population risk assessments, as well as providing technical assistance

and coordination as needed to better assist wildlife managers in responding to rabbit mortality events. Please see [Wildlife Health Bulletins](#) issued by the NWHC and information provided by [USDA](#). For additional information contact Barb Bodenstern (bbodenstern@usgs.gov).

References:

- United States Department of Agriculture (USDA). 2020. Emerging Risk Notice - April 2020- Rabbit Hemorrhagic Disease Virus, Serotype 2. 5 p. https://www.aphis.usda.gov/animal_health/downloads/rhdv2.pdf. Accessed on 06/26/2020.

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: <http://whispers.usgs.gov/>