

# Wildlife Toxicology Working Group Newsletter

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## From the Chair

**Brian Hiller**

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Hello from the finally snowless reaches of Northern Minnesota! I certainly hope you are all having more of an actual Spring than we are here! The first few months of 2014 are seeing our area of specialty more frequently occupying headline space in a variety of media formats. This provides us with an excellent opportunity to inform the public of the facts

regarding wildlife toxicology. It is also an opportunity to provide facts and talking points to other TWS professionals.

The MN TWS annual meeting plenary session addressing the issue of lead ammunition and fishing tackle titled **“Moving Beyond Lead: Education vs. Regulation vs. Reality”** was very well received. The plenary session success was prefaced by a platform session the day before which drew standing-room only crowds for each presentation. This was in part due to the line-up of high quality speakers, but also the amount of mainstream media attention the lead issue has been getting in recent years. The line-up of speakers included Paul Radomski and Lou Cornicelli from the MN DNR, Pat Redig from the Raptor Center at the University of Minnesota, John Schulz from the University of Missouri, Ryan Bronson representing the National Shooting Sports Foundation, and Fredrik Widemo from the Swedish Association of Hunting and Wildlife Management. Abstracts of each presentation, along with a short bio of each speaker, can be found here ([MNTWS 2014 program](#)). The plenary session was attended by approximately 150 people, including 30+ students, a variety of wildlife professionals, and a number of members of the general public as well. Nearly everyone in attendance stayed for the lively panel discussion that followed, which also included Sean Strom from the WI DNR, Steven Winter from the USFWS, and Mark Johnson from the Minnesota Deer Hunters Association.

The attendance alone was remarkable for a small, mid-week conference, setting a new record for plenary attendance for MNTWS. Also remarkable was the lively, yet civil, nature of the panel discussion and the amount of positive feedback and media coverage the topic generated. Some of the coverage can be seen here ([Forum news article](#)) and a radio interview I did with the Minnesota Outdoor News can be heard here ([MN Outdoor news radio](#)). These are all very positive signs for the WTWG as they raise the public profile of contaminants and possible impacts on wildlife. Our \$200

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## Member Profile - Winston Vickers



*Who are you and by whom have you been employed?*

Employed full time at the Wildlife Health Center, UC Davis as an Associate Veterinarian – this is a division of the One Health Institute at the School of Veterinary Medicine, and part time as Staff Veterinarian for the Institute for Wildlife Studies, a non-profit wildlife research and management organization. I have a DVM degree from Oklahoma State University and an MPVM degree from UC Davis. I do wildlife ecology /disease and toxics research on a variety of species and participate in oil spill response activities in a part-time role with the Oiled Wildlife Care Network.

*What sparked your interest in wildlife and/or wildlife toxicology? Any specific issues or species?*

My interest in wildlife and toxicology is long standing, from my growing up in a rural area as the son of a mixed practice veterinarian who regularly saw toxic issues in small and large animal patients (both plants and chemicals) and also treated wild animals on occasion, to vet school where I was employed part time doing wildlife research and spent a 6 week preceptorship at the Oklahoma City Zoo, to regular mixed practice where I too saw many toxic issues in small and large animal patients and also treated wildlife, to small and exotics animal practice and wildlife rehab work that entailed treating various toxin exposures, to full time wildlife veterinary medicine and research on species that have various toxin-related issues (AR's, other rodenticides, lead, oil-related toxic substances, DDT and its various offshoots). I am most directly interested in and continuing research at the moment in AR's in mountain lions and other carnivores, and in cholecalciferol exposure and effects in one population of Channel Island foxes.

*Who were/are some of your role models/mentors in wildlife and/or wildlife toxicology? Why?*

I have been privileged to work with so many talented and smart people in the wildlife field with so many different organizations that it seems inappropriate to leave anyone out – I have learned things from everyone, from field biologists and trackers /houndsmen (usually have to catch the animals to sample them), to professors. That being said, I think the most prominent influences were my father, Dr. George Vickers; Oklahoma State professors in veterinary school Dr.'s Al Kocan and Dick Corstvet, all of the doctors I have had the privilege to work with at the Wildlife Health Center at UC Davis but especially Dr.'s Walter Boyce and Mike Ziccardi, and Dave Garcelon president of the Institute for Wildlife Studies. All of these people have taught me things about: the rewards and challenges of veterinary medicine and the ways it can inform wildlife biology /toxicology /ecology, the value of collaboration, and the value of defining and using good methodology in research. The field biologists and associated field personnel have taught me about the rigors of that work and how to do it successfully, and have taught me a deep appreciation for how little of our knowledge about wildlife could have been accumulated without their dedication.

*What was a project you've worked on that you think had the best outcome/biggest success?*

I have had the luck /privilege of working for many years on the Channel Island Fox recovery and management projects that have been extremely successful in bringing back 4 island fox subspecies from the brink of extinction. Endangered species recovery is rarely so successful in such a relatively short time span and getting to work with a diverse team to help bring that about has been extremely rewarding. In the course of the fox work I have also been able to do medical research into a unique cancer in one subspecies of fox that has been rewarding and has involved parasitology, pathology, virology, toxicology, and genetics. Within the same province of Channel Island work, I have tangentially assisted in bald eagle recovery via the sustained efforts to mitigate and managing the effects of

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*...From the Chair, continued from page 1*

sponsorship of the plenary session was also an important show of support for the topic and further elevated our recognition by the public and encouraged new memberships in our group.

Directly related to this discussion is one of the topics at the top of our list of priorities for the next few months; the Lead Position Statement found here ([TWS Lead Position Statement](#)). This important document expires in July of this year and we will be looking for some members interested in updating or making revisions.

As always, if you see a toxicology-related issue in your local, national, or an international newspaper, send the link or a quick email to me or one of the other board members and we'll get it out to the rest of the group. Stay involved and keep in touch other than simply reading the newsletter every few months.

Finally, I'd like to conclude by thanking Tim Bargar and the others who responded to the call for assistance with contaminant information and research methods that came through our Facebook group. The numerous offers to assist with advice and published methods I received were exactly what I was hoping to see from the group. I'm glad we, as a group, were able to provide expertise and advice to a researcher interested in contaminants. I certainly hope this is just the beginning of our group serving as an important resource for the rest of The Wildlife Society.

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DDT-related compounds on that species.

I have also been extremely lucky /privileged to have directed the Southern California Cougar Project of the Wildlife Health Center during the same period and to have been able to contribute to the understanding of how this iconic predator manages to live alongside such a large human population in southern California, but also to contribute to enhancing its chances of continuing to exist there in the face of major challenges.

Finally, work with the Oiled Wildlife Care Network has exposed me (pun) to a very different aspect of wildlife veterinary medicine and wildlife rehab that has been extremely interesting and rewarding as well.

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### **Soliciting Papers for an Upcoming Meeting**

Barnett Rattner is soliciting papers for a session on rodenticides at the November 2014 SETAC-North America meeting in Vancouver. The session is entitled "The use of rodenticides, a nagging issue on their effectiveness and risks". The proposed session focuses on the latest scientific insights on an emerging adverse outcome pathway, toxicokinetics and toxicodynamics of rodenticides, secondary exposure and poisoning under field conditions, and risk mitigation. In this session, presentations from scientists, regulators and industrial partners from North America, Europe, Australasia and parts of SE Asia are expected to provide an integrated overview of the environmental impacts of rodenticide use. Contact Barnett for more information: [brattner@usgs.gov](mailto:brattner@usgs.gov).

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### **Wildlife Tox Service Opportunities**

SETAC has recently approved a global Wildlife Toxicology Advisory Group that will be meeting for the first time in Basel, Switzerland in May. Anyone (SETAC and non-SETAC members) can join and participate. A link to information about the advisory group is: <http://www.setac.org/group/AGWildlifeTox>

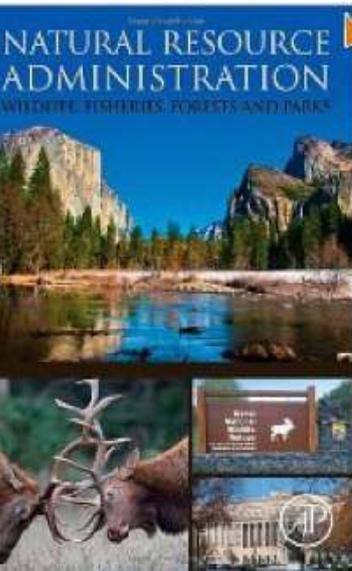
## Member Publications

Marr CLH, Robertson K, Reynolds KD. 2014. Methylmercury in Biota Downstream of Arivaca Lake, Arizona, USA. *Archives of Environmental Contamination and Toxicology* 66(3): 327-340.

Presented at the 26th Vertebrate Pest Conference in Hawaii, March 2014:

Rattner BA, Horak KE, Lazarus RS, Schultz SL, Abbo BG, Volker SF. Toxicity and potential risk of chlorophacinone assessed in captive American kestrels (*Falco sparverius*) as a model species for raptors.

*Abstract:* New regulatory restrictions on some second-generation anticoagulant rodenticides in the U.S. may be offset by expanded use of first-generation anticoagulant rodenticides (FGARs). Recent toxicity studies with captive American kestrels (*Falco sparverius*) and Eastern screech-owls (*Megascops asio*) demonstrated that these raptorial species are considerably more sensitive to the FGAR diphacinone than traditional avian wildlife test species (mallard *Anas platyrhynchos*, bobwhite *Colinus virginianus*). Using these kestrel and owl data in deterministic and probabilistic risk assessments suggest that the hazard diphacinone poses to nontarget raptors is far greater than predicted from studies with mallards and bobwhite. We are currently examining the toxicity of the FGAR chlorophacinone (CPN) in adult male American kestrels fed diets mechanically amended with CPN (CPN mechanically mixed into tissue of lab rats) and diets containing biologically incorporated CPN (tissue derived from lab rats fed commercial CPN bait for 3 days). Nominal CPN concentrations in these diets were 0.15, 0.75 and 1.5  $\mu\text{g/g}$  food ww, and actual CPN concentration in diets were analytically verified as being close to target values. Adult male kestrels received control diet or CPN diets for 7 days. Neither food consumption nor body weights were affected by the CPN diet, and exposure and adverse effects were dose-dependent. There were no dramatic differences in toxicity between the mechanically-amended and biologically-incorporated CPN diets. Overt signs of intoxication and anemia were apparent in kestrels receiving 1.5  $\mu\text{g}$  CPN/g food ww. Prothrombin time and Russell's viper venom time were significantly prolonged at doses of 0.75 and 1.5  $\mu\text{g}$  CPN/g food ww compared to controls and the 0.15  $\mu\text{g}$  CPN/g dose. Histopathological and CPN residue analyses are currently being conducted. Using these environmentally realistic exposure data, the hazard and risk of CPN to non-target wildlife will be evaluated.



**Natural Resource and Wildlife Administration** (written by Don Sparling) presents a clear perspective on natural resource administration in North America, how it developed, how it is currently structured, and where it might be heading. Intertwined areas of natural resources, including wildlife administration, fisheries, forestry, and other competitive land uses, are heavily discussed. The book covers the history of natural resource management in Europe and North America, proceeding to environmental law; agencies involved in wildlife and natural resource management; and the human dimensions of public relations and economic concerns.

Now available through Academic Press, Amazon and other book outlets.



*Thank you to the following contributors to this newsletter.*

- Brian Hiller*
- Carrie Marr*
- Barnett Rattner*
- Don Sparling*
- Winston Vickers*

**WTWG Executive Board**

|                             |                 |                                                                          |
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**WTWG NEWSLETTER NOTES**

The WTWG newsletter is a quarterly publication. Email contributions such as citations, member news, research highlights, and conferences by June 30 to Louise at [lsvenne@gmail.com](mailto:lsvenne@gmail.com).

The WTWG is online. Archived newsletters, meeting minutes, and more are included at <http://joomla.wildlife.org/toxicology/index.php>

The WTWG is on Facebook. Visit and/or “Like” us (even if you don’t have a Facebook account). [www.facebook.com/WildlifeToxicology](http://www.facebook.com/WildlifeToxicology)

*Louise Venne, Editor*