

**SPECIAL POINTS OF INTEREST:**

- New residents selected
- Research funds for veterinary parasitology
- Updated web presence
- NCVP-ACVM clicker session at AAVP

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## Awards and Accolades

Congratulations are in order for PhD candidate **Dr. Lindsay Starkey**, NCVP Bayer resident, who received the 2013 Merck Outstanding Graduate Student Award and honorarium. Dr. Starkey spoke to a crowded room on the opening night of AAVP 2013 in Chicago about her research regarding *Ehrlichia* spp. infections in dogs in Oklahoma. Dr. Starkey graduated with a BS in Animal Science with a minor in Biology from the University of Arkansas and a DVM from Oklahoma State University (2011). Keep up the great work, Lindsay!



**Dr. Lindsay Starkey** receiving the 2013 Merck Outstanding Graduate Student Award



**Chris Adolph, DVM, MS**

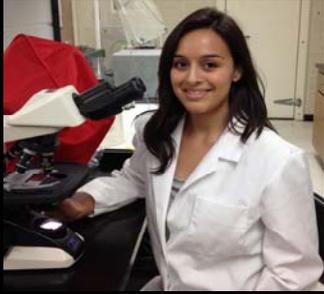
Also, **Dr. Chris Adolph**, NCVP resident, completed his Master's Degree in Veterinary Parasitology this summer. Dr. Adolph owns a veterinary practice (Southpark Veterinary Hospital) in Broken Arrow, Okla., but still carved time out of his busy schedule to pursue graduate work evaluating helminths and vector-borne disease prevalence in shelter cats and comparing fecal parasite egg recovery techniques. Additional parasitology interests include canine intestinal parasites and developing practice protocols for parasite control that enhance client compliance. Great job, Chris!

Lastly, NCVP Co-Director **Dr. Susan Little** was recently selected for a 2013 Australian Society of Parasitologists lecturer's tour. Prior to attending the annual meeting of the World Association for the Advancement of Veterinary Parasitology in Perth, Dr. Little will be visiting the veterinary colleges of the University of Queensland, University of Adelaide, and Murdoch University, meeting with colleagues in veterinary parasitology and speaking on vector-borne diseases in the Americas.



**Dr. Susan Little, Regents Professor and Krull-Ewing Endowed Chair**

## New Faces



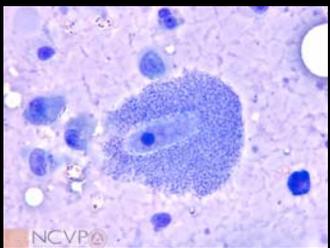
Dr. Jessica Rodriguez



Dr. Yoko Nagamori



Dr. Kelly Allen



NCVP watermarked image available in the public NCVP image database.

The NCVP welcomes two new residents. **Dr. Jessica Rodriguez**, a veterinarian and graduate student at Texas A&M University, has been selected as the first Merial Resident in Veterinary Parasitology. Dr. Rodriguez will complete her PhD and continue her clinical training toward board certification under the direction of Dr. Karen Snowden. Her research focuses on *Heterobilharzia americana*, an important trematode pathogen of dogs in the southern United States. Dr. Rodriguez will receive additional parasitology training at the veterinary colleges of Oklahoma State University, Kansas State University, the University of Prince Edward Island, and Colorado State University.

**Dr. Yoko Nagamori** completed her DVM at Iowa State University's College of Veterinary Medicine in May 2013. She has been chosen as a doctoral student and NCVP resident and will complete her program at Oklahoma State University. Dr. Nagamori worked in the parasitology diagnostic lab while a veterinary student at Iowa State and is interested in both diagnostics and zoonotic and tropical diseases. Dr. Nagamori was born in Tokyo, Japan and came to the United States in 2005. She earned her BS in Geosciences (Shizuoka University, Shizuoka, Japan) and Biology and Mathematics from Augustana College, Sioux Falls, S.D.

Also, the NCVP now has a Project Leader. **Dr. Kelly Allen** completed her MS in Veterinary and Biomedical Sciences at the University of Georgia and PhD in Veterinary Parasitology at Oklahoma State University. As project leader, Dr. Allen will be working on a number of projects, including renovating the NCVP public image database, compiling case-based quizzes for those teaching and reviewing veterinary parasitology, composing newsletters, and coordinating educational outreach programs. She will also serve as a key point of contact for twice-annual NCVP board meetings.

## NCVP Website Revamped

The NCVP website shift to a self-maintained content management system has been completed and the site is now live. In addition to information on the NCVP and application materials, the site provides links to **popular parasitology books, journals, and recent articles**; a featured "**case of the month**," where a monthly photo of a parasite with an associated interesting clinical scenario is posted, and a link to the updated **parasite image database**, where quality images of a variety of parasites are shared for public use in lectures, presentations, and/or discussions of parasites and parasitic diseases. Check out the new NCVP website at:

<http://info.library.okstate.edu/ncvp>



Parasite consultation services offered by the NCVP

The goal of the annual NCVP RFP is to offer initial support for undertaking deserving research projects in clinical or basic veterinary parasitology .

New strategy to block *Cytauxzoon felis* transmission to cats!



## Parasite Consultation Key to Clinical Success

Even pets on routine control products may occasionally acquire parasitic infections and infestations. Accurate identification of the parasites present in these cases is key to resolving the clinical problem. Recent NCVP diagnostic lab efforts have assisted veterinarians struggling with difficult cases by recognizing unusual helminths in the vomit of cats maintained on monthly control products (a different treatment was indicated in each case), confirming rat mites as the source of bites to people and pets in a home, and identifying home infestations with brown dog ticks that were overwhelming initial attempts to treat only the dogs. What all of these situations have in common is the need to identify the parasites responsible for the problem in order to recommend solutions that are most likely to succeed. Would you like the NCVP to help resolve your difficult parasite cases, especially those which persist in the face of treatment? Contact us: [ncvp@okstate.edu](mailto:ncvp@okstate.edu)

## Research Grants Offered to AAVP Members

The first annual request for proposals (RFP) was circulated among AAVP members in May 2013. Consistent with the mission of NCVP, the RFP solicited applications to support highly deserving research projects in clinical or basic veterinary parasitology that are expected to significantly advance the field and which are clinically important. Because other funding sources are available for zoonotic parasites, the RFP specified that priority would be given to applications from those working with veterinary parasites for which other funding mechanisms are not widely available. Involvement of students in the proposed research was also expected. We have received considerable interest from both American and Canadian colleagues in the grant program and anticipate funding four, 1-year awards of up to \$10,000 each. Applications are due October 1 and awards will be distributed in November 2013. Questions regarding the RFP should be addressed to Dr. Mason Reichard, [mason.reichard@okstate.edu](mailto:mason.reichard@okstate.edu)

## Current NCVP Research

Ongoing projects by NCVP members include the study of reversible heartworm antigen blocking by heating serum from heartworm-infected, analyte negative dogs (already being discussed on VIN!); successful means of stopping *Amblyomma americanum* transmission of *Cytauxzoon felis* to cats; and identification of novel tick-borne *Ehrlichia* spp. and *Rickettsia* spp. agents in dogs and horses.

Interested? Contact us to learn more. [ncvp@okstate.edu](mailto:ncvp@okstate.edu)

## NCVP Presence at AAVP 2013



**Watermarked temporary tattoo of *Dracunculus* sp. as part of NCVP promotion at AAVP.**

NCVP was well represented at the 2013 annual AAVP meeting in Chicago. Several NCVP members were seen sporting their embroidered polos at various times during the meeting. An NCVP table staffed during meeting breaks provided at-



**USB drives pre-loaded with parasite videos and "Parasitology Jeopardy" provided at AAVP.**

*If you would like a pre-loaded custom NCVP USB flash drive contact us at: [ncvp@okstate.edu](mailto:ncvp@okstate.edu)*

tendees with original temporary parasite tattoos of a wrapping *Taenia* strobilus, *Dracunculus* sp. extraction from a skin ulceration with a match stick, an engorging tick surrounded by a "bull's-eye" rash, and *Dermatobia* sp. protruding out of the skin. All very gross, and all very appreciated!

Also well-received were the NCVP-branded USB flash drives pre-loaded with several videos of parasites "choreographed" to music, as well as the original interactive learning game "Parasitology Jeopardy," which includes numerous celebrities in the field of Parasitology providing answers to "Celebrity Daily Double" questions. Brochures outlining the objectives of the NCVP and services provided were also available at the NCVP promotional table.

Please contact us if you would like an assortment of temporary tattoos, any additional customized, pre-loaded USB flash drives, or copies of the NCVP brochure to share. [ncvp@okstate.edu](mailto:ncvp@okstate.edu)

## NCVP-ACVM Case-Based Clicker Session a Success at AAVP

The NCVP partnered with the American College of Veterinary Microbiologists to host a special, interactive (clicker response), case-based session focusing on the ACVM exam process and numerous interesting current topics in clinical parasitology. Presenters included **Drs. Lora Ballweber, Byron Blagburn, Susan Little, Andrew Peregrine, Mason Reichard, Craig Reinemeyer, Karen Snowden, and Anne Zajac**. There were an estimated 80 people in attendance. Feedback from the session was tremendously positive, and NCVP plans to repeat the session at future AAVP meetings with other presenters and topics. Very exciting!



**Audience armed with clickers listening to case.**

## NCVP Member Research Presentations at AAVP

Numerous NCVP members presented their latest research at AAVP. Research topics and speakers are listed below (continued on the following page).

### **NCVP Residents:**

- 2013 Merck Outstanding Graduate Student Talk—**Dr. Lindsay Starkey** (see front page)
- *Heterobilharzia americana* infections in Texas dogs—**Dr. Jessica Rodriguez**
- Investigative in vivo imaging modalities for parasite detection—**Dr. Alice Lee**
- Prevalence of covert intestinal helminth infections in dogs—**Dr. Chris Adolph**
- Strategies to block *Cytauxzoon felis* tick transmission to cats—**Dr. Jennifer Thomas**

## NCVP Member Research Presentations at AAVP Continued...

### NCVP Board Members:

- Historical perspective and research overview of heartworm resistance and preventatives, genetic selection for resistance with increasing dosages of ivermectin—**Dr. Byron Blagburn**
- Testing ProHeart®6 against a field isolate of canine heartworm—**Dr. Dwight Bowman**
- Indoxacarb efficacy against *Ctenocephalides felis* adults, eggs, and adult flea emergence—**Dr. Michael Dryden**
- Never before described merogonic stages of *Theileria cervi* in deer—**Dr. Kelly Allen**
- Two injectable ivermectin formulations against gastrointestinal nematode infections in cattle—**Dr. Craig Reinemeyer**
- Incorporating parasite evaluation in a ram performance test—**Dr. Anne Zajac**

## Parasites for the People

In June, Dr. Susan Little held a parasitology “lab” for OSU alumni and their grandchildren during Grandparent’s University. The lab was a fun activity for both grandparents and grandchildren. Specimens featured were several different nematodes and cestodes, live (contained) ticks, and a giant tick picture that children could stand behind and have their pictures taken as an adult female *Amblyomma americanum*. Also in June, Dr. Lindsay Starkey held a seminar on large animal parasites for high school students active in 4-H. Thanks for the community outreach efforts, Drs. Little and Starkey!



**Dr. Starkey lecturing on large animal parasites to Oklahoma high school students in 4-H.**

## About the National Center for Veterinary Parasitology

Veterinary parasites impact human health and society in many ways. With the generous support of our sponsors, the National Center for Veterinary Parasitology works to promote greater understanding and control of parasitic diseases in animals through innovative partnerships between academia and industry. Housed in the Center for Veterinary Health Sciences at Oklahoma State University, the center strives to create future generations of veterinary parasitologists, conduct targeted research, and provide diagnostic and consulting services worldwide.

To learn more, please visit <http://info.library.okstate.edu/ncvp>



**Center for Veterinary Health Sciences**  
Healthy Animals • Healthy People





## Selected Publications from the NCVP

Our residents, faculty, and staff have had a busy year. Below is an abridged list of just a few of the publications over the last year (names of board members and residents are bolded). To request the full list or individual reprints, please send an email to [ncvp@okstate.edu](mailto:ncvp@okstate.edu). Most importantly if you have suggestions for future continuing education articles, review papers, or topics you think would be of interest to veterinarians and others interested in parasitology, please send us your suggestions.

### A FEW TO WATCH FOR...

**Allen KE, Johnson EM, Little SE.** 2013. *Hepatozoon americanum* infections. In Kirk's Current Veterinary Therapy Volume XV, 1st Edition. J. Bonagura editor. St. Louis, Missouri.

Wood J, **Johnson EM, Allen KE**, Campbell GA, Rezabek G, Bradway DS, Pittman LL, **Little SE**, Panciera RJ. 2013. Merogonic Stages of *Theileria cervi* in Mule Deer. JVDI.

Briggs KR, Yaros JP, Liotta JL, Lucio-Forster A, **Lee AC, Bowman DD.** 2013. Detecting *Aelurostrongylus abstrusus*-specific IgG antibody using an immunofluorescence assay. J Fel Med Surg.

**Lee ACY**, Epe C, **Bowman DD.** Comparison of *Ancylostoma caninum* worm counts acquired by endoscopy and necropsy. Vet Parasitol.

Houk AE, O'Connor T, Pena HF, Gennari SM, **Zajac AM**, Lindsay DS. Experimentally induced clinical *Cystoisospora canis* coccidiosis in dogs with prior natural patent *C. ohioensis*-like or *C. canis* infections. J Parasitol.

Whitney TR, Wildeus S, **Zajac AM.** The use of redberry juniper (*Juniperus pinchotii*) to reduce *Haemonchus contortus* fecal egg counts and increase ivermectin efficacy. Vet Parasitol.

**Reinemeyer CR.** A novel anthelmintic formulation for beef cattle. Vet Parasitol. 192(4):307.

**Starkey LA**, Panciera RJ, Paras K, **Allen KE**, Reiskind M, **Reichard MV, Johnson EM, Little SE.** 2013. Diversity of *Hepatozoon* spp. in coyotes from the southcentral United States. J Parasitol. 99(2):375-8.

**Starkey LA**, West M, Barrett A, Saucier J, O'Conner T, Paras K, Reiskind M, **Reichard M, Little SE.** 2013. Prevalence of antibodies to spotted fever group *Rickettsia* spp. and *Ehrlichia* spp. in coyotes. J Wildl Dis. 49(3): 670-3.

Bowbridge S, Mackinnon K, McCann JC, **Zajac AM**, Notter DR. 2013. Hair-type sheep generate an accelerated and longer-lived humoral immune response to *Haemonchus contortus* infection. Vete Parasitol. 196(1-2):172-8.

Katiki LM, Ferreira JF, Gonzalez JM, **Zajac AM**, Lindsay DS, Chagas AC, Amarante AF. 2013. Anthelmintic effect of plant extracts containing condensed and hydrolysable tannins on *Caenorhabditis elegans*, and their antioxidant capacity. Vet Parasitol. 192(1-3): 218-27.

### 2012

Wang C, Mount J, Butler J, Gao D, Jung E, **Blagburn BL**, Kaltenboeck B. 2012. Real-time PCR of the mammalian hydroxymethylbilane synthase (HMBS) gene for analysis of flea (*Ctenocephalides felis*) feeding patterns on dogs. Parasit Vectors. 5:4.

Rosypal AC, Ripley A, Stockdale Walden HD, **Blagburn BL**, Grant DC, Lindsay DS. 2012. Survival of a feline isolate of *Tritrichomonas foetus* in water, cat urine, cat food, and cat litter. Vet Parasitol. 185(2-4).

Brown HE, Harrington LC, Kaufman PE, McKay T, **Bowman DD**, Nelson CT, Wang D, Lund R. 2012. Key factors influencing canine heartworm, *Dirofilaria immitis*, in the United States. Parasit Vectors. 5:245.

Liotta JL, **Lee ACY**, Aksel S, Alkhalife I, Cruz-Reyes A, Youn H, Bienhoff SE, **Bowman DD.** 2012. Obtaining an isolate of *Ancylostoma braziliense* from dogs without the need for necropsy. J Parasitol. 98(5):1034-6.

**Lee ACY**, Kraus MS. 2012. Coughing cat: could it be heartworm? NAVC Clinician's Brief. 10 (6): 91-95.

Sukhumavasi W, Bellosa ML, Lucio-Forster A, Liotta JL, **Lee ACY**, Pornmimngmas P, Chungpivat S, Mohammed HO, Lorentzen L, Dubey JP, **Bowman DD.** 2012. Serological survey of *Toxoplasma gondii*, *Dirofilaria immitis*, FIV and FeLV infections in pet cats in Bangkok and vicinities, Thailand. Vet Parasitol. 188:25-30.

**Little SE, Starkey LA.** 2012. Conquering fleas – preventing infestations and limiting disease transmission. Today's Veterinary Practice. 2(6):28-32.

Lack JB, **Reichard MV**, Van Den Bussche RA. 2012. Phylogeny and evolution of the Piroplasmida as inferred from 18S rRNA sequences. Int J Parasitol. 42(4):353-63.

**Reinemeyer CR.** 2012. Anthelmintic resistance in non-strongylid parasites of horses. Vet Parasitol. 19; 185(1):9-1.

**Starkey LA, Little SE.** 2012. Defeating ticks – practical tips for preventing tick-borne disease in pets. Today's Veterinary Practice. 2(5):40-44.

### 2013

Kopp S, **Blagburn B**, Coleman G, Davis W, Denholm I, Field C, **Hostetler J**, Mencke N, Rees R, Rust M, Schroeder I, Tetzner K, Williamson M. 2013. Monitoring field susceptibility to imidacloprid in the cat flea: a world-first initiative twelve years on. Parasitol Res. 112 Suppl 1:47-56.

**Dryden MW**, Payne PA, Smith V, Heaney K, Sun F. 2013. Efficacy of indoxacarb applied to cats against the adult cat flea, *Ctenocephalides felis*, flea eggs and adult flea emergence. Parasit Vectors. 6:126.

**Dryden MW**, Payne PA, Smith V, Berg TC, Lane M. 2013. Efficacy of selamectin, spinosad, and spinosad/milbemycin oxime against the KS1 *Ctenocephalides felis* flea strain infesting dogs. Parasit Vectors. 6:80.

**Little SE.** 2013. Future challenges for parasitology: vector control and one health in the Americas. Vet Parasitol. 195 (3-4): 249-55.

Reiskind MH, **Little SE.** 2013. Biology, ecology, and vector role of mosquitoes. In Guide to Vector Borne Diseases of Pets. F. Beugnet editor. Merial, Lyon, France. pp: 161-170.

Allison RW, **Little SE.** 2013. Diagnosis of rickettsial diseases in dogs and cats. Vet Clin Pathol. 42(2):127-44.

**Reichard MV, Little SE.** 2013. Feline Cytauxzoonosis. In Guide to Vector Borne Diseases of Pets. F. Beugnet editor. Merial, Lyon, France. Pp: 293-300.

**Reichard, MV, Thomas JE**, Arther RG, **Hostetler JA**, Raetzel KL, Meinloth JH, **Little SE.** 2013. Efficacy of an imidacloprid 10%/flumethrin 4.4% collar (Seresto(®), Bayer) for Preventing the Transmission of *Cytauxzoon felis* to Domestic Cats by *Amblyomma americanum*. Parasitol Res. 112 Supple 1: 11-20.

Andersen UV, Howe DK, Danquodoubiyian S, Roft N, **Reinemeyer CR**, Lyons ET, Olsen SN, Monrad J, Nejsun P, Nielsen MK. 2013. SvSXP: a *Strongylus vulgaris* antigen with potential for prepatent diagnosis. Parasit Vectors. 6:84.