

## SPECIAL POINTS OF INTEREST:

- **New NCVP Residents**
- **NCVP Alums Join Faculty Ranks**
- **Award Winning Residents and Board Members**

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## NCVP Welcomes Three New Residents!!!

It is with great pleasure that we announce the addition of three new veterinarians to the Residency Program in Veterinary Parasitology!



**Dr. Nicole Szafranski,**  
Zoetis Resident in  
Veterinary Parasitology

### Meet the Zoetis Resident—Dr. Szafranski

**Dr. Nicole Szafranski** earned her DVM from the University of Tennessee in 2020 and was named the **Zoetis Resident in Veterinary Parasitology**. She will be completing her PhD and residency training under the mentorship of Drs. Rick Gerhold and John Schaefer at her alma mater. As the first NCVP resident at the University of Tennessee, she is excited to help establish the residency program at UT while working on her research focusing on toxoplasmosis in waterfowl. **Go Big Orange and welcome to the NCVP family, Nicole!**



**Dr. Timothy Wu,**  
IDEXX Resident in  
Veterinary Parasitology

### Meet the IDEXX Resident—Dr. Wu

**Dr. Timothy Wu**, embarks on his NCVP Residency after completing his DVM and anatomic pathology residency at Cornell University. Dr. Wu was named the **IDEXX Resident in Veterinary Parasitology** and will complete his residency training and PhD under the direction of **Dr. Dwight Bowman** (NCVP Board Member) and Dr. Mani Lejeune. His research will focus on the host immune response to *Toxocara canis*. **Welcome Timothy—we can't wait to see you combine your pathology expertise with parasitology!**



**Dr. Katy Martin,**  
Elanco Resident in  
Veterinary Parasitology

### Meet the Elanco Resident—Dr. Martin

**Dr. Katy Martin**, graduate student at Iowa State University College of Veterinary Medicine, earned her MPH in 2017 and her DVM in 2018. Katy was already pursuing a PhD in veterinary parasitology and was recently named the **Elanco Resident in Veterinary Parasitology**. She is completing her residency training and PhD with Dr. Matt Brewer. The focus of her research is *Tritrichomonas foetus* in the bovine host. **Katy—we are so glad to have you officially join NCVP!**





## Former NCVP Resident Joins Kansas State University!



**KANSAS STATE**  
UNIVERSITY

Dr. Jeba Jesudoss Chelladurai

**Dr. Jeba Jesudoss Chelladurai** – the former **NCVP Resident** in Veterinary Parasitology – started her new position as **Assistant Professor of Parasitology** at **Kansas State University's** College of Veterinary Medicine the first week of August 2020. Jeba completed her veterinary training at Madras Veterinary College and her PhD and Residency program at Iowa State University under the direction of Dr. Matt Brewer. While at Iowa State, she participated extensively in diagnostic cases and passed the ACVM board examination. Jeba's research focuses on susceptibility and resistance in helminths of veterinary importance. At KSU, "Dr. JC" joins Dr. Brian Herrin – another boarded parasitologist and NCVP alum, and together they are sure to continue the strong tradition of Wildcat parasitology excellence.

**Way to go Jeba – so happy for you!**

## Former Zoetis Resident Joins Texas Tech !

**Dr. Ashley Steuer** – who recently completed her training as the **Zoetis Resident** in Veterinary Parasitology – embarked on a new adventure when she accepted a position as **Assistant Professor of Parasitology** at **Texas Tech University** on September 1 of this year. Dr. Steuer earned her DVM from the University of Tennessee and her PhD from the University of Kentucky. At Texas Tech's School of Veterinary Medicine, which welcomes its first veterinary class in the fall of 2021, she will have the opportunity help craft a new program, focus on providing services for rural communities, and serve as a founding faculty member, mentoring the next generation of veterinary graduates. **Congratulations Ashley!**



TEXAS TECH UNIVERSITY  
School of Veterinary Medicine



Dr. Ashley Steuer

## Dr. Steuer Wins AAVP-Merck Outstanding Student Award!

Congratulations are in order for **Dr. Ashley Steuer**, former **Zoetis Resident**! Ashley received the 2020 AAVP-Merck Animal Health Outstanding Graduate Student Award for her dissertational research focused on host-parasite interactions in horses infected with cyathostomes. She conducted her research under the mentorship of Dr. Martin Nielson at the Gluck Equine Research Center at the University of Kentucky, and successfully defended her dissertation in April 2020. Dr. Steuer's award acceptance presentation was entitled "Cyathostomins: Their interaction with the equine host and my life." The award consisted of an engraved plaque and an honorarium of \$1,000 provided by Merck Animal Health.

**Great job Ashley – well done!**

## BI Resident Kathryn Duncan Wins AAVP Student Competition!

**Dr. Kathryn Duncan**, the **Boehringer-Ingelheim Resident** in Veterinary Parasitology at Oklahoma State University (OSU), took first place in the 2020 AAVP student oral presentation competition. Dr. Duncan received a certificate and honorarium from Bayer Animal Health for her research presentation entitled "Diversity of *Rickettsia* spp. in *Dermacentor* spp. from across the United States." Dr. Duncan's interests in veterinary parasitology was sparked at UT while working with DACVM-boarded parasitologists Drs. Rick Gerhold and John Schaefer.

Currently, Kathryn is in the full swing of her dissertational research at OSU under the direction of **Susan Little**, DVM, PhD, DACVM (Parasit) and NCVP Co-Director. Kathryn's research focus is on ticks and tick-borne infections in North America. She regularly trains at the Oklahoma Animal Disease Diagnostic Laboratory (OADDL) with **Dr. Ruth Scimeca** (NCVP Clinical Parasitology Support) and is actively involved in teaching veterinary students and parasitology-focused CE. **Congratulations, Kathryn!**



**Dr. Kathryn Duncan**  
BI Resident



COLLEGE OF  
VETERINARY MEDICINE

## Dr. Starkey Receives Zoetis Distinguished Teaching Award



**Lindsay Starkey, DVM, PhD, DACVM (Parasit)** is an NCVP Board Member and Assistant Professor in the Department of Pathobiology, College of Veterinary Medicine, at Auburn University. In this position, she enjoys teaching veterinary parasitology to DVM students as part of the core curriculum. Lindsay has a great passion for teaching. She delivers content effectively and keeps her students interested and engaged. Why, she has even lectured to

veterinary students on Halloween in full costume (as a tick, of course! She did complete her residency training at Oklahoma State University after all). Thus, it is not surprising that students respond so positively to her, and that after only a short stint at Auburn she received the Zoetis Distinguished Teaching Award.

This award recognizes educators who are dedicated, and through their ability, character, and leadership significantly contribute to the instruction and education of future veterinarians. **Way to go, Lindsay!**



## Susan Little Receives Regents Distinguished Research Award

Let's hear a round of applause for **Susan Little**, DVM, PhD, DACVM (Parasit) at the Oklahoma State University College of Veterinary Medicine on receiving the 2020 Regents Distinguished Research Award. Dr. Little was selected for this esteemed award by her OSU-CVM colleagues based on her significant scientific contributions to the field of veterinary parasitology and research excellence. Very well-deserved, Dr. Little!

In addition to directing a thriving research program, Susan chairs and serves on several graduate student committees and is heavily involved in teaching 2nd and 3rd year veterinary students. In her "spare time", Dr. Little serves as Co-Director of the NCVP. A woman of many parasitology hats – and she wears them all incredibly well! **Congratulations, Susan! Way to make OSU and NCVP proud!**



**Dr. Susan Little, OSU,  
NCVP CO-Director**

## NCVP Resident Presentations at Annual AAVP Meeting

For the 2020 virtual AAVP meeting, the NCVP Residents in Veterinary Parasitology rose to the occasion. Residents presented oral presentations, posters, plenary sessions, and of course the crowd favorite clicker case discussions. Below are highlights of their research presentations.

- **Dr. Ashley Steuer**, Zoetis Resident in Veterinary Parasitology (University of Kentucky), Age, sex, and parasites: Is there an unusual predilection in foals?; The local and systemic inflammatory response to anthelmintic therapy: Does killing encysted cyathostomins increase inflammation?
- **Dr. Caroline Sobotytk**, Merck Resident in Veterinary Parasitology (Texas A&M University), Molecular and morphological characterization of *Thelazia californiensis* in dogs from New Mexico, USA
- **Dr. Kathryn Duncan**, BI Resident in Veterinary Parasitology (Oklahoma State University), Diversity of *Rickettsia* spp. in *Dermacentor* spp. from across the United States
- **Dr. Jeba Jessudoss Chelladurai**, NCVP Resident in Veterinary Parasitology (Iowa State University), P-glycoproteins are potential drugable targets in *Toxocara canis* (poster)



### Molecular and morphological characterization of *Thelazia californiensis* in dogs from New Mexico, USA

Caroline Sobotytk de Oliveira, DVM, MSc, PhD  
Merck Sponsored Resident  
AAVP 2020



## NCVP Goes Virtual with AAVP in 2020

Even with the ongoing challenges from the COVID-19 pandemic and the move to a virtual meeting, the NCVP had a strong presence at the 65th Annual American Association of Veterinary Parasitologists Meeting held June 20–23rd. NCVP was well

### NCVP Virtual Meeting Table

Thanks for your virtual visit, be sure to check out our available [funding for your research](#), [residency funding for your training](#), the [Parasite Image Database](#), [Parasite Videos](#), and other great resources while you are here.

Fill out the form below to receive your 2020 NCVP swag.

represented, with residents, board members, and grant recipients presenting oral, poster, and plenary sessions. The NCVP hosted a virtual table and sent out our popular parasite swag and temporary tattoos to our virtual visitors in both the United States and Canada.



## NCVP Grant Recipients Present Research

The NCVP small grants program helps support the research efforts of veterinary parasitologists who are AAVP members. Funding is competitive and awarded based on scientific merit, relevance to clinical or basic veterinary parasitology, and student involvement. The American Heartworm Society graciously provides additional funding for research focusing on *Dirofilaria immitis*. Below are examples of some of the NCVP funded projects presented at AAVP in 2020.

- **Dr. Andrew Peregrine** from the University of Guelph presented his work entitled "Evaluation of the prevalence of *Echinococcus multilocularis* in dogs that visit off-leash dog parks in southern Ontario, Canada" which was funded in part by an NCVP grant.
- **Dr. Andrew Peregrine** at the University of Guelph presented a talk titled "Characterization of the prevalence of intestinal parasites in dogs in southern Ontario, Canada using sucrose double centrifugation, Fecal Dx® and *Giardia* antigen tests." This work was also funded in part by NCVP.
- **Jeff Gruntmeir** with Dr. Heather Walden at the University of Florida presented work funded in part by the NCVP on the "Detection of heartworm antigen using heat treatment of serum without loss of specificity in dogs infected by gastrointestinal helminths and protozoa."
- **Megan Lineberry** working with Dr. Kelly Allen at Oklahoma State University presented NCVP-funded work detailing the "Molecular detection of *Cercopithifilaria bairdii* in brown dog ticks from across the southern United States."
- **Jennifer Cain** and Dr. Martin Nielsen from the University of Kentucky presented NCVP-funded work exploring "the microbiome of *Parascaris* spp.: a pilot study."
- Justin Stillwell with **Dr. Matt Griffin** from Mississippi State University presented NCVP-funded work detailing "Fish host susceptibility influences myxozoan community composition in proliferative gill disease of catfish aquaculture."

NCVP  
National Center for Veterinary Parasitology

**NCVP Grant Applications are accepted September 1st of each year. Be sure to look for the Request for Proposals.**



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of GUELPH

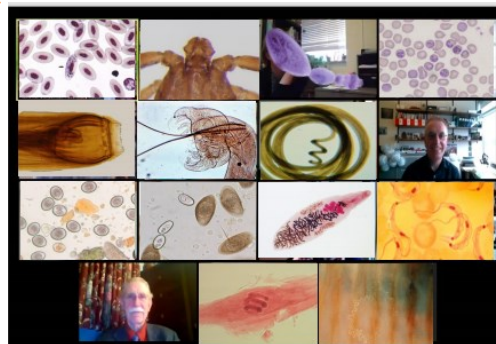
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## Residents Lead Virtual Parasite Case Discussions!

Going virtual didn't stop the AAVP meeting, and it certainly wasn't going to hinder the NCVP's crowd-pleasing clinical clicker case session. This year we were joined by two fantastic MCs: **Dr. Dwight Bowman** (Cornell University) and **Dr. Andrew Peregrine** (University of Guelph), both NCVP Board Members. They kept the session entertaining and on track, zooming the audience along while peppering them with their parasite tidbits and expertise.

A virtual panoply of parasites were discussed, as the audience worked through ectoparasite cases, tetrathyridium of *Mesocostoides*, *Onchocerca* in a dog's eye, *Setaria* in moose, *Buxtonella* in a bovine, and multiple parasites from an opossum. The parasite and host diversity was a sight to behold!



**Drs. Dwight Bowman and Andrew Peregrine**  
our masters of parasitology ceremonies

### AAVP-NCVP Clinical Case Clicker Session

65<sup>th</sup> Annual Meeting of the AAVP  
June 20-23, 2020

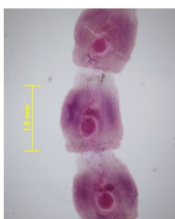
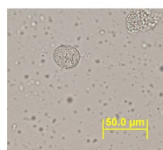
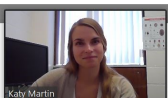


The session was a phenomenal success, allowing us to once again include an international audience thanks to the virtual meeting format. Over 150 people attended and participated in the clinical case discussions, and the meeting chat was constantly buzzing with comments, questions, suggestions, and friendly chatter. While Dr. Peregrine did don his hockey referee gear for the second half of the session, his attire was unwarranted as no one was placed in the penalty box. 😊

Special thanks are due, as always, to our presenting residents who generously shared their fantastic cases with us all. Presenters included **Dr. Caroline Soboty de Oliveira** (Merck Resident, Texas A&M University), **Dr. Katy Martin** (Elanco Resident, Iowa State University), and **Dr. Kathryn Duncan** (BI Resident, Oklahoma State University). **Thanks for all the great cases!**

Case #2—What genus is this parasite?

- A. *Dipylidium*
- B. *Diphyllbothrium*
- C. *Mesocostoides*
- D. *Taenia*
- E. *Toxocara*

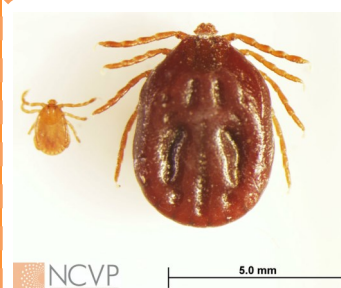


**Dr. Katy Martin**, Elanco Resident, presents her virtual clicker case, while **Dr. Caroline Soboty de Oliveira**, Merck Resident) awaits her turn to present



## Invasive Arthropod Specimen Kits Sent to Educators

Specimen kits this year include *Haemaphysalis longicornis* and *Aedes albopictus*! Since its introduction in the United States longhorned ticks have been in high demand for teaching. This NCVP specimen kit includes larvae and nymphs from a recently established colony at Oklahoma State University and female *H. longicornis* from the Centers for Disease Control and Prevention, distributed by BEI Resources, NIAID, NIH. Known as the Asian tiger mosquito, *A. albopictus* was introduced into the United States around 1985 in shipments of used tires from northern Asia. This mosquito readily feeds on



Nymph and female

*Haemaphysalis longicornis*

animals and humans and is a vector for *Dirofilaria immitis* as well as important viruses

including chikungunya and dengue. We hope these invasive parasite specimens along with the previous specimen kits we have provided to veterinary educators across North America will go on to help train veterinary students for decades to come. As with the previous parasite specimen kits, *H. longicornis* and *A. albopictus* were preserved in hand sanitizing gel (sourced before the pandemic) within glass vials for easy viewing with a dissecting microscope. **Contact [ncvp@okstate.edu](mailto:ncvp@okstate.edu) to find out more about teaching specimens from NCVP.**



Arthropod specimen kits 3.0

## Request for Proposals Widely Distributed



Due by September 01, 2020

### Invitation to Submit Research Proposals in Clinical Veterinary Parasitology

The National Center for Veterinary Parasitology (NCVP) supports training, research, and service in veterinary parasitology. As part of our effort to support parasitology research, we offer an annual request for research proposals (RFP). We are delighted to once again collaborate with the American Heartworm Society ([www.heartwormsociety.org](http://www.heartwormsociety.org)) to provide support for this initiative, allowing us to increase the amount of available funding. This RFP is open to all members of the American Association of Veterinary Parasitologists in good standing with preference for applicants at AAEP-accredited schools in the Americas.

Research proposals will be evaluated on scientific merit and relevance to clinical or basic veterinary parasitology. Some level of student involvement in the proposed research is expected. Priority will be given to proposals that focus on veterinary parasitology and are considered unlikely to be funded through other channels, such as the National Institutes of Health. One-year awards of \$10,000-\$15,000 each will be distributed in December 2020. Because of additional support provided by AAEP, funding will be reserved for projects focused in some way on *Dirofilaria immitis*. Only one proposal from a PI/research lab will be considered for each funding cycle.

**Guidelines to Submit Research Proposals.** Applicants and prior award recipients who do not follow NCVP instructions or reporting requirements will not be considered for funding. All proposals must be prepared using a standard format of size 11 or larger, single spaced with maximum 1" top, bottom, and side margins. Proposals must not exceed the indicated page limitations and should clearly follow the format outlined below.

**Title Page** – limit 1 page. Include the project title, principal investigator's name and contact information, amount requested, dates of the proposed project, and date submitted.

**Abstract** – limit 500 words. Provide a brief description of the proposed research.

**Research Plan** – limit 5 pages. Include the following:

- Background and significance of the research
- Purpose(s)/specific aim(s)/hypothesis(es)
- Experimental design and methods
- Data analyses that critically address the proposed hypothesis(es)
- Expected results and outcomes

**Under "Timeline," please include a paragraph how the proposed research will be accomplished, under safety restrictions related to COVID-19.**

**References** – limit 1 page. List important and/or relevant literature cited in the proposal.

NCVP's small grants program has operated since Fall 2013. To date, we have awarded over \$650,000 in support of veterinary clinical parasitology research to members of the American Association of Veterinary Parasitologists. In partnership with the American Heartworm Society, we are often able to provide a few grants each year directed solely for research on *Dirofilaria immitis*. This past spring, we were uncertain how to proceed with the grant program considering most academic institutions had imposed research restrictions to help quell the COVID-19 pandemic. We decided to move forward and distributed the RFP to over 1,200 people. In the end, we received more

proposals than we were expecting. Those that did submit a proposal for consideration reported that their research is back on track with new safety and social distancing measures in place to reduce the threat of SARS-Co-2 transmission. **We look forward to awarding another round of research grants this year and are equally as excited to see past awardees present their results at a future AAVP meeting!**

## Fall 2020 Annual NCVP Board Meeting—Virtually!

In our effort to keep with normal activities but in a safe and virus transmission-free manner, the Fall 2020 Annual Board meeting was conducted virtually with everyone joining via web-based conferencing. The Fall board meetings are typically the most anticipated of the year, as the NCVP Residents join the board to report on their progress from the previous year as well as complete focused training to prepare them for their careers as veterinary parasitologists after

residency programs. We all anxiously await returning to normal and conducting in-person board meetings. **Until then, we greatly appreciate everyone's flexibility and commitment to keep NCVP moving forward and accomplishing our mission.**



**NCVP Residents and Advisory Board Members during the Fall 2020 virtual meeting**

## 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 College of Veterinary Medicine 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 [ncvetp.org](http://ncvetp.org).



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## Select Publications from NCVP Residents and Grant Recipients

Below is a very abridged list of just a few of the recent publications from NCVP residents and former grant recipients (indicated by \*). 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 in parasitology, please send us your suggestions.

- Cain JL, Slusarewicz P, Rutledge MH, McVey MR, Wielgus KM, Zynda HM, Wehling LM, Scare JA, **Steuer AE**, Nielsen MK. Diagnostic performance of McMaster, Wisconsin, and automated egg counting techniques for enumeration of equine strongyle eggs in fecal samples. *Vet Parasitol.* 2020;284:109199.
- **de Oliveira CS**, Savadelis MD, McLean NJ, Verocai GG. Assessing the potential cross-reactivity using a commercial heartworm ELISA kits of serum from dogs naturally infected with *Onchocerca lupi*. *Vet Parasitol.* 2020;280:109070.
- Dell'Anna G, Mullin K, Brewer MT, **Jesudoss Chelladurai JRJ**, Sauer MB, Ball BL. Room decontamination using ionized hydrogen peroxide fog and mist reduces hatching rates of *Syphacia obvelata* ova. *J Am Assoc Lab Anim Sci.* 2020;59(4):365–70.
- **Jesudoss Chelladurai JRJ**, **Martin KA**, Chinchilla-Vargas K, Jimenez Castro PD, Kaplan RM, Brewer MT. Laboratory assays reveal diverse phenotypes among microfilariae of *Dirofilaria immitis* isolates with known macrocyclic lactone susceptibility status. *PLoS One.* 2020;15(8):e0237150.
- Ketzis J, Bork-Larsen H, Bustria J, **Conan A\***. Importation of cats and risk of parasite spread: a Caribbean perspective and case study from St Kitts. *Parasit Vectors.* 2020;13:488.
- Kotwa JD, Pearl DL, Isaksson M, Jardine CM, Berke O, Mercer NJ, Osterman-Lind E, **Peregrine AS\***. Factors associated with *Echinococcus multilocularis* infection in coyotes in southern Ontario. *Zoonoses Public Health.* 2020;67:546– 553.
- **Martin KA**, **Jesudoss Chelladurai JRJ**, Bader C, et al. Repurposing the open access malaria box reveals compounds with activity against *Trichomonas foetus* trophozoites. *Int J Parasitol Drugs Drug Resist.* 2020;13:89-93.
- Scare JA, Dini P, Norris JK, **Steuer AE**, Scoggin K, Gravatte HS, Howe DK, Slusarewicz P, Nielsen MK. Ascarids exposed: a method for *in vitro* drug exposure and gene expression analysis of anthelmintic naïve *Parascaris* spp. *Parasitology.* 2020;147(6):659-666.
- Smith JS, Berger DJ, Hoff SE, **Jesudoss Chelladurai JRJ**, **Martin KA**, Brewer MT. Afoxolaner as a treatment for a novel *Sarcoptes scabiei* infestation in a juvenile potbelly pig. *Front Vet Sci.* 2020;7:473.
- Stafford K, Kollasch TM, **Duncan KT**, Horr S, Goddu T, Heinz-Loomer C, Rumschlag AJ, Ryan WG, Sweet S, Little SE. Detection of gastrointestinal parasitism at recreational canine sites in the USA: the DOGPARCS study. *Parasit Vectors.* 2020;13(1):275.
- **Wu TK**, Bowman DD. Visceral larval migrans of *Toxocara canis* and *Toxocara cati* in non-canid and non-felid hosts. *Adv Parasitol.* 2020;109:63-88.