

## Jackson Means Curriculum Vitae

### Address

Department of Entomology (MC0319)  
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### Education

- Virginia Polytechnic Institute, PhD., Entomology, Fall 2019, GPA: 3.97
- Virginia Polytechnic Institute, M.S.L.S., Life Science, May 2014, GPA: 3.95
- Denison University, B.A., Environmental Studies, May 2009, GPA: 3.31
- GRE scores: Verbal (165), Quantitative Reasoning (149), Analytical Writing (4.5)

### Research

- Biodiversity, conservation and mimicry rings of Appalachian millipedes, Virginia Polytechnic Institute, August 2014 - present
- Development of a Precision Mite Management Program for the Control of the Ectoparasite *Varroa destructor* in Colonies of *Apis mellifera*, Virginia Polytechnic Institute, August 2011 – May 2014
- Hydrochory and seed deposition throughout the Dutch Fork Wetlands in central Ohio, Denison University, May 2008 - May 2009

### Publications

- Means JC, Francis EA, Lane AA and Marek PE. 2015. A general methodology for collecting and preserving xystodesmid and other large millipedes for biodiversity research. *Biodiversity data journal*, (3), art. no. e5665. DOI: 10.3897/BDJ.3.e5665.
- Means JC, Marek PE. 2017. Is geography an accurate predictor of evolutionary history in the millipede family Xystodesmidae? *PeerJ* (10), art. no. e3854. DOI: 10.7717/peerj.3854.
- Marek PE, Means JC and Hennen DA. 2018. *Apheloria polychroma*, a new species of millipede from the Cumberland Mountains (Polydesmida: Xystodesmidae). *Zootaxa* 4375 (3): 409 – 425. DOI: 10.11646/zootaxa.4375.3.7.

## **Honors and Awards**

- The James McDonald Grayson Award, \$3000, May 2018
- The Kosztarab Scholarship for Distinguished Achievement in Systematics, \$1000, May 2018
- Clarence and Gladys Hill Travel Scholarship, \$250, March 2017
- The James McDonald Grayson Award, \$1000, March 2015
- The Kosztarab Scholarship for Distinguished Achievement in Systematics, \$3000, March 2014
- Alwood Extension Award, \$500, January 2014
- The Dodson Travel Fund Award, \$1000, September 2013
- Reginald H. & Phyllis G. Nelson Award, \$3000, May 2013
- Hokie Spirit Award, Virginia Polytechnic Institute, \$1500, September 2011
- Anderson Summer Research Assistantship, May - August 2008

## **Teaching Experience**

- Teaching Assistant, Design and Analysis of Agricultural Experiments 2017
- Teaching Assistant, Information Systems & Research in the Life Sciences 2017
- Teaching Assistant, Insect Biology, Virginia Tech, 2016
- Teaching Assistant, Insect Biology, Virginia Tech, 2015
- Instructor of Record, Bees and Beekeeping, Virginia Tech, 2015
- Teaching Assistant, Bees and Beekeeping, Virginia Tech, 2014
- Teaching Assistant, Insect Biology, Virginia Tech, 2013
- Teaching Assistant, Bees and Beekeeping, Virginia Tech, 2013
- Head Teaching Assistant, Insect Biology Laboratory, Virginia Tech, 2012
- Teaching Assistant, Bees and Beekeeping, Virginia Tech, 2012

- Teaching Assistant, Cell and Molecular Biology, Denison University, 2009
- Teaching Assistant, Biology 150 (Introduction to Biology), Denison University, 2008

### **Internships**

- Rivanna Conservation Society, Charlottesville VA, summer of 2007

### **Professional Organizations**

- Department Head Search Committee, Department of Entomology (spring 2014 – spring 2015)
- Golden Key International Honour Society (fall 2013 – present)
- Virginia Polytechnic Institute, College of Agriculture and Life Sciences Graduate Committee (fall 2013 – fall 2014)
- Virginia Polytechnic Institute, College of Agriculture and Life Sciences Graduate Student Committee (spring 2013 – present; Vice President of Recruitment, spring 2013 - present; member of the Academic Development Committee, spring 2013 - present)
- Sigma Xi, The Scientific Research Society (associate member, 2013 - present)
- Gamma Sigma Delta, The Honor Society of Agriculture (member, 2013 - present)
- Phi Sigma National Biological Sciences Honors Society (member, 2012 - present)
- Entomological Society of America (member, 2011-present)
- Alwood Society, Virginia Polytechnic Institute (active member, 2011 - present; Tour Coordinator, spring 2012 - spring 2013; President, spring 2014 - spring 2015; Fundraising Chair, spring 2015 - spring 2016; Events Coordinator, spring 2016 - spring 2017)
- Denison University Recycling Program, Denison University (member, 2005 - 2009; Vice President, 2007 - 2008)

### **Selected Lectures and Workshops**

- ‘Spatiotemporal Distribution and Sampling of *Varroa destructor* in Colonies of *Apis mellifera*.’ A seminar to the department detailing my proposed research topic, along with objectives, goals and expected outcomes. 3/22/2012, approx. 30 people in attendance, 85% Caucasian, 12% Asian, 3% African American.

- ‘Buds, Bugs, and Buddies’ at The Thomas Jefferson Foundation Center for Historic Plants. A beneficial insect workshop explaining common beneficials found in the garden. 4/28/2012, approx. 35 people in attendance, 80% Caucasian, 10% African American, 10% Asian.
- ‘Varroa Mite Sampling’ at Price Hall, Virginia Tech. Part of a two day workshop on pests and pathogens of *Apis mellifera*, the European honey bee. 9/15/2012, approx. 60 people in attendance, 98% Caucasian, 2% African American.
- ‘*Varroa destructor*: An Informational Session’ at the New River Valley Beekeepers Association monthly meeting. A general overview of the ectoparasitic pest *Varroa destructor*, with an emphasis on sampling methods. 10/11/12, approx. 40 people in attendance, 100% Caucasian.
- ‘Spatial distribution of *Varroa destructor* and bee brood within colonies of *Apis mellifera*,’ at the annual meeting of the Entomological Society of America in Knoxville, TN. A presentation of my newest results showing significant associations between bee brood and *V. destructor* distributions. 11/12/12, approx. 40 people in attendance, 67% Caucasian, 20% Asian, 13% African American.
- ‘Development of a Precision Mite Management Program’ at the North Carolina Honey Bee Research Consortium annual meeting at Wake Forest University in Winston-Salem, NC. A presentation of my current research on the development of a precision mite management program for the control of *Varroa destructor* through improvements to mite sampling methods and an increase in understanding of the spatiotemporal dynamics of *V. destructor* and its host, the honey bee brood. 2/16/13, approx. 50 people in attendance, 88% Caucasian, 10% Asian, 2% African American.
- ‘The Varroa Mite and Other Common Pests of the European Honey Bee, *Apis mellifera*’ at the monthly Botetourt County Beekeepers Association meeting in Fincastle, VA. The Botetourt County Beekeepers Association first met in 2011 and many of their members are new to beekeeping. Therefore, this talk was designed to introduce beekeepers to some of the more common pests they will encounter, such as *Aethina tumida*, the small hive beetle, and the parasitic *Varroa destructor* mite. The talk included basic history of the pests, description of life cycles and methods for control. The Varroa portion also included instructions for mite sampling. 3/4/13, approx. 40 people in attendance, 100% Caucasian.
- ‘Major Arthropod Pests of the European Honey Bee, *Apis mellifera*’ at the June 1<sup>st</sup> Beginning Beekeepers class hosted at the Catawba Sustainability Center in Catawba, VA. This was the second class for the summer, 2013 class of beginning beekeepers, led by the New River Valley Beekeepers Association. Many of the students were very new to beekeeping and this talk was intended to familiarize them with the major pests that afflict honey bees, including the two foremost damaging mite species, *Varroa destructor* and *Acarapis woodi*. Treatment and sampling methods were covered along with the biology of each pest. 6/1/13, approx. 20 people in attendance, 95% Caucasian, 5% Asian.

- ‘Common Orders and Families of Insects,’ a lecture for a group of high school age 4H campers designed to introduce them to how to identify common orders and families of insects. The class took place at Price Hall on the campus of Virginia Tech. 6/18/13, approx. 8 people in attendance, 100% Caucasian.
- ‘An Introduction to Insects,’ a lecture as part of a three day bug camp for late elementary – middle school age children, hosted by the 4H organization at their center on Smith Mountain Lake. The lecture included an explanation of what defines a true “insect” as well as an overview of some of the insects the students may commonly encounter. I gave the talk twice for two different groups of campers. 6/25/13, approx. 12 people in attendance for each of the two talks, 96% Caucasian, 4% African American.
- ‘Beginner Beekeeper Class: Inspection.’ I taught two beginning beekeeper classes hosted by the Montgomery County Beekeepers Association at the Prices Fork Research Center apiary in Blacksburg, VA on April 13, 2013. This class was introductory, and therefore mainly consisted of showing students how to work a bee hive and provide them with hands-on experience. 4/13/13, approx. 15 attendees, 100% Caucasian.
- ‘A Hands-On Demonstration of Common Sampling Techniques for the Informed Treatment of *Varroa destructor* in Hives of *Apis mellifera*.’ This was a two hour class which I hosted for interested persons in the New River Valley Beekeepers Association at the Prices Fork Research Center apiary in Blacksburg, VA on August 3, 2013. The class covered the four common methods of sampling for Varroa mites: sticky boards, the soapy water and sugar roll and uncapping brood cells. 8/3/13, approx. 25 attendees, 100% Caucasian.
- ‘Insect and Plant Interactions.’ A fifty minute lecture in the Insect Biology class at Virginia Tech. I spoke on the two major areas of insect/plant interactions, feeding and pollination, and how these interactions have shaped evolutionary history. 40 attendees, 88% Caucasian, 12% African American.
- ‘Manipulating the Spatial Distribution of Varroa Mites in Hives of *Apis mellifera*.’ An outline of my research objectives and findings in relation to the movement of mites within hives of *Apis mellifera* through the shifting of frames of drone honey bee brood. This talk was part of the 10-minute student competition at the Entomological Society of America Annual National Meeting in Austin, TX. 11/11/13, approx. 30 attendees, 97% Caucasian, 3% African American.
- ‘Interesting Insects and Beneficial Bugs.’ This talk was part of the Tall Oaks Talks at the Warm Hearth Community in Blacksburg, VA. I introduced the audience to the major insect orders, with unique examples from around the world, and explored what it means to define an insect as either a “beneficial” or “pest.” 12/6/13, approx. 15 attendees, 93% Caucasian, 7% Asian.

- “Honey Bee Thermoregulation.” Guest lecture for our Behavior and Ecology class about how bees control their personal and environmental temperatures in order to survive the winter here in central VA. 2/27/14, approx. 7 attendees, 57% Caucasian, 29% African American, 14% Asian.
- “Honey Bee Colony Annual Cycle.” Guest lecture for our Bees and Beekeeping class about the annual changes which occur in beehives in Southwestern VA, including population fluctuations, swarming and honey production. 3/27/14, approx. 60 attendees, 98% Caucasian, 2% African American.
- “Development of a Precision Mite Management Program for the Control of the Ectoparasite *Varroa destructor* in Hives of *Apis mellifera*.” Defense seminar detailing the overall objectives and findings of my Master’s thesis, presented to the Department of Entomology at Virginia Tech. 5/2/14, approx. 60 attendees, 82% Caucasian, 13% Asian, 5% African American.
- “Biodiversity, conservation and mimicry rings of Appalachian millipedes.” Proposal seminar detailing the overall objectives and planned methods of my PhD program. Presented to the Department of Entomology at Virginia Tech. 3/11/15, approx. 60 attendees, 83% Caucasian, 10% Asian, 7% African American.
- “Varroa Mite Sampling Techniques.” Invited lecture for the Mountain Empire Beekeepers Association, detailing the biology and management of *Varroa destructor*, as well as current research on Varroa. 8/25/16, approx. 40 attendees, 100% Caucasian.
- “Summer 2016 Lightning Talk.” Part of a departmental presentation series on our successes during the past collecting season. 9/14/16, approx. 60 attendees, 80% Caucasian, 13% Asian, 7% African American.
- “Spring Beekeeping and the Power of Pheromones.” Invited lecture for the Mountain Empire Beekeepers Association focusing on preparing for spring colony build-up and swarm prevention, as well as the biology behind the delicate pheromonal balance which controls a honey bee hive. 2/23/17, approx. 40 attendees, 100% Caucasian.
- “An Introduction to Appalachian Millipedes.” A class I taught with my lab mate Derek Hennen as part of the 30th Annual Master Gardener College at Virginia Tech. We covered a wide variety of topics including millipede taxonomy and systematics, invasive millipedes and millipede biology. 6/24/17, approx. 12 attendees, 100% Caucasian.
- “Discovery of two monophyletic clades within the Appalachian millipede genus *Nannaria* Chamberlin, 1918 (Diplopoda: Polydesmida: Xystodesmidae).” Part of the 17th International Congress of Myriapodology lecture series in Krabi, Thailand. In this lecture I discussed the *Nannaria* revision I was working on as part of my PhD dissertation, specifically the existence of two monophyletic groups within *Nannaria* and the question of whether to split the genus in two. **Jackson Means**, Derek Hennen, Paul Marek, 7/24/17, approx. 70 attendees, 75% Caucasian, 23% Asian, 2% African.

- “A taxonomic revision of the millipede genus *Nannaria* Chamberlin, 1918 (Diplopoda: Polydesmida: Xystodesmidae).” Given at the 2018 Society for Systematic Biologists meeting in Columbus, Ohio, this talk discussed my revision of *Nannaria* generally and focused on my exploration of genes new to millipede phylogenetics. **Jackson Means**, Derek Hennen, Paul Marek, 6/3/18, approx. 150 attendees, 90% Caucasian, % Asian, 2% African American.

## Posters

- “Molecular phylogenetics of the rare Laurel Creek millipede, *Sigmoria whiteheadi* Shelley, in Virginia.” Presented at the Virginia Tech Graduate Student Association Research Symposium. 3/23/16.
- “Evolution of Bioluminescence in Sierra luminous millipedes (Polydesmida, Xystodesmidae).” Presented at the 2018 Society for Systematic Biologists meeting in Columbus, Ohio. Paul Marek, **Jackson Means**, 6/2/18.

## Outreach

- “Hokie Bugfest.” Hosted in the Agricultural Quad at Virginia Tech on October 19<sup>th</sup>, 2011. I manned the bug zoo and acted as the event photographer.
- “Wild World Celebration.” Hosted at the Price House Nature Center in May, 2012. We displayed our live and pinned arthropods and took questions from even attendees.
- Outreach tour at Max Creek Baptist Church in Draper, VA on June 19, 2012. A general lecture on insects and displays of our live and pinned arthropods.
- Outreach tour at the Hahn Horticulture Garden at Virginia Tech for the Virginia Junior Master Naturalists certification class during the final session of the insect section. We taught attendees how to collect and curate insect specimens. August 22, 2012.
- “Hokie Bugfest.” Hosted in the Inn at Virginia Tech on October 19<sup>th</sup>, 2012. I manned the trivia table and the bug zoo.
- “Beneficial and Pest Insects.” A talk I gave at Hahn Horticulture Garden at Virginia Tech for the Virginia Junior Master Gardeners certification class during their insect section. The talk covered the difference between beneficial and pest insects, common examples of both, and why the idea of “pest” is relative. October 22<sup>nd</sup>, 2012.
- “Science Night.” Hosted by Harding Elementary in Blacksburg, VA on April 10, 2013. We displayed our live and pinned arthropods and took questions from even attendees.

- “Hokie Bugfest.” Hosted in the Inn at Virginia Tech on October 19<sup>th</sup>, 2013. I manned the “Test Your Knowledge” table which featured microscopes displaying details of insect wings, eyes, wing venation, etc. as well as eight boxes of my own collection featuring insects from around the world.
- Outreach tour at the Hahn Horticulture Garden at Virginia Tech for the Virginia Junior Master Naturalists certification class during the final session of the insect section. We provided live insects and a section of my personal collection for the kids to peruse. October 23, 2013.
- “Haunted Lab Nights.” Hosted by The Virginia Science Museum in Roanoke, VA on Oct. 25<sup>th</sup>, 2013. I brought my personal collection and handed out candy in a cockroach costume while showcasing exceptional insects from around the world.
- Acted as a judge for the Falling Branch Elementary School Science Fair in Christiansburg, VA on Feb. 20<sup>th</sup>, 2014.
- Graded the local 2014 4-H Essay Contest on Feb. 26<sup>th</sup>, 2014.
- “Varroa Monitoring.” A class taught for the New River Valley Beekeepers Association’s Beginning Beekeepers Class in Blacksburg, VA on July 26, 2014. The class covered the history, sampling and control of Varroa mites. Approx. 20 attendees, 100% Caucasian.
- Outreach tour at the Hahn Horticulture Garden at Virginia Tech for the Virginia Junior Master Naturalists certification class during the final session of the insect section. We provided live insects, a section of my personal collection for the kids to peruse and a presentation on beneficial insects. September 17, 2014.
- “College of Agriculture and Life Sciences (CALs) Tailgate.” An outreach event for potential graduate students in CALs. We showed off live and pinned insects, and discussed our research. Approx. 100 attendees, September 20<sup>th</sup>, 2014.
- “Hokie Bugfest.” Hosted in the Inn at Virginia Tech on October 17<sup>th</sup>, 2014. I manned the Bioluminescent Cave, teaching visitors about lightning bugs, glowing millipedes and fluorescent scorpions. Additionally, my personal insect collection was displayed and manned by undergraduates from the Insect Biology course. Approx. 5000 attendees.
- “College of Agriculture and Life Sciences (CALs) Tailgate.” An outreach event for potential graduate students in CALs. We showed off live and pinned insects, and discussed our research. Approx. 100 attendees, September 7<sup>th</sup>, 2015.
- “Hokie Bugfest.” Hosted in the Inn at Virginia Tech on October 17<sup>th</sup>, 2015. I displayed a portion (14 drawers) of my personal insect collection. Approx. 6000 attendees.



- “Hokie Bugfest.” Hosted in the Inn at Virginia Tech on October 16<sup>th</sup>, 2016. I displayed a portion (9 drawers) of my personal insect collection and drawers from the Virginia Tech Insect Collection. Approx. 6000 attendees.
- “Hokie Bugfest.” Hosted in the Inn at Virginia Tech on October 19<sup>th</sup>, 2017. I displayed a portion (9 drawers) of my personal insect collection and drawers from the Virginia Tech Insect Collection. Approx. 7000 attendees.
- Outreach tour at the Hahn Horticulture Garden at Virginia Tech for the Virginia Junior Master Naturalists certification class during the final session of the insect section. We provided live millipedes and a section of my personal collection for the kids to peruse. Approx. 20 attendees, March 7, 2018.