

Brittany E. Campbell

Entomology PhD Student
Department of Entomology
University of Florida
Gainesville, FL

Cell: (706) 346-1482
Lab Tel: (352) 392-2326
Email: bedelong@ufl.edu

EDUCATION

Masters of Life Science (Entomology) - Virginia Tech **2011-2014**

- GPA 3.5

Bachelor of Science (Biology) - Shorter College **2006-2009**

- *Honors*: Cum Laude (GPA 3.5)

Pepperell High School (Rome, GA) **2002-2006**

- Graduated with Honor's Degree.

RESEARCH EXPERIENCE

Virginia Tech **2011-2014**

- *Graduate Research Assistantship*

My thesis research had the overall objective to characterize bed bug egg insecticide resistance. To accomplish this, I used scanning electron microscopy to study and measure the morphological features of the bed bug egg shell. A second objective of this research was to measure metabolic differences between susceptible and resistant bed bug eggs using respirometry equipment. Lastly, I determined insecticide resistance patterns in bed bug eggs and first instars.

- *Cockroach Bait Sampling*

Assisted with cockroach bait sampling in public housing located in Richmond, VA. Cockroach sampling involved pre-trapping with sticky traps to determine the level of pest infestations. High level infestations were then treated with three different cockroach baits to evaluate bait effectiveness. Several trips were taken after the initial baiting to sample pest infestations throughout the summer using sticky traps. (Summer 2012 & 2013)

- *Evaluation of the Verifi® Bed Bug Detector in Detecting Bed Bugs in a Multi-Unit Public Housing Facility*

Assisted with a project to determine the effectiveness of the Verifi® bed bug detector to detect bed bugs in a multi-unit public housing facility located in Richmond, VA. This work involved placing the detectors in 64 rooms in the facility and then monitoring the units

weekly for the first month and then monthly thereafter to determine how many bed bugs the detectors were catching. (Spring 2013-Fall 2014)

- *Diatomaceous Earth Applications and Heat-Chamber Construction in a Bed Bug Infested Women's Shelter*

Assisted with construction of a heat chamber used to kill bed bugs in a women's shelter located in Madison, VA. This project involved building a heat chamber to treat the tenant's furniture and belongings that were infested with bed bugs. I also assisted with applying diatomaceous earth around the perimeter of baseboards and inside outlets in bed bug infested units. (Fall 2011-Spring 2012)

Shorter College

2009

- *The Testing of Two Malaise Traps to Survey Chiropteran (Bats) Insect Diet*

Worked in conjunction with Susan Loeb (Clemson University) to collect and identify insects in the Blue Ridge North Carolina region. I helped design a cost effective malaise trap for comparison with a commercial Townes malaise trap and identified over 4,000 insects to order and family level with assistance from Dr. Josh Campbell. I also compared previous literature on fecal analysis of bats' diets with the abundance and diversity of insects I caught in both traps. I presented the data at the Association of Southeastern Biologists meeting and to the biology department at Shorter College.

- *Terrestrial Macroinvertebrates caught with a Ramp-Pitfall Trap in Cave Systems within Alabama and Georgia*

Assisted with field work and identification of various macroinvertebrates found within caves. I traversed several caves in Alabama and Georgia, setting up numerous traps and collecting mud samples.

University of Houston

2010

- *Bottom Up and Top Down Herbivory on Iva Plants and Impact of Burrowing Crabs on Salt Marsh Communities*

Worked as a research assistant (3 months) under Dr. Steve Pennings on Sapelo Island, GA surveying Iva plants in salt marsh communities for herbivory interactions between aphids and beetles. I also worked with mesocosms in a low marsh field site observing interactions with *Spartina alterniflora* herbivory and predator-prey relationships of various insects found within the habitat. Major tasks involved maintenance of mesocosms and data entry with daily labor intensive field work associated with these tasks.

- *Latitudinal Variation in Insect Communities from the Gulf Coast up the Eastern Seaboard to Maine*

Worked as a research technician (Aug-Sep 2010) traveling from Houston, Texas up the coast to Maine to survey insect communities. Major tasks involved using a light meter and DVAC (vacuum used to suck insects) requiring lifting heavy equipment in hot, buggy conditions and data entry. This field work was conducted on sites already sampled prior to the oil spill to hopefully gain insight on the impact of the oil spill on the insect communities the year following the deep horizon oil spill.

PUBLICATIONS

- Campbell, B. E., and Miller, D.M. 2015.** Insecticide Resistance in Eggs and First Instars of the Bed Bug, *Cimex lectularius* (Hemiptera: Cimicidae). *Insects*. 6: 122-132. doi: 10.3390/insects6010122.
- Beard, H. M., Campbell, B.E., Koehler, P.G., and Baldwin, R. 2014.** Bed Bugs. An extension publication poster published in conjunction with University of Florida and the Institute of Food and Agricultural Sciences (IFAS) on bed bug life cycle, morphology, and digestion.
- Campbell, J.W., DeLong, B.E., Carey, V. and Ray, Charles. 2012.** Survey of Terrestrial Invertebrate Species from Byer's Cave; Dade County, Georgia. *Georgia Journal of Science*. 70: 172-178.
- DeLong, B.E., Campbell, J.W. and Loeb, S. 2010.** (Abstract) Testing of two Malaise traps used to identify Chiropteran (Bats) insect diet. *Southeastern Biology*. ASB 71st Annual Meeting, April 7-10, 2010. Asheville, NC. Vol. 57, p. 401.

PRESENTATIONS

- Campbell, B.E. (2015).** Bed Bug Biology and Control Methods. Florida Pest Management Association Region 3 Meeting CEU training. Tampa, FL.
- Campbell, B.E. (2015).** Bed Bug Biology and Control Methods. Florida Pest Management Association Region 1 Meeting CEU training. Miami, FL.
- Campbell, B. E., Koehler, P. G., and Pereira, R. M. (2015).** Termite Biology and Control. Certified Pest Control Operators of Florida Trade Show. Orlando, FL. March 27th, 2015. Approx. 100 attendees.
- Campbell, B. E., Koehler, P. G., Baldwin, R. W., and Pereira, R. M. (2015).** Bed Bug Chagas disease transmission and novel bed bug control using IGRs. 12th Annual Arbovirus Surveillance and Mosquito Control Workshop. Anastasia Mosquito Control District. St. Augustine, FL. March 24th-26th, 2015.
- Campbell, B.E. and Koehler, P. G. (2015).** How do your customers feel about their termite work? A University of Florida customer termite survey. Forshaw Distribution Termite Training Program. Ocala, FL. February 27th, 2015.
- Campbell, B.E. and Koehler, P. G. (2015).** How do your customers feel about their termite work? A University of Florida customer termite survey. Florida Pest Management Association Region 11 Technical Meeting. Ocala, FL. February 26th, 2015.

- Campbell, B. E., Koehler, P. G., Baldwin, R. W., and Pereira, R. M. (2015).** IGRs and their Potential for Controlling Bed Bugs. Copesan Technical Committee Meeting. Jacksonville, FL. February 9th, 2015.
- Campbell, B. E., Koehler, P. G., Baldwin, R. W., and Pereira, R. M. (2015).** IGRs and their Potential for Controlling Bed Bugs. Florida Pest Management Association Region 9 Technical Meeting. St. Petersburg, FL. February 5th, 2015.
- Campbell, B. E., Miller, D. M. and Adelman, Z. N. (2014).** Pyrethroid Susceptible and Resistant Bed Bug Egg Transcript Levels Quantified by RNA-Sequencing. Entomological Society of America Annual Meeting, Portland, OR. November 16th-19th, 2014.
- Campbell, B. E., Koehler, P. G. and Pereira, R. M. (2014).** Heat Box Construction to Control Bed Bugs. Residex Bed Bug Summit, Orlando, FL. November 13th, 2014.
- Delong, B. E. and Miller, D. M. (2013).** Insecticide Resistance in Eggs and First Instars of the Bed Bug (Hemiptera: Cimicidae). National Conference on Urban Entomology, San Antonio, TX. May 18-21st, 2014.
- Delong, B. E. and Miller, D. M. (2013).** Insecticide Resistance in Eggs and First Instars of the Bed Bug (Hemiptera: Cimicidae). Entomological Society of America Annual Meeting, Austin, TX. Nov. 10-13, 2013.
- Delong, B. E. and Miller, D. M. (2013)** So You Thought Adult Bed Bugs Were Hard to Kill? Eggs are a Different Story: The Difficulties Associated with Bed Bug Egg Control. Virginia Pest Management Association State Technical Meeting. Richmond, VA, Sept. 25-26, 2013.
- Delong, B.E., Miller, D.M., Devries, Z., Appel, A.G. (2013).** The Effects of Temperature and Strain on Bed Bug Egg Metabolic Rates. Entomological Society of America, Southeastern Branch Meeting, Baton Rouge, LA. March 3-6, 2013.
- Delong, B.E. and Stedfast, M. L. (2013)** “Bed Bugs and How to Protect Yourself”. Resident Education Seminar. Annunciation Inn Apartments, New Orleans, LA. (1 presentation, 45 minutes, approx. 30 ppl) March 7, 2013.
- Delong, B. E. and Miller, D.M. (2012)** Bed Bug (*Cimex lectularius* L.) Egg Surface Morphology and Water Loss Metrics. Entomological Society of America Annual Meeting, Knoxville, TN. Nov. 11-14, 2012.
- Delong, B. E. and Miller, D. M. (2012)** Bed Bug (*Cimex lectularius* L.) Eggs: Biology and Physiology. Virginia Pest Management Association State Technical Meeting. Richmond, VA, Oct. 3-4, 2012.
- Delong, B. E. and Miller, D. M. (2012)** Paper session. Egg Surface Morphology and Morphometrics of Bed Bug (*Cimex lectularius* L.) Eggs. National Conference on Urban Entomology, Atlanta, GA, May 20-23, 2012.
- Delong, B.E. and Miller, D.M. (2012)** Insects as Food: From Necessity to Taboo. New River Community College Biology I Class. Christiansburg, VA. March 5th, 2012.

INVITED PRESENTATIONS

- Campbell, B. E., Koehler, P. G., and Pereira, R. M. (2015).** Gave two presentations: (1) Termite Biology and Control and (2) Bed bug biology and control with emphasis on bed

bugs as a public health pest. Florida Pest Management Association Region 1 Meeting. Miami, FL., May 15, 2015.

Campbell, B. E. Bed Bugs Back from the Brink of Extinction. Presentation geared for the public for a basic understanding of bed bugs. BugFest, University of Florida, Gainesville, FL. April 11th, 2015.

Delong, B.E. and Miller, D. M. (2014) Difficulties Associated with Bed Bug Egg Control. Bed Bug Workshop, New York Pest Management Association, Jamaica, NY, January 29, 2014.

Delong, B. (2011) Bed Bug History. Invited guest lecturer to an environmental science class at High Point University, High Point, NC.

POSTER PRESENTATIONS

Delong, B., Campbell J., Loeb, S. (2009) Poster session. The Testing of Two Malaise Traps to Survey Chiropteran (Bats) Insect Diet. Association of Southeastern Biologists, Annual Meeting, Asheville, NC, April 7-10, 2010.

GRANTS FUNDED

Terramerra (Co-PI) 2013 \$26,400. Sponsored research grant to determine the residual efficacy of Cirkil®CX to prevent bed bug egg eclosion. I wrote the initial draft of the proposal that included 7 objectives before it was finalized by the principal investigator (Dr. Dini Miller). I was also responsible for laboratory tests to investigate product efficacy.

B.F. Dodson Structural Urban Entomology Travel Fund. 2013 \$1,000. Grant was awarded to present at the Southeastern Branch Entomological Society of America meeting in Baton Rouge, LA.

B.F. Dodson Structural Urban Entomology Travel Fund. 2012 \$800. Grant was awarded to present research at the National Entomological Society of America meeting in Knoxville, TN.

ACCOMPLISHMENTS & AWARDS

- First Place International Pest Control Scientific Poster Competition (2015) Poster competition at PestEx 2015, held by the British Pest Control Association in London. March 25th-26th, 2015. My poster was titled “Insecticide Resistance in Bed Bug Eggs and First Instars”.
- Grinter Fellowship (2014-2015) The intent of the Grinter Fellowship is to facilitate the recruitment of truly exceptional graduate students to the University of Florida through partial stipend support.
- Second Place Student Paper Presentation (2014) I Won 2nd place at the National Conference on Urban Entomology, May 18-21st, San Antonio, TX in the student competition. My presentation was titled “Insecticide Resistance in Eggs and First Instars of the Common Bed Bug (Hemiptera: Cimicidae)”.

- Jeffery P. LaFage Award (2013) Entomological Foundation grant (\$500) established by an endowment from donations by Rousell Bio, Dow AgroSciences, FMC, and the friends and family of Dr. Jeffery P. LaFage. It is awarded to a graduate student who proposes innovative research that advances or contributes significantly to the knowledge of the biology or control of pests in the urban environment, especially termites or other wood-destroying organisms.
- Graduate research assistantship (2011-2013) Funded by Dr. Dini Miller, Associate professor, Entomology department.
- Virginia Pest Management Association Scholarship (2011, 2012, and 2013) Funded by Virginia Pest Management Association. A scholarship awarded to students conducting research in the urban pest management field (\$900 per academic semester).
- National Pest Management Association Intern (2012 & 2013) Intern at the NPMA PestWorld 2012 conference located in Boston, MA and the PestWorld 2013 conference in Phoenix, AZ. Responsibilities included assisting with registration and moderating sessions on bed bugs and other urban pests.
- Beta, Beta, Beta National Biological Honor Society (2009)
- Alfred and Martha Shorter Scholarship \$7,000 (2006-2009) Competitive institution academic scholarship.
- Dean's List (2006-2009) Honor awarded for GPA of 3.5 or higher.
- Joann Bell Scholarship \$500 (2008) Academic scholarship rewarded for semester GPA.
- Shorter College Grant \$500 (2007) Academic scholarship.
- Lunsford Scholarship \$1600 (2007-2008) Academic Scholarship.
- Student Achievement Award \$500 (2006) Academic scholarship.

TEACHING EXPERIENCE

- Teaching assistant, ENY3005/5006, Principles of Entomology and Graduate Survey of Entomology, 2014, 2015
- Teaching assistant, ENY3225/5226, Principles of Urban Pest Management, 2015
- Teaching assistant, ENY3222, Biology and Identification of Urban Pests, 2015

PROFESSIONAL MEMBERSHIPS

- Pi Chi Omega (2013-Present)
- Entomological Society of America (2011-Present)
- American Chemical Society (2008-2009)
- Tri-Beta National Biological Honor Society (2008-2009)

PROFESSIONAL ACTIVITIES

- **W. B. Alwood Society (2011-2013)**

Virginia Tech Entomological Society. Elected Social Chair and Treasurer (2012).

- **Master Technician Workshop (2011, 2012 & 2013)**
Assisted Dr. Dini Miller with master technician workshop classes on pest ants, termites, bed bugs, cockroaches and flies. Day long seminars were given by Dr. Miller to pest control operators in Virginia and I assisted with demonstrations of control strategies for each of the previously mentioned pests.
- **Bugapalooza at the Schiele Museum of Natural History (May 2013)**
Invited guest at the Schiele Museum located in Gastonia, NC. Involved leading a booth with insect collections and live specimens as a public outreach event.
- **Teaching Insect Collection (Feb. 2013)**
Collected and pinned urban insect pests requested by Eagle Pest Elimination Inc. to use as a teaching tool for pest control operators within their company. Eagle Pest Elimination Inc. paid me \$1,000 for my efforts constructing a collection box and identifying common insect pests in VA.
- **Registered Student Organization Workshop (Sept. 2012)**
Workshop organized by Virginia Tech for student organizations to learn how to budget money and request funds for their organization.
- **WSLS10 Blue Ridge Day Time (Oct. 2012)**
Appeared on daytime television show to promote Hokie BugFest and the Virginia Tech Entomology Department.
- **Virginia Tech Entomology Departmental Tours (Aug. 2012, May 2013)**
 - Organized and led a tour in the entomology department at VA Tech. Gave a presentation about insects to elementary age kids and assisted with various entomological craft projects to help teach kids about insect life cycles, segments, habitats etc. (May 2013)
 - Organized and led a tour for the Junior Garden Club about beneficial/pest insects found on ornamental plants (Aug. 2012).
- **Heritage Day at the Montgomery Museum (Aug. 2012)**
A public outreach event hosted by the Montgomery Museum in Montgomery County. A booth was prepared of various live and pinned insects, field guides and entomological equipment as teaching tools for the general public.
- **Hokie BugFest (Oct. 2011, Oct. 2012)**
Participated in this outreach event to promote entomology at all ages, hosted by the W.B. Alwood society student organization at VA Tech. The event had over 4,000 visitors from the community in 2012.
- **Harvest Havoc (Nov. 2011)**
Participated as a member of the W.B. Alwood society and helped raise over \$1,000 for heifer.org with other organizations at Virginia Tech.
- **Historian of Beta, Beta, Beta National Biological Honor Society (2008-2009)**
Responsibilities included maintaining a 3.0 in all biological classes and organizing events.
- **Allied Health (2008-2009)**
Club organized at Shorter College to promote healthy lifestyle choices and to establish seminars to raise awareness of current public health issues.
- **Rivers Alive (2008)**
Annual river cleanup in Rome, GA hosted by the Coosa River Basin Initiative.