

# Tierney Bougie

2308 University Avenue Apt. 59 Madison, WI 53726 Phone 920-410-6260  
[tcbougie@wisc.edu](mailto:tcbougie@wisc.edu)

## Education

### **B.S. Genetics, Environmental Studies Certificate**

May 2015

University of Wisconsin Madison

## Research Experience

### **Research Intern**

Dr. Sean Schoville's Molecular Ecology Laboratory, Department of Entomology  
University of Wisconsin Madison

September 2015 to present

### **Duties**

Participate as an active member of the Molecular Ecology Laboratory

- Maintain a clean and organized lab
- Order reagents and lab materials
- Perform mtDNA and RNA extractions
- Perform PCR amplification and agarose gel electrophoresis

Continue a research project concerning population dynamics of grylloblattid insects

- Analyze Sanger sequencing reads
- Perform targeted next generation sequencing using MYbaits target capture methods
- Construct phylogenetic trees of grylloblattids to analyze population diversity, speciation, and evolutionary history
- Write a research paper describing implications and results

Serve as a lab resource

- Teach new lab members how to perform basic laboratory tasks (PCR, DNA extraction, sequencing preparation)
- Oversee undergraduate projects

### **Undergraduate Research Assistant**

Dr. Sean Schoville's Molecular Ecology Laboratory, Department of Entomology,  
University of Wisconsin Madison

March 2014 to May 2015

### **Duties**

Participate as an active member of the Molecular Ecology Laboratory

- Maintain a clean and organized lab
- Perform mtDNA and RNA extractions
- Perform PCR amplification and agarose gel electrophoresis
- Attend and participate in weekly lab meetings

Complete a research project concerning population dynamics of grylloblattid insects

- Analyze Sanger sequencing reads
- Use BEAST software to prepare data for phylogenetic analysis
- Construct phylogenetic trees of grylloblattids to analyze population diversity, speciation, and evolutionary history

## **Undergraduate Research Assistant**

USDA Cranberry Genetics and Genomics Laboratory, Department of Horticulture,  
University of Wisconsin Madison  
June 2012 to May 2015

### **Duties**

Participate as an active member of the Cranberry Genetics and Genomics Laboratory

- Maintain an organized and clean lab environment
- Perform basic laboratory procedures including DNA extraction, polymerase chain reaction (PCR) and gel electrophoresis
- Attend lab meetings and give presentations about work to date
- Catalog samples and prepare them for DNA analysis, including DNA extraction, PCR, genotyping, data processing, data analysis

Contributor to a cranberry genetic mapping project

- Screen over 1,000 microsatellite markers using parental DNA of two half-sibling F<sub>1</sub> mapping populations. The markers are then tested on the two complete mapping populations.

Conduct separate cranberry genetic translocation mapping project

- Test over 500 microsatellite markers on two complete mapping populations
- Identify the chromosome location of the translocation in one population
- Apply findings to previous pollen phenotypic data from the translocation population

Contributor to development of a DNA fingerprinting method for cranberry cultivars

- Analyzed 576 cranberry samples from the National Clonal Germplasm Repository (NCGR), two public breeding programs (NJ and WI), and growers around the country using a set of 12 microsatellite markers.
- Created a consensus genetic profile using GeneMarker software and confirmed their pedigrees and hybrid progenies.
- Contributed to a genotyping service for cranberry growers to determine the likely identity of samples in relation to our consensus genetic profiles

Studied genetic diversity of wild and cultivated cranberry germplasm

- Sampled five wild cranberry populations with 192 total individuals and used GeneMarker to assess genetic diversity
- Resulted in a publication

Conducted data collection and analysis of cranberry traits: yield, quality, and nutrition

- Collect standardized measurements for 22 traits across 308 plants for three years.

Participate in extensive outreach programs

- Attend 5-8 community outreach events per year visited by approximately 3,600 people. These events focused on sharing the excitement of cranberry science with young people and their families through interactive activities and exploration.

## **Publications**

### **Accepted for publication**

Brandon Schlautman, Giovanni Covarrubia-Pazaran, Luis A. Diaz-Garcia, Jennifer Johnson-Cicalese, Massimo Iorrizo, Lorraine Rodriguez-Bonilla, Tierney Bougie, Tiffany Bougie, Eric Wiesman, Shawn Steffan, James Polashock, Nicholi Vorsa, Juan Zalapa. 2015. Development of a high-density cranberry SSR linkage map for comparative genetic analysis and trait detection. *Molecular Breeding* doi: 10.1007/s11032-015-0367-5

Brandon Schlautman, Diego Fajardo, Tierney Bougie, Eric Wiesman, James Polashock, Nicholi Vorsa, Shawn Steffan, Juan Zalapa. 2015. Development and Validation of 697 Novel Polymorphic genomic and EST-SSR loci in the American Cranberry (*Vaccinium macrocarpon* Ait.). *Molecules* doi:10.3390/molecules20022001.

Zalapa J.E., T.C. Bougie, T.A. Bougie, B.J. Schlautman, E. Wiesman, A. Guzman, D.A. Fajardo, S. Steffan, T. Smith. 2014. Clonal diversity and genetic differentiation revealed by SSR markers in wild *Vaccinium macrocarpon* Ait. and *Vaccinium oxycoccos* L. *Annals of Plant Biology* doi:10.1111/aab.12173

## **Poster Presentations and Talks**

### **2013 Undergraduate Research Symposium**

Poster Presentation, University of Wisconsin Madison

Genetic diversity of *Vaccinium macrocarpon* and *Vaccinium oxycoccos* in wild populations

### **2012 Biology 152 Presentation**

Talk given to 50 students and staff from the biology department

Genetic diversity of American cranberry (*Vaccinium macrocarpon*) wild populations

### **2013 Biology 152 Research Symposium**

Collaborator on a poster presentation for the Biology 152 symposium

Genetic diversity and characterization of two cranberry species: *Vaccinium macrocarpon* and *V. oxycoccus*

## **Mentorship**

### **May 2014-August 2014**

Trained and mentored an undergraduate student for summer employment at the Cranberry Genetics and Genomics lab

- Taught PCR, greenhouse responsibilities, DNA extractions, and assisted the student in completing lab projects

**October 2012-July 2013**

Assisted a high school student with lab work and strategies to improve lab performance. Student was a part of the Pre-college Enrichment Opportunity Program for Learning Excellence (PEOPLE) Program

- Taught DNA extraction techniques, PCR, fragment analysis using GeneMarker, and assisted the student in writing a research paper