MICHAEL BRYAN MUELLER

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Statement of Purpose

Currently, my goal is to begin my graduate studies, further explore my interests in the field of entomology, learn from passionate folks, and grow my abilities as a scientist. Primarily my interests lie in insect behavior/ecology and the practical applications of better understanding pest/beneficial organism behavior.

Experience

USDA - ARS Invasive Plant Research Laboratory March 2018 - Present

In March 2018 I joined Dr. Ellen Lake's team at one the largest biological control quarantine facilities in North America. Our primary research focus is the examination of possible classical biological control agents for old world climbing fern (*Lygodium microphyllum*). My duties include carrying out studies designed to examine the life cycle and reproductive behavior of our biological control agents, along with experiments exploring possible non-target impacts of our agents to endemic south Florida species. To facilitate the research goals of the group, my team and I also maintain three or more insect colonies at a time, a stock of L. microphyllum along with a wide variety of other native and non-native ferns.

University of Texas at Austin - Invasive Species Research Lab May 2017- February 2018

Worked with Dr. Edward LeBrun in carrying out research examining the biology and ecology of the invasive Twany Crazy Ant, (*Nylandaria Fulva).* Research activities included examination of the feasibility of a using a microsporidian agent as a means for biological control, the impact of *N. Fulva* on local karst ecosystems, and the examination of the ant's behavior. My duties include a combination of laboratory work, fieldwork, and laboratory management. I independently managed all of Dr. LeBrun's research activities and laboratory workspace. Examples of my duties included independent overnight trips to the field to sample ants at sites where we have released populations inoculated with the microsporidian, field sampling in caves, preparation/processing of field samples for analysis, examining microsporidian spore load via oil immersion microscopy, sorting/identification of pitfall traps, maintaining ant colonies under strict quarantine conditions, managing large amounts of data, and managing the supplies of the workplace.

United Wholesale Mortgage - Mortgage Underwriter II November 2016 - April 2017

While continuing my search for employment opportunities in the biological field I took a position as an underwriter for United Shore in Troy Michigan. In the position I reviewed documents pertinent to the mortgage loan origination process, made decisions based on available documentation, and maintained relationships with clients via contacting them directly to solve problems, resolve conflicts, and answer any questions they may have.

USDA - ARS - Northern Plains Agricultural Research Laboratory February 2016 - July 2016

For five months in 2016, I was employed as a laboratory technician for the USDA's Agricultural Research Service at the Northern Plains Agricultural Research Laboratory located in Sidney Montana. My duties were mainly family level taxonomic identification of insects, spiders and other arthropods from field samples. The auxiliary duties I had were colony maintenance of an imported potential biological control agent under strict quarantine conditions, the

creation of an excel spreadsheet to house three years worth of arthropod identification data, and assisting in field sampling.

Michigan State University's Organic Pest Management Laboratory July 2013 - December 2015

During my time as an undergraduate at Michigan State University, and for a year post graduation, I was employed as a research assistant in Dr. Matthew Grieshop's Organic Pest Management laboratory. I worked independently and alongside graduate and postgraduate personnel on a variety of projects pertaining to agroecosystem dynamics and experimental pest management techniques. I had a variety of roles in the laboratory including taxonomic identification of field samples, management of field trials examining the effectiveness of a novel attract and kill device for Japanese beetle (*Popillia japonica)* (JB), extensive work on an experimental in-canopy spray delivery system for high density apple orchards, the propagation and maintenance of the resident brown marmorated stink bug (*Halyomorpha halys*) (BMSB) colony, the establishment and maintenance of a Japanese beetle colony, preparation, dissection, and evaluation of black soldier fly (*Hermetia illucens*) larvae used in nematode biological assays, identification of Michigan weed species, laboratory organization and supply acquisition, insect pest and pathogen scouting in apple orchards and many other types of field work in a variety of adverse conditions. All of the duties described above were performed stringently following OSHA/USDA/EPA and lab safety protocols, sanitation standards, testing procedures and ethical research standards.

Two projects in which I played a leading role in were field trials examining the efficiency of a novel attract and kill device for JB and the taxonomic identification of various Michigan arthropods from field samples. For the attract and kill project I was responsible for the set up and maintenance of field videography equipment, evaluation of apple trees for JB damage, the establishment and maintenance of a JB colony for bioassay trials, and analysis of the initial findings. In November of 2015 at the Entomological Society of America's national meeting, I had the pleasure of presenting the results of my work on the JB attract and kill project and won second place in the undergraduate poster competition. My responsibilities for the taxonomic work included family level identification of insects, collembola, and acarines. Additionally I was also responsible for training undergraduate employees in stereo microscopy, the creation of guides to be used in assisting with identification and for the supervision and direct assistance of support staff in the identification process.

Michigan State University Recreational Sports August 2011 - August 2013

I was employed as a lifeguard at MSU campus pools with the responsibility of supervising large groups of diverse patrons at the indoor and outdoor pools. I was responsible for constructively engaging patrons about their concerns, enforcing the rules, and ensuring the safety of all pool goers. I also served as a swim instructor to a diverse group of clientele including children and adults of varying ages, skill sets, and backgrounds.

Rochester Community Education June 2008 - August 2012

For over four years, I was employed at Rochester Community Education in Rochester, Michigan as a swim instructor, lifeguard, and staff instructor. I instructed group and private swimming lessons to children of a variety of ages. As a lifeguard, I supervised swimmers during lessons and open swim events. Being a certified water safety and experienced swim instructor, I had the opportunity to train new and less experienced staff in swimming, water safety and lifeguarding skills.

Education

Michigan State University, East Lansing Michigan January 2011- December **2014**

- Bachelor's of Science in Zoology with concentrations in (1) Neurobiology and Animal Behavior, and (2) Ecology, Evolution, and organismal Biology; GPA (3.5/4.0)

Volunteer Work

Michigan State University, East Lansing Michigan August 2013

- Volunteer camp counselor with MSU's chapter of Camp Kesem during the Summer of 2013. Camp Kesem is a free camp provided to children whose parents are suffering or have suffered from cancer that aims to provide a safe and enriching environment for children

Awards

Entomological Society of America November 2015

- Second Place - Undergraduate Poster Competition: Plant - Insect Ecosystems - Herbivores, Invasive Species, and Trapping