

## **DANIELLE M. TUFTS, Ph.D.**

School of Biological Sciences  
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### **EDUCATION**

- Postdoctoral Research Fellow Ecology, Evolution, and Environmental Biology with Maria Diuk-Wasser  
Columbia University, Present
- Postdoctoral Researcher Harold W. Manter Laboratory of Parasitology with Scott L. Gardner  
University of Nebraska-Lincoln, 2013-2015
- Ph.D. Biological Sciences (emphasis in Integrative Evolutionary Biology),  
University of Nebraska-Lincoln, 2013  
Dissertation: *The Roles of Phenotypic Plasticity and Genotypic Specialization in High Altitude Adaptation*
- M.S. Biology, University of Texas, Tyler, 2008  
Thesis: *Identification of Colony Phenotype and Potential Biological Control Methods of *Solenopsis invicta* Buren (Hymenoptera: Formicidae) using Molecular Techniques*
- B.S. Wildlife, Fish, and Conservation Biology (Minor in Animal Genetics),  
University of California, Davis, 2005
- A.A. Liberal Arts, College of the Sequoias, 2001

### **RESEARCH INTERESTS**

Conservation Genetics; Disease Ecology; Parasitology; Evolution and Ecology; Wildlife Genetics;  
Population Genetics; Virology; Behavioral Genetics

### **RESEARCH EXPERIENCE**

*Postdoctoral Researcher*, HW Manter Lab of Parasitology, University of Nebraska, 2014 – Present

- Supervisor: Dr. Scott L. Gardner
- Established and manage a molecular genetics parasitology lab for identification of parasites and pathogens using molecular and morphological techniques
- Conduct phylogenetic studies comparing host-parasite interactions from Mongolia and Bolivia
  - Software includes: DnaSP, Mesquite, TNT, MEGA, Network, TreeFinder
- Lead field research team to collect small rodents and investigate the range expansion, gene flow, and spatial distribution of *Echinococcus* spp. tapeworms in North America, an emerging disease and major human pathogen in various countries
- Mentor undergraduate and graduate students on proper laboratory techniques
  - Pipetting techniques, PCR, gel electrophoresis, sequencing, DNA extractions using kits and phenol chloroform, primer design, etc.
- Assist in grant and manuscript writing

*Doctoral Student, University of Nebraska, 2009-2013*

- Advisor: Dr. Jay F. Storz
- Completed a study on phenotypic plasticity of various hematological parameters in *Peromyscus maniculatus* from high and low altitude subjecting individuals to both hypoxia and normoxia
  - Trapped and bled mice from Colorado and Nebraska, acclimated mice to low/high altitude using hypobaric chambers in a common garden environment
  - Measured hemoglobin (Hb) concentration, hematocrit, RBC size, MCHC, RBC count, DPG concentrations, MCV, MCH, Lactate and Glucose levels in mice
  - Statistical analyses included: Repeated Measures Two-way ANOVA, ANCOVA, and Kolmogorov-Smirnov test, using SAS and R programs
- Investigated genetic and functional variation of Hb genes in two mammals
  - Captured high and low altitude pika (*O. princeps* and *O. collaris*) and marmot (*M. flaviventris* and *M. caligata*) species from Colorado and Alaska
- Extracted DNA from pika liver tissue for sequencing of  $\alpha$  and  $\beta$  Hb genes
- Extracted RNA from marmot bone marrow for Rapid Amplification of cDNA ends (RACE) sequencing of  $\alpha$  and  $\beta$  Hb genes
- Characterized Hb isoforms using an isoelectric focusing gel (IEF) technique
- Performed High Performance Liquid Chromatography (HPLC) to obtain purified Hb for functional analysis
- Constructed recombinant Hb mutants (via site-directed mutagenesis) to determine amino acid substitutions responsible for variation in Hb-O<sub>2</sub> affinity
  - Bioinformatic software and molecular evolutionary tools utilized: PyMOL, Geneious, DnaSP, SigmaPlot
- Screened *P. maniculatus* from Colorado for linkage disequilibrium in the  $\alpha$ -globin gene
  - Touchdown PCR techniques

*Side project in the Harold W. Manter Parasitology Lab, University of Nebraska, 2010-2013*

- Supervisor: Dr. Scott L. Gardner
- Necropsied *Ochotona* and *Marmota* individuals collected from main PhD project
- Developed techniques for removing and preserving various types of parasites
- Perfected parasite identification skills

*Internship, Conservation Genetics Lab at the Henry Doorly Zoo, Omaha NE, 2010-2012*

- Supervisors: Dr. Edward E. Louis and Shannon Enberg
- Conducted various research on the Madagascar Biodiversity and Biogeography Project
- Constructed microsatellite nuclear DNA markers
- Extracted DNA from fecal samples of the critically endangered Greater Bamboo Lemur (*Prolemur simus*) from different populations as a non-invasive method of determining new individuals, gene flow, and establish differences among northern and southern populations

*Research Associate/Laboratory Technician, University of Texas, 2008-2009*

- Supervisor: Dr. Blake Bextine
- Assessed the virulence and resistance of hosts infected with the *Solenopsis invicta* virus (SINV) to different commercially available and commonly used pesticides
  - Determined that SINV provides a protective advantage and decreased mortality
- Gained expertise and trained students in virus detection, characterization, and integration
  - Examined four insect taxa: Fire Ant- *Solenopsis invicta*; Leafhopper- *Homalodisca vitripennis*; Psyllid- *Bactericera cockerelli*, and Honey bee- *Apis mellifera*
- Developed bacterial cell cultures from *S. invicta* and *B. cockerelli*
- Supervised students, managed the lab, trained graduate and undergraduate students on proper lab techniques, ordered supplies, monitored safety, and disposed of chemicals
- Maintained insect cultures and plant production in the greenhouse
- Reviewed manuscripts, composed manuscripts, and contributed to grant writing

*Side project in a Conservation Genetics Lab, University of Texas, 2008-2009*

- Supervisor: Dr. John Playck
- Conducted population genetics study of Southern Flying Squirrels (*Glaucomys volans*) in Texas
- Performed DNA extractions from Texas Horned Lizard (*Phrynosoma cornutum*) tissue, Box turtle (*Terrapene* spp.) tail and nail clips, and Garter snake (*Thamnophis* spp.) tissue
- Extracted DNA from feather clips and performed PCR for Chipping Sparrow (*Spizella passerine*) sex identification

*Masters Graduate Student, University of Texas, 2006-2008*

- Advisor: Dr. Blake Bextine
- Conducted original research on viruses in Red Imported Fire Ants (*Solenopsis invicta* Buren) from east Texas populations
  - Molecular techniques include: DNA extractions using Qiagen DNeasy Tissue kit, RNA extractions using TRIzol reagent, Reverse Transcriptase Polymerase Chain Reaction (RT-PCR), real-time PCR, in house sequencing using a Beckman Coulter CEQ8000
  - Statistical analysis include: Generalized Linear Mixed Model using SAS
- Developed a protocol for whole virus extraction from *S. invicta* for microencapsulation of virus
- Tested effectiveness of virus mortality on lab and field *S. invicta* colonies
- Discovered a genetically different *Solenopsis invicta* virus (SINV) in Texas *S. invicta* colonies, named this virus SINV-1(TX5)
- Devised a method for extracting hemolymph and ovaries from *S. invicta* queens
- Isolated and analyzed hemolymph for bacteria fauna using the 16S rRNA
  - Identified bacterium, conducted sequence analyses, and submitted sequences to GenBank
- Gained experience in growing *Bacillus* spp. bacteria on TSA plates
- Developed a method for detecting monogyne/polygyne colonies using SYBR<sup>®</sup> Green quantitative real-time PCR (QRT-PCR) and the Glycoprotein IX (*Gp-9*) gene
- Designed primers and aided others in the use of Primer3 and Netprimer Launch
- Mentored undergraduates in various lab techniques and software
  - BioEdit Sequence Alignment Editor, ClustalW, Microsoft Word and Excel

*Field Research Assistant, Yosemite National Park, Ca, Summer 2006*

- Supervisor: Katryna Fleer
- Conducted research on vector borne diseases in rodents
  - Trapped *Peromyscus*, *Tamiasciurus*, and *Sciurus* spp. using Sherman and Tomahawk Live traps
- Collected parasites from captured animals, administered ear tags, and recorded measurements

*Laboratory Assistant II/Laboratory Technician, University of California, Davis, 2003-2006*

- Supervisors: Drs. Sergey Nuzhdin and Anne Ginessel
- Performed PCR analyses using different enzymes, multiplex PCRs, microsatellite markers, SNP analysis, troubleshooting, gel electrophoresis, spectrophotometry
- Ordered reagents and supplies, disposed of hazardous waste and toxic chemicals
- Performed DNA/RNA extractions from *Drosophila* using phenol-chloroform and purification using a Qiagen Clean-up Kit
- Conducted cRNA synthesis from *Drosophila* embryos using TRIzol reagent, labeled and fragmented cRNA for analyses using Affymetrix Genechips
- Completed hybridization experiments using radioactively labeled probes (<sup>33</sup>P) and genotyping experiments using specific ligation
- Designed oligos using Primer 3, Netprimer Launch, DNA sequencer, and Oligo Calculator
  - Software: Microsoft Word, Excel, STRand, perform multiple alignments using BioEdit
- Mentored others in data collection and documentation of various experiments

*Internship*, Wildlife Veterinary Genetics Lab, University of California, Davis, 2004-2005

- Supervisors: Josh Hull and Dr. Holly Ernest
- Developed microsatellite markers for a population genetics study on Swainson's Hawks (*Buteo swainsoni*) and other raptor species (*Buteo* spp.)
- Performed PCR testing cross species multiplex reactions
- Assisted in making collection kits for wildlife biologists in the field
- Conducted DNA extractions from various mammalian tissue and avian blood samples

*Sacramento Zoo Keeper-Aide*, Sacramento Zoo, 2003-2005

- Assisted in daily animal care and maintenance, prepared animal diets, and created enrichment puzzles for the animals
- Assisted with cleaning and disinfecting cages, grottos, and work areas
- Learned about captive animal husbandry and behaviors

*Summer Abroad Study Program*, University of Cape Town and Edeni Private Game Reserve, South Africa, 2004-2004

- Assisted KERI research group with assessment of an African Wild Dog
- Measured paw size and length, total body length and teeth size, administered antibiotics and vitamins by subcutaneous injection, and collected an ear clipping for genetic research

*Veterinary Internship*, Small Animal Surgery Division in UC Davis veterinary Hospital, 2003-2003

- Observed numerous surgeries, retrieved surgical instruments and supplies
- Assisted in cleaning, disinfected surgical instruments, and prepared sterilized rooms for surgeries

## **AWARDS and HONORS**

Certificate of Recognition for "Outstanding contribution in insect pathology-virus", SXSI, Chair Dr. W. Hunter, USDA, ARS, 2010

Best overall poster at the Science, Technology, Engineering and Mathematics (STEM) meeting at the University of Texas, Tyler, 2008

Student and Young Professional Award, Entomological Society of America Governing Board, 2008

Certificate for Completion of training in virus purification and propagation in insects. Lead Researcher Dr. W. Hunter, USDA, ARS, 2008

Second place for the oral presentation competition at the Southwestern Branch meeting of the Entomological Society of America in Fort Worth, Texas, 2008

First place for the poster competition at the Southwestern Branch meeting of the Entomological Society of America in Corpus Christi, Texas, 2007

## **MEMBERSHIPS**

Sigma Xi member, 2010-Present

American Society of Mammalogists member, 2009-Present

The Southwestern Association of Parasitologists member, 2011-Present

The Wildlife Society member, 2012-Present

The Society for Integrative and Comparative Biology member, 2011-2013

The Society for the Study of Evolution member, 2011-2013

University of Nebraska Biology Graduate Student Association member, 2008-2013

University of Nebraska Biology Graduate Student Association Secretary, 2010-2011

The Entomological Society of America (ESA) member, 2006-2009

Departmental Graduate Student Committee Chair, University of Texas, 2008

## GRANTS/FELLOWSHIPS

University of Nebraska-Lincoln Postdoctoral Travel Grant, 2015. Awarded but declined \$750.  
Graduate Assistance in Areas of National Need (GAANN) Fellowship, 2013. Funded \$1,300.  
University of Nebraska-Lincoln Special Funds Travel Fellowship, 2013. Funded \$350.  
American Society of Mammalogists Travel Grant, 2013. Funded \$300.  
University of Nebraska-Lincoln Special Funds Grant, 2012. Funded \$2,000.  
American Society of Mammalogists Grants-In-Aid of Research, 2012. Funded \$1,500.  
University of Nebraska-Lincoln Milton E. Mohr Fellowship, 2012. Funded \$1,000.  
University of Nebraska-Lincoln Special Funds Travel Fellowship, 2012. Funded \$600.  
Annual Basolo Travel Fellowship, 2012. Funded \$250.  
American Society of Mammalogists Grants-In-Aid of Research, 2011. Funded \$1,470.  
University of Nebraska-Lincoln Special Funds Grant, 2011. Funded \$1,000.  
Warren F. and Edith R. Day Student Aid Fellowship, 2011. Funded \$500.  
University of Nebraska-Lincoln Special Funds Travel Fellowship, 2011. Funded \$400.  
University of Nebraska-Lincoln Special Funds Grant, 2010. Funded \$1,470.

Total Funding: **\$12,140**

## OUTREACH

Reviewer for the UNL Undergraduate Creative Activities and Research (UCARE) Grant, 2015  
Judge at the Zoetis-Lincoln Public Schools-Novarits Science Fair, 2015  
Eight Legged Encounters at Morrill Hall Natural History Museum, 2014  
Judge at Hill Elementary School Science Fair, 2014  
Sunday with a Scientist at Morrill Hall Natural History Museum, 2013  
Judge at Hill Elementary School Science Fair, 2013  
Earth Day Insect and Bird Education Booth at Camp Tyler, 2008

## PUBLICATIONS

**Tufts, DM**, Gardner, SL. Phylogenetic analysis of *Taenia* spp. tapeworms from Mongolia using mitochondrial genes. (In progress).  
**Tufts, DM**, Batsaikhan, N, Gardner, SL. Morphometric analysis of larval *Taenia* from Rodentia and Lagomorpha in Mongolia. (In progress).  
**Tufts, DM**, Pruett, JA, Gardner, SL, Playck, JS. Analysis of mitochondrial DNA reveals population decline and limited dispersal of Southern Flying Squirrels (*Glaucomys volans*) following anthropogenic habitat alteration. (In progress).  
**Tufts, DM**, Scott, GB, Storz, JF. Highland and lowland deer mice exhibit different hematological acclimation responses to chronic hypoxia. (In progress).  
**Tufts, DM**, Natarajan, C, Revsbech, I, Projecto-Garcia, J, Hoffmann, FG, Weber, RE, Fago, A, Moriyama, H, Storz, JF. (2015). Epistasis constrains mutational pathways of hemoglobin adaptation in high-altitude pikas. *Molecular Biology and Evolution* 32(2): 287-298.  
**Tufts, DM**, Hunter, WB, Bextine, B. (2014). *Solenopsis invicta* virus (SINV-1) infection and insecticide interactions in the red imported fire ant (Hymenoptera: Formicidae). *Florida Entomologist* 97(3): 1251-1254.  
Revsbech, IG\*, **Tufts, DM**\*, Projecto-Garcia, J, Moriyama, H, Weber, RE, Storz, JF, Fago, A. (2013). Haemoglobin function and allosteric regulation in semi-fossorial rodents (Family Sciuridae) with different altitudinal ranges. *Journal of Experimental Biology* 216:4264-4271.  
\*Co-first authorship. **Awarded JEB's Outstanding paper of 2013**  
Nickol, DR, **Tufts, DM**. (2013). Single-dose Metronidazole clears *Opalina* spp. from juvenile *Bufo woodhousii*. *Journal of Parasitology* 99(3): 573-575.

- Tufts, DM**, Revsbech, IG, Cheviron, ZA, Weber, RE, Fago, A, Storz, JF. (2013). Phenotypic plasticity in blood-oxygen transport in highland and lowland deer mice. *Journal of Experimental Biology* 216: 1167-1173.
- Tufts, DM**, Spencer, KR, Hunter, WB, Bextine, B. (2010). Delivery system using sodium alginate virus loaded pellets to Red Imported Fire Ants (*Solenopsis invicta*, Hymenoptera: Formicidae). *Florida Entomologist* 94(2): 237-241.
- Tufts, DM**, Hunter, WB, Bextine, B. (2010). Discovery and effects of the *Solenopsis invicta* virus (SINV-1 (TX5)) on Red Imported Fire Ant populations. *Journal of Invertebrate Pathology* 104: 180-185.
- Tufts, DM**, Bextine, B. (2009). Identification of bacterial species in the hemolymph of queen *Solenopsis invicta* (Hymenoptera: Formicidae). *Environmental Entomology* 38(5): 1360-1364.
- Gunawan, S, **Tufts, DM**, Bextine, B. (2008). Molecular identification of hemolymph-associated symbiotic bacteria in Red Imported Fire Ant larvae. *Current Microbiology* 57(6): 575-579.
- Nuzhdin SV, **Tufts, DM**, Hahn, MW. (2008). Abundant genetic variation in transcript level during early *Drosophila* development. *Evolution and Development* 10(6): 683-689.
- Graze, RM, Barmina, O, **Tufts, D**, Naderi, E, Harmon, KL, Persianinova, M, Nuzhdin, SV (2007). New candidate genes for sex-comb divergence between *Drosophila mauritiana* and *Drosophila simulans*. *Genetics* 176: 2561-2576.
- Hull, JM, **Tufts, D**, Topinka, JR, May, B, Ernest, HB (2006). Development of 19 microsatellite loci for Swainson's hawks (*Buteo swainsoni*) and other buteos. *Molecular Ecology Notes* 7, 346-349.

#### *Published Proceedings and Abstracts*

- Tufts, DM**, Spencer, K, Hunter, W, Bextine, B. (2009). Integration of Picorna-like viruses in multiple insect taxa. Florida Entomological Society.
- Tufts, DM**, Hunter, WB, Bextine, B. (2009). Integration and location of picorna-like viruses in various insect taxa. Proceedings of the 57<sup>th</sup> Annual meeting of the Southwestern Branch of the Entomological Society of America.
- Spencer, K, **Tufts, DM**, Hunter, W, Bextine, B. (2009). *Solenopsis invicta* virus (SINV-TX5) extraction and introduction to the red imported fire ant. Proceedings of the 57<sup>th</sup> Annual meeting of the Southwestern Branch of the Entomological Society of America.
- Bextine, B, **Tufts, DM**, Timmons, C, Hunter, WB, Marutani-Hert, M. (2008). Development of a potato psyllid (*Bactericera cockerelli*) cell culture. Proceedings of International Research Conference on Huanglongbing.
- Tufts, DM**, Hunter, W, Bextine, BR. (2008). Discovery of a genetically different form of the *Solenopsis invicta* virus (SINV-1) in east Texas. Proceedings of the 56<sup>th</sup> Annual meeting of the Southwestern Branch of the Entomological Society of America.
- Tufts, DM**, Spencer, K, Hunter, WB, Bextine, B. (2008). Identification and integration of Picorna-like viruses in multiple insect taxa. Annual meeting of The Entomological Society of America Annual Meeting and USDA, ARS online abstracts.
- Tufts, DM**, Gunawan, S, Bextine, B. (2007). The role of *Bacillus* species bacteria as possible obligate symbionts in queen red imported fire ant (RIFA) hemolymph. The Entomological Society of America Annual Meeting.
- Tufts, DM**, Bextine, BR. (2007). Differentiation of monogyne and polygyne red imported fire ant (RIFA) colonies using SYBR® Green-based QRT-PCR. Proceedings of the 55<sup>th</sup> Annual meeting of the Southwestern Branch of the Entomological Society of America.

#### *Book Chapter Reviews*

- Ecology: A Unified Approach*. Henry Stevens, Oxford University Press. (Reviewed 5/2015).
- Evolution* 2<sup>nd</sup> Edition. Carl Bergstrom and Lee Alan Dugatkin, WW Norton & Company. (Reviewed 7/2015).

## PRESENTATIONS

- Gardner, SL, **Tufts, DM**. (2014). Parasites of Mammals; Systematics, Phylogenetics, and Genetic Diversification. Population Biology Symposium (*Invited Symposium Talk*).
- Tufts, DM**, Natarajan, C, Revsbech, I, Projecto-Garcia, J, Hoffmann, FG, Weber, RE, Fago, A, Moriyama, H, Storz, JF. (2014). Sign epistasis and stepwise changes in hemoglobin-O<sub>2</sub> affinity in high-altitude pikas. Society for Molecular Biology and Evolution meeting, Puerto Rico (*Invited Symposium poster*).
- Storz, JF, Natarajan, C, **Tufts, DM**, Projecto-Garcia J, Witt, CC, Moriyama, H, Weber, RE, Fago, A. (2014). Causes and consequences of nonadditive mutational effects in the functional evolution of vertebrate hemoglobins. International Oxygen-Binding and Sensing Proteins meeting, UK (*Invited Symposium Talk*).
- Fago, A, Revsbech, IG, Damsgaard, C, **Tufts, DM**, Projecto-Garcia, Hoffmann, FG, Moriyama, H, Storz, JF, Weber, RE. (2014). Regulation of hemoglobin oxygen affinity in hibernating animals. International Oxygen-Binding and Sensing Proteins meeting, UK (*Invited Symposium Talk*).
- Tufts, DM**, Projecto-Garcia, J, Storz, JF. (2013). Genetic differences in hemoglobin function between high and low altitude pika species. The American Society of Mammalogists (ASM) 93<sup>rd</sup> annual meeting (*oral presentation*).
- Tufts, DM**, Projecto-Garcia, J, Storz, JF. (2012). Genetic differences in hemoglobin function between high and low altitude pika species. The Wildlife Society annual meeting (*poster*).
- Tufts, DM**, Gardner, SL. (2011). Potential host sharing of endoparasites in *Ochotona princeps*. Evolution annual meeting and the American Society of Mammalogists (ASM) 91<sup>st</sup> annual meeting (*poster*).
- Tufts, DM**, Gardner, SL. (2011). Endoparasite species of the North American pika (*Ochotona princeps*) from Colorado. Southwestern Association of Parasitologists (SWAP) 42<sup>nd</sup> annual meeting (*poster*).
- Tufts, DM**, Bextine, B. (2010). Identification and integration of picorna-like viruses in two insect species. School of Biological Sciences Graduate Student Symposium, University of Nebraska-Lincoln (*Invited Oral Presentation*).
- Spencer, K, **Tufts, DM**, Hunter, W, Bextine, B. (2009). *Solenopsis invicta* virus (SINV-TX5) extraction and introduction to the red imported fire ant. 57<sup>th</sup> Annual meeting of the Southwestern Branch of the Entomological Society of America (*poster*).
- Tufts, DM**, Hunter, WB, and Bextine, B. (2009). Integration and location of picorna-like viruses in various insect taxa. 57<sup>th</sup> Annual meeting of the Southwestern Branch of the Entomological Society of America (*poster*).
- Bextine, B, **Tufts, DM**, Timmons, C, Hunter, WB, Marutani-Hert, M. (2008). Development of a Potato Psyllid (*Bactericera cockerelli*) cell culture. First International Research Conference on Huanglongbing (*poster*).
- Tufts, DM**, Bextine, B. (2008) Identification and integration of picorna-like viruses in multiple insect taxa. Annual meeting of the Entomological Society of America, Reno Nevada and University of Texas at Tyler Science, Technology, Engineering, and Mathematics (STEM) meeting (*poster*).
- Tufts, DM**, Hunter, WB, Bextine, B. (2008). Identification and Possible Integration of Picorna-like Viruses in Multiple Insect Taxa. Entomological Society of America Annual meeting (*oral presentation*).
- Spencer, K, **Tufts, DM**, Hunter, WB, Bextine, B. (2008). *Solenopsis invicta* virus (SINV-TX5) extraction and introduction to the Red Imported Fire Ant (*Solenopsis invicta*). University of Texas at Tyler Science, Technology, Engineering, and Mathematics (STEM) meeting (*poster*).
- Tufts, DM**, Bextine, B. (2008). Red Imported Fire Ants and single stranded RNA viruses: Can viruses contribute to the management of insect pests? University of Texas at Tyler's Faculty Research day (*Invited Oral Presentation*).
- Tufts, DM**, Hunter, WB, Bextine, B. (2008). Discovery of a genetically different form of the *Solenopsis invicta* virus (SINV-1) in East Texas. Southwestern Branch meeting of the Entomological Society of America (*oral presentation*).

**Tufts, DM**, Gunawan, S, Bextine, B. (2007). The role of *Bacillus* species as possible obligate symbionts in queen *Solenopsis invicta* (Hymenoptera: Formicidae) Hemolymph. Annual meeting of the Entomological Society of America (*poster*).

**Tufts, DM**, Bextine, B. (2007). Differentiation of monogyne and polygyne Red Imported Fire Ant (RIFA) colonies using SYBR<sup>®</sup> Green-based QRT-PCR. Southwestern Branch meeting of the Entomological Society of America (*poster*).

## **TEACHING EXPERIENCE**

### *Courses Taught as Adjunct Professor*

Fundamentals in Biology (Life 120), School of Biological Sciences, University of Nebraska (Summer 2014; 4-credit hour undergraduate course; ~40 students)

Ecology and Evolution (BIOS 207), School of Biological Sciences, University of Nebraska (Fall 2014; 4-credit hour undergraduate course; ~30 students)

### *Courses Taught as Teaching Assistant*

Fundamentals in Biology (Life 120L), School of Biological Sciences, University of Nebraska (Fall and Spring 2012-2014; 1-credit hour undergraduate course; ~50 students)

Cell Structure and Function (BIOS 102 recitation, Head TA), School of Biological Sciences, University of Nebraska (Fall and Spring 2010-2012; 1-credit hour undergraduate course; ~50 students)

Field Epidemiology (BIOS 452/852, ACE10 course), School of Biological Sciences, Cedar Point Biological Station, University of Nebraska (Summer 2010-2012; 4-credit hours undergraduate course; ~16 students per semester)

Ecology and Evolution (BIOS 207L), School of Biological Sciences, University of Nebraska (Spring 2010; 1-credit hour undergraduate course; ~50 students)

General Biology (BIOS 101L), School of Biological Sciences, University of Nebraska (Fall 2009; 1-credit hour undergraduate course; ~50 students)

Cell and Molecular Biology (BIOL 4102L), Department of Biology, University of Texas (Fall and Spring 2007-2008; 1-credit hour undergraduate course; ~50 students)

Cell Biology (BIOL 3134L), Department of Biology, University of Texas (Spring 2007; 1-credit hour undergraduate course; ~50 students)

General Biology I and II (BIOL 1106L, 1107L), Department of Biology, University of Texas (Fall and Spring 2006-2007; 1-credit hour undergraduate course; ~50 students)

### *Guest Lectures*

Graduate student Professionalism course at the University of Nebraska (Fall 2014); lecture topic included: *How to survive in graduate school* and lead discussion panel

Cell and Molecular Biology course at the University of Texas (Spring 2008-2009), lecture topics included: *Cell Death; DNA Replication, and Central Dogma*

Cell Biology course at the University of Texas (Fall 2007-2008); lecture topics included: *Cell Membranes; Cell-Cell Signaling; Golgi Complex; Cell Cycle*



## **STUDENT MENTORING**

### *Undergraduates*

Daniella Khan, 2015 (Columbia University)  
Sarah Dube, 2015 (Columbia University)  
Max McClure, 2015 (Columbia University)  
Alexandria Bilanas, 2014 (University of Nebraska)  
Alex Lai, 2014 (University of Nebraska)  
Paras Patel, 2013 (McMaster University)  
Kyle Spencer, 2007-2008 (University of Texas)  
Chelsey Swatsall, 2007-2008 (University of Texas)  
Andrew Ambort, 2006-2007 (University of Texas)  
Stanley Gunawan, 2006-2007 (University of Texas)

### *Graduate Students*

Elizabeth Racz, Molecular Parasitology, 2013-2015 (University of Nebraska)  
Altangerel “Auggie” Tsogtsaikhan, Molecular Parasitology, 2013-2015 (University of Nebraska)  
Sajeni Mahalingam, Biology, 2013, (McMaster University)  
Inge Revsbech, Biology and Fieldwork, 2010-2012, (University of Nebraska, Aarhus University)  
Jake Pruett, Molecular Biology, 2008, (University of Texas)