Andrew D. Nguyen, PhD candidate

Department of Biology
109 Carrigan Drive Burlington, VT 05405
E-mail: anbe642@gmail.com

Research Interests

I am broadly interested in understanding the ecological, evolutionary, and genomic determinants of resiliency or susceptibility to climate change.

Education

2012-Present	University of Vermont, Burlington, Vermont, Ph.D. in Biology Expected Graduation: May 2017 Co-Mentors: Dr. Sara Helms Cahan, Dr. Nicholas J. Gotelli Concentration in Ecology and Evolutionary Biology
2004-2009	Drexel University, Philadelphia, Pennsylvania, B.S. Major: Biology

Publications: Refereed Journal Articles

2.) Nguyen AD, Gotelli NJ, Cahan SH. 2016. The evolution of heat shock protein sequences, cis-regulatory elements, and expression profiles in the eusocial Hymenoptera. BMC Evolutionary Biology 16:15.

1.) Stanton-Geddes J, **Nguyen A**, Chick L, Vincent J, Vangala M, Dunn RR, Ellison AM, Sanders NJ, Gotelli NJ, Cahan SH. 2016. Thermal reactionomes reveal divergent responses to thermal extremes in warm and cool-climate ant species. BMC Genomics 17:171.

Forthcoming

Nguyen AD, DeNovellis K, Resendez S, Pustilnik J, Gotelli NJ, Parker JD, Helms Cahan S. (2016). Effects of desiccation and starvation on thermal tolerance and the cellular stress response in forest ants. In review at the *Journal of Comparative Physiology B*.

Helms Cahan S, **Nguyen AD**, Stanton-Geddes J, Penick C, Hernáiz-Hernández Y, DeMarco B, Gotelli NJ. (2016). Modulation of the heat shock response underlies acclimation to novel temperatures but not adaptation to climatic variation in the ants *Aphaenogaster picea* and *A. rudis*. In review at *Comparative Biochemistry and Physiology, Part A*.

Awards and Grants

2016 Suiter Prize Travel Award - $1,000

Research Experience

2012-Present **Ph.D. candidate**, University of Vermont.
Uncovering evolutionary innovations in temperature adaptations in forest ants.

2014 **Research Associate**, University of Vermont
Determined infection frequency of Trypanosome parasites in Kissing bugs that cause Chagas disease.

2010-2011 **Technician**, Reaction Biology Corp
High through put screening of potentially therapeutic small compounds.

2009-2010 **Technician**, Morphotek Inc.
Developed therapeutic antibodies against Acute Myeloid Leukemia (AML).

2007-2008 **Intern**, GlaxoSmithKline
Studied red blood cell differentiation from mouse embryonic stem cells.

2006-2007 **Intern**, Morphotek Inc.
Developed neutralizing antibodies against Staphylococcal enterotoxin B (SEB).

Skills

Computing: Unix, R, python, Github, Phylogenetics (RAxML, MrBayes), Geneious, HTML, Microsoft excel/word

Lab: General molecular biology techniques (RNA/DNA isolation, PCR, qPCR, gel electrophoresis(polyacrylamide and agarose), Western Blots), Cell culture (primary and established lines), Flow Cytometry

Organizational Membership

Society for Integrative & Comparative Biology (SICB)
American Society of Naturalists (ASN)
Society of Molecular Biology and Evolution (sMBE)
International Union for the Study of Social Insects (IUSSI)
Ecological Society of America (ESA)

External Reviewer

Insect Science

Research Presentations

2016 "Northern range limits of common forest ants is reflected in trade-offs between constitutive and induced cold tolerances", Ecology Evolution and Environmental Biology, University of Vermont, Burlington, Vt (talk)

2016 "Implementing strategies to achieve reproducible research" BioLunch, University of Vermont, Department of Biology, Burlington Vt (talk)

2015 "Temperature adaptations in common woodland ants" BioLunch, University of Vermont, Department of Biology, Burlington Vt (talk)

2014 "Surviving in a warming world: thermal adaptation in ants" BioLunch, University of Vermont, Department of Biology, Burlington, Vt (talk)

2013 "Impact of environmental stress on thermal tolerance in *Aphaenogaster picea*" EcoLunch, University of Vermont Department of Biology, Burlington, Vt (Talk)
"Physiological response to climate change in *Aphaenogaster picea*" Northeast Natural History- Ant Ecology session, Springfield, MA (Talk)

2012 "Heat shock proteins and thermal tolerance in *Aphaenogaster picea*" EcoLunch, University of Vermont Department of Biology, Burlington, Vt (Talk)

"Sequence and Cis-regulatory Evolution of Heat Shock Protein *hsp83*, in Social Hymenoptera" International Union for the Study of Social Insects- North American Section Meeting (IUSSI-NAS), Greensboro, NC (Poster)

"Heat shock proteins and thermal tolerance in *Aphaenogaster rudis*" Aphaenophest 2012, Petersham, MA (Talk)

Conferences Attended

2016	Evolution, Austin, Texas
2014	Evolution, Raleigh, North Carolina
2014	Molecular Biology and Evolution, Old San Juan, Puerto Rico
2013	Northeast Natural History - Ant Ecology session, Springfield, Massachusetts.
2012	International Union for the Study of Social Insects - North American Section Meeting (IUSSI-NAS), Greensboro, North Carolina.

Teaching Experience

2016	Invited Lecture, Evolutionary Biology, University of Vermont, Burlington, VT
2015	Invited Lecture, Evolutionary Biology for non majors, University of Vermont, Burlington, VT
2014	Invited Lecture, Evolution, University of Vermont, Burlington, VT
2014	Exploring Biology Laboratory, University of Vermont, Burlington, VT
2013	Cell and Molecular Biology Laboratory, University of Vermont, Burlington, VT
2012-2014	Ecology and Evolution Laboratory, University of Vermont, Burlington, VT
2012	Principles of Biology Laboratory, University of Vermont, Burlington, VT

Mentoring

Undergraduate Researchers:
Ariana Maleki and John Matthew Fisher worked on developing microsatellites for population genetic work on common woodland ants.

Kerri Pinder, Skyler Resendez, and Jeremy Pustilnik worked on how previous exposures to starvation and desiccation impact thermal tolerance and underlying stress responses (using heat shock proteins as a proxy).

Teddy Herriman and Austin Sherburne worked on identifying potential morphological innovations that may temper and/or mitigate the effects of heat stress.

Curtis A. Provencher worked on how experimental warming affects the stress levels of common woodland ants.

Megan Brown and Jordan Zitnay identified trade-offs between constitutive and induced cold tolerances at the northern range boundary in common forest ants, likely constraining their northern expansion.

Outreach

2015	Helper, Software Carpentry, University of Vermont
2012	Graduate Mentor, Ant Camp, University of Vermont Department of Biology Aided in communicating and demonstrating ant collecting to high school students