

Andrew T. Burchill

BIOLOGIST · PHD STUDENT

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“To whatever thing we first turn our eyes, it is a wonder and full of wonders, if only we examine it for a little.” —Giovanni de Dondi

Education

Arizona State University

Tempe, Arizona

PH.D. IN ANIMAL BEHAVIOR, CONCENTRATION IN COMPLEX ADAPTIVE SYSTEMS SCIENCE

Aug. 2015 - Present

- Co-Advisors: Dr. Theodore P. Pavlic and Dr. Stephen C. Pratt
- Dissertation Topic: *Distributed macronutrient regulation and decision-making in ant colonies*

University of Chicago

Chicago, Illinois

B.S. IN BIOLOGICAL SCIENCES, SPECIALIZATION IN ECOLOGY AND EVOLUTION

2010 - 2014

- Graduated with General Honors, Dean's List each year
- University Scholar recipient

Recent Grants & Awards

EXTERNAL

2017	Endeavour Research Fellowship , Australian Government Department of Education and Training	~\$24,000
2017	Best Paper of 2016 , International Union for the Study of Social Insects	\$1,000
2016	Global Development Research Fellowship , Smithsonian Tropical Research Institute and USAID	\$7,000+
2015	Congressional Award , (Highest civilian honor awarded by U.S. Congress for service)	
2015	Graduate Research Fellowship Program , National Science Foundation	\$34,000/year
2015	Segal AmeriCorps Education Award , Corporation for National and Community Service	\$5,645
2015	Classroom Science Educator Award , Graduate Partners in Science Education	
2010-14	University Scholar Merit Scholarship , University of Chicago	\$10,000/year
2013	REU for Access to Global Biodiversity Studies , (NSF Grant DBI 1156594)	\$7,350+
2012	REU in the Gulf of Maine and the World Oceans , (NSF Grant OCE 1156740)	\$5,000+

INTERNAL

2017	JumpStart Grant , ASU Graduate and Professional Student Association	\$500
2017	Athletics Research Grant , ASU Graduate and Professional Student Association	\$1,210
2016 & 17	CLAS Graduate Excellence Award , ASU College of Liberal Arts and Sciences	\$300, \$100
2015 & 16	Individual Travel Grant , ASU Graduate and Professional Student Association	\$950 x2
2016	RTI Graduate Training Award , School of Life Sciences at ASU	\$2,500
2016 & 17	SoLS Travel Award , School of Life Sciences at ASU	\$400 x2
2017	Graduate College Travel Award , ASU Graduate College	\$350

Publications

- [1] **Burchill, A.T.**, and T.P. Pavlic. "rabi 0.1.0: Generate Codes to Uniquely and Robustly Identify Individuals for Animal Behavior Studies." *CRAN*, (2017) <https://CRAN.R-project.org/package=rabi>
- [2] **Burchill, A.T.**, and C.S. Moreau. Colony size evolution in ants: macroevolutionary trends. *Insectes Sociaux*, (2016) 63: 291. doi:10.1007/s00040-016-0465-3
- [3] Winston, M.E., A. Thompson, G. Trujillo, **A.T. Burchill**, and C.S. Moreau. Novel approach to heritability detection suggests robustness to paternal genotype in a complex morphological trait. *Ecology and Evolution* (2017) doi:10.1002/ece3.2932
- [4] Toyokawa, W., **A.T. Burchill**, T. Sasaki, K. Inukai, T. Kameda, S.C. Pratt. Ants vs Humans: Exploration, Exploitation, and Social Information in a Dynamic Environment. (*pending submission*)

Teaching Experience

ACADEMIC TEACHING POSITIONS

Assistant Lecturer for BIO 331: Animal Behavior

Tempe, Arizona

ARIZONA STATE UNIVERSITY (SCHOOL OF LIFE SCIENCES)

Spring 2017

- Co-lectured 150 biology students
- Developed lectures and outdoor active learning activities

Teaching Assistant for BIO 345: Organic Evolution Laboratory

Tempe, Arizona

ARIZONA STATE UNIVERSITY (SCHOOL OF LIFE SCIENCES)

Fall 2016

- Coordinated with three-person team to teach 180 students evolutionary biology for majors
- Developed "laboratory" curriculum for evolution-based course
- Met with students one-on-one to in weekly meetings facilitate retention of course material

Teaching Assistant for BIOS 20150: A Serious Introduction to Biology for Majors

Chicago, Illinois

BIOLOGICAL SCIENCES COLLEGIATE DIVISION AT THE UNIVERSITY OF CHICAGO

2014

- Guided two groups of five students through semester-long group science project
- Scheduled regular conferences and led discussions, critiques, and brainstorming sessions
- Graded all written assignments, offering constructive feedback and answering concerns promptly

SERVICE-BASED/VOLUNTEER TEACHING

Graduate Partners in Science Education

Phoenix, Arizona

MENTOR AND LESSON PLANNER

2015 - 2016

- Designed active learning science lesson plans for middle-school classrooms (in process of publishing)
- Led weekly after-school science programs at local low-income school districts with co-teacher

Denver Green School

Denver, Colorado

5TH GRADE ASSISTANT MATH TEACHER AND TUTORING COORDINATOR

2014 - 2015

- Assisted in classroom teaching, discipline, and individualized lesson plan development
- Lead after-school tutoring program; instructing and preparing tutors in addition to tutoring
- Graded written assignments and met with students to discuss personalized improvement plans

Circle Pines Center Summer Camp

Delton, Michigan

CAMP COUNSELOR AND SCIENCE COORDINATOR

2014

- Designed and led science labs for campers which included field work, identification, and microscopy components
- Organized camp-wide activities highlighting issues of conservation and environmental stewardship
- Directly supervised and cared for junior campers (ages 11-13) throughout the day and night

YVIBE South Side Tutoring and Mentorship Program

Chicago, Illinois

TUTOR AND MENTOR

2011 - 2014

ADMINISTRATOR

2012

- Tutored underprivileged youth in reading, math, and science on a weekly, one-on-one basis
- Organized games, lesson plans, scientific lab demonstrations, and healthy snacks
- Supervised attendance, permission slips, and disciplinary measures

Presentations

Entomological Society of America 2017

Denver, Colorado

MACRONUTRIENT REGULATION AND FORAGING STRATEGIES IN THE NEOTROPICAL ANT, *Ectatomma ruidum*

Nov. 2017

DDM Bio 2017 (Data-Driven Modelling Workshop)

Raleigh, North Carolina

HARNESSING ENGINEERING PRACTICES TO ANALYZE BIOLOGICAL DATA

Jun. 2017

International Congress of Entomology (ICE) 2016

Orlando, Florida

CONSISTENT SELF-ORGANIZED FORAGING ALLOCATIONS IN THE MACRONUTRIENT-REGULATING CARPENTER ANT, *Camponotus fragilis*

Oct. 2016

International Union for the Study of Social Insects (IUSSI) 2016

HUMANS VS. ANTS: COMPARING EXPLORATION-EXPLOITATION MECHANISMS IN A DYNAMIC ENVIRONMENT

Orlando, Florida

Oct. 2016

Frontiers in Insect Biology: Universität Würzburg Symposium

THE EVOLUTION OF COLONY SIZE IN ANTS: MACROEVOLUTIONARY PATTERNS

Tempe, Arizona

2015

6th International Max Planck Research School for Organismal Biology's Selection Symposium

THE EVOLUTION OF COLONY SIZE IN ANTS: MACROEVOLUTIONARY PATTERNS

Universität Konstanz, Germany

2015

5th Annual Field Museum of Natural History/Chicago Botanical Gardens Joint Research Symposium

ANALYZING THE GENETIC COMPONENT IN CASTE DETERMINATION OF NEOTROPICAL ARMY ANTS

Chicago, Illinois

2013

Midstates Consortium for Math and Science: Research Symposium in the Biological Sciences and Psychology

ANALYZING THE GENETIC COMPONENT IN CASTE DETERMINATION OF NEOTROPICAL ARMY ANTS

St. Louis, Missouri

2013

Bigelow Laboratory for Ocean Sciences REU Symposium

DETECTING EVOLUTIONARY SELECTION IN HIGHLY CONSERVED PROTEINS: PHYSIOCHEMICAL SHIFTS IN THE MAMMALIAN CYTOCHROME B

East Boothbay, Maine

2012

PANELS SERVED ON

Graduate TA "Survival" Panel

Aug 2017

New Graduate Student Orientation Panel

Aug 2017

School of Life Science Septennial Review

Apr 2017

Service and Outreach

ACADEMIC SERVICE

Dr. Stephen Pratt's Lab

LAB SUPPLY MANAGER

Tempe, Arizona

2017 - 2018

- Organized and maintained stocks and ordered supplies for over 20 researchers and volunteers
- Interfaced with business office and balanced multiple financial accounts

Graduate Electoral Board, ASU School of Life Sciences

SECRETARY

Tempe, Arizona

2017 - 2018

- Acted as elected liaison between graduate students and departmental administration
- Created and edited comprehensive orientation guide for new students
- Organized meetings and logistics for electoral board

Graduate Electoral Board, ASU School of Life Sciences

OFFICER AND WEEKLY BROWNBAG COORDINATOR

Tempe, Arizona

2016 - 2017

- Acted as elected liaison between graduate students and departmental administration
- Planned department-wide events, and arranged and promoted weekly grad student-led research talks
- Controlled the allocation of over \$4,200 of departmental funds
- Provided varied catered lunches for 35-60 students on a weekly basis

Portraits of Science Art Exhibition

The MonOrchid in Phoenix, Arizona

PRESENTING ARTIST

2017

- Created textile art pieces inspired by original scientific data
- Presented art and described research to public in a gallery show with +1,000 visitors ([Video here](#) 📺)

Society for International Development, Annual Dinner 2016

Washington D.C.

ASU RESEARCH AMBASSADOR

Nov 30, 2016

- Attended the annual invite-only dinner and networking event on behalf of the USAID Global Development Research fellowship program (one of only six students at event)
- Met with ambassadors, congressmen, and heads of governmental agencies and nonprofits, explaining importance of leveraging possible ASU research partnerships
- Received training on publicly representing ASU and increasing presence via social media

Ask a Biologist! (11.2 million views in 2016)

online at askabiologist.asu.edu

WRITER AND "DR. BIOLOGY" RESPONDER

2015 - Present

- Answered biology-oriented questions fielded from K-12 students across the country
- Wrote "PLOSable" articles summarizing recent scientific publications in an engaging, kid-accessible way
- Writing samples: [trap-jaw ant escape behavior](#), [evolutionary medicine and osteoporosis](#), and [mathematical modeling of fat storage](#)

Graduate and Professional Student Association at ASU

Phoenix, Arizona

VOLUNTEER GRANT REVIEWER

2015 - Present

- Reviewed applications submitted by other students for GPSA grants
- Offered critical feedback and advice to grant-writers

Geophysical Sciences Student Union at the University of Chicago

Chicago, Illinois

TREASURER AND CATERING COORDINATOR

2012 - 2014

- Controlled the allocation of over \$6,500 of departmental funds
- Provided dinner for 15-30 students on a weekly basis
- Reached out to local restaurants for new catering options and partnerships

COMMUNITY SERVICE

AmeriCorps National Civilian Community Corps

Southwest Region (federal service)

PROJECT OUTREACH LIAISON, SERVICE LEARNING INITIATOR, AND CORPS MEMBER

2014 - 2015

- Engaged in multiple team-based community service projects, addressing critical needs in areas of disaster relief, environmental stewardship, energy conservation, and urban and rural development
- Contacted nonprofit organizations to arrange for possible future service opportunities
- Trained in conflict resolution, first aid, diversity awareness, demolition, and passenger van safety
- Organized weekly physical training activities and service learning opportunities for 8-person team

Hasbídító Community Nonprofit

Navajo Nation (near Cuba, NM)

GARDENER AND ADVISOR

Summer 2015

- Worked with residents to build ten common gardens to strengthen community infrastructure and local, sustainable food systems
- Designed and installed windbreaks, water-towers, irrigation lines, and raised beds to maximize crop yield
- Planted over 1,000 fruit-bearing trees in harsh desert conditions

BroStoMP FM Scavenger Hunt Team

Chicago, Illinois

"MR. KRAFT" AND CATERING COORDINATOR

2012 - 2014

- Won the largest scavenger hunt in the world, along with team
- Managed team budget of over \$500
- Provided catering and snacks for 400+ person team at several events

Undergraduate Student Mentoring

Hillary Polk, Arizona State University Biology Major

Fall 2016 – Spring 2017

Ashton Grove, Arizona State University Biology Major

Fall 2016 – Spring 2017

Cassius Cunningham, Arizona State University Biology Major

Spring 2017 – Present

Mark Weser, Arizona State University Biology Major

Spring 2017 – Present

Tiana Schaefer, Arizona State University Biology Major

Spring 2017 – Present

Daxem Brems, Arizona State University Biology Major

Spring 2017 – Present

