Christine Sosiak

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EDUCATION

Ph.D. in Ecology and Evolution – New Jersey Institute of Technology/Rutgers-Newark (USA)
2018 – expected 2023
Advisor: Phillip Barden, Ph.D.

B.Sc. in Biological Sciences – University of Calgary (CAN)
2010-2016
Advisor: Robert Longair, Ph.D.

B.Sc. in Geology – University of Calgary (CAN)
2010-2016

PUBLICATIONS

Barden, P., **C.E. Sosiak**, J. Grajales, J. Hawkins, L. Rizzo, A. Clark, S. Gatley, I. Gatley, and J. Federici. Non-destructive comparative evaluation of fossil amber using terahertz time-domain spectroscopy. *PLoS One*. *Submitted*.

Sosiak, C.E., and P. Barden. 2021. Multidimensional trait morphology predicts ecology across ant lineages. *Functional Ecology*, 35: 139-152.

Sosiak, C.E., M. West, and J.R.N. Glasier. 2019. First record and new host record of the obligate dulotic ant *Polyergus bicolor* (Hymenoptera: Formicidae) in Alberta, Canada. *Canadian Field-Naturalist*, 133(4): 309-312.

GRANTS & FUNDING

2019 — SysEB Student Research Travel Award, Entomological Society of America: Systematics, Evolution and Biodiversity Section, **$1180**
"*Discovering the ecological niches of the early ants by differential caste capture in amber*"

2019 — Kenneth E. & Annie Caster Student Research Award, Paleontological Society, **$1200**
"*Discovering the ecological niches of the early ants by differential caste capture in amber*"

2018 — Alberta Conservation Association Research Grant, **$9985** (co-applicant Mary-Ann McLean)
"Evaluating possible vectors for the spread of invasive plant Thesium ramosum."

2018 — TD Friends of the Environment Foundation Grant, **$6900** (co-applicant Mary-Ann McLean)
"*Using citizen scientists to map an invasive plant species.*"

AWARDS

2021	Second Place Award, New Jersey Institute of Technology: 3 Minute Research Presentation Competition, **$500**
2020	New Jersey Institute of Technology: College of Liberal Arts and Sciences, Outstanding Graduate Student Award
2019	First Place Award, Student Competition for the President's Prize (10-minute talk competition), ESA Annual Meeting
2018	Second Place Award, Student Competition for the President's Prize (poster competition), ESA, ESBC, ESC Joint Annual Meeting
2017	Visiting Curator's Award, University of California: Riverside, **$750**
2016	Undergraduate Award in Entomology, Entomological Society of Alberta, **$500**
2016	Presentation Award, Biological Sciences Undergraduate Conference, Zoology Program, **$100**
2015	Jason Lang Scholarship, **$1000**
2014	Jason Lang Scholarship, **$1000**
2010	University of Calgary Entrance Scholarship, **$1250**

TEACHING EXPERIENCE

Graduate teaching assistant • Foundations of Ecology and Evolution, New Jersey Institute of Technology (USA) (x5) **2019-2021**
Led labs; wrote and graded quizzes; guided student development of experiments and graded reports; proctored lecture exams; answered student questions during office hours.

Graduate teaching assistant • General Biology, Rutgers-Newark University (USA) **Fall 2018**
Led labs; wrote and graded quizzes and laboratory exams; proctored lecture exams; answered student questions during office hours.

Teaching assistant • Zoology 435, University of Calgary (CAN) **Fall 2016**
Led labs; helped write and grade laboratory exams; proctored lecture exams; guided students in developing practical field and laboratory skills.

PROFESSIONAL EXPERIENCE

Research assistant • St. Mary's University (CAN) **May – August 2018**
Assisted in developing and carrying out project analysing the potential of native ant species as a dispersal vector for invasive myrmecochorous plant species; supervised undergraduate students working on the project; assisted in developing and writing reports and manuscripts.

Visiting curator • Entomological Research Museum, UC: Riverside (USA) **January 2018**
Curated collection of approximately 15,000 ant specimens; identified and organized them systematically; databased the collection.

Insect biodiversity consultant • Calgary Zoological Society (CAN) September 2017 – August 2018
Analysed invertebrate data collected at the Wechiau Community Hippo Sanctuary, Ghana, to evaluate local ant biodiversity present and impact of the Calgary Zoo's community-based conservation project on ant diversity; assisted in developing and writing reports and manuscripts.

Field research assistant • University of California: Riverside (USA) June 2017 – August 2017
Assisted in carrying out a behavioural ecology study to determine mechanics of labour division in worker ants; responsible for assisting with in-field observations, data entry, and preliminary species identification.

PRESENTATIONS & PUBLISHED ABSTRACTS

* Denotes undergraduate mentee

Talks

Sosiak, C., Barden, P. 2020. Resolving fossil insects in amber for systematics and outreach. Entomological Society of America Annual Meeting, conference conducted online. *Invited talk.*

Sosiak, C., Barden, P. 2019. Exploring ancient hellscapes: comparison of Mesozoic hell ant and extant ant morphology reveals ancient ecological niches. Entomological Society of America Annual Meeting, St. Louis, Missouri.

Sosiak, C., Barden, P., and Soto-Centeno, J. 2019. Where the hell ants roamed: predicting Mesozoic ant biogeography throughout the Cretaceous. International Conference on Fossil Insects, Arthropods, and Amber, Santo Domingo, Dominican Republic.

Sosiak, C. 2019. Making ants accessible: How digital specimen collections in AntWeb improve research at all levels. Entomological Society of America: Eastern Branch Meeting, Blacksburg, Virginia. *Invited talk.*

Sosiak, C. and Barden, P. 2018. The secret lives of hell ants: Predicting haidomyrmecine ecology from extant morphology. Social Insects in the Northeast Region Conference (SINNERS), Philadelphia, Pennsylvania.

Sosiak, C. 2016. Urban ant biodiversity: a survey of ants in Calgary's urban parks. 64th Annual Meeting of the Entomological Society of Alberta, Calgary, Alberta.

Posters

Sosiak, C. and Barden, P. 2018. The secret lives of hell ants: Predicting haidomyrmecine ecology from extant morphology. 2018 ESA, ESC, and ESBC Joint Annual Meeting, Vancouver, British Columbia.

Timonera, J.*, Velasco, F.*, Raithby, A.*, **Sosiak, C.**, McLean, M.A. 2018. Ant interactions with *Thesium ramosum* seeds. 66th Annual Meeting of the Entomological Society of Alberta, Calgary, Alberta.

Raithby, A.*, Velasco, F.*, Timonera, J.*, **Sosiak, C.**, McLean, M.A. 2018. Does myrmecochory facilitate the seed transfer and germination of *Thesium ramosum*? 66th Annual Meeting of the Entomological Society of Alberta, Calgary, Alberta.

VOLUNTEERING, SCIENCE COMMUNICATION & OUTREACH

How the ancient 'hell ant' got its bizarre horn • The Science Breaker, Université de Genève 2021

Contributed online article in a popular science website describing the early evolution of ants and potential reasons for their unique morphology.

LiFE Summer Institute Workshop • Murray Center for Women in Technology, New Jersey Institute of Technology, New Jersey (USA) 2019
Developed interactive lessons incorporating current scientific topics for use with girls' educational groups in grades 3-9; delivered presentation to educators on conservation efforts for insects and threats to insect biodiversity.

South Mountain Reservation BioBlitz • South Mountain Conservancy, New Jersey (USA) 2019
Worked with an invertebrate researcher team as the forest floor invertebrate specialist; collaborated with the public to collect insects over a 24-hour period in the South Mountain Conservancy to catalogue the biodiversity present in the park.

Kids Week • Intrepid Sea, Air and Space Museum, New York City (USA) 2019
Acted as visiting Meet the Scientist; educated children from varying age groups about paleontology and entomology using 3D printed specimens, fossil CT scans, and amber fossils.

Crazy Big Questions Program • American Museum of Natural History, New York City (USA) 2018
Delivered interactive presentation incorporating 3D printed specimens and amber fossils to educate students from various age groups about ants and the scientific method.

Volunteer museum assistant • E.H. Strickland Entomological Museum, University of Alberta (CAN) 2017-2018
Helped curate preserved specimens of various orders of insects, organizing and databasing the specimens.

Visiting Scientists Program • Connect Charter School, Calgary (CAN) 2017
Taught several classes about insects and the scientific method; helped students conduct experiments with live ants, guiding inquiry-based learning through a basic science experiment.

Volunteer field trip guide • Connect Charter School, Calgary (CAN) 2014-2017
Accompanied a variety of student age groups on science-related day trips to various municipal and provincial parks; provided supplementary scientific knowledge such as identifications of various native species; helped students carry out small-scale scientific experiments.

Project Explorer • University of Calgary (CAN) 2015
Developed creative, hands-on projects to incorporate topics in geography and associated sciences such as environmental sciences, hydrogeology, and urban development into elementary school curriculums; assisted third-grade students in executing projects.

PROFESSIONAL DEVELOPMENT

SlicerMorph Workshop 2021 • SlicerMorph Project – took place online
Developed skills in visualization and statistical shape analysis of 3D CT reconstructions and models; workshop conducted using open-source 3D-Slicer visualization suite and the SlicerMorph morphometrics toolkit.

Ant Course 2016 • California Academy of Sciences – took place in Gorongosa National Park, Mozambique

Participated in an intensive two-week workshop on ant systematics, behaviour, and ecology; developed various field and laboratory skills related to entomology and myrmecology in particular.

Graduate Teaching Assistant Workshop 2016 • University of Calgary
Developed skills in leading classes, developing learner-centred lessons, writing quizzes and exams; provided peer-review feedback to other teaching assistants.

PEER-REVIEW CONTRIBUTIONS

Journal Peer Reviewer (6x) for Palaeobiodiversity and Palaeoenvironments; Cretaceous Research; Current Biology; Scientific Reports; Myrmecological News; Journal of Zoology.

PROFESSIONAL ASSOCIATIONS

Entomological Society of America
International Paleoentomological Society
International Union for the Study of Social Insects – North American Section
Paleontological Society