



# Jacob A. Gorneau

RESEARCH ASSISTANT · ENTOMOLOGIST

Institute for Biodiversity and Sustainability, California Academy of Sciences

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## Education

### Master's in Biology

CONCENTRATION: ECOLOGY, EVOLUTION, AND CONSERVATION BIOLOGY

- Advisor: Lauren Esposito, Ph.D.

San Francisco State University

August 2020 — December 2022

### Bachelor's in Entomology

MAGNA CUM LAUDE, WITH DISTINCTION IN RESEARCH

- Honors Thesis: The evolution of huntsman spiders (Araneae: Sparassidae): insights into life-history and notes on morphology, advised jointly by Linda S. Rayor, Ph.D. and Corrie S. Moreau, Ph.D.
- Systematic research on moth genus *Argyresthia* advised by Jason J. Dombroskie, Ph.D.

Cornell University

August 2016 — May 2020

### High School Diploma

ADVANCED REGENTS DIPLOMA | VALEDICTORIAN

Greenville High School

September 2012 — June 2016

## Publications

### Published

6. **Gorneau, J.A.**, Kulkarni, S., Cala-Riquelme, F., Esposito, L.A. Measuring What We Don't Know: Biodiversity Catalogs Reveal Bias in Taxonomic Effort. *BioScience*.
5. **Gorneau, J.A.**, Rayor, L.S., Rheims, C.A., & Moreau, C.S. Molecular, morphological, and life history data to support research of huntsman spiders (Araneae: Sparassidae).
4. **Gorneau, J.A.**, Rheims, C.A., Moreau, C.S., & Rayor, L.S. 2022. Huntsman spider phylogeny informs evolution of life history, egg sacs, and morphology. *Molecular Phylogenetics and Evolution*.
3. Losey, J.E., Chen, C., Davis, A.E., Deutsch, J.F., Gertin, J.G., **Gorneau, J.A.**, Hallock, E.M., Jordán, J.P., Kim, Z.J., Kubinski, E.G., Laurenz, N., Li, S.B., Mullen, E.K., O'Brien, A., Richardson, L.I., Vincent, S., Wang, S.Y., Yarhouse, E.L., Schydrowsky, A., & Curtis, P.D. Insect and spiders on the web: Monitoring and mitigating online exploitation of species and services. *Global Ecology and Conservation*.
2. **Gorneau, J.A.**, Ausich, W.I., Bertolino, S., Bik, H., Daly, M., Demissew, S., Donoso, D.A., Folk, R., Freire-Fierro, A., Ghazanfar, S.A., Grace, O.M., Hu, A.Q., Kulkarni, S., Lichter-Marck, I.H., Lohmann, L.G., Malumbres-Olarte, J., Muasya A.M., Pérez-González, A., Singh, Y., Siniscalchi, C. M., Specht, C.D., Stigall, A.L., Tank, D.C., Walker, L.A., Wright, D.F., Zamani, A., & Esposito, L.A. 2022. Framing the Future for Taxonomic Monography: Improving Recognition, Support, and Access. *Bulletin of the Society of Systematic Biologists*.
1. Esposito, L.A., Daly, M., Fujita, M.K., **Gorneau, J.A.**, Rapacciuolo, G., Rocha, L., Scheinberg, L., Ware, J., Welch, C.K., Young, A., & Bell, R.C. 2022. A New Framework for Assessing the Contributions of Professionals in the Natural Sciences. *Bulletin of the Society of Systematic Biologists*.

### In Press

1. **Gorneau, J.A.**, Dombroskie, J.J. Three new species of the genus *Argyresthia* Hübner, 1825 from Guatemala, with notes on host plant evolution and Nearctic taxa (Lepidoptera: Argyresthiidae). *SHILAP Revista de Lepidopterología*.

### In Preparation

1. **Gorneau, J.A.**, Crews, S.C., Cala-Riquelme, F., Montana, K.O., & Esposito, L.A. Webs of intrigue: museum genomics elucidate relationships of the marronoid spiders (Araneae).

## Talks

Asterisk (\*) indicates presenter.

### Oral Papers

10. **Gorneau, J.A.\***, Crews, S.C., Cala-Riquelme, F., Montana, K., Esposito, L.A. Webs of intrigue: museum genomics elucidate relationships of the marronoid spiders (Araneae). International Congress of Arachnology, Vancouver, Uruguay. 2023.
9. **Gorneau, J.A.\***, Crews, S.C., Cala-Riquelme, F., Kulkarni, S., Montana, K., Esposito, L.A. Webs of intrigue: museum genomics elucidate relationships of the marronoid spiders (Araneae). Joint Annual Entomology Meeting, Vancouver, Canada. 2022.

8. **Gorneau, J.A.\***, Kulkarni, S., Cala-Riquelme, F., Esposito, L.A. Biodiversity catalogs reveal taxonomic effort and geographic bias: a case study. SACNAS National Diversity in STEM, San Juan, Puerto Rico, USA. 2022.
7. **Gorneau, J.A.\***, Kulkarni, S., Cala-Riquelme, F., Esposito, L.A. Biodiversity catalogs reveal taxonomic effort and geographic bias: a case study. American Arachnological Society, Davis, California, USA. 2022.
6. **Gorneau, J.A.\***, Ausich, W.I., Bertolino, S., Bik, H., Daly, M., Demissew, S., Donoso, D.A., Folk, R., Freire-Fierro, A., Ghazanfar, S.A., Grace, O.M., Hu, A.Q., Kulkarni, S., Lichter-Marck, I.H., Lohmann, L.G., Malumbres-Olarte, J., Muasya A.M., Pérez-González, A., Singh, Y., Siniscalchi, C. M., Specht, C.D., Stigall, A.L., Tank, D.C., Walker, L.A., Wright, D.F., Zamani, A., & Esposito, L.A. Framing the Future for Taxonomic Monography: Improving Recognition, Support, and Access. Entomological Society of America, Denver, Colorado, USA. 2021.
5. **Gorneau, J.A.\***, Rayor, L.S., Moreau, C.S. The evolution of huntsman spiders (Araneae: Sparassidae): insights into life history. American Arachnological Society Virtual Summer Symposium. 2020.
4. **Gorneau, J.A.\***, Rayor, L.S., Moreau, C.S. The evolution of huntsman spiders (Araneae: Sparassidae): insights into life history. Cornell Entomology Undergraduate Honors Thesis Symposium. 2020.
3. **Gorneau, J.A.\***, Tartaglia, E. National Moth Week: Leveraging Citizen Science Data to Understand Bias and Biodiversity. Ninth Annual Cornell Entomology Symposium at Cornell University in Ithaca, New York, USA. 2020.
2. **Gorneau, J.A.**, Goodman, A.M.\* , Esposito, L.A. Niche partitioning among three vaejovid scorpions near the San Francisco Bay Area (Scorpiones: Vaejovidae). Mary Bowerman Research Symposium, California, USA. 2019.
1. Rayor, L.S.\* , **Gorneau, J.A.**, Moreau, C.S. Trait-mapping sociality and life-history adaptations in social and solitary huntsman spiders. Animal Behavior Society in Chicago, Illinois, USA. 2019.

## Posters

2. **Gorneau, J.A.\***, Goodman, A.M., Esposito, L.A. Niche partitioning among three vaejovid scorpions near the San Francisco Bay Area (Scorpiones: Vaejovidae). Cornell Undergraduate Research Board (CURB) Fall Forum at Cornell University in Ithaca, New York, USA. 2019.
1. **Gorneau, J.A.\***, Goodman, A.M., Esposito, L.A. Niche partitioning among three vaejovid scorpions near the San Francisco Bay Area (Scorpiones: Vaejovidae). SACNAS National Diversity in STEM Conference in Honolulu, Hawaii, USA. 2019.

## Experience

### Research Assistant

DR. LINDA S. RAYOR AND DR. CORRIE MOREAU

Cornell University

February 2019 — Present

- Completed Senior Honor's Research Thesis studying the social and life-history evolution of huntsman spiders; manuscript in review.

### Research Assistant

DR. JASON J. DOMBROSKIE

Cornell University Insect Collection

August 2016 — Present

- Described Neotropical species of *Argyresthia* (Lepidoptera: Argyresthiidae) from Guatemala, in preparation for publication.

### Field Assistant

DR. NUSHA KEYGHOBADI

Western University

June 2020 — July 2020

- Assisted graduate student Shayla Kroeze and Dr. Nusha Keyghobadi with tissue sampling for population genetic study of the Mottled Duskywing, *Erynnis martialis*, a species listed as Critically Imperiled in New York, since they could not cross the US-Canada border due to the COVID-19 pandemic.

### Curatorial Assistant

DR. JASON J. DOMBROSKIE

Cornell University Insect Collection

August 2016 — June 2020

- Undergraduate lead on an NSF-funded grant to curate the macrolepidoptera and database John G. Franclemont's slide collection of moth genitalia and corresponding specimens.
- Three families curated, totalling over 6,000 species, with curation protocol set in place ongoing for existing curation projects.

### Lab Assistant

DR. BRYAN N. DANFORTH

Cornell University

August 2018 — March 2020

- Worked to identify thousands of bees collected by New York State Department of Environmental Conservation for the Empire State Native Pollinator Survey, a project of the New York Natural Heritage Program.

### NSF Research Experiences for Undergraduates Intern

DR. LAUREN ESPOSITO

California Academy of Sciences

June 2019 — August 2019

- Investigated the niche ecology of scorpions in the Bay Area and used genetic techniques (Sanger sequencing, etc.) to examine population genetics.

### Curatorial Assistant

DR. LAURA HARRINGTON

Cornell University

January 2019 - May 2019

- Curated and inventoried Cornell University Medical and Veterinary Entomology Collection, containing over 9,600 specimens and 665 species, including medically important arthropods, diseases, and conditions.

### Field Assistant

DR. LAUREN ESPOSITO

California Academy of Sciences

July 2018

- Collected nearly 150 scorpions in the genus *Centruoides* nightly for a two-week period at the UNAM Field Station in Los Tuxtlas, Veracruz, Mexico with graduate student Aaron Goodman.

### Lab Assistant & Museum Preparator

DR. LINDA S. RAYOR

Cornell University

June 2017 — January 2018

- Trained in arthropod husbandry practices, including maintenance of live arachnids and insects. Collaborated with a team that collected and prepared over 350 dried spider specimens prepared in a lifelike position for The Australian Museum's *Spiders: Fear and Fascination* traveling museum exhibit.

## Website Manager

ANNE W. MITCHELL & LOUISE STONEY

- Updated and maintained website by fixing broken links, uploading missing files, updating newsletter mailings, and proofreading the site.

*Alliance for Early Childhood Finance*

2015 — 2017

## Production Technician

ROBERT HENRY

- Worked in a FDA-regulated facility at GSK's Consumer Healthcare Manufacturing plant in Oak Hill, NY as a production technician in the packaging department for Aquafresh® and Sensodyne® toothpaste products.

*GlaxoSmithKline, PLC*

July 2016 — August 2016

# Honors & Awards

## GRANTS

2022	€500, Oscar and Jan Francke Student Research Fund	ISA
2020	\$400, Instructionally Related Activities Research Grant	SF State
2019	\$500, Jane E. Brody Undergraduate Research Award	Cornell University
2019	\$350, CALS Alumni Association Academic Enrichment Program	Cornell University
2018	\$1,000, Research Grant	CAS
2018	\$1,000, Morley Student Research Grant	Cornell University

## SCHOLARSHIPS

2020	\$6,000, Scholarship for Academic Excellence (2016 - 2020)	New York State
2019	\$500, Travel Scholarship	SACNAS
2019	\$2,000, Travel Scholarship	NSF REU
2017	\$2,500, Federated Garden Clubs Tuition Scholarship	New York State

## AWARDS

2018	NSF REU Intern, \$5,175 Stipend	CAS
2018	Outstanding Undergraduate TA in Entomology, \$100 BioQuip Gift Card	Cornell University
2015	Dennis Profant Memorial Award, \$100, for outstanding advocacy for Lepidoptera	Mothapalooza

# Teaching

## Plagues and People Teaching Assistant

ENTOM 2100 (DR. MARINA CAILLAUD & DR. LAURA HARRINGTON)

- Co-led weekly discussion section and participated in active learning lecture environment in non-major class focusing on disease pathology, transmission, and human impacts.

*Cornell University*

August 2019 — December 2019

## Spider Biology Teaching Assistant

ENTOM 2150/3150 (DR. LINDA S. RAYOR)

- Prepared displays for class, educated students on dichotomous keys and spider identification, co-led field trips, and helped with open lab activities for class including both majors and non-majors.

*Cornell University*

August 2018 — December 2018

## Alien Empire Teaching Assistant

ENTOM 2010/2011 (DR. MARINA CAILLAUD & DR. BRYAN N. DANFORTH)

- Co-led weekly discussion section, took attendance, graded worksheets and exams in non-major class providing a broad overview of insects.

*Cornell University*

January 2018 — May 2018

## Insect Biology Teaching Assistant

ENTOM 2120 (DR. COLE GILBERT)

- Helped prepare labs, taught students how to use a dichotomous key, and helped prepare lab practical stations for majors class.

*Cornell University*

August 2017 — December 2017

# Service

## Entomology Joint Annual Meeting

SYMPOSIUM CO-HOST

- Co-facilitated symposium titled "Many Eyes on Many Eyes: A Diverse Look at Arachnology" with Lauren Esposito.

2022

## SACNAS

SESSION CO-HOST

- Co-facilitated session titled "Biological and Cultural Diversity in the Caribbean" with Lauren Esposito.

2022

## California Academy of Sciences

GRADUATE MENTOR

- Graduate student mentor of students in Summer Systematics Institute undergraduate Research Experiences for Undergraduates (REU) program, both informally for the cohort consisting of 100% students underrepresented in science and more formally in mentoring a student project in conjunction with Lauren Esposito.

2021 — Present

## Team Member

NATIONAL MOTH WEEK

- Lead initiatives with partner community science organizations to encourage people to submit observations to platforms such as iNaturalist and Project Noah.

2015 — Present

## President

SNODGRASS AND WIGGLESWORTH UNDERGRADUATE ENTOMOLOGY CLUB

- Co-planned outreach and club events as well as the annual spring break trip which entailed visiting other entomology departments. Led effort to move up a student organization funding tier.

Cornell University

January 2018 — December 2018

## Trustee

STUDENT LIBRARY ADVISORY COMMITTEE

- Voiced student concerns to administration about issues and items related to the library.

Cornell University

August 2017 — May 2018

## CALS Ambassador

COLLEGE OF AGRICULTURE AND LIFE SCIENCES

- Communicated resources and opportunities at the College of Agriculture and Life Sciences to prospective students and their families.

Cornell University

2017 — 2020

## Trustee

GREENVILLE EDUCATIONAL FOUNDATION

- Served as a student representative to direct resources for enhancing the educational experience of students throughout the district.

Greenville Central School District

2014 — 2016

## Event Guide

MOTHAPALOOZA

- Co-led a tour for annual Mothapalooza event and helped share moth identification tips. Presented about community science and National Moth Week.

Ohio

2015

# Outreach & Media

## TikTok Social Media Features

CALIFORNIA ACADEMY OF SCIENCES

- Featured on [video](#) parodying different biologists as choose-your-player style video game.
- Featured on fieldwork [video](#) collecting spiders.

San Francisco, CA

2022

## Scorpions are Predators with a Sensitive Side YouTube Video

KQED

- Consulted with Dr. Lauren Esposito for KQED [video](#) about scorpion sensory systems.

San Francisco, CA

March 2021 — October 2021

## Insectapalooza

DEPARTMENT OF ENTOMOLOGY

- Engaged with thousands of attendees at annual Insectapalooza event about the Cornell University Insect Collection and live arachnids from the Rayor Lab.

Cornell University

2016 — 2019

## Laphria Photo Featured in Paper

KATE LINDSAY & STEPHEN A. MARSHALL

- Photo of *Laphria champlainii* featured in [paper](#).

Canadian Journal of Arthropod ID

2019

## Naturalist Outreach Practicum

DR. LINDA S. RAYOR

- Student in Dr. Linda S. Rayor's Naturalist Outreach Practicum. Developed skills in delivering effective outreach to a variety of ages and outreach engagements. Created programs focused on general entomology and fossils of New York State. Gave a total of fifteen talks, eight of which were geared toward elementary-aged students in central New York.

Cornell University

August 2018 — December 2018

## Homecoming 2018: community and fun enhanced by history Article

KATE KLEIN FOR THE CORNELL CHRONICLE

- Photographed in [piece](#) doing outreach with the undergraduate entomology club, Snodgrass and Wigglesworth.

Cornell University

27 September 2018

## Insects and Entomology Presentation

HUGH W. GREGG ELEMENTARY SCHOOL

- Spoke to fifth grade classes about insects and the field of entomology with Casey Hale.

Corning, NY

2018

## Entomology At Cornell YouTube Video

JOHNNY CHEN

- Featured in and helped create a [video](#) about the insect collection at Cornell University.

Cornell University Insect Collection

9 March 2018

## It's alive: Students snare spiders for museum exhibit Article

BLAINE FRIEDLANDER FOR THE CORNELL CHRONICLE

- Quoted and photographed in a [piece](#) about preparing the *Spiders: Fear and Fascination* traveling museum exhibit.

Cornell University

19 February 2018

## Sphingidae Image Contribution

TEÁ KESTING-HANDLY

- Provided images of adult and larval Sphingidae for [website](#) focusing on diversity, ecology, and identification of Sphingidae in the United States.

Sphingidae.us

2018

## Gina goes to "Moth night"

LOCALLY SOURCED SCIENCE

- Featured in WFRI Community Radio's Locally Sourced Science [coverage](#) of a moth night.

WFRI Community Radio

Summer 2017

## Welcome to the Dark Side: An Adventure Inside the World of Moths

JOHN BURROUGHS NATURAL HISTORY SOCIETY

- Spoke to members about moth ecology.

Kingston, NY

19 September 2015

## Wildlife Ecology: Welcome to the Dark Side: An Adventure Inside the World of Moths

HUYCK PRESERVE AND BIOLOGICAL RESEARCH STATION

- Spoke to two cohorts of high school students in summer program about moth ecology. 17 July 2015 and 14 August 2015.

Rensselaerville, NY

Summer 2015

## ***The Mothman proposal: Insect good for the environment Article***

AUDREY MATOTT FOR THE DAILY MAIL

- Profiled in local newspaper about work with National Moth Week.

## **National Moth Week Presentation**

HIGH TECHNOLOGY HIGH SCHOOL

- Spoke to dozens of students about citizen science and National Moth Week.

## **Insects and Entomology Presentation**

SCOTT M. ELLIS ELEMENTARY

- Spoke to second grade elementary class about insects and the field of entomology.

Catskill, NY

7 July 2015

Lincroft, NY (via Skype)

23 October 2013

Greenville, NY

13 September 2013

## **Skills**

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<b>Molecular</b>	Experience in DNA extraction, through sequencing, both Sanger and high-throughput
<b>Programming</b>	R, bash, Python (limited), LaTeX (limited), particularly for genomic data analysis and phylogenetic inference
<b>Digital Platforms</b>	Google Sites, GitHub Pages, Weebly, WordPress, Social Media Management (Twitter, Instagram, Facebook)
<b>Computational</b>	Molecular phylogenetic programs (Mesquite, Geneious, PopART, MrBayes, RAxML, IQ-TREE, phyluce, SPAdes), GIS (limited)
<b>Languages</b>	English, Latin (proficient, from High School)

## **Societies**

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<b>Society for the Preservation of Natural History Collections</b>	2021 — Present
<b>Society of Systematic Biologists</b>	2021 — Present
<b>American Arachnological Society</b>	2020 — Present
<b>Entomological Society of America</b>	2020 — Present
<b>Society for the Advancement of Chicanos and Native Americans In Science (SACNAS)</b>	2019 — Present
<b>The Lepidopterists' Society</b>	2015 — Present (intermittent)

## **Collections**

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<b>Bishop Museum</b>	Fall 2019
<b>California Academy of Sciences</b>	Affiliated
<b>Canadian National Collection</b>	Spring 2017
<b>Cornell University Insect Collection</b>	Affiliated
<b>Cornell University Museum of Vertebrates</b>	Fall 2016
<b>Illinois Natural History Survey Insect Collection</b>	Summer 2015
<b>Purdue University Insect Collection</b>	Summer 2015
<b>Smithsonian Collection (Diptera, Coleoptera)</b>	Spring 2018