



# Jacob A. Gorneau

GRADUATE STUDENT

California Academy of Sciences | University of California, Berkeley

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## Education

### Ph.D. in Environmental Science, Policy and Management

University of California, Berkeley

IN PROGRESS

August 2023 — Present

- Advisors: Damian Elias, Ph.D., Rosemary Gillespie, Ph.D., Lauren Esposito, Ph.D.

### Master's in Biology

San Francisco State University

CONCENTRATION: ECOLOGY, EVOLUTION, AND CONSERVATION BIOLOGY

August 2020 — December 2022

- Advisor: Lauren Esposito, Ph.D.

### Bachelor's in Entomology

Cornell University

MAGNA CUM LAUDE, WITH DISTINCTION IN RESEARCH

August 2016 — May 2020

- 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.

## Publications

Dagger (†) indicates co-first-authorship. Section symbol (§) indicates mentored undergraduate co-author.

### Published

11. **Gorneau, J.A.**, Cala-Riquelme, F., Crews, S.C., Montana, K.O., Spagna, J.C., Vink, C.J., and Esposito, L.A. 2024. Mystery on the Bounty: the family-level status of *Pacificana cockayni* Hogg, 1904 (Araneae). *Molecular Phylogenetics and Evolution*.
10. **Gorneau, J.A.**, Cala-Riquelme, F., Tourinho, A.L., and Esposito, L.A. 2024. Biodiversity of Arachnids, in: Scheiner, S.M. (Ed.), *Encyclopedia of Biodiversity* (Third Edition). Academic Press, Oxford, pp. 453–489.
9. Jain P.§, Forbes H.§, **Gorneau J.A.**, Esposito L.A. 2023. A new species of alkali-sink *Paruroctonus* Werner, 1934 (Scorpiones, Vaejovidae) from California's San Joaquin Valley. *ZooKeys*.
8. **Gorneau, J.A.**, Crews, S.C., Cala-Riquelme, F., Montana, K.O., Spagna, J.C., Ballarin, F., Almeida-Silva, L.M. and Esposito, L.A. 2023. Webs of intrigue: museum genomics elucidate relationships of the marronoid spider clade (Araneae). *Insect Systematics and Diversity*.
7. **Gorneau, J.A.**, Dombroskie, J.J. 2023. 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*.
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., Deitsch, 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. Montana, K.O., Cala-Riquelme, F., Crews, S.C., **Gorneau, J.A.**, Al-Jamal, A.M., alequin, I.d., Spagna, J.C., Ballarin, F., and Esposito, L.A. Tailor's drawer no more: a reappraisal of the spider family Dictynidae O. Pickard-Cambridge, 1871 *sensu lato*. *Zoological Journal of the Linnean Society*. In Press.

### In Review

1. Mortensen, A.§, **Gorneau, J.A.**, Al-Jamal, A.M., Fong, D., Patino, A., and Esposito, L.A. A Voucher-based Survey of Arachnids from Salmonid Fish (*Onchorhynchus* spp.) Gut Contents. *Aquatic Conservation*. In Review.

# Talks

Asterisk (\*) indicates presenter. Dagger (†) indicates co-first-authorship. Section symbol (§) indicates mentored undergraduate co-author.

## Oral Papers

12. **Gorneau, J.A.†**, Montana, K.O.\*†, Marta, K.S., Xavier, C. Cala-Riquelme, F., alequín, I.d., Crews, S.C., Hannappel, M.P., Jones, M., Mottershead, G.S., Pantoja, P., Stiner, E., Esposito, L.A. The history of gender and geographic diversity among spider taxonomists in the Americas (1946-2021). Entomological Society of America, Phoenix, Arizona, USA. 2024.
11. **Gorneau, J.A.\***, Montana, K.O., Phan, D., Gillespie, R.G., Elias, D.O., Esposito, L.A. Population genetics of *Uroctonus* and effects of wildfire on scorpions. Entomological Society of America, Phoenix, Arizona, USA. 2024.
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, Montevideo, 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 vaejovoid 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 vaejovoid 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 vaejovoid scorpions near the San Francisco Bay Area (Scorpiones: Vaejovidae). SACNAS National Diversity in STEM Conference in Honolulu, Hawaii, USA. 2019.

# Experience

## 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

- 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.

California Academy of Sciences

July 2018

## Lab Assistant & Museum Preparator

DR. LINDA S. RAYOR

- 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.

Cornell University

June 2017 — January 2018

# Honors & Awards

## GRANTS

2024	\$2,000, Walker Fund	UC Berkeley, Essig Museum
2024	\$3,202, Top 5% Starter Grant Proposals	UC Berkeley, ESPM
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

## Summer Systematics Institute Co-mentor

DR. LAUREN ESPOSITO & DR. REBECCA JOHNSON

- Co-mentored between one and four students each year on a variety of arachnology research projects. Trained students in research approaches ranging from lab work to computational work. Continuing to mentor one student on writing results in a scientific paper.

California Academy of Sciences

Summer 2021, 2022, 2023

## Summer Systematics Institute Co-facilitator

DR. LAUREN ESPOSITO & DR. REBECCA JOHNSON

- Co-organized lectures, collections tours, and presentation schedules. Trained nine students formally and informally in laboratory and computational approaches to systematic biology.

California Academy of Sciences

April 2022 - August 2022

## 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

2022

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

## California Academy of Sciences

GRADUATE MENTOR

2021 — Present

- 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.

## Team Member

NATIONAL MOTH WEEK

2015 — Present

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

## President

Cornell University

SNODGRASS AND WIGGLESWORTH UNDERGRADUATE ENTOMOLOGY CLUB

January 2018 — December 2018

- 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.

# Outreach & Media

## TikTok Social Media Features

San Francisco, CA

CALIFORNIA ACADEMY OF SCIENCES

2022

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

## Scorpions are Predators with a Sensitive Side YouTube Video

San Francisco, CA

KQED

March 2021 — October 2021

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

## Insectapalooza

Cornell University

DEPARTMENT OF ENTOMOLOGY

2016 — 2019

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

## Laphria Photo Featured in Paper

Canadian Journal of Arthropod ID

KATE LINDSAY & STEPHEN A. MARSHALL

2019

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

## Naturalist Outreach Practicum

Cornell University

DR. LINDA S. RAYOR

August 2018 — December 2018

- 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.

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

Cornell University

KATE KLEIN FOR THE CORNELL CHRONICLE

27 September 2018

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

## Insects and Entomology Presentation

Corning, NY

HUGH W. GREGG ELEMENTARY SCHOOL

2018

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

## Entomology At Cornell YouTube Video

Cornell University Insect Collection

JOHNNY CHEN

9 March 2018

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

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

Cornell University

BLAINE FRIEDLANDER FOR THE CORNELL CHRONICLE

19 February 2018

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

## Sphingidae Image Contribution

Sphingidae.us

TEÁ KESTING-HANDLY

2018

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

## Gina goes to "Moth night"

WFRI Community Radio

LOCALLY SOURCED SCIENCE

Summer 2017

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

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

Kingston, NY

JOHN BURROUGHS NATURAL HISTORY SOCIETY

19 September 2015

- Spoke to members about moth ecology.

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

Rensselaerville, NY

HUYCK PRESERVE AND BIOLOGICAL RESEARCH STATION

Summer 2015

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

**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)