Joanna Natalie Baker

Graduate Student • Manafzadeh Lab

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Education

Aug. 2026 – present | **Georgia Institute of Technology** Atlanta, GA
Ph.D. Student in Biology (Concentration: Ecology, Evolution, and Behavior)
Advised by **Dr. Armita Manafzadeh**

Sep. 2021 – Jun. 2025 | **Stanford University** Stanford, CA
B.S. in Biology & Notation in Science Communication

Fellowships, Scholarships, and Awards

2026 | **Graduate Research Fellowship** (National Science Foundation)
President's Fellowship (Georgia Institute of Technology)

2025 | **Art of Science Competition Award** (Stanford Materials Research Society)

2021 | **Boys' High Scholarship** (Midtown High School)

Publications

Google Scholar: 11 citations, h-index = 2 * denotes equal contribution

4 [preprint] **Baker, J.***, Wold, E.*, Wood, L., Aiello, B., & Sponberg, S. (2026). Flight muscle allocation diverges between two moth families with distinct flight strategies. *bioRxiv*. [10.64898/2026.08.24.746726]

3 Aiello, B., **Baker, J.**, Barber, J., Joseph, J., Kawahara, A., Ketler, G., Mowery, S., bin Sikandar, U., Sponberg, S., St. Laurent, R., Wold, E., & Wood, L. (2026). Bombycoid moths: An emerging model clade for studying insect flight. *Integrative and Comparative Biology*, 66. [10.1093/icb/icag143]

2 Coden, K., Beacham, K., Stix-Brunell, B., Moorhead, R., Byrd, K., **Baker, J.**, Geronimo, J., Parker, K., & Garner, J. (2025). Stereotypy is strongly linked to multiple biomarkers of oxidative stress – a potential common etiology for abnormal repetitive behaviors. *PLOS One*, 20. [10.1371/journal.pone.0326902]

1 Coden, K., Nguyen, D., Moorhead, R., Stix-Brunell, B., **Baker, J.**, Parker, K., & Garner, J. (2024). Making bloodwork work: The impact of sample collection, processing, and storage on plasma glutathione measurement, and implications for translation. *Nature Translational Psychiatry*, 14. [10.1038/s41398-024-03086-5]

Published Abstracts

4 [talk] **Baker, J.,** Wold, E., Wood, L., Aiello, B., & Sponberg, S. (2025). "microCT of hawkmoths and silkmoths reveals distinct muscle morphologies for hovering vs. bobbing flight." SICB 2025 Annual Meeting.

3 [talk] Aiello, B., bin Sikandar, U., Maccarelli, S., Pfuhl, K., Mason, N., Johnson, J., **Baker, J.**, Wold, E., Wood, L., Hamilton, C., Tan, M., Kawahara, A., & Sponberg, S. (2024). "The evolution of distinct flight strategies in bombycoid moths and the development of a model clade." SICB 2024 Annual Meeting.

2 [poster] **Baker, J.,** Wold, E., Wood, L., Aiello, B., & Sponberg, S. (2024). "microCT of hawkmoths and silkmoths uncovers parallels between muscle morphology and flight strategy." SICB 2024 Annual Meeting.

1 [poster] Ratuski, A., **Baker, J.,** & Garner, J. (2024). "Beyond3Rs: Going Beyond Replacement, Reduction, and Refinement for Better Animal Research." Stanford Bio-X Interdisciplinary Initiatives Seed Grants Program Symposium.

Teaching Experience

Aug. 2026 – present | **Georgia Institute of Technology** Atlanta, GA
Graduate Teaching Assistant – Ecology Lab (BIOS 2301)

Science Communication

Employment

Mar. 2022 – Jun. 2025 | **Stanford University** Stanford, CA
Department of Comparative Medicine; advised by Dr. Joseph Garner
Website Developer for Beyond3Rs *and* Mouse Ethogram

Feb. 2022 – May 2024 | *Freelance Laboratory Website Developer*

Earned Credentials

1 **Notation in Science Communication** (Stanford University)
Program in Writing and Rhetoric; advised by Dr. Megan Shields Formato

Media Coverage

1 Interviewed for expert commentary: Pennisi, E. (2025). "'Absolutely insane.' Dragonfly's extreme loop-the-loops are unparalleled in nature." *Science*. [10.1126/science.z9027of]

Service

To the Community

2026 | Presenter at Zoo Biomechanics Day (Zoo Atlanta)

Affiliations

Jun. 2024 – present | Integrative Movement Sciences Institute (IMSI)

Aug. 2023 – present | Society for Integrative and Comparative Biology (SICB)