

PAUL KENNETH MASONICK

Postdoctoral Researcher - Kawahara Lab

McGuire Center for Lepidoptera & Biodiversity, Florida Museum of Natural History, University of Florida
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Nationality: American (USA)

EDUCATION

Ph.D. Entomology, University of California, Riverside (UCR), USA 2020

Dissertation topic:

Systematics and natural history of flower-associated assassin bugs (Hemiptera: Reduviidae)

B.Sc. Integrative Biology, University of Illinois Urbana-Champaign (UIUC), USA 2007

CURRENT POSITION

2024– **Postdoctoral Researcher**, McGuire Center for Lepidoptera and Biodiversity, Florida Museum of Natural History, University of Florida, Gainesville, USA, Kawahara Lab

Evolution of antipredatory bioacoustic traits in bombycoid moths:

- Phylogenomic analysis
- micro-CT 3D reconstruction and 3D geometric morphometrics
- SEM-based morphological surveys
- ancestral character state reconstruction
- generation and analysis of ultrasonic acoustic data

RESEARCH EXPERIENCE

2022–'23 **Postdoctoral Researcher**, University of California, Riverside, USA, Weirauch Lab

Phylogenomics of Reduviidae:

- combined morphological and molecular analysis
- taxonomic revision

2021–'22 **Postdoctoral Researcher**, University of Konstanz, Germany, Meyer Lab

Phylogenomics of cichlid fishes:

- variant calling with whole-genome resequencing data
- species tree reconstruction
- analysis of introgression and admixture
- GWAS

2014–'20 **Ph.D. Student**, University of California, Riverside, USA, Weirauch Lab

Heteropteran systematics and natural history:

- | | |
|----------------------------------|----------------------------|
| ▪ targeted field work | ▪ DNA extraction |
| ▪ specimen dissection & curation | ▪ PCR |
| ▪ data management | ▪ bioinformatics |
| ▪ geometric morphometrics | ▪ molecular phylogenetics |
| ▪ insect rearing | ▪ divergence dating |
| ▪ behavioral studies | ▪ biogeographical analysis |
| ▪ gut content metabarcoding | ▪ species delimitation |

2007–'08 **NSF Research Experience for Undergraduates (REU) Student**, UIUC, USA, Whitfield Lab

Diversity and host-specificity of parasitoid wasps:

- specimen sorting & curation
- morphological study
- DNA barcoding

2007 **Introductory Research Student**, UIUC, USA, Hanks Lab

Mating behavior and displacement tactics of locust borers:

- behavioral documentation with video
- insect collection, rearing, & care taking

PUBLICATIONS

- [16] Kawahara, A.K., **Masonick, P.**, Rivera, P., & Barber, J.R. 2025. Spreading methods that preserve three-dimensional features of lepidoptera wings. *Journal of the Lepidopterists' Society* **79**(4). *In press*
- [15] **Masonick, P.**, Knyshev, A., Gordon, E., Forero, D., Hwang, W.S., Hoey-Chamberlain, R., Bush, T., Castillo, S., Hernandez, M., Ramirez, J., Standring, S., Zhang, J., & Weirauch, C. 2024. A revised classification of the assassin bugs (Hemiptera: Heteroptera: Reduviidae) based on combined analysis of phylogenomic and morphological data. *Systematic Entomology* 1–37. [10.1111/syen.12646](https://doi.org/10.1111/syen.12646)
- [14] Skojec, C., Earl, C., Couch, C.D., **Masonick, P.**, & Kawahara, A. 2024. Phylogeny and divergence time estimation of Io moths and relatives (Lepidoptera: Saturniidae: *Automeris*). *PeerJ* **12**:e17365. [10.7717/peerj.17365](https://doi.org/10.7717/peerj.17365)
- [13] Knyshev, A., Gordon, E., **Masonick, P.**, Castillo, S., Forero, D., Hoey-Chamberlain, R., Hwang, W.S., Johnson, K., Lemmon, A., Lemmon, E., Standring, S., Zhang, J., & Weirauch, C. 2023. Chromosome-aware phylogenomics of assassin bugs (Hemiptera: Reduvidae) elucidates ancient gene conflict. *Molecular Biology & Evolution* **40**(8). [10.1093/molbev/msad168](https://doi.org/10.1093/molbev/msad168)
- [12] **Masonick, P.**, Meyer, A., & Hulsey, C.D. 2023. A kiss of deep homology: partial convergence in the genomic basis of hypertrophied lips in cichlid fish and human cleft lip. *Genome Biology & Evolution* **15**(5). [10.1093/gbe/evad072](https://doi.org/10.1093/gbe/evad072)
- [11] **Masonick, P.** & Weirauch, C. 2022. Taxonomic revision of the *Apiomerus maya* species group (Heteroptera: Reduviidae: Harpactorinae). *Zootaxa* **5154**(5). [10.11646/zootaxa.5154.5.3](https://doi.org/10.11646/zootaxa.5154.5.3)
- [10] **Masonick, P.**, Meyer, A., & Hulsey, C.D. 2022. Phylogenomic analyses show repeated evolution of hypertrophied lips among Lake Malawi cichlid fishes. *Genome Biology & Evolution* **14**(4). [10.1093/gbe/evac051](https://doi.org/10.1093/gbe/evac051)
- [9] Mullens, B., Trout Fryxell, R., **Masonick, P.**, Yanega, D., & Davis, T. 2022. Hiding in plain sight: an abundant and widespread North American horse fly (Diptera: Tabanidae) in the *Tabanus sulcifrons* group, *Tabanus variegatus* Fabricius, redescribed. *Journal of Medical Entomology* **59**(4):1217–1235. [10.1093/jme/tjac057](https://doi.org/10.1093/jme/tjac057)
- [8] Scherz, M.D., **Masonick, P.**, Meyer, A., & Hulsey, C.D. 2022. Between a rock and a hard polytomy: phylogenomics of the rock-dwelling mbuna cichlids of Lake Malawi. *Systematic Biology* **71**(3):741–757. [10.1093/sysbio/syab006](https://doi.org/10.1093/sysbio/syab006)
- [7] **Masonick, P.** & Weirauch, C. 2020. Taxonomic revision of the Nearctic *erosa* species group of *Phymata* Latreille, 1802 (Heteroptera: Reduviidae: Phymatinae). *Canadian Journal of Arthropod Identification* **41**. [10.3752/cjai.2020.41](https://doi.org/10.3752/cjai.2020.41)

- [6] **Masonick, P.** & Weirauch, C. 2020. Integrative species delimitation in Nearctic ambush bugs (Heteroptera: Reduviidae: Phymatinae): insights from molecules, geometric morphometrics and ecological associations. *Systematic Entomology* **45**:205–223. [10.1111/syen.12388](https://doi.org/10.1111/syen.12388)
- [5] Hernandez, M., **Masonick, P.**, & Weirauch, C. 2019. Crowdsourced online images provide insights into predator-prey interactions of putative natural enemies. *Food Webs* **21**. [10.1016/j.fooweb.2019.e00126](https://doi.org/10.1016/j.fooweb.2019.e00126)
- [4] **Masonick, P.** 2019. Description of a bizarre new genus and species of ambush bugs from the Dominican Republic (Heteroptera: Reduviidae: Phymatinae). *Insect Systematics & Diversity* **3**(4). [10.1093/isd/ixz010](https://doi.org/10.1093/isd/ixz010)
- [3] **Masonick, P.**, Hernandez, M., & Weirauch, C. 2019. No guts, no glory: gut content metabarcoding unveils the diet of a flower-associated coastal sage scrub predator. *Ecosphere* **10**(5). [10.1002/ecs2.2712](https://doi.org/10.1002/ecs2.2712)
- [2] **Masonick, P.**, Michael, A., Frankenberg, S., Rabitsch, W., & Weirauch, C. 2017. Molecular phylogenetics and biogeography of the ambush bugs (Hemiptera: Reduviidae: Phymatinae). *Molecular Phylogenetics & Evolution* **114**:225–233. [10.1016/j.ympev.2017.06.010](https://doi.org/10.1016/j.ympev.2017.06.010)
- [1] Whitfield, J., Rodriguez, J., & **Masonick, P.** 2009. Reared microgastrine wasps (Hymenoptera: Braconidae) from Yanayacu Biological Station and environs (Napo Province, Ecuador): diversity and host specialization. *Journal of Insect Science* **9**(31):1–22. [10.1673/031.009.3101](https://doi.org/10.1673/031.009.3101)

PRESENTATIONS & POSTERS

- [19] **Masonick, P.**, Rivera, P., Barber, J., & Kawahara, A. 2025. Convergent evolution of antipredatory traits in bombycoid moths (Lepidoptera: Saturniidae, Sphingidae). 24th European Congress of Lepidopterology, Svatý Jan pod Skalou, Czech Republic, August 2025 [TALK]
- [18] **Masonick, P.**, Rivera, P., Barber, J., & Kawahara, A. 2025. Convergent evolution of antipredatory traits in bombycoid moths (Lepidoptera: Saturniidae, Sphingidae). 73rd Annual Meeting of the Lepidopterists' Society, Sierra Vista, AZ, August 2025 [TALK]
- [17] **Masonick, P.**, Rivera, P., Barber, J., & Kawahara, A. 2025. Convergent evolution of antipredatory traits in bombycoid moths (Lepidoptera: Saturniidae, Sphingidae). Southern Lepidopterists' Society and the Association for Tropical Lepidoptera 2025 Meeting, University of Florida, Gainesville, FL [TALK]
- [16] **Masonick, P.**, Rivera, P., Barber, J., & Kawahara, A. 2025. Convergent evolution of antipredatory traits in bombycoid moths (Lepidoptera: Saturniidae, Sphingidae). McGuire Center Expanding Horizons in Lepidoptera Research Seminar Series, University of Florida, Gainesville, FL [SEMINAR TALK]
- [15] **Masonick, P.**, Rivera, P., Barber, J., & Kawahara, A. 2024. Convergent evolution of antipredatory traits in bombycoid moths (Lepidoptera). FLMNH Department of Natural History - 2024 Postdoc Lightning Talks, University of Florida, Gainesville, FL [LIGHTNING TALK]
- [13] **Masonick, P.**, Rivera, P., Barber, J., & Kawahara, A. 2024. Convergent evolution of antipredatory traits in bombycoid moths (Lepidoptera). 10th Dresden Meeting on Insect Phylogeny, Dresden, Germany [POSTER]
- [12] **Masonick, P.**, & Weirauch, C. 2024. A revised classification of the assassin bugs (Heteroptera: Reduviidae) based on combined analysis of phylogenomic and morphological data. Center for Systematic Entomology Annual Meeting & Conference, University of Florida, Gainesville, FL [TALK]
- [11] **Masonick, P.**, & Weirauch, C. 2023. A revised classification of the assassin bugs (Heteroptera:

Reduviidae) based on combined analysis of phylogenomic and morphological data. International Heteropterists' Society Live Webinar Series *True Bug Tuesday* [VIRTUAL PRESENTER]

- [10] **Masonick, P.,** Meyer, A., & Hulsey, C.D. 2022. Phylogenomic analyses show repeated evolution of hypertrophied lips among Lake Malawi cichlid fishes. Genomics of Convergence Symposium 2022 [VIRTUAL PRESENTER]
- [9] **Masonick, P.,** Meyer, A., & Hulsey, C.D. 2021. Phylogenomics and the evolution of hypertrophied lips in Lake Malawi cichlid fishes. Evolution 2021 [VIRTUAL PRESENTER]
- [8] **Masonick, P.,** Meyer, A., & Hulsey, C.D. 2021. Phylogenomics of Lake Malawi cichlids. Deutsche Forschungsgemeinschaft SPP-1991 Taxon-omics Annual Meeting [VIRTUAL PRESENTER]
- [7] **Masonick, P.,** & Weirauch, C. 2019. Integrative species delimitation in Nearctic ambush bugs (Heteroptera: Reduviidae): insights from geometric morphometrics, molecules, and ecological associations. XXXVIII Annual Meeting of the Willi Hennig Society, University of California, Berkeley, CA [POSTER]
- [6] **Masonick, P.,** & Weirauch, C. 2018. Integrative species delimitation in Nearctic ambush bugs (Heteroptera: Reduviidae): insights from geometric morphometrics, molecules, and ecological associations. VI Quadrennial International Heteropterists' Society Meeting, La Plata, Argentina [TALK]
- [5] **Masonick, P.,** Hernandez, M., & Weirauch, C. 2017. No guts, no glory: revealing the diet of flower-associated assassin bugs (Hemiptera: Reduviidae). Entomology Society of America Annual Meeting 2017, Denver, CO [TALK]
- [4] **Masonick, P.,** & Weirauch, C. 2016. Pollinator predators exposed: using molecules and morphometrics to delimit species boundaries of ambush bugs (Heteroptera: Reduviidae). ICE 2016 XXV International Congress of Entomology, Orlando, FL [TALK]
- [3] **Masonick, P.,** & Weirauch, C. 2015. Exposing the ambush bugs: defining species boundaries among a continuum of morphological features and color patterns (Hemiptera: Reduviidae). Entomology Society of America Annual Meeting 2015, Minneapolis, MN [TALK]
- [2] **Masonick, P.,** & Weirauch, C. 2015. Exposing the ambush bugs: an overview of taxonomic issues within Phymatinae (Hemiptera: Reduviidae). Hemipteroid Insect Phylogenetics Workshop, University of Illinois, Champaign, IL [TALK]
- [1] **Masonick, P.,** & Weirauch, C. 2014. Classification Conundrum: species boundaries and relationships of ambush bugs (Hemiptera: Reduviidae). Entomology Society of America Annual Meeting 2014, Portland, OR [POSTER]

AWARDS & FELLOWSHIPS

- 2024 University of Florida - Department of Natural History Fall 2024 Travel Award, **\$1000**
- 2022 Hector Foundation Best Early Career Researcher Presentation; Genomics of Convergence Symp., **€400**
- 2019 Robert & Peggy van den Bosch Scholarship: Center for Biol. Control, UC Berkeley, **\$15,000**
- 2019 Earle C. Anthony Graduate Student Travel Award, **\$1,500**
- 2018 Nils & Annemarie Møller Andersen Travel Award, International Heteropterists' Society, **\$500**

- 2018 Robert & Peggy van den Bosch Scholarship: Center for Biol. Control, UC Berkeley, **\$7,500**
- 2018 James & Margaret Lesley Annual Prize, **\$300**
- 2017 Robert & Peggy van den Bosch Scholarship: Center for Biol. Control, UC Berkeley, **\$7,500**
- 2017 Herbert Kraft Scholarship: UC Riverside College of Natural & Agricultural Sciences, **\$4,615**
- 2017 UC MEXUS Small Grant, **\$1,480**
- 2016 Shipley-Skinner Reserve - Riverside County Endowment, **\$11,615**
- 2015 Friends of the Entomology Research Museum (FERM) Grant: UC Riverside, **\$750**
- 2014 National Science Foundation Graduate Research Fellowship Program, **Honorable Mention**

TEACHING EXPERIENCE

- 2025 Summer **Course Instructor:** Lepidoptera Course at the Southwestern Research Station in Portal, AZ
- 2024 Spring **Short Course Co-Leader and Instructor:** Biodiversity of True Bugs at the University of California, Riverside
- 2022 Spring **Short Course Co-Leader and Instructor:** Biodiversity of True Bugs at the University of California, Riverside
- 2021 Spring **Lecturer** for the Advanced Course in Molecular Evolutionary Biology at the University of Konstanz, Germany (Prof. Axel Meyer)
Lecture 1: *"Molecular Markers and Species Concepts"*
Lecture 2: *"Phylogenetic Reconstruction and the Multispecies Coalescent"*
- 2018 Fall **Teaching Assistant** for Introduction to Entomology (UCR - ENTM100 - Prof. Thomas Perring)
- 2018 Winter **Teaching Assistant** for Systematics (UCR - BIOL112 - Profs John Heraty & Mark Springer)
- 2017 Spring **Teaching Assistant** for Natural History of Insects (UCR - ENTM010 - Prof. Erin Rankin)
- 2016 Fall **Teaching Assistant** for Intro. to Ecol. & Evol. (UCR - BIOL5C - Profs K. Anderson & J. Morse)
- 2016 Winter **Teaching Assistant** for Insect Biodiversity (UCR - ENTM107 - Prof. Christiane Weirauch)

MENTORSHIP

I have mentored a diverse range of undergraduate and graduate research students on projects involving phylogenetics, morphological taxonomy, pollinator-predator interaction, and molecular gut analysis. I trained many of my mentees in field collection, insect identification, imaging, specimen dissection, and standard molecular wet lab procedures. I frequently meet with students who are conducting independent research to discuss their projects, assist in their preparation of presentations and posters, and review relevant scientific literature.

Mentees:

- Hee Han (Jeonbuk National Univ. MSc. student)
- Christian Couch (UF MSc. student)
- David Cheng (UF Ph.D. student)
- Pamela Rivera (Boise State Univ. Ph.D. student)

- Sarah Schroeder (UCR Ph.D. student)
- Marissa Corr (UCR NRS inclusivity intern)
- Jamie Ramirez (UCR 4+1 master's student)
- Tatiana Bush (UCR 4+1 master's student)
- Julia Perez (UCR undergrad student)
- Michael Anyakora (UCR undergrad student)
- Cynthia Monteiro (UCR undergrad student)
- Calvin Sun (UCR undergrad student)
- Victor Ellis (UCR undergrad student)
- Samantha Standring (UCR Ph.D. student)
- Stephanie Castillo (UCR Ph.D. student)
- Carlos Rosas (UCR Ph.D. student)
- Iris Chien (UCR undergrad student)
- Madison Hernandez (UCR undergrad student)
- Jacob Tarango (UCR undergrad student)
- Michael Appel (UCR undergrad student)
- Amy Michael (UCR undergrad student)
- Sarah Frankenberg (UCR master's student)

DATA ANALYSIS PROFICIENCY & SKILLS

Environments:

- Rstudio ▪ Linux ▪ Windows

Read Processing / Mapping / Alignment:

- FastQC ▪ Trimmomatic ▪ SPAdes ▪ bwa ▪ BLAST ▪ ATRAM ▪ MAFFT ▪ DADA2 ▪ Mesquite

SNP calling / VCF manipulation:

- FreeBayes ▪ samtools ▪ BCFtools ▪ bedtools ▪ PLINK

Phylogenetic Programs:

- IQ-TREE ▪ RAxML ▪ SVDquartets ▪ ASTRAL ▪ BEAST ▪ StarBEAST ▪ SpeciesNetwork ▪ SNAPP

Species Delimitation:

- STACEY ▪ iBPP ▪ mPTP ▪ GMYC

Ancestral State Reconstruction & Biogeographic Analysis:

- ape (R package) ▪ RASP

Introgression:

- Twisst ▪ Dsuite ▪ ADMIXTURE

Genome Wide Association Study:

- easyGWAS

Geometric Morphometrics:

- tpsDig2 ▪ geomorph (R package)

Imaging:

- Nano-CT - GE v|tome|x m 240 ▪ Tabletop SEM ▪ Leica Microsystems imaging ▪ Adobe Illustrator & Photoshop

INTERNATIONAL FIELD WORK

- Costa Rica (2008, 2025) ▪ Dominican Republic (2023) ▪ Cameroon (2019) ▪ Mexico (2019, 2017) ▪ Argentina (2018)

ORGANIZATIONAL MEMBERSHIPS

2021–Present Society of Systematic Biologists

2018–Present International Heteropterists' Society

2014–Present Entomological Society of America: SysEB Section, Pacific Branch

2014–Present Entomological Collections Network

2014–Present Friends of the Entomology Research Museum, UC Riverside

INTERNSHIPS

2014 **Research Intern** (Volunteer), Field Museum of Natural History, Chicago, IL, Moreau Lab

2013 **Habitat Restoration Crew Supervisor**, Audubon-Chicago Region, Evanston, IL

2006–2008 **Restoration Ecologist & Naturalist Intern**, Kane County Forest Preserve District, IL