Ari Grele
Arijg21@gmail.com

Education

2019 - present: Ph.D; University of Nevada, Reno; Ecology, Evolution, and Conservation Biology, Department of Biology
Advisor: Dr. Lora Richards
Thesis: *The role of specialized nectar chemistry in mediating species interactions*

2015 - 2019: B.S; Cornell University; Entomology with distinction in research, Cum Laude.
Senior honors thesis: *Bioactive components of a predaceous stink bug aggregation pheromone on Colorado Potato Beetle feeding*

Research Interests

Insect chemical ecology & behavior
Plant-insect interactions & Pollination ecology
Computer vision & automated insect surveying

Research Skills

Technical skills: Wet lab, dry lab, & field research, experimental design
insect and plant rearing, insect behavioral assays in field and lab
insect dissection, vivisection, identification and preservation,
analytical chemistry & LC-MS

Computer skills: Fluency in R, Python, JAGS, GLSL, and GDscript
Machine learning and computer vision algorithms using Pytorch
Video analysis using B.O.R.I.S. software
Image analysis using M.I.P.A.R., ImageJ, and opencv software
Chemical analysis with Agilent MassHunter and XCMS

Statistical skills: Quantitative analysis using Frequentist and Bayseian methods

Publications and Presentations

A. Grele, T. J. Massad, K. A. Uckele, L. Dyer, Y. Antonini, L. Braga, M. L. Forister, L. Sulca-Garro, M. Kato, and H. G. Lopez. 2023. *Intra and interspecific diversity in a tropical plant clade alter herbivory and ecosystem resilience*. eLife 12:RP86988.

Massad, T., A. R. Nascimento, D. Campos, W. Simbaña, H. G. Lopez, L. S. Garro, C. Lepesqueur, L. Richards, M. Forister, J. Stireman, E. Tepe, K. Uckele, L. Braga, T. Walla, A. Smilanich, **A. Grele**, and L. Dyer. 2023. *Variation in the strength of local and regional determinants of herbivory across the Neotropics*. Oikos e10218.

Getman-Pickering, Z. L., A. Campbell, N. Aflitto, **A. Grele**, J. K. Davis, and T. A. Ugine. 2020. *LeafByte: A mobile application that measures leaf area and herbivory quickly and accurately. Methods in Ecology and Evolution* 11:215–221.

A. Grele, L. Richards, 2024. *Nectar chemistry alters plant fitness by manipulating pollinators.* Talk presented at the annual meeting of the Entomological Society of America, Phoenix, AZ.

A. Grele, L. Richards, 2024. *Chemical signals and chemical noise – why plant defenses are more complex and pheromones are simpler in the tropics*. Talk presented at the 27th International Congress of Entomology, Kyoto, Japan.

A. Grele, L. Richards, 2024. *Intra- and interspecific variation in milkweed nectar chemistry*. Poster presented at the Hitchcock Center for Chemical Ecology Annual Symposium, Incline Village, NV.

A. Grele*, C. Mallon*, 2024. *Raman Spectroscopy at a Distance: A Tool for Ecological Research in the Field*. Talk presented at the Hitchcock Center for Chemical Ecology Annual Symposium, Incline Village, NV.
** Indicates co-presenters*

A. Grele, L. Richards, 2023. *Simulated herbivory increases plant fitness by altering floral traits and pollinator behavior*. Poster presented at the Plant – Herbivore Interactions Gordon Conference, Ventura, CA.

A. Grele, L. Richards, 2022. *Using machine learning to study pollination with high temporal and taxonomic resolution.* Poster presented at the annual meeting of the Entomological Society of America, Vancouver, BC.

A. Grele, N. Aflitto, J. Thaler, 2018. *Components of Podisus maculiventris Aggregation Pheromone Elicit Non-Consumptive Responses in Colorado Potato Beetles.* Poster presented at the annual meeting of the Entomological Society of America, Vancouver, BC.

Research Experience

2019 - present: PhD candidate | Richards lab, EECB, University of Nevada, Reno:
Dissertation research investigating four major topics:

1. The role of plant traits in mediating herbivore - pollinator interactions
2. Intra and interspecific variation in specialized metabolites in *Asclepias*
3. The role of plant traits in driving pollinator behavior and pollination
4. Computer vision techniques for automated insect observations

2017 - 2019: Research assistant | Thaler Lab, Entomology, Cornell University:
Assisted with insect bioassays and chemical assays, insect rearing, insect dissection and field assays of insect repellent and antifeedant semiochemicals.

2017 - 2019: Research assistant | Raguso Lab, Neurobiology and Behavior, Cornell University:
Assisted with data collection and behavioral analysis of recorded assays of multiple insect species.

Teaching experience

2023: Evolution (Biol 415 / 615) | University of Nevada, Reno;
Lead capstone course discussion sections introducing students to evolutionary concepts, application of evolutionary theory to conservation and human health, and science communication.

Research design (EECB 750) | University of Nevada, Reno;

Lead lab course introducing graduate students to coding in R, quantitative analysis, frequentist and Bayesian statistics, data preparation and presentation.

2019 - 2022: Principles of Biological Investigation (Biol 192) | University of Nevada, Reno;
Lead lab course introducing students to biological concepts, experimental design, statistics and scientific writing.

2016: Insect Biology (Entom 2120) | Cornell University;
Assisted lab course teaching students insect biology, taxonomy, identification and preservation.

Organizations

2022 - present: Developer and computer vision lead for Limelight: Rainforest; XPRIZE: Rainforest finalist team: Research to develop machine learning models for the rapid quantification of biodiversity at tropical sites

2023 & 2024: Member of EECB graduate colloquium nominations committee: Solicit colloquium nominations from program members, act as point of contact for program members to facilitate the development of the semester colloquium calendar.

2016 - 2017: Vice President of Snodgrass and Wigglesworth, Undergraduate Entomology Club: Acted as stand in for president, organized club events, ensured club registration.

Awards and grants

2024: Member of Limelight: Rainforest; XPRIZE Rainforest first place award
XPRIZE and Alana foundation
$5,000,000

NSF Research Traineeship Program: Chemistry of biological interactions
University of Nevada, Reno, Hitchcock Center for Chemical Ecology
$34,000

Chemistry of biological interactions travel grant
University of Nevada, Reno, Hitchcock Center for Chemical Ecology
$1,400

Scott Chadwick graduate award for contributions to the field of chemical ecology
Pacific Pharmaceuticals Services
$1,400

Travel awards
University of Nevada, Reno, Graduate Student Association
$500, $400

2023: Member of Limelight: Rainforest; XPRIZE Rainforest finalist award
XPRIZE and Alana foundation
$333,000

	Outstanding TA Award University of Nevada, Reno, Department of Biology $500
	Travel award University of Nevada, Reno, Graduate Student Association $500
2022:	Hitchcock Graduate Student Fellowship University of Nevada, Reno, Hitchcock Center for Chemical Ecology $14,000
	International travel award University of Nevada, Reno, Graduate Student Association $750
2021:	Travel award University of Nevada, Reno, Graduate Student Association $500
2020:	Research, Travel, and Materials Grant Program University of Nevada, Reno, Graduate Student Association $1550

References

Dr. Lora Richards (Graduate advisor); Professor, University of Nevada, Reno, 101 Sarah Fleischmann Building, Reno, NV, 89557; Email: Lorar@unr.edu; phone: 775-784-6141

Dr. Lee Dyer (Committee member); Professor, University of Nevada, Reno, 141 Fleischmann Agriculture Building, Reno, NV, 89557; Email: ldyer@unr.edu; phone: 775-784-1360

Dr. Thomas Walla (Collaborator); Professor, Colorado Mesa University, 221C Wubben Hall and Science Center, Grand Junction, CO, 81501; Email: twalla@coloradomesa.edu; phone: 970-248-1146