

Morgan N. Thompson

Curriculum Vitae

Department of Entomology, Texas A&M University
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EDUCATION

Texas A&M University, College Station, Texas
Doctor of Philosophy in Entomology Expected by December 2024

Dissertation: Local and systemic plant defense responses to above- and belowground specialist herbivores

Advisor: Dr. Anjel Helms

University of Maryland, College Park, Maryland
Master of Science in Entomology May 2019

Thesis: Evaluating the effect of potato leafhopper (Family: Cicadellidae) feeding on biological nitrogen fixation of alfalfa (*Medicago sativa*)

Advisor: Dr. William Lamp

College of William and Mary, Williamsburg, Virginia
Bachelor of Science Degree in Biology May 2016

Honors Thesis: The effect of climate variation on population dynamics of butterfly species across southeastern Virginia

Advisor: Dr. Matthias Leu

RESEARCH EXPERIENCE

USDA NIFA AFRI Predoctoral Fellow June 2023-Present
Department of Entomology, Texas A&M University

Merit Fellow and Teaching Assistant June 2019-June 2023
Department of Entomology, Texas A&M University

Graduate Research and Teaching Assistant September 2016-May 2019
Department of Entomology, University of Maryland

Undergraduate Research Assistant May 2014-May 2016
Department of Biology, College of William and Mary

RESEARCH GRANTS

USDA NIFA AFRI Predoctoral Fellowship (\$120,000) June 2023-June 2025
“Micro-management: identifying crop-protective microbiota for enhanced plant resistance to insect pests”

Sigma Xi Grant in Aid of Research (\$500) January 2022-January 2023
“Playing the wild card: comparing microbial communities of domesticated and wild plant species for resistance to insect herbivory”

Texas Ecological Laboratory (Ecolab) Research Grant (\$4,929) January 2019-January 2021
“Can a weedy gourd species attract and support agricultural insect pests?”

Northeast SARE Graduate Student Grant (\$8,804) May 2018-June 2019
“Evaluating the effect of potato leafhopper feeding on biological nitrogen fixation in alfalfa”

PEER-REVIEWED PUBLICATIONS

*undergraduate student mentored ^co-first authorship

10. **Thompson, M.N.** ^, J. Arriaga*^, B.J. Bradford1*^, R. Kurian*^, G. Strozier1*^, and A.M. Helms (2023) Belowground insect herbivory induces systemic volatile emissions that strengthen neighboring plant resistance aboveground. *Plant, Cell & Environment*.
<https://doi.org/10.1111/pce.14762>
9. **Thompson, M.N.**, J.M. Grunseich, L.O. Marmolejo*, N.M. Aguirre, P.A. Bradicich, S.T. Behmer, C.P.-C. Suh, and A.M. Helms (2022) Undercover operation: Belowground insect herbivory modifies systemic plant defense and repels aboveground foraging insect herbivores. *Frontiers in Ecology and Evolution*. <https://doi.org/10.3389/fevo.2022.1033730>
8. **Thompson, M.N.**, R.F. Medina, A.M. Helms, and J.S. Bernal (2022) Improving natural enemy selection in biological control through greater attention to chemical ecology and host-associated differentiation of target arthropod pests. *Insects*. <https://doi.org/10.3390/insects13020160>
7. Marmolejo, L.O.*^, **M.N. Thompson**, and A.M. Helms (2021) Defense suppression through interplant communication depends on the attacking herbivore species. *Journal of Chemical Ecology*.
<https://doi.org/10.1007/s10886-021-01314-6>
6. Grunseich, J.M., N.M. Aguirre, **M.N. Thompson**, J.G. Ali, and A.M. Helms (2021) Chemical cues from entomopathogenic nematodes vary across three species with different foraging strategies, triggering different behavioral responses in prey and competitors. *Journal of Chemical Ecology*.
<https://doi.org/10.1007/s10886-021-01304-8>
5. **Thompson, M.N.**, and W.O. Lamp (2021) Herbivory enhances legume-rhizobia symbioses function, increasing aboveground allocation of biologically fixed nitrogen, but only in soils without additional nitrate. *Plant and Soil*. <https://doi.org/10.1007/s11104-021-04999-6>
4. Eyer, P.A., P.T. Shults, M.R. Chura, M.N. Moran, **M.N. Thompson**, A.M. Helms, R.K. Saran, and E.L. Vargo (2021) Divide and conquer: Multicolonial structure, nestmate recognition, and antagonistic behaviors in dense populations of the invasive ant *Brachymyrmex patagonicus*. *Ecology and Evolution*. <https://doi.org/10.1002/ece3.7396>
3. Bernaola, L., M. Darlington, K. Britt, P. Prade, M. Roth, A. Pekarcik, M. Boone, D. Ricke, A. Tran, J. King, K. Carruthers, **M. Thompson**, J.J. Ternest, S.E. Anderson, S.W. Gula, K.C. Hauri, J.R. Pecenka, S. Grover, H. Puri, and S. G. Vakil (2021) Technological advances to address current issues in entomology: 2020 Student Debates. *Journal of Insect Science*.
<https://doi.org/10.1093/jisesa/ieab025>
2. Grunseich, J.M., **M.N. Thompson**, A.A. Hay, Z. Gorman, M.V. Kolomiets, M.D. Eubanks, and A.M. Helms (2020) Risky roots and careful herbivores: Sustained herbivory by a root-feeding herbivore attenuates indirect plant defences. *Functional Ecology*. <https://doi.org/10.1111/1365-2435.13627>
1. Grunseich, J.M.^, **M.N. Thompson**^, N. Aguirre, and A.M. Helms (2019) The role of plant-associated microbes in mediating insect herbivore foraging behavior. *Plants*.
<https://doi.org/10.3390/plants9010006>

MANUSCRIPTS IN ADVANCED STAGES

*undergraduate student mentored

- In prep.* **Thompson, M.N.**, D.W. Bapst, M.D. Eubanks, M.V. Kolomiets, and A.M. Helms. Systemic plant responses to invertebrate herbivory: a meta-analysis. (for *Ecology Letters*)
- In prep.* **Thompson, M.N.**, D. Merrell*, J.G. Garces*, B.J. Bradford*, C.P.-C. Suh, and A.M. Helms. Plant domestication and co-existence history with insect herbivores differentially shapes defense responses to aboveground and belowground attackers. (for *Functional Ecology*)
- In prep.* **Thompson, M.N.** and W.O. Lamp. Potato leafhopper (Hemiptera: Cicadellidae) injury alters nitrogen acquisition and allocation in *Medicago sativa* across cultivars and cropping systems. (for *Environmental Entomology*)

NON-PEER REVIEWED/EXTENSION PUBLICATIONS

3. King, J., **M. Thompson**, and J. Martin. (2022) The mothers of entomological history: Reflecting on who we honor and how we do it. *Entomology Today*.
2. **Thompson, M.N.**, and W.O. Lamp (2019) Can aboveground pest pressure disrupt nitrogen fixation in alfalfa? *Maryland Agronomy News*.
1. **Thompson, M.N.**, and W.O. Lamp (2017) Pest alert: Kudzu bugs found on Maryland soybeans. *Agronomy News*.

INVITED ORAL PRESENTATIONS

8. “Getting to the root of cucurbits: Belowground insect herbivory alters aboveground plant defense, herbivore foraging, and neighboring plants.” Entomological Society of America Eastern Branch Meeting, Member Symposium, Morgantown, WV, *March 2024*
7. “Danger from below: Plants detect root herbivore-damaged neighbors and enhance aboveground defenses” Texas A&M University Recruitment Symposium, College Station, TX, *February 2024*
6. “Ecological consequences of systemic plant defense against insect herbivory.” Entomological Society of America Annual Meeting, Rising Stars of Entomology Award Symposium, National Harbor, MD, *November 2023*
5. “Unexpected chatter in plant-plant communication.” Entomological Society of America Joint North Central and Southwestern Branch Meeting, Member Symposium, Oklahoma City, OK, *April 2023*
4. “Ecological consequences of plant defense against aboveground and belowground insect herbivory.” American Society of Plant Biologists, Environmental and Ecological Plant Physiology Section (Virtual), *April 2023*
3. “Belowground insect herbivory deters aboveground foraging herbivores.” Texas A&M University Life Sciences Recruitment Symposium, College Station, TX, *February 2022*
2. “Systemic plant responses to belowground herbivory deter aboveground herbivores.” International Symposium on Insect-Plant Relationships, Community Ecology Session (Virtual), *July 2021*
1. “Plant responses to belowground herbivory alter interactions with aboveground herbivores.” Entomological Society of America Annual Meeting, Plant-Insect Ecosystem Section Symposium (Virtual), *November 2020*

ORAL PRESENTATIONS

18. “Soil microbiota modulate crop resistance to fall armyworm (*Spodoptera frugiperda*) herbivory.” Beltwide Cotton Conference, Fort Worth, TX, *January 2024*

17. “Eavesdropping plants: Belowground insect herbivory strengthens neighboring plant defenses aboveground.” Texas A&M University 26th Annual Graduate Student Forum, College Station, TX, *August 2023*
16. “Underneath it all: Belowground insect herbivory enhances systemic plant defense and deters aboveground herbivores.” Entomological Society of America Joint North Central and Southwestern Branch Meeting, Oklahoma City, OK, *April 2023*
15. “Exposure to parasitic nematodes modifies cotton growth and defense across different soil microbial communities.” Beltwide Cotton Conference, New Orleans, LA, *January 2023*
14. “Taking root: Plant-herbivore coexistence history alters belowground plant defense.” Entomological Society of America, Canada, and British Columbia Joint Annual Meeting, Vancouver, BC, Canada, *November 2022*
13. “How the chemical ecology of host-associated differentiation improves natural enemy selection for biological control.” Entomological Society of America Southwestern Branch Meeting, Dallas, TX, *April 2022*
12. “Coexistence history shapes plant defense strategies against belowground root herbivores.” Texas A&M University 24th Annual Graduate Student Forum, College Station, TX, *August 2021*
11. “The root cause: belowground herbivory repels aboveground foraging herbivores.” Entomological Society of America (Virtual) Southwestern Branch Meeting, *June 2021*
10. “Undercover operation: root herbivory modifies aboveground plant-herbivore interactions.” Texas A&M University 23rd Annual (Virtual) Graduate Student Forum, *August 2020*
9. “Aboveground insect herbivores respond to belowground herbivory on a shared host-plant.” Texas A&M University (Virtual) Ecological Integration Symposium, *April 2020*
8. “How do plant-associated microbes modify host-plant selection for insect herbivores?” Entomological Society of America Virtual Joint North Central and Southwestern Branch Meeting *April 2020*
7. “Soil nutrients and aboveground herbivory alter belowground nitrogen fixation in alfalfa.” Entomological Society of America Annual Meeting, St Louis, MO, *November 2019*
6. “Evaluating the effect of potato leafhopper feeding on biological nitrogen fixation in alfalfa.” Northeastern IPM Center Online Conference, *October 2019*
5. “Aboveground insect herbivory alters a belowground plant-microbe mutualism.” Ecological Society of America Mid-Atlantic Meeting, Bowie, MD, *April 2019*
4. “Potato leafhopper (*Empoasca fabae*) feeding alters above- and belowground nutrient allocation and nitrogen fixation across alfalfa cultivars.” Entomological Society of America Eastern Branch Meeting, Blacksburg, VA, *March 2019*
3. “Can aboveground potato leafhopper (*Empoasca fabae*) feeding disrupt belowground nitrogen fixation in alfalfa?” Entomological Society of America, Canada, and British Columbia Joint Annual Meeting, Vancouver, BC, Canada, *November 2018*
2. “Connecting a belowground mutualism to aboveground herbivory: microbe-plant-insect interactions.” Ecological Society of America Annual Meeting, New Orleans, LA, *August 2018*
1. “Comparing patterns of injury caused by potato leafhopper (Cicadellidae) on nitrogen production across different alfalfa (*Medicago sativa*) cropping systems.” Entomological Society of America Eastern Branch Meeting, Annapolis, MD, *March 2018*

POSTER PRESENTATIONS

5. “Cross-compartment systemic plant responses to herbivory: a meta-analysis.” Gordon Research Conference: Plant-Herbivore Interactions, Ventura, CA, *March 2023*
4. “Tapping into emergency funds: a meta-analysis on systemic plant responses to above- and belowground herbivory.” Plant Biology, Portland, OR, *July 2022*

3. “Using a meta-analysis approach to explore systemic plant responses to above- and belowground insect herbivory.” Entomological Society of America Annual Meeting, Denver, CO, *November 2021*
2. “Comparing patterns of injury associated with potato leafhopper (Family: Cicadellidae) feeding across different alfalfa (*Medicago sativa*) cropping systems.” International Integrated Pest Management Symposium, Baltimore, MD, *March 2018*
1. “Comparing patterns of injury associated with potato leafhopper (Family: Cicadellidae) feeding across different alfalfa (*Medicago sativa*) cropping systems.” Bioscience Day, University of Maryland, College Park, MD, *November 2017*

AWARDS

Research Accomplishment Awards and Fellowships

Vice Chancellor’s Award in Excellence for Graduate Student Research, Texas A&M University	2023
College of Agriculture and Life Sciences Dean’s Outstanding Achievement Award for Graduate Research, Texas A&M University	2023
John Henry Comstock Graduate Student Award Entomological Society of America Southwestern Branch	2023
Kenneth and Barbara Starks Plant Resistance to Insects Graduate Student Award, Entomological Society of America, Plant-Insect Ecosystems Section	2022
Outstanding Graduate Student Award for Ph.D. Student, Department of Entomology, Texas A&M University	2022
John A. Jackman Endowed Scholarship, Department of Entomology, Texas A&M University	2021-2022
Merit Fellowship, College of Agriculture & Life Sciences, Texas A&M University	2019-2023
Gahan Fellowship Award, Department of Entomology, University of Maryland	2016-2019
Dean’s Fellowship Award, University of Maryland Graduate School	2016

Research Presentation Awards

1 st place oral presentation, Texas A&M University 26 th Annual Graduate Student Forum	2023
1 st place oral presentation, Entomological Society of America Joint North Central and Southwestern Branch Meeting Student Competition	2023
1 st place oral presentation, Entomological Society of America Student Competition	2022
2 nd place oral presentation, Texas A&M University 24 th Annual Graduate Student Forum	2021
1 st place oral presentation, Entomological Society of America Southwestern Branch Meeting Student Competition	2021
1 st place oral presentation, Texas A&M University 23 rd Annual Graduate Student Forum	2020
2 nd place oral presentation, Entomological Society of America Joint North Central and Southwestern Branch Meeting Student Competition	2020

1 st place oral presentation, Ecological Society of America Mid-Atlantic Meeting Student Competition	2019
2 nd place oral presentation, Entomological Society of America Eastern Branch Meeting Student Competition	2019
1 st place oral presentation, Entomological Society of America Student Competition	2018
1 st place poster presentation, Bioscience Day, University of Maryland	2017

Service Awards

Accountability, Climate and Equity Women’s Progress Award, Texas A&M University	2022
Ethel Ashworth-Tsutsui Memorial Award for Mentoring, Women in Science and Engineering (WISE), Texas A&M University	2022

Travel Awards

Goldhaber Travel Award, University of Maryland Graduate School	2018
International Conference Student Award, University of Maryland Graduate School	2018
Student Section Travel Award, Ecological Society of America	2018
Charlie Mitter Travel Award, Department of Entomology, University of Maryland	2018

TEACHING EXPERIENCE

Teaching Assistant

Insect Ecology, Department of Entomology, Texas A&M University	Spring 2023
Principles of Biology III, Department of Biology, University of Maryland	Fall 2018
Biology of Insects, Department of Entomology, University of Maryland	Spring 2018
Pollinators in Crisis, Department of Entomology, University of Maryland	Fall 2017
Principles of Molecular & Cellular Biology, Department of Biology, University of Maryland	Spring 2017, 2019
Principles of Evolution, Department of Biology, University of Maryland	Fall 2016

Invited Guest Lecturer

Theory of Research (Graduate Course), Department of Plant Pathology, Texas A&M University	Spring 2023
Field Crop Insects (Undergraduate Course), Department of Entomology, Texas A&M University	Spring 2023
Chemical Ecology (Graduate Course), Department of Entomology, Texas A&M University	Fall 2021, 2023
Insect Ecology (Undergraduate Course), Department of Entomology, Texas A&M University	Spring 2020, 2022

CURRENT RESEARCH MENTEES

Team of Undergraduate Researchers through Aggie Research Program at Texas A&M University

Jayda Arriaga, Jack Bradford, Rachel Kurian, Gage Strozier

Oral presentation (<i>Jayda Arriaga, Rachel Kurian, Gage Strozier</i>), Texas A&M University Ecological Integration Symposium	2024
Oral presentation (<i>Jayda Arriaga, Rachel Kurian, Gage Strozier</i>), Texas A&M University Student Research Week	2024
Undergraduate Research Scholars Honors Thesis Program (<i>Jack Bradford, Rachel Kurian, Gage Strozier</i>), Texas A&M University	2023-2024
1 st place oral presentation (<i>Rachel Kurian</i>), Entomological Society of America Joint North Central and Southwestern Branch Meeting	2023
Oral presentation (<i>Jack Bradford</i>), Entomological Society of America Joint North Central and Southwestern Branch Meeting	2023
Oral presentation (<i>all students</i>), Texas A&M University Ecological Integration Symposium	2023
Oral presentation (<i>all students</i>), Texas A&M University Aggie Research Showcase	2022
Research project for course credit (ENTO 491) during spring semester (<i>Jayda Arriaga</i>)	2022
2 nd place oral presentation (<i>all students</i>), Texas A&M University Student Research Week	2022

FORMER RESEARCH MENTEES

Undergraduate Researcher through USDA-NIFA funded Research and Education Experiences for Undergraduates (REEU) Program at Texas A&M University

Jeremy Garces (pursuing B.S. in Biology at University of Texas Rio Grande Valley)

Poster presentation, Texas A&M Summer Undergraduate Research Poster Session	2023
Oral presentation, Texas A&M Diversity in Entomology Summer REEU Program Presentations	2023

Undergraduate Researcher through Helms Lab at Texas A&M University

Laura Marmolejo (now pursuing M.S. in Entomology at Michigan State University)

Oral presentation, Entomological Society of America, Canada, and British Columbia Joint Annual Meeting	2022
1 st place oral presentation, Entomological Society of America Southwestern Branch Meeting	2022
Oral presentation, Texas A&M University Student Research Week	2022
College of Agriculture and Life Sciences Dean's Outstanding Achievement Award for Undergraduate Research, Texas A&M University	2022
Oral presentation, Entomological Society of America Annual Meeting	2021
Southwestern Branch Undergraduate Student Achievement in Entomology Award, Entomological Society of America	2021
1 st place oral presentation, Entomological Society of America Southwestern Branch Meeting	2021
Oral presentation, Entomological Society of America Annual Meeting	2020

2 nd place oral presentation, Aggie Women in Entomology (AWE) Undergraduate Research Symposium	2020
Undergraduate Researcher through Helms Lab at Texas A&M University	
<i>Danielle Merrell (now pursuing Ph.D. in Horticulture and Agronomy at University of California, Davis)</i>	
Oral presentation, Entomological Society of America Annual Meeting	2021
Oral presentation, Entomological Society of America Southwestern Branch Meeting	2021
Oral presentation, Central Ecology and Evolution Conference	2021
Undergraduate Researcher through Lamp Lab at University of Maryland	
<i>Emily Mast (now pursuing O.T.D. at Mary Baldwin University)</i>	
Poster presentation, University of Maryland Undergraduate Research Day	2019
Undergraduate research credit hours, University of Maryland	2018-2019
Undergraduate Researcher through Lamp Lab at University of Maryland	
<i>Sami Louguit</i>	
Undergraduate research credit hours, University of Maryland	2018
High School Researchers through Lamp Lab at University of Maryland	
<i>Nina McGranahan</i>	
High school science & technology internship program	2018-2019
<i>Cameron Anderson</i>	
High school science & technology internship program	2017-2018

PROFESSIONAL SERVICE

Panelist, Texas A&M Graduate Student Panel: Helping Undergraduate Students Prepare for Graduate School	2024
Symposium co-organizer, Entomological Society of America Joint North Central and Southwestern Branch Meeting (<i>How plant stress affects insects: herbivores, pollinators, and more</i>)	2023
Student affairs committee member, Entomological Society of America Southwestern Branch	2022, 2023
Panelist, Texas A&M University Mentoring Undergraduate Researchers Workshop	2022, 2023
Graduate student representative, Faculty search committee for tenure-track Assistant Professor of Entomology – Global Public Health, Department of Entomology, Texas A&M University	2022
Aggie Allies Training for Supporting LGBTQ+ Students	2022
Symposium co-organizer, Entomological Society of America Annual Meeting (2024: <i>Multifunctional chemicals cues? Comparing plant volatiles that influence behaviors of insect herbivores, pollinators, and natural enemies</i> ; 2022: <i>Highlighting women's research: Abiotic and biotic stressors of agricultural food-systems</i> ; 2021: <i>Highlighting women's research: Insect adaptations to a changing world</i>)	2021, 2022, 2024
Aggie Women in Entomology Salary Negotiation Workshop Organizer	2021
President, Aggie Women in Entomology, Department of Entomology, Texas A&M University	2021-2022

Black History Month Panel Discussion Organizer: “ <i>The contributions of Black entomologists to insect sciences</i> ”	2021
Graduate student representative, Diversity, Equity and Inclusion Committee, Department of Entomology, Texas A&M University	2020-2022
Seminar chair, Entomological Graduate Student Organization, Department of Entomology, Texas A&M University	2020-2021
Student debate competitor, Entomological Society of America	2020
Discussion leader, Entomological Society of America Plant-Insect Ecosystems Wildly Important Goals: Public Education & Outreach	2020
Peer reviewer of research manuscripts in the journals: <i>Plant and Soil</i> (1), <i>Microbial Ecology</i> (1), <i>Biological Control</i> (2), <i>Arthropod-Plant Interactions</i> (1)	2020-Present
Social chair, Entomological Student Organization, Department of Entomology, University of Maryland	2017-2018
Entomology Games (formerly ‘Linnean Games’) competitor, Entomological Society of America	2017-2023

PROFESSIONAL ASSOCIATIONS

Ecological Society of America	2018-Present
Entomological Society of America	2017-Present

COMMUNITY OUTREACH AND SERVICE

Regional High School Science Bowl Moderator	2023
Elementary School ‘Entomology in Spanish’ Event Coordinator	2022, 2023
‘Research and Brews’ seminar through Texas A&M University Graduate and Professional Student Government	2022
Aggie Women in Entomology Presentation at Girl Scout Camp	2021
Ronin Spring Farm Day Volunteer	2021, 2022
Texas A&M University Student Research Week Judge	2021, 2024
Texas Science & Engineering Fair Judge	2020-2022, 2024
Ecology and Evolutionary Biology Program Darwin Day Volunteer	2020, 2021
STEM Pack Meeting at Bowen Elementary School Volunteer	2020
Brazos Museum of Natural History’s Owl-O-Ween Festival Volunteer	2019
High School Science Fair Judge	2018