

Morgan E. Christman

The Ohio State University | Department of Entomology
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PROFESSIONAL APPOINTMENTS

Post-Doctoral Scholar. The Ohio State University. Columbus, OH 2022–present
Waterman-Rothenbuler Bee Research Laboratory
Department of Entomology, College of Food, Agricultural, and Environmental Sciences
Supervisor: Dr. James Strange

EDUCATION

Ph.D., Ecology. Utah State University. Logan, UT 2017–2022
Climate Adaptation Science, National Science Foundation Traineeship Program
Geographic Information Systems Certificate
Advisors: Drs. Ricardo Ramirez and Lori Spears
Dissertation: *An evaluation of landscape, climate, and management impacts on bumble bees (Hymenoptera: Apidae: Bombus) in agroecosystems*

B.S., Biology; B.A., Environmental Studies. Denison University. Granville, OH 2013–2017
Advisor: Dr. Thomas Schultz
Senior Thesis: *Comparative study of insect diversity at three successional landscapes*

PROFESSIONAL EXPERIENCE

Graduate Research Assistant. Utah State University. Logan, UT 2017–2022
Advisors: Drs. Ricardo Ramirez and Lori Spears, Department of Biology & Ecology Center

- Integrated field research and advanced quantitative procedures to evaluate the impact of anthropogenic disturbances on bumble bee assemblages on multiple spatial and temporal scales in agroecosystems to provide the scientific basis for management decisions and conservation practices
- Collected and identified 7,796 specimens representing 21 bumble bee species
- Conducted cooperatively driven, applied ecological research on the impact of bycatch on bumble bee colony growth and development
- Reared 216 *Bombus griseocollis* colonies in a controlled lab setting, assessed nest initiation and establishment rates, and created a timeline of colony development

- Performed thermal tolerance trials, lipid extractions, DNA extractions, and microsatellite PCR amplification on *Bombus*
- Wrote 211 fact sheets and illustrated bee morphology diagrams for Exotic Bee ID, a screening aid to support identification of non-native bees
- 1 invited research presentation; 8 contributed research presentations; 2 research publications; 3 extension publications; 1 open-source website
- Supervised 12 undergraduate research technicians in a field and laboratory setting while providing professional, educational, and personal support

Climate Adaptation Science Trainee. Utah State University. Logan, UT 2018–2020
 Advisor: Dr. Nancy Huntly, Ecology Center Director

- Designed and implemented a collaborative and interdisciplinary research project to develop a climate risk assessment of northern goshawks in Utah national forests
- Predicted mountain pine beetle risk susceptibility in Utah national forests from 2020 to 2100 using U.S. Forest Service Forest Vegetation Simulator software
- 5 contributed research presentations

Utah Statewide Well-being Survey Programmer. Utah State University. Logan, UT 2020
 Advisor: Dr. Courtney Flint, Department of Environment and Society

- Produced relevant data visualizations using qualitative survey data on personal and community well-being in Utah
- 2 extension publications

Utah Wildlife Migration Initiative Intern. Department of Natural Resources 2019
 Division of Wildlife Resources. Salt Lake City, UT
 Advisor: Dr. Daniel Olson, Utah Department of Natural Resources

- Developed a database in RShiny to allow wildlife migration and covariate data to be visualized, mined, and analyzed by internal Wildlife Migration Initiative stakeholders

Undergraduate Researcher. Denison University. Granville, OH 2017
 Advisor: Dr. Andrew McCall, Department of Biology

- Assisted in the collection and identification of spicebush pollinators

Undergraduate Researcher. Denison University. Granville, OH 2016–2017
 Advisor: Dr. Thomas Schultz, Department of Biology

- Conducted a comparative study of insect diversity at three successional landscapes
- Identified 4,233 insect specimens representing 76 families, and 12 orders
- 3 contributed research presentations

Undergraduate Researcher. Denison University. Granville, OH 2015
 Advisor: Dr. Geoff Smith, Department of Biology and Dr. John Iverson, Earlham College

- Captured, weighed, measured, and PIT tagged 455 Allen's Cay rock iguanas on three islands to determine the effects of tourism on the size and growth of the iguanas
- 2 contributed research presentations

RESEARCH PUBLICATIONS

Christman, M. E., L. R. Spears, J. P. Strange, W. D. Pearse, E. K. Burchfield, and R. A. Ramirez. 2022. Land cover and climate drive shifts in *Bombus* assemblage composition. Agriculture, Ecosystems, and Environment (*Accepted with Minor Revisions*). <http://dx.doi.org/10.2139/ssrn.4000300>

Spears, L. R., **M. E. Christman**, J. B. Koch, C. Looney, and R. A. Ramirez. 2021. A review of bee captures in pest monitoring traps and future directions for research and collaboration. Journal of Integrated Pest Management 12: 1–12. <https://doi.org/10.1093/jipm/pmab041>

EXTENSION PUBLICATIONS

Burrows, S., C. Ritner, **M. Christman**, L. R. Spears, A. Smith-Pardo, S. Price, R. A. Ramirez, T. Griswold, and A. J. Redford. 2021. Exotic Bee ID – Edition 3. USDA APHIS Identification Technology Program (ITP), Fort Collins, CO. <http://idtools.org/id/bees/exotic>

Christman, M., L. R. Spears, and R. A. Ramirez. 2021. Where the wild bees are: identifying land-use and climate variables impacting bumble bees in Utah. Utah Pests News, Utah Plant Pest Diagnostic Laboratory and USU Extension. Vol. 15: Fall edition. <https://extension.usu.edu/pests/files/up-newsletter/2021/UtahPestsNews-fall21.pdf>

Flint, C., C. Trout, **M. Christman**, and R. Sagers. 2020. Utah Statewide Wellbeing Survey Report. Utah State University Extension. <https://extension.usu.edu/business-and-community/utah-wellbeing-project/files/Statewide-Wellbeing-Survey-Report-2020.pdf>

Flint, C., C. Trout, **M. Christman**, and R. Sagers. 2020. Utah Wellbeing Survey-Executive Summary. Utah State University Extension. <https://extension.usu.edu/business-and-community/utah-wellbeing-project/reports/statewide-wellbeing-survey-report-sept-2020>

Burrows, S., C. Ritner, **M. Christman**, L. R. Spears, A. Smith-Pardo, S. Price, R. A. Ramirez, T. Griswold, and A. J. Redford. 2020. Exotic Bee ID – Edition 2. USDA APHIS Identification Technology Program (ITP), Fort Collins, CO. <http://idtools.org/id/bees/exotic>

Burrows, S., **M. Christman**, L. R. Spears, A. Smith-Pardo, S. Price, R. A. Ramirez, T. Griswold, and A. J. Redford. 2018. Exotic Bee ID – Edition 1. USDA APHIS Identification Technology Program (ITP), Fort Collins, CO. <http://idtools.org/id/bees/exotic>

Christman, M. E., L. R. Spears, R. A. Ramirez. 2018. A new tool for identifying exotic bees. Utah Pests News, Utah Plant Pest Diagnostic Laboratory and USU Extension. Vol. 12: Fall edition. <https://extension.usu.edu/pests/files/up-newsletter/2018/UtahPests-Newsletter-fall18.pdf>

RESEARCH PRESENTATIONS

Invited

Christman, M. E., L. Spears, and R. Ramirez. 2019. Exploring the landscape ecology of bumble bees in agroecosystems using bycatch. Entomological Society of America. St. Louis, MO. 19 November. *Invited oral presentation*

Contributed

Christman, M., L. Spears, and R. Ramirez. 2021. Incidental captures of *Bombus* species in pest traps: a national survey to evaluate the cumulative effects of climate and land-use on *Bombus* assemblages. Entomological Society of America. Denver, CO. 1 November. *Oral presentation*

Christman, M., L. Spears, and R. Ramirez. 2020. Assessing the impact of bycatch on *Bombus griseocollis* colony growth and development. Entomological Society of America. Virtual Meeting. 11–30 November. *Oral presentation*

Christman, M., L. Spears, and R. Ramirez. 2020. Incidental captures of *Bombus* species in traps: a national survey. Entomological Society of America. Virtual Meeting. 30 November. *Poster presentation*

Christman, M., L. Spears, and R. Ramirez. 2020. Interactive effects of landscape composition and abiotic factors on bumble bees in agroecosystems. Ecological Society of America. Virtual Meeting. 3–6 August. *Poster presentation*

Brunson, M. W., N. J. Huntly, S. Bogen, L. Capito, **M. Christman**, S. Koutzoukis, B. Morgan, C. Morrisett, W. Munger, and K. A. Spangler. 2020. Integrating ecological and social system models and data: An application of the 4DEE approach for graduate education. Ecological Society of America. Virtual Meeting. 3–6 August. *Oral presentation*

Pinto, D., C. Morrisett, S. Koutzoukis, and **M. Christman**. 2020. Graduate researchers collaborating on interdisciplinary climate adaptation science. Ecological Society of America. Virtual Meeting. 3–6 August. *Poster presentation*

Bogen, S., **M. Christman**, H. Panosyan, B. Shield, and M. Wright. 2020. Climate risk assessment of Utah National Forests: A case study of northern goshawks. Science, Management, and Policy Exchange. Moab, UT. 28 February. *Oral presentation*

Bogen, S., **M. Christman**, H. Panosyan, B. Shield, and M. Wright. 2019. Climate risk assessment of Utah National Forests: A case study of northern goshawks. Science, Management, and Policy Exchange. Logan, UT. 4 October. *Oral presentation*

Christman, M. E., L. Spears, E. Burchfield, and R. Ramirez. 2018. Effects of land use and climate variability on beneficial insects in agronomic crops of Utah. Entomological Society of

America, Entomological Society of Canada, and Entomological Society of British Columbia Joint Annual Meeting. Vancouver, British Columbia, Canada. 11 November. *Oral presentation*

Christman, M. E., L. Spears, and R. Ramirez. 2018. Landscape ecology of beneficial insects in agronomic crops of Utah. Society for Advancement of Chicanos/Hispanics & Native Americans in Science. San Antonio, TX. October. 12 October. *Poster presentation*

Christman, M. E., L. Spears, E. Burchfield, and R. Ramirez. 2018. Landscape ecology of beneficial insects in agronomic crops of Utah. Pacific Branch Entomological Society of America. Reno, NV. 11 June. *Poster presentation*

Christman, M. E., L. Spears, T. Griswold, and R. Ramirez. 2017. Landscape and seasonal effects on beneficial insects in agricultural crops of Utah. Entomological Society of America. Denver, CO. 6 November. *Poster presentation*

COMMUNITY ENGAGEMENT

Christman, M. 2021. Utah State University College of Science Fall Convocation graduate representative. Utah State University Virtual Ceremony. 30 September. *Invited speaker*

Christman, M. 2021. Denison University alumni panel: graduate school. Denison University Virtual Panel. 28 September. *Invited panelist*

EXTENSION–OUTREACH

Entomology Club Insect Tours. Utah State University. Logan, UT. 2018–2020 17 hours

- Presented about insect biology, physiology, and behavior in an accessible manner
- Audience: 456 people from the general public, particularly K–12 students and teachers

Gaining Early Awareness and Readiness for Undergraduate Programs. Utah State University. Logan, UT. 2018 2 hours

- Presented on careers in entomology to foster the success of students in higher education
- Audience: 103 high school students and teachers

Science Unwrapped. Utah State University. Logan, UT. 2017–2020 14 hours

- Communicated scientific information and lead hands-on learning activities with the Biology Graduate Student Association and Entomology Club
- Increased representation of women in science to the general public
- Audience: 2,100 people from the general public, particularly K–12 students and teachers

PROFESSIONAL DEVELOPMENT, CERTIFICATIONS, AND TRAININGS

USDA–ARS–Pollinating Insect Research Unit Volunteer. USDA. Logan, UT	2017–2022
Laboratory Safety Training. Utah State University. Logan, UT	2017–2022
Power Dynamics Training. Utah State University. Logan, UT	2022
Boundaries and Effective Relationships Training. Utah State University. Logan, UT	2022
Discrimination Training. Utah State University. Logan, UT	2021
Faculty Member Title IX Training. Utah State University. Logan, UT	2021
Sexual Violence Prevention Training. Utah State University. Logan, UT	2021
Rethinking Relationships Training. Utah State University. Logan, UT	2021
Wilderness First Aid. Desert Mountain Medicine. Logan, UT	2021
Wilderness Anaphylaxis Training. Desert Mountain Medicine. Logan, UT	2021
Urban and Wilderness CPR Training. Desert Mountain Medicine. Logan, UT	2021
Environmental Careers Seminar Micromentor. Denison University. Granville, OH	2021
Upstander Training. Utah State University. Logan, UT	2019
Implicit Bias Training. Utah State University. Logan, UT	2019

SCHOLARSHIPS AND AWARDS

Biology Graduate Student Association Travel Award. \$500. Utah State University	2021–2022
Claude E. Zobell Scholarship. \$1,000. Utah State University.	2021–2022
USUSA Graduate Enhancement Award. \$4,000. Utah State University.	2021–2022
USUSA Graduate Enhancement Award. \$4,000. Utah State University.	2020–2021
Ecology Center Research Award. \$2,000. Utah State University.	2018–2019
Ecology Center Travel Award. \$400. Utah State University.	2018
Graduate Student Travel Award. \$400. Utah State University.	2018
Dr. Leslie Paxton Barker Travel Award. \$200. Utah State University.	2018

LEADERSHIP ROLES

Secretary. Society for Advancement of Chicanos/Hispanics and Native Americans in Science. Utah State University. Logan, UT	2019–2021
President. Entomology Club. Utah State University. Logan, UT	2019–2020
Outreach Coordinator. Entomology Club. Utah State University. Logan, UT	2018–2019
Vice President. Society for Advancement of Chicanos/Hispanics and Native Americans in Science. Utah State University. Logan, UT	2018–2019
Ecology Center Seminar Selection Committee. Utah State University. Logan, UT	2018–2019
Social Chair. Biology Grad Student Association. Utah State University. Logan, UT	2017–2018

TECHNICAL SKILLS

Programming in R/RMarkdown (expert), ESRI ArcGIS (expert), Forest Vegetation Simulator (proficient), Python (familiar)

Dashboard development in Rshiny

Data acquisition, management, and manipulation

Maintain repositories for code and open-source projects in Github

Bombus ex situ rearing

Perform thermal tolerance trials, lipid extractions, DNA extractions, and microsatellite PCR amplification on *Bombus*

Operate a motor vehicle as an incidental driver and possess a valid driver's license

PROFESSIONAL AFFILIATIONS AND STUDENT ORGANIZATIONS

Entomological Society of America

Ecological Society of America

Utah State University Ecology Center

Society for Advancement of Chicanos/Hispanics & Native Americans in Science (SACNAS)

Utah State University Entomology Club

Utah State University Bio Nerd Herd (Programming Club)