

ROXANEH S. KHORSAND - CURRICULUM VITAE

Department of Organismal Biology and Ecology

Colorado College

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Professional Academic Experience

Assistant Professor, Department of Organismal Biology and Ecology, Colorado College,
2023 – present.

Visiting Assistant Professor, Department of Organismal Biology and Ecology, Colorado College,
2018 – 2023.

Visiting Assistant Professor, School of Biological Sciences, University of Northern Colorado,
2015 – 2018.

Adjunct Instructor, Department of Biological Sciences, Florida International University, 2015.

Postdoctoral Associate, Department of Biological Sciences, Florida International University,
2013 – 2015.

Education

Ph.D. Biology, Florida International University, 2013.

B.S. Biology, University of Colorado at Boulder, 2003.

B.A. Spanish Literature, University of Colorado at Boulder, 2003.

Research Interests

- Plant reproductive ecology and global change ecology
 - Plant phenology, breeding systems, floral rewards
 - Plant-pollinator networks, plant-pollinator interactions, trophic mismatch
- Research experience in the Arctic (Alaska), temperate (Colorado), sub-tropics (Florida), and tropics (Brazil)
- Engage students throughout the research process including experimental design, data collection and dissemination of results

Publications (* indicates student co-author)

Khorsand, R., Sancier-Barbosa, F., May, J.F., Høye, T.T, and Oberbauer, S.F. 2024. The effects of experimental warming on plant-pollinator interactions and floral rewards in the Low Arctic. *Arctic Science* 00: 1–19. <https://doi.org/10.1139/as-2022-0034>.

Khorsand, R. and Awolaja, F*. 2020. Pollination and breeding system of *Thermopsis divaricarpa* (Fabaceae: Papilionoideae) in the southern Rockies. *Western North American Naturalist* 80: 509–520. <https://doi.org/10.3398/064.080.0408>

Koptur, S. and **Khorsand, R.** 2018. Pollination ecology of three sympatric palms of southern Florida pine rocklands. *Natural Areas Journal* 38: 15-25. <https://doi.org/10.3375/043.038.0104>

Khorsand Rosa, R., Oberbauer, S.F., Starr, G. Parker LaPuma, I., Pop, E., Ahlquist, L., and Baldwin, T. 2015. Plant phenological responses to a long-term experimental extension of growing season and soil warming in tussock tundra of Alaska. *Global Change Biology* 21: 4520–4532. <https://doi.org/10.1111/gcb.13040>

Khorsand Rosa, R., Imbrozio Barbosa, R., and Koptur, S. 2014. Which factors explain reproductive output of *Mauritia flexuosa* (Arecaceae) in forest and savanna habitats of northern Amazonia? *International Journal of Plant Sciences* 175(3):307-318. <https://doi.org/10.1086/674446>

Khorsand Rosa, R. 2014. A review of the pollination biology of *Mauritia flexuosa*. *Palms* 58(2): 77-82.

Khorsand Rosa, R. and Koptur, S. 2013. New findings on the pollination biology of *Mauritia flexuosa* (Arecaceae) in Roraima, Brazil: linking dioecy, wind, and habitat. *American Journal of Botany* 100(3): 613-621. <https://doi.org/10.3732/ajb.1200446>

Khorsand Rosa, R., Imbrozio Barbosa, R., and Koptur, S. 2013. How do habitat and climate variation affect phenology of the Amazonian palm, *Mauritia flexuosa*? *Journal of Tropical Ecology* 29(3): 255-259. <https://doi.org/10.1017/S0266467413000242>

Khorsand Rosa, R. 2011. Bees collect resin from *Mauritia flexuosa* in Roraima, Brazil. *Palms* 55(4): 200-203.

Khorsand Rosa, R. and Koptur, S. 2009. Preliminary observations and analyses of pollination in *Coccothrinax argentata*: Do insects play a role? *Palms* 3(2): 75-83.

Teaching Experience, Courses Taught

2023 – Present: Assistant Professor, Colorado College (CC), Dept. of Organismal Biology and Ecology (OBE):

- Biology of Plants (BE 105)
- Ecology (BE 208)
- Ecology and the Environment (EV209)
- Biostatistics (BE220)
- Special Topics: Experimental Design and Advanced Ecology (BE 440)
- Research in Biology (BE 309/409)

2018 – 2023: Visiting Assistant Professor, CC, OBE:

- Biology of Plants (BE 105)
- Ecology (BE 208)
- Advanced Ecology (BE 308)
- Special Topics: Experimental Design and Advanced Ecology (BE 440)
- Research in Biology (BE 309/409)

2015 – 2018: Visiting Assistant Professor, University of Northern Colorado, School of Biological Sciences

- Principles of Biology (BIO 110)
- Exploring Biology (BIO 100)
- Ecology (BIO 360)
- Scientific Writing (SCI 291)
- Undergraduate Biology Seminar (BIO 491)
- Graduate Topics in Ecology and Evolution: Climate Change and Phenology (BIO 565)
- Conservation of Natural Resources (ENST 265)
- Introduction to Environmental Studies (ENST 100)

2015: Adjunct Instructor, Florida International University (FIU), Dept. of Biological Sciences

- Ecology (PCB 3043)
- Senior Seminar (BSC 4931)

2015: Guest Lecturer, FIU, Dept. of Biological Sciences

- Tropical Ecology (PCB 3374)

2011: Guest Lecturer, FIU, Dept. of Biological Sciences

- Ecology (PBC 3043)

2009: Guest Lecturer, Federal University of Roraima, Roraima, Brazil

- Plant Ecology (Fitoecología)

2007 – 2012: Graduate Teaching Assistant, FIU, Dept. of Biological Sciences

- General Biology I Laboratory (BSC 1010L)
- General Biology II Laboratory (BSC 1011L)
- Ecology (PCB 3043)
- Plant Ecology (BOT 4601)
- Evolution (PCB 4674)

Research and Professional Experience

2018 – present, 2013 – 2015	Effects of climate change on Arctic plant phenology and pollination (Toolik Field Station, AK, USA): I began this work as a postdoctoral associate in 2013, then took on a new aspect of the project in 2018 mentoring research students. To date, I have trained 16 Colorado College undergraduates in field and lab research.
2016 – 2017	Pollination ecology of montane plant species (Mountain Research Station, CO., USA): I mentored one student in the McNair Scholars Program at the University of Northern Colorado in field research. This research project led to a publication with the student as my co-author (see publications above). I also served as a faculty mentor for the Research Experiences for Undergraduates (REU) program at the field station.
2008 – 2010	Visiting Researcher, National Institute for Amazonian Research, INPA (Boa Vista, Roraima, Brazil): As part of my doctoral research, I collaborated with Dr. Reinaldo Barbosa (INPA) (see publications above), and mentored local students in research.
2005	Field Assistant (Maracá Ecological Station, Roraima, Brazil): I volunteered as a field assistant at the field station. Herbarium Technician, Executive Commission of Cacao Plantations, CEPLAC (Ilhéus, Bahia, Brazil): I volunteered as a herbarium technician and field assistant in the Atlantic Rain Forest for Dr. Wayt Thomas (New York Botanical Garden).
2004	English Editor, <i>Iran News</i> (Tehran, Iran): I edited articles for English grammar before final publication. This newspaper was the only English-language newspaper published in Tehran.
2001– 2003	Undergraduate Research Assistant, University of Colorado at Boulder (Boulder, CO., USA): I worked as a research assistant in the lab of Dr. Pamela Diggle. Tasks included sectioning ovules and quantifying fruit size to understand sexual expression in <i>Solanum</i> .

Evidence of Student Research Mentorship (including funding and presentations)

- 2024 Luca Keon, Colorado College Student Faculty Collaborative Grant, Spatio-temporal patterns of floral rewards on the North Slope of Alaska, \$5,400.
- 2023 Sydney Morris, poster presentation: *The effects of burn severity on soil chemistry and Pinus ponderosa regeneration in Waldo Canyon, CO*. Midstates Consortium for Math and Science Undergraduate Research Symposium, St. Louis, MO.
- Zach Ginn, Senior Thesis: *The temporal dynamics of plant-insect interactions in the Low Arctic*. Department of Organismal Biology and Ecology, Colorado College.
- Zach Ginn, Colorado College Student Faculty Collaborative Grant, *Experimental warming and plant-pollinator interactions in the Alaskan Arctic*, \$4,000.
- 2022 Luca Keon and Zach Ginn, oral presentation: *Plants and pollinators of the Low Arctic: investigating community responses to climate change*. Toolik Field Station Weekly Seminar Series, AK.
- Alex Jennings, *Tundra pollen reference guide for 31 plant species in the Low Arctic*. This is the first pollen reference guide for species at our field sites and is now available to all researchers at Toolik Field Station.
- Zach Ginn, Colorado College Student Faculty Collaborative Grant, *Experimental warming and plant-pollinator interactions in the Alaskan Arctic*, \$4,000.
- Carmen Villalba, Grace Evans, Zach Ginn, poster presentation: *Pollen analysis of arctic insect floral visitors*. OBE Day, OBE Department Research Symposium, Colorado College, Colorado Springs, CO.
- Alex Jennings, Thematic Minor: *Sustainable food production: agroecology, pollination biology, and mycology in the Anthropocene*. I served as the primary mentor for Alex throughout his independent minor at Colorado College.
- Zach Ginn, poster presentation: *Investigating alpine plant-pollinator communities on Pikes Peak*. Organismal Biology and Ecology (OBE) Day, OBE Department Research Symposium, Colorado College, Colorado Springs, CO.
- 2021 Lucy Zicarelli and Thad Allen, poster presentation: *Scanning Electron Microscopy of pollen from six families of arctic plants*. OBE Day, OBE Department Research Symposium, Colorado College, Colorado Springs, CO.
- Alex Jennings and Zach Klingner, poster presentation: *Effects of a warming climate on plant-pollinator interactions in the Alaskan tundra*. OBE Day, OBE Department Research Symposium, Colorado College, Colorado Springs, CO.

- 2020 Alex Jennings and Zach Klingner, poster presentation: *Effects of a warming climate on plant-pollinator interactions in the Alaskan tundra*. Midstates Consortium for Math and Science Undergraduate Research Symposium, Biological Sciences and Psychology (virtual).
- Alex Jennings, Colorado College Student Faculty Collaborative Grant, *Effects of climate change on plant-pollinator interactions in the Alaskan Arctic*, \$4,000.
- 2019 John Feigelson, poster presentation: *The effect of experimental warming on plant-pollinator relationships in the Low Arctic*. Midstates Consortium for Math and Science Undergraduate Research Symposium, Biological Sciences and Psychology, Washington University, St. Louis, MO.
- Hayes Henderson, poster presentation: *What is the potential of a phenological mismatch between arctic tundra plants and their pollinators?* Colorado College SCoRE Symposium, Colorado Springs, CO.
- Hayes Henderson, Colorado College Student Faculty Collaborative Grant, *Effects of climate change on plant-pollinator interactions in the Alaskan Arctic*, \$4,000.
- Caroline Brose, oral presentation: *Decrease in soil moisture influences bird vetch growth and nodulation in a boreal forest*. Invasive Species Workshop, Fairbanks, AK.
- 2018 Olufisayo Awolaja, University of Northern Colorado Undergraduate Research Fellowship, *Pollination biology of Thermopsis divaricarpa in the southern Rocky Mountains*, \$1,300.
- 2018 Olufisayo Awolaja, poster presentation: *The pollination and reproductive ecology of Thermopsis divaricarpa*. National Conference on Undergraduate Research (NCUR), University of Central Oklahoma, Edmond, OK.
- 2017 Olufisayo Awolaja, 1st place poster presentation: *The pollination and reproductive ecology of Thermopsis divaricarpa*. University of Northern Colorado Undergraduate Research Symposium, nominated to present at NCUR 2018.
- Olufisayo Awolaja, University of Northern Colorado Undergraduate Research Fellowship, \$1,400.

Selected Grants and Awards

- 2022 Colorado College (CC) Natural Sciences Executive Council (NSEC) Research Grant, \$7,500. *The effect of experimental warming on plant-pollinator interactions in the Alaskan Arctic*.
- 2021 CC NSEC Research Grant, \$7,500. *The effect of experimental warming on plant-pollinator interactions in the Alaskan Arctic*.

- 2020 CC SEGway Research Award, \$5,000. *How does climate warming affect plant pollinator networks in the Alaskan Arctic?*
- 2019 National Science Foundation (NSF) Research Opportunity Award, \$28,000. *The effect of experimental warming on plant-pollinator interactions in the Alaskan Arctic.*
- CC NSEC Research Grant, \$5,000. *The effect of experimental warming on plant-pollinator interactions in the Alaskan Arctic.*
- 2017 Continental Divide Research Learning Center (CDRLC), Rocky Mountain National Park (RMNP), \$60,000 (applied, not funded). *Gene flow and pollen limitation in aspen stands in Rocky Mountain National Park.*
- University of Northern Colorado, School of Biological Sciences Faculty Research Award, \$2,000. *Phenology and pollination of montane plant species: predicting responses to climate change.*
- 2016 CDRLC, RMNP, \$60,000 (applied, not funded). *Pollen flow limitation in disjunct clonal Colorado aspen stands.*
- 2013 Florida International University (FIU), Worlds Ahead Graduate. This award is the highest distinction a graduate student at FIU can earn.
- FIU Biology Symposium, Best Graduate Student Presentation, Honorable Mention. *Abiotic and biotic factors driving reproductive output of Mauritia flexuosa (Arecaceae).*
- 2012 FIU Dissertation Year Fellowship, \$25,000. *The reproductive ecology of the agroforestry palm, Mauritia flexuosa (Arecaceae,) in Roraima, Brazil.*
- Botanical Society of America, Best Graduate Student Paper, Ecological Section, Columbus, OH. *Pollination of Mauritia flexuosa (Arecaceae) in Roraima, Brazil: linking dioecy, wind, and habitat.*
- FIU Biology Symposium, Best Graduate Student Presentation. *How do habitat and climate variation affect phenology of the Amazonian palm, Mauritia flexuosa?*
- 2011 NSF Supplement to Doctoral Dissertation Enhancement Project Award, \$3,000. *The reproductive ecology of the Amazonian palm, Mauritia flexuosa.*
- 2010 NSF Doctoral Dissertation Enhancement Project Award, \$15,000. *The reproductive ecology of the Amazonian palm, Mauritia flexuosa.*
- 2010 Fulbright Scholar Fellowship, \$15,000.
- 2009 Montgomery Botanical Center Research Fellowship, \$2,000. *Factors driving reproductive output of the Amazonian agroforestry palm, Mauritia flexuosa.*
- 2008 International Palm Society Fellowship, \$4,500. *Phenology and pollination of Mauritia flexuosa.*

NSF Graduate Research Fellowship, Honorable Mention. *The pollination biology of Mauritia flexuosa (Arecaceae) in the northern Amazon.*

2007 NSF Cyber Bridges Award, \$5,000

Invited Academic Seminars and Research Presentations

2024 Oral research presentation, College-wide Faculty Symposium, Colorado College, Colorado Springs, CO. *It's getting hot up there! The effects of experimental warming on Arctic plant-pollinator interactions and floral rewards.*

2022 On-campus interview research presentation, Department of Biology, Lewis and Clark College, Portland, OR. *The effects of experimental warming on plant-pollinator interactions and floral rewards in the Alaskan Arctic.*

On-campus interview teaching presentation, Department of Biology, San Francisco State University, San Francisco, CA. *Plant mating patterns, pollination, and ecosystem services: case study of coffee.*

On-campus interview research presentation, Department of Biology, Lake Forest College, Lake Forest, IL. *The effects of experimental warming on plant-pollinator interactions and floral rewards in the Alaskan Arctic.*

On-campus interview teaching presentation, Department of Biology, Lake Forest College, Lake Forest, IL. *"Problem-solving" in the natural world: form and function. Gas exchange.*

On-campus interview research presentation, Department of Organismal Biology and Ecology, Colorado College, Colorado Springs, CO. *How does warming affect plant-pollinator interactions and floral rewards in the Alaskan Arctic?*

On-campus interview teaching presentation, Department of Organismal Biology and Ecology, Colorado College, Colorado Springs, CO. *Ecosystem ecology.*

2019 Oral research presentation, University of Colorado, Colorado Springs, CO. *From the Amazon to the Arctic: why plant reproductive biology matters in a changing climate.*

Oral research presentation, Toolik Field Station, AK. *How does experimental warming affect plant-pollinator interactions and plant reproductive success in the Arctic?*

- 2018 On-campus interview, Department of Biology, Florida International University, FL., removed myself from search upon accepting another offer.
- On-campus interview, Department of Biology, Unity College, ME., removed myself from search upon accepting another offer.
- On-campus interview, Department of Biology, University of Alabama, AL., offered position, declined.
- 2017 On-campus interview, Department of Biology, William Jewell College, MO., declined.
- On-campus interview, Environmental and Sustainability Studies, University of Northern Colorado, CO.
- 2016 On-campus interview, Department of Biology, North Central College, IL., offered position, declined.
- 2015 On-campus interview, Department of Biology, University of Puget Sound, WA.,
- Oral research presentation, São Paulo State University, Rio Claro (UNESP, Rio Claro), São Paulo, Brazil. *Da Amazônia até o Ártico: efeitos ambientais na biologia reprodutiva das plantas.*
- 2014 Oral research presentation, Botanical Society of America Conference, Boise, ID. *Predicting phenological responses of arctic tundra species to climate change.*
- 2013 Oral research presentation, Florida International University Biology Symposium, Miami, FL. *Reconsidering wind-pollination in the tropics: a case study of Mauritia flexuosa (Arecaceae).*
- 2012 Oral research presentation, Botanical Society of America Conference, Columbus, OH. *Floral biology and pollination of the agroforestry palm, Mauritia flexuosa: why field observations are not enough.*
- Oral research presentation, Plant Biologists of South Florida Annual Meeting, Miami, FL. *Flowering and fruiting phenology of Mauritia flexuosa, an Amazonian palm.*
- 2010 Oral research presentation, Federal University of Roraima (UFRR), Boa Vista, Roraima, Brazil. *A ecologia reprodutiva do buriti em Roraima.*
- 2008 Poster presentation, Ecological Society of America Plant-Pollinator Interactions Conference, Milwaukee, WI. *The pollination biology of three sympatric palms of southern Florida pine rocklands.*

Professional Development

- 2023 Open Education Faculty Curriculum Development Grant. With my colleague, Rachel Jabaily, I collaborated with CC library professionals to develop Open Access materials for our introductory science course, Biology of Plants (BE105).
- 2022 *Racism and White Discomfort: The Problem and the Solution*. Excel at CC, Colorado College. Aug. 3, 2022.
- 2021 – *Creativity and Science Series Workshop*. Creativity and Innovation, Colorado College. In this series of workshops, I collaborated with faculty across departments to develop and implement creativity modules for science courses.
- 2021 *Addressing Conflicts Related to Bias, Privilege, and Identity in the STEM Classroom*. Academic Impressions. Apr. 29, 2021.
- Get Comfortable Being Uncomfortable: Engaging in Dialogue about Race and Bias*. Academic Impressions. Feb. 18, 2021.
- Identifying and Mitigating Imposter Syndrome*. Case Western Reserve University. Feb. 9, 2021.
- Anti-racism in Field Study*. Center for Global Education and Field Study, Colorado College. Feb. 8, 2021.
- 2020 *STEM Communication Workshop*. Alan Alda Center for Communicating Science, Stony Brook University. Nov. 13, 2020.

Academic Service

- 2024 - Began advising OBE majors in the spring semester although not required as part of Present my first year as a tenure-track faculty member
- 2022 Developed (with my department chair, Dr. Shane Heschel) an Excel statistics module for the OBE department to be used in all ecology courses.
- 2021 Mentored a CC student in his summer research project on alpine plant-pollinator interactions. Assisted student in data analysis and interpretation of results. This project was part of a field botany class taught by my department colleague and was independent of my own research.
- 2020 – American Association of University Professors (AAUP), Colorado College Present Chapter. Attended meetings, compiled data to document the experiences of contingent faculty at CC.
- 2018 – OBE departmental service tasks including selecting recipients for annual Present undergraduate awards, reviewing applications for visiting faculty (2021), interviewing final candidates for visiting faculty position.
- 2021 Reviewed incoming CC undergraduate applications for Margaret Barnes Scholarship.

- 2017 Schulze Series, University of Northern Colorado
(<http://www.unco.edu/mind/schulze/>): played a key role in the organization of this bi-annual event.
- 2017 *Discover UNC Fair*: gave oral presentations to audiences of prospective students and parents.
- 2017 Women Scientists Panel, Association of Women in Geosciences, University of Northern Colorado: panelist.
- 2015 – Undergraduate Committee, School of Biological Sciences, University
2018 of Northern Colorado. Tasks included contributing to the 5-year Comprehensive Review of the School of Biological Sciences, annual assessments of the undergraduate program, and selection of annual undergraduate awards.
- 2016 – Research Advisor for McNair Fellow Undergraduate Biology Majors,
2018 University of Northern Colorado.
- 2016 – Scientific Writing (SCI 291) Committee, University of Northern Colorado:
2018 developed a common syllabus for SCI 291 across all scientific disciplines.
- 2016 – Academic Advisor for Environmental Studies Majors, University of
2017 Northern Colorado.
- 2016 – Advisory Board for National Science Foundation project
2017 "Collaborative research: sexism present in the field: gendered experiences in science field settings and the impact on academic and career pursuits."

Community Engagement

- 2024 Outreach with Steele Elementary School, Colorado Springs, CO; collaborated with 5th grade teacher, Laura Bombersbach. Students learned about food webs, ecosystem interactions, and metrics to quantify biodiversity.
- 2023 Outreach with Coronado High School, Colorado Springs, CO; collaborated with science teacher, Steve Ottmer, in his course, *Outdoor and Expeditionary Science*. Students learned various sampling techniques in ecology, metrics to quantify biodiversity, and basic experimental design.
- 2017 Greeley 500 Women Scientists Pod: led scientific collaboration with local school, Fred Tjardes School of Innovation.
- 2016 – Pollination ecology outreach: Swanson Elementary, Denver, CO.: gave interactive
2017 presentations with school children (grades 1-5) about pollination and agriculture.
- 2012 – Ecology outreach: Henry E.S. Reeves Elementary, Miami, FL.: gave interactive
2013 presentations with school children (grades 1-5) about tropical ecology.
2011 Earth Week, Integrated Museum of Roraima (MIRR), Boa Vista, Roraima, Brazil: presented to the general public about the reproductive ecology of a keystone species, *Mauritia flexuosa*.

- 2010 – Environmental outreach with school children and community members in
 2011 Roraima, Brazil: gave interactive presentations about tropical ecology and regional environmental degradation in elementary schools in the city of Boa Vista, as well indigenous villages including Boqueirão and Miriti.
- 2008 – Trained four local field assistants in Roraima, Brazil.
 2011 Mentored two undergraduate students at *Faculdade Atual*, Roraima, Brazil.

Reviewer (Journals and Proposals)

- 2021 Global Change Biology
 2017 Wetlands
 2016 American Journal of Botany
 Global Ecology and Conservation
 2015 International Journal of Fruit Science
 2014 AoB PLANTS
 Biotemas
 International Palm Society
 2013 National Institute for Amazonian Research
 International Palm Society
 2012 International Palm Society
 2011 Journal of the Torrey Botanical Society

Professional Affiliations

American Association of University Professors
 Colorado Native Plant Society
 Botanical Society of America
 Union of Concerned Scientists
 Association for Tropical Biology and Conservation
 International Palm Society

Languages

English (fluent): reading, writing, speaking

French (fluent): reading, writing, speaking

Portuguese (fluent): reading, writing, speaking

Spanish (fluent): reading, writing, speaking

Farsi (proficient): speaking

Computer and technological skills

Microsoft Office

R Statistical Software

SPSS Statistics

Learning Management Systems: Canvas, Blackboard

Classroom Response Systems: iClicker, Turning Point

Online teaching tools: McGraw-Hill Education Connect, MacMillan Education Launchpad, Wiley and Sons Wiley-PLUS

References available upon request