

Brandon Dev Corder



1033 E Johnson St., Apt. 2
Madison, Wisconsin 53703



(386) 864-0966



bcorder@wisc.edu

Research Interests

Molecular evolution and systematics of orchids with a focus on subfamily Vanilloideae; patterns of gene loss in heterotrophic plants; evolution and ecology of orchid-fungal relationships and partial mycoheterotrophy in Great Lakes, USA orchids and Neotropical tribe Triphoreae (Orchidaceae, Epidendroideae); bryophyte diversity and systematics with a focus on North America

Education and Work Experience

8/2018 – **University of Wisconsin-Madison, Department of Botany**

5/2025 *Ph.D., Botany*

Dissertation Title: *Trophic mode evolution in orchids: Integrating regional, fungal, and genomic approaches*

Advisor: Dr. Kenneth Cameron

Skill and responsibilities:

- Implemented contemporary molecular laboratory and bioinformatic techniques in plant systematics and fungal metabarcoding
- Synthesized physical and digital herbarium collections and citizen-science based platforms (e.g., iNaturalist) in diverse research curricula
- Utilized skills in technical plant identification including dichotomous keys, herbarium literature resources, scholarly databases, and microscopy for taxonomically challenging groups (orchids, mosses and liverworts, green algae)
- Conducted plant ecophysiological trait investigations including stable isotope analysis and gas exchange measurements
- Engaged in a comprehensive field-based research program collecting voucher specimens, trait- and molecular-data across Eastern North America and Alaska for algae, vascular, and non-vascular plants
- Trained and led student field assistants in collection and curation technique; planned field logistics for collections including week-long 10+ person field trips
- Demonstrated excellence in teaching with twelve lower-and upper-level Botany courses taught (2 as a primary instructor), incorporating field and herbarium collections-based research principles
- Engaged in high-level science communication at professional, public, and agency levels including frequent talks to diverse audiences; focus on personal research, important and indispensability of herbaria and collections-based research, and trends in botanical research
- Succeeded in securing grant funding from departmental and non-departmental sources

7/2021 **Northland College**

Botany Technician

- Conducted population and demographic surveys of 25 rare Arctic- and alpine-disjunct plants on Isle Royale National Park

- 8/2018 – Employed orienteering and wayfinding principles in locating plants during decadal resurveys
- 12/2019 **Wisconsin State Herbarium (WIS)**
Project Assistant
 - Assisted curation of vascular (e.g. Juncaceae, Lythraceae) and non-vascular (Bryophyta, Marchantiophyta) collections including specimen preparation, imaging and image processing, barcoding and georeferencing
 - Supported fieldwork at WIS and helped plan botanical “forays” to under-collected counties; led bryophyte and vascular plant collection teams in 2022-2024
 - Developed and leveraged the WIS bryophyte collection in collaboration with Wisconsin Department of Natural Resources (DNR) botanists to promote state-listing efforts for rare bryophytes
- 8/2013 – **University of Florida**
- 5/2017 *B.S., Botany*
 - Assisted in molecular laboratory techniques (e.g., Polymerase Chain Reaction, DNA extraction, Restriction fragment length polymorphism techniques) in transcriptomic and metabolomic investigation of sexually-dimorphic mosses (McDaniel Lab, 2015-2017)
 - Performed flow cytometry for genome size estimation on polyploid saxifrage *Micranthes* (Soltis/Cellinese Lab, Florida Museum of Natural History, 2017)
 - Utilized specimens from Florida Museum of Natural History (FLMNH) Paleobotanical Collection including imaging, X-ray microtomography, electron and fluorescent microscopy (Manchester Lab, FLMNH, 2017-2018)

Publications

Manchester, S., Dilcher, D., Judd, W., **Corder, B.**, Basinger, J. 2018. Early eudicot flower and fruit: *Dakotanthus* gen. nov. from the Cretaceous Dakota Formation of Kansas and Nebraska, USA. *Acta Palaeobotanica* 58: 27-40.

Awards and Honors

University of Wisconsin-Madison Dorothy
Powelson Capstone Teaching Award | 2024

University of Wisconsin-Madison Department of
Botany Newcomb Senior Teaching Award | 2024

Presentations

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| 2024 | <p>Session co-organizer: <i>From temperate deciduous forest to alpine tundra: Elevational gradients in plant form and function on Mt. Washington, New Hampshire, USA.</i> Charton, K., Anderson, S., Taylor, L., Chan, P., Corder, B., Givnish, T., Tourville, J., Peyton, M., Berry, L., Wintermute, T., Kiel, N. Ecological Society of America Conference (ESA 2024) Long Beach, California</p> <p>Session Talk: <i>Uncovering hidden mycoheterotrophs in the orchid flora of Wisconsin.</i> Corder, B., Cameron, K. Botanical Society of America Conference (Botany 2024) Grand Rapids, Michigan</p> |
| 2023 | <p>Session Talk: <i>Partial mycoheterotrophy and fungal associations of Triphora trianthophoros, a rare North American orchid.</i> Corder, B., Cameron, K. Botanical Society of America Conference (Botany 2023) Boise, Idaho</p> |

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| 2022 | Invited Talk: <i>Partial mycoheterotrophy in orchids: Its evolution, ecology, and biogeography</i> . Native Orchid Conference 2022 Port Angeles, Washington |
| 2016 | Poster: <i>Building a toolbox for authentic undergraduate research experiences in evolutionary genetics using the sexually dimorphic moss Ceratodon purpureus</i> . Corder, B. , Lahav, S., Scola, D., Orr, J., Burtscher, W., Holiman, E., Payton, A., McDaniel, S. Evolution 2016 Austin, Texas |

Teaching and Certificates

Classes Taught

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| 2024 | General Botany Midwestern Ecological Issues* |
| | General Botany |
| 2023 | Vascular Flora of Wisconsin* |
| | General Botany |
| 2022 | Dendrology Plant Morphology and Evolution |
| 2021 | Midwestern Ecological Issues General Botany |
| 2020 | General Botany (x2) |
| 2019 | General Botany |

*As Primary Instructor

Certificates

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| 2024 | University of Wisconsin-Madison Delta Research Mentor Learning Community: Entering Mentoring (focus: Botany Mentorship) |
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Grants and Fellowships

Grants

TOTAL: \$24,432.00

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| 2024 | Univ. of Wisconsin-Madison, Dept. of Botany: Demeter Award (\$1093) |
| 2023 | Univ. of Wisconsin-Madison, Dept. of Botany: Demeter Award (\$629), Iltis Award (\$1500) |
| 2022 | Univ. of Wisconsin-Madison, Dept. of Botany: Iltis Award (\$2000), Flora Aeterna (\$2000) Mid-American Orchid Congress: Graduate Student Research Award (\$500) |
| 2021 | Univ. of Wisconsin-Madison, Dept. of Botany: Davis Award (\$3000), Flora Aeterna (\$500) |
| 2020 | Univ. of Wisconsin-Madison, Dept. of Botany: Flora Aeterna (\$4000) American Society of Plant Taxonomists: Graduate Student Research Award (\$1200) Botanical Society of America: Graduate Student Research (\$1500) Native Orchid Conference: Fred Case Award (\$2310) |
| 2019 | Univ. of Wisconsin-Madison, Dept. of Botany: Flora Aeterna (\$1093) |
| 2016 | Univ. of Florida, Natural Area Teaching Laboratory: Mini-Grant (\$500) Title: <i>An inventory of NATL's resident mosses</i> |

Fellowships

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| 2023 | University of Wisconsin-Madison, Dept. of Botany: Flora Aeterna Fellowship |
| 2021 | University of Wisconsin-Madison, Dept. of Botany: Flora Aeterna Fellowship |
| 2020 | University of Wisconsin-Madison, Dept. of Botany: Tulipa et Paeonia Research Assistantship |

Service

University Service (Committees)

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| 2024 | Graduate Student-Faculty Liaison; External Affairs; Botany-iBio Steering Committee |
| 2023 | Graduate Student-Faculty Liaison; Diversity, Equity, and Inclusion; Space and Facilities; Teaching Assistant's Association Liaison |
| 2022 | Diversity, Equity, and Inclusion; Graduate Committee; Taylor-Vinje Fund Steering |
| 2021 | Diversity, Equity, and Inclusion; Graduate Committee; Space and Facilities |
| 2020 | Space and Facilities; External Relations |

Professional Service

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| 2024 | American Journal of Botany (Reviewer) |
| 2022 | Phytotaxa (Reviewer) |

Membership in Professional Organizations

- Society for the Study of Evolution (SSE)
- Botanical Society of America (BSA)
- American Society of Plant Taxonomists (ASPT)

Science Communication

Publications and Educational Media

- Bryophyte and lichen life cycle and biology educational videos, NSF Award #2001500: *Digitization TCN: Collaborative Research: Building a global consortium of bryophytes and lichens: keystones of cryptobiotic communities*.
- "Ghost World: Efforts to save the ghost orchid", The Fine Print (Gainesville, Florida). Spring 2017.
- "CTRL+S the Planet: UF supercomputer helps crunch data that tells us the effects of climate change", The Fine Print (Gainesville, Florida). Winter 2016.
- "Troubled Waters: Increased dumping of waste into our water has made an impact", The Fine Print (Gainesville, Florida). Spring 2016.
- "Intruder Alert: Alachua County is one of the top counties in the state for numbers of invasive species - What does that mean?", The Fine Print (Gainesville, Florida). Fall 2015.

Panels

- *Planting the seeds of science communication*. Invited panellist. Botany 2022, Anchorage, Alaska. July 24, 2022.

Presentations and Webinars

- *Mycoheterotrophic Orchids*. Webinar. Native Orchid Conference. Feb. 27, 2024.
- *Triphora: North America's Most Enigmatic Orchid Genus*. Webinar. Native Orchid Conference. Jan. 24, 2023.
- *The Mosses of Florida*. Webinar. Florida Native Plant Society chapter. Nov. 14, 2022.
- *Wisconsin's Orchids*. Radio show. WGTD, Gateway Technical College. Sept. 9, 2022.
- *Wisconsin's Mosses*. Radio show. WGTD, Gateway Technical College. May 19, 2022.
- *Florida Orchids*. Webinar. Florida Native Plant Society chapter. Oct. 4, 2021.
- *Florida Orchids*. Webinar. Florida Native Plant Society chapter. Sept. 13, 2021.

References

Dr. Kenneth M. Cameron

(608) 265-9237 | kmcameron@wisc.edu

Professor of Botany, Director of the Wisconsin State Herbarium

Department of Botany, University of Wisconsin-Madison

Madison, Wisconsin 53706

Dr. Thomas J. Givnish

(608) 293-2330 | givnish@wisc.edu

Henry Allan Gleason Professor of Botany and Environmental Studies

Department of Botany, University of Wisconsin-Madison

Madison, Wisconsin 53706

Dr. Mary Ann Feist

(217) 722-7348 | mfeist@wisc.edu

Herbarium Curator

Wisconsin State Herbarium, University of Wisconsin-Madison

Madison, Wisconsin 53706