

Jared J. Beck

University of Wisconsin-Madison Arboretum ▪ arboretum.wisc.edu/
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EDUCATION

- 2016 – 2020 **Ph.D. Botany – University of Wisconsin-Madison.** Quantitative Methods minor. Dissertation:
Factors shaping the distribution, abundance, and diversity of temperate forest plants.
- 2010 - 2014 **B.A. Biology – Carleton College.** Graduated *magna cum laude* with Distinction in major.

PROFESSIONAL EXPERIENCE

- 2025 - present **Research Ecologist**, University of Wisconsin-Madison Arboretum
- 2025 **Consulting Ecologist**, Applied Ecological Institute
- 2020 - 2025 **Postdoctoral Research Scientist**, Chicago Botanic Garden
- 2017 – 2020 **National Science Foundation Graduate Research Fellow**, University of Wisconsin-Madison.
- 2016 - 2017 **Teaching Assistant**, University of Wisconsin-Madison.
- 2016 **Off-campus Studies Instructor**, Carleton College.
- 2015 - 2016 **Educational Associate**, Carleton College.
- 2014 - 2015 **Research Intern**, Chicago Botanic Garden.

PEER-REVIEWED PUBLICATIONS

1. Radhamoni, H., M. Spicer, M. Duguid, L. Comita, E. Bruna, A. Andrade, **J. Beck**, J. Burton, H. Chuquillanqui, D. Cicuzza, M. Dovciak, F. Gilliam, K. Greig, C. Hale, C. Hulshof, N. Izlar, S. Johnson, J. LaManna, D. Matlaga, D. Melly, A. Menzmer, K. Miller, G. Moulatlet, J. Myers, J. Sah, M. Vaz, A. Wassel, S. Wessel, J. Yin, A. Zuluaga, and S. Queenborough. Herbaceous plants in forest ecosystems: One hundred fundamental and applied questions. *In review at Journal of Ecology*.
2. **Beck, J.**, A. Salvi, R. Henderson, and D. Waller. Scaling from individuals to communities: Functional and demographic differences predict the ecologically nested distribution of herbaceous congeners. *In revision for Oecologia*.
3. **Beck, J.** and S. Wagenius. Seedling recruitment after fire: Disentangling the roles of microsite conditions and seed availability. *Revised for Journal of Ecology*. Preprint:
<https://www.biorxiv.org/content/10.1101/2024.11.12.623237v1>
4. Maton, D., **J. Beck**, S. Wagenius, D. Maddox, and M. Ashley. Persistence in a fragmented habitat: Genetic diversity and pollination patterns in *Asclepias viridiflora*. *Revised for Annals of Botany*.
5. **Beck, J.**, A. Peschel, S. Wagenius, and R. Shaw. 2025. Sourcing seed for restorations in an era of climate change: Conceptual frameworks and available evidence. *Restoration Ecology* e70187.
6. **Beck, J.**, G. Kiefer, R. Johnson, B. Winter, R. Dana, and S. Wagenius. 2025. Long-term effects of haying and prescribed fire on the composition and diversity of wet prairie plant communities. *Ecological Applications* 35:e70080.
7. **Beck, J.** and S. Wagenius. 2025. Herbivory exacerbates pollen limitation by isolating unconsumed plants from prospective mates. *American Journal of Botany* 112:e70002. **Featured article in Journal Highlights*
8. **Beck, J.**, M. McKone, and S. Wagenius. 2024. Masting, fire-stimulated flowering, and the evolutionary ecology of synchronized reproduction. *Ecology* 105:e4261.
9. **Beck, J.**, A. Waananen, and S. Wagenius. 2023. Habitat fragmentation decouples fire-stimulated flowering from plant reproductive fitness. *Proceedings of the National Academy of Sciences* 120:e2306967120.

PEER-REVIEWED PUBLICATIONS (CONTINUED)

10. **Beck, J.** and J. Richards. 2023. Functional traits mediate fine-scale species distributions and shape spatial patterns of herbaceous plant diversity in a heterogeneous bedrock glade. *Plant Ecology* 224:729–740.
11. Richardson, L., **J. Beck**, D. Eck, R. Shaw, and S. Wagenius. 2023. Fire effects on plant reproductive fitness vary among individuals reflecting pollination-dependent mechanisms. *American Journal of Botany* 110:e16160. **Featured article in Journal Highlights*
12. **Beck, J.**, D. Rogers, D. Li, S. Johnson, K. Cameron, K. Sytsma, T. Givnish, and D. Waller. 2022. Functional traits mediate individualistic species-environment distributions across the landscape while fine-scale species' associations remain unpredictable. *American Journal of Botany* 109:1991-2005. **Featured article in Journal Highlights*
13. McKone, M., E. Williams, and **J. Beck**. 2021 Changes in a planted prairie community across a chronosequence sampled over 16 years. *Journal of Vegetation Science* 32:e13065. **Featured article for annual Editors' Award.*
14. **Beck, J.** 2021. Variation in plant-soil feedbacks among temperate forest herbs. *Plant Ecology* 222:1225-1238.
15. **Beck, J.** and T. Givnish. 2021. Fine-scale environmental heterogeneity and spatial niche partitioning among spring-flowering forest herbs. *American Journal of Botany* 108:63-73.
16. Wagenius, S., **J. Beck** & G. Kiefer. 2020. Fire synchronizes flowering and boosts reproduction in a widespread but declining prairie species. *Proceedings of the National Academy of Sciences* 117:3000-3005.
17. **Beck, J.**, B. Larget, and D. Waller. 2018. Phantom species: Adjusting colonization and extinction rates for pseudo-turnover. *Oikos* 127:1605-1618.
18. **Beck, J.**, M. McKone, & O. McMurtrey. 2016. Edge effects and avian community structure in a restored tallgrass prairie. *Natural Areas Journal* 36:328-333.
19. **Beck, J.**, D. Hernández, J. Pasari, & E. Zavaleta. 2015. Grazing maintains native plant diversity and promotes community stability in an annual grassland. *Ecological Applications* 25:1259-1270.

Manuscripts in preparation:

20. Ison, J., M. Woldin, **J. Beck**, and S. Wagenius. Post-fire increases in seed set are unrelated to rates of pollinator visitation or pollinator foraging behavior. *In preparation for Ecology*.
21. Roberts, I., **J. Beck**, Z. Portman, and S. Wagenius. Fire and land use history influence the abundance of ground-nesting bees in tallgrass prairie. *In preparation for Conservation Biology*.
22. **Beck, J.**, S. Nordstrom, A. Waananen, L. Richardson, R. Shaw, and S. Wagenius. Limited mating opportunities exacerbate the risk of local extinction in fragmented plant populations. *In preparation for Science*.
23. **Beck, J.** and S. Wagenius. Fire enhances reproductive outcomes in fragmented green milkweed (*Asclepias viridiflora*) populations. *In preparation for American Journal of Botany*.
24. Kiefer, G., **J. Beck**, N. Sather, R. Johnson, B. Winter, R. Dana, and S. Wagenius. Long-term effects of haying and prescribed fire on the federally threatened Western Prairie Fringed Orchid (*Platanthera praeclara*). *In preparation for Ecological Applications*.
25. Richardson, L., **J. Beck**, and S. Wagenius. Individual-level differences in reproductive fitness between burned and unburned years reflect spatial and temporal mating opportunities. *In preparation*.
26. Paulson, A., **J. Beck**, J. Richards, R. Toczydlowski, S. Johnson, D. Li, D. Rogers, B. Alverson, K. Camerson, K. Sytsma, T. Givnish, and D. Waller. Taxonomic, functional, and phylogenetic metrics provide complementary insights into long-term biodiversity change. *In preparation*.
27. Paulson, L., A. Carroll, A. Waananen, **J. Beck**, and S. Wagenius. Does smoke stimulate flowering? *In preparation*.
28. Waananen, A., **J. Beck**, R. Shaw, and S. Wagenius. Variation in reproductive fitness among individual plants depends on the spatial proximity of prospective mates and the timing of their reproduction. *In preparation*.
29. **Beck, J.** and S. Wagenius. Fire, fragmentation, and interannual variation mediate the opposing effects of distance-dependent pollination and pre-dispersal seed predation on plant reproductive fitness. *In preparation*.

AWARDS AND FELLOWSHIPS

Honorary Fellow, University of Wisconsin-Madison Department of Botany (2020-2024)
Arboretum Research Fellow, University of Wisconsin-Madison Arboretum (2019-2020)
National Science Foundation Graduate Research Fellow (2016-2020)
Scott Tyler Bergner Prize, Carleton College (2014)
William Muir Fellowship, Carleton College (2013)
Exceptional Writing Portfolio, Carleton College (2012)
Dean's List, Carleton College (2012)

GRANT FUNDING (Total awarded to date: \$945, 272)

International, national, and state awards

Supplement for Demographic drivers of plant community response to fire: Re-evaluating the relative importance of survival vs. reproduction. National Science Foundation. 2022 - 2023. \$44,755.00. PI: S. Wagenius. Core team: J. Beck. [J. Beck co-wrote supplement proposal and was funded as postdoctoral researcher]
How do prescribed fires affect native prairie bees? Minnesota Environment and Natural Resources Trust Fund. 2022 - 2025. \$500,000.00. PI: S. Wagenius. Core team: R. Roy, Z. Portman, and J. Beck. [J. Beck co-wrote proposal, led experiment design & implementation, and was funded as postdoctoral researcher]
Demographic drivers of plant community response to fire: Re-evaluating the relative importance of survival vs. reproduction. National Science Foundation. 2020 - 2022. \$232,917.00. PI: S. Wagenius. Core team: J. Beck. [J. Beck co-wrote proposal, led experimental design & implementation, and was funded as postdoc]
John Thomson Research Award. Wisconsin Botanical Club. 2019. \$1000.
Graduate Student Research Award. Botanical Society of America. 2018. \$500.
Graduate Research Fellowship. National Science Foundation. 2016 - 2020. \$144,000.00.

Institutional awards

Graduate Student Research Fellowship. University of Wisconsin-Madison Arboretum. 2019 - 2020. \$8000.
Graduate Student Research Award. University of Wisconsin-Madison Graduate School. 2019. \$600.
Davis Research Award. UW-Madison Botany Department. 2019. \$2000.
Demeter Research Award. UW-Madison Botany Department. 2019. \$1500.
Davis Research Award. UW-Madison Botany Department. 2018. \$4000.
Demeter Research Award. UW-Madison Botany Department. 2018. \$700.
Kenneth Raper Travel Support Grant. UW-Madison Botany Department. 2018. \$300.
Graduate Student Support Grant. University of Wisconsin-Madison Graduate School 2016 - 2020. \$5000.

TEACHING EXPERIENCE

2017	Lab Instructor, Biology 151: Introductory Biology, University of Wisconsin-Madison
2016	Lab Instructor, Biology 151: Introductory Biology, University of Wisconsin-Madison
2016	Instructor, BIOL 212: Ecological Field Research, Carleton College
2016	Instructor, BIOL 250: Marine Biology, Carleton College
2016	Instructor, BIOL 307: Evolutionary Ecology of Australia and New Zealand, Carleton College
2015	Lab Instructor, BIOL 222: Ecosystems Ecology, Carleton College
2013	Teaching Assistant, BIOL 375: Natural History of Minnesota, Carleton College

INVITED TALKS

1. **Beck, J.** *Bridging the past and future of conservation and restoration research at the UW-Madison Arboretum.* University of Wisconsin-Madison Arboretum. April 9, 2025.
2. **Beck, J.** *Fire, fragmentation, and plant conservation.* Plant Biology and Conservation Seminar, Northwestern University and Chicago Botanic Garden. January 24, 2025.
3. **Beck, J.** *Re-kindling old flames: Density-dependent effects of fire in fragmented plant populations.* Tyson Research Center Symposium, Washington University in St. Louis, July 12, 2024.
4. **Beck, J.** *Tallgrass prairie: Conserving North America's most endangered ecosystem.* Invited speaker for Minnesota Master Naturalist program. January 18, 2024.
5. **Beck, J.** *Plant demography and pollination biology at Staffanson Prairie.* Invited speaker for Minnesota Chapter of the Nature Conservancy Science Slam. January 11, 2024.
6. **Beck, J.** *Density-dependent effects of fire on prairie plant reproduction: Implications for conservation and restoration.* Invited speaker at The Prairie Enthusiasts conference. February 11, 2023.
7. **Beck, J.** *Fire, flowering, and plant conservation in fire-dependent ecosystems.* Illinois State University School of Biological Sciences Seminar. February 7, 2023.
8. **Beck, J.** *Natural classrooms: A cornerstone of scientific research and education.* University of Wisconsin-Milwaukee. January 18, 2023.
9. **Beck, J.** *Environmental factors shaping plant distributions and diversity: Lessons from a bedrock glade.* Plant Biology and Conservation Seminar, Northwestern University and Chicago Botanic Garden. January 29, 2021.
10. **Beck, J.** *Six decades of forest change in Noe Woods.* University of Wisconsin-Madison Arboretum Research Symposium. February 13, 2020.
11. **Beck, J.** *Plant-soil interactions and the diversity of temperate forest herbs.* UW-Madison Department of Plant Pathology Seminar. January 31, 2020.
12. **Beck, J.** *Using functional traits and phylogenetic relationships to explore the scale-dependent processes driving plant community assembly.* Presentation for UW-Madison Department of Botany. December 14, 2018.
13. **Beck, J.** *Plant biodiversity.* Environmental School, Wisconsin Garden Club Federation. September 21, 2018.
14. **Beck, J.** *What grassland birds can teach us about restoring prairie ecosystems.* Hosted by Northfield, MN chapter of The WildOnes and the Carleton College Cowling Arboretum. January 11, 2012.

POSTERS AND PRESENTATIONS

1. **Beck, J.** *Rekindling old flames: Density-dependent effects of fire on plant reproduction and demography in fragmented tallgrass prairie.* Chicago Plant Science Symposium, April 19, 2024.
2. **Beck, J.** and S. Wagenius. *Density-dependent effects of fire on plant populations: Rekindling old flames for conservation.* Botany Conference, June 17, 2024.
3. **Beck, J.,** A. Waananen, & S. Wagenius. *Burning for a mate: Density-dependent effects of fire on plant reproduction.* Ecological Society of America Conference, August 10, 2023.
4. **Beck, J.** & S. Wagenius. *Re-kindling old flames: Investigating fire effects on plant reproduction in fragmented tallgrass prairie.* The Prairie Enthusiasts Conference, February 18, 2022.
5. **Beck, J.,** S. Wagenius & G. Kiefer. *Fire synchronizes flowering and boosts reproduction in a widespread but declining prairie species.* The Prairie Enthusiasts Conference, February 25, 2021.
6. **Beck, J.** and D. Waller. *The phantom species problem: Accounting for pseudo-turnover in analyses of long-term ecological change.* Riveredge Nature Center Research Symposium, November 4, 2017. *Awarded Best Graduate Student Presentation.*
7. **Beck, J.,** S. Wagenius & G. Kiefer. *Fire promotes reproduction in the fragmented mating scene of *Echinacea angustifolia*.* Ecological Society of America Conference, August 14, 2015.
8. **Beck, J.,** S. Wagenius & G. Kiefer. *Turning up the heat: Prescribed fire and the reproduction of *Echinacea angustifolia*.* Society for Ecological Restoration, Midwest-Great Lakes Conference, March 28, 2015.

MENTORING ACTIVITIES

Undergraduate mentoring (N = 52 undergraduate students):

- 2024: I. Wade, F. Li, R. Palo, M. Horst (Northwestern University); L. Poitra (University of Minnesota-Morris); Z. Zarling (Western Washington University)
- 2023: J. Davis (College of Wooster); L. Poitra (University of Minnesota-Morris); R. Lerdau, L. Dominguez (Carleton College)
- 2022: W. Mosiman, G. McGary, M. Vigil, K. Ergil, K. Flamer-Caldera, K. Alvarez (Northwestern University); J. Steensma (Skidmore College); E. Reineke (University of Minnesota); G. Zebraski (Gustavus Adolphus College); S. Chen, A. Lekhrabat, P. Villanueva, C. Myers, B. Valero (Lake Forest College); P. Konidena, C. Loescher (Carleton College)
- 2021: A. Radin (Binghamton College); W. Mosiman (Northwestern University); M. Barbera, C. Keast, M. Strong, & A. Velazquez (Lake Forest College); C. McWilliams, C. Cunniff, & W. Na (Carleton College)
- 2020: B. Bowser (UW-Madison)
- 2019: B. Bowser, C. Kestel, R. Nelson, K. Hobbins (UW-Madison)
- 2018: B. Bowser, G. Quirk (UW-Madison)
- 2016: A. Braeidy, R. Faust & G. Schmitt (Carleton College)
- 2015: D. Vail, J. Pruszenski, C. Shorb, L. Pflughoeft, M. Vought, & J. Krumholz (Carleton College)
- 2014: I. Lin, T. Kuhn & A. Petersons (Lake Forest College); J. York & E. Velis (Carleton College)

Graduate committees:

M. Sadler (2025-2026) – M.S., Northwestern University

PROFESSIONAL SERVICE

Peer reviewer:

- 2025 – Journal of Ecology
- 2024 – Journal of Ecology, Ecosphere, Conservation Science and Practice
- 2023 – Journal of Ecology
- 2022 – Global Ecology and Biogeography (2)
- 2018 – Global Change Biology
- 2016 – Nature
- 2015 – Ecosphere

Institutional service:

- 2019 – Awards committee student representative, Department of Botany, UW-Madison
- 2018 – Awards committee student representative, Department of Botany, UW-Madison
- 2018 – NSF Graduate Research Fellowship Program panelist, UW-Madison Graduate School
- 2013 – Student panelist for faculty search, Department of Biology, Carleton College

Selected outreach activities:

- 2024 – Minnesota Master Naturalist invited presenter about prairie ecology and conservation
- 2023 – The Prairie Enthusiasts invited presenter
- 2021 – Lac Qui Parle State Park Bioblitz (led informational plant walk)
- 2021 – The Prairie Enthusiasts invited presenter
- 2020 – UW-Madison Arboretum, invited speaker for annual research symposium
- 2018 – Wisconsin Garden Club Federation instructor for course on plant biodiversity
- 2015 – TORCH (Tackling Obstacles Reaching College Hopes) leader, mentored middle school student researchers
- 2013 – TORCH (Tackling Obstacles Reaching College Hopes) leader, mentored middle school student researchers
- 2012 – The WildOnes guest speaker about grassland birds

Workshops:

- 2025 – Analysis of ecological communities in R (Plant Biology & Conservation, Northwestern University)
- 2018 – Version control for research: git and R Studio (Department of Botany, UW-Madison)