

# Jared J. Beck

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## EDUCATION

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- 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

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- 2020 - present    **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

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1. **Beck, J.**, A. Peschel, S. Wagenius, and R. Shaw. Emerging evidence supports local seed sourcing in the era of climate change. *In revision for Restoration Ecology.*
2. **Beck, J.**, G. Kiefer, R. Johnson, B. Winter, R. Dana, and S. Wagenius. Long-term effects of haying and prescribed fire on the composition and diversity of wet prairie plant communities. *In review at Ecological Applications.*
3. **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.*
4. **Beck, J.** and S. Wagenius. Herbivory exacerbates pollen limitation by isolating unconsumed plants from prospective mates. *Revised for American Journal of Botany.*
5. **Beck, J.**, M. McKone, and S. Wagenius. 2024. Masting, fire-stimulated flowering, and the evolutionary ecology of synchronized reproduction. *Ecology* 105:e4261.
6. **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.
7. **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.
8. 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.
9. **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.
10. 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.
11. **Beck, J.** 2021. Variation in plant-soil feedbacks among temperate forest herbs. *Plant Ecology* 222:1225-1238.

## PEER-REVIEWED PUBLICATIONS (CONTINUED)

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12. **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.
13. 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.
14. **Beck, J.**, B. Larget, and D. Waller. 2018. Phantom species: Adjusting colonization and extinction rates for pseudo-turnover. *Oikos* 127:1605-1618.
15. **Beck, J.**, M. McKone, & O. McMurtrey. 2016. Edge effects and avian community structure in a restored tallgrass prairie. *Natural Areas Journal* 36:328-333.
16. **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:*

17. **Beck, J.**, S. Nordstrom, A. Waananen, L. Richardson, R. Shaw, and S. Wagenius. Limited mating opportunities exacerbate risk of local extinction in fragmented plant populations. *In preparation for Science*.
18. **Beck, J.** and S. Wagenius. Fire, light availability, and conspecific density influence seedling emergence and survival in tallgrass prairie. *In preparation for Journal of Ecology*.
19. **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 for New Phytologist*.
20. 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*.
21. 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 for Annals of Botany*.
22. Paulson, A., **J. Beck**, J. Richards, R. Toczydlowski, S. Johnson, D. Li, D. Rogers, B. Alverson, K. Camerson, K. Sysma, T. Givnish, and D. Waller. Taxonomic, functional, and phylogenetic metrics provide complementary insights into long-term biodiversity change. *In preparation for Proceedings of the National Academy of Sciences*.
23. Paulson, L., A. Carroll, A. Waananen, **J. Beck**, and S. Wagenius. Does smoke stimulate flowering? *In preparation for American Journal of Botany*.
24. Maton, D., **J. Beck**, S. Wagenius, and M. Ashley. Paternity analysis reveals spatial extent of gene flow within and among fragmented *Asclepias viridiflora* populations. *In preparation for Annals of Botany*.
25. 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 for Proceedings of the Royal Society B*.

## AWARDS, HONORS, AND FELLOWSHIPS

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*Honorary Fellow*, University of Wisconsin-Madison Botany Department (2020-present)  
*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)

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### 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.

## INVITED TALKS

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1. **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.
2. **Beck, J.** *Tallgrass prairie: Conserving North America's most endangered ecosystem.* Invited speaker for Minnesota Master Naturalist program. January 18, 2024.
3. **Beck, J.** *Plant demography and pollination biology at Staffanson Prairie.* Invited speaker for Minnesota Chapter of the Nature Conservancy Science Slam. January 11, 2024.
4. **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.
5. **Beck, J.** *Fire, flowering, and plant conservation in fire-dependent ecosystems.* Illinois State University School of Biological Sciences Seminar. February 7, 2023.
6. **Beck, J.** *Natural classrooms: A cornerstone of scientific research and education.* University of Wisconsin-Milwaukee. January 18, 2023.
7. **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.
8. **Beck, J.** *Six decades of forest change in Noe Woods.* University of Wisconsin-Madison. February 13, 2020.
9. **Beck, J.** *Plant-soil interactions and the diversity of temperate forest herbs.* UW-Madison Department of Plant Pathology Seminar. January 31, 2020.
10. **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.
11. **Beck, J.** *Plant biodiversity.* Environmental School, Wisconsin Garden Club Federation. September 21, 2018.
12. **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

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1. **Beck, J.** and S. Wagenius. *Density-dependent effects of fire on plant populations: Rekindling old flames for conservation*. Botany Conference, June 17, 2024.
2. **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.
3. **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.
4. **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.
5. **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*.
6. **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.
7. **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.

## TEACHING EXPERIENCE

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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

## UNDERGRADUATE MENTORING

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- 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. Pruszanski, 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)