

Joseph Brown, PhD
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Scientific positions

2022-current Post Doctorate Researcher, PNNL – Joint Global Change Research Institute, College Park, MD
2021-2022 Visiting Assistant Professor, Minnesota State University – Mankato, Mankato, MN

Education

2016-2021 **PhD**, Integrative Life Sciences. Virginia Commonwealth University, Richmond, VA
GPA: 3.9
2014-2016 **Master of Science**, Biology. Virginia Commonwealth University, Richmond, VA
GPA: 4.0
2009-2013 **Bachelor of Science**, Biology. Virginia Commonwealth University, Richmond, VA

Publications

Accepted

7. **Brown, J.K.**, A. Moulton, J.C. Zinnert. 2022. Plant community re-organization and increased productivity due to multi-year nutrient enrichment of a coastal grassland. *PLoS One* **17**(7) DOI: <https://doi.org/10.1371/journal.pone.0270798>
6. **Brown, J.K.**, J.C. Zinnert. 2021. Trait-based investigation reveals patterns of community response to nutrient enrichment in coastal mesic grassland. *Diversity* **13**(1):19 DOI: <https://doi.org/10.3390/d13010019>
5. **Brown, J.K.**, J.C. Zinnert. 2020. Topography and disturbance influence trait-based community composition and productivity of adjacent habitats in a coastal system. *Ecosphere* **11**(5) DOI: <https://doi.org/10.1002/ecs2.3139>
4. Stallins, J.A., L.C. Hsu, J.C. Zinnert, **J.K. Brown**. 2020. How bottom-up and top-down controls shape dune topographic variability along the U.S. Virginia barrier island coast and the inference of dune dynamical properties. *Journal of Coastal Conservation* **24**(30) DOI: <https://doi.org/10.1007/s11852-020-00747-7>
3. Goldstein, E.B., E.V. Mullins, R.G. Biel, **J.K. Brown**, S.D. Hacker, K.R. Jay, R.S. Mostow, P. Ruggiero, J.C. Zinnert, L.J. Moore. 2018. Literature-based latitudinal distribution and possible range shifts of two US east coast dune grass species (*Uniola paniculata* and *Ammophila breviligulata*). *PeerJ* DOI: <https://doi.org/10.7717/peerj.4932>
2. **Brown, J.K.**, J.C. Zinnert. 2018. Mechanisms of surviving burial: Interspecific differences of similar species drives survival after sand deposition. *Ecosphere* **9**(3) DOI: <https://doi.org/10.1002/ecs2.2162>
1. **Brown, J.K.**, J.C. Zinnert, D.R. Young. 2018. Emergent interactions influence functional traits and success of dune building ecosystem engineers. *Journal of Plant Ecology* **11**(4) DOI: <https://doi.org/10.1093/jpe/rtx033> ***Editor's Choice***

In prep

Brown, J.K., J.A. Stallins, T.E. Miller, J.C. Zinnert. Scale dependency of barrier island elevation and stability as drivers of plant community composition and structure.

Teaching experience

Minnesota State University, Mankato

2022 (spring) Plant Ecology (BIOL 443/543); Instructor of Record
2022 (spring) General Biology II Lab (BIOL 106); Instructor of Record
2021 (fall) General Biology II Lecture and Lab (BIOL 106); Instructor of Record
2021 (fall) Flora of Minnesota (BIOL 442/542); Instructor of Record

Virginia Commonwealth University, Richmond, VA

2021 (spring)	Biology Lab II (BIOZ 152); GTA appointment
2020 (fall)	Quantitative Ecology (BIOL 606); Co-Instructor with Julie Zinnert
2020 (fall)	Ecology Lab (BIOZ 317); GTA appointment
2018-19	Biology Lab II (BIOZ 152); GTA appointment
2014-15	Biology Lab II (BIOZ 152); GTA appointment

Mentor experience

2017	Mentor of VCU funded Environmental Scholars undergraduate Project: Intraspecific functional trait changes in response to nutrient addition Student: Caroline Baucom
2017	Mentor of NSF funded REU through University of Virginia and VCR LTER Project: Root traits across barrier island plant communities Student: Edward Long
2016 (summer)	Mentor of NSF funded REU through University of Virginia and VCR LTER Student: Grace Holmes
2015 (summer)	Mentor of NSF funded REU through University of Virginia and VCR LTER Project: Plant community assembly across an environmental gradient Student: Taylor Price

Invited presentations

2. **Brown, J.K.** 2021. Disturbance impacts on coastal plant community structure and function. Minnesota State University – Mankato Biological Sciences Research Seminar. Mankato, MN (oral).
1. **Brown, J.K.**, J.C. Zinnert. 2018. Stress and disturbance mediate community assembly processes in coastal ecosystems. Ecological responses to global change in Southeastern coastal ecosystems symposium. Association of Southeastern Biologists Annual Conference. Myrtle Beach, SC (oral).

Presentations

*Denotes undergraduate author

16. **Brown, J.K.**, J.C. Zinnert. 2021. How does barrier island shape and disturbance response impact island plant communities? Virginia Coast Reserve LTER All Scientist Meeting. Online. January 4 (poster).
15. **Brown, J.K.**, J.C. Zinnert. 2020. Functional traits inform mechanisms of plant community changes that emerge from nutrient enrichment in a coastal mesic grassland. Ecological Society of America. Online. August 5 (poster).
14. **Brown, J.K.**, J.C. Zinnert. 2019. Nutrient enrichment drives feedbacks between functional diversity and productivity in a coastal system. Ecological Society of America. Louisville, KY. August 13 (oral).
13. **Brown, J.K.**, A. Kirschner, B. Nettleton, J.C. Zinnert. 2018. Cross-scale connections explain disturbance response on Virginia Coast Reserve barrier island system. Long Term Ecological Research All Scientists Meeting. Pacific Grove, CA. October 2 (poster).
12. **Brown, J.K.**, J.C. Zinnert. 2018. Nutrient addition affects coastal grassland productivity and species dominance. Ecological Society of America Conference. New Orleans, LA. August 8 (oral).
11. *Baucom, C.M., **J.K. Brown**, J.C. Zinnert. 2018. Trait variation in response to nutrient fertilization. Virginia Commonwealth University Undergraduate Research Symposium. Richmond, VA. April 25 (poster).
10. *Long, E.A., **J.K. Brown**, J.C. Zinnert. 2018. Belowground functional trait distribution across coastal communities. Virginia Commonwealth Undergraduate Research Symposium. Richmond, VA. April 25 (poster).
9. **Brown, J.K.**, J.C. Zinnert. 2018. Using community patterns to investigate coastal resilience in a changing climate. Virginia Sea Grant Graduate Research Symposium. Glen Allen, VA. February 9 (poster).

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8. *Baucom, C.M., **J.K. Brown**, J.C. Zinnert. 2018. Trait variation in response to nutrient fertilization. Integrative Life Sciences Research Symposium. Richmond, VA. February 8 (poster).
 7. **Brown, J.K.**, J.C. Zinnert. 2018. Using community patterns to investigate coastal resilience in a changing climate. Integrative Life Sciences Research Symposium. Richmond, VA. February 8 (poster).
 6. **Brown, J.K.**, J.C. Zinnert. 2017. Importance of species composition to inform trait-based approaches of community assembly along an environmental stress gradient. Ecological Society of America Conference. Portland, OR. August 9 (oral).
 5. **Brown, J.K.**, J.C. Zinnert, D.R. Young. 2017. Resource allocation drives variable mechanisms of survival after sand deposition. Association of Southeastern Biologists Annual Conference. Montgomery, AL. March 28 (oral)
 4. **Brown, J.K.**, J.C. Zinnert, D.R. Young. 2016. Emergent interactions influence functional traits and success of dune building ecosystem engineers. Gordon Research Conference: Multiscale Plant Vascular Biology. Newry, ME. June 27 (poster).
 3. **Brown, J.K.**, J.C. Zinnert, D.R. Young. 2016. Competition affects functional trait responses of dune grasses to abiotic stressors. 15th William and Mary Graduate Research Symposium. Williamsburg, VA. March 18 (oral).
 2. **Brown, J.K.**, A.L. Harris, J.C. Zinnert, D.R. Young. 2015. Physiological and functional traits of dune building grasses influence topographic structure. Long Term Ecological Research All Scientists Meeting. Estes Park, CO. August 30 (poster).
 1. Zinnert, J.C., **J.K. Brown**, A.L. Harris, J.A. Thompson, D.R. Young. 2015. Functional traits explain ecosystem engineering in dune building grasses. Ecological Society of America Conference. Baltimore, MD. August 11 (poster).

Funding

Total since 2016: \$7,250

2020	Integrative Life Sciences Graduate Student Funding to ESA 2020 Total amount awarded: \$700 – Virtual due to COVID-19
2019	ESA Student Section Student Travel Award Total amount awarded: \$150
2019	ESA Southeast Chapter Student Travel Award Total amount awarded: \$300
2019	Integrative Life Sciences Graduate Student Funding to ESA 2019 Total amount awarded: \$700
2018	VCU Graduate School Travel Grant Total amount awarded: \$300
2018	Integrative Life Sciences Graduate Student Funding to ESA 2018 Total amount awarded: \$1,000
2018	Open Access Publishing Fund – VCU Libraries Total amount awarded: \$1,000
2017	VCU Graduate School Travel Grant Total amount awarded: \$300
2017	Integrative Life Sciences Graduate Student Funding to ESA 2017 Total amount awarded: \$1,000
2016	NSF Student Travel Grant to Gordon Research Conference Total amount awarded: \$1,500
2016	VCU Graduate School Travel Grant Total amount awarded: \$300
2009-13	Undergraduate: Mary Kay-Moore Scholarship for Young Adults with Cancer Total amount over four years: \$4,750.

Honors and awards

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| 2018 | Outstanding Biology PhD Student in Ecology
Presented by VCU College of Humanities and Sciences |
| 2017 | Attendee at AAAS Catalyzing Advocacy in Science and Engineering Workshop
Nominated and selected through VCU College of Humanities and Sciences |
| 2016 | Outstanding Biology Masters Student in Ecology
Presented by VCU College of Humanities and Sciences |

Guest lectures

7. Biotic Interactions: Competition and Facilitation. Guest lecture in Coastal Ecology (BIOL 591). Virginia Commonwealth University, spring 2020.
6. Surging Seas: Sea-level Rise and it's Impacts. Guest lecture in Coastal Ecology (BIOL 591). Virginia Commonwealth University, spring 2020.
5. Dune Morphology: Presence, Mechanisms, Functions, and Global Change Consequences. Guest lecture in Coastal Ecology (BIOL 591). Virginia Commonwealth University, spring 2019.
4. Non-metric Multidimensional Scaling. Guest lecture in Quantitative Ecology (BIOL 606). Virginia Commonwealth University, fall 2018.
3. Functional Traits: Scratching the Surface. Guest Lecture in Eco Techniques Field Course (BIOL 491). Virginia Commonwealth University, May course 2017.
2. One-way and Two-way Analysis of Variance. Guest lecture in Quantitative Ecology (BIOL 606). Virginia Commonwealth University, fall 2016.
1. Sea-level Rise. Guest lecture in Coastal Ecology (BIOL 591). Virginia Commonwealth University, spring 2017.

Service and leadership

1. **Contributed peer-review for the following journals:**
Écoscience | *Ecosphere* | *Ecology and Evolution* (2) | *Scientific Reports* | *Plant and Soil* | *Journal of Ecology*
2. **Lead organizer for Organized Oral Session at ESA 2018.**
Session title – A Coastal Perspective: The Role of Vegetation in Response and Resilience of Coastal Ecosystems to Extreme Events.
Lead writer of session proposal and session justification.
Led recruitment of 10 speakers from around the country.
3. **Student representative on multiple promotion and tenure committees.**
Derek Johnson, 2015 | Gregory Walsh, 2017 | Karen Kester, 2019
4. **Attendee at annual Global Nutrient Network meeting in Minneapolis, MN, 2017.**
5. **Graduate representative at NSF mid-term site review of VCR LTER, Oyster, VA, 2015.**
Presented the importance of ecological connectivity between dune and swale plant communities.
6. **Poster Judge, Long Term Ecological Research All Scientists Meeting, Estes Park, CO 2015.**
Judged seven posters at the annual meeting of all LTER sites.
7. **Five-year service award recipient at VCU.**
Recognized for providing service to VCU through on-campus employment for 5 years.

Outreach and community involvement

1. **How trees help us!**
Outreach presentation event for kindergarten classes at Cople Elementary School, Hague, VA explaining why plants are important and how they grow.
2. **Participant at VCR hosted “See What Scientists See” @ At Altitude Photography, Cape Charles, VA**
Local outreach event where scientists and the public discuss how they perceive aerial photos of coastal Virginia.

3. **Contributor to NSF Long-Term Ecological Research ASM “Reflections” video**

Participated as a student contributor to comment about connections and synthesis of the LTER network.

4. **Student representative for congressional meetings through AAAS CASE Workshop, 2017.**

I participated in meetings with staffers of Virginia congressional offices to advocate for science research.

5. **Virginia Oyster Shell Recycling, VCU Richmond, VA, 2015.**

Collected and recycled oyster shells from local restaurants in the Richmond area.

Organizations

2018-20	Student Liaison Coordinator for the ESA Student Section 2020
2018-19	ESA Southeast Chapter Student Liaison
2018-19	Vice President of the Society for Ecological Restoration @ VCU
2017-18	President of the Society for Ecological Restoration @ VCU
2017-18	Leadership Member of the National Science Policy Group @ VCU
2016-17	Secretary of the Society for Ecological Restoration @ VCU

Additional skills

Plant research skills

I have experience collecting several above- and belowground functional traits including maximum height, specific leaf area, leaf dry matter content, leaf thickness, maximum root length, root diameter, specific root length. I also have experience prepping samples for external analysis of % carbon, % nitrogen, $\delta^{13}\text{C}$, and $\delta^{15}\text{N}$ in roots and leaves. I have a knowledge of general field procedures, including species composition, plot establishment, and point quarter techniques.

Computer skills

I have experience conducting data management across several different interfaces including R, Excel, JMP Statistical Software, PC-ORD and SigmaPlot. Furthermore, I have experience using R in several large-scale analyses pulling data from remotely located data repositories (GBIF, NEON, BIEN, etc.).