

Lukas Bell-Dereske

W.K. Kellogg Biological Station
Michigan State University
Hickory Corners, MI 49060

Cell ph. (505) 203-2904
Off. ph. (269) 671-2237
e-mail. belldere@msu.edu

I am looking for research and teaching positions in plant-microbial ecology. My long-term goal is to build a research program in plant-microbial interactions with a focus on how dispersal and assembly of leaf microbial communities affect plant-plant interactions. I am also passionate about teaching ecology using active learning and field-based methods.

ACADEMIC APPOINTMENTS

2017-present Postdoctoral Research Associate, Kellogg Biological Station,
Michigan State University

EDUCATION

2012-2016 PhD Biology, University of New Mexico, Graduated
2010-2012 PhD Ecology and Evolutionary Biology, Rice University, No Degree
2005-2009 BS Ecology and Evolutionary Biology, University of Michigan, Graduated

AWARDS AND GRANTS

2011-2014: NSF Graduate Research Fellowship - **\$126,000**
2014: Alvin R. and Caroline G. Grove Summer Research Award- **\$2,000**
2013: Harry Wayne Springfield Scholarship Award - **\$2,500**
2011-2013: National Park Service George Melendez Wright Climate Change Fellowship - **\$19,965**
Project examines the effect of climate change and microbial mutualists on plant community interactions at Sleeping Bear Dunes National Lakeshore.
2011-2012: Society of Wetland Scientists Student Research Grant - **\$988**
Project examined the effect of the foredune plant community and an endophyte mutualist on the formation of interdunal wetlands.
2010: NSF Graduate Research Fellowship Honorable Mention
2008: NSF Research Experience for Undergraduates Fellowship - **\$4,750**
2008: Grahams Scholars Program-Development in South America

PUBLICATIONS

Rudgers, J. A., Afkhami, M., **Bell-Dereske, L.**, Chung, Y. A., Crawford, K. M., Nuñez, M., and Kivlin, S. N. *in press*. Climate Disruption of Plant-Microbe Interactions. **Annual Review of Ecology, Evolution, and Systematics**.
Turley, N. E., **Bell-Dereske, L.**, Evans, S.E., and Brudvig, L. A. 2020. Agricultural land-use history and restoration co-structure soil microbial communities in longleaf pine savannas. **Journal of Applied Ecology**. **57**:852-863
Evans, S.E., **Bell-Dereske, L.P.**, Dougherty, K.M., Kittredge, H.M. 2020. Dispersal alters soil microbial community response to drought. **Environmental Microbiology**. **22**: 905-916

- David A.S., **Bell-Dereske, L.**, Emery, S. M., McCormick, B.[#], Seabloom, E. W., Rudgers, J. A. 2019. Altered rainfall regime and the loss of systemic and localized plant symbionts. **American Journal of Botany**. **106**: 1081-1089
- Emery, S. M., Kinnetz, E R., **Bell-Dereske, L.**, Stahlheber, K. A., Gross, K. L., and Pennington D. 2018. Low variation in arbuscular mycorrhizal fungal associations and effects on biomass among switchgrass cultivars. **Biomass and Bioenergy**. **119**: 503-508
- Emery, S. M., Reid, L. M., **Bell-Dereske, L.**, and Gross, K. L. 2017. Soil mycorrhizal and nematode diversity vary in response to bioenergy crop identity and fertilization. **GCB Bioenergy**. **9**: 1644-1656.
- Bell-Dereske, L.**, Takacs-Vesbach, C., Kivlin, S. N., Emery, S. M., and Rudgers, J. A.. 2017. Leaf endophytic fungus interacts with precipitation to alter belowground microbial communities in primary successional dunes. **FEMS Microbiology Ecology** 93:fix036-fix036.
- Bell-Dereske, L.**, Gao, X., Masiello, C. A., Sinsabaugh, R. L., Emery, S. M., and Rudgers, J. A. 2017. Plant-fungal symbiosis affects litter decomposition during primary succession. **Oikos**. **126**: 801-811
- Rudgers, J. A., **Bell-Dereske, L.**, Crawford, K. M., and Emery, S. M. 2015. Fungal symbiont effects on dune plant diversity depend on precipitation. **Journal of Ecology** **103**: 219-230
- Emery, S. M., **Bell-Dereske, L.**, and Rudgers, J. A. 2015. Fungal symbiosis and precipitation alter traits and dune building by the ecosystem engineer, *Ammophila breviligulata*. **Ecology** **96**: 927-935
- Chamberlain, S. A., Hovick, S. M., Dibble, C. J., Rasmussen, N. L., Van Allen, B. G., Maitner, B. S., Ahern, J. R., **Bell-Dereske, L. P.**, Roy, C. L., Meza-Lopez, M., Carrillo, J., Siemann, E., Lajeunesse, M. J. and Whitney, K. D. 2012. Does phylogeny matter? Assessing the impact of phylogenetic information in ecological meta-analysis. **Ecology Letters** **15**: 627–636

Manuscripts in review

- Ladwig, L. M., **Bell-Dereske, L.**, Bell, K. C., Collins, S. L, Taylor, D. L., Natvig, D. Changing soil microbial composition with shrub encroachment. **Ecology**

Manuscripts in prep (available on request)

- Bell-Dereske, L.** and Rudgers, J. A. Microbial mutualism and altered intra-annual precipitation modify plant-plant interactions and community composition. **American Naturalist**
- Bell-Dereske, L.** and Evans, S.E. Rain driven dispersal of switchgrass leaf fungal endophyte. **ISME J**
- Ulbrich, T. C.^{*+}, **Bell-Dereske, L.**^{*}, Ervin, H.[#], Hilborn, S.[#], and S. E. Evans. Soil microbial community increases switchgrass germination and survival under drought. **Journal of Ecology**.

*Co-lead authors, ⁺Graduate student mentee, and [#]Undergraduate mentee

PRESENTATIONS

- Bell-Dereske, L.** and Evans, S. E. 2020. Stability of switchgrass leaf microbiome in the face of natural aerial colonizers. Poster Presentation DOE Genomics Science Program PI Meeting. Washington DC.

- Bell-Dereske, L.**, 2019. The resistance of the Great Lakes dune plant community to climate change. Michigan Consortium of Botanists 10th Annual Conference. Oral presentation. Muskegon, Michigan. *Keynote speaker*.
- Bell-Dereske, L.**, Temann, L., Friesen, M., Cole, J., and Evans, S. E. 2019. The response of bacterial communities to nitrogen fertilization depends on temporal and spatial scale. Poster Presentation DOE Genomics Science Program PI Meeting. Tysons, VA.
- Bell-Dereske, L.**, Temann, L., Friesen, M., Cole, J., and Evans, S. E. 2019. The response of bacterial communities to nitrogen fertilization depends on temporal and spatial scale. Poster Presentation Great Lake Bioenergy Research Center DOE Annual Review. Madison, WI.
- Bell-Dereske, L.** Plant-microbial interactions: Driver of ecosystem processes and possibly switchgrass productivity. Natural and Applied Sciences Seminar Series, UW- Green Bay. *Graduate Student Organization Invited Talk*
- Bell-Dereske, L.**, Temann, L., Friesen, M., Cole, J., and Evans, S. E. (2018) MMRNT: Effects of spatial and temporal scale on bacterial communities. LTER All Scientists Meeting. Asilomar, CA.
- Bell-Dereske, L.** and Evans, S. E. (2018) Role of extreme rain events and priority effects in the assembly of leaf microbial communities. Invited Oral Paper Presentation Ecological Society of America Meeting 2018. New Orleans, LA. *Invited Talk*.
- Bell-Dereske, L.**, Temann, L., Friesen, M., Cole, J., and Evans, S. E. (2018) Microbial Mediated Perennial Rhizosphere Nitrogen Transformations (MMRNT): Effects of spatial and temporal scale on bacterial communities. Poster Presentation and Organized Oral Presentation Great Lakes Bioenergy Research Center All Scientist Meeting 2018. Lake Geneva, WI
- Bell-Dereske, L.** and Rudgers, JA. (2017) Microbial mutualism modifies plant-plant interactions and community composition. Oral Paper Presentation Ecological Society of America Meeting 2017. Portland, OR.
- Evans, S. E. and **Bell-Dereske, L.** (2017) How does dispersal maintain decomposer diversity and function? Insight from theoretical and experimental approaches? Invited Oral Paper Presentation Ecological Society of America Meeting 2017. (substitute presenter) *Invited Talk*.
- Bell-Dereske, L.** and Rudgers, JA. (2016) Climate change in the Great Lakes region: Responses of the plant community at Sleeping Bear Dunes National Lakeshore. 2016 Indiana Dunes Science Conference. Valparaiso, IN. *Invited Talk*.
- Bell-Dereske, L.**, Kivlin, S, Takacs-Vesbach, C., Emery, SM, and Rudgers JA. (2016) Above-belowground microbial interactions in Great Lakes dunes ecosystems. Poster presentation. University of New Mexico 24th Annual Research Day. Albuquerque, NM.
- Bell-Dereske, L.** and Rudgers, JA. (2015) Plant-fungal mutualism mediates plant-plant interactions in the Great Lake dunes: Introduction of fungal mutualism slows succession. Oral Paper Presentation Ecological Society of America Meeting 2015. Baltimore, MD.
- Bell-Dereske, L.** and Rudgers, JA. (2015) Plant-fungal mutualism mediates plant-plant interactions in the Great Lake dunes: Introduction of fungal mutualism slows succession. Oral Presentation University of New Mexico 24th Annual Research Day. *Runner-up for Best Graduate Student Presentation*. Albuquerque, NM.
- Bell-Dereske, L.**, Emery, SM., and Rudgers JA. (2014) Does an endophytic fungus alter interactions between a foundation plant species and the belowground fungal community? Mycological Society of America-Organized Symposium, Fungal-Fungal Interactions, *Invited Talk*. East Lansing, MI.
- Bell-Dereske, L.** and Rudgers, JA. (2013) How do microbial symbionts alter competition in the Great Lakes dune plant community? Oral Paper Presentation Ecological Society of America Meeting 2013. Minneapolis, MN.

Bell-Dereske, L and Rudgers, JA. (2012) Facilitative effects of dune ecosystem engineer *Ammophila breviligulata* increases with density and association with an aboveground symbiont. Poster Session Ecological Society of America Meeting 2012. Portland, OR.

Bell-Dereske, L. (2012) The effect of symbionts and density on plant community interactions in the Great Lakes dunes. UH-Rice Ecology and Evolutionary Biology Graduate Student Symposium. Houston, TX.

OUTREACH ACTIVITIES

Public Presentations

Bell-Dereske, L and Evans, SE. (2018) Microbes in the rain and on the leaves of plants of the KBS LTER. Sustainable Michigan Endowed Project tour of LTER.

Bell-Dereske, L (2018) It's raining microbes!: I'm gonna go out, I'm gonna let myself get, Absolutely soaking wet! Biology on Tap, Lansing Michigan.

Bell-Dereske, L and Rudgers, JA. (2016) Climate change in the Great Lakes region. 2016 Workshop to Integrate Research, Monitoring, Interpretation & Education at Sleeping Bear Dunes National Lakeshore. *Invited Webinar.*

Bell-Dereske, L and Rudgers, JA. (2014) Climate change in the Great Lakes region: Responses of the plant community at Sleeping Bear Dunes National Lakeshore. Public Talk at Sleeping Bear Dunes National Lakeshore. *Invited Talk.*

TEACHING EXPERIENCE

Winter 2018: Co-Instructor Career Pathways Spring Seminar Series - Co-Instructor Dr. Danielle Zoellner. Kellogg Biological Station Michigan State University

Winter 2018: Guest Lecture Global Change Biology – Michigan State University

Winter 2016: Teaching Assistant/Course Redesign Team (UNM STEM Gateway Program, Title IV grant) Ecology and Evolution - University of New Mexico

Fall 2015: Teaching Assistant Molecular and Cell Biology - University of New Mexico

Winter 2015: Teaching Assistant, Principles of Ecology- Dr. Jennifer Rudgers. University of New Mexico

Fall 2011: Teaching Assistant, Insect Biology- Dr. Evan Siemann. Rice University

Fall 2011: Teaching Assistant, Insect Biology Lab - Dr. Tom Miller. Rice University

Spring 2011: Teaching Assistant, Plant Diversity – Dr. Ken Whitney. Rice University

Summer 2010: Teaching Assistant, Forest Ecosystems –Ryan O'Connor. University Of Michigan Biological Station

Spring 2009: Teaching Assistant. General Ecology - Dr. Joel Hienen. University Of Michigan Biological Station

Summer 2009: Teaching Assistant, Forest Ecosystems –Dr. Dennis Albert. University Of Michigan Biological Station

Spring 2009: Teaching Assistant. General Ecology - Dr. Knute Nadelhoffer. University Of Michigan Biological Station

PROFESSIONAL SERVICE

2018-2020: KBS Postdoctoral Representative on Seminar Committee

2017-2018: KBS Postdoctoral Liaison to Faculty Meetings

2017: Organizer for March for Science Albuquerque NM Satellite Rally (April 22nd 2017)

2015-2017: Sciences Central NM Science & Engineering Research Challenge, Senior Plant Sciences Judge

2014-2016: UNM Biology Graduate Student Association Co-Social Chair
2015: Graduate Representative on Graduate Student Selection Committee
2013-2015: UNM Research Day Undergraduate Research Poster Judge
2013-2014: Graduate Research Allocation Committee Co-Chair
2012: Organizer for University of Houston-Rice University Graduate Student Symposium
2011-2012: Rice Undergraduate Research Symposium Poster Judge
Manuscripts reviewed: BioScience, Ecological Applications, Functional Ecology, Soil Biology and Biochemistry, New Phytologist, Global Ecology and Biogeography, FEMS Microbiology Ecology, Environmental Microbiology, Elementa: Science of the Anthropocene, Applied Soil Ecology, Oecologia, Plant and Soil, Mycologia, American Journal of Botany, Phytobiomes, Phytobiomes Journal, Acta Oecologica, Canadian Journal of Forest Research, Antonie van Leeuwenhoek

Grants reviewed: NSF DEB Full Proposal, Michigan Sea Grant Core Research Full Proposal Review, Oregon Sea Grant Core Research Full Proposal Review, UNM Graduate Research Allocation Committee Travel and Research Grants

PROFESSIONAL SOCIETY MEMBERSHIP

Ecological Society of America
Society of Wetland Scientists
Mycological Society of America
International Association for Great Lakes Research