

**SENAY YITBAREK, Ph.D.**  
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## EDUCATION

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### Degrees and appointments:

- 2020 – present Carolina Postdoctoral Fellow for Faculty Diversity and USDA-NIFA Postdoctoral Fellow, Department of Biology, University of North Carolina Chapel Hill
- 2017 – 2019 National Science Foundation Postdoctoral Fellowship in Biology, Department of Integrative Biology, University of California Berkeley  
Advisor: Dr. Mike Boots
- 2016 Ph.D., Biology – Department of Ecology and Evolutionary Biology, University of Michigan. Advisor: Dr. John H. Vandermeer
- 2011 M.S., Biology – Ecology and Evolutionary Biology, University of Michigan  
Advisor: Dr. John H. Vandermeer
- 2008 B.A., Agricultural ecology, University of California Berkeley  
Advisor: Dr. Stephen C. Welter
- 2005 A.A., Riverside Community College

### Additional education:

- 2013 Ant course (California Academy of Sciences), Villa Carmen, Peru
- 2006 Agroecology Exchange Program, Federal University of Santa Catarina, Brazil

## FUNDING

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### Honors and Awards:

- 2020 **USDA-NIFA Postdoctoral Fellowship** (\$180,000)
- 2020 **Carolina Postdoctoral Fellowship for Faculty Diversity** (\$100,000)
- 2017 **Postdoctoral Research Fellowship in Biology**, National Science Foundation (\$207,000)

- 2016 **Rackham Dissertation Fellowship**, University of Michigan (\$10,200)
- 2011 **Rackham Merit Fellowship**, University of Michigan (\$63,252)
- 2007 **Stronach Post-Baccalaureate Prize**, University of California Berkeley (\$25000)
- 2006 **US-Brazil Agricultural Ecology Consortium Fellowship**, USDA (\$6000)

**Grants:**

- 2018-19 **Vector Behavior in Transmission Ecological Research Network**, (\$5000)
- 2019 **Gordon Research Conference Carl Storm Fellowship** (\$1000)
- 2016 **IDEAS Research Exchange**, Princeton University (\$3000)
- 2015 **Invasion Ecology Research Exchange**, Colorado State University (\$3000)
- 2013 **Rackham Graduate Student Research Grant**, University of Michigan (\$3000)
- 2013 **Tinker Travel Grant**, University of Michigan (\$1500)
- 2013 **Rackham International Research Award**, University of Michigan (\$6000)
- 2011-15 **Rackham Summer Block Grant**, University of Michigan (\$10,000)
- 2010 **Rackham Travel Grant**, University of Michigan (\$1500)
- 2010 **Alliances for Graduate Education and the Professoriate Grant**,  
University of Michigan (\$2500)
- 2007 **Ronald E. McNair Scholarship Grant**, University of California Berkeley (\$5000)
- 2006 **Latin American Studies Travel Grant**, University of California Berkeley (\$15000)
- 2005 **Miller Scholarship Grant**, University of California Berkeley (\$5000)

## PUBLICATIONS

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**Yitbarek, S.**, Guittar J, Knutie SA, Ogbunugafor CB. 2020. Deconstructing higher-order interactions in the microbiota. *In revision, Journal of Animal Ecology* (preprint: doi.org/10.1101/647156)

**Yitbarek, S.**, Philpott SP. 2019. Arboreal twig-nesting ants form dominance hierarchies over nesting resources. *PeerJ* 7: e8124. doi.org/10.1101/442632

**Yitbarek, S.**, Vandermeer, J.H. 2017. Reduction of species coexistence through mixing in a spatial competition model. *Theoretical Ecology*. 10: 443-450. doi.org/10.1007/s1208001703414

**Yitbarek, S.**, Vandermeer, J.H., and Perfecto, I. 2017. From insinuator to dominator: a unique mechanism for an exotic ant. *Diversity and Distributions*. 23:820-827. doi.org/10.1111/ddi.12568

Vandermeer, J.\* and **S. Yitbarek (\*equal authorship)**. 2012. Self-organized spatial pattern determines biodiversity in spatial competition. *J. Theor. Biol.* 300: 48-56. doi.org/10.1016/j.jtbi.201201005

**Yitbarek, S.**, Vandermeer, J.H., and Allen, D. 2011. The combined effects of exogenous and endogenous variability on the spatial distribution of ant communities in a forested ecosystem. *Ecol. Entomol.* 40: 1067-1073. doi.org/10.1016/s00405809

**Yitbarek, S.** 2008. Reconsidering invasive grass and mowing impacts on native arthropod populations in a restored grassland, *Mcnair Research Journal* 15: 143-162.

Vandermeer, J.H, I Armbrrecht, A de la Mora, KK Ennis, DJ Gonthier, Z Hajian-Forooshani, H-Y Hsieh, A Iverson, D Jackson, S Jha, E Jimenez-Soto, G Lopez-Bautista, A Larsen, K Li, H Liere, AJ MacDonald, L Marin, KA Mathis, I Monogan, J Morris, T Ong, GL Pardee, IS Rivera, K Williams-Guillen, **S Yitbarek**, S Uno, A Zemenick, SM Philpott, I Perfecto. 2019. The community ecology of herbivore regulation in an agroecosystem: Lessons from complex systems. *BioScience*. 69: 974-996.

Sealey, A.B., Beasley, E.D., Halsey, S.J., Schell, C.J., Leggett, Z.H., **Yitbarek, S.**, Harris, N.C. 2020. Human Dimensions: Raising Black Excellence by Elevating Black Ecologists Through Collaboration, Celebration, and Promotion. *Bull Ecol Soc Am.* 101(4): e01765

Berg, M., Goudeau, D., Olmsted, C., McMahon, K.D., Thweatt, J., Bryant, D., Eloë-Fadrosh, E.A., Malmstrom, R.R., **Yitbarek, S.**, Roux, S. 2020 (*accepted*). Host population diversity as a driver of viral infection cycle in wild populations of green sulfur bacteria with long standing virus-host interactions. *ISME*.

### **Manuscripts under review (Pre-prints):**

**Yitbarek, S.**, Bailey, K., Tyler, S., Strickland, J., McCary, M., Harris, N. 2020. Inclusive sustainability approaches in common-pool resources from the perspective of black-“ologists”.

**Yitbarek, S.**, Vandermeer, J.H., I. Perfecto. 2019. Parasite mediated competition facilitates invasion. (preprint: [doi.org/10.1101/16725](https://doi.org/10.1101/16725))

### **Manuscripts in preparation:**

**Yitbarek, S.**, Morella, N., Koskella, B., Boots, M. Spatial competition between bacteriophages across different environments.

## **PRESENTATIONS**

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### **Invited seminars:**

**2020:** Duke University, Durham (Zoom invited seminar)

**2020:** Stanford University, Palo Alto (Zoom invited seminar)

**2020:** University of North Carolina, Chapel Hill (Zoom invited seminar)

**2020:** San Francisco State University, San Francisco (Zoom invited seminar)

**2019:** The California Academy of Sciences, San Francisco

**2019:** Department of Botany, University of Wisconsin Madison

**2019:** Department of Ecology and Evolutionary Biology, Tulane University

**2019:** The Joint Berkeley Initiative for Microbiome Sciences, UC Berkeley

**2019:** Department of Entomology, UC Riverside

**2014:** The Arecibo Observatory, Puerto Rico

**Contributed presentations:**

**Yitbarek, S.** Effects of feeding behaviors and mortality on pathogen coinfection prevalence in vectors. VectorBite Annual Meeting, Trento, Italy. **August 2019**

**Yitbarek, S.** Spatial competition of bacteriophages across different environments. Ecology Society of America Annual Meeting, New Orleans, LA. **August 2018**

**Yitbarek, S.** The Shuri Effect: A new generation of black ecologists? Ecology Society of America Annual Meeting, New Orleans, LA. **August 2018**

**Yitbarek, S.** Disease dynamics in invasive ants: The role of parasites in the global spread of the little fire ant *Wasmannia auropunctata*. Ecological Society of America Annual Meeting, Ft. Lauderdale, FL. **August 2016.**

**Yitbarek, S.** Reduction of species coexistence through mixing in a spatial competition model. Ecological Society of America Annual Meeting, Baltimore, MD. **August 2015.**

**Yitbarek, S.** Assembling Meta-Communities: Self-organized spatial mosaics maintain biodiversity. Summer Institute Symposium, Ann Arbor MI. **August 2011.**

**Yitbarek, S.** Ants in Space: Competitive intransitivity promotes mosaic pattern formation. EEB Theoretical Ecology Seminar, Ann Arbor, MI. **September 2010**

**Yitbarek, S.** Aquatic Subsidies Along a Sand Dune Ecosystem. University of Michigan Biological Station, Ann Arbor, MI. **August 2008**

**Poster presentations:**

**Yitbarek, S.** Spatial structure as a mechanism for pathogen diversity. Ecology and Evolution of Infectious Disease, Princeton, NJ. **August 2019**

**Yitbarek, S.** Parasite mediated competition facilitates ant invasions. Ecology and Evolution of Infectious Disease, Santa Barbara, CA. **August 2017.**

**Yitbarek, S.** The combined effects of exogenous and endogenous variability on the spatial distribution of ant communities in a forested ecosystem. Ecological Society of America Annual Meeting, Pittsburgh, PA. **August 2010.**

## TEACHING

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### **Instructor of Record:**

2020 San Francisco State University, *Introduction to Programming for Biologists*

### **Guest Lecturer:**

2020 University of Pennsylvania, *Ecology*

2018 University of California Santa Cruz, *Tropical Agroecosystems*

2015 University of Michigan Ann Arbor, *Life decoded: Genomics in Society*

2014 University of Michigan Ann Arbor, *Deep Time: The Science of Origins*

### **Teaching Assistant:**

2015 University of Michigan Ann Arbor, *Life decoded: Genomics in Society*

2014 University of Michigan Ann Arbor, *Deep Time: The Science of Origins*

2013 University of Michigan Ann Arbor, *Introductory Biology Lab*

2011 University of Michigan Ann Arbor, *Biology for Non-Science Majors*

2010 University of Michigan Ann Arbor, *Ecology and Evolution of Infectious Diseases*

## MENTORING

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### **Students mentored:**

- 2017-19 **University of California, Berkeley.**
- o Tanya Kumar (Honors thesis, 2018)

- o Nicole DeNamur (Honors thesis, 2019)
- o Alyssa Chang (2019)
- o Stacy Ahn (2019)

2011-14 **University of Michigan, Ann Arbor.**

- o Colleen Smith (Honors thesis, 2011)
- o Raymond Balaquer (NSF REU, 2012)
- o Areliz Rivera (NSF REU 2014)
- o Lena Cruz (2013)

## SCIENCE OUTREACH AND SERVICE

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- 2018 **Member, Committee Diversity and Education, Ecological Society of America**  
Developing a Strategic Plan and educational programming related to raising public awareness and understanding of ecology.
- 2017 **Panelist, Ecological Society of America Annual Meeting, New Orleans, Strategies for Ecology, Education, Diversity, and Sustainability Minority Ecologists Forum**  
As a panel member, representing the Black Ecologists Chapter in the Ecological Society of America (ESA), I shared my experiences on my career path as a minority scientist. In collaboration with partner sections, I developed ideas to increase and strengthen diversity within ESA as a society.
- 2016-present **Founding member and Current Chair, Black Ecologists Section**  
Serving the professional, social, and cultural interests of black ecologists.
- 2015-16 **Volunteer, Bio-blitz at D-Town Farm in Detroit, Michigan**  
Conducted biological surveys on a 5-acre organic farm owned by the Detroit Black Farmers to help guide small groups of African-American students in identifying variety of species present on the farm.
- 2009-10 **Ambassador, National Center for Institutional Diversity**  
Talked to undergraduates at Penn State University (PA) and Eastern Michigan University (MI) about applying to and thriving in graduate school.
- 2008-12 **Diversity Recruitment Partnership, University of Michigan**

I advised and mentored undergraduate students from Historically Black Colleges including Howard university, Morehouse College, Tuskegee university, and the University of Missouri at St. Louis about graduate school opportunities. I helped students design field projects and analyze their data at the E.S. George Reserve.

## PROFESSIONAL SERVICE AND MEMBERSHIP

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### Committee work:

- 2016      **Early Career Scientist Symposium Scientific Committee, University of Michigan**  
Graduate student representative of early career scientific committee on the topic of eco-evolutionary community assembly processes. Assisted in nominating and selecting symposium speakers, programming symposium, and facilitating discussion among panel and audience members.
- 2011      **Graduate Student Representative, EEB Diversity Committee**  
Helped write NSF-funded summer research program (ED-QUE<sup>2</sup>ST) for first and second-year college students from backgrounds under-represented in ecology and evolutionary biology.

### Reviewer:

Journal of Animal Ecology, Ecology, PLOS ONE, PLOS Computational Biology, Oikos, ISME

### Society membership:

Ecological Society of America, The Society for the Study of Evolution

## SYMPOSIA ORGANIZED

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- 2018      **“Averting the Tragedy of the Commons: Critical feedbacks across scales from Microbes to Humans”**, Ecological Society of America Annual Meeting, New Orleans
- 2018      **“Evolutionary Epidemiology Across Multiple Scales”**, Joint Congress on Evolutionary Biology, Montpellier.

## WORKSHOP PARTICIPATION



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- 2019      **Vector Behavior in Transmission Ecology**, Trento, Italy.
- 2018      **Next Prof Science: Future Faculty Workshop**, Ann Arbor, Michigan.
- 2017      **Vector Behavior in Transmission Ecology**, Imperial College in London, UK.
- 2017      **Infectious Disease Evolution Across Scales**, New Orleans, Louisiana.
- 2014      **Animal Social Networks NIMBios**, Knoxville, Tennessee.

## **MISCELLANEOUS**

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**Languages:** Tigrinya (Fluent), Dutch (Fluent), English (Fluent), German (Proficient), Spanish (Proficient), Portuguese (Proficient).