

**Hannah E. Holland-Moritz**

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**PROFESSIONAL PREPARATION**

University of Colorado, Boulder	Ecology & Evolutionary Biology <i>Advisor: Dr. Noah Fierer</i>	Ph.D.	2015 - present
University of California, Davis	Biochemistry & Molecular Biology <i>Minor: Quantitative Biology &amp; Bioinformatics</i>	B.S.	2014

**RESEARCH**

2015 - present	<b>Structure and Function of Environmental Microbial Communities</b> <i>Dissertation research</i> Advisor: Dr. Noah Fierer, University of Colorado, Boulder <ul style="list-style-type: none"><li>• Use of metagenomics to investigate community and functional assembly of microbial communities in a climatic context.</li><li>• Identification and ecological modeling of genes of unknown function from soil metagenomes.</li><li>• Examinations of the diversity, structure and function of microbial communities associated with boreal mosses. Metagenomic assembly and culturing of representatives from these communities.</li></ul>
2014 - 2015	<b>Microbial Communities on Seagrasses</b> <i>Research Assistant</i> Supervisors: Drs. Jenna Morgan Lang and Jonathan Eisen, UC Davis <ul style="list-style-type: none"><li>• Sequenced and analyzed 16S libraries to explore the microbial communities intimately associated with of <i>Zostera marina</i>.</li><li>• Coordinated and oversaw the collection and sequencing of <i>Zostera marina</i> microbiome samples collected from a global network of collaborators.</li></ul>
2011 - 2014	<b>Sequencing and Assembly of Bacterial Isolate Genomes</b> <i>Undergraduate research</i> Advisors: Drs. David Coil and Jonathan Eisen, UC Davis <ul style="list-style-type: none"><li>• Sequenced, assembled, and annotated reference genomes of the bacteria <i>Synergistes jonesii</i> and of a novel bacterial strain from the built environment (genus <i>Leucobacter</i>)</li></ul>

**PUBLICATIONS**

*Peer Reviewed*

1. Jean, M. and **Holland-Moritz, H.** and Melvin, A. and Johnstone, J. and Mack, M. *In Press*. Experimental assessment of tree canopy and leaf litter controls on the microbiome and nitrogen fixation rates of two boreal mosses. *New Phytologist*

2. Carini, P., Delgado-Baquerizo, M., Hinckley, E. S., **Holland-Moritz, H.** Brewer, T. E., Rue, G., Vanderburgh, C., McKnight, D., and Fierer, N. 2020. Effects of Spatial Variability and Relic DNA Removal on the Detection of Temporal Dynamics in Soil Microbial Communities. *mBio*.
3. Ward, L. M., Cardona, T., and **Holland-Moritz, H.** 2019. Evolutionary Implications of Anoxygenic Phototrophy in the Bacterial Phylum Candidatus Eremiobacterota (WPS-2). *Front. Microbiol.*
4. **Holland-Moritz, H.**, J. Stuart, L. R. Lewis, S. Miller, M. C. Mack, S. F. McDaniel, and N. Fierer. 2018. Novel bacterial lineages associated with boreal moss species. *Environmental Microbiology*
5. Gunawardana, M., S. Chang, A. Jimenez, D. Holland-Moritz, **H. Holland-Moritz**, T. P. La Val, C. Lund, M. Mullen, J. Olsen, T. a Sztain, J. Yoo, J. a Moss, and M. M. Baum. 2014. Isolation of PCR quality microbial community DNA from heavily contaminated environments. *Journal of microbiological methods*.

*Non-Peer Reviewed*

6. **Holland-Moritz, H. E.**, D. R. Bevans, J. M. Lang, A. E. Darling, J. A. Eisen, and D. A. Coil. 2013. Draft genome sequence of *Leucobacter sp.* strain UCD-THU (phylum *Actinobacteria*). Genome announcements 1:e00325--13.
7. **Holland-Moritz, H. E.**, D. A. Coil, J. H. Badger, G. I. Dmitrov, H. Khouri, N. L. Ward, F. T. Robb, and J. A. Eisen. 2014. Draft genome sequence of the pyridinediol-fermenting bacterium *Synergistes jonesii* 78-1. Genome announcements 2:e00833--14.

## GRANTS & AWARDS

(totaling \$15,751)

Dept. of Ecology and Evolutionary Biology Graduate Student Service Award	2019	\$200
Dept. of Ecology and Evolutionary Biology (EBIO) Graduate Research Grant	2019	\$2500
Beverly Sears Graduate Student Grant (2019)	2019	\$1000
Dept. of Ecology and Evolutionary Biology (EBIO) Graduate Research Grant	2018	\$2500
EBIO Travel Grant	2018	\$300
CU Boulder Graduate School Domestic Travel Grant	2017	\$500
Wood's Hole Oceanographic Institute Summer Scholarship	2016	\$8751
NSF-GRFP Honorable Mention	2017 2016 2015	

## TEACHING & ADVISING

*Teaching*

Lab Instructor – Principles of Ecology	2017
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## *Advising*

### Undergraduates

Savanna Pierce	Summer 2019
Lady Grant	2018 - 2019
Maya Montoya-Pimolwatana	2017 - 2018
Alexander Kaaua	2015 - 2016
Ruth Lee (helped advise senior thesis project)	2014 - 2015
Briana Pompa-Hogan	2014 - 2015

### High School Students

Henna Hundal	Summer 2014
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## **SYNERGISTIC ACTIVITIES**

### *1. Educator*

- Contributed multiple workshops on R, multivariate analysis, Bayesian statistics, and other quantitative topics to EBIO Department's weekly "Quantitative Discussion Tank" working group (2016-2019)
- Co-created laboratory microbial analysis pipeline tutorial and lead workshops in its use for CU Boulder Center for Microbial Exploration. (2019-present)
- Taught workshop "Collaboration and Version Control with git" (2020)
- Led a workshop "Science and the Creative Process" training scientists to incorporate creativity into their scientific process at departmental Lunch & Learn seminar. (2019)

### *2. Leader and Colleague*

- Worked closely with faculty on graduate student related issues as the Graduate Student Representative to the Faculty (2017-2019).
- Graduate student representative on Departmental Climate and Graduate Degree Program committees for departmental 7-year review (2018).
- Graduate student representative to two search committees (2018).
- Help organize the weekly colloquium series for CU Boulder's EBIO Department. (2015 - 2019)
- Help organize the departmental graduate student orientation (2017)
- Organized and ran graduate student writing cooperative (Summer 2017).
- Participant, EBIO Diversity and Inclusion Working Group. A group dedicated to improving departmental climate and culture through education and initiatives. (2017)

### *3. Mentor*

- Served as primary mentor for seven undergraduate and high school students (shown above)
- Served as a peer mentor for four graduate students in departmental mentoring program (2016-2019)

### *4. Science Communicator*

- Designed, coordinated, and carried out citizen science research project focused on microbial succession with middle and high school educators across the US (2018 - present).
- Co-chair of CU Boulder Evolution Outreach Committee (2015 - 2018). Organized annual “Teaching Controversial Science Topics” workshop, and annual Museum Family Day on evolution
- “Mysterious Microbes” Workshops and Webinar series. Helped organize, plan, and run two workshops for teachers and gave webinar presentation for general public focused on microbial ecology.

5. *Invited Speaker*

- Research Experience for Community College Students (RECCS) Program, invited talk “How to communicate your research” (2018, 2017)
- UC Davis, Bioinformatics Club, invited talk “rRNA Sequence Analysis in QIIME” (2014)

6. *Reviewer*

- For journals including: Applied and Environmental Biology, Global Change Biology, PeerJ, and American Journal of Botany
- Invited judge for undergraduate research presentations at the annual EBIO departmental Spring Symposium (2018)

### CONFERENCE PRESENTATIONS

1. **Holland-Moritz, HE**, Stuart, J, Lewis, LR, Ponciano, JM, McDaniel, S, Mack, M, Fierer, N “Phylogenetic and Environmental Controls on N-Fixation in the Boreal Moss Microbiome” Rapid-fire talk and Poster Presentation, 2019, *Front Range Microbiome Symposium*, Fort Collins, CO, USA.
2. **Holland-Moritz, HE**, Stuart, J, Lewis, LR, Ponciano, JM, McDaniel, S, Mack, M, Fierer, N “Phylogenetic and Environmental Controls on the Boreal Moss Microbiome” Poster Presentation, 2018, *International Society for Microbial Ecology Meeting*, Leipzig, Germany.
3. **Holland-Moritz, HE**, Stuart, J, Lewis, LR, Miller, S, Mack, M, Ponciano, JM, McDaniel, S, Fierer, N “Microbial Diversity and the Boreal Moss Microbiome” Talk, 2017, *Guild of Rocky Mountain Ecologists and Evolutionary Biologists Annual Meeting*, Nederland, CO, USA
4. **Holland-Moritz, HE**, Stuart, J, Lewis, LR, Miller, S, Mack, M, Ponciano, JM, McDaniel, S, Fierer, N “Taxonomic and Functional Attributes of the Boreal Moss Microbiome” Talk, 2017, *Future Arctic Conference on Bryophytes and Lichens*, Quebec, Canada.
5. **Holland-Moritz, HE**, Lang, JM, Stachowicz, J, Eisen, JA "Exploring the biogeography of microbial communities on the surface of seagrasses." Poster session presented at: *20th Annual International Conference on Microbial Genomics* 2014 Lake Arrowhead, CA, USA.
6. **Holland-Moritz, HE**, Lang, JM, Stachowicz, J, Eisen, JA "The Seagrass Microbiome" Poster session presented at: University of California, Davis *Undergraduate Research Symposium* 2014. Davis, CA, USA.

### RELEVANT RESEARCH & WORK EXPERIENCE

*Participant, Leadership and Mentorship Course*

2017

- a semester-long course dedicated to training graduate students and post-docs in principles of academic mentorship.

*Participant, MBL Microbial Diversity Course, Woods Hole, MA* 2016

- a 6.5 week course dedicated to training students in laboratory and theoretical aspects of microbial diversity

*Research Internship, Drs. Manjula Gunawardana and Marc Baum, Oak Crest Institute of Science* 2009 - 2010

- Researched extraction methods of PCR-quality DNA from heavily hydrocarbon-polluted environmental samples (e.g. asphalt pools).

## RELEVANT SKILLS

**Computational:** Terminal/Bash (proficient), Git version control (proficient), R (proficient), Linux (proficient), Python (familiar with), Perl (familiar with), C (familiar with), LaTeX (familiar with)

**Bioinformatics:** Genome assembly, metagenome assembly, environmental amplicon-sequencing analysis, phylogenetic tree-building, gene annotation, plotting and visualization of biological data, hierarchical bayesian modeling.

**Language (ILR Scale):** English (native), French (full professional proficiency), German (limited working proficiency), Japanese (limited working proficiency), Arabic (elementary proficiency)

**Other:** Social Media (Twitter: @hhollandmoritz)

## REFERENCES

- Noah Fierer, Ph.D. (PhD Advisor) [noah.fierer@colorado.edu](mailto:noah.fierer@colorado.edu)  
University of Colorado, Boulder  
Dept. of Ecology and Evolutionary Biology
- Kendi Davies, Ph.D. (Dissertation committee) [kendi.davies@colorado.edu](mailto:kendi.davies@colorado.edu)  
University of Colorado, Boulder  
Dept. of Ecology and Evolutionary Biology
- Jonathan Eisen, Ph.D. (Undergraduate mentor) [jaeisen@ucdavis.edu](mailto:jaeisen@ucdavis.edu)  
University of California, Davis  
Dept. of Evolution and Ecology & Dept. of Microbiology and Immunology