ANDREW H. MOELLER

DEPARTMENT OF ECOLOGY AND EVOLUTIONARY BIOLOGY • CORNELL UNIVERSITY • E345
CORSON HALL • ITHACA, NY 14850
email: andrew.moeller@cornell.edu website: moellerlab.com

PROFESSIONAL EXPERIENCE

Aug. 2018	Assistant Professor, Department of Ecology and Evolutionary Biology, Cornell University
2015-2018	Miller Research Fellow, Department of Integrative Biology, University of California, Berkeley
2013–2015	Visiting Scholar**,** Department of Integrative Biology, University of Texas, Austin

EDUCATION

PhD	2015	Yale University, New Haven, CT, USA PhD in Ecology and Evolutionary Biology, December 2015
BSc	2010	University of South Carolina, Columbia, SC, USA BSc in Biological Sciences, May 2010

FELLOWSHIPS, GRANTS, & AWARDS

2022	Cornell University's College of Agriculture and Life Sciences Research and Extension Award for Early Achievement ($1,000)
2020	USDA-NIFA Hatch Grant ($90,000) (PI)
2020	NIH R35 MIRA for Early Stage Investigators ($1,960,380) (PI)
2015	Miller Research Fellowship ($230,908)
2015	John Spangler Nicholas prize for best dissertation in Yale EEB ($500)
2014	NSF Doctoral Dissertation Improvement Grant ($11,500)
2014	Travel award, "The Causes of Genome Evolution Conference", Mishima, Japan ($1,200)
2012	NSF Graduate Research Fellowship ($126,000)
2010	NIH Genetics Training Grant, Trainee ($60,000)
2007	Howard Hughes Undergraduate Research Fellowship ($3,000)
2007	South Carolina Honors College Research Fellowship ($3,000)
2006	South Carolina Undergraduate Research Fellowship ($3,000)
2005	Cooper Scholars Award / School of Music Scholarship, University of South Carolina, Columbia, SC ($70,000)

PUBLICATIONS

Google Scholar Profile: tinyurl.com/nbked64
Reviews are marked with asterisks (*). Superscripts denote graduate student[1], postdoc[2], and undergraduate[3] co-authors.

Moeller, Andrew H., Jon G. Sanders[2], Daniel D. Sprockett[2], and Abigail Landers[1]. 2023. Assessing co-diversification in host-associated microbiomes. *Under review*.

Trevelline, Brian K.[2], Daniel D. Sprockett[2], William V. Deluca, Catherine R. Andreadis[3], **Andrew H. Moeller**[4], Christopher Tonra[4]. 2023. Convergent remodeling of the gut microbiome is associated with host energetic condition over long-distance migration. *In revision*. [4]These authors contributed equally.

Brunetti, Andrés E., Mariana Lyra, Juliane Monteiro, Juan Zurano, Deigo Baldo, Célio Haddad, and **Andrew H. Moeller**. 2023. Convergence of gut microbiota in myrmecophagous amphibians. *In revision*.

Caleb C. Vogt, Matthew Zipple[2], Daniel D. Sprockett[2], Caitlin H. Miller, Summer Hardy, Matthew Arthur, Adam Greenstein, Melanie Colvin, **Andrew H. Moeller**, and Michael J. Sheehan. 2023. Spatial and social structure of rewilded laboratory mice. *In revision*.

Sanders, Jon G.[2], Daniel D. Sprockett[2], Yingying Li, Deus Mjungu, Elizabeth V. Lonsdorf, Jean-Bosco Ndjango, Alexander V. Georgiev, John H. Hart, Crickette Sanz, David Morgan, Martine Peeters, Beatrice H. Hahn, **Andrew H. Moeller**. 2023. Widespread extinctions of co-diversified gut bacterial symbionts from humans. *Nature Microbiology. Accepted in principle*.

Sprockett, Daniel D.[2], Jeffrey D. Price, Anthony F. Juritsch, Robert J. Schmaltz, Madalena V. F. Real[1], Samantha L. Goldman[1], Michael J. Sheehan, Amanda E. Ramer-Tait, and **Andrew H. Moeller**. 2023. Home-site advantage for host-species specific gut microbiota. *Science Advances. In press.*

Sanders, Jon G.[2], Weiwei Yan, Deus Mjungu, Elizabeth V. Lonsdorf, John A. Hart, Crickette M. Sanz, David B. Morgan, Martine Peeters, Beatrice H. Hahn, **Andrew H. Moeller**. 2022. A low-cost genomics workflow enables isolate screen and strain-level analyses within microbiomes. *Genome Biology*. 23: 212.

Moeller, Andrew H. 2022. Metagenomic signatures of balancing selection in the human gut. *Molecular Ecology.* https://doi.org/10.1111/mec.16474 **Highlighted by Faculty Opinions**

Dillard, Brian A.[1], Albert K. Chung, Alex R. Gunderson, Shane Campbell-Staton, **Andrew H. Moeller**. 2022. Humanization of wildlife gut microbiota in urban environments. *eLife.* 11: e76381.

Goldman, Samantha L.[1], Jon G. Sanders[2], Weiwei Yan, Anthony Denice, Margaret Cornwall, Kathleen N. Ivey, Emily N. Taylor, Alex Gunderson, Michael J. Sheehan, Deus Mjungu, Elizabeth V. Lonsdorf, Anne E. Pusey, Beatrice H. Hahn, **Andrew H. Moeller**. 2022. Culture-enriched molecular profiling improves resolution of the vertebrate gut microbiota. *Molecular Ecology Resources*. 22: 122–136.

Hernandez, Christopher J., **Andrew H. Moeller**. 2022. The microbiome: a heritable contributor to bone morphology? *Seminars in Cell and Developmental Biology*. 123: 82–87. *

Trevelline, Brian K.[2], **Andrew H. Moeller**. 2022. Robustness of mammalian gut microbiota to humanization in captivity. *Frontiers in Ecology and Evolution*. 9: 889.

Sarkar, Amar, Siobhán Harty, **Andrew H. Moeller**, Sabra L. Klein, Susan E. Erdman, Karl J.

Friston, Rachel N. Carmody. 2021. The gut microbiome as a biomarker of differential susceptibility to SARS-CoV-2. *Trends in Molecular Medicine*. 27: 1115–1134. *

Moeller, Andrew H. 2021. Genomic expansions in the human gut microbiome. *Genome Biology and Evolution*. 13: evab156.

Houtz, Jennifer L.[1], Jon G. Sanders[2], Anthony Denice, **Andrew H. Moeller.** 2021. Predictable and host-species specific humanization of the gut microbiota in captive primates. *Molecular Ecology*. 30: 3677–3687.

Moeller, Andrew H., Jon G. Sanders[2]. 2020. Roles for the gut microbiome during the adaptive evolution of mammalian species. *Philosophical Transactions of the Royal Society B.* 375: 20190597. *

Moeller, Andrew H., Kathleen Ivey, Margaret B. Cornwall, Kathryn Herr[1], Jordan Rede[1], Emily N. Taylor, Alex R. Gunderson. 2020. Lizard gut microbiome changes with temperature and predicts heat tolerance. *Applied and Environmental Microbiology*. 86: e01181-20. **Highlighted by AEM editors as one of five top-cited articles from 2020–2022.**

Sarkar, Amar, Siobhán Harty[4], Katerina V.-A. Johnson[4], **Andrew H. Moeller[4]**, Rachel N. Carmody, Elizabeth A. Archie, Robin I. M. Dunbar, Philip W. J. Burnet. 2020. Microbial transmission in animal social networks and the social microbiome. *Nature Ecology and Evolution.* 4: 1020–1025. [4]These authors contributed equally. *

Sarkar, Amar, Siobhán Harty, Katerina V. A. Johnson, **Andrew H. Moeller**, Rachel N. Carmody, Soili M. Lehto, Susan E. Erdman, Robin I. M. Dunbar, Philip W. J. Burnet. 2020. The role of the microbiome in the neurobiology of social behavior. *Biological Reviews*. 95: 1131–1166. *

Juan Sepulveda[3], **Andrew H. Moeller**. 2020. The effects of temperature on animal gut microbiomes. *Frontiers in Microbiology* 11: 384. *

Moeller, Andrew H., João C. Gomes-Neto, Sara Mantz, Hatem Kittana, Rafael R. Segura Munoz, Robert J. Schmaltz, Amanda E. Ramer-Tait, and Michael W. Nachman. 2019. Experimental evidence for adaptation to species-specific gut microbiota in house mice. *mSphere* 4: e00387-19.

Moeller, Andrew H., Taichi A. Suzuki, Megan Phifer-Rixey, Michael W Nachman. 2018. Transmission modes of the mammalian gut microbiota. *Science* 362: 453–457.

Sarkar, Amar, Siobhán Harty, Soili M. Lehto, **Andrew H. Moeller**, Timothy G. Dinan, Robin IM Dunbar, John F. Cryan, and Philip WJ Burnet. 2018. The microbiome in psychology and cognitive neuroscience. *Trends in Cognitive Sciences* 22: 611–636. *

Barbian, Hannah J., Yingying Li, Miguel Ramirez, Zachary Klase, Iddi Lipende, Deus Mjungu, **Moeller, Andrew H.**, Micahel L. Wilson, Anne E. Pusey, Elizabeth V. Lonsdorf, Frederic D. Bushman, and Beatrice H. Hahn. 2018. Destabilization of the gut microbiome marks the end-stage of Simian Immunodeficiency virus infection in wild chimpanzees. *American Journal of Primatology* 80: e22515.

Moeller, Andrew H., Taichi Suzuki, Dana Lin, Eileen A. Lacey, Samuel K. Wasser, Michael W.

Nachman. 2017. Dispersal limitation promotes the diversification of the mammalian gut microbiota. *Proceedings of the National Academy of Sciences* 52: 13768–13773.

Moeller, Andrew H. 2017. The shrinking human gut microbiome. *Current Opinion in Microbiology* 38: 30–35. *

Raymann, Kasie T., **Andrew H. Moeller**, Andrew L. Goodman, Howard Ochman. 2017. Unexpected archaeal diversity in the great ape gut microbiome. *mSphere* 2: e00026-17.

Moeller, Andrew H., Alejandro Caro-Quintero, Deus Mjungu, Alexander V. Georgiev, Elizabeth V. Lonsdorf, Martin N. Muller, Anne E. Pusey, Martine Peeters, Beatrice H. Hahn, and Howard Ochman. 2016. Cospeciation of gut microbiota with hominids. *Science* 353: 380–382.

Moeller, Andrew H., Steffen Foerster, Michael L. Wilson, Anne E. Pusey, Beatrice H. Hahn, and Howard Ochman. 2016. Social behavior shapes the chimpanzee pan-microbiome. *Science Advances* 2: e1500997.

Moeller, Andrew H., Martine Peeters, Ahibjo Ayouba, Eitel Mpoudi Ngole, Amadine Esteban, Beatrice H. Hahn, and Howard Ochman. 2015. Stability of the gorilla microbiome despite SIV infection. *Molecular Ecology* 24: 690–697.

Waldor, Matthew K., Gene Tyson, Elhanan Borenstein, Howard Ochman, **Andrew H. Moeller**, B. Brett Finlay, Heidi H. Kong, et al., 2015. Where next for microbiome research? *PLOS Biology* 13: e1002050. *

Moeller, Andrew H., Yingying Li, Eitel Mpoudi Ngole, Steve Ahuka-Mundeke, Elizabeth V. Lonsdorf, Anne E. Pusey, Martine Peeters, Beatrice H. Hahn, and Howard Ochman. 2014. Rapid changes in the gut microbiome during human evolution. *Proceedings of the National Academy of Sciences* 111: 16431–16435. **Highlighted by Faculty Opinions**

Moeller, Andrew H., Martine Peeters, Jean-Basco Ndjango, Yingying Li, Beatrice H. Hahn, and Howard Ochman. 2013. Sympatric chimpanzees and gorillas harbor convergent gut microbial communities. *Genome Research* 23: 1715–1720.

Moeller, Andrew H.[4], Meghan Shilts[4], Yingying Li, Rebecca S. Rudicell, Elizabeth V. Lonsdorf, Anne E. Pusey, Michael L. Wilson, Beatrice H. Hahn, and Howard Ochman. 2013. SIV-induced instability of the chimpanzee gut microbiome. *Cell Host & Microbe* 14: 340–345. [4]These authors contributed equally.

Moeller, Andrew H. and Howard Ochman. 2013. Factors that drive variation among gut microbial communities. *Gut Microbes* 4: 403–408. *

López-Giráldez, Francesc, **Andrew H. Moeller**, and Jeffrey P. Townsend. 2013. Evaluating phylogenetic informativeness as a predictor of phylogenetic signal for metazoan, fungal, and mammalian phylogenomic data sets. *BioMed Research International* 2013.

Moeller, Andrew H. and Jeffrey P. Townsend. 2013. Response to: The relative utility of sequence divergence and phylogenetic informativeness profiling in phylogenetic study design. *Molecular Phylogenetics and Evolution* 66: 436–436. *

Moeller, Andrew H., Patrick H. Degnan, Anne E. Pusey, Michael L. Wilson, Beatrice H. Hahn, and Howard Ochman. 2012. Chimpanzees and humans harbour compositionally similar gut enterotypes. *Nature Communications* 3: 1179.

Moeller, Andrew H. and Jeffrey P. Townsend. 2011. Phylogenetic informativeness profiling of 12 genes for 28 vertebrate taxa without divergence dates. *Molecular Phylogenetics and Evolution* 60: 271–272.

INVITED COMMENTARIES

Moeller, Andrew H. 2022. Loyal gut microbes. *Science* 377: 1263–1264. *

Sprockett, Daniel D.[2], **Andrew H. Moeller**. 2021. Microbiomes: Infant chimps crawling with bacteria. *Current Biology*. 31:R124–R126.

Moeller, Andrew H. and Howard Ochman. 2014. Microbiomes are true to type. *Proceedings of the National Academy of Sciences* 111: 9372–9373. *

MENTEES

2023–present	Mohamed Aldhuhoori, Microbiology thesis committee, Cornell University
2022, summer	Joshua Tucker, NSF REU, Clemson University/Cornell University
2021–present	Abigail Landers, Microbiology Ph.D. student, GRFP Fellow, Cornell University
2021–present	Matthew Zipple, Clarman Postoctoral Fellow (co-advised), Cornell University
2020–present	Brian Trevelline, Rose Postdoctoral Fellow, Cornell University
2020–present	Daniel Sprockett, Postdoctoral Associate, Cornell University
2020–present	Brian Dillard, EEB Ph.D. student, Cornell University
2020–present	Madalena Real, EEB Ph.D. student, Cornell University
2020–present	Catherine Kagemann, MGB thesis committee, Cornell University
2020–present	Jordan Reede, Microbiology thesis committee, Cornell University
2020–present	Kathryn Herr, Microbiology thesis committee, Cornell University
2020–2023	Jennifer Houtz, EEB thesis committee, Cornell University
2019–present	Samantha Goldman, EEB Ph.D. student, Cornell University
2019–2021	Shanya Mitchell, CIHMID undergraduate researcher, Cornell University
2019–2022	Kyra Kwok, undergraduate researcher, Cornell University
2019–2021	Ahmed Eltahir, undergraduate researcher, Cornell University
2019–2021	Annie Li, undergraduate researcher, Cornell University
2018–2020	Diego Burga, CIHMID undergraduate researcher, Cornell University
2018–2021	Jessica Ferber, undergraduate researcher, Cornell University
2018–2021	Juan Sepulveda, undergraduate researcher, Cornell University
2018–2022	Jon Sanders, CIHMID Postdoctoral Fellow, Cornell University
2017	Trey Tang, undergraduate researcher, University of California, Berkeley
2014	Grace Shim, undergraduate researcher, University of Texas at Austin

TEACHING

2023, Spring	BIOEE 4940, Evolutionary Genomics, Lead Professor, Cornell University, Lead Professor
2022, Fall	BIOEE 1180, Evolution for Non-majors, Lead Professor, Cornell University
2022, Spring	BIOEE 1780, An Introduction to Evolutionary Biology and Diversity, Lead Professor, Cornell University

2021, Fall	BIOEE 1780, An Introduction to Evolutionary Biology and Diversity, Instructor: Speciation, Adaptation and Population Genetics Modules, Cornell University
2021, Spring	BIOEE 1780, An Introduction to Evolutionary Biology and Diversity, Instructor: Population Genetics Module, Cornell University
2020, Fall	BIOEE 1780, An Introduction to Evolutionary Biology and Diversity, Instructor: Phylogenetics Module, Cornell University
2020, Fall	BIOEE 4940, Evolutionary Genomics, Lead Professor, Cornell University, Lead Professor
2020, Spring	BIOEE 1780, An Introduction to Evolutionary Biology and Diversity, Lead Professor, Cornell University
2019, Fall	BIOEE 1780, An Introduction to Evolutionary Biology and Diversity, Instructor: Speciation and Adaptation Module, Cornell University
2019, Fall	BIOEE 4500, Mammalogy, Nov. 25 Lecture, Cornell University
2019, Spring	BIOEE 1780, An Introduction to Evolutionary Biology and Diversity, Human Evolution Module, Cornell University
2018, Fall	BIOEE 2070, Evolution for Non-Majors, Oct. 30 Lecture, Cornell University
2012, Fall	Teaching Fellow, EEB 225: Evolutionary Biology, Yale University Profs. Nancy Moran and Paul Turner
2012, Spring	Teaching Fellow, EEB 190: Introductory Statistics, Yale University Prof. Gunter Wagner
2011, Fall	Teaching Fellow, EEB 122: Principles of EEB, Yale University Prof. Stephen Stearns

PROFESSIONAL SERVICE

Service at Cornell:

2023	EEB Admissions Committee
2023	Microbiology Admissions Committe
2022-present	EEB Executive Advisory Committee
2021-2022	EEB Director of Graduate Studies Advisory Committee
2020-present	First Year Advisor, Office of Undergraduate Biology
2020-present	Seminar Planning Committee, Department of Ecology and Evolutionary Biology, Cornell University
2021	Reviewer, Cole Award, Department of Ecology and Evolutionary Biology, Cornell University
2021	Ad Hoc Reviewer, NSF Symbiosis, Infection, and Immunity Program
2020-2021	Social Organization Committee, Department of Ecology and Evolutionary Biology, Cornell University
2020-2021	Diversity, Equity, Inclusion, Justice and Belonging (DEIJB) Seminar Committee, Department of Ecology and Evolutionary Biology, Cornell University
2019-present	Lab Guidelines Committee, Department of Ecology and Evolutionary Biology, Cornell University
2019-2020	EEB Diversity Preview Weekend, Faculty Participant
2019	Review Committee, Kieckhefer/Mellon Student Research Grants
2018-present	Faculty Curator of Mammals, Cornell University Museum of Vertebrates, Cornell University

2018 Graduate Admissions Committee, Department of Ecology and Evolutionary Biology, Cornell University

Reviewer: *Nature*, *Science*, *PNAS*, *Current Biology*, *Nature Ecology & Evolution*, *PLOS Biology*, *Ecology Letters*, *Molecular Ecology*, *Genome Biology*, *Molecular Biology and Evolution*, *Genome Biology and Evolution*, *ISME J*, *Proceedings B*, *Biology Letters*, *Journal of Animal Ecology*, *Functional Ecology*, *Environmental Microbiology*, *Applied and Environmental Microbiology*, *mSystems*, *Microbiome* and others

Memberships: *Society for the Study of Evolution*, *Society for Molecular Biology and Evolution*, *International Society for Microbial Ecology*

Society Service: 2020, 2023 Reviewer for the Rosemary Grant SSE Advanced Awards.

Grant Agency Service: 2020 Panelist, National Science Foundation, Integrative Organismal Systems Core Program.

INVITED SEMINARS AND CONFERENCES

Upcoming	Department of Human Evolutionary Biology, Harvard University. **Invited Seminar**
Upcoming	Department of Biology, Syracuse University. **Invited Seminar**
Upcoming	Research Centre for Evolutionary Hologenomics, University of Copenhagen. **Invited Seminar**
2023	Department of Ecology and Evolutionary Biology, Princeton University. **Invited Seminar**
2022	Department of Molecular and Cell Biology, University of Connecticut. **Invited Seminar**
2022	*Keystone Symposia on The Human Microbiome & Antimicrobial Resistance*, Banff, Alberta, Canada. **Invited Seminar**
2022	*American Society for Microbiology Microbe*, Washington, DC, USA. **Invited Seminar**
2021	Department of Biology, University of Florida. **Invited Seminar**
2019	Department of Biology, University of Pittsburgh. **Invited Seminar**
2019	Department of Biology, University of Rochester. **Invited Seminar**
2019	Ecology, Evolutionary Biology, and Behavior Program, Michigan State University.

Invited Seminar

2018 School of Public Health, University of Michigan.
Invited Seminar

2018 Department of Biology, University of San Francisco.
Invited Seminar

2017 Metaorganisms Institute, Kiel University.
Invited Seminar

2017 Department of Ecology and Evolutionary Biology, Cornell University.
Invited Seminar

2017 Department of Biology, University of Maryland, College Park.
Invited Seminar

2017 Laboratory of Genetics, University of Wisconsin, Madison.
Invited Seminar

2017 BioSciences, Rice University.
Invited Seminar

2016 *Exploring the Microbiome and Disease on the International Space Station*. Cleveland, Ohio, USA.
Invited participant

2016 *Bay Area Population Genetics XIV*. San Francisco, California.
Selected oral presentation

2016 *Evolution*. Austin, Texas, USA.
Selected oral presentation

2016 *Darwin Day*. Charleston, Illinois, USA.
Invited Seminar

2015 *SMBE*. Vienna, Austria.
Selected oral presentation

2014 *SMBE Satellite Meeting.* Mishima, Shizuoka, Japan.
Poster presentation

2013 *SMBE*. Chicago, Illinois, USA.
Poster presentation

2012 *ISME*. Copenhagen, Denmark.
Selected oral presentation

SCIENCE OUTREACH (SELECTED)

Cornell University (2022)
Consultation to Mann Library for the Guild of Natural Science Illustrators/Finger Lakes Region 'Symbiosis' Exhibit

Cornell University (2020)
Consultation to National Public Radio's *Invisibilia* podcast

University of California, Berkeley (2016, 2017)
Public presentations at Cal Day in the Museum of Vertebrate Zoology

University of Texas, Austin (2015)
Public presentation at The Campaign for Texas

Yale University (2012-2013)
Volunteer at New Haven Science Fair

University of South Carolina (2009-2010)
Volunteer in SCienceLab

PRESS (SELECTED)

2022	"Urban gut spillover" *Science*
2022	"Modern city dwellers have lost about half of their gut microbes" *Science*
2021	"The gut microbiome's role in host evolution" *The Scientist*
2019	"Planet You: The mysterious world of the microbiome" Canadian Broadcasting Corporation
2018	"Mouse microbes are mostly inherited" *The Scientist*
2017	"The 'dark matter' of the microbial world" *The Atlantic*
2016	"Research provides new insight into the evolution of human microbes." *All Things Considered*, National Public Radio Listen: tinyurl.com/zrclptf
2016	"Some bacteria have lived in the human gut since before we were human" *Point of Discovery*, Podcast Listen: tinyurl.com/oqgub88
2016	"Some microbes have been with us since before we existed." *The Atlantic*
2016	"Our gut bugs evolved with us as we split from chimps." *New Scientist*
2016	"How your social life changes your microbiome." *The Atlantic*
2016	"Sociable chimps get richer gut microbiomes." *Scientific American* Listen: tinyurl.com/qxnsfvw
2014	"Spilling our guts: decreased diversity in the human microbiome." *Science Friday*, National Public Radio Listen: tinyurl.com/qzz9zdl
2013	"Gut bacteria disruption in AIDS" *Yale Scientific*
2012	"Chimps' gut bugs look similar to human ones" *USA TODAY*
2012	"What do chimps and humans have in common? Gut bacteria" *NBC News*
2012	"Chimpanzee enterotypes" *Deutschlandfunk*, German Public Radio