NSF DISTINGUISHED LECTURE SERIES
BIOLOGICAL SCIENCES DIRECTORATE | BIO

2021

ANTS PLANTS AND BACTERIA

SYMBIOSIS AS A DRIVER OF EVOLUTION

DATE
February 26

TIME
11 am - 12 pm

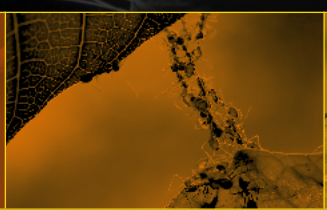
REGISTER
Here

Dr. Corrie Moreau

MARTHA N. & JOHN C. MOSER PROFESSOR OF ARTHROPOD BIOSYSTEMATICS AND BIODIVERSITY

DIRECTOR & CURATOR OF THE CORNELL UNIVERSITY INSECT COLLECTION

CORNELL UNIVERSITY



National Science Foundation
WHERE DISCOVERIES BEGIN

To fully understand the macroevolutionary factors that have promoted the diversification and persistence of biological diversity varied tools and disciplines must be integrated. By combining data from several fields, including molecular phylogenetics/phylogenomics, comparative genomics, biogeographic range reconstruction, stable isotope analyses, microbial community sequencing, and metagenomics to study the evolutionary history of the insects, we are beginning to understand the drivers of speciation and the interconnectedness of life. Comparative phylogenetic analysis reveals the interconnectedness of ants and plants and that ants diversified after the rise of the angiosperms. Comparative genomics has permitted the exploration of the role of symbiosis on genome evolution and behavioral gene evolution demonstrating that Red Queen dynamics are at play in obligate mutualisms. While studies combining the trophic ecology of the ants and next-generation sequencing of gut-associated bacteria of ants highlight the importance of this microbiome association in the evolution of herbivory. Microbial contributions to ants are not limited to diet enrichment and we find evidence for their role in cuticle formation. These multiple lines of evidence are illuminating a more complete picture of ant evolution and providing novel insights into the role that symbiosis plays to promote biological diversity.

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ABOUT THE SPEAKER

Dr. Corrie Moreau is the Martha N. and John C. Moser Professor of Arthropod Biosystematics and Biodiversity at Cornell University in the Departments of Entomology and Ecology and Evolutionary Biology in Ithaca, New York, USA. She is also the Director and Curator of the Cornell University Insect Collection with over 7 million specimens. Dr. Moreau earned her Ph.D. in Evolutionary Biology from Harvard University and was a Miller Fellow at the University of California, Berkeley. Before this she completed her undergraduate and Master's degrees at San Francisco State University. Dr. Moreau was elected a Fellow of the Entomological Society of America in 2020, an AAAS Fellow in 2018, a Kavli Fellow of the National Academy of Sciences USA in 2016, a National Geographic Explorer in 2014, and highlighted as a Woman of Impact by the National Geographic Society in 2018.

Dr. Moreau's research on the evolution and diversification of ants and their symbiotic bacteria couples field-based research with molecular and genomic tools to address the origin of species and how co-evolved systems benefit both partners. Also, she pursues questions on the role of biogeography, trait evolution, and symbiosis in shaping macroevolutionary processes to better understand broad-scale evolutionary patterns of life. In addition to her passion for scientific research, Dr. Moreau is also engaged with efforts to promote science communication and increase diversity in the sciences.

UPCOMING LECTURES | 2021

NSF BIO Distinguished Lecture Series

The mission of the Directorate for Biological Sciences (BIO) is to enable discoveries for understanding life. BIO-supported research advances the frontiers of biological knowledge, increases our understanding of complex systems, and provides a theoretical basis for original research in many other scientific disciplines.

Presented by BIO, this distinguished lecture series will bring in speakers that represent the breadth of biological research and the varied fields within the biological sciences.

All sessions will be conducted virtually.

MARCH 19, 2021
11:00 a.m. – 12:00 p.m.
DR. JEF BOEKE
New York University

APRIL 23, 2021
11:00 a.m. – 12:00 p.m.
DR. BERONDA MONTGOMERY
Michigan State University

MAY 6, 2021
11:00 a.m. – 12:00 p.m.
DR. GENE ROBINSON
University of Illinois at Urbana-Champaign

JUNE 17, 2021
11:00 a.m. – 12:00 p.m.
DR. DAVID ASAI
Howard Huges Medical Institute

For more information, refer to the NSF BIO Distinguished Lecture Series website or contact **Jared Dashoff at jdashoff@nsf.gov**.

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www.nsf.gov

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