Mark S. Hibbins

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Current Appointment

NSERC Postdoctoral Fellow June 2024 - Present
Department of Ecology & Evolutionary Biology
University of Toronto, Toronto, ON, CA
Advisor: Stephen Wright

Education

PhD in Evolutionary Biology (Minor in Bioinformatics) May 2022
Indiana University, Bloomington, IN, USA.
Advisor: Matthew Hahn

Honours Bachelor of Science with High Distinction June 2017
Specialist in Ecology & Evolutionary Biology
University of Toronto, Toronto, ON, Canada.
Senior thesis advisor: Aneil Agrawal

Preprints

Lipshutz S.E., **Hibbins M.S.**, Bentz A.B., Buechlin A.M., Empson T.A., George E.M., Hauber M.E., Rusch D.B., Schelsky W.M., Thomas Q.K., Torneo S.J., Turner A.M., Wolf S.E., Woodruff M.J., Hahn M.W., Rosvall K.A. 2024. Phylotranscriptomics reveals convergent behavioral evolution associated with shared and unique mechanisms in cavity-nesting songbirds. *BioRxiv*. doi:10.1101/2024.02.13.580205

Hibbins M.S., Rifkin J.L., Choudhury B.I., Voznesenka O., Sacchi B.M., Yuan M., Gong Y., Barrett S.C.H., Wright S.I. 2023. Phylogenomics resolves key relationships in *Rumex* and uncovers a dynamic history of independently evolving sex chromosomes. *BioRxiv*. doi:10.1101/2023.12.13.571571

Peer-Reviewed Journal Articles

Hibbins M.S., Hahn M.W. 2024. Distinguishing between histories of speciation and introgression using genomic data. *Bulletin of the Society of Systematic Biologists* 3(1). doi:10.18061/bssb.v3i1.9227

Hibbins M.S., Breithaupt L.C, Hahn M.W. 2023. Phylogenomic comparative methods: accurate evolutionary inferences in the presence of gene tree discordance. *PNAS* 120(22): e2220389120.

Hibbins M.S., Hahn M.W. 2022. Phylogenomic approaches to detecting and characterizing introgression. *Genetics* 220(2): iyab173.

Hibbins M.S., Hahn M.W. 2021. The effects of introgression across thousands of quantitative traits revealed by gene expression in wild tomatoes. *PLoS Genetics* 17(11): e1009892.

Vanderpool D., Minh B.Q., Lanfear R., Hughes D., Murali S., Harris R.A., Raveendran M., Muzny D.M., **Hibbins M.S.**, Williamson R.J., Gibbs R.A., Worley K.C., Rogers J., Hahn M.W. 2020. Primate phylogenomics uncovers multiple rapid radiations and ancient interspecific introgression. *PLoS Biology* 18(12): e3000954

Hibbins M.S., Gibson M.J.S, Hahn M.W. 2020. Determining the probability of hemiplasy in the presence of incomplete lineage sorting and introgression. *eLife* 9: e63753.

Hamlin J.A.P., **Hibbins M.S.**, Moyle L.C. 2020. Assessing biological factors affecting post-speciation introgression. *Evolution Letters* 4(2): 137-154.

Hahn M.W. & **Hibbins M.S.** 2019. A three-sample test for introgression. *Molecular Biology and Evolution*, 36(12): 2878-2882.

Hibbins M.S. & Hahn M.W. 2019. The timing and direction of introgression under the multispecies network coalescent. *Genetics* 211(3): 1059 – 1073.

Rouard M., Droc G., Martin G., Sardos J., Hueber Y., Guignon V., Cenci A., Geigle B., **Hibbins M.S.**, Yahiaoui N., Baurens F.C, Berry V., Hahn M., D'Hont A., Roux N. 2018. Three new genome assemblies support a rapid radiation in *Musa acuminata* (wild banana). *Genome Biology and Evolution* 10(12): 3129 – 3140.

Invited Seminars

Ecology, Evolution, and Behavior Program, Michigan State University, East Lansing, MI. 2024.

Department of Biology, University of Rochester, Rochester, NY. 2024.

Conference Presentations

Hibbins M.S., Wright S.I. 2024. The landscape of recombination as a potential driver of sex chromosome formation and turnover. Presentation. *Evolution*, Montreal, CA.

Hibbins M.S., Wright S.I. 2024. The landscape of recombination as a potential driver of sex chromosome formation and turnover. Poster. *The Allied Genetics Conference*, Washington, D.C.

Hibbins M.S., Rifkin J. L., Choudhury B. I., Pyne C., Barrett S.C.H., Wright S.I. 2023. Resolving the history of sex chromosome evolution in *Rumex* with phylogenomics. Presentation. *Evolution*, Albuquerque, NM.

Hibbins M.S., Breithaupt L., Hahn M.W. 2022. Phylogenomic comparative methods: accurate evolutionary inferences in the presence of gene tree discordance. Presentation. *Evolution*, Cleveland, OH. **Winner of Ernst Mayr Award in Systematic Biology.**

Hibbins M.S., Breithaupt L., Hahn M.W. 2022. Phylogenomic comparative methods: accurate evolutionary inferences in the presence of gene tree discordance. Virtual talk. *Population, Evolutionary, and Quantitative Genetics*, Virtual.

Hibbins M.S., Hahn M.W. 2021. The effects of introgression across thousands of quantitative traits revealed by gene expression in wild tomatoes. Poster. *Midwest Population Genetics*, Madison, WI. **Winner of best late-PhD student poster.**

Hibbins M.S., Hahn M.W. 2021. The effects of introgression across thousands of quantitative traits revealed by gene expression in wild tomatoes. Virtual poster and Q&A. *Society for Molecular Biology and Evolution*, Virtual.

Hibbins M.S., Hahn M.W. 2020. Determining the risk of hemiplasy in the presence of incomplete lineage sorting and introgression. Virtual poster and Q&A. *The Allied Genetics Conference*, Virtual.

Hibbins M.S., Hahn M.W. 2019. Introgression substantially increases the risk of hemiplasy in phylogenetic inference. Poster. *Evolution*, Providence, RI.

Hibbins M.S., Hahn M.W. 2018. Population genetic tests for the direction and relative timing of introgression. Presentation. *Population, Evolutionary, and Quantitative Genetics*, Madison, WI.

Hibbins M.S., Agrawal A.F. 2017. Mother knows best: parental effects on fitness in *D. melanogaster*. Poster. *EEB Undergraduate Research Fair*, Toronto, ON, CA.

Awards & Recognitions

NSERC Postdoctoral Fellowship 2024
$90,000 CAD (45k annually for two years).

James F. Crow Early Career Researcher Award (Runner-up) 2024
Genetics Society of America, The Allied Genetics Conference 2024, Washington DC. $100 USD.

Ernst Mayr Award in Systematic Biology 2022
Society of Systematic Biologists, Evolution 2022, Cleveland OH. $1000 USD.

EEB Postdoctoral Fellowship, Department of EEB, University of Toronto. 2022
$126,000 CAD ($55k salary + $8k research support annually for two years).

Best late-PhD student poster 2021
Midwest Population Genetics, Madison, WI, USA

Edwin J. Crossman Undergraduate Scholarship in Ecology and Evolutionary Biology 2017
University of Toronto, Toronto, ON, Canada. $479 CAD.

New College Student Council In-Course Scholarship 2016
University of Toronto, Toronto, ON, Canada. $1500 CAD.

New College Raptors Foundation In-Course Scholarship 2015
University of Toronto, Toronto, ON, Canada. $1000 CAD.

Teaching & Mentorship Experience

Undergraduate Mentor 2021-2023
Mentee: Lara Breithaupt

Indiana University, Bloomington.

- Mentorship in C++, R, and Bash scripting; planning and carrying out an independent research project; manuscript writing and publication
- Now a PhD student at Massachusetts Institute of Technology

Teaching Assistant, INFO-I590 SNP Discovery & Population Genetics Fall 2020
Luddy School of Informatics, Computing, & Engineering
Indiana University, Bloomington.

- Delivered a one-hour introduction to basic command line and Python for bioinformatics
- Assisted students with bioinformatics assignments during office hours

Assistant Instructor, BIOL-L113 Biology Laboratory Fall 2017
Department of Biology, Indiana University, Bloomington.

- Assisted in the instruction of basic biology laboratory practices, concepts, and principles of experimental design.

Employment History

EEB Postdoctoral Fellow, University of Toronto June 2022 – May 2024

Research Assistant, Hahn Lab, Indiana University, Bloomington IN. August 2018 – May 2022

Natural Heritage Educator, Bon Echo Provincial Park, ON, CA Summers 2014 - 2016

Classroom Tutor, Admaston Township Public School, Renfrew, ON, CA May 2014

Project Wilderness Instructor, Camp Trillium, Bloomfield, ON, CA Summer 2013

Service

Peer reviewer: *Systematic Biology* (13x), *Molecular Biology and Evolution* (9x), *Evolution Letters* (4x), *PLoS Biology* (4x), *New Phytologist* (4x), *BMC Plant Biology* (3x), *Ecology & Evolution* (2x), *PLoS Genetics* (2x), *Insect Systematics and Diversity* (2x), *PNAS* (2x), *eLife* (2x), *Evolution* (2x), *Molecular Ecology* (2x), *BMC Ecology & Evolution* (2x), *Genome Biology and Evolution*, *Molecular Phylogenetics and Evolution*, *Annals of Botany*, *Nature Communications*

Committees: 2022-2023 University of Toronto EEB Wellness Committee; PEEBL co-chair (University of Toronto Postdoc EEB Leadership) (2022-present); Graduate student member of faculty search committee at Indiana University (2019)

Organized seminars/workshops/journal clubs: EEB Journal Club (University of Toronto EEB, Fall 2023 - present), Macroevolution Discussion Group (University of Toronto EEB, Winter 2023), Quantitative Methods in EEB Journal Club (Indiana University, 2019)

Graduate student host, Graduate Recruitment Weekend. 2018, 2020, 2021
Indiana University, Bloomington, IN

Software

***seastaR*:** Constructs a phylogenetic variance-covariance matrix from gene trees. Co-author with Lara C. Breithaupt. https://github.com/larabreithaupt/seastaR

***HeIST*:** Hemiplasy Inference Simulation Tool. Co-author with Matthew J.S. Gibson. https://github.com/mhibbins/HeIST