

MATTHEW JS GIBSON

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gibsonmatt.github.io

EDUCATION

Indiana University 2016 - 2022
Ph.D. in Evolution, Ecology, and Behavior, minor in Bioinformatics
Advisor: Leonie C. Moyle

University of Kansas 2011 - 2016
Bachelor of Science in Genetics, with honors
Thesis: *Connecting the Breeding System to Mating Patterns in Macaronesian *Tolpis**
Advisors: Mark E. Mort and Daniel J. Crawford

PREPRINTS

Stewart, C.M., **Gibson, M.J.S.**, Parsa, J., Li, J.H. (2024). A comparison between low-cost library preparation kits for low coverage sequencing. *BioRxiv*: 10.1101/2024.01.30.578044

Li, J.H., Liu, A., Buerkle, C.A., Palmer, W., Belbin, G.M., Ahangari, M., **Gibson, M.J.S.**, & Flagel, L. (2023). The effects of reference panel perturbations on the accuracy of genotype imputation. *BioRxiv*: 10.1101/2023.08.10.552684

PUBLICATIONS

* Equal Contribution

Gibson, M.J.S., Lourdes Torres, M., Brandvain, Y., & Moyle, L.C. (2021). Introgression shapes fruit color convergence in invasive Galapagos tomato. *eLife*. 10: e64165. doi: 10.7554/eLife [BioRxiv: 10.1101/2020.09.26.313627]

Moyle, L.C., Wu, M., & **Gibson, M.J.S.** (2021). Reproductive proteins evolve faster than non-reproductive proteins among *Solanum* species. *Frontiers in Plant Science*. 12: 635990. doi: 10.3389/fpls.2021.635990 [BioRxiv: 10.1101/2020.11.30.405183]

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. doi: 10.7554/eLife.63753. [BioRxiv: 10.1101/2020.04.15.043752]

Gibson, M.J.S.^{*}, Crawford, D.J.^{*}, Holder, M.T.^{*}, Mort, M.E., Kerbs, B., Menzes de Sequeira, M., Kelly, J.K. (2020). Genome-wide genotyping estimates mating system parameters in the island species *Tolpis succulenta*. *American Journal of Botany*. 107(8): 1189-1197. doi: 10.1002/ajb2.1515.

Gibson, M.J.S. & Moyle, L.C. (2020). Regional differences in the abiotic environment contribute to genomic divergence within a wild tomato species. *Molecular Ecology*. 29(12): 2204-2217. doi: 10.1111/mec.15477. [BioRxiv: 10.1101/744797]

Gibson, M.J.S., Lourdes Torres, M., & Moyle, L.C. (2020). Local extirpation is pervasive among historical populations of Galapagos endemic tomatoes. *Evolutionary Ecology*. 34: 289-307. doi: 10.1007/s10682-020-10035-3. [BioRxiv: 10.1101/744797]

- Jewell, C.P., Zhang, S., **Gibson, M.J.S.**, Tovar-Mendez, A., McClure, B., & Moyle, L.C. (2020). Intraspecific standing variation underlying reproductive barriers between species in the wild tomato clade (*Solanum* sect. *Lycopersicon*). *Journal of Heredity*. esaa003: 1-11. doi: 10.1007/s10682-020-10035-3 [BioRxiv: 10.1101/718544]
- Kostyun, J.L., **Gibson, M.J.S.**, King, C.M., & Moyle, L.C. (2019). A simple genetic architecture and low constraint allows rapid floral evolution in a diverse and recently radiating plant genus. *New Phytologist*. 223: 1009-1022. doi: 10.1111/nph.15844
- Kerbs, B., Ressler, J., Kelly, J.K., Mort, M.E., Santos-Guerra, A., **Gibson, M.J.S.**, Caujape-Castells, J., & Crawford, D.J. (2017). Variation in synthetic interspecific hybrids of *Tolpis* (Asteraceae) in the Canary Islands: novel character combinations, transgressive traits, and phenotypic lines. *AoB Plants*. 9(5): plx043. doi: 10.1093/aobpla/plx043

PRESENTATIONS

† Presenter

- Gibson, M.J.S.**[†], Lourdes Torres, M., Brandvain, Y., & Moyle, L.C. (2021). Reconstructing the history and biological consequences of a plant invasion on the Galapagos islands. Contributed presentation. *Evolution*.
- Gibson, M.J.S.**[†], Lourdes Torres, M., Brandvain, Y., & Moyle, L.C. (2021). Reconstructing the history and biological consequences of a plant invasion on the Galapagos islands. Contributed presentation. *SICB Island Biology Special Session in honor of Vicky Funk*.
- Gibson, M.J.S.**[†], Lourdes Torres, M., Brandvain, Y., & Moyle, L.C. (2021). Reconstructing the history and biological consequences of a plant invasion on the Galapagos islands. Contributed presentation. *IU EEB Brown Bag series*.
- Gibson, M.J.S.**[†], Lourdes Torres, M., Brandvain, Y., & Moyle, L.C. (2020). Reconstructing the history and biological consequences of a plant invasion on the Galapagos islands. Contributed presentation. *SOL International Online Meeting*.
- Gibson, M.J.S.**[†], Lourdes Torres, M., & Moyle, L.C. (2019). Demographic histories of tomato species on the Galapagos islands: genomic consequences of a biological invasion. Contributed presentation. *Galapagos Conservation and Research Symposium*. San Cristobal, Galapagos, Ecuador
- Gibson, M.J.S.**[†], Lourdes Torres, M., & Moyle, L.C. (2019). Demographic and genomic threats to endemic tomato species on the Galapagos islands: evidence for local hybridization and extinction. Contributed poster. *Plant Sciences Symposium*. Davis, California.
- Hibbins, M.[†], **Gibson, M.J.S.**, Guerrero, R.F., & Hahn, M.W. (2019) Introgression greatly increases the probability of hemiplasy in phylogenetic inference. Poster. *Evolution*. Providence, RI.
- Gibson, M.J.S.**[†] & Moyle, L.C. (2018). Rapid phenotypic evolution is unconstrained by pleiotropy in the florally diverse genus *Jaltomata*. Poster. *American Genetic Association Presidents Symposium*. Toronto, Canada
- Gibson, M.J.S.**[†], Josephs, E.B., & Moyle, L.C. (2017). Parallel QTL mapping of shared and unique loci for adaptation and reproductive isolation between *Solanum* species. Poster. *Midwest Ecology and Evolution Conference*. Champaign, Illinois, USA

Gibson, M.J.S.[†](2016). Connecting the Breeding System to Mating Patterns in Macaronesian Tolpis. Presentation. *Undergraduate Research Symposium*. Lawrence, Kansas, USA.

Mort, M.E.[†], Archibald, J.K., **Gibson, M.J.S.**, Bontrager, H., Hauber, D.P., Borges Silva, L., Menezes de Sequeira, Moura, M., Santos-Guerra, A., Kelly, J.K., Gruenstaeudl, M., Juli Caujape-Castells, & Crawford, D.J. (2016). The utility of Multiplexed-Shotgun-Genotyping (MSG) for resolving phylogenetic relationships within and among oceanic archipelagos: an example from Macaronesian Tolpis (Asteraceae). *Island Biology*. Azores, Portugal.

Mort, M.E.[†], Archibald, J.K., **Gibson, M.J.S.**, Bontrager, H., Hauber, D.P., Borges Silva, L., Menezes de Sequeira, Moura, M., Santos-Guerra, A., Kelly, J.K., Gruenstaeudl, M., Juli Caujape-Castells, & Crawford, D.J. (2016). Analyses of Multiplexed-Shotgun-Genotyping (MSG) data reveal cryptic biodiversity in Macaronesian Tolpis. *Island Biology*. Azores, Portugal.

SOFTWARE

HeIST: Hemiplasy Inference and Simulation Tool. Hibbins, M. & Gibson, M.J.S. 2020.
[\[https://github.com/mhibbins/HeIST\]](https://github.com/mhibbins/HeIST)

TEACHING EXPERIENCE

Assistant Instructor, BIOL 318 Evolution, Indiana University	2021
Assistant Instructor, BIOL 318 Evolution, Indiana University	2020
Helper, Command Line Bioinformatics for Beginners Workshop, ECR ² Conference	2020
Assistant Instructor, R Programming Boot camp, Indiana University	2019
Guest lecture on climate change and adaptation, BIOL 318 Evolution, Indiana University	2019
Assistant Instructor, BIOL 318 Evolution, Indiana University	2019
Instructor, Our Evolving World, Indiana University	2018-2019
Assistant Instructor, BIOL 111 Evolution and Diversity, Indiana University	2018
Guest lecture on genetic mapping, BIOL 318 Evolution, Indiana University	2017
Assistant Instructor, BIOL 318 Evolution, Indiana University	2017
Assistant Instructor, BIOL 113 Biology Laboratory, Indiana University	2016-2017
Undergraduate Teaching Assistant, Human Anatomy, University of Kansas	2015

AWARDS/HONORS (\$153,226)

William Ogg Final Year Fellowship, Indiana University, \$10,000 (declined)	2021
USDA NIFA Predoctoral Fellowship [†] , \$119,726	2021
American Genetic Association EECG Research Award, \$6000	2021
American Society of Naturalists George Gilchrist Student Research Award, \$2000	2020
Charles Heiser Fellowship, Indiana University, \$2000	2020
George W. Brackenridge Fellowship, Indiana University, \$2500	2019
Plant Sciences Symposium Travel Award, UC Davis, \$500	2019
Cleland Plant Science Travel Award, Indiana University, \$500	2018
Summer Institute in Statistical Genetics Scholarship, University of Washington, \$2000	2017
Floyd Plant Biology Fellowship, Indiana University, \$3000	2017-2020
Departmental Honors, University of Kansas,	2016
Undergraduate Research Award, University of Kansas, \$1000	2016
Deans List, University of Kansas	2014-2016

[†] Recommended for funding

PROFESSIONAL EXPERIENCE

Reviewer, <i>Molecular Ecology, Molecular Biology and Evolution, New Phytologist</i>	
Student representative EEB search committee, Indiana University	2019
Student representative EEB hiring committee, Indiana University	2018

WORKSHOPS

Summer Institute in Statistical Genetics, University of Washington	2017
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VOLUNTEER EXPERIENCE

Mentor, Jim Holland Summer Science Research Program, Indiana University	2018-2019
Mentor, Groups Scholars STEM Program, Indiana University	2016-2017
Natural Science Community Organization, University of Kansas	2015