KEVIN ANDREW BIRD

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RESEARCH INTERESTS

Dissecting complex evolutionary phenomena like phenotypic plasticity, convergent evolution, secondary metabolites, and polyploidy using the strategies and methodology of systems biology, such as large-scale, multi-omic datasets and computational modeling.

EDUCATION

2017-Present **Ph.D** Horticulture and Ecology, Evolutionary Biology and Behavior, Michigan State University. Advisors: Patrick Edger and Robert VanBuren

2012-2016 **B.S**. Biological Sciences (*Cum laude* with University Honors) University of Missouri
B.A. Philosophy (*Cum laude* with University Honors) University of Missouri

RESEARCH EXPERIENCE

2017-Present **Graduate Research Assistant:** Michigan State University, Department of Horticulture and Ecology, Evolutionary Biology, and Behavior Program. Advisors: Patrick Edger and Robert VanBuren

2016-2017 **Fulbright fellow/visiting researcher**: VIB/Ghent University, Department of Plant Systems Biology. Advisor: Steven Maere
-Utilized novel techniques in computational systems biology to model evolution of gene regulatory network in the presence and absence of gen(om)e duplications

2015 **Research Assistant**: Cornell University, Plant Breeding and Genetics Section. Advisor: Michael Allen Gore
-*Brassica rapa* field trial and training in quantitative genetic techniques to perform Genome-Wide Association for glucosinolate and mineral nutrient traits

2013-2016 **Undergraduate Research Assistant**: University of Missouri Division of Biological Sciences. Advisor: J Chris Pires
- Led collaboration with Cornell University and USDA to investigate population
structure and genetic diversity of a global diversity panel of *Brassica rapa*
- Performed bioinformatic analysis to probe utility of ITS genes for phylogenetic inference

2012-2013 **Lab Technician**: University of Missouri, Turf Grass Pathology Lab. Supervisor: Lee Miller
- Responsible for fungal tissue culture, DNA isolation, gel electrophoresis

PUBLICATIONS

1. **Bird KA,** Niederhuth C, Ou S, Gehan M, Pires JC, Xiong Z, VanBuren R, Edger PP (2020) Replaying the evolutionary tape to investigate subgenome dominance in allopolyploid *Brassica napus. New Phytologist.* In Press https://doi.org/10.1111/nph.17137

2. **Bird KA**.(2020). No support for the hereditarian hypothesis of the Black-white achievement gap using polygenic scores and tests for divergent selection. American Journal of Physical Anthropology. In Press

3. Tichko P, **Bird KA**, Kohn G (2020). Beyond "Consistent With" Adaptation: Is There a Robust Test For Music Adaptation? *Behavioral and Brain Sciences.* In Press

4. Hardigan, MA, Feldmann, MJ, Lorant, A, **Bird, KA**, Famula, R, Acharya, C, ... & Knapp, SJ (2020). Genome Synteny Has Been Conserved Among the Octoploid Progenitors of Cultivated Strawberry Over Millions of Years of Evolution. *Frontiers in Plant Science*, *10*, 1789.

5. Turner-Hissong SD, **Bird KA**, Lipka AE, King EG, Beissinger TM, & Angelovici R. (2020). Genomic prediction informed by biological processes expands our understanding of the genetic architecture underlying free amino acid traits in dry Arabidopsis seeds. *G3: Genes, Genomes, Genetics*, 10(11), 4227-4239.

6. Barbey, C, Lee, S, Verma, S, **Bird, KA**, Yocca, A E, Edger, PP, & Knapp SJ, Whitaker VM, Folta, K M (2019). Disease Resistance Genetics and Genomics in Octoploid Strawberry.*G3: Genes,Genomes, Genetics* volume 9, 3315-3332.

7. Edger PP, Poorten TJ, VanBuren R, Hardigan MA, Colle M, McKain MR, Smith RD, Teresi SJ, Nelson ADL, Wai CM, Alger EI, **Bird KA**, Yocca AE, Pumplin N, Ou S, Ben-Zvi G, Brodt A, Baruch K, Swale T, Shiue L, Acharya CB, Cole GS, Mower JP, Childs KL, Jiang N, Lyons E, Freeling M, Puzey JR & Knapp SJ. (2019) Origin and evolution of the octoploid strawberry genome *Nature Genetics* volume 51, 541–547

8. Colle M, Leisner CP, Wai CM, Ou S, **Bird KA**, Wang J, Wisecaver JH, Yocca AE, Alger EI, Tang H, Xiong Z, Callow P, Ben-Zvi G, Brodt A, Baruch K, Swale T, Shiue L, Song G, Childs KL, Schilmiller A, Vorsa N,Buell CR, VanBuren R, Jiang N, Edger PP. (2019) Haplotype-phased genome and evolution of phytonutrient pathways of tetraploid blueberry, *GigaScience*, , giz012, https://doi.org/10.1093/gigascience/giz012

9. **Bird KA**, VanBuren R, Puzey JR, Edger PP. (2018) The causes and consequences of subgenome dominance in hybrids and recent polyploids. *New Phytologist* doi:10.1111/nph.15256

10. Edger PP, McKain M, **Bird KA,** VanBuren R. (2018) Investigating the evolutionary dynamics of subgenomes in ancient polyploids: challenges and future directions. *Current Opinion in Plant* Biology 42. https://doi.org/10.1016/j.pbi.2018.03.006.

11. McAlvay A C, **Bird KA**, Poulsen G, Pires JC, & Emshwiller E. (2017, May). Barriers and prospects for wild crop relative research in Brassica rapa. In *VII International Symposium on Brassicas* 1202 (pp. 165-177).

12. **Bird KA**, An H, Gazave E, Gore MA, Pires JC, Robertson LD and Labate JA (2017). Population structure and phylogenetic relationships in a diverse panel of Brassica rapa L. *Frontiers in Plant Science*. 8:321. doi: 10.3389/fpls.2017.00321

13. Washburn JD, **Bird KA**, Conant G, Pires JC. 2016 Convergent Evolution and the Origin of Complex Phenotypes in the age of Systems Biology. *International Journal of Plant Sciences* 177 (4), 000-000

14. Edger PP*, Tang M*, **Bird KA**, Mayfield DR, Conant G, Mummenhoff K, Koch M, Pires JC. 2014 Secondary Structure Analyses of the Nuclear rRNA Internal Transcribed

Spacers and Assessment of Its Phylogenetic Utility across the Brassicaceae (Mustards). *PLoS ONE* 9(7): e101341

*These authors contributed equally to this work

SCHOLARSHIPS AND AWARDS

2017-2022 **University Distinguished Fellowship,** Michigan State University, $80,000
2016-2021 **National Science Foundation Graduate Research Fellowship** National Science Foundation, $138,000
2016-2017 **Fulbright US Student Award**, Department of State Bureau of Educational and Cultural Affairs, $14,389
2016 **Young Botanist of the Year Award**, Botanical Society of America
2016 **Professor Stanley Zimmering Prize for Outstanding Senior in Biological Sciences**, University of Missouri, $500
2016 **Award for Academic Distinction**, University of Missouri
2015 **Barry Goldwater Excellence in Education Scholarship** Honorable Mention, Barry Goldwater Scholarship and Excellence in Education Foundation
2015 **American Society of Plant Biologists Summer Undergraduate Research Fellowship**, American Society of Plant Biologists, $4,000
2014-2015 **HHMI C3 Hughes Research Fellowship**, University of Missouri, $8,000
2013-2014 **Monsanto Undergraduate Research Fellowship**, University of Missouri, $2,800

GRANTS

2020 David and Marion Dilley Mentoring Scholarship, $3,000
2019 NRT-IMPACTS Travel Award, Michigan State University, $600
2018 Graduate Officer Fellowship, Michigan State University, $2,000
2015 Honors College Student Experiential Learning Award, University of Missouri, $500
2015 Douglas D. Randall Young Scientist Development Grant, University of Missouri, $500
2014 Mizzou Advantage Undergraduate Travel Grant, University of Missouri, $360
2014 Office of Undergraduate Research Travel Grant, University of Missouri, $250

TEACHING EXPERIENCE

2018/2019 Teaching Assistant, UGS 200: Molecular Phylogenetics & Evolution, Michigan State University
2016 (fall) Teaching Assistant, Phil 4400: Philosophy of Science. University of Missouri
2015 (spring) Teaching Assistant, GnHnrs2850: Finding the Story in Science. University of Missouri
2014-2015 Supplemental Instructor, BioSci 2200: General Genetics. University of Missouri
2014-2016 Tutor, BioSci 2200: General Genetics. University of Missouri

ORAL PRESENTATION

2020 MSU EEBB graduate student colloquium, East Lansing, MI
Title: The Mismeasure of genes: Debunking scientific racism with evolutionary genomic analysis

2019 5th Conference on Plant Genome Evolution, Elsevier, Sitges Spain
Title: Replaying the evolutionary tape with synthetic polyploids to investigate subgenome dominance

2019 Symposium on Evolution and Core Processes of Gene Expression, American Society for Biochemistry and Molecular Biology, East Lansing, MI
Title: Replaying the evolutionary tape in synthetic Brassica napus polyploids: How deterministic is subgenome dominance?

2018 Botany 2018, Botanical Society of America, Rochester, MN
Title: The causes and consequences of subgenome dominance in hybrids and recent polyploids

2016 Botany 2016, Botanical Society of America, Savannah, GA
Title: Association Mapping and Population Genetics of the Vegetable Crop *Brassica rapa.*

2014 Saturday Morning Science, University of Missouri, Columbia MO
Title: Decoding Science: Talking Outside the Box.

POSTERS

2018 Plant Biology 2018, American Society of Plant Biologists, Montreal, Quebec
Title: Subset-based genomic prediction provides insights into the genetic architecture of free amino acid levels in dry Arabidopsis thaliana seeds

2016 Plant Biology 2016, American Society of Plant Biologists, Austin TX
Title: Population Genetics and Association Mapping of Nutritional Traits in the Vegetable Crop *Brassica rapa*.

2015 Life Sciences Week, University of Missouri, Columbia MO
Title: Building the Foundation for Biofortification of *Brassica rapa*.

2015 University of Missouri Undergraduate Research and Creative Achievements Forum, Columbia, MO
Title: Laws? Where We're Going We don't Need Laws: How Biology Explains. 2015

2015 Undergraduate Research Day at the Capitol, Jefferson City, MO
Title: Finding the Best Genes for Estimating Evolutionary Relationships of Cruciferous Vegetables

2014 Botany 2014, Botanical Society of America, Boise, ID
Title: Assessing the Phylogenetic Utility of the ITS Regions

2014 Evolution 2014, Raleigh, NC
Title: Assessing the Phylogenetic Utility of the ITS Regions

RELATED EXPERIENCE

2018 12/17-12/2 Genome Assembly Workshop, University of California Davis
2016 1/4-1/8 Tucson Plant Breeding Institute, University of Arizona
2014 5/19-5/30 HHMI Summer Biomedical Informatics Institute, University of Missouri

PROFESSIONAL SERVICE

Ad hoc reviewer for *Journal of Experimental Botany, Genome Biology and Evolution,* and *G3: Genes|Genomes|Genetics*

2020	Ad-hoc Diversity, Equity and Inclusion working group for Horticulture Department at MSU
2020	NSF-GRFP working group mentor, Botanical Society of America
2020	Executive Committee Member EEBB Graduate Group
2019-2020	President, Graduate Employees Union, Michigan State University
2018-2019	Chief Information Officer, Graduate Employees Union, Michigan State University
2017-2019	NSF-GRFP reviewer, Michigan State University
2017-2018	Professional Development Co-Chair, Horticulture Organization of Graduate Students, Michigan State University
2014-2016	Undergraduate Research Ambassador, University of Missouri

PODCAST APPEARANCES

2020 *Ep. 107 *Arch and Anth pod* "In plant genomics, what are polyploidy and subgenome dominance?" and discussion about addressing scientific racism https://archandanth.com/episode-107-interview-with-kevin-bird/

2020 Podcast appearance- *Personal finance for PhDs* "Healthy, Wealthy, and Wise: Choose a PhD Program That Will Support Your Personal and Professional Development" about unionization and advocacy when choosing graduate schools. https://pfforphds.com/healthy-wealthy-and-wise-choose-a-phd-program-that-will-support-your-personal-and-professional-development/

2019 *Podcast appearance Ep. 109 *Embrace the Void* to talk about "Human biodiversity" and the abuse of science to defend racist beliefs https://voidpod.com/podcasts/2019/9/25/ev-109-human-biodiversity-with-kevin-bird

*** related to diversity, inclusion and anti-racism**

OUTREACH

2020 Judge, Ozark Science and Engineering Fair, Junior and Senior division

2019 Biology on Tap, public research oral presentation *The Multi-million year evolutionary journey of the strawberry*

2019 Fascination in Plants Day at Michigan State, public demonstration and lessons about plants and plant genetics to a general public audience in East Lansing

2017-2018 Organized informal journal club, “Peer Rebrew” that focused on latest work in genomics and systems biology

NON-TECHNICAL WRITING

2020 *Not in Our Genes-Resisting the Narrative around Genome-wide Association Studies. *Science For The People* Vol. 23 No.3 Bio-politics pp. 47-50

2020 Blog post- Commiserations, skepticism, and antirealism about genomics and Truth https://kevinabird.github.io/2020/08/13/Truth-in-genomics.html

2020 Blog post- *With Friends Like These: Comments on the Uproar over Stephen Hsu https://kevinabird.github.io/2020/06/16/With-Friends-Like-These-Comments-On-the-Uproar-Over-Stephen-Hsu.html*

2020 Blog post- *Evolutionary Psychology Needs to Earn its Name* *https://kevinabird.github.io/2020/04/27/Evolutionary-Psychology-Needs-To-Earn-Its-Name.html*

2020 The University of California at Santa Cruz Just Fired Scores of Graduate Workers for Striking. *Arc Digital* *https://arcdigital.media/the-university-of-california-at-santa-cruz-just-fired-scores-of-graduate-workers-for-striking-4680db862278* ***(~1,200 views as of Dec 17th 2020)***

2020 *Fighting Racist Pseudoscience With Actual Science: A Guide, review of *How to Argue with a Racist* by Adam Rutherford. *Arc Digital* *https://arcdigital.media/fighting-racist-pseudoscience-with-actual-science-a-guide-2d18c509a781* ***(~7,300 views as of Dec 17th 2020)***

2019 *Blog post- *The Hereditarian Hypothesis and Scientific Racism* *https://kevinabird.github.io/2019/12/18/The-Genetic-Hypothesis-and-Scientific-Racism.html*

*** related to diversity, inclusion and anti-racism**

OTHER MEDIA

2019 *Collaboration on video series *Race is not Real* where I did a literature review and wrote a script discussing the realities and misconceptions about race and genetics
Intro: https://www.youtube.com/watch?v=nWyoULD1JFo
Part 1: https://www.youtube.com/watch?v=J54OiDidcJs
Part 2: https://www.youtube.com/watch?v=8d8bnGTE8G8
Combined ~10668 views as of *Dec 17th 2020*

2018 *Consulted for New York Times story *Why White Supremacists Are Chugging Milk (and Why Geneticists Are Alarmed)*
https://www.nytimes.com/2018/10/17/us/white-supremacists-science-dna.html also featured in

https://www.nytimes.com/2018/10/18/insider/science-genetics-white-supremacy.html

*** related to diversity, inclusion and anti-racism**

MENTORING

2020 Coaching/mentoring for professional development and graduate school applications
Ernesto P. Gagarin Jr.
Summer Blanco

2018 Plant Genomics REU Mentor, Edger Lab
Scott Teresi – Undergraduate student

MEMBERSHIPS

American Society of Plant Biologists
Botanical Society of America