

Tom R. Booker

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EMPLOYMENT **University of British Columbia**, Vancouver, Canada
- Bioinformatics Postdoctoral Fellow (Oct 2021 - October 2023)
University of Calgary, Calgary, Canada
- Postdoctoral Research Fellow (March - October 2021)
- Supervised by Professor Michael Whitlock and Associate Professor Sam Yeaman
University of British Columbia, Vancouver, Canada
- Postdoctoral Research Fellow (Sept 2018 - March 2021)
- Supervised by Professor Michael Whitlock and Associate Professor Sam Yeaman

EDUCATION **University of Edinburgh**, Edinburgh, Scotland
PhD., [Evolutionary Genetics](#), October 2014 - October 2018
- Thesis Title: UNDERSTANDING PATTERNS OF GENETIC DIVERSITY IN THE HOUSE MOUSE GENOME
- Supervisors: Professor Peter Keightley and Professor Brian Charlesworth
- Spring 2018: visiting student at UBC hosted by Professor Sarah Otto
MSc., [Evolutionary Genetics](#), 2013 - 2014 (Distinction)
- Thesis Title: SEARCHING FOR BALANCING SELECTION ON A MIMICRY SUPERGENE IN THE BATESIAN MIMIC *Papilio polytes*
- Supervisors: Professor Deborah Charlesworth and Rob W. Ness (Now Assistant Professor at University of Toronto - Mississauga)
University of Stirling, Stirling, Scotland
BSc Hons, [Ecology](#), 2009 - 2013 (First Class)
- Dissertation Title: AN INVESTIGATION INTO THE FITNESS AND DISTRIBUTION OF A NEWLY DISCOVERED ALLOPOLYPLOID SPECIES, *Mimulus peregrinus*
- Supervisor: Dr Mario Vallejo-Marin
- 2011-2012: Study abroad at Simon Fraser University, Vancouver, Canada.

PUBLICATIONS **Preprints**
Booker, T. R., Yeaman, S., & Whitlock, M. C. (*Submitted*). "Using genome scans to identify genes repeatedly for adaptation." bioRxiv.
Preprint online at: <https://www.biorxiv.org/content/10.1101/2022.03.24.485690v1>
Booker, T. R., Payseur, B. A., & Tigano, A. (*In revision at Proc. Roy. Soc. B*). "Background selection under evolving recombination rates".
Preprint online at: <https://doi.org/10.1101/2021.12.20.473549>
Booker, T. R., Jackson, B., Craig, R., Charlesworth, B. & Keightley, P. D. (*In revision at Molecular Biology and Evolution*) "Patterns of genetic diversity around protein-coding exons and conserved non-coding elements are explained by strong selective sweeps in mice".
Preprint online at: <https://doi.org/10.1101/2021.06.10.447924>

Booker, T. R., Yeaman, S. & Whitlock, M. C. (*In revision at Molecular Ecology Resources*)
 “The WZA: A window-based method for characterizing genotype-environment association”.
 Preprint online at: <https://doi.org/10.1101/2021.06.25.449972>

Exposito-Alonso, M., **Booker, T. R.**, Czech, L., Fukami, T., Gillespie, L., Hateley, S.,
 ... & Zess, E. (*In revision at Science*). “Quantifying the scale of genetic diversity
 extinction in the Anthropocene.”
 Preprint online at: <https://doi.org/10.1101/2021.10.13.464000>

Published Papers

11. Grummer, J. A.* , **Booker, T. R.***, Matthey-Doret, R.* , Nietlisbach, P.* , Thomaz, A. T.* ,
 & Whitlock, M. C. (2022). “The immediate costs and long-term benefits of assisted
 gene flow in large populations. *Conservation Biology*, e13911.
 * *Joint first author*
10. Lind, B. M., Lu, M., Vidakovic, D., Singh, P., **Booker, T. R.**, Yeaman, S., & Aitken, S.
 (2022). “Haploid, diploid, and pooled exome capture recapitulate features of biology
 and paralogy in two non-model tree species”. *Molecular Ecology Resources*, 22:
 225238.
9. **Booker, T. R.**, Yeaman S. & Whitlock M. C. (2021). “Global adaptation complicates
 the search for local adaptation”. *Evolution Letters*, 5: 4-15.
8. **Booker, T. R.**, Yeaman S. & Whitlock M. C. (2020) “Variation in recombination rate
 affects detection of outliers in genome scans under neutrality.”. *Molecular Ecology*,
 29: 42744279.
Highlighted on the cover and with a perspective piece
7. Byers K.A., **Booker T. R.**, Combs M., Himsworth C.G., Munshi-South J., Patrick
 D.M., Whitlock M.C.. (2020) “Using genetic relatedness to understand heterogeneous
 distributions of urban rat-associated pathogens“. *Evolutionary Applications* 00: 112.
6. **Booker, T. R.** (2020) “Inferring parameters of the distribution of fitness effects of new
 mutations when beneficial mutations are strongly advantageous and rare”.
G3: Genes, Genomes, Genetics, 10(7) 2317-2326
5. **Booker, T. R.**, & Keightley, P. D. (2018). “Understanding the factors that shape
 patterns of nucleotide diversity in the house mouse genome”. *Molecular Biology and
 Evolution*, 35(12) 2971-2988
4. **Booker, T. R.**, Jackson, B. C., & Keightley, P. D. (2017). “Detecting positive selection
 in the genome”. *BMC Biology*, 15:98.
3. **Booker, T. R.**, Ness, R. W., & Keightley, P. D. (2017). “The recombination landscape
 in wild house mice inferred using population genomic data”. *Genetics*, 207(1) 297-309
2. Keightley, P. D., Campos, J. L., **Booker, T. R.**, & Charlesworth, B. (2016). “Inferring
 the frequency spectrum of derived variants to quantify adaptive molecular evolution in
 protein-coding genes of *Drosophila melanogaster*”. *Genetics*, 203(2), 975-984.
1. **Booker, T.**, Ness, R. W., & Charlesworth, D. (2015). “Molecular evolution: breakthroughs
 and mysteries in Batesian mimicry”. *Current Biology*, 25(12), R506-R508.

EQUITY, DIVERSITY & INCLUSION ACTIVITIES	2022 - Panellist - Parenting in Academia - Discussion group in the Biodiversity Research Centre at UBC	
	2022 - Present - Member of Zoology Equity, Diversity and Inclusion (ZEDI) Committee at UBC	
	2021 - Participant - <i>Indigenous Awareness</i> - Organised by Indigenous Corporate Training inc.	
	2021 - Participant - <i>pgEd Webinar Series: History of Eugenics</i> - Organised by the GSA	
TEACHING EXPERIENCE	Course Coordination	
	BIOL525D: Bioinformatics for Evolutionary Genetics	2020-2023
	<i>Upper division course at UBC on bioinformatics.</i>	
	<i>Website and course materials at: (https://ubc-biol525d.github.io/)</i>	
	Teaching Assistance	
	Statistics and Data Analysis, MSc course	2014-2017
	<i>Upper division course, part of the MSc QGGA program at the University of Edinburgh</i>	
	Population and Quantitative Genetics, MSc course	2015-2017
	<i>Upper division course, part of the MSc QGGA program at the University of Edinburgh</i>	
	Ecology and Evolutionary Genetics, BSc course	2014-2015
	<i>Undergraduate course, offered at the University of Edinburgh</i>	
STUDENT SUPERVISION	A. Chhina - MSc Committee - Simon Fraser University (2022-Ongoing)	
	C. Atkinson - Directed studies co-supervisor (2019-2020) - <i>Undergraduate student at UBC</i>	
	K.A. Byers - Bioinformatics/genomics mentor for PhD project (2018-2020) - <i>Now postdoctoral research fellow</i>	
	S-A. Xerri - Master's project co-supervisor (2018) - <i>Now PhD student at the Max Planck Institute</i>	
	C. Barata - Master's project co-supervisor (2017) - <i>Now PhD student at the University of St. Andrews</i>	
	B. Lecher - Honour's project co-supervisor (2016-2017) - <i>Now Pre Doctoral Fellow at the European Bioinformatics Institute</i>	
ACADEMIC HONOURS AND AWARDS	<i>Runner up</i> Harry Smith Prize - Molecular Ecology	2020
	University of British Columbia - Bioinformatics Research Fellowship	2020
	Registration Award - Society of Molecular Biology and Evolution	2019
	<i>Runner up</i> Best student talk at Population Genetics Group 51	2018

<i>Runner up</i> Best student poster at Population Genetics Group 50	2017
Environment Yes! <i>Won regional heat - runner up at the national final</i>	Sept 2016
EASTBIO Doctoral Training Partnership Studentship	2014-2018
Genetics Society, Sir Kenneth Mather Memorial Prize	2013/2014
University of Edinburgh, Douglas Falconer Award, best MSc dissertation	2013/2014
Funding for Undergraduate Summer Project: Botanic Society of Scotland and the Society of Biology	Summer 2012
<i>Nominated</i> , Simon Fraser University Student Conservation Prize	May 2012

SERVICE & OUTREACH

Reviewing

Science, PLoS Genetics, Molecular Biology and Evolution, Evolution, Molecular Ecology, Proceedings of the Royal Society B, New Phytologist, Genome Biology and Evolution, Ecology and Evolution, Frontiers in Zoology, Frontiers in Ecology and Evolution, Peer Community in Evolutionary Biology, G3, BMC Biology

Academic Service

2021 - *Present* - Member of the Junior Editorial Board at [Molecular Ecology](#)
 2019 & 2021 Undergraduate Student Mentor for Society for Molecular Biology and Evolution

Departmental Service

2021 - Postdoc representative on search committee for head of the Biodiversity Research Centre at UBC
 2021 - *Present* - I organise Δ -tea, an evolutionary genetics discussion group at UBC
 2020 - *Present* - Bioinformatics office hours at UBC
 2020-2021 - I ran virtual trivia nights for my department at UBC during the COVID-19 pandemic
 2020 - Postdoc representative on department expansion committee for the Biodiversity Research Centre at UBC
 2019 - 2020 I co-organised meetings of the Vancouver Evolution Group (VEG)
I stopped due to childcare out of work hours
 2017 - I started and organised a journal club on classic population genetic papers at the University of Edinburgh in 2017

Outreach

2021 - Skype a Scientist participant
 2020-2021 - Essay judge for Canadian Undergraduate Research Competition ([CURC](#))
 2020 - Mentor for high school students during the Summer of 2020 - organised through Teen Nerd Nite
 2019 - Poster Judge BIOL 310 Animal Behaviour
 2018-2019 - Poster and talk judge EcoEvo Retreat

INVITED	2022	University of British Columbia, Biodiversity Research Centre, Canada
PRESENTATIONS	2021	Universidad del Rosario, Faculty of Natural Sciences, Columbia
	2021	Monash University, School of Biological Sciences, Australia
	2021	Virtual SMBE 2021
	2021	Mooers lab group at Simon Fraser University, Canada
	2020	Introgression Discussion Group, UC Berkeley
	2015	Population Genetics Group 49, UK
CONTRIBUTED	2021	EvoTree, Switzerland (Poster - Virtual)
PRESENTATIONS	2021	BLISS, UBC, Vancouver, Canada (Talk)
	2021	Virtual EcoEvo Retreat, Canada (Talk - Virtual)
	2020	BLISS, UBC, Vancouver, Canada (Talk)
	2020	American Society of Naturalists (Talk)
	2019	EcoEvo Retreat, Canada (Talk)
	2019	BLISS, UBC, Vancouver, Canada (Talk)
	2019	SMBE, Manchester, UK (Poster)
	2018	EcoEvo Retreat, Canada (Talk)
	2018	Population Genetics Group 51, UK (Talk)
	2017	ESEB 2017, Netherlands (Poster)
	2017	Population Genetics Group 50, UK (Poster)
	2016	SMBE, Gold Coast, Australia (Talk)
	2015	SMBE, 2015, Vienna, Austria (Poster)
	2015	Quantitative Genomics, 2015, UK (Talk)