

## Tom R. Booker

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| CONTACT INFORMATION | t.r.booker@sms.ed.ac.uk  | Tel. +447858896621 |
|                     | Institute of Evolutionary Biology<br>Ashworth Laboratories<br>Edinburgh, EH9 3FL   |                    |
| RESEARCH INTERESTS  | Theoretical and empirical population genetics, evolution, genomics, bioinformatics, statistical analysis   |                    |
| EDUCATION           | <b>University of Edinburgh</b> , Edinburgh, Scotland   |                    |
|                     | Ph.D., <b>Evolutionary Genetics</b> , <i>Expected</i> : Autumn 2018  |                    |
|                     | <ul style="list-style-type: none"><li>- Thesis Title: <i>Understanding patterns of genetic diversity in the genomes of wild mice</i></li><li>- Supervisors: Professor Peter Keightley and Professor Brian Charlesworth</li><li>- As part of my EASTBIO scholarship, I spent 3 months learning bioinformatic approaches and techniques at Fusion Genomics, Vancouver, Canada</li></ul>  |                    |
|                     | MSc., <b>Quantitative Genetics and Genome Analysis</b> , 2013 - 2014 (Distinction)   |                    |
|                     | <ul style="list-style-type: none"><li>- Thesis Title: <i>Searching for balancing selection on a mimicry supergene in the Batesian mimic Papilio polytes</i></li><li>- Supervisors: Professor Deborah Charlesworth and Dr Rob W. Ness</li><li>- In addition to the thesis component, the MSc program consisted of courses on statistical analysis, population genetics, molecular evolution and phylogenetics, as well as linkage analysis.</li></ul>   |                    |
|                     | <b>University of Stirling</b> , Stirling, Scotland   |                    |
|                     | BSc Hons, <b>Ecology</b> , 2009 - 2013 (First Class)   |                    |
|                     | <ul style="list-style-type: none"><li>- Dissertation Title: <i>An investigation into the fitness and distribution of a newly discovered allopolyploid species, Mimulus peregrinus</i></li><li>- Supervisor: Dr Mario Vallejo-Marin</li><li>- I undertook a Summer research project on <i>Mimulus spp.</i> in Southern and Central Scotland in 2012 with Dr Vallejo-Marin. Courses taken on ecology, conservation biology and genetics. Spent a year on exchange at Simon Fraser University, Vancouver, Canada.</li></ul> |                    |
| EXPERIENCE & SKILLS | Population genetics  |                    |
|                     | Including: theory, simulations (both forward-time and coalescent), genome scans, demographic analyses, detecting natural selection   |                    |
|                     | Bioinformatics:  |                    |
|                     | Including: Handling high-throughput sequence data, read-mapping, variant calling, <i>de novo</i> assembly  |                    |
|                     | Attended “ <i>GATK Best practices for variant discovery</i> ”, Edinburgh, UK (2015).   |                    |
|                     | Computer skills  |                    |
|                     | Scripting: Python, R and Bash as well as a little bit of C and Perl  |                    |
|                     | OS: Ubuntu, Windows, Mac OSX   |                    |
|                     | Various: Grid Engine clustering systems, git, emacs, ssh/scp, tmux, Microsoft Office   |                    |
|                     | Science communication, both written and verbal.  |                    |
| ACADEMIC SERVICE    | I have reviewed articles for the following journals:   |                    |
|                     | <i>Ecology and Evolution</i> , <i>Science</i>  |                    |

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| PUBLICATIONS                      | <ol style="list-style-type: none"> <li><b>Booker, T. R.</b>, &amp; Keightley, P. D. (<i>In preparation</i>). “Understanding the forces that shape patterns of genetic diversity in the genome of wild house mice, <i>Mus musculus castaneus</i>.”</li> <li><b>Booker, T. R.</b>, Jackson, B. C., &amp; Keightley, P. D. (<i>In press</i>). “Detecting positive selection in the genome.” <i>BMC Biology</i>.</li> <li><b>Booker, T. R.</b>, Ness, R. W., &amp; Keightley, P. D. (2017). “The recombination landscape in wild house mice inferred using population genomic data”. <i>Genetics</i>, 207(1) 297-309</li> <li>Keightley, P. D., Campos, J. L., <b>Booker, T. R.</b>, &amp; Charlesworth, B. (2016). “Inferring the frequency spectrum of derived variants to quantify adaptive molecular evolution in protein-coding genes of <i>Drosophila melanogaster</i>.” <i>Genetics</i>, 203(2), 975-984.</li> <li><b>Booker, T.</b>, Ness, R. W., &amp; Charlesworth, D. (2015). “Molecular evolution: breakthroughs and mysteries in Batesian mimicry”. <i>Current Biology</i>, 25(12), R506-R508.</li> </ol> |
| PRESENTATIONS                     | <p><i>Selective sweeps and background selection in the genome of wild house mice</i>, <i>Mus musculus castaneus</i> (Poster - <i>Runner up best student poster</i>)<br/> <b>ESEB 2017</b>, Groningen, Netherlands August 2017<br/> <b>Population Genetics Group 50</b>, Cambridge, UK Jan 2017</p> <p><i>Hill-Robertson Interference in wild mice</i>, <i>Mus musculus castaneus</i> (Oral Presentation)<br/> <b>SMBE</b>, Gold Coast, Australia July 2016<br/> <b>Population Genetics Group 49</b>, Edinburgh, UK December 2015</p> <p><i>Selective sweeps and background selection in the genome of wild house mice</i>, <i>Mus musculus castaneus</i> (Poster)<br/> <b>SMBE</b>, Vienna, Austria July 2015</p> <p><i>Simulating genome evolution in the house mouse: understanding the contribution of Hill-Robertson interference to patterns of genetic diversity</i> (Oral Presentation)<br/> <b>Quantitative Genomics</b> London, UK May 2015</p>   |
| ACADEMIC<br>HONOURS AND<br>AWARDS | <ul style="list-style-type: none"> <li>• <i>Finalist</i>, Environment Yes! Sept 2016</li> <li>• EASTBIO Doctoral Training Partnership Studentship 2014-2018</li> <li>• Genetics Society, Sir Kenneth Mather Memorial Prize 2013/2014</li> <li>• University of Edinburgh, Douglas Falconer Award, best MSc dissertation 2013/2014</li> <li>• Funding for Undergraduate Summer Project:<br/> Botanic Society of Scotland and the Society of Biology Summer 2012</li> <li>• <i>Nominated</i>, Simon Fraser University Student Conservation Prize May 2012</li> </ul>  |
| TEACHING                          | <p>Supervision 2016<br/> <i>I have provided co-supervision to masters and honours students</i></p> <p>Statistics and Data Analysis, MSc course 2014-2017<br/> <i>Demonstrating in computer practical sessions and running tutorial sessions on probability theory and statistical analysis</i></p> <p>Population and Quantitative Genetics, MSc course 2015-2017<br/> <i>Running tutorial sessions on population genetic theory</i></p> <p>Ecology and Evolutionary Genetics, BSc course 2014-2015<br/> <i>Demonstrating in computer practical sessions on evolutionary biology</i></p>  |
| INTERESTS                         | <p>Aside from evolutionary biology I have several hobbies that I try and find time for. I enjoy playing guitar, woodworking (particularly woodturning), helping out around my parents’ farm, hill-walking and playing classic point-and-click adventure games.</p>   |