

# Rebecca A. Senior

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## Education

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- 2014 – . . . .    ♦ **Ph.D., University of Sheffield, UK.**  
Supervisors: Dr David Edwards and Prof Jane Hill  
***The impacts of forest conversion and degradation on climate resilience in the tropics.***  
Investigating how loss and degradation of tropical forests affects species' exposure to climate change and their ability to respond, focusing on microclimates and range shifts.
- 2010 – 2013    ♦ **B.A. (Hons) Natural Sciences, University of Cambridge, UK.**  
*First Class Honours*

## Research and Other Relevant Experience

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- 2016    ♦ **Knowledge Transfer Executive**, Rewilding Britain, UK.  
    ♦ Synthesising scientific & grey literature to produce guidelines for applying rewilding at small scale  
    ♦ Responding to public & media requests for rewilding guidance  
    ♦ Organising & reporting a stakeholder workshop on rewilding in the English uplands (Sandom et al., in press)
- 2014    ♦ **Research Assistant** to Dr David Edwards, University of Sheffield, UK.  
Fieldwork in Bornean rainforest:  
    ♦ Tree-liana interaction networks (Magrath et al., 2016)  
    ♦ Quantifying microclimates using thermal cameras (Scheffers et al., 2017)
- 2013 – 2014    ♦ **Consultant.** UNEP-WCMC, Cambridge, UK.  
    ♦ Updating & analysing UNEP-WCMC Google Scholar profile  
    ♦ Incorporation of fisheries data into the Madingley model ([www.madingleymodel.org](http://www.madingleymodel.org))
- 2013    ♦ **Intern in the Science programme.** UNEP-WCMC, Cambridge, UK.  
Various contribution to the PREDICTS project ([www.predicts.org.uk](http://www.predicts.org.uk)) and associated publications (Newbold et al., 2015; Hudson et al., 2014; Hudson et al., 2017):  
    ♦ Sensitivity analyses (part of R package development)  
    ♦ Collation and analysis of trait data  
    ♦ Species richness maps using spatial data from the IUCN Red List

## Grants and Awards

- 2018    ◇ **ACCE Extension for Publication (£3,600)**, additional 3-month stipend to prepare and submit a high impact manuscript
- ◇ **British Ecological Society travel grant (£500)**, to attend ATBC Annual Meeting
- 2016    ◇ **ACCE Placement Support (£1,500)**, 3-month placement at Rewilding Britain, UK
- ◇ **Departmental travel fund (£800)**, to attend Conservation Asia 2016
- 2014    ◇ **NERC Doctoral Training Partnership studentship**, including stipend (£55,452), re-research and training grant (£11,000) and fees (£17,484)
- 2013    ◇ **Durham Fund (£1,000)**, for UNEP-WCMC internship
- 2011    ◇ **£1,300** from various sources for Peruvian Amazon expedition
- 2010    ◇ **Eliahou Dangoor Scholarship (£1,000)**, awarded on merit to students of science, technology, engineering or maths.

In total (2010-2018) I have received **£9,700 (USD \$12,643)** of funding in addition to my PhD studentship.

## Teaching Experience

- 2017 – 2018    ◇ **Brilliant Club Tutor**  
Designed and ran 7-week course in ecology & conservation for students aged 13-14, with weekly University-style tutorials and assignments.
- 2014 – 2018    ◇ **Graduate Teaching Assistant**, University of Sheffield, UK.  
R and statistics course for Masters and first year PhD students ◇ Undergraduate field courses for modules: ‘Population and Community Ecology’ and ‘Tropical Forest Ecology and Conservation’
- 2013 – 2014    ◇ **Undergraduate Supervisor**, University of Cambridge, UK.  
Up to 16 students for modules: ‘Evolution & Behaviour’ (first year) and ‘Ecology’ (second year)
- ◇ **A-level Biology tutor**, Cambridge, UK.

## Professional Development

- 2014 – . . . .    ◇ **Doctoral Development Programme**, training courses for PhD students run by the ACCE Doctoral Training Partnership and the University of Sheffield, UK ◇ Research Ethics and Integrity ◇ Science in Policy ◇ Quantitative Skills ◇ Data Management ◇ Careers and Policy ◇ Science & Media
- ◇ **Attendance at Departmental Seminars**, Department of Animal and Plant Sciences, University of Sheffield, UK.
- ◇ **Attendance at Sheffield R Users Group**, Sheffield, UK.
- 2016    ◇ **Bayesian Methods to Fit Statistical Models in Environmental Science**, NERC-funded training course, University of Strathclyde, UK.
- 2015    ◇ **Advanced Environmental Data Analysis using Geographical Information Systems**, NERC-funded training course, Newcastle University, UK.




## Service

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- Invited peer review   ◇ Global Change Biology ◇ PeerJ ◇ Forest Ecology and Management  
Current Landscape Ecology Reports ◇ Plant Ecology & Diversity
- Professional affiliations   ◇ Association for Tropical Biology and Conservation (ATBC)  
British Ecological Society (BES)
- Committee membership   ◇ **Secretary** of Postgraduate Society (2016 – 2017), Department of  
Animal and Plant Sciences, University of Sheffield, UK.

## Skills

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- Coding   ◇  = **advanced**, inc. package development and R Markdown  
 = **moderate**, inc. spatial analyses  
 = **basic**
- Fieldwork   ◇ Total of **7 months** in Borneo lowland rainforest. **Led 2015 project**  
to quantify microclimates and microhabitats in selectively logged and  
unlogged forests, using thermal camera and dataloggers. Assisted in  
2014 project to characterise tree-liana interaction networks.  
  
Additional experience of assisting biodiversity surveys in **Peruvian  
Amazon** (5 weeks), and **deserts and mountains of Oman** (6 weeks).
- Statistics   ◇ Experience of advanced statistical techniques including general and general-  
ized linear models, additive models, mixed models and principal  
component analysis ◇ Familiarity with Bayesian methods.
- GIS   ◇ Spatial analyses using R and ArcGIS.
- Public Engagement   ◇ Invited panellist for University of Sheffield debate: “Visions of Nature in  
a World of 10 Billion” (2017) ◇ British Ecological Society (BES) “Roadie”  
at Wychwood Festival (2016) ◇ Talk & practical session with Earthwatch  
Institute in Malua, Borneo (2015) ◇ Designed and hosted ecology stall  
at Discovery Night, University of Sheffield, UK (2015).
- First Aid   ◇ Advanced Outdoor First Aid with ITC First, valid until September 2019.
- Languages   ◇ English = native  
Spanish = basic
- Driving   ◇ Full, clean UK driving licence.

## Media Coverage

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- 2017   ◇ **BBC Radio Sheffield**, live radio interview discussing microclimates in logged tropical  
forests.  
◇ *Logged forests still offer refuge for endangered tropical species*, **Environmental Research  
Web**, 27 October.
- 2016   ◇ *Public engagement training & Wychwood*, **BES Bulletin**, Issue 15.

## Research Publications

I have **8 publications** in international peer-reviewed journals, including **2 first author** articles. My **h-index** = **5**, **i10-index** = **4**, and total **citations** = **807** (as per Google Scholar Citations). I also have 1 manuscript *in review*, and 2 manuscripts *in preparation*.

- 1 **Senior, R. A.**, Hill, J. K., & Edwards, D. P. (in review). Global loss of climate connectivity in tropical forests. Manuscript in review at *Nature Climate Change*.
- 2 Borrell, J. S., Al Issai, G., Lupton, D. A., Starnes, T., Al Hinai, A., Al Hatmi, S., **Senior, R. A.**, Wilkinson, T., ... Patzelt, A. (in prep). Environmental distribution modelling of seven endemic desert plants reveals the extent of Tertiary tropical relict vegetation. Manuscript in preparation.
- 3 Sandom, C. J., Dempsey, B., Bullock, D., Ely, A., Jepson, P., Jimenez-Wisler, S., Newton, A., Pettorelli, N., & **Senior, R. A.** (in press). Rewilding in the English Uplands: Policy and Practice. *Journal of Applied Ecology*. doi:10.1111/1365-2664.13276
- 4 **Senior, R. A.**, Hill, J. K., & Edwards, D. P. (in prep). A framework for quantifying fine-scale thermal heterogeneity using thermography. Manuscript in preparation.
- 5 **Senior, R. A.**, Hill, J. K., Benedick, S., & Edwards, D. P. (2018, March). Tropical forests are thermally buffered despite intensive selective logging. *Global Change Biology*, 24(3), 1267–1278. **Cover article**. doi:10.1111/gcb.13914
- 6 **Senior, R. A.**, Hill, J. K., González del Pliego, P., Goode, L. K., & Edwards, D. P. (2017, October). A pantropical analysis of the impacts of forest degradation and conversion on local temperature. *Ecology and Evolution*, 7(19), 7897–7908. doi:10.1002/ece3.3262
- 7 Hudson, L. N., Newbold, T., Contu, S., Hill, S. L. L., Lysenko, I., De Palma, A., Phillips, H. R. P., ... **Senior, R. A.**, ... Purvis, A. (2017, January). The database of the PREDICTS (Projecting Responses of Ecological Diversity In Changing Terrestrial Systems) project. *Ecology and Evolution*, 7(1), 145–188. doi:10.1002/ece3.2579
- 8 Scheffers, B. R., Edwards, D. P., Macdonald, S. L., **Senior, R. A.**, Andriamahohatra, L. R., Roslan, N., Rogers, A. M., Haugaasen, T., ... Williams, S. E. (2017, January). Extreme thermal heterogeneity in structurally complex tropical rain forests. *Biotropica*, 49(1), 35–44. doi:10.1111/btp.12355
- 9 Magrath, A., **Senior, R. A.**, Rogers, A., Nurdin, D., Benedick, S., Laurance, W. F., Santamaria, L., & Edwards, D. P. (2016, March). Selective logging in tropical forests decreases the robustness of liana–tree interaction networks to the loss of host tree species. *Proc. R. Soc. B*, 283(1826), 20153008. doi:10.1098/rspb.2015.3008
- 10 Newbold, T., Hudson, L. N., Hill, S. L. L., Contu, S., Lysenko, I., **Senior, R. A.**, Börger, L., Bennett, D. J., ... Purvis, A. (2015, April). Global effects of land use on local terrestrial biodiversity. *Nature*, 520(7545), 45–50. doi:10.1038/nature14324
- 11 Hudson, L. N., Newbold, T., Contu, S., Hill, S. L. L., Lysenko, I., De Palma, A., Phillips, H. R. P., **Senior, R. A.**, ... Purvis, A. (2014, December). The PREDICTS database: a global database of how local terrestrial biodiversity responds to human impacts. *Ecology and Evolution*, 4(24), 4701–4735. doi:10.1002/ece3.1303

## Invited Talks

- 2017   ◇ *Thermal Images in R*, Sheffield R Users Group, Sheffield, UK.
- 2016   ◇ *Are selectively logged forests climate change ready?*, Future Cities Laboratory, Singapore.

## Conferences

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- 1 **Senior, R. A., Hill, J. K., & Edwards, D. P. (2018a).** Global loss of climate connectivity in tropical forests. Oral presentation at ATBC Annual Meeting. Kuching, Malaysia.
- 2 **Senior, R. A., Hill, J. K., & Edwards, D. P. (2018b).** Global loss of climate connectivity in tropical forests. Oral presentation at SCCS Europe. Tihany, Hungary.
- 3 **Senior, R. A., Hill, J. K., & Edwards, D. P. (2017).** Microclimates in logged tropical forest. Oral presentation at SCCS Cambridge. University of Cambridge, UK.
- 4 **Senior, R. A., Hill, J. K., & Edwards, D. P. (2016a).** Are degraded forests climate change ready? Oral presentation at Conservation Asia 2016, joint meeting of the Society for Conservation Biology (SCB) Asia section and the Association for Tropical Biology and Conservation (ATBC) Asia-Pacific chapter. National University of Singapore, Singapore. *Shortlisted for best student talk.*
- 5 **Senior, R. A., Hill, J. K., & Edwards, D. P. (2016b).** Are degraded forests climate change ready? Oral presentation at ACCE Annual Meeting. University of York, UK.
- 6 **Senior, R. A., Hill, J. K., & Edwards, D. P. (2015).** Impacts of selective logging on thermal heterogeneity in a tropical rainforest. Poster presentation at BES Annual Meeting. Edinburgh, UK. *Shortlisted for best student poster.*

## References

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