

# Sara Middleton

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## EDUCATION

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**DPhil in Environmental Research, St Cross College, University of Oxford** (2018-present)  
A four-year DPhil programme funded by the NERC-Oxford DTP in Environmental Research.

**MRes Ecosystems & Environmental Change (Distinction 78%), Imperial College London** (2016-2017)  
MRes course with ten weeks of modules, including Ecology and Global Change, Science and Policy, Biodiversity and Geographical Information Systems, followed by a nine-month research project and science communication/policy written coursework based on the research project.

**Bsc Environmental Sciences (First Class Honours 78%), Oxford Brookes University** (2012-2015)  
I undertook a wide range of modules, including: Advanced Topics in Wildlife Conservation, Plant Science, Threatened Species, Environmental Processes, Pollution and Climate Change, Environmental Change: Fieldwork and Research. **Lab work:** Sediment analysis (particle size analysis, magnetic susceptibility, pH/conductivity) chemical titrations; flower and pollen analyses (SEM and optical microscope). **Fieldwork:** Plant and insect identification, Phase 1 and 2 surveying, quadrat sampling, freshwater and terrestrial invertebrates in Oxfordshire; Devon; Cevennes National Park, France.

## RESEARCH EXPERIENCE

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**DPhil Project** (January 2019 – present)  
**Supervised by Dr Rob Salguero-Gómez and Prof Andy Hector** “Using functional traits and demography to address global change challenges of climate change, tropical deforestation and invasive alien species”.  
**Methods:** climate manipulation, plant identification, systematic mapping and multivariate analysis.  
**Analysis:** Excel, R, Python, Image J

**Plant Diversity in Banana Production Systems** (February – March 2018)  
Measuring herbaceous plant species diversity in different banana production systems in Costa Rica.  
**Methods:** designing botanical surveys, plant identification. **Analysis:** Excel. Data will contribute to the PREDICTS project based at Natural History Museum, London.

**MRes Research Project (79%)** (January – September 2017)  
**Supervised by Prof. Colin Prentice and Dr Henry Ford** “Which traits determine the success of plant invaders? A multivariate analysis of the flora of the United Kingdom”. The project involved using the Ecoflora trait database, current and future UK climate scenarios and species distribution data. **Methods:** database queries, data cleaning, data table creation, climate data formatting using SPLASH algorithms, multivariate analysis. **Analysis:** MySQL, Panoply, Python, QGIS and R.

**Environmental Consultancy** (November 2014 – April 2015)  
I worked in a small team, with the aim of providing a palaeoenvironmental reconstruction of the Phuthiatsana River valley, Lesotho. **Methods:** proposal writing, sediment and multivariate analyses, report writing and presenting the findings to the client. **Analysis:** Excel, R. This work contributed to the Metolong Cultural Resource Management Project.

**BSc Final Year Research Project (79%)** (June 2014 – March 2015)  
**Supervised by Dr Andrew Lack** “An assessment of the distribution of lupins (*Lupinus nootkatenis*) and the effect on native flora in Thorsmork, southern Iceland”. The project involved extensive research on the topic, a month of fieldwork (June-July 2014) in southern Iceland, supervising a group of volunteers in the management of lupins, an invasive species, reporting the findings to the Icelandic Soil Conservation Service and the Icelandic Institute of Natural History. **Methods:** fieldwork design, GPS mapping, quadrat sampling, plant identification, multivariate analysis. **Analysis:** ArcGIS, Google Earth, Excel and R.

## GRANTS AND FUNDING

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- Behaviour Ecology and Evolution conference, University of Oxford, various funders: £2935 (2019)
- Bananageddon: Change the System, Change the Story, Kick Starter funding campaign, \$7208 (2019)
- Imperial Expedition to Costa Rica: The Bananageddon Film, Imperial College London, £4900 (2017)

## PRIZES AND AWARDS

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- IAVS Young Scientist Oral Presentation Award (Honorable Mention) (2019)
- Photo essay winner of the Silwood Park Photography Competition (2017)
- Oxfordshire Community Scholarship (2012-2015)
- Dan Hemingway (Art) Prize for Creativity, for my large-scale drawings (2010)

## SYMPOSIA AND WORKSHOPS

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- **Behaviour Ecology and Evolution (BEE) student conference** (August 2020)  
*Co-organiser and social media and outreach coordinator, University of Oxford*
- **Tech and Behavioural Solutions in Invasion Science** (April 2020)  
*Co-organiser, British Ecological Society Invasion Science Group, Newcastle*
- **Trait-based Ecology Workshop** (June 2019)  
*Chief organiser, Department of Plant Science, University of Oxford*
- **Science, Ethics & Exploitation: the things we do in the name of science** (June 2019)  
*Co-organiser, University of Oxford*
- **Balancing Sustainability and Development: Cities in the 21st Century** (August 2017)  
*Chief organiser and chair, Imperial College London, South Kensington*  
The event was reported by the Thomas Reuters Foundation.

## CONFERENCES

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- World of Fresh Ideas, Fruit Logistica Trade Fair, Berlin, Germany (4-5 February 2020)
- British Ecological Society annual meeting, Belfast, Northern Ireland (10-13 December 2019)
- The Big Botany Challenge: Promoting passion for plants in our schools, Reading (8 November 2019)
- International Association of Vegetation Science annual symposium, Bremen (14-19 July 2019)
- Connecting research, management and policy, British Ecological Society Invasion Science SIG, London (1-2 November 2018)
- Securing Our Natural Environment for Future Generations, British Ecological Society/UK Conservation Agencies Symposium, Manchester (23-24 May 2018)
- Third Conference of the World Banana Forum, FAO, Geneva (7-10 November 2017)
- Climate Visuals Masterclass, Climate Outreach, London (4 September 2017)
- The Macroecology of Alien Species: Patterns, Drivers and Consequences of Global Biotic Exchange, British Ecological Society, Durham (24-26 July 2017)

## PUBLICATIONS

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- **Middleton, S. L.** Bananas! Peeling back the history, biology and future of the world's favourite fruit. *British Ecological Society Niche Magazine* December 2019
- **Middleton, S. L.**, Salguero-Gómez, R. and Hector, A. (*in prep*) When are traits "functional"? A demographic perspective. *Journal of Functional Ecology*
- **Middleton, S. L.** and Prentice, I. C. (*in prep*) Which traits determine the success of plant invaders? A multivariate analysis of the flora of the United Kingdom. *Journal of Ecology*
- **Middleton, S. L.** (*in prep*) An assessment of the distribution of lupins (*Lupinus nootkatenis*) and the effect on native flora in Thorsmork, southern Iceland. *Journal of Icelandic Agricultural Sciences*

## REVIEWING

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Reviewed a number of manuscripts for Journal of Ecology and Nature since 2018

## PRESENTATIONS

Presentations are talks unless denoted with \* in which case they are poster presentations, I\*= invited talk

- **Middleton, S.**, Salguero-Gómez, R. and Hector, A. *Plant soap operas: who will win and who will lose in the battle for water?* I\* NERC CEO in Oxford meeting, Oxford (12 February 2020)
- Turner, J., **Middleton, S.**, Gupta M., Dunn, N. *Bananageddon*. I\* World of Fresh Ideas, Fruit Logistica, Berlin, Germany (4-5 February 2020)
- **Middleton, S.**, Salguero-Gómez, R. and Hector, A. *When are plant traits “functional”? A demographic perspective*. BES, Belfast, Northern Ireland (10-13 December 2019)
- **Middleton, S.**, Salguero-Gómez, R. and Hector, A. *When are traits “functional”? A demographic perspective*. IAVS, Bremen, Germany (15-19 July 2019)
- **Middleton, S.**, Salguero-Gómez, R. and Hector, A. *Are functional traits a shortcut to understanding plant communities under global change?* Oxford DTP Summer School, Oxford. (12 July 2019)
- **Middleton, S.**, Prentice, I. C. and Ford, H *Looking across the invasion continuum, what functional traits determine successful plant invaders?* \* Connecting research, management and policy, British Ecological Society Invasion Science SIG, London (1-2 November 2018)

## MENTORING, DEMONSTRATING AND TEACHING

### Postgraduate

Organising a weekly seminar for new NERC DTP students (October – December 2019)

### Undergraduate

Biodiversity practical (plant and insect ID) 2<sup>nd</sup> year undergraduates (October 2019)

One 2<sup>nd</sup> year student on a 1-week internship (July 2019)

### Secondary school

Two students on a 1-week internship (July & August 2019)

### Primary school

Key Stage 1 – weekly PHSE 2 hr class for 30 students (October 2015 -July 2016)

Key Stage 2 – Fortnightly 1hr Biology class for 35 students (February – June 2014)

## EMPLOYMENT AND WORK EXPERIENCE

**St Clare’s Oxford** (October 2018 – present)

*Relief Warden*

I am responsible for the welfare of between 15-30 students aged 15-18 in the student houses.

**Ecological Flora of the British Isles (Ecoflora)** (December 2017 – present)

*Volunteer data analyst*

My role involves updating the existing database for missing trait data of plant species.

**Human Nature Stories Project** (October 2017 – present)

*Founder*

The project involves collecting interviews and photographing members of the public about their attitudes to nature. I manage the website [humannaturestories.com](http://humannaturestories.com) and social media posts.

**Imperial Expedition to Costa Rica** (February 2017 – present)

*Project coordinator*

Working in a team of seven on a documentary film project called ‘Bananageddon’ about the future of sustainable banana production. My responsibilities include creating social media schedules, writing blog posts, fundraising, contacting potential collaborators and designing and conducting botanical surveys.

**SS Philip and James Primary School, Oxford** (September 2015 – July 2016)

*Classroom assistant*

I had a wide range of classroom and after school responsibilities, including the science/geography and the gardening club, which I had organised.

**Magdalen College School, Oxford**

(September 2011 – July 2012)

*Teaching assistant*

I had a wide range of responsibilities, including: working with pupils who struggled in maths and English; helping with school productions and after school care, Ecoschools, the school's environmental initiative.

**SKILLS**

**Computer skills:** Knowledge and experience of Microsoft Office (Word, Excel, PowerPoint), ArcGIS, QGIS, Image J, OpenMEE, MySQL, Python and R

**Other skills:** Full UK driver's license, Level 2 fieldwork first aid, DBS certified

**Languages:** Bilingual in English and Italian, conversational Portuguese, French and Spanish

**ACTIVITIES AND INTERESTS****Memberships:**

- International Association for Vegetation Science Young Scientists (July 2019 – present)
- International Association for Vegetation Science (May 2019 – present)
- Ecological Society of America (February 2019 – present)
- British Ecological Society Invasion Science SIG, *PhD/ECR representative* (January 2019 – present)
- Innovative Food Systems Teaching and Learning (IFSTAL) (October 2018 – July 2019)
- Botanical Society of Britain and Ireland (December 2017 – present)
- British Ecological Society (October 2016 – present)
- The Oxfordshire Flora Group (the Ashmolean Natural History Society) (May 2014 – present)

**Courses:**

- Meta-analysis in Biology and Environmental Sciences, University of Gothenburg, Tjärnö, Sweden (20-25 October 2019)
- Functional trait course, Porquerolles Islands, France (20-24 May 2019)
- R 4 All, Department of Zoology, University of Oxford (25-29 March 2019)
- R for Biologists, Department of Zoology, University of Oxford (Feb-March 2019)
- NERC ATSC: Stage-based demographic models in ecology, evolution and conservation biology, Pembroke College, University of Oxford (7-11 January 2019)
- Grass Identification Workshop, Oxford (June 2014)
- Great Crested Newt field course, Oxford (April – May 2013)

**Outreach activities:**

- Oxford Teach Green, an Oxford University student organisation providing environmental education to local primary schools (January – June 2015)
- Thorsmork Trail Volunteer, Icelandic Forestry Service, Thorsmork, southern Iceland (June/July 2013)
- Community Garden Volunteer, Rio de Janeiro (July/August 2012)
- Cofounder and chair Cherwell Earth (September 2010 – July 2011)

**Science communication:**

*Visiting scientist* (2014 – present)

I regularly go into primary schools across Oxfordshire and deliver sessions on a range of topics from plant biology to life as a scientist.

*Blog writing*

(2017 – present)

I am a contributor to the Oxford NERC PhD student blog *Evidently Scientific* and write on a range of environmental science topics. I also write on sustainable banana production as part of the *Bananageddon Film* and people's relationship with nature, as part of my project *Human Nature Stories*.

**Other interests:**

Trekking, knitting, baking, nature photography and Korfball

## REFEREES

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- Professor Andy Hector, University of Oxford, [andrew.hector@plants.ox.ac.uk](mailto:andrew.hector@plants.ox.ac.uk)
- Dr Roberto Salguero-Gómez, University of Oxford, [rob.salguero@zoo.ox.ac.uk](mailto:rob.salguero@zoo.ox.ac.uk)
- Professor Iain Colin Prentice, Imperial College London, [iain.colin.prentice@gmail.com](mailto:iain.colin.prentice@gmail.com)