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Nationality: British

OVERVIEW

An applied statistician with over 20 years of consultancy, training and research experience in building strong data-driven methods for designing and analysing studies to address interdisciplinary problems in bioresource management, conservation, food security and climate change.

Worked within, or as a consultant to, international research institutes of the CGIAR, international NGOs and institutions such as UNEP, UK governmental and quasi-governmental organisations such as DfID and SNH and the UK university system.

Enjoys communicating statistical ideas, working with and advising scientists, policy makers and stakeholders. (Co-) authored publications for scientific peer review and to provide the evidence base for international policy making. (Co-) led research projects and successful grant proposals.

PROFESSIONAL EXPERIENCE

Independent Consultant		May 2013 - present
Visiting Senior Research Fellow	<i>Department of Mathematics and Statistics, University of Reading, UK</i>	May 2013 – May 2016
Senior Research Fellow	<i>Department of Mathematics and Statistics, University of Reading, UK</i>	Oct 2011 – May 2013
	<ul style="list-style-type: none"> • Project leader on Darwin Initiative Grant 17-020 <i>Enhancing the Elephant Trade Information System (ETIS) to guide CITES policy</i> 	
Lecturer	<i>Department of Mathematics and Statistics, University of Reading, UK.</i>	Sep 2007 – Sep 2011
	<ul style="list-style-type: none"> • Provision of research methods support to undergraduates, postgraduates and research staff • Led, co-led, contributed to, and developed interdisciplinary research projects • Supervision of postgraduates (3 PhD and 8 MSc students), personal tutor to undergraduates • Statistics module coordinator for statistics and life sciences under- and post-graduate students 	
Senior Statistician & Statistician (until 02/06)	<i>Statistical Services Centre, University of Reading, UK</i>	Feb 2004 – Aug 2007
	<ul style="list-style-type: none"> • Statistical consultancy to scientists and policy makers in Europe & Africa – including MIKE & ETIS • Co-designed and co-led training courses for scientists and government technicians 	
Teaching assistant & statistician	<i>Department of Applied Statistics, University of Reading, UK</i>	Jan 1998 – Sep 2000
	<ul style="list-style-type: none"> • Course director for MSc Biometry and Post-experience diploma in statistics • Developed statistics modules for undergraduate and postgraduate statistics and life sciences • Consultancy and development of training courses 	
Associate Professional Officer for DfID & Stagière	<i>Institute for Crop Research in the Semi-Arid Tropics (ICRISAT), Niger and Mali</i>	Oct 1996 – Dec 1997 Jun 1995 – Jul 1995
	<ul style="list-style-type: none"> • Statistical support and training to international and national researchers in Niger and Mali • Data management and analysis of OPSCAR - a large complex multi-site field experiment 	
Statistician	<i>Scottish Natural Heritage, Edinburgh, UK</i>	Oct 1992 – May 1995
	<ul style="list-style-type: none"> • Sole statistical support to over 100 scientists and policy advisors in the organisation 	

QUALIFICATIONS

PhD, *Design-based adaptive monitoring strategies for wildlife population assessment*. Centre for Research into Ecological and Environmental Modelling, School of Mathematics and Statistics, University of St Andrews, UK, 2004

MSc (with distinction) *Biometry*, Department of Applied Statistics, University of Reading, UK. Awarded the Chapman & Hall prize for best student, 1996

BSc (Hons) *Mathematics, Operational Research, Statistics and Economics*, 1st class, Department of Statistics, University of Warwick, UK, 1992

SELECTED RECENT PUBLICATIONS

Underwood FM, Burn RW, Milliken (2013) Dissecting the illegal ivory trade: an analysis of ivory seizures data. *PLOS One* 8(10): e76539 doi:10.1371/journal.pone.0076539

Nicholson E, Collen B, Barausse A, Blanchard JL, Costelloe BT, Sullivan KME, **Underwood FM**, Burn RW, Fritz S, Jones JPG, McRae L, Possingham HP, Milner-Gulland EJ (2012) Making robust policy decision using global biodiversity indicators. *PLoS ONE* 7(7) e41128 doi:10.1371/journal.pone.0041128

Milliken T, Burn RW, **Underwood FM**, Sangalaku L (2012). The Elephant Trade Information System (ETIS) and the illicit trade in ivory. A report to the 16th Conference of the Parties to CITES Proceedings of the Conference of the Parties to CITES (UNEP), Bangkok: 16, Doc 53.2.2 <http://www.cites.org/eng/cop/16/doc/E-CoP16-53-02-02.pdf>

Underwood FM (2012) A framework for adapting survey design through time for wildlife population assessment. *Environmental and Ecological Statistics* 19(3) 413-436 doi: 10.1007/s10651-012-0193-4

Underwood FM (2012) Describing seasonal variability in the distribution of daily effective temperatures for 1986-2009 compared to 1904-1985 for De Bilt, Holland. *Meteorological Applications* doi: 10.1002/met.1297

EXTERNAL BODIES AND COMMITTEES

Fellow (GradStat) of the Royal Statistical Society since 1992 (1997)

Committee member in various local and national sections of the Royal Statistical Society. Committee member 2007 – present

Peer reviewer for several journals including: Science, Applied Statistics, Biometrics, Biometrical Journal, Journal of Animal Ecology, Climate Research, Oryx, PLOS Neglected Tropical Diseases

OTHER RELEVANT INFORMATION

Statistical Software packages R (excellent), Genstat (good), SPSS, Stata, Minitab (usable)

French (working knowledge)

UK Driving License

VOLUNTARY ROLES

Advocate: Action for Children, UK (2011- present)

Representing vulnerable young people at child protection and care reviews

Academic Mentor: Kids Company, UK (2012 – present)

Providing academic support to vulnerable young people in further education

Volunteer: Reading Borough Council Young Carers Youth Club, UK (2012 – 2013)

Supporting young people (12-17) with responsibilities for caring for other family members

SELECTED CONSULTANCY and RESEARCH PROJECTS

- Invited expert and presenter to *Expert Group Meeting , Indicators for Measuring Enforcement Response to Wildlife and Forest Crime*, United Nations Office on Drugs and Crime (UNODC), in partnership with the International Consortium on Combating Wildlife Crime (ICWC), Vienna, December 2013
- Investigating the effect of catch-share on Marine Stewardship Council Certification, MRAG Americas, 2013
- Project leader for Darwin Initiative Project 17-020 *Enhancing the Elephant Trade Information System (ETIS) to guide CITES policy 2009 - 2012*
 ETIS, managed by TRAFFIC International, is the global monitoring system for the illegal ivory trade and is based on reports of illegal ivory seizures. I had overall responsibility for this Darwin Initiative project which included the development of:
 - Statistical methodologies to model trends in the illegal ivory trade using inherently biased ivory seizures data
 - A standard reporting framework to produce indicators of the illegal ivory trade to inform international policy and decision making on elephants – presented at Convention for International Trade in Endangered Species of Fauna and Flora (CITES) Conference of the Parties, March 2013
 - Database software and training to improve data entry, access and reporting on the illegal ivory trade
 - Standard operating procedures to ensure long-term continuity of ETIS
- Co-lead on NERC Small Grant *Developing statistical climate forecasts for the coming decade*, 2011
- Analysis of anti-poaching patrol data from Africa and Asia, co-design of data analysis strategy, and contributing author to reports providing the evidence base for the UNEP project MIKE - *Monitoring the Illegal Killing of Elephants – the global monitoring system for the illegal killing of elephants*, 2002 - 2010
- Design of River Habitat Survey for the Environment Agency, UK, 2006
- Analysis of daily effective temperatures and extremes in Holland, Industrial Client, 2006
- Member of Biometrics content of ILRI projects review team for the International Livestock Research Institute (ILRI) Biometrics review, 2004
- Design of a monitoring strategy for Round Island reptiles, Mauritius, 2000-2001
- Adaptive sampling for forest inventory on Mount Cameron, DfID, 2000
- Analysis of daily rainfall data with the African Centre for Meteorological Applications for Development (ACMAD), 1998
- Design of the National Countryside Monitoring Scheme Accuracy Assessment, SNH, 1992-1995

SELECTED TRAINING COURSES

I have mainly trained biologists and statisticians, both professionals and students. This has included the development of new courses such as these examples listed below:

- Practical Bayesian Data Analysis – trained over 150 scientists from five continents, 2005 - 2008
- Statistical Thinking for Ecological Appraisal & Fisheries Officers of the Environment Agency, 1998 – 2001 and 2005-2006
- Statistical Modelling and Graphics using R, University of Reading, 2007 - 2010
- Capacity Building workshop on socio-economic surveys and data analysis for the regional initiative for dryland management multilateral working group on the environment, 2004
- Analysis of survey data for the Central Bureau of Statistics, Kenya, 2004
- Analysis of multi-site, multi-year and multi-variety trials – training course to ICRISAT Mali national researchers (1996) and an MSc Biometry module at the University of Reading, 1997