

# Dr Andy South

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I am an R programmer, inter-disciplinary researcher, trainer and manager. I have worked in a diversity of settings developing useable data tools and communicating information in accessible and interesting ways. I enjoy producing useful software that people like to use. I work well collaboratively, have managed teams, and have the creativity and determination to complete personal projects. I am active in the R open-source community.

## Employment

May 2012 – present **Freelance R developer & researcher**

- Liverpool School of Tropical Medicine
  - researching resistance implications of insecticide mixtures and re-factoring a 2-locus R simulation of insecticide resistance
  - designing a simple simulation to drive a computer game of insecticide resistance management and working with the team to develop the game
  - translating a spatial simulation of tsetse fly populations into R with a user interface
- contributed to Hackout2 hackathon for epidemiological data visualisation (Feb 2015), released repijson R package for outbreak data transfer.

pre 2015

- Defra : a web interface for global species conservation priorities [www.mapisco.org.uk](http://www.mapisco.org.uk)
- Welsh Assembly Government : an R package to visualise survey data
- short contracts for Cefas, Worldfish & Defra
- R talks & tutorials in Cambridge, London, use-R conference Albacete, Lyon
- initiated & worked on two winning projects at NHS hackdays
- update & support for the R package rworldmap – downloaded >58,000 times

Sep 2011 to Apr 2012 **Class teacher**, 7-8 year olds. Bosbury Primary School, Herefordshire.

Feb 2006 to Sep 2010 **Spatial analyst and team leader**

Centre for Environment, Fisheries and Aquaculture Science (Cefas), Lowestoft

- Leader of the Spatial analysis team of 6-10 staff using ArcGIS, MapInfo, R & SQL
- Responsible for staff management, recruitment and work allocation
- Analyses of fisheries data stored in complex relational databases
- Initiated and developed rworldmap, an R package to map global data now used worldwide
- Received performance bonus allocated to 5% of staff, won projects from NERC, EU and Defra

2000 to 2006 **Software developer, trainer and researcher**

Anatrack Ltd., University of Oxford.

- Designed and developed a software tool for viewing and analysing tracking data
- Tested application, wrote help files, supported users and gave training
- Completed application consisted of 50,000 lines of Java and C++, still being sold today ([www.anatrack.com](http://www.anatrack.com))

1994 to 2000 **PhD student and Post-doctoral ecologist**

University of Newcastle.

Spatial ecology of badgers, red squirrels, and beavers.

- Scientific research, programming, fieldwork and writing papers
- Linking C programs to GRASS GIS using UNIX scripts

## Current technical skills :

- R for data manipulation, display and analysis. Development of R packages
- Web user interfaces using R and shiny
- Version control using Git, Github, Travis & subversion
- Interrogation, analysis and visualisation of spatial data
- Automated document creation using Markdown, Knitr, Sweave and Latex

## Previous technical experience :

- Query and design of relational databases using SQL, ODBC, Query Analyser and Access
- Object-oriented software design and exception handling
- Java for user interfaces and threading, C++ and C for fast code
- Reading and creation of ESRI shapefiles, ArcGIS, MapInfo, QGIS

## Education

2010 - 11 **Postgraduate Certificate of Education**, Primary. Science specialism. Exeter Univ.

2008 - 09 **BTEC Level 7** certificate in Leadership and Management.

1994 - 98 **PhD**, University of Newcastle upon Tyne. Modelling the Spatial Distribution of Mammals. <https://theses.ncl.ac.uk/dspace/bitstream/10443/175/1/south99.pdf>

1989 - 93 University of East Anglia, Norwich and University of California at San Diego, USA  
**BSc (Hons) Biological Sciences. First class.**

1981 - 89 Bristol Grammar School. **A-Levels** : Biology (A), Chemistry (A), Geography (A)

## Selected publications

Finnie, T., **South, A.**, Bento, A., Sherrard-Smith, E., Jombart, T. (2016) EpiJSON: A unified data-format for epidemiology. *Epidemics* 15 : 20–26.

Stelzenmüller, V., Lee, J., **South, A.**, Foden, J. and Rogers, S.I. (2013). Practical tools to support marine spatial planning: A review and some prototype tools. *Marine Policy*. 38, 214–227.

**South, A.B.** (2012) Developing creativity and abstraction in representing data. *Primary Science*. 124. 17-20.

**South, A.B.** (2011) rworldmap A New R package for Mapping Global Data. *The R Journal* 3,35-43.

Ready, J., Kaschner, K., **South, A.B.**, Eastwood, P.D., Rees, T., Rius, J., Agbayani, E., Kullander, S. and Froese, R. (2010) Predicting the distributions of marine organisms at the global scale. *Ecological Modelling*, 221, 467-478.

Lee, J., **South, A. B.**, and Jennings, S. (2010) Developing reliable, repeatable, and accessible methods to provide high-resolution estimates of fishing-effort distributions from vessel monitoring system (VMS) data. – *ICES Journal of Marine Science*, 67: 1260–1271.

**South, A.B.** , Kenward, R.E. & Walls, S.S. (2006) Ranges7 : For the analysis of biological location data. Online manual. ISBN 0-9546327-0-2.

Shirley MDF, Rushton SP, Smith G, **South AB**, Lurz PWW. (2003) Investigating the spatial dynamics of bovine tuberculosis in badger populations: Evaluating an individual-based simulation model. *Ecological Modelling*, 167, 139-157.

**South, A.B.**, Rushton, S.P., Kenward, R.E. and Macdonald, D.W. (2002) Modelling vertebrate dispersal and demography in real landscapes : how does uncertainty regarding dispersal behaviour influence predictions of spatial population dynamics ? pp. 327 - 349 In: Bullock J M, Kenward R E and Hails R S. Dispersal. Blackwell Science, Oxford.

**South, A. B.** & Kenward, R. E.(2001) Mate finding dispersal distances and population growth in invading species: a spatially explicit model. *Oikos* 95, 53-58.

**South, A. B.**, Rushton, S. P. & Macdonald, D. W. (2000) Simulating the proposed reintroduction of the European beaver (*Castor fiber*) to Scotland. *Biological Conservation* 93, 103-116.

**South, A. B.** (1999). Dispersal in spatially explicit population models. *Conservation Biology* 13, 1039-1046.

**Languages** : Spanish (AS Level, Grade A, 2000. Intermediate & Advanced classes 2002-2010).