Dr Sander P. Oom

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Curriculum Vitae

Sander Oom

Education

1998 - 2003 ○ *Macaulay Institute & University of Edinburgh*. Ph.D. in spatial ecology. Spatial pattern and process in the fragmentation of heather moorland.

1988 - 1994 ○ *Wageningen University* (WUR). M.Sc. in rural planning, with minors in ecology, physical planning, nature conservation, vegetation science, Geographic Information Systems (GIS), and ecological modelling.

1987 - 1988 ○ Graduation year at *Marion High School*, Indiana (USA); as part of a student exchange program.

1981 - 1987 ○ High School, *'Rijksscholengemeenschap Meppel'* (Netherlands).

Experience

Present position

Since 10/05 ○ Ecological consultant (DHV). Providing ecological support for a variety of projects ranging from environmental impact assessments to nature restoration projects. Responsible for aquisition, supervision and project administration.

Research

09/03 - 09/05 ○ Postdoctoral fellow (in collaboration with Prof. N. Owen-Smith): *University of the Witwatersrand*, Animal, Plant and Environmental Sciences (South Africa). Investigating soil-plant-herbivore interactions across multiple spatial and temporal scales. Drivers of herbivore movement and habitat selection are investigated using experimental techniques, existing plant and herbivore monitoring data sets and satellite remote sensing imagery. MODIS, AVHRR, LandSat and weather radar imagery is used to answer questions at different spatial and temporal resolutions.

Experience (cont'd)

09/98 - 06/03 ○ Ph.D. (Supervisors: Prof. A.J. Hester and Dr C.J. Legg): *Macaulay Institute* and *University of Edinburgh*. Spatial pattern and process in the fragmentation of heather moorland. Research into the spatial interactions between sheep and heather-grass mosaics. Interactions were quantified using field based vegetation monitoring and high resolution aerial photography. Vegetation mosaics, before and after the field experiment, were digitized from imagery using Erdas Imagine. Study provides inside into the impact of sheep foraging behaviour on vegetation dynamics. Results were generalized using mathematical and simulation modelling.

03/98 - 05/98 ○ Visiting worker: *International Centre for Research in Agroforestry* (Indonesia). Research on the 1997 forest fires in Jambi province, Sumatra. Satellite imagery of forest fires were used to initiate field visits to survey the cause and motivation of forest fires.

04/96 - 04/97 ○ Visiting worker: *Macaulay Institute*. Research on the relationship between sheep and deer grazing and heather fragmentation, using vegetation measurements and remote sensing images. Measurement of habitat use by herbivores, digitizing, ortho-rectifying and interpreting of aerial photographs using Erdas Imagine. (Position financially supported by two private Dutch foundations)

09/93 - 07/94 ○ M.Sc. (Supervisor: Dr C. Jurgens): *Department of Physical Planning and Rural Planning* (WUR). Research on the application of connectivity to the planning of ecological infrastructures. System analysis, development of conceptual model, and application of mathematical model on case study.

09/92 - 07/93 ○ M.Sc. (Supervisor: Dr J. Bokdam): *Department of Terrestrial Ecology and Nature Conservation* (WUR). Research on the influence of cattle grazing on the vegetation succession in heather-forest-landscapes. Development and programming of a matrix-model to study the relationship between large herbivores and vegetation succession in heath-forest landscapes.

Consultancy

12/97 - 03/98 ○ GIS Consultant: *Tropical Institute Indonesia* (LATIN) (Bogor, Indonesia). Providing GIS capacity building and training. LATIN is a non-government organization committed to achieve sustainable development through natural and human resource management. Projects included sustainable forestry management in Krui, Sumatra, and community based conservation of the Javan rhinoceros in the Ujung Kulon National Park, Java.

09/97 - 11/97 ○ Junior GIS Engineer: *Synoptics, Integrated Remote Sensing & GIS Applications* (Netherlands). Developing a market garden management information system. Linking GIS maps to harvest prognosis models and a SQL database through an ArcView user interface. System is programmed with the Avenue programming language (ArcView).

07/97 - 08/97 ○ Junior GIS Engineer: *Ministry of Agriculture, Nature Management and Fisheries; Department of Water Management* (Netherlands). Providing cartographic images for water management report. Developing automated map generation routines using AML programming (ArcInfo).

Experience (cont'd)

01/95 - 02/96 ○ Project coordinator: *Provincial nature conservation organization 'Het Zuidhollands Landschap'*(Netherlands). Development, description and management of nature restoration projects. Also development and application of a project management administration system.

Other activities

Teaching ○ Various teaching activities: MS Access course, postgraduate student supervision, GIS and RS support.

Workshop ○ Organization of a one day workshop: 'The use of GIS and remote sensing in the Kruger National Park' on November 18th 2004.

Membership ○ Active member of several open-source software mailing lists: R-help, Grass-List, AniMove (Animal movement interest group).

Scholarships and awards

2004 ○ Claude Leon Foundation Postdoctoral Fellowship: two year fellowship for a position at Animal, Plants and Environmental Sciences, Faculty of Science, University of the Witwatersrand, Johannesburg. Fellowships are awarded on a competitive basis, taking the applicants' academic achievements and potential as researchers into account.

2003 ○ University of the Witwatersrand Postdoctoral Fellowship: two year fellowship for a position at Animal, Plants and Environmental Sciences, Faculty of Science, University of the Witwatersrand, Johannesburg.

1998 ○ Macaulay Development Trust Fellowship: three year fellowship for a PhD position at the Macaulay Institute, Aberdeen (United Kingdom).

1997 ○ Karel Frederik Stichting: grant awarded to visit the Macaulay Institute, Aberdeen.

1996 ○ Stichting Burgerweeshuis Meppel: grant awarded to visit the Macaulay Institute, Aberdeen.

Skills

Languages ○ Dutch as mother tongue; fluent in English, German and Afrikaans; writing and conversation in French and Spanish; basic conversation in Bahasa Indonesia.

Courses ○ 09/99 - Health and Safety Standard First Aid; 11/96 - Customising ARC/INFO with AML (ESRI).

General computing ○ All common Linux and MS Windows applications, LaTeX, advanced system administration for both MS Windows and Linux.

GIS ○ Grass GIS, ArcInfo, ArcView, Erdas Imagine.

Statistics ○ R, Genstat, S-Plus, GS-lib.

Databases ○ MS Access, SQL.

Programming ○ Delphi, Avenue, AML (ESRI), R, Linux shell scripting for Grass GIS.

Publications

Papers

2004 ○ **Oom, S.P.**, Beecham, J.A., Legg, C.J. & Hester, A.J. Foraging in a complex environment: from foraging strategies to emergent spatial properties. *Ecological Complexity*, **1**: 299-327.

2002 ○ **Oom, S.P.**, Hester, A.J., Elston, D.A. & Legg, C.J. Spatial interaction models: From human geography to plant-herbivore interactions. *Oikos*, **98**: 65-74.

1999 ○ **Oom, S.P.** & Hester, A.J. Heather utilization along paths by red deer and sheep in a natural heather/grass mosaic. *Botanical Journal of Scotland* **51**(1): 23-38.

Papers under review

○ Birch, C.P.D., **Oom, S.P.** & Beecham, J.A. The use of rectangular and hexagonal grids in ecology. Submitted to Ecological Modelling.

○ **Oom, S.P.**, Hester, A.J. & Legg, C.J. Defoliation across grass-heather boundaries: evidence for multiple stable states? Submitted to Journal of Ecology.

○ **Oom, S.P.**, Miller, D.R., Hester, A.J. & Legg, C.J. Remote sensing of plant-herbivore interactions at the patch scale: impact of sheep on heather-grass mosaics. Submitted to Ecography.

○ Sibbald, A.M., **Oom, S.P.**, Hooper, R.J. & Anderson, R. Foraging by sheep within a natural heather/grass mosaic: interactions between the effects of social behaviour and vegetation pattern. Submitted to Behavioral Ecology and Sociobiology.

Conference papers

2002 ○ Beecham, J.A., **Oom, S.P.** & Birch, C.P.D. Hoofs: A multi-scale, agent-based simulation framework for studying the impact of grazing animals on the environment. In Rizzoli, A. E. and Jakeman, A. J., (eds.), *Integrated Assessment and Decision Support, Proceedings of the First Biennial Meeting of the International Environmental Modelling and Software Society*, Volume 2, 220-225. iEMSs, June 2002.

2001 ○ **Oom, S.P.**, Hester, A.J., & Legg, C.J. Spatial distribution of heather offtake by sheep across heather/grass mosaics. *European Heathland Workshop 2001.* Orkney.

2000 ○ **Oom, S.P.**, Hester, A.J., Legg, C.J. & Elston, D. Spatial distribution of heather offtake by sheep across heather/grass mosaics. *BES Winter Meeting 2000.* University of Birmingham.

1999 ○ Beecham, J.A., **Oom, S.P.** & Hester, A.J. The role of animal decisions in the development of vegetation dynamics. In Maudsley, M. and Marshall, J., (eds.), *Heterogeneity in Landscape Ecology, Proceedings of the IALE(UK) 8th Annual Conference 1999, IACR, Bristol*, p. 121-130. IALE, September, 1999.

Conference posters

2000 ○ **Oom, S.P.**, Beecham, J.A. , Hester, A.J. & Legg, C.J. Predicting herbivore offtake across grass/shrub mosaics. *2000 World Conference on Natural Resource Modelling.* Wageningen University, Netherlands.

2000 ○ Miller, D., **Oom, S.P.**, Hester, A.J., Legg, C.J. & Kennedy, S. Digital Photogrammetric Derivation of Large Scale DEMs. *Proceedings of the RGS/IBG Annual Conference.* University of Sussex, Brighton.

Publications (cont'd)

1999 ○ **Oom, S.P.** & Hester, A.J. Heather. Utilization along paths by red deer and sheep in a natural heather/grass mosaic. *Proceedings of the BES Annual Symposium: Ecological Consequences of Environmental Heterogeneity.* University of Sussex, Brighton.

Theses

Ph.D. ○ **Oom, S.P.** (2002). Spatial pattern and process in the fragmentation of heather moorland. Macaulay Institute and University of Edinburgh.

M.Sc. ○ **Oom, S.P.** (1994). Connectivity: application of connectivity to the design of ecological infrastructures. Wageningen University. (in Dutch)

M.Sc. ○ **Oom, S.P.** (1993). Herbivores as landscape architects: modelling and simulating the relationship between grazing and landscape structure, with the aid of a matrix model. Wageningen University. (in Dutch)