



**United Nations
Environment
Programme**

Distr.: General
4 January 2013

English only

**Plenary of the Intergovernmental Science-Policy Platform on
Biodiversity and Ecosystem Services**

First session

Bonn, Germany, 21-26 January 2013

Item 6 of the provisional agenda*

**Nomination and selection of the members of the
Multidisciplinary Expert Panel**

**Compilation of curricula vitae of proposed members from
Western European and other States of the Multidisciplinary
Expert Panel**

Note by the secretariat

The annex to the present note, prepared by the secretariat of the United Nations Environment Programme, compiles the full curricula vitae of the candidates proposed as members from Western European and other States of the Multidisciplinary Expert Panel, as submitted by Members of the Platform. The annex has been reproduced as received, without formal editing.

The candidates are the following:

Mark Lonsdale, Australia
Kai M. A. Chan, Canada
Jedediah Farrell Brodie, Canada
Sarah Perin Otto, Canada
Philippe G. Le Prestre, Canada
Volker Loeschcke, Denmark
Eva Roth, Denmark
Eeva Furman, Finland
Janne Sakari Kotiaho, Finland
Atte Moilanen, Finland
Mikko Mönkkönen, Finland
Jari Kalevi Niemelä, Finland
Wolfgang Cramer, France

* IPBES/1/1.



Philippe Maurice Cury, France
Paul Leadley, France
Eckehard G. Brockerhoff, New Zealand
Dennis Preston Gordon, New Zealand
Philip Lyver, New Zealand
Anton Diderik Meister, New Zealand
Simon Francis Thrush, New Zealand
Dag Olav Hessen, Norway
Kit M. Kovacs, Norway
Ståle Navrud, Norway
G. Kristin Rosendal, Norway
Thomas Elmqvist, Sweden
Markus Fischer, Switzerland
James Bullock, United Kingdom
Iain James Gordon, United Kingdom
Edward Maltby, United Kingdom
Dominic Moran, United Kingdom
Ken Norris, United Kingdom
Ann M. Bartuska, United States of America

Annex

Compilation of curricula vitae of proposed members from Western European and other States of the Multidisciplinary Expert Panel

CSIRO Ecosystem Sciences,
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Dr W.M. (Mark) Lonsdale

Personal Information

- Nationality: Australian
- Date of Birth: 19 April 1957

Professional experience

2010 - CSIRO Ecosystem Sciences Canberra

Chief.

- Merged CSIRO Sustainable Ecosystems and Entomology Divisions to form a new integrated division of sustainability research
- Manage the Division's \$100M budget, 500 staff, and 16 sites across Australia and the globe
- Build collaborations across CSIRO and with external agencies, industries and universities.

2007 - 2010 CSIRO Entomology Canberra

Chief.

- Managed the Division's \$35M budget, 300 staff, and seven laboratories across Australia and the globe
- Provide strategic leadership for CSIRO Entomology
- In addition, in 07-08, supervise CSIRO's demerger from Ensis forest science joint venture with NZ and lead reintegration of Forest Biosciences into CSIRO
- Build collaborations across CSIRO and with external agencies, industries and universities.
- Lead portfolios of biosecurity, biodiversity, and biotechnology activities.

2003 - 2007 CSIRO Entomology Canberra

Assistant Chief (2003- 2005) ; Deputy Chief (from 2005).

- Represent the Chief in external fora
- Assist Chief to manage the Division's \$35M budget, 250 staff, and seven laboratories across Australia and the globe

2001 - 2003 CSIRO Entomology Canberra

Strategy Director - Environment

- As part of the senior management team, provided strategic direction for CSIRO Entomology's environmental research.
- Drove implementation of the Division's Strategic Plan for 2002-2007.
- Led research into risk analysis, biosecurity, complex systems, ecological implications of GMOs, and plant invasions.

1999-2001 CSIRO Entomology Canberra

Program Leader, Weed Management Program

- Manage financial, capital and human resources and intellectual property of the Program (50 staff in four Australian and three overseas locations)
- Carry out research into integrated management of temperate weeds and into

plant invasions.

- 1999 Promoted to Senior Principal Research Scientist Level 2

1995 - 1998 CSIRO European Laboratory Montpellier, France

Officer in Charge

- Manage financial, capital and human resources and intellectual property of the Laboratory.
- Carry out research into biological control of Mediterranean weeds and into plant invasions.
- 1998 Promoted to Senior Principal Research Scientist Level 1

1984 – 1995 CSIRO Entomology TERC, Darwin, NT

Weed ecologist and Deputy Officer in Charge

- Studied ecology and impact of tropical weeds including *Mimosa pigra*, and monitored impact of biocontrol agents
- 1988 Promoted to Senior Research Scientist by accelerated advancement
- 1992 Appointed joint project leader, *Mimosa*
- 1993 Promoted to Principal Research Scientist

1981 – 1983 Federal University of Technology Bauchi, Nigeria

Lecturer (2 year contract)

- Taught ecology, biology and biogeography.
- Member of Board of Studies, Board of Examiners and Seminar Committee.

**Additional
professional/
leadership
activities**

Science-policy interface and strategic planning

- Chair of the Local Organizing Committee for the Ecological Society of Australia 50th anniversary conference, Canberra, 2010.
- 2006 – present: led the development of national research priorities for the Australian National Biosecurity System.
- 2006 – present: member, DAFF Eminent Scientists' Group (reappointed 2010).
- 2005: led the development of research priorities for the Defeating the Weeds Menace R&D program
- 2005 – present: member, Board of the CRC for Invasive Animals
- 2003- 2004: CSIRO member of Australian Weeds Committee
- 2000 – 2003: Coordinator of the CSIRO research program on Ecological Implications of GMOs.
- 1998 – 2000 Wrote and supervised the successful bid for a new Australian national Weeds CRC (2001 – 2008, A\$2.8M pa)

Science

- 2007- present Invited member of the SCOPE Diversitas Science Committee

**Invited
participation in
outside forums (a
selection only)**

- 2004 – 2010: Invited board member, Global Invasive Species Program (Chair from 2004-2006).
- 1996 – 2002: Member, Editorial Board of Journal of Applied Ecology
- 1996-2000: member, Editorial Board, Australian Journal of Ecology
- 1998 – 2009: Member, Editorial Board of Biological Invasions

Biological invasions

- Invited speaker at US NRC Symposium "Twenty-First Century Ecosystems", Washington, February 2009.
- Invited to participate in joint paper on invasions at University of Arizona September 2007
- Invited speaker on invasions, Diversitas Conference, Mexico, 2005
- Invited as keynote speaker on biosecurity risk to the Society for Risk Analysis, Melbourne August 2006
- Invited keynote speaker reviewing Australia's weed strategies at Australian Weeds Conference Perth, November 2002.
- Invited as keynote to speak on science and invasions, CABI Conference, Beijing, 2004.
- Invited to speak on invasions, NZ Biosecurity Conference, 2004.
- Invited speaker at International Biodiversity Observation Year meeting, Maryland USA June 2001
- Keynote speaker at invasions meeting at University of Minnesota May 2002
- Keynote speaker reviewing Australia's weed strategies at Australian Weeds Conference Perth November 2002
- Keynote speaker on strategy for invasions for IPINAMS conference, Florida 2003

Sustainability; GMOs

- Expert witness at New Zealand Royal Commission into Biotechnology, March 2001 (by invitation of NZ parliamentary Commissioner for the Environment)
- Speaker on the environment and GMOs at Biotechnology Australia's GM forum Launceston 2001
- Speaker on GMOs and Risk at SA Academy of Science 2001
- Chaired session on environmental risks of GMOs at OECD meeting in December 2001, Raleigh, NC.

Education	1978 - 1981 University of East Anglia Norwich, England						
	Ph.D. • Thesis topic – “Studies on thinning in pure and mixed populations of plants” (density-dependent mortality in plants). • Supervisor – Dr A.R. Watkinson						
	1975 - 1978 University of Manchester Manchester, England						
	B.Sc. (Hons) Degree in Biology						
Professional Development	• Graduate of the Australian Institute of Company Directors: April 2004. • Undertook a three by one week residential course (Leading the Research Enterprise) in research management run by CSIRO in 2004-05.						
Professional memberships	Ecological Society of Australia Ecological Society of America						
Referees	<table border="1"> <tr> <td> Dr Joanne Daly PSM Clunies Ross Street Black Mountain ACT 2601 Ph: (02) 6246 4025 Joanne.Daly@csiro.au </td><td> Dr Anne Larigauderie, Executive Director, DIVERSITAS Museum National d'Histoire Naturelle (MNHN) 57, Rue Cuvier – CP 41 75231 Paris Cedex 05, France Tel +33 1 40 79 80 41 anne@diversitas-international.org </td></tr> <tr> <td> Dr Jeremy Burdon FAA Chief Plant Industry CSIRO Clunies Ross Street Black Mountain ACT 2601 Ph: (02) 6246 5546 Jeremy.Burdon@csiro.au </td><td> Mr Rob Delane OAM BSc MSc Deputy Director General Biosecurity and Research Department of Agriculture and Food Agriculture Western Australia 3 Baron-Hay Court South Perth WA 6151 Ph: (08) 9368 3420 rdelane@agric.wa.gov.au </td></tr> <tr> <td> Dr John Oakeshott AAS Chief Scientist CSIRO Ecosystem Sciences Clunies Ross Street Black Mountain ACT 2601 Ph: (02) 6246 4157 John.Oakeshott@csiro.au </td><td> Professor Richard Mack BA PhD School of Biological Sciences Washington State University Pullman WA, 99164-4238 United States of America Ph: +1 (509) 335 3316 mack@wsu.edu </td></tr> </table>	Dr Joanne Daly PSM Clunies Ross Street Black Mountain ACT 2601 Ph: (02) 6246 4025 Joanne.Daly@csiro.au	Dr Anne Larigauderie, Executive Director, DIVERSITAS Museum National d'Histoire Naturelle (MNHN) 57, Rue Cuvier – CP 41 75231 Paris Cedex 05, France Tel +33 1 40 79 80 41 anne@diversitas-international.org	Dr Jeremy Burdon FAA Chief Plant Industry CSIRO Clunies Ross Street Black Mountain ACT 2601 Ph: (02) 6246 5546 Jeremy.Burdon@csiro.au	Mr Rob Delane OAM BSc MSc Deputy Director General Biosecurity and Research Department of Agriculture and Food Agriculture Western Australia 3 Baron-Hay Court South Perth WA 6151 Ph: (08) 9368 3420 rdelane@agric.wa.gov.au	Dr John Oakeshott AAS Chief Scientist CSIRO Ecosystem Sciences Clunies Ross Street Black Mountain ACT 2601 Ph: (02) 6246 4157 John.Oakeshott@csiro.au	Professor Richard Mack BA PhD School of Biological Sciences Washington State University Pullman WA, 99164-4238 United States of America Ph: +1 (509) 335 3316 mack@wsu.edu
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W.M. Lonsdale - Publication list

Lifetime citations 3822 over 41 citable papers.

*Papers cited 10 or more times in the ISI Web of Science; **papers cited 30 or more times;

papers cited 100 or more times; *papers cited 300 or more times.

Refereed scientific publications

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2. Lonsdale, M. (2010) Pest risk assessment and invasion pathways: invasive weeds. *New Zealand Journal Of Forestry Science*, **40** (Supplement): 73-76.
3. Perrings, C.; Burgiel, S.; Lonsdale, M.; Mooney, H.; Williamson, M. (2010) International cooperation in the solution to trade-related invasive species risks. *Annals Of The New York Academy Of Sciences*, **1195**, 198-212.
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5. Mason, T.J.; French, K.; Lonsdale, W.M. (2009) Do graminoid and woody invaders have different effects on native plant functional groups? *Journal Of Applied Ecology*, **46**, 426-433
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11. *Vila, M., Williamson, M. & Lonsdale, W. (2004) Competition experiments on alien weeds with crops: lessons for measuring plant invasion impact? *Biological Invasions*, **6**, 59-69.
12. *Islam, N., Lonsdale, M., Upadhyaya, N. M., Higgins, T. J., Hirano, H., and Akhurst, R. Protein extraction from mature rice leaves for two dimensional gel electrophoresis and its application in proteome analysis. *Proteomics* **4**, 1903-1908. 2004.
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40. **Lonsdale, W. M. and Abrecht, D. G. 1989. Seeding mortality in *Mimosa pigra*, an invasive tropical shrub. *Journal of Ecology* **77**, 371-385.
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47. *Lonsdale, W. M. 1988. Interpreting seed survivorship curves. *Oikos* **52**, 361-364.
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 77. Lonsdale, W. M. 1990. Weeds and conservation in the Australian tropics. Keong, Y. S. and Win, L. S. *Proceedings of the International Conference on Tropical Biodiversity: "In Harmony with Nature"*. 187-192. Kuala Lumpur, Malayan Nature Society.
 78. Wilson, C. G. and Lonsdale, W. M. 1987. Recent advances in weed biocontrol in northern Australia. *Proceedings of the Eighth Australian Weeds Conference*. 89-92. Sydney, Council of Australian Weed Science Societies.
 79. Lonsdale, W. M. and Segura, R. (1987) A demographic comparison of native and introduced populations of *Mimosa pigra*. Lemerle, D. and Leys, A. R. *Proceedings of the Eighth Australian Weeds Conference*.. Sydney, Council of Australian Weed Science Societies.

80. Lonsdale, W. M., Harley, K. L. S., and Miller, I. L. 1985. The biology of *Mimosa pigra* L. Proceedings of the Tenth Asian-Pacific Weed Science Society Conference. 484-490. Bangkok, Asian-Pacific Weed Science Society, Dept of Agriculture.

Non-refereed scientific publications

81. Lonsdale, W.M., Floyd, R., Vickers, R., De Barro, P., Chakraborty, S., Groves, R.H. and Clarke G. (2001). Implications of incursion ecology for managing Incursions in the Plant Industries. Plant Health Australia, Canberra, Australia
82. Lonsdale, WM. 1999. Weeding out the enemy. *Ecos* 100, 32-33. Canberra, CSIRO.
83. Panetta, D., Pheloung, P., Lonsdale, W. M., Jacobs, S., Mulvaney, M., and Wright, W. 1994. Screening plants for weediness: A procedure for assessing species proposed for importation to Australia. A report commissioned by the Australian Weeds Committee.

Key recent reports

84. Groves, R. H., Boden, R., and Lonsdale, W. M. Jumping the Garden Fence: Invasive Garden Plants in Australia and their environmental and agricultural impacts. 2005. WWF Australia, Sydney.
85. CRC for Australian Weed Management (Lonsdale et al.). Defeating the Weed Menace R&D Strategy. 2005. Canberra, CRC for Australian Weed Management.

KAI M. A. CHAN

Tier 2 Canada Research Chair & Associate Professor, Biodiversity & Ecosystem Services
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kaichan@ires.ubc.ca • kc@kchan.org • chanslab.ires.ubc.ca

SUMMARY OF RELEVANT SKILLS

I have a broad and deep training in natural and policy sciences and in applied ethics. I am involved in several NGOs, especially as a 6-year board member of CPAWS-BC. I have worked extensively on environmental management and policy with government agencies, including Parks Canada, Environment Canada, and DFO.

EDUCATION

Stanford University:	Postdoc in Conservation Biology (Gretchen Daily), 2005
Princeton University:	Ph.D. in Ecology and Evolutionary Biology (Simon Levin), 2003
	Certificate in Public Policy (Peter Singer), 2003
University of Toronto:	Hon. B.Sc. in Ecology (Donald Jackson), 1997

PUBLICATIONS—ACADEMIC, SELECTED (OF 111) [citations 2012.8.21, google]

My students and postdocs in italics and bold.

- Chan, K.M.A.**, A. Guerry, P. Balvanera, et al. (14 others). "Where are 'cultural' and 'social' in ecosystem services: A framework for constructive engagement" *BioScience* 62 (2012): 744-756.
- Lo, V.B.**, **K.M.A. Chan**, Colin D. Levings. Modeling propagule pressure of aquatic invasive species from commercial shipping: A case study of Canadian ports. *MEPS* 64(2): 295-302.
- Chan, K.M.A.**, T. Satterfield and J. Goldstein. 2012. Rethinking ecosystem services to better address and navigate cultural values. *Ecological Economics* 74: 8-18.
- Guerry, A., M. Ruckelshaus, K. Arkema, ... **K.M.A. Chan** et al. 2012. Modelling benefits from nature: Using ecosystem services to inform coastal and marine spatial planning. *IJBSES*: 1-15. ([www](#))
- Chan, K.M.A.**, L. *Hoshizaki*, B. Klinkenberg. 2011. Ecosystem services in conservation planning: Targeted benefits or co-benefits/costs. *PLoS ONE*, 6(9): e24378. ([www](#))
- Esplnosa-Romero, M.J.*, **K.M.A. Chan**, T. McDaniels, and D. Mullen-Dalmer. 2011. Structuring decision-making for ecosystem-based management. *Marine Policy* 35: 575-583. ([www](#))
- Chan, K.M.A.** 2011. Ethical Extensionism under Uncertainty of Sentience: Duties to Non-Human Organisms without Drawing a Line. *Environmental Values* 20: 323-346.
- Luck, G.W., **K.M.A. Chan**, J.P. Fay. 2009. Protecting ecosystem services and biodiversity in the world's watersheds. *Conservation Letters* 2: 179-188. ([www](#)) [**14 cit**]
- Manolis, J.C., **K.M.A. Chan**, S. Stephens, M.E. Finkelstein, C.R. Nelson, J.B. Grant and M.P. Dombeck. 2009. Leadership: A new frontier in conservation science. *Cons. Biology* 23(4): 879-886. [**11 cit**]
- Nelson, E., G. Mendoza, J. Regetz, S. Polasky, H. Tallis, D.R. Cameron, **K.M.A. Chan**, et al. 2009. Modeling multiple ecosystem services and tradeoffs at landscape scales. *FrEE* 7(1): 4-11. [**248 cit**]
- Chan, K.M.A.**, and G.C. Daily. 2008. The Payoff of Conservation Investments in Tropical Countryside. *Proceedings of the National Academy of Sciences* 105(49): 19342-7.
- Chan, K.M.A.** 2008. (Corresp) Conservation: in a rut, we need rut-inspired solutions. *Nature* 451: 127.
- Chan, K.M.A.** 2008. (Editorial) Value and advocacy in conservation biology: Crisis discipline or discipline in crisis? *Conservation Biology* 22(1):1-3. [**13 cit**]
- Armsworth, P.R., **K.M.A. Chan**, G.C. Daily, P.R. Ehrlich, et al. 2007. (Editorial) Ecosystem-service science and the way forward for conservation. *Conservation Biology* 21(6): 1383-1384. [**49 cit**]
- Chan, K.M.A.**, R.M. Pringle, J. Ranganathan, C.L. Boggs, Y.E. Chan, P.R. Ehrlich, P. Haff, N.E. Heller, K. Al-Khafaji, D. MacMynowski. 2007. When agendas collide: Human welfare and biological conservation. *Conservation Biology* 21(1): 59-68. [**119 cit**]
- Chan, K.M.A.**, M.R. Shaw, D.R. Cameron, E.C. Underwood, and G.C. Daily. 2006. Conservation planning for ecosystem services. *PLoS Biology* 4(11): e379. ([www](#)) [**298 cit**]

Kai M. A. Chan

Chan, K.M.A., and S.A. Levin. 2005. Leaky prezygotic isolation and porous genomes: Rapid introgression of maternally inherited DNA. *Evolution* 59(4): 720-729. [121 cit]

Chan, K.M.A., and B.R. Moore. 2005. SymmeTREE: whole-tree analysis of differential diversification rates. *Bioinformatics* 21(8): 1709-1710. [62 cit]

GRANTS—SELECTED (OF 27, TOTALING >\$3M, ~1/2 AS PI)

Year(s)	Name	Approx Value	Agency
2009-2012	Coastal Ecosystem Services amongst Trophic Cascades	CDN\$630,255	NSERC
2009-2012	Cross-system linkages and ecosystem services on the British Columbia coast	CDN\$121,156	Packard Foundation
2008-2012	BC Coastal Ecosystem Services (BCCES): Integrating Understanding for Better Management	CDN\$100,000	The Nature Conservancy
2007-2012	What Makes Outbreaks Break Out? The Ecology and Evolution of Native and Non-Native Superabundance	CDN\$96,250	NSERC
2006-2011	SuperAbundanceBase.org: Serving and Interpreting Biological Abundance Information	CDN\$192,622	CFI/BCKDF

* BCKDF = British Columbia Knowledge Development Fund; CFI = Canadian Foundation for Innovation; NSERC = Natural Sciences and Engineering Research Council (Canada); SSHRC = Social Sciences and Humanities Research Council (Canada).

PUBLICATIONS—OUTREACH, SELECTED (OF 104)

Chan, K.M.A. "Baby services: Benefits from parenting—and nature—go beyond self-interest". *Conservation Magazine* 12.1 (2012): 4.

Otto, S. & **Chan, K.** "We're losing the battle for diversity of life". *Vancouver Sun* 11.3 (2010): 15.

Chan, K.M.A. and V. Lo. "Oil Spills Aren't a 'Not in My Backyard' Issue." *The Tyee* (Jun 23 2010, [www](#)).

Chan, K.M.A. and C. Clarke Murray. "Sweat the small stuff: How personal actions can kick-start a sustainability revolution". *Grist Magazine* (2010): ([www](#)) 34 comments.

AWARDS & DISTINCTIONS (SELECTED, OF 30 OVER PAST 19 YEARS)

Year(s)	Name	Approx Value	Institution
2012	Future Leader, Canada's representative, Science and Technology in Society Forum, Kyoto Japan	US\$5,000	Japan SPS
2011-	Global Young Academy (GYA) membership	-	GYA
2011-2012	Fulbright Canada Visiting Research Chair, UCSB	US\$25,000	Fulbright Can.
2011-	Canada Research Chair, Tier 2 (renewal)	CDN\$500,000	NSERC
2006-2011	Canada Research Chair, Tier 2	CDN\$500,000	NSERC
2005	Howard Alper Postdoctoral Prize (for NSERC's most outstanding postdoctoral fellow; declined)	CDN\$20,000	NSERC
2005-2007	NSERC Postdoctoral Fellowship (declined)	CDN\$80,000	NSERC
2003-2005	Postdoctoral Fellowship	US\$81,500	Stanford
2000-2002	Julie Payette-NSERC Research Scholarship	CDN\$50,000	NSERC
1999-2002	Science, Tech. and Environmental Policy Fellowship	US\$42,500	PEI
1999-2000	Heinz Scholarship for Environmental Research	US\$13,600	Heinz Found'n
1998-2000	NSERC Post Graduate Scholarship (PGS A)	CDN\$37,000	NSERC

JEDEDIAH FARRELL BRODIE

Assistant Professor of Conservation Ecology, Departments of Botany & Zoology and Biodiversity Research Centre, 3529-6270 University Blvd, University of British Columbia, Vancouver, V6T 1Z4, Canada; (604) 827-0066; brodie@zoology.ubc.ca

EDUCATION

- David H. Smith Conservation Research Postdoctoral Fellow (2007-09).
- PhD (Biology) University of Montana, Missoula, USA (2007)
- Bachelors (Environmental Studies & Biology; with honours) University of California, Santa Cruz, USA (1997)

PROFESSIONAL POSITIONS

- Assistant professor, Conservation Ecology. Departments of Zoology and Botany, and Biodiversity Research Centre. Univ. of British Columbia, Vancouver, Canada.
- Research Scientist, USGS Wildlife Cooperative Research Unit, Missoula, USA (2010-11)
- Adjunct Instructor, Wildlife Biology Program, University of Montana, USA (2010)
- Contractor, Sri Lanka Wildlife Conservation Society, post-tsunami conservation (2006)
- Director, R & D, Malesiana Tropicals native tree propagation nursery, Malaysia (1998-99)

RESEARCH FELLOWSHIPS. Two prestigious research fellowships help illustrate my impact and contributions: (1) David H. Smith Conservation Research Fellowship, the postdoctoral fellowship of the Society for Conservation Biology, which describes it thusly: "The David H. Smith Conservation Research Fellowship Program seeks to develop future world leaders and entrepreneurs who are successful at linking conservation science and application. Smith Fellowships provide two years of postdoctoral support to outstanding early-career scientists". (2) Fulbright Scholars Fellowship, described as, "The flagship international exchange scholarship program between the U.S. and 155 countries, supported by the U.S. Congress and partner governments worldwide".

INTERNATIONAL WORK. I have extensive connections in South and Southeast Asia, having lived in Malaysia, Thailand, and Nepal for my work on biodiversity conservation. I have also traveled and worked in Southern Africa, South America, Central America, Alaska, Australia, and New Zealand.

BOARD MEMBERSHIP AND CONSULTING. I am an elected member of the Board of Directors for the Society for Conservation Biology Asia Section, a Scientific Affiliate for the Tropical Forest Group, and a Research Associate for the Denver Zoological Foundation. These positions allow me to translate scientific knowledge and information into more effective management and conservation of highly biodiverse and critically threatened ecosystems. Moreover, I have engaged in consulting activities including a post-tsunami conservation assessment in Sri Lanka for the Nature Conservancy, a review of wildlife impacts of winter use in Yellowstone National Park, and the synthesis of ecological and conservation data on American bison for the Wildlife Conservation Society and American Bison Society.

COMMUNICATION AND PROMOTION OF SCIENCE. In addition to numerous talks at scientific conferences (~1-2 per year since 2008), I have helped communicate and disseminate information to key audiences through symposia. I moderated the plenary session of the 2010 Society for Conservation Biology annual meeting in Edmonton, "Tackling the future's most pressing conservation challenges in a changing world"; this was a panel discussion among six leaders in the field of Conservation Biology. I also organized and moderated, with Dr. Julia Baum (University of Victoria), a symposium on "Drivers of the global wildlife trade in the 21st century: key challenges and opportunities for sustainability" at the 2009 Society for Conservation Biology annual meeting in

Beijing. My publications have been featured in 24 print and online media outlets including BBC News, BBC "Earthnews", CanWest News Service, New Scientist, Nature News, and National Parks Traveler. I gave a live feature interview for Montana Public Radio and a live interview with BBC radio.

BOOKS. (1) BRODIE, J.F., E. Post, and D. Doak (editors). In Press. *Wildlife conservation in a changing climate*. University of Chicago Press. Publication in spring 2013. (2) Francis, C.M., and J.F. BRODIE. In Preparation. *A field guide to the mammals of the Indo-Malay Archipelago*. Non-binding publication agreement with New Holland Press.

SHORT SELECTION OF RELEVANT PUBLICATIONS

BRODIE, J.F., E. Post, and W. Laurance. 2012. Climate change and tropical biodiversity: a new focus. *Trends in Ecology and Evolution* 27: 145-150.

BRODIE, J.F., E. Post, F. Watson, and J. Berger. 2012. Climate intensification of herbivore impacts on tree recruitment. *Proceedings of the Royal Society B* 279: 1366-1370.

McConkey, K., S. Prasad, R. Corlett, A. Campos-Arceiz, J. BRODIE, H. Rogers, and L. Santamaria. 2012. Seed dispersal in changing landscapes. *Biological Conservation* 146: 1-13.

Post, E., and J.F. BRODIE. 2012. Extinction risk at high latitudes. Pages 121-138 in L. Hannah (editor), *Saving a million species: extinction risk from climate change*. Island Press, Washington D.C.

BRODIE, J.F., and C. Azlan. 2011. Halting regime shifts in floristically-intact tropical forests deprived of their frugivores. *Restoration Ecology* doi:10.1111/j.1526-100X.2011.00833.x

BRODIE, J.F., J. Muntifering, M. Hearn, B. Loutit, R. Loutit, B. Brell, S. Uri-khob, N. Leader-Williams, and P. du Preez. 2011. Population recovery of black rhinoceros in northwest Namibia following poaching. *Animal Conservation* 14: 354-362.

Crone, E., E. McIntire, and J.F. BRODIE. 2011. What defines mast seeding? Spatio-temporal patterns of cone production by whitebark pine. *Journal of Ecology* 99: 438-444.

Williams, J., M. Ellis, M. Bricker, J.F. BRODIE, and E. Parsons. 2011. Distance to stable stage distribution in plant populations and implications for near-term population projections. *Journal of Ecology* 99: 1171-1178.

BRODIE, J.F., and A. Giordano. 2011. Small carnivores of the Maliau Basin, Sabah, Borneo, including a new locality for Hose's Civet. *Small Carnivore Conservation* 44: 1-6.

BRODIE, J.F., E. Post, and W. Laurance. 2010. How to conserve the tropics as they warm. *Nature* 468: 634.

Kauffman, M.J., J.F. BRODIE, and E. Jules. 2010. Are wolves saving aspen? A landscape-level test of a behaviorally mediated trophic cascade. *Ecology* 91: 2742-2755.

Bakker, V.J., J.K. Baum, J.F. BRODIE, A.K. Salomon, B.G. Dickson, H.K. Gibbs, O.P. Jensen, and P.B. McIntyre. 2010. The changing landscape of conservation science funding in the United States. *Conservation Letters* 3: 435-444.

BRODIE, J.F., and E. Post. 2010. Non-linear responses of wolverine populations to declining winter snowpack. *Population Ecology* 52: 279-287.

BRODIE, J.F., and H. Gibbs. 2009. Bushmeat hunting as climate threat. *Science* 326: 364-365.

BRODIE, J.F., O. Helmy, W. Brockelman, and J. Maron. 2009. Functional differences among tropical mammalian frugivores. *Ecology* 90: 688-698.

BRODIE, J.F., O. Helmy, W. Brockelman, and J. Maron. 2009. Bushmeat poaching reduces the seed dispersal and population growth rate of a mammal-dispersed tree. *Ecological Applications* 19: 854-863.

Post, E., J.F. BRODIE, M. Hebblewhite, A.D. Anders, J.A.K. Maier, and C.C. Wilmers. 2009. Global population dynamics and hot spots of response to climate change. *Bioscience* 59: 489-497.

BRODIE, J.F., J. Berger. 2009. The Peel River watershed: ecological crossroads and Beringian hotspot of arctic and boreal diversity. Canadian Parks and Wilderness Society, Yukon Chapter, Whitehorse, Yukon Territory.

Dr. SARAH PERIN OTTO
Curriculum Vitae in Brief

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WORK APPOINTMENTS & TRAINING BACKGROUND

Canadian Research Chair, Tier 1 (2009-present)
Director, NSERC CREATE Training Program in Biodiversity Research (2009-present)
Director, Biodiversity Research Centre, UBC (2008-present)
Full Professor, Department of Zoology, UBC (2005-present); Associate Professor (2000-2005);
Assistant Professor, Department of Zoology, UBC (1995-2000)
SERC Post-Doctoral Research Fellow, University of Edinburgh, UK (1994-1995)
Miller Post-Doctoral Fellow, UC Berkeley, Berkeley, CA (1992-1994)
Ph. D. Degree, Biology, Stanford University (1988-1992)
B.Sc. Degree, Biology, Stanford University (1985-1988)

RESEARCH INTERESTS

The evolution of genetic systems (recombination, ploidy level, gene duplications); the evolution and diversity of mating systems (sexual vs asexual reproduction, sexual selection, plant reproductive strategies); phylogenetic analyses of trait evolution and diversification; yeast experimental evolution.

RELEVANT SKILLS FOR IPBES

Broad understanding of and publication record in evolutionary biology; strong mathematical and statistical abilities; excellent problem solving abilities and a keen interest in applying these abilities to preserving biodiversity and maintaining ecosystems.

SELECTED HONOURS, ACCOMPLISHMENTS, AND ACTIVITIES [Past five years only]

- 1) **Honor's and Awards:** MacArthur Fellow (2011), Steacie Prize (2008), Fellow, Royal Society of Canada (2006), Sabbatical Award, NESCent, North Carolina (2006), Killam Faculty Research Fellowship, UBC (2006), McDowell Award for Excellence in Research, UBC (2004)
- 2) **Invited Symposium Speaker and Conference Organization:** Primary organizer, Annual Meeting of the Canadian Society of Ecology and Evolution, UBC (2008). Organizer: Vice President's Symposium, American Society of Naturalists (2008). Invited lecturer: Women in Science, Engineering, and Technology exchange to Japan (nominated by the Royal Society of Canada; involved six seminars to high school students, the National Women's Education Center, and various Universities; 2008). Plenary speaker: European Society of Evolutionary Biology (2007); American Genetics Association (2007); Genetics Society conference on Meiosis (2006). Invited symposium speaker (21 times).
- 3) **Society activities:** Co-founder of the Canadian Society for Ecology and Evolution (currently 900 members strong); Secretary (elected twice), Canadian Society for Ecology and Evolution (2006 – 2012); Vice President (elected), European Society of Ecology and Evolution (2009 – 2011); Vice President (elected), American Society of Naturalists (2007 – 2008); Vice President (elected), Society for the Study of Evolution (2006); Science Board, National Evolutionary Synthesis Center (NESCent 2005 – present); Council member (elected), Society for the Study of Evolution (2001 – 2004); Council member (elected), American Genetic Association (2002 – 2004)
- 4) **Journal activities:** Editorial Board, Annual Review of Ecology, Evolution and Systematics (2011-2016); Assistant Editor, Evolution (2006 – 2010); Editorial Board, Biology Letters, Royal Society

of London (2005 – 2010); Editorial Board, *TREE* (2004 – present); Assistant Editor, *Genetics* (2002 – 2005); Assistant Editor, *Theoretical Population Biology* (1994 – present).

5) Educational activities: Developed and taught Biomathematics, UBC (1997-present); Developed and taught Evolutionary Genetics, UBC (1998-2005); Co-developed and co-taught Population and Quantitative Genetics, UBC (1996-present). Host or co-host of several research-related discussion groups. Faculty consultant on exhibits and guest speaker within the Beaty Biodiversity Museum. Lectures for a general audience on the evolution of sex and on the evolution of genomes.

SELECTED PUBLICATIONS: OUT OF A TOTAL = 133 papers, 2 books, & 2 edited volumes

Mayrose, I., S. H. Zhan, C. J. Rothfels, K. Magnuson-Ford, M. S. Barker, L. H. Rieseberg, and S. P. Otto (2011) Recently-formed polyploid plants diversify at lower rates. *Science*, 333:1257.

Johnson, M. T. J., R. G. FitzJohn, S. D. Smith, M. D. Rausher, and S. P. Otto (2011) Loss of sexual recombination and segregation is associated with increased diversification in evening primroses. *Evolution*, 65:3230-3240.

The Expert Panel on Biodiversity Science (2010) Canadian Taxonomy: Exploring Biodiversity, Creating Opportunity. Council of Canadian Academies, pp. 126.

[Editorial] Otto, S. P. and K. Chan (2010) "We're losing the battle for diversity of life: B.C. has no law protecting species at risk of extinction, and the laws we do have aren't working". Special to the Vancouver Sun, November 3, 2010, A15.

Hodgins, K. A., L. Rieseberg, and S. P. Otto (2009) Genetic control of invasive plants species using selfish genetic elements. *Evolutionary Applications*, 2: 555-569.

Otto, S. P. and T. Day (2007) A Biologist's Guide to Mathematical Modeling in Ecology and Evolution. Princeton University Press.

Maddison, W. P., P. E. Midford and S. P. Otto (2007) Estimating a binary character's effect on speciation and extinction. *Systematic Biology*, 56: 701-710.

Sargent, R. D., and S. P. Otto (2006) The role of local species abundance in the evolution of pollinator attraction in flowering plants. *American Naturalist*, 167: 67-80.

Vamosi, J. C. and S. P. Otto (2002) When looks can kill: The evolution of sexually-dimorphic floral display and the extinction of dioecious plants. *Proceedings of the Royal Society, London B.*, 269: 1187-1194.

Otto, S. P. and J. Whitton (2000) Polyploid incidence and evolution. *Annual Review of Genetics*, 34: 401-437.

Poon, A. and S. P. Otto (2000) Compensating for our load of mutations: Freezing the mutational meltdown. *Evolution*, 54: 1467-1479.

Otto, S. P. and M. C. Whitlock (1997) The probability of fixation in populations of changing size. *Genetics*, 146: 723-733.

SELECTED RESEARCH FUNDING [Past five years only]

Discovery grant, Natural Sciences & Engineering Research Council, Canada (2010-2015) C\$82,000 per annum

Discovery Accelerator grant, Natural Sciences & Engineering Research Council, Canada (2010-2013) C\$82,000 per annum

Leaders Opportunity Fund, Canada Foundation for Innovation & BC Knowledge Development Fund, Canada (2010) C\$397,342 (CFI) & C\$397,342 (BCKDF).

NSERC CREATE Training Program in Biodiversity Research (2009-2015) C\$1,650,000 total

NSERC SRO on the "Genetics of Invasiveness: What makes a weed a weed?" (2008-2010) C\$991,435.00 total [PI: Loren Rieseberg]

PHILIPPE G. LE PRESTRE

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CURRENT AND RECENT RESPONSIBILITIES

- **Professor of Political Science**, Department of Political Science, Laval University, 2005-present.
- **Founding Director**, Hydro-Quebec Institute on Environment, Development, and Society (EDS Institute); Laval University, Québec (Québec), Canada, 2005-2011 (two terms) (www.ihqeds.ulaval.ca).
- **UNESCO Chair** on Sustainable Development, Laval University.
- **Lead Author**, Global Environmental Assessment 5 (North America Chapter), UNEP, 2010-2012;
- **Member DIVERSITAS Science Committee** (ICSU-SCOPE-IUBS-Unesco); 2008-2013;
- **Member, Scientific Committee**, Laboratory of Excellence «Objectif Terre/Earth Institute», Aix-Marseille University, 2012-2015 ;
- **Member, Sectoral Commission on Natural and Social Sciences, Canadian Commission for Unesco**, 2010-present;
- **Head of Axis III, (Biodiversity Governance), Quebec Centre for Biodiversity Science**, McGill University;
- **Chair, EQUIPEX International Jury**, Program «Investissements d'Avenir», Ministry of Higher Education and Research, and National Research Agency, France, 2010, 2011 ;
- **Member, IDEX International Jury**, Program «Investissements d'Avenir», Ministry of Higher Education and Research and National Research Agency, France, 2011, 2012 ;
- **Member, Social Science Scientific Committee** (CSSS-4), IRD-Institut de recherche pour le développement, France, 2008-2012;
- **Editor-in-chief**, *Objectif Terre – le bulletin francophone sur le développement durable* (published by the Organisation internationale de la Francophonie);

EDUCATION

- Ph.D., Indiana University (Bloomington), Political Science, 1982;
- D.E.A., (Diplôme d'études approfondies), University of Paris VII, 1976 (Theoretical Ecology and Plant Physiology);
- M.S., University of Paris VII, 1974 (Environmental Studies).

MEMBERSHIP IN NATIONAL DELEGATIONS

- Member, OIF (Organisation internationale de la Francophonie) delegation to the 10th Conference of the Parties of the Convention on Biological Diversity, Nagoya, Japan, 2010;
- Member, Canadian delegation to CBD-COP 7 (Kuala Lumpur), COP-8 (Curitiba) and COP-9 (Bonn);
- Member, Canadian delegation to the 23rd meeting of the UNEP Governing Council, 2005.

ORGANISATION OF SYMPOSIA AND COLLOQUIA (selected events)

- Training Workshops in International Environmental Diplomacy (Biodiversity, Climate Change), Institut de l'énergie et de l'environnement de la Francophonie, 2007, 2009;
- Workshop on Blue Algae Contamination in Quebec Lakes, Laval U., Jan. 2008.
- Workshop on Protected Areas, Laval U., Sept. 2007

SELECTED RELEVANT PUBLICATIONS**Books**

- Le Prestre, Philippe. *Fractal Governance: A Reconceptualization of Global Environmental Reform*. (in progress, due 2013).
- Le Prestre, Philippe (ed). 2011. *Vingt ans après : Rio et l'avant-goût de l'avenir*, Québec : Presses de l'Université Laval.
- Le Prestre, Philippe and Peter Stoett (eds). 2006. *Bilateral Ecopolitics: Studies in Canada-United States Environmental Relations*. Aldershot (UK): Ashgate.
- Le Prestre, Philippe. 2005. *Protection de l'environnement et relations internationales : les défis de l'écopolitique mondiale*. Paris: Armand-Colin (coll. «U»), 497p.
- Le Prestre, Philippe, dir. 2002. *Governing Global Biodiversity: The Evolution and Implementation of the Convention on Biological Diversity*. Aldershot (UK): Ashgate, 428 p.
- Le Prestre, Philippe. 1989. *The World Bank and the Environmental Challenge*. Selinsgrove, PA: Susquehanna University Press, 263 p. (selected by *Choice* «one of the outstanding academic books for 1991»)

Articles and book chapters

- Le Prestre, Philippe (dir.). *Guide des négociations CBD COP-8 (2006), COP-9 (2008), COP-10 (2010), COP-11 (2012)*, Québec : IEPF et IHQEDS
- Mace, Georgina, Perrings, Charles, Le Prestre, Philippe et al. 2013. «Science to policy linkages for the post 2010 biodiversity targets». In, *Biodiversity Monitoring and Conservation: Bridging the gap between global commitment and local action*. Eds. Collen B., et al., Cambridge, UK: Willey-Blackwell.
- Mace, Georgina et al. 2012. «Biodiversity and ecosystem services science for a sustainable planet: the DIVERSITAS vision for 2012-20». COSUST
- Le Prestre, Philippe. 2010. «La Convention sur la diversité biologique à l'échéance de 2010», In Nègre, Céline, *La Convention internationale sur la biodiversité: enjeux de la mise en œuvre*, Paris, La Documentation française, p.11-25.
- Le Prestre, Philippe. 2010. «La nécessité d'une gouvernance interscalaire de la biodiversité», In Nègre, Céline, *La Convention internationale sur la biodiversité: enjeux de la mise en œuvre*, Paris, La Documentation française, p.77-88.
- Mace, Georgina, ..., Le Prestre, P. ... 2010. "Biodiversity targets after 2010," *Current Opinion in Environmental Sustainability*, vol.2, pp.1-6.
- Le Prestre, Philippe et Romain Taravella. 2009. «Pouvoirs et limites des réseaux d'expertise», *Regards sur la Terre 2009*, dir. P. Jacquet, R. K. Pachauri et L. Tubiana. Paris, Presses de Sciences Po, p.199-209.
- Le Prestre, Philippe. 2005. «Les ONG et l'efficacité du système de gouvernance de la Convention sur la diversité biologique.» In *Représenter la nature ? ONG et biodiversité*, coord. Catherine Aubertin (Paris: IRD éditions), pp.145-177.
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- Le Prestre, Philippe. «Studying the Effectiveness of the CBD». In *Governing Global Biodiversity* (Ashgate, UK, 2002): 57-90.
- Le Prestre, Philippe. 2002. «The Operation of the Convention Governance System». In *Governing Global Biodiversity* (UK: Ashgate): 91-114.
- Le Prestre, Philippe. 2002. «Conclusion: The Long Road to a New Order». In *Governing Global Biodiversity* (UK: Ashgate): 311-328.
- Le Prestre, Philippe and Peter Stoett. 2001. «International Initiatives, Commitments, and Disappointments: Canada, CITES, and the CBD». In *Politics of the Wild: Canada's Endangered Species*. Ed. Karen Beazley and Robert Boardman. Toronto: Oxford University Press, pp.190-216.
- Le Prestre, Philippe. 1999. «Vers un nouvel ordre biologique international?» *Natures-Sciences-Sociétés* 7 (1) : 64-71.
- Le Prestre, Philippe. 1992. «La Banque mondiale et la gestion des ressources renouvelables: l'art du possible.» *Économie Rurale*, 208-209 : 17-23.

SUMMARY CV OF Prof. Dr. Volker Loeschcke, Department of Biosciences, Aarhus University, Denmark	
Introduction	
<i>VL holds a master degree in Mathematics, a PhD in Genetics and a Dr. habil. in Population Biology. He is an internationally highly respected and well cited authority in biodiversity and environmental stress research (>6500 citations, H-index = 43); often invited keynote or main invited speaker to international conferences and workshops. VL has served on numerous committees and boards nationally and internationally He has been chairman/co-chairman of university inter-faculty, Nordic and European networks on biodiversity related research; has been main responsible scientific organizer of a European conference on evolutionary biology in Aarhus with >750 participants (ESEB 2001). Member of the Royal Danish Academy for Science and Letters since 1996. VL is, or has been, member of the Danish Natural Sciences Research Council, the Research Council for Research in Developing Countries (RUF), the European Research Council (ERC), international evaluation panels for among others Research Councils in Finland, Norway, Estonia or of evaluation panels of research institutions and teaching initiatives; Chairman of international advisory board of Leibnitz Institute of Zoo and Wildlife Research, Berlin, and member of the international advisory board of the research consortium Synbreed, Munich. Member of the steering committee of the Natural History Museum, Aarhus. Editor of Journal of Evolutionary Biology, 1987-1992; Member of editorial or advisory board of Genetics, Selection Evolution, 1998-2000, Ecology Letters, 2000-2004, Insect Science, 2004-; Biogerontology, 2005-; Open Evolution Journal, 2007-; Open Zoology Journal, 2008-; Journal of Evolutionary Biology 2008-; Naturwissenschaften, 2009-; Executive Vice-President, European Society for Evolutionary Biology, 1987-1993 and councillor of Scandinavian Geneticist Society, 1989-1991;</i>	
1. Scientific or technical expertise in biodiversity and ecosystem services with regard to either the natural sciences, social sciences or economics;	
<i>Based on his outstanding research career and extensive international experience VL has a broad insight into all aspects of biodiversity science. In his research career he has combined empirical and theoretical work with a strong interdisciplinary focus. He has made a strong international contribution to the literature on biodiversity conservation involving evolutionary ecological or genetic approaches but also modelling, eco-physiology, genomics, molecular biology, biochemistry, systems biology and biostatistics. As head of a research centre initiated by the Natural Science Research Council he has been leading a large group of young scientists that have used molecular tools in ecological and biodiversity research with big success. Several of his former students have already got full professor positions. In two recent papers in PNAS with VL as last author the group adds new dimensions to the science of adaptation to changing environments by identifying the role of acclimation and that of phylogenetic inertia, limiting the potential for evolutionary adaptation to changing climates. In other papers he characterizes the current challenges in biodiversity research and the role of “-omics” technologies to characterize overall trends in patterns of extinction. Earlier work of his group was pioneering population studies over time with the first successful extraction of DNA from old scale samples, hereby offering an opportunity to look back in time and to compare genetic composition of extant and extinct populations. Similarly, work under his guidance has identified costs and benefits of the heat-shock or stress response, contributing largely to our understanding of the role of heat-shock proteins in ecology and evolution.</i>	
2. Experience in communicating, promoting and incorporating science into policy development processes;	

Together with two former PhD students VL has started an ecological consulting company, Ecostab, which applied some of their research results.

Has been or is head of a research centre initiated by the Danish Natural Sciences Research Council on environmental stress research combining input from different sub disciplines; head of Aarhus Stress Network that combines research co-operation between Medicine, Natural Sciences, Social Sciences and the Humanities aiming at identifying a general unit of stress perceived. Has written many popular science papers, and been interviewed for both radio and TV; has taught in courses for school teachers and for high school classes;

3. Ability to work in international (EU, multilateral and global) scientific and policy processes.

Has been member of the interim steering committee of the OECD Global Science Forum on "global biodiversity information facility" (GBIF); current member of the European Research Council in environmental Sciences (panel 8)

4. List of key publications relevant to IPBES

- Kellermann V, Overgaard J, Hoffmann AA, Fløjgaard C, Svenning J-C and Loeschcke V. Upper thermal limits of *Drosophila* are linked to species distributions and strongly constrained phylogenetically. *Proc. Natl. Acad. Sci. USA*, in press (2012).
- Kellermann V, Loeschcke V, Hoffmann AA, Kristensen TN, Fløjgaard C, David JR and Overgaard J. Phylogenetic constraints in key functional traits behind species' climate niches: patterns of desiccation and cold resistance across 95 *Drosophila* species. *Evolution*, in press (2012)
- Bijlsma R. and Loeschcke V. Genetic erosion impedes adaptive responses to stressful environments. *Evol. Applic.* 5:117-129 (2012).
- Ketola, T., Kellerman VM., Kristensen, TN and Loeschcke, V. Constant, cycling, hot and cold thermal environments: Strong effects on mean viability but not on genetic estimates. *J. Evol Biol.* 25: 1112-1115 (2012).
- Bubliy O, Kristensen TN., Kellermann V and Loeschcke V. Plastic responses to four environmental stresses and cross-resistance in a laboratory population of *Drosophila melanogaster*. *Funct. Ecol.* (2012).
- Ouborg NJ, Pertoldi C, Loeschcke V, Bijlsma R and Hedrick PW. Conservation genetics in transition to conservation genomics. *Trends Genet.* 26: 177-187 (2010).
- Kristensen TN., Pedersen KS, Vermeulen CJ and Loeschcke, V. Research on inbreeding in the 'omic' era. *Trends Ecol Evol* 25, 44-52 (2010)
- Thirstrup JP, Bach LA, Loeschcke V and Pertoldi P. Population viability analysis on domestic horse breeds (*Equus caballus*). *J Anim. Sci.* 87: 3525-3535 (2009)
- Kristensen TN, Barker JSF, Pedersen KS and Loeschcke V. Extreme temperatures increase the deleterious consequences of inbreeding under laboratory and semi-natural conditions. *Proc. R. Soc. Lond. B* 275: 2055-2061(2008).
- Pertoldi C., Bach LA and Loeschcke V. On the brink between extinction and persistence. *Biology Direct* 3: 47 (2008).
- Pedersen KS, Kristensen TN, Loeschcke V, Pedersen BO, Duus JØ, Nielsen NC and Malmendal A. Metabolomic signatures of inbreeding at benign and stressful temperatures in *Drosophila melanogaster*. *Genetics* 180, 1233-1243 (2008).
- Kristensen TN, Hoffmann AA, Overgaard J, Sørensen JG, Hallas R and Loeschcke V. Costs and benefits of cold acclimation in field released *Drosophila*. *Proc. Natl. Acad. Sci. USA* 105: 216-221 (2008).

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SUMMARY CV OF Eva Roth (born 1954, Danish), Head of Department (Department of Environmental and Business Economics) Head of Campus (Campus Eshjerg, University of Southern Denmark), Associate Professor of Environmental and Resource Economics, (M.Sc. Economics 1981, in Danish cand.polit. University of Copenhagen)
Introduction 30 years of international research following the development within the field of resource and environmental economics targeted goods and services from the Sea has brought a knowledgebase covering Commercial Fisheries issues (sustainability, social impact, economic optimization of fish resources, international trade, eco-labelling, food-safety, management and governance), Aquaculture (policy, economics, management, assessment, environmental impact studies), Recreational fisheries (non-marked valuation studies, economic impact, tourism), Coastal zone management and since 2000 the implications for science (conceptual models, bio-economic modelling, valuation studies etc.) and practical implementation (policy and public management issues and impacts) of the ecosystem management approach to especially management and regulations covering goods and services from the Sea. As head of department for a very prosperous international research group covering a broad range of social scientists of which the largest group is international resource and environmental economists and hosting the Research School FAME (Fisheries and Aquaculture Management and Economics) I have access to a knowledge base and discussion forum which may be very valuable.
1. Scientific or technical expertise in biodiversity and ecosystem services with regard to either the natural sciences, social sciences or economics;
As a resource and environmental economist I will be able to contribute with an overall welfare economic knowledge to the overall policy-science cooperation. My specific core competency covers assessments (economic assessment theory and methods), conceptual modelling across disciplines, economic valuation methods, and policy relevant tools for good governance and welfare impacts of change. The latest projects in my partner/project portfolio – both with ecosystem management as their underlying framework - is the KnowSeas' (The Knowledge-based Sustainable Management for Europe's Seas) project supported by the European Commission under the Environment (including climate change) Theme of the 7th Framework Programme for Research and Technological Development (2009-2013) and MarBioShell (MarBioShell is a network supported by the Danish Agency for Science, Technology and Innovation 2008 to 2012).
2. Experience in communicating, promoting and incorporating science into policy development processes;
Most research, expert consultancies, dissemination and outreach have been anchored internationally. Research has been funded by EU or Danish Research Councils and carried out in close cooperation with mainly natural scientists. Valuable experience on international collaboration may be noted as demand for expert consultancies have led to contracts with World Bank, NORAD, DANIDA, FAO and several International Consultancy Companies, all of which have been multinational in scope and included multidisciplinary skills – and targeted empirical challenges faced by society. The following examples may be noted: • Contribution (anon. private consultancy) on food safety for: Saving Fish and Fishers, Towards Sustainable and Equitable Governance of the Global Fishing Sector, May 2004, The World Bank, Agriculture and Rural Development Department, Washington • Willems, Sabine, Eva Roth, Jan van Roekel, Changing European Public and Private Food Safety and Quality Requirements, Challenges for Developing Country Fresh Produce and Fish Exporters, Agriculture and Rural Development. Discussion Paper, World Bank, 2005 • Roth, Eva (Team leader), Ian Goulding, Stephen Mwikya, supported by Nils Kristian Sørensen, INFOSA Project Mid-Term Review, Mission undertaken in South Africa, Mozambique, Namibia, Tanzania, Zambia and Malawi from 9 to 29 January 2006, April, 2006

(Private consultancy for NORAD) The science policy interface has been a long standing interest – latest the social and economic assessment adopted for the public consultation process of the Marine Strategy Framework Directive has been developed by COWI consult and me. It has been following the theoretical framework of implementation of the ecosystem management including both final and intermediate goods and services as well as the welfare impact of the natural environment.
3. Ability to work in international (EU, multilateral and global) scientific and policy processes. I have been invited to participate in multidisciplinary fora created to establish code of practices, international research agendas, strategic research policies, assessment methodologies as well as more local Danish conservation and sustainable management initiatives. Notably ICES working group on "Mariculture and the Environment", European Inland Fisheries Advisory Committee (under FAO), European Aquaculture Technology and Innovation Platform, the project "Land Ocean Interaction in the Coastal Zone" (LOICZ under IGDP/IHDP), as member of the steering committee, and have participated in advisory committees/expert consultancies for FAO and the European Commission over the years. Expert evaluation of research proposals have been done for many of the European Research Programmes as well as the Norwegian and Faroese Research Councils, which gives knowledge of the "state-of-the-art" research frontier and expectations. Following examples may be noted: • IGBP Report 51 / IHDP Report 18, Land-Ocean Interactions in the Coastal Zone, Science Plan and Implementation Strategy, 2005, Editors Hartwig H. Kremer et al. (contribution as member of Scientific Steering Committee 2001-2009) • SEC/EIFAC/OP42, FAO European Inland Fisheries Advisory Commission, EIFAC Code of Practice for Recreational Fisheries, FAO of the UN, Rome 2008, (contribution as member of expert panel) • Working group on the identification of research needs related to the social and economic dimensions of aquaculture. / Papageorgiou, Filippou ; Raux, Pascal ; Subasinghe, Rohana ; Roth, Eva ; Polanco, Jose Fernandez ; Mheen, Henk van der . I: Report from EU-consultancy. EU-consultancy report, 2010. • Methodologies for assessing socio-economic benefits of European inland recreational fisheries. / Parkkila, K ; Arlinghaus, R ; Artell, J ; Gentner, M ; Haider, W ; Aas, Ø ; Barton, D ; Roth, Eva ; Sipponen, M. Ankara : FAO, 2011. 116 s. (EIFAC Occasional Paper; 46).
4. List of key publications relevant to IPBES • Cost-efficient and Cost-Benefit analyses of reduction of eutrophication in the Baltic Sea : Cost-benefit analysis of reduction of nutrient emissions in the Baltic Proper – a Bayesian Belief Network approach. / Brandt, Urs Steiner; Roth, Eva et al. 2012, Deliverable, KnowSeas. • Integrating the Common Fisheries Policy and the Marine Strategy for the Baltic. Discussion of Spatial and Temporal Scales in the management and adaptation to Climate Change. / O'Higgins, Tim; Roth, Eva. Climate Change and Baltic Coastal Zones. red. / GeraldSchernewski ; JacobusHofstede ; ThomasNeumann. Springer, 2011. s. 275-294. • Mussel Production and Water Framework Directive Targets in the Limfjord, Denmark: an Integrated Assessment for Use in System-Based Management. / Dinesen, Grete E. ; Timmermann, Karen ; Roth, Eva ; Markager, Svend Stiig ; Ravn-Jensen, Lars ; Hjort, M ; Holmer, Marianne ; Støttrup, Josianne. Ecology and Society , Vol. 16, Nr. 4, 2011, s. 26. • KnowSeas, WP 4: Fisheries Subgroup: Task 4.1 - Benefits from Fisheries: Clarification of Methodology - Data acquisition and Treatment - Example. / Kronbak, Lone Grønbaek; Roth, Eva; Raux, Pascal; Bailly, Dennis; Goulding, Ian; Stobberup, Kim.

- Timelines, Expected outcomes and Management Procedures of the Maritime Strategy Framework Directive. A discussion of Spatial and Temporal Scales in the Management and Adaption to Climate Change. / Roth, Eva; O'Higgins, Tim. I: Littorial 2010. Proceedings. Littorial, 2010.

Earlier work:

Black, E., Gowen, R., Rosenthal, H., Roth, E., Stechy, D. and Taylor, F.J.R., The Cost of Eutrophication from Salmon Farming: Implications for Policy - A Comment, *Journal of Environmental Management*, Vol. 50, No. 1, May 1997, p. 105-109.

Roth, E., H. Rosenthal, P.Burbridge, A discussion of the use of the sustainability index: "ecological footprint" for aquaculture production. *Aquatic Living Resources* 13 (2000) p. 461-469.

Peter Burbridge, Vicki Hendrick, Eva Roth, Harald Rosenthal, Social and Economic Policy Issues Relevant to Marine Aquaculture (2001), *Journal of Applied Ichthyology* Vol. 17:2001, pp. 194-206, Blackwell Wissenschafts-Verlag, Berlin, ISSN 0175-8659 (Results from the Maraqua-project – EU-concerted action)

Roth, E., A.L.Toivonen, S.Navrud, B.Bengtsson, G.Gudbergsson, P.Tuumainen, H.Appelblad & G.Weissglas, Methodological, conceptual and sampling practices in surveying recreational fisheries in the Nordic countries – experiences of a valuation survey, *Fisheries management and Ecology* Volume 4, number 4-6, pp. 355-367, August 2001

Anna-Liisa Toivonen, Eva Roth, Ståle Navrud, Guðni Guðbergsson, Håkan Appelblad, Bo Bengtsson and Pekka Tuunainen, The Economic value of recreational fisheries in the Nordic countries, *Fisheries Management and Ecology*, 2004, 11, 1-14.

Nielsen, M, F.Jensen and Eva Roth, A cost-benefit analysis of a public labeling scheme of fish quality, *Acta Agriculturae Scand Section C*, 2005; 2, 65-76.

Roth, Eva, Harald Rosenthal, Fisheries and aquaculture industries involvement to control product health and quality safety to satisfy consumer-driven objectives on retail markets in Europe, *Marine Pollution Bulletin* 55 (2006) 599-605

Pongthanapanich, Tipparat, Eva Roth, Voluntary management in Thai shrimp farming, *Aquaculture Economics & Management*, Issue 10-03, 2006, p 265-287

CURRICULUM VITAE: Eeva Furman

September 13, 2012

Personal Information

Name	Eeva Rebekka Furman
Date and place of birth	2.5.1960 Helsinki
Nationality	Finnish
Marital status	married to Ilkka Hanski
Current position	professor, director of the centre for environmental policy
Contact information Office	Finnish Environment Institute PoBox 140, 00251 Helsinki Finland tel:+358-9-40300336 fax: +358-9-40300391 E-mail: eeva.furman@ymparisto.fi

Education and Degrees

PhD Marine Biology, University of Wales, Bangor, 1989 (marine biology):
*Furman E.R., 1989. The taxonomic relationship of *Balanus improvisus* (Darwin) populations in the Baltic and the Atlantic. - PhD thesis, University College of North Wales: 1-136.*
 M.Sc. University of Helsinki 1985 (Ecology and zoology)

Present Employment

Finnish Environment Institute (SYKE)
 1.1.2010 -

Director of the Centre for Environmental Policy (ympäristöpolitiikkakeskuksen johtaja, direktör för miljöpolitikcentrum), permanent employment, the Director's position: 4 years

Main Research Employments

Finnish Environment Institute (SYKE)
 2002-2009

1996-2001

1990-1996

Continuous employment since 1990
Research Manager Research Programme for Environmental Policy, (forsknings chef)
Senior Researcher Finnish Environment Institute (äldre forskare)
Lecturer, Helsinki University of Technology and University of Helsinki. Several time periods. (föreläsare)

Leadership in major research processes:

- Coordinator of the European Union FP7-funded project *OpenNESS - Operationalisation of natural capital and ecosystem services: from concepts to real-world applications*. 2012-2017 (starts 1.12.2012).
- Leader of the TEKES – Finnish Funding Agency for Technology and Innovation funded project *Urban Fabric* on models on urban form for planning. 2012-2014.
- Leader of the Finnish Academy funded project in the consortium *Homes beyond homes. multiple dwelling and everyday living in leisure* (2012-2015)
- Member if the lead group of the PEER-partnership funded European project *PRESS: ecosystem services mapping for policy assessment* (2010-2012)
- Leader of the ALTER-Net funded European project on forming interdisciplinary research agenda for ecosystem services and governance. 2009-2011.
- Leader of the Ministry of the Environment funded project on *identifying knowledge needs in governance of ecosystem services* (2010).
- Leader of the Finnish Academy funded project *Conflict over consensus – potential and limits of collaborative environmental management* (2008-2011)
- Leader of a project on writing a book on *Ecological Thresholds* (2008-2009)
- Management of the Environment Policy Research Programme www.environment.fi/syke/pto (2002-2009)
- Leader of the research activity *Policy Options in the Long-term biodiversity, ecosystems and awareness research network of excellence* within EU 6th research framework, member of the project management board www.alter-net.info (2004-2009)
- Leader of the work package on *research programme management in the context of environment and science-policy in the SKEP-ERA-Net* www.skep-era.net (2005-2008)
- Leader of a project on capacity building for school pupils on *how to analyse public discussions on climate change*, www.ymparisto.fi/syke/ilve (2005-2006)
- Leader of the project which supported the development of the *national integrated coastal zone management (ICZM) strategy for Finland* (2004-2005)
- Leader in the project *Guidance on the practical application of the Espoo Convention* (UNECE Convention on Environmental Impact Assessment in a Transboundary Context) (2000 -2003)

Other major research projects undertaken:

- Key researcher in the project *Effectiveness of Strategic Environmental Assessment on decision making in transport planning in the UNECE region* (2001-2002)
- Key researcher in the project *Public Involvement in Environmental Issues in the ASEM countries* (2000-2002)
- Key researcher in the project *Guidelines for Environmental Impact Assessment (EIA) in the Arctic* (1997) - Arctic Environment Protection Strategy
- Key researcher in the project *Co-operative Strategy for the Conservation of Biodiversity in the Arctic Region* (1997) - Working Group on Conservation of Arctic Flora and Fauna, Arctic Environment Protection Strategy

Organizer of scientific meetings:

Member of the organising committee of the ALTER-Net conference on the EU 2020 Biodiversity strategy, April 2013, Belgium.

Organiser of the ALTER-Net workshop on *long term socio-ecological research*, Helsinki, 2011 (www.alter-net.info)

Member of the organising committee of the ALTER-Net conference on *linkages between ecosystem services and biodiversity*, Vienna, 2010. (www.alter-net.info)

Leader of the international, interdisciplinary and stakeholder-integrated workshop on *identification of knowledge needs for interlinkages between bioenergy and biodiversity*, Edinburgh, 2008 (www.environment.fi/syke/bioenergycase).

Co-organiser the *EC Science meets Policy* workshop during the Finnish EU Presidency, Academy of Finland, Helsinki, 2006.

Co-organiser the *EPBRS-conference* (European platform for biodiversity research strategy) during the Finnish EU presidency, 2006 Hanasaari Espoo

Plenary presentations

Taxonomy, biodiversity & beyond. Global change science & society, Tel Aviv, 2012 (Research governance and ecological sustainability)

1st conference of the French LTER network, Rennes, 2011 (Problem oriented research: why, with whom, to whom and how)

Positions of trust

Chair for council of the European long term biodiversity, ecosystems and awareness research network, the ALTER-Net (www.alter-net.info), 2011-2013.

Member of the Committee for reporting to the Israel Academy of Sciences and Humanities, the Council for Higher Education, and the National Council for Research and Development on the status of scientific education and research on biodiversity and associated global environmental change, and its provision to policymakers and other stakeholders, May, 2012.

Member of the panel of international experts of the (Meta-) evaluation of VITO, the Flemish Institute for Technological Research, May 2012.

Vice-president of the jury for the LABEX (Laboratories of excellence) 2nd evaluation, French Agency for Research (ANR), January 2012.

Council etc. memberships:

Member of the advisory body of Meteorological Institute for Finland, 2009-2011

Member of the scientific council of the European Centre for Nature Conservation, 2008-

Member of the management board of the long term biodiversity research network, (ALTER-Net), 2009-2011

Member of the scientific committee of the International long term ecological research network (ILTER), 2009-2010

Leader of the expert panel of the European long term ecological research network, the (ILTER-Europe), 2008-2012

Member of the management board of the COST action Integrated assessment to support the sustainable development of urban areas, 2010-2013

Member of the advisory board of a project on local biodiversity planning in the Balkan countries, funded by the Ministry of Foreign Affairs, Finland, 2009-2012

Editorial duties:

Ecosystem services: science, policy & practice, associate editor (2012-2014)

Journal for Nature Conservation, editorial board (2008-2013)

Journal of scientific council of Poland (TEKA), scientific committee member (2009-)

Memberships:

British ecological society

Suomen arviointiyhdistys (Finnish evaluation association)

Yhteiskuntatieteellisen ympäristötutkimuksen seura (Association for environmental social science)

Major recent competitive research grants:

2012-2017 European Union FP7 (9 m€) *OpenNESS - Operationalisation of natural capital and ecosystem services: from concepts to real-world applications* (project in final funding negotiations)

2012-2014 TEKES – Finnish Funding Agency for Technology and Innovation (273 000€) *Urban Fabric* on models on urban form for planning

2012-2015 Academy of Finland (225 000€), leader of the project as part of the consortium on *Homes beyond homes. multiple dwelling and everyday living in leisure*

2007-2010 Academy of Finland (400 000€) *Conflict over consensus – potential and limits of collaborative environmental management*

2008-2009 Koneen säätiö (33 000€) on writing a book on *Thresholds, Baltic Sea and climate*, leader of the project (in Finnish)

Participation in official delegations:

- ASEM Environment Ministers' Meeting, Beijing, 17 January, 2002
- Second Meeting of the Parties, Environmental Impact Assessment of the UN/ECE Convention on EIA in a Transboundary Context, held in Sofia, February 2001, presentation
- First Meeting of the Working Group on Environmental Impact Assessment of the UN/ECE Convention on EIA in a Transboundary Context, held in Geneva, October 1999, presentation
- Third Conference of Parliamentarians of the Arctic Region, Salekhard, April 1998, presentation
- Ministerial Meeting of the Arctic Environmental Protection Strategy, Alta, June 1997, presentation

- Working Group on the Conservation of Arctic Flora and Fauna:
 - Sixth Annual Meeting of the International Working Group, Nuuk, September 1997, presentation
 - National Representatives meeting, February 1997, presentation
 - Fifth Annual Meeting of the International Working Group, Rovaniemi, September 1996, presentation
 - Biodiversity Strategy Task Force Meeting, Copenhagen, June 1995, presentation
 - Biodiversity Strategy Task Force Meeting, Helsinki, February 1995, presentation
- Meeting of the Environmental Section, Euro-Barents Euro-Arctic Council, Kemi, May 1996, presentation

Books and publications

See publications list below

Recent collaborators outside SYKE

Görg, Christoph (UFZ, Germany), Bidoglio, Giovanni (JRC, Italy), Braat, Leon (Alterra, the Netherlands), Boone, Christofer (ASU, USA), Mirtl, Michael (EPA, Austria), Groner, Elli (Ben Gurion university, Israel), Parr, Terry (CEH, UK), Watt, Allan (CEH, UK), Gardner, Simon (EA, UK), Niemelä, Jari (University of Helsinki)

Present staff (subordinates) in SYKE

Centre for environmental Policy within SYKE: 55 researchers and experts of environmental policy under the themes of 1) governance studies and 2) built environment (www.environment.fi/syke).

Synergistic Activities:

Chair of the session: Green infrastructure: from seas to forests, from fields to cities, at ESOF2012, Dublin (2012)

Co-chair moderator of ICSU Europe and Northern America recommendations for Rio+20 (2011)

Communication of research and its outcomes:

- books and book articles (most recent: Ihminen ja Ympäristö 2012, received the state award for public information, September 2012)
- presentations, panel discussions (most recent ones on green economy and ecosystem services, on national IPBES, on Rio+20, on ecosystem services mapping)
- daily newspapers (most recent on ecosystem services in Finnish national newspaper)
- journals for professionals, students, children, wider audience (most recent on biodiversity in Ympäristölehti)
- radio and TV interviews (most recent on light pollution)
- face to face meetings, most recent (ecosystem mapping: for new member EU-states in JRC (2012), Italy, ecosystem services: for staff from various ministries in Finland (2012), biodiversity research : for DG Environment, biodiversity experts (Brussels 2011), Rio+20: for Finnish Parliament (2011), research networks: for European parliament (2010),

Publications: Eeva Furman, 2.5.1960 (updated 13.9.2012)

Scientific publications

Primmer, E. & E. Furman (2012). Operationalising Ecosystem Service Approaches for Governance: Do Measuring, Mapping and Valuing Integrate Sector-Specific Knowledge Systems? *Journal of Ecosystem Services* (1): 85-92.
<http://dx.doi.org/10.1016/j.ecoser.2012.07.008>

Furman, E. & T. Peltola (2012). Developing socio-ecological research in Finland: challenges and progress towards a thriving LTSER network. In: Simron Jit Singh *et al.* (eds): Long term socio ecological research. Springer.
<http://www.springer.com/environment/sustainable+development/book/978-94-007-1176-1>

Furman, E.R., R. Varjopuro & T. Peltola (2012). Interdisciplinary research framework for identifying research needs Case: bioenergy-biodiversity interlinkages. 96p. LAP LAMBERT Academic Publishing (2012-08-06) <https://www.morebooks.de/store/gb/book/interdisciplinary-research-framework-for-identifying-research-needs/isbn/978-3-8454-7390-1> (published in 2009 as a report in www.environment.fi)

Joachim Maes, Leon Braat, Kurt Jax, Mike Hutchins, Eeva Furman, Mette Termansen, Sandra Luque, Maria Luisa Paracchini, Christophe Chauvin, Richard Williams, Martin Volk, Sven Lautenbach, Leena Kopperoinen, Mart-Jan Schelhaas, Jens Weinert, Martin Goossen, Egon Dumont, Michael Strauch, Christoph Görg, Carsten Dormann, Mira Katwinkel, Grazia Zulian, Riku Varjopuro, Outi Ratamäki, Jennifer Hauck, Martin Forsius, Geerten Hengeveld, Marta Perez-Soba, Faycal Bouraoui, Mathias Scholz, Christiane Schulz-Zunkel, Ahti Lepistö, Yuliana Polishchuk, Giovanni Bidoglio (2011). A spatial assessment of ecosystem services in Europe: methods, case studies and policy analysis - phase 1. PEER Report No 3. Ispra: Partnership for European Environmental Research

Ratamäki, O., Vihervaara P., Furman, E. & J. Tuomisaari (2011). Ekosysteemipalveluiden tutkimus osaksi ympäristö- ja luonnonvarojen hallintaa. Suomen ympäristökeskuksen raportteja 7/2011. (English summary: Ecosystem services research to serve the governance of the environmental and natural resources.)

Mirtl, M., Boamrane, M., Braat, L., Furman, E., Krauze, K., Frenzel, M. et al. (2009). *LTER-Europe Design and Implementation Report – Enabling “Next Generation Ecological Science”*: Report on the design and implementation phase of LTER-Europe under ALTER-Net & management plan 2009/2010. Umweltbundesamt, Federal Environment Agency Austria. Vienna. ISBN 978-3-99004-031-7.

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Curriculum Vitae

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Marital status:	Married with Anne Kristiina Kotiaho
Children:	Daughter, Adeliina Aamu-Maria (born 2002) Daughter, Iida-Maija Manteli (born 2006) Daughter, Anna-Sofia Matilda (born 2008)
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Educational history:

Student examination, Helsinki, Finland	May 1988
MSc. in Ecology and Environmental Management, University of Jyväskylä, Finland (Grade: Eximia cumlaude approbatur)	December 1994
PhD. in Ecology and Environmental Management, University of Jyväskylä, Finland [Grade: Approved with honours (=Laudatur)]	September 1997
Docent in Ecology and Environmental Management University of Jyväskylä, Finland	May 2001

Degrees:

Ecology and Environmental Management
Education
Biology
Chemistry
Hydrobiology and Limnology

Extent:

Laudatur
Cumlaude
Approbatur
Approbatur
Approbatur

Language proficiency

Finnish
English
Swedish
German

Extent:

Mother tongue
Very Good
Basics
Basics

Professional experience:

Professor of Ecology, University of Jyväskylä	tenured 1.8.2010
Professor of Evolutionary Ecology, University of Jyväskylä	1.1.2009 - 31.7.2010
Assistant Professor of Applied Ecology, University of Jyväskylä	1.2.2008 - 31.12.2008
Head of Research, University of Jyväskylä and Metsähallitus	1.8.2007 - 31.1.2008
Senior Research Fellow, Academy of Finland	1.8.2005 - 31.7.2007

Professor of Applied Ecology, University of Jyväskylä, Finland	1.2.2005 - 31.7.2005
Senior Research Fellow, Academy of Finland	1.8.2002 - 31.1.2005
Research Coordinator of the Graduate School in Evolutionary Ecology, Ministry of Education, Finland	1.8.2001 - 31.7.2002
Postdoctoral Research Fellow, Academy of Finland	1.1.1998 - 31.7.2001
Researcher, University of Jyväskylä, Finland	1.7.1997 - 31.12.1997
Junior Research Fellow, Emil Aaltonen Foundation	1.1.1997 - 30.6.1997
Researcher, University of Jyväskylä, Finland	1.12.1994 - 31.12.1996
Research assistant, University of Jyväskylä, Finland	1.6.1994 - 30.6.1994
Research assistant, University of Jyväskylä, Finland	1.6.1993 - 30.6.1993
Assistant in veterinary station, Uusimaa vet. station, Finland	1990
Assistant in veterinary station, Espoo vet. station, Finland	1988 - 1989
Assistant of communal vet, Mikkeli, Finland	1.6.1987 - 31.7.1987

Most important positions of trust, academic and societal

Member of the working group on developing National Peatland Conservation Program, Ministry of Environment, Finland	1.9.2012 - present
Member of the steering group of MetZo, decision analysis aiding conservation area selection, Metsähallitus, SYKE, YM	1.8.2010 - present
Head of Ecology and Evolutionary Biology, University of Jyväskylä	1.8.2012 - 31.7.2013
Founder and member of the board of directors, Peerage of Science Ltd.	5.9.2011 - present
Vice Head of the Department of Biological and Environmental Science, University of Jyväskylä	1.2.2011 - present
Founder and President of the Society for Cultural Heritage and Nature Conservation	29.6.2010 - present
Deputy member of the board of directors in the Ecological Interactions Graduate School, Finland	1.1.2010 - present
Member of the working group on developing the teaching at the Department of Biological and Environmental Sciences in University of Jyväskylä	1.10.2008 - present
Vice Director of the University of Jyväskylä Museum	1.5.2003 - present
Member of the Education Council, City of Jyväskylä	1.1.2009 - 31.12.2012
Vice-president of the Korpilahti Regional Council, City of Jyväskylä	1.1.2009 - 31.12.2012
Expert member in the working group developing peatland restoration; Finnish Forest and Park Services, Metsähallitus	1.1.2008 - 31.12.2016
Expert member in the working group developing forest restoration; Finnish Forest and Park Services, Metsähallitus	1.1.2008 - 31.12.2016
President of Vespuoli School Board, Korpilahti Civic, Finland	1.1.2005 - 31.12.2008
Vice-president of the Environment Council of Korpilahti Civic, Finland	1.1.2005 - 31.12.2008
Deputy member of the Education Council of Korpilahti Civic, Finland	1.1.2005 - 31.12.2008
Deputy Member of the board of directors in Suomen Kotteria Ltd.	11.8.2003 - present
Member of the advisory board of the EU LIFE-nature project of the Environmental Institute of Central Finland.	1.10.2002 - 30.9.2006
Major partner and member of the board of directors, Suomen Kotteria Ltd.	1.1.1994 - 10.8.2003
Deputy member of the board of directors in Jyväskylä Nature Conservation Association	1.10.2001 - 30.9.2002
Member of the board of directors in Jyväskylän Myllypuro housing corporation	1.1.1995 - 31.12.1995
President of the University of Jyväskylä biology students union	1.1.1993 - 31.12.1993

Personal research grants:

Emil Aaltonen Foundation (23.04.1996)	12.610,- Euro
Academy of Finland (25.11.1997)	47.230,- Euro
Academy of Finland (23.08.1999)	31.540,- Euro
Academy of Finland (27.11.2001)	164.960,- Euro
The Central Union of Agricultural Producers and Forest Owners (MTK) (15.01.2002)	8.410,- Euro
Ministry of Agriculture and Forestry (MMM) (15.01.2002)	19.060,- Euro
Forest Industries Finland (15.01.2002)	8.410,- Euro
Ministry of Agriculture and Forestry (MMM) (16.05.2002)	15.000,- Euro
Academy of Finland (25.07.2002)	140.360,- Euro
Academy of Finland (25.07.2002)	12.460,- Euro
Ministry of Agriculture and Forestry (MMM) (07.03.2003)	56.000,- Euro
Ministry of Agriculture and Forestry (MMM) (07.03.2003)	40.000,- Euro
Ministry of Environment (YM) (1.7.2003)	200.000,- Euro
Ministry of Agriculture and Forestry (MMM) (07.02.2004)	76.000,- Euro
Ministry of Agriculture and Forestry (MMM) (07.02.2004)	42.000,- Euro
Ministry of Agriculture and Forestry (MMM) (18.03.2004)	40.500,- Euro
UPM-kymmene (17.06.2004)	3.000,- Euro
Ministry of Agriculture and Forestry (MMM) (2005)	70.000,- Euro
Ministry of Agriculture and Forestry (MMM) (2005)	40.000,- Euro
Ministry of Environment (YM) (2005)	30.000,- Euro
Academy of Finland (21.6.2005)	126.510,- Euro
Fingrid Oyj (15.8.2005)	164.000,- Euro
Nessling Foundation (2.11.2005)	21.622,- Euro
Ministry of Agriculture and Forestry (MMM) (30.1.2006)	33.000,- Euro
Ministry of Environment (YM) (6.2.2006)	35.000,- Euro
Ministry of Environment (YM) (6.2.2006)	15.000,- Euro
Ministry of Environment (YM) (6.2.2006)	20.000,- Euro
Nessling Foundation (2.11.2006)	28.525,- Euro
Ministry of Environment (YM) (6.2.2007)	20.000,- Euro
Nessling Foundation (2.11.2007)	21.890,- Euro
Ministry of Agriculture and Forestry (MMM) (2009)	16.000,- Euro
Ministry of Agriculture and Forestry (MMM) (2010)	36.000,- Euro
Kone Foundation 30.4.2010	144.900,- Euro

TOTAL 1.703.987,- Euro

Collaborative research grants

Principal Investigator in the EU-LIFE+ project Restoring the Natura 2000 Network of Boreal Peatland Ecosystems. I am the PI responsible for developing and executing the monitoring program during 2010-2014.	c. 6.700.000,- Euro
Principal Investigator in The Finnish Centre of Excellence in Evolutionary Research. I am one of six PI's in this major research collaboration funded by the Academy of Finland for the period of 1.1.2006-31.12.2010.	c. 4.500.000,- Euro
Principal Investigator in the Evolution of Dimorphism I am one of four principal investigators	185.000,- AUD

in this collaboration funded by the Australian Research Council for the period of 1.1.2006-31.12.2008
 Collaborator of National Center for Ecological Analysis and Synthesis (NCEAS) working group on 'A quantitative exploration of the role of publication related biases in ecology' 2004-2008 N/A

Post-doctoral positions and major projects with substantial funding

Post-Doc in University of Western Australia, Perth, Australia, Collaboration with Professor Leigh W. Simmons; Funded by the Academy of Finland	1.11.1997 - 30.4.2000
Project leader in University of Jyväskylä, Finland Life history evolution, sexual selection and evolution of condition dependent signalling: a quantitative genetic approach	1.5.2000 - 31.12.2008
Project leader in University of Jyväskylä, Finland Effects of forest management and restoration on forest biodiversity	01.01.2002 - current
Project leader in University of Jyväskylä, Finland Research at the interface of evolution, ecology and conservation	01.01.2004 - current
Principal Investigator in the Finnish Centre of Excellence in the evolutionary ecology research. I am one of six PT's in the Centre of excellence funded by the Academy of Finland.	01.01.2006 - 31.12.2011

Summary of post-doctoral associates, PhD and MSc students

Post-docs current/past:	2/6 (see below)
PhD students current/graduated:	8/11 (see below)
MSc students current/graduated:	2/37

Post-doctoral associates

PhD Panu Halme, University of Jyväskylä
 PhD Merja Elo, University of Jyväskylä
 PhD Tero Toivanen, University of Jyväskylä, 1.5.2007 - 31.12.2009
 PhD Mikael Puurtinen, University of Jyväskylä, 01.01.2006 - 31.12.2009
 PhD Katja Tynkkynen, University of Jyväskylä, 01.01.2006 - 31.12.2009
 PhD Tarmo Ketola, University of Jyväskylä, 9.6.2007 - 31.12.2008
 PhD Satu Paukku, University of Jyväskylä, 1.9.2006 - 31.12.2007
 PhD Vesa Selonen, Metsäteho LTD, 01.05.2003 - 31.01.2004

PhD students

In progress

19. Adriano Mazziotta, Global warming, forest biodiversity and conservation strategies in boreal landscapes - University of Jyväskylä.
18. Anna Uusitalo, Effects of restoration on mire butterflies - University of Jyväskylä.
17. Santtu Kareksela, The Relationship of Biodiversity, Resources, Disturbance and Ecosystem Processes - University of Jyväskylä.
16. Tuomas Haapalehto, Effect of restoration on the structure and function of mire ecosystems

- drained for forestry - University of Jyväskylä.
15. Aapo Kahilainen, Effects of interspecific interactions on intraspecific genetic variation - University of Jyväskylä.
 14. Inka Keränen, Inter- and intraspecific interactions and premating reproductive isolation in the wild - University of Jyväskylä.
 13. Liisa Maanavilja, Restoration of functional biodiversity in boreal spruce swamp forests - University of Helsinki
 12. Ville Selonen, The significance of valuable habitats as determined by the forest law on conserving the biodiversity - University of Jyväskylä.
- 2012**
11. Anne Laita, Conservation in Space - University of Jyväskylä
 10. Nina Pekkala, Fitness consequences of inbreeding and cross-breeding in experimental *Drosophila littoralis* populations - University of Jyväskylä
- 2011**
9. Jonna Timonen, The role of key habitats in conservation area planning - University of Jyväskylä
 8. Merja Honkanen, Species-area relationship: hypotheses and empirical testing - University of Jyväskylä.
- 2010**
7. Panu Halme, Polypores as indicators of forest biodiversity - University of Jyväskylä.
- 2008**
6. Niina Mattila, Ecological traits as determinants of extinction risk and distribution change in lepidoptera - University of Jyväskylä, Finland, Public defence 8.2.2008.
- 2007**
5. Tarmo Ketola, Genetics of condition and sexual selection - University of Jyväskylä, Finland, Public defence 9.6.2007.
 4. Tero Toivanen, University of Jyväskylä, Short-term effects of forest restoration on beetle diversity - University of Jyväskylä, Finland, Public defence 28.4.2007.
- 2006**
3. Satu Paukku, Cost of reproduction in a seed beetle – a quantitative genetic perspective - University of Jyväskylä, Finland, Public defence 17.6.2006.
- 2005**
2. Katja Tynkkynen, Interspecific interactions and selection on male phenotype in *Calopteryx splendens*. - University of Jyväskylä, Finland, Public defence 11.3.2005.
- 2004**
1. Marcin Ciuk, The effect of induced mutations on life history and condition traits in *Drosophila melanogaster* and *D. montana*. - University of Warsaw, Poland, Visiting PhD student on Marie Curie fellowship 1.1.2004 - 30.6.2004.

External Examiner and Opponent of PhD Thesis

Member of the opponent panel of the PhD thesis of Fabricie Erouchmanoff, Lund University.

External examiner of the PhD thesis of Kristjan Niitepold, University of Helsinki

External examiner of the PhD thesis 'Management of semi-natural grasslands for butterfly and

moth communities', Juha Pöyry, University of Helsinki, Finland, 26.10.2007
 Opponent of the PhD thesis 'Reproductive Tactics in butterflies - the adaptive significance of monandry versus polyandry in *Pieris napi*' Panu Välimäki, University of Oulu, Finland 26.5.2007
 External examiner of the PhD thesis 'Kinship and Conflicts over Male Production in Formica ants', Heikki Helanterä, University of Helsinki, Finland. 30.09.2004
 External examiner of multiple MSc thesis yearly.

Organiser of Significant Congresses and Workshops

Member of the Organising committee of the 14th National Natural History Museum Congress, University of Jyväskylä 3.-5.10.2005
 Coordinator and member of the Organising Committee of the 10th International Society for Behavioral Ecology Congress, Jyväskylä, Finland 10.-15.7.2004.
 Organiser of an international workshop on 'Evolutionary Ecology of Resistance and Defence'. Konnevesi Research Station, Finland 12.-14.12.2001
 Organiser of an international minisymposium on 'Evolutionary and Ecological Significance of UV-Sensitivity, University of Jyväskylä, Finland 9.2.2001.

Editorships

Editor-in-Chief of Proceedings of Peerage of Science, (a new journal, not yet launched, associated with Peerage of Science www.peerageofscience.org) 1.1.2012 –
 Editor of Ethology, 1.10.2006 - 30.10.2010
 Editor-in-Chief of Syrinx, biology student union journal, 1.1.1993 - 31.12.1994

Journal reviewing (number of times):

American Naturalist (6), Animal Behaviour (10), Annales Zoologici Fennici (3), Behavioral Ecology (4), Behavioral Ecology and Sociobiology (6), Canadian Journal of Zoology (2), Current Biology (1), Ecography (1), Ecological Entomology (1), Ecology Letters (1), Ethology (5), Evolution (5), Evolutionary Ecology (1), Functional Ecology (2), Heredity (1), Journal of Animal Breeding and Genetics (1), Journal of Arachnology (2), Journal of Evolutionary Biology (3), Nature (6), Nature Genetics (1), Oikos (4), Proceedings of the Royal Society of London B (5), Science (2), Trends in Ecology and Evolution (1).

Grant reviewing (number of times):

BiodivERsA EU's 7th Framework Programme research evaluation (2), Association for the Study of Animal Behaviour Grants Committee (1), National Science Foundation, USA (2), Natural Environment Research Council NERC (1).

Invitations and awards:

International Publishing Innovation Award from the Association for Learned and Professional Society Publishers (ALPSP), Birmingham 12.9.2012.
 Publication Prize (€300,-) for the most productive researcher of the year 2007 in Ecology and Environmental management. Department of the Biological and Environmental Sciences, University of Jyväskylä.

Author of 'The Article of the Week'. Nature Encyclopedia of Life Sciences 12.11.2004. Article: Lindström, L. and Kotiaho J. S. 2002. Signalling and Reception. - In *Encyclopedia of Life Sciences*, <http://www.els.net>, London: Nature Publishing Group.

Publication Prize (\$500,-) for the best paper by an established researcher in 2003. Faculty of Natural and Agricultural Sciences, University of Western Australia. Publication: Kotiaho, J. S., Simmons, L. W., Hunt, J. and Tomkins, J. L. 2003. Males influence maternal effects that promote sexual selection: a quantitative genetic experiment with dung beetles *Onthophagus taurus*. - *The American Naturalist* 161: 852-859.

An invited speaker at the 'Revolution' in Uppsala University, Sweden, 12th -13th February 2004.

Short listed (top 5) for the Pitelka prize for an outstanding publication in the journal Behavioral Ecology by a young investigator in 2001. Publication: Kotiaho, J. S. and Tomkins, J. L. 2001. The discrimination of alternative male morphologies. - *Behavioral Ecology* 12: 553-557.

Author of 'The Best Publication of the Year 2001'. Faculty of Science, University of Jyväskylä. Publication: Kotiaho, J. S., Simmons, L. W. and Tomkins, J. L. 2001. Towards a resolution of the lek paradox - *Nature* 410: 684-686.

An invited speaker at XXI International Congress of Entomology, in the symposium 'Evolution of Insect Mating Systems'. Foz de Iguaçu, Brazil, 20th - 26th August 2000.

An invited speaker at spider work shop in Aarhus, Denmark, 25th - 29th October 1995.

Scientific visits in foreign Universities

University of Western Australia, Australia	September 2010 - December 2012
University of Lund, Sweden	April 2009
University of Western Australia, Australia	January 2007 - April 2007
University of Uppsala, Sweden	February 2004
University of St. Andrews, UK	March 2003 - April 2003
University of Krakow, Poland	August 2002
University of Western Australia, Australia	January 2002 - February 2002
University of St. Andrews & University of Leeds, UK	March 2001 - April 2001
University of St. Andrews & University of Edinburgh, UK	November 2000 - December 2000
University of Western Australia, Australia	November 1997 - April 2000
University of Aarhus, Denmark	July 1996 - August 1996
University of Alberta, Canada	September 1993 - April 1994
University of Moscow, Russia	June 1992 - July 1992

Non-scientific engagements:

Music:

Guitar playing in Music Conservatory (Helsinki and Jyväskylä) (1990-1997; degree 2/3)

Solo singing in Music Conservatory (Jyväskylä) (1994-1997; degree 1/2)

Singing in the male choir *Grasshoppers* (1995-1997)

Singing in the *Perth Undergraduate Choral Society* (1998)

Singing in the *University of Western Australia Choral Society* (1998-2000)

Singing in the *Tuxedo Junction* pop/jazz a capella group (1999-2000)

Singing in the *KaruSointi* a capella group (1996 - 2007)

Singing in the male choir *Sirkat* (1993-1997, 2000-2001, 2005 - 2006, 2008 - 2010)

Jyväskylä Opera, W. A. Mozart: "Magic Flute", Chorus of priests, September 1996 - January 1997

Jyväskylä Opera Chorus, A.H. Sallinen: "The Red Line", September 2000 - January 2001

Jyväskylä Opera Chorus, W. A. Mozart: "Requiem", April 2001 - November 2001

Jyväskylä Opera Chorus, P. Mascagni: "Calvalleria rusticana", August 2002- January 2003
Jyväskylä Opera Chorus, R. Leoncavallo: "Pagliacci", August 2002- January 2003
Jyväskylä Opera Chorus, W. A. Mozart: "The Marriage of Figaro" November 2004 - January 2005
Theatre production by *Huoneteatteri* and *KaruSointi*, J. Holma and E. Teittinen: "Kielletty
Puheenaihe", January 2006 - September 2006.

Other:

Scuba diving, CMAS**

Photographing

Cover photo in *Journal of Animal Ecology*, Vol. 67, Number 2, March 1998

Several photos in *Ishtar*, Finnish Belly Dancing Magazine 2004-2008

Jyväskylä, Finland, 17.9.2012

Janne S. Kotiaho

List of Publications

Name: Janne Sakari Kotiaho
Current Address: Department of Biological and Environmental Sciences, P.O. Box 35, 40014, University of Jyväskylä, Finland.
E-mail address: janne.kotiaho@jyu.fi
Home page: <http://users.jyu.fi/~jkotiaho>

Publications in peer reviewed international journals

- ❖ 10 most important publications for IPBES nomination are marked (➡) in the margin
- ❖ Total citations = 2509; h-index = 27 (extracted 17.9.2012 from Web of Knowledge)

- Submitted manuscripts and manuscripts for which resubmission has been invited**
- ➡ 122. Kotiaho, J. S., and Mönkkönen, M. An argument for setting aside degraded habitats: from a crisis discipline towards across generations conservation biology. - **Ecography** resubmission invited.
 - 121. Kotiaho, J. S., Paukku, S., and Tomkins, J. L. Virgin males live off their unspent ejaculates: genetic architecture of reproductive trade-offs. - **Nature Communications** resubmission invited.
 - ➡ 120. Kahilainen, A., Puurtinen, M., Kuitunen, K., and Kotiaho, J. S. Species diversity vs. genetic diversity: a conflict in conserving levels of biodiversity? **Conservation Letters** resubmission invited.
 - ➡ 119. Kareksela, S. Moilanen, A. Tuominen, S., and Kotiaho, J. S. Inverse spatial conservation prioritization. - **Conservation Biology** submitted
 - 118. Ketola, T., Boratyński, Z., and Kotiaho, J. S. Manipulating genetic architecture to reveal fitness relationships. - **Proceedings of Peerage of Science** resubmission invited.
 - 117. Komonen, A., Lensu, T., and Kotiaho, J. S. Estimating optimal timing of power line rights-of-way management for conservation of butterflies. - **Insect Conservation and diversity** resubmission invited.
 - 116. Koskimäki, J. Huitu, O., Kotiaho, J. S., Lampila, S. Mäkelä, A. Sulkava, R. and Mönkkönen, M. Habitat loss but not predation is associated with the decline of a Siberian flying squirrel population; 15 year study - **Animal Conservation** submitted.
 - 115. Selonen, V. A. O. and Kotiaho, J. S. Effect of buffer strip on species diversity in the immediate surroundings of boreal stream habitats. - **BMC Ecology** resubmission invited.
 - 114. Taft, H., Roff, D., Komonen, A., and Kotiaho, J. S. Statistical methods for analyzing extinction risk. - **Environmental Conservation** submitted.

2012

- 113. Garcia-Gonzalez F., Leigh W. Simmons, L. W., Tomkins, J. L., Kotiaho, J. S. and Evans, J. P. 2012. Comparing evolvabilities: common errors surrounding the calculation and use of coefficients of additive genetic variation - **Evolution** doi:10.1111/j.1558-5646.2011.01565.x
- 112. Halme, P. and Kotiaho, J. S. 2012. The importance of timing and number of surveys in fungal biodiversity studies. - **Biodiversity and Conservation** 21: 205-219.

111. Keränen, I., Kahilainen, A., Knott, K. E., Kotiaho, J. S. And Kuitunen, K. Unidirectional hybridization in sympatric species: high maternal species density mediates heterospecific matings in *Calopteryx* damselflies - **Biological Journal of the Linnean Society** in press.
110. Ketola, T., and Kotiaho, J. S. 2012. Inbreeding depression in the effects of body mass on energy use. - **Biological Journal of the Linnean Society** 105: 309-317.
109. Kuitunen, K., Haukilehto, E., Raatikainen, K. J., Hakkarainen, H., Miettinen, M. Högmander, H. and Kotiaho, J. S. 2012. Do allopatric male *Calopteryx virgo* damselflies learn species recognition? - **Ecology and Evolution** 2: 615-621.
108. Pekkala, N., Knott, K. E., Kotiaho, J. S., Nissinen, K., and Puurtinen, M. 2012. The benefits of interpopulation hybridization diminish with increasing divergence of small populations. - **Journal of Evolutionary Biology** doi: 10.1111/j.1420-9101.2012.02594.x
107. Pekkala, N., Knott, K. E., Kotiaho, J. S. and Puurtinen, M. 2012. Inbreeding rate modifies the dynamics of genetic load in small populations. - **Ecology and Evolution** 2: 1791-1804.
106. Seppänen, J. T., Mönkkönen, M. and Kotiaho, J. S. 2012. Peer review by the peers, for the peers - **Trends in Ecology and Evolution** 27: 191-192.
- ➔ 105. Toivanen, T., Markkanen, A., Kotiaho, J. S. and Halme, P. 2012. The effect of forest fuel harvesting on the fungal diversity of clear-cuts. - **Biomass and Bioenergy** 39: 84-93.
- 2011**
- ➔ 104. Haapalehto, T., Vasander, H., Jauhiainen, S., Tahvanainen, T. and Kotiaho, J. S. 2011. The effects of peatland restoration on water-table depth, elemental concentrations, and vegetation: 10 years of changes. - **Restoration Ecology** 19: 587-598.
103. House, C., Simmons, L. W., Kotiaho J. S., Tomkins, J. L. and Hunt, J. 2011. Sex ratio bias in the dung beetle *Onthophagus taurus*: Adaptive allocation or sex-specific offspring mortality? - **Evolutionary Ecology** 25: 363-372.
102. Juutinen, R. and Kotiaho J. S. 2011. Finnish Forest Act as a conservation tool in protecting boreal springs and associated bryophyte flora - **Boreal Environment Research** 16: 136-148.
101. Komonen, A., Päivinen, J. and Kotiaho, J. S. 2011. Varying definitions of abundance and incomplete assemblages challenge the generality of the interspecific abundance - distribution relationships - **Annales Zoologici Fennici** 48: 161-166.
100. Kuitunen, K., Kotiaho, J. S., Luojumäki, M. and Suhonen J. 2011. Selection on size and secondary sexual characters of the damselfly *Calopteryx splendens* when sympatric with the congener *Calopteryx virgo*. - **Canadian Journal of Zoology** 89: 1-9.
99. Laita, A., Mönkkönen, M. and Kotiaho J. S. 2011. Assessing the functional connectivity of reserve networks in continuously varying nature under the constraints imposed by reality. - **Biological Conservation** 144: 1297-1298.
98. Laita, A., Kotiaho, J. S. and Mönkkönen, M. 2011. Graph-theoretic connectivity measures - what do they tell us about connectivity? - **Landscape Ecology** 26: 951-967.
97. Lensu, T., Komonen, A., Hiltula, O., Päivinen, J., Saari, V. and Kotiaho, J. S. 2011. The role of power line rights-of-way as an alternative habitat for declined mire butterflies - **Journal of Environmental Management** 92: 2539-2546.
96. Mattila, N., Kaitala, V., Komonen, A., Päivinen, J., and Kotiaho, J. S. 2011. Ecological correlates of distribution change and range shift in butterflies. - **Insect Conservation and diversity** 4: 239-246.
95. Mönkkönen, M., Reunanen, P., Kotiaho, J. S., Juutinen, A., Tikkanen, O-P., and Kouki, J. 2011. Cost-effective strategies to conserve boreal forest biodiversity and long-term landscape-level maintenance of habitats. - **European Journal of Forest Research** 130: 717-727.
94. Pekkala, N., Kotiaho, J. S. and Puurtinen, M. 2011. Laboratory relationships between adult lifetime reproductive success and fitness surrogates in a *Drosophila littoralis* population. - **PLoS ONE** 6(9): e24560.

93. Selonen, V. A. O., Mussaari, M., Toivanen, T., and Kotiaho, J. S. 2011. The conservation potential of brook-side key habitats in managed boreal forests. - *Silva Fennica* 45: 1041-1052.
 92. Timonen, J., Gustafsson, L., Kotiaho, J. S. And Mönkkönen, M. 2011. Are woodland key habitats biodiversity hotspots in boreal forests? *Collaboration for Environmental Evidence*, CEE 09-020.
 - ➔ 91. Timonen, J., Gustafsson, L., Kotiaho, J. S. And Mönkkönen, M. 2011. Hotspots in cold climate: conservation value of woodland key habitats in boreal forests. - *Biological Conservation* 144: 2061-2067.
- 2010**
90. Eräjä, S., Halme, P., Kotiaho, J. S., Markkanen, A. and Toivanen, T. 2010. The volume and composition of dead wood on traditional and forest fuel harvested clear-cuts. - *Silva Fennica* 44: 203-211.
 89. Halme, P., Toivanen, T., Honkanen, M., Kotiaho, J. S., Mönkkönen, M. and Timonen, J. 2010. Flawed meta-analysis of biodiversity effects of forest management - *Conservation Biology* 24: 1154-1156.
 88. Ketola, T., and Kotiaho, J. S. 2010. Inbreeding, energy use and sexual signaling. - *Evolutionary Ecology* 24: 761-772.
 - ➔ 87. Laita, A., Mönkkönen, M. and Kotiaho, J. S. 2010. Woodland key habitats evaluated as part of functional reserve network. - *Biological Conservation* 143: 1212-1227.
 86. Timonen, J., Siitonen, J., Gustafsson, L., Kotiaho, J. S., Stockland, J., Svedrup-Thygeson, A., and Mönkkönen, M. 2010. Woodland key habitats in Northern Europe: concepts, inventory and protection. - *Scandinavian Journal of Forest Research* 25: 309-324.
 85. Toivanen, T. and Kotiaho, J. S. 2010. The preferences of saproxylic beetle species for different dead wood types created in forest restoration treatments - *Canadian Journal of Forest Research* 40: 445-464.
- 2009**
84. Kotiaho, J. S., Ahlroth, P., Haimi, J., Mönkkönen, M. and Vilkkuna J. 2009. Evolution education in natural history museums. - *Trends in Ecology and Evolution* 24: 292-293.
 83. Kotiaho, J. S., Komonen, A. and Päivinen, J. 2009. On the obvious positive interspecific relationship between abundance and distribution: a reply to Blackburn and Gaston. - *Biology Letters* 5: 779-780.
 - ➔ 82. Ahlroth, P. and Kotiaho, J. S. 2009. Route for political interests to weaken conservation - *Nature* 460: 173-173.
 81. Gorb S. N., Tynkkynen, K. and Kotiaho, J. S. 2009. Crystalline wax coverage of the imaginal cuticle in *Calopteryx splendens* (Odonata: Calopterygidae). - *International Journal of Odonatology* 12: 205-221.
 80. Halme, P., Kotiaho, J. S., Ylisirniö, A-L., Hottola, J., Junninen, K., Kouki, J., Lindgren, M., Mönkkönen, M., Penttilä, R., Renvall, P., Siitonen, J. and Similä, M. 2009. Perennial polypores as indicators of annual and red-listed polypores. - *Ecological Indicators* 9: 256-266.
 79. Halme P., Mönkkönen M., Kotiaho J. S., Ylisirniö A-L. and Markkanen, A. 2009. Quantifying the indicator power of an indicator species. - *Conservation biology* 23: 1008-1016.
 78. Ketola, T., and Kotiaho, J. S. 2009. Inbreeding, energy use and condition. - *Journal of Evolutionary Biology* 22: 770-781.
 77. Ketola, T., Kortet, R. and Kotiaho, J. S. 2009. Endurance in exercise is associated with courtship call rate in decorated cricket (*Gryllodes sigillatus*). - *Evolutionary Ecology Research* 11: 1131-1139.

76. Komonen, A., Päivinen, J. and Kotiaho, J. S. 2009. Missing the rarest: is the positive interspecific abundance-distribution relationship truly general macroecological pattern? - **Biology Letters** 5: 492-494.
- ➔ 75. Mattila, N., Kotiaho, J. S., Kaitala, V., Komonen, A. and Päivinen J. 2009. Interactions between ecological traits and host plant type explain distribution change in noctuid moths. - **Conservation Biology** 23: 703-709.
74. Pekkala, N., Puurtinen, M. and Kotiaho, J. S. 2009. Sexual selection for genetic quality: disentangling the roles of male and female behaviour. - **Animal Behaviour** 78: 1357-1363.
73. Puurtinen, M., Ketola, T. and Kotiaho, J. S. 2009. The good genes and compatible genes benefits of mate choice - **The American Naturalist** 174: 741-752.
72. Toivanen, T., Liikanen, V. and Kotiaho, J. S. 2009. Effects of forest restoration treatments on the abundance of bark beetles in Norway spruce forests of southern Finland. - **Forest Ecology and Management** 257: 117-125.
71. Tynkkynen, K., Raatikainen, K. J., Häkkinen, M., Haukioja, E. and Kotiaho, J. S. 2009. Alternative reproductive tactics and the propensity of hybridisation. - **Journal of Evolutionary Biology** 22: 2512-2518.

2008

70. Kotiaho, J. S., LeBas, N. R., Puurtinen, M. and Tomkins, J. L. 2008. On the resolution of the lek paradox. - **Trends in Ecology and Evolution** 23:1-3.
69. Kotiaho, J. S., LeBas, N. R., Puurtinen, M. and Tomkins, J. L. 2008. On female choice, heterozygosity and the lek paradox. - **Animal Behaviour** 75:e1-e3.
68. Hoikkala, A., Saarikettu, M., Kotiaho, J. S. and Liimatainen, J. O. 2008. Age related decrease in male reproductive success and song quality in *Drosophila montana*. - **Behavioral Ecology** 19:94-99.
67. Komonen, A., Tikkamäki, T., Mattila, N. and Kotiaho, J. S. 2008. Patch size and connectivity influence the population turnover of the threatened chequered blue butterfly, *Scolitantides orion* (Lepidoptera: Lycaenidae). - **European Journal of Entomology** 105:131-136.
66. Mattila, N., Kotiaho, J. S., Kaitala, V. and Komonen, A. 2008. The use of ecological traits in extinction risk assessments: a case study on geometrid moths. - **Biological Conservation** 141:2322-2328.
65. Pauku, S. and Kotiaho, J. S. 2008. Female oviposition decisions and their impact on progeny life-history traits. - **Journal of Insect Behaviour** 21: 505-520.
64. Sulkava, R., Mäkelä, A., Kotiaho, J. S. and Mönkkönen, M. 2008. Difficulty of getting accurate and precise estimates of population size: the case of the Finnish Siberian flying squirrel. - **Annales Zoologici Fennici** 45: 521-526.
63. Tynkkynen, K., Grapputo, A., Kotiaho, J. S., Rantala, M. J., Väänänen, S. and Suhonen, J. 2008. Hybridization in *Calopteryx* damselflies: the role of males. - **Animal Behaviour** 75:1431-1439.

2007

62. Kotiaho, J. S. 2007. The stability of genetic variance-covariance matrix in the presence of selection. - **Journal of Evolutionary Biology** 20: 28-29.
61. Kotiaho, J. S. and Puurtinen, M. 2007. Mate choice for indirect genetic benefits: scrutiny of the current paradigm - **Functional Ecology** 21: 638-644.
60. Kotiaho, J. S. and Sulkava, P. 2007. Effects of isolation, area and predators on invasion: a field experiment on artificial islands. - **Applied Soil Ecology** 35: 256-259.
59. Ketola, T., Kortet, R. and Kotiaho, J. S. 2007. Testing theories of sexual selection in decorated crickets (*Grylodes sigillatus*). - **Evolutionary Ecology Research** 9: 869-885.

58. Simmons, L. W. and Kotiaho, J. S. 2007. Quantitative genetic correlation between trait and preference supports a sexually selected sperm process in the beetle *Onthophagus taurus*. - **Proceedings of the National Academy of Sciences (PNAS)** 104:16604-16608.
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Jyväskylä, Finland 17.9.2012

Janne S. Kotiaho

CURRICULUM VITAE AND PUBLICATIONS - ATTE MOILANEN

GENERAL

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 Date and place of birth: 23.3.1968, Helsinki, Finland
 Civil status: Citizen of Finland; married, children 11 and 14 yrs

CONTACT INFORMATION

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http://www.metsopolku.fi/metso/www/fi/index.php?we_objectID=115 (Fi)

PRESENT POSITION

- *Professor*, Conservation Decision Analysis, University of Helsinki, Finland.
- *Principal Investigator* at the Department of Biosciences, University of Helsinki
- 1/2011 → 12/2015 Researcher, *European Research Council*, ERC.
- My *research group* (1+8 people) in 2012 includes four post-docs/researchers, 2 PhD students, a MSc student, and a research secretary/assistant.

QUALIFICATIONS

- *Professor of Conservation Decision Analysis* 5/2010, University of Helsinki, Finland.
- *Professor of Ecology - highly qualified* 3/2010, University of Jyväskylä, Finland.
- *Docent of Ecology* 6/2002, University of Helsinki

FUNDING SYNOPSIS

- Personal research funding to Moilanen as PI (2003-2012): approximately 4.5M€
- Participant in successful joint bids for approximately 25M€ (including 4 Centers of Excellence)

RESEARCH INTERESTS

My research interests centre on the concepts, methods, theory and application of *spatial ecology and conservation*. For the past years I have developed ecologically based, operational, computational methods for spatial conservation resource allocation. This research combines prior work in spatial ecology and *computation*, aiming at integrated solutions that can sensibly balance between *biodiversity values*, *costs* and the needs of *alternative land-uses*. In ecology, I'm among other things interested about the factors and processes that determine distributions of species and habitats. I am also intrigued by the *concepts and paradigms* of conservation biology. At the technical side, I'm interested in *optimization*, *decision analysis*, *uncertainty analysis* and *software development*.

EDUCATION

- **PhD, Population biology**, 17.9.1999, University of Helsinki, Dept. Ecology and Systematics, Div. Population biology. Subject: "*Modeling metapopulation dynamics*", grade: *eximia*. Post-graduate studies in population biology.
- **Licentiate in Technology, Applied mathematics**, 7.4.1998, Helsinki University of Technology, Dept. Engineering physics and mathematics. Subject: "*Optimization with evolutionary algorithms and local search*", grade: *pass with distinction*. Post-graduate studies in applied mathematics.
- **MSc, Computer Science**, 25.11.1992, Lappeenranta University of Technology, Dept. Computer science. Subject: "*Computer assisted comparison and grouping of protein electrophoresis patterns in microbial ecology*", grade 4/5.
- **College**: Langinkosken lukio 1986, average grade 9.7 (of max 10.0), 5× *laudatur* (highest grade).

EMPLOYMENT HISTORY

5/2010 →	Professor, Conservation Decision Analysis, University of Helsinki, Department of BioSciences.
8/2008 → 12/2011	<i>Principal investigator, group leader, and Vice director</i> at the Metapopulation Research Group (MRG), a three-time Center of Excellence in Science nominated by the Academy of Finland.
8/2003 – 8/2008	<i>Academy Research Fellow</i> . Vice director of the MRG.
12/2006 – 8/2007	<i>Academic visitor</i> to the Australian Centre for Risk Analysis, directed by Professor Mark Burgman at the University Melbourne.
8/2002 – 8/2003	<i>Senior scientist</i> , Metapopulation Research Group, Univ. Helsinki.
9/2000 – 7/2002	Academy of Finland, <i>post-doc researcher</i> .
1/1999 – 8/2000	Univ. Helsinki, Dept. Ecology and Systematics, researcher.
1/1995 – 12/1998	Univ. Helsinki, Dept. Ecology and Systematics, <i>PhD project</i> .
11/1993 – 12/1994	Univ. Helsinki, Dept. Genetics, research scientist.
4/1993 – 10/1993	<i>Military service</i> , special post at the military electro-technical research center, programming, systems design, teaching.
1/1992 – 12/1992	Univ. Helsinki, Dept. Genetics, MSc project.
4/1989 – 5/1990	Kymmene Ltd, <i>information systems design, programming</i> .
1/1988 – 4/1989	Kaakontieto Ltd, <i>programming</i> .

MOST IMPORTANT PRESENT ACADEMIC POSITIONS OF TRUST

- Member of the editorial board of *Conservation Letters* 2007→
- Member of the editorial board of *Biological Conservation*, 2012→
- Member of the IUCN WCPA, *World Commission on Protected Areas*, 2011→
- Member of the “Rich natural environment” panel of FORMAS - *Swedish Research Council* for Environment, Agricultural Sciences and Spatial Planning 2009→2012
- Key associate to the Australian Research Council's *Centre of Excellence for Environmental Decisions (CEED)*, directed by Professor, FAA, Hugh Possingham, Univ. Queensland, see <http://ceed.edu.au/>, 2011-2017.
- Associate to the *Australian Centre of Excellence for Risk Analysis* directed by Professor Mark Burgman; scientific visitor there for 12/2006 → 8/2007 & 6-8/2012. www.acera.unimelb.edu.au
- One of the “ten significant supervisors” of the *Finnish Graduate School in Wildlife Biology, Conservation and Management (LUOVA)*, 2010→
- *Leading scientist* in a Finnish national integrated project for ecologically-based conservation prioritization in the South-Central Finland Forest Biodiversity Program (METSO); http://www.metsonpolku.fi/metso/www/fi/materiaalit/esitteet/Zonation_ja_METSO_20.06.2011.pdf
<http://www.helsinki.fi/news/archive/6-2011/28-15-49-37.html>
- *Member of supervisory committee, EU NATNET Life+ project*
- *Society for Conservation Biology, SCB*, life member 45264.
- *Peerage of Science, Peer*.

SCIENTIFIC EXPERIENCE

- Author of >80 *scientific publications* and ten pieces of software.
- Impact of research for the past 10 years is globally within the *top 0.0015* fraction of researchers in category ecology/environment (ISI Essential Science Indicators, “Moilanen A”)
- *Vice-director*, Finnish Centre of Excellence in Metapopulation Biology, 2006-2011.
- Supervisor of *six PhD theses* (four completed), four MSc theses and six postdocs.
- *Leading editor* of the first book in its field: Moilanen, A., K. A. Wilson, and H.P. Possingham, 2009. *Spatial Conservation Prioritization: Quantitative Methods and Computational Tools*. Oxford University Press, www.oup.com/uk/catalogue/?ci=9780199547777
- *Regular reviewer* for ~25 *top scientific journals* in the fields of population biology, ecology, landscape ecology and conservation biology, including *Science*, *Global Change Biology*, *Ecology Letters*, *Nature Communications*, *The American Naturalist*, *Biological Reviews*, *PROC-B*, *Ecology*, *Landscape Ecology*, *Conservation Biology*, *Conservation Letters*, *Ecological Applications*, *Journal of Applied Ecology*, *PLOS Computational Biology*, *PLoSOne*, *Biology*

Letters, Environmental Management, Biological Conservation, Diversity and Distributions, Ecography, Oikos, Oryx and Journal of Environmental Management.

- *Application evaluator* for the National Science Foundation NSF, USA; the European Research Council ERC; Swedish Research Council - FORMAS; French National Research Agency ANR; the Netherlands Organization for Scientific Research; the Greek Ministry of Education; the Australian Research Council; the Microsoft foundation.
- *Examiner of PhD theses*: PhD theses of Ms Minna-Liisa Rantalainen (Univ. Jyväskylä, Finland), Mr Rohan Sadler (Univ. Western Australia), Ms Alan Moore (Univ. Melbourne), Mr Piero Visconti (Univ. James Cook, Australia).
- *Evaluator for professor-level positions*: Docent application of Dr Jouni Laakso (Univ. Joensuu, Finland); Associate professor position, Univ. Umeå, Sweden 2010; professor level promotions of Dr David Stoms (U. California, Santa Barbara), and Dr Simon Ferrier (CSIRO, Australia).
- *Experienced speaker* at both international and national venues
- Society for Conservation Biology European Section meeting ECCB 2009: organizer of pre-conference *teaching+symposium+workshop*, see www.eccb2009.org.
- *Organizer of workshop* "Stochastic patch occupancy models of metapopulation dynamics: introduction and application to conservation" SCB, 15th annual meeting, Hilo, Hawaii 7/2001.
- *Organizer of Workshop* "Reserve planning methods for climate change scenarios". 20-24.5.2005, Tvärminne biological station.
- *Organizer of workshop (x3)* "The Zonation framework and software for conservation prioritization", ECCB Prague 2009; ICCB 12/2011, Auckland; ECCB 9/2012 Glasgow.
- *Representative of researchers* in an Academy of Finland panel revising the national strategy for selection of scientific centers of excellence; 5/2009→
- Member in the national science forum of the *Finnish Ministry of Education* 5/2011
- International participating investigator at the *Commonwealth research hub "Applied Environmental Decision Analysis"*, directed by Professor Hugh Possingham, Univ. Queensland, see www.aeda.edu.au, ~2005 → 2011
- *EU BiodivERs4 FP7 ERA-NET*, member of SEC scientific evaluation committee, 2012.
- Member of the "Evolutionary, population and environmental biology" panel of the *Greek Ministry of Education*, 2011.
- Member of the program committee of the *Finnish Graduate School in Computational Sciences (FICS)*, 2009-2011.

NOTABLE GRANTS (> 100k€) WITH MOILANEN AS PRINCIPAL INVESTIGATOR

- One out of eight principal investigators in a successful application (~1M€ share out of ~8M € total: 492k€ for 2012-2014, grant 250444) due to a Center of Excellence in Science position from the Academy of Finland for 2012-2017, see www.helsinki.fi/science/metapop.
- Recipient of an European Research Council Starting (Consolidating) Researcher Grant ERC-StG, 1.5M€ for 1/2011 - 12/2015. http://erc.europa.eu/pdf/ERC_StG2010Results_LS.PDF
- University of Helsinki (central admin & Dept. Biosciences) support for ERC, 350k€, for 2011-2015.
- Finnish Ministry of Environment via the Finnish Forest and Park Service: 300k€, 50% support for 5 year professorship, 2010-2014.
- Helsinki University 3yr research grant 2009-2011, 112k€.
- Funding for 2009-2011 from the EU 7th framework project SCALES; 205k€. <http://www.scales-project.net/>
- One out of the six principal investigators in a successful application (~600k€ share out of ~6M € total) for a Center of Excellence in Science position from the Academy of Finland for 2006-2011. www.helsinki.fi/science/metapop
- 5/2003, Academy of Finland, Research Fellow grant, ca. 500k€. "Reserve network design: ecological and economical factors"

TEACHING EXPERIENCE

- Teacher in ca. 10 courses in University of Helsinki and Helsinki University of Technology, including *Advanced Programming for Ecologists*, *Conservation Biology in Fragmented Landscapes*, and *The Zonation Framework and Software for Conservation Prioritization*
- Developer and lecturer of course "*Concepts and Principles of Spatial Conservation Planning*" for University of Helsinki 2011→
- Developer and lecturer of course "*Methods and Software of Spatial Conservation Prioritization*" for University of Helsinki 2012→
- Invited lecturer in 4 international student workshops

SUPERVISION AND FUNDING OF STUDENTS

- Post-doc supervisor / young researcher mentor of Drs *Anni Arponen*, *Saija Sirkiä*, *Jussi Laitila*, *Federico Montesino Pouzols*, *Enrico Di Minin* and *Tuuli Toivonen*.
- PhD supervisor of Ms *Mar Cabeza*, "Metapopulation dynamics and reserve network design". Thesis passed with distinction 5 / 2003. Funding: Academy of Finland.
- PhD supervisor of Ms *Jonna Katajisto*, "Habitat use and population dynamics of brown bears (*Ursus arctos*) in Scandinavia". Thesis passed 1/2007, grade *magna*. 2nd supervisor, prof. Jon Swenson. Funding: Finnish Cultural Foundation.
- PhD supervisor of Ms *Astrid van Teeffelen*. "Where and how to conserve. Extending the scope of spatial reserve network design.", passed 6/2007, grade *magna*. Funding: Academy of Finland.
- PhD supervisor of Ms *Anni Arponen*. "Weighting and valuing species in reserve planning". 2006 → 2009. Funding: Helsinki University Science Foundation and the Finnish Ministry of Education. Thesis passed with distinction.
- PhD supervisor, of Mr *Joona Lehtomäki*, ~"Application of conservation prioritization tools to planning of forest management in the boreal zone" 2008 → 5/2013 (estimated). Funding: Helsinki University Science Foundation; Ministry of Environment.
- Assisting PhD supervisor of Mr *Santhu Kareksela* 2009 → 2013 (estimated) ~"Prioritization of restoration of peatlands", Univ. Jyväskylä.
- MSc supervisor Ms *Astrid van Teeffelen*, Ms *Anni Arponen*, Mr *Joona Lehtomäki*, Ms *Anniina Mikkonen* and Mr *Timo Vahtoranta*.



ISI PUBLICATION STATISTICS

ISI search: Author="((Moilanen A) or (Moilanen AJ)) NOT Ikonen NOT Poukka", Address=Helsinki OR UFZ

ISI res. ID: <http://www.researcherid.com/rid/A-5005-2011>

ISI verifiable papers with page#	71 (+ several in press)
of which first-authored	36
single-authored	13
in 2011	7

Citations to work,	
total	3250
in 2011	490
h-index	30

ISI Essential Science Indicators: Impact ranked in top 0.15% (out of ~380 000 scientists in Ecology and Environmental Science; Sep 1, 2012)

SCIENCE HIGHLIGHT: Cover of *Science* 320: *Kremen, Cameron, Moilanen et al.* (2008); worlds at the time largest conservation prioritization: expansion of protected areas of Madagascar using data for 2315 endemic species modeled across Madagascar at sub-1 km² resolution. Implemented using *Zonation* by Moilanen.

RECENT AND ONGOING INTERNATIONAL RESEARCH COLLABORATIONS

Prof. Chris D. Thomas (Univ. York, UK), *Prof. Hugh Possingham* (Univ. Queensland, Australia), *Prof. Mark A. Burgman* (Univ. Melbourne), *Prof. Simon Ferrier* (Principal Scientist, CSIRO), *Dr Brendan Wintle* (Univ. Melbourne), *Dr John Leathwick* (Dept. Conservation, New Zealand), *Dr Tord Snäll* (SLU, Uppsala, Sweden), *Dr. Barbara Anderson* (Univ. York), and *Dr Jenny Hodgson* (U. York).

RECENT PRESENTATIONS AS INVITED SPEAKER

- University of Oxford, UK, Dept. Biodiversity Institute conference on Biodiversity Technologies 28.9.2012 (scheduled): "Zonation"
- University of Cambridge, UK, Dept. Zoology: 25.9.2012 "Target-based systematic conservation planning and alternative strategies for conservation"
- Society for Conservation Biology European section conference ECCB 2012, full-day workshop on the Zonation method and software.
- University of Melbourne, Australia, joint Botany/Zoology seminar, 24.8.2012 "Reduced conservation performance from many low-level conservation targets"
- Boreal Natura 2000 meeting 28.5.2012, invited presentation "Zonation: methods for spatial prioritization of conservation action", Aulanko, Finland.
- Ecological connections seminar 9.3.2012. "Zonation – Software for Conservation Planning. How can conservation area networks be planned?" Helsinki, Finland.
- International Conference in Conservation Biology, ICCB 2012, Auckland, NZ, 6.12.2011, invited presentation, "Targeting of protected areas, habitat maintenance, habitat restoration, and biodiversity offsetting".
- Australian Centre of Excellence in Environmental Decisions, 30.11.2011, "Methods for allocation of habitat management, maintenance, restoration and offsetting when conservation actions have uncertain consequences"
- University of Aarhus, Denmark, *Science for the environment* conference, invited talk 6.11.2011: *Disentangling the complexity of biodiversity using ecoinformatics*.
- European Environment Agency, EEA - Copenhagen 20.6.2011. *Zonation, spatial conservation planning and green infrastructure*.
- Panelist in the National Science Forum, 24.5.2011.
- University of Turku 6.5.2011, "Ecological decision analysis with applications"
- Finland-Estonia 20-year celebration of collaboration in conservation biology, 3.5.2011: "GIS-based ecological decision analysis and conservation in Finland"
- Academy of Finland, ERC event 16.12.2010: *Global Environmental Decision Analysis*.
- Finnish national forest science days, 4.11.2010, *Ecological decision analysis supporting the sustainable use of forests in Finland*.
- The Finnish Environment Research Institute, 20.9.2010, *Information-based and expert-based conservation*.
- The Finnish Parliament, 21.3.2010, *Conservation resource allocation and decision making*.
- <http://www.youtube.com/watch?v=r-RUAA1OGvo> (Zonation in the Metso programme)
- http://akatemia1.livepalvelu.com/video=2011_05_24_paneeli_osa1_sd_001.mp4 (2011 national science forum, in Finnish)

FULL LIST OF PUBLICATIONS AND SOFTWARE
by *Atte Moilanen* (Year of birth 1968)

*Peer-reviewed scientific journal articles (ISI-listed), 15 most relevant marked by**

----- recent manuscripts with revisions submitted after favorable review -----

87. Kool, J.T., Moilanen, A., and E.A. Treml. 2013. Population connectivity: recent advances and new perspectives. *Landscape Ecology*, accepted conditional on minor editorial corrections.
86. Kujala, H., Moilanen, A., Araújo, M.B., and M. Cabeza. 2013. Conservation planning with uncertain climate change projections. *PLoS One*, revision submitted.

----- ISI publications presently in press -----

85. Kukkala, A. and A. Moilanen. 2013. The core concepts of spatial prioritization in systematic conservation planning. *Biological Reviews*, accepted conditional on editorial corrections.
84. Kujala, H., Burgman, M.A., and A. Moilanen. 2012. Treatment of uncertainty in conservation under climate change. *Conservation Letters*, in press.
83. Di Minin, E., MacMillan, D.C., Goodman, P.S., Escott, B., Slotow, R., and A. Moilanen. 2013. Conservation businesses and conservation planning. *Cons. Biol.*, accepted with minor revision.
82. Moilanen, A. 2012. Planning impact avoidance and biodiversity offsetting using software for spatial conservation prioritization. *Wildlife Research*, in press.
81. Sirkä, S., Lehtomäki, J., Lindén, H., Tomppo, E. and A. Moilanen. 2012. Spatial conservation prioritization of capercaillie (*Tetrao urogallus*) lekking landscapes in South-Central Finland. *Wildlife Biology*, in press.
80. Taberlet, P., Gugerli, F., Zimmermann, N.E., Englisch, T., Tribsch, A., Holderegger, R., Alvarez, N., Niklfeld, H., Mirek, Z., Moilanen, A., et al. (54 authors). 2012. Genetic diversity in widespread species is not congruent with species richness in alpine plant communities. *Ecology Letters*, in press.

----- ISI publications with page numbers, available online -----

- 79.* Laitila, J. and A. Moilanen. 2012. Use of many low-level conservation targets reduces high-level conservation performance. *Ecological Modelling*, 247: 40-47.
- 78.* Moilanen, A., Anderson, B.J., Arponen, A., Pouzols, F.M., and C.D. Thomas. 2012. Edge artefacts and lost performance in national versus continental conservation priority areas. *Diversity and Distributions*, early online DOI: 10.1111/ddi.12000.
77. Sharafia, S.M., A. Moilanen, White, M., and M.A. Burgman. 2012. Integrating environmental gap analysis with spatial conservation prioritization: A case study from Victoria, Australia. *Journal of Environmental Management*, 112: 240-251.
- 76.* Pouzols, F.M., Burgman, M.A., and A. Moilanen. 2012. Methods for allocation of habitat management, maintenance, restoration and offsetting, when conservation actions have uncertain consequences. *Biological Conservation*, 153: 41-50.
75. Maron, M., Hobbs, R.J., Moilanen, A., Matthews, J.W., Christie, K., Gardner, T.A., Keith, D., Lindenmayer, D.B., McAlpine, C.A. 2012. Faustian bargains? Restoration realities in the context of biodiversity offset policies. *Biological Conservation*, 155: 141-148.
74. Moilanen, A. 2012. Spatial conservation prioritization in data-poor areas of the world. *Natureza & Conservacao*, 10: 12-19.
73. Di Minin, E. and A. Moilanen. 2012. Empirical evidence for reduced protection levels across biodiversity features from target-based conservation planning. *Biological Conservation*, 153: 187-191.
72. Arponen, A., J. Lehtomäki, J. Leppänen, E. Tomppo, and A. Moilanen. 2012. Effects of connectivity and spatial resolution of analyses on conservation prioritization across large extents. *Conservation Biology*, 26: 294-304.
71. Moilanen, A. 2011. On the limitations of graph-theoretic connectivity in spatial ecology and conservation. *Journal of Applied Ecology*, 48: 1543-1547.
- 70.* Moilanen, A., J.R. Leathwick, and J. M. Quinn. 2011b. Spatial prioritization of conservation management. *Conservation letters*, 4: 383-393.
- 69.* Moilanen, A., B.J. Anderson, F. Eigenbrod, A. Heinemeyer, D. B. Roy, S. Gillings, P. R. Armsworth, K. J. Gaston, and C.D. Thomas. 2011a. Balancing alternative land uses in conservation prioritization. *Ecological Applications*, 21: 1419-1426.

- 68.* Moilanen, A., and Arponen A. 2011b. Administrative regions in conservation: balancing local priorities with regional to global preferences in spatial planning. *Biological Conservation*, 144: 1719-1725.
67. Hodgson, J., Moilanen, A., Wintle, B.A., and C. D. Thomas. 2011. Habitat area, quality and connectivity: striking the balance for efficient conservation. *J. Applied Ecology*, 48:148-152.
66. Moilanen, A., and A. Arponen. 2011a. Setting conservation targets under budgetary constraints. *Biological Conservation*, 144: 650-653.
65. Henle K., Kunin W., Schweiger O., Schmeller DS., Grobelsnik V., Matsinos Y., Pantis J., Penev L., Potts SG., Ring I., Similä, J., Tzanopoulos J., van der Hove S., Baguette M., Clobert J., Excoffier L., Framstad E., Grodzinska-Jurczak M., Lengyel S., Marty, P., Moilanen A., Porcher E., Storch, D., Steffan-Dewenter I., Sykes, MT., Zobel M., J. Settele. 2010. Securing the Conservation of Biodiversity across Administrative Levels and Spatial, Temporal, and Ecological Scales Research Needs and Approaches of the SCALES Project. *Gaia - Ecological Perspectives for Science and Society* 19: 187-193.
64. Leathwick, J.R., A. Moilanen, S. Ferrier and K. Julian. 2010. Community-based conservation prioritization using a community classification, and its application to riverine ecosystems. *Biological Conservation*, 143: 984-991.
63. Carroll, C., Moilanen, A., and J. Dunk. 2010. Optimizing resilience of reserve networks to climate change: multispecies conservation planning in the Pacific North-West USA. *Global Change Biology*, 16: 891-904
62. Burgman, M. A., Wintle, B. A., Thompson, C. A., Moilanen, A., Runge, M.C. and Y. Ben-Haim. 2010. Reconciling uncertain costs and benefits in Bayes nets for invasive species management. *Risk Analysis*, 30: 277-284.
61. Lehtomäki, J., Tomppo, E., Kuokkanen, P. Hanski, I., and A. Moilanen. 2009. Applying spatial conservation prioritization software and high-resolution GIS data to a national-scale study in forest conservation. *Forest Ecology and Management*, 258: 2439-2449.
60. Hodgson, J., Moilanen, A., Bourn, N., and C. D. Thomas. 2009. Managing successional species: Modelling the dependence of heath fritillary populations on the spatial distribution woodland management. *Biological Conservation*, 142: 2743-2751.
- 59.* Hodgson, J., C.D. Thomas, B.A. Wintle and A. Moilanen. 2009. Climate change, connectivity and conservation decision making - back to basics. *Journal of Applied Ecology*, 46: 964-969.
58. Grantham, H.S., K.A. Wilson, R.L., A. Moilanen, T.G. Rebelo, and H.P. Possingham. 2009. Delaying conservation actions for improved knowledge: how long should we wait? *Ecology Letters*, 12: 293-301.
57. Gordon, A., Simondson, D., White, M., Moilanen, A., and Bekessy, S.A. 2009. Integrating conservation planning and landuse planning in urban landscapes. *Landscape and Urban Planning*, 91: 183-194.
56. Rayfield, B., Moilanen, A. and M.-J. Fortin. 2009. Incorporating consumer-resource spatial interactions in reserve design. *Ecological Modelling*, 220: 725-733.
55. Moilanen, A., A. Arponen, J. Stokland and M. Cabeza. 2009. Assessing replacement cost of conservation areas: how does habitat loss influence priorities? *Biol. Conservation*, 142: 575-585.
54. Franco, A.M.A., Anderson, B., Roy, D.B., Gillings, S., Fox, R., Moilanen, A., and C.D. Thomas. 2009. Surrogacy and persistence in reserve selection: landscape prioritisation for multiple taxa in Britain. *Journal of Applied Ecology*, 46: 82-91.
53. Grantham, H.S., A. Moilanen, K.A. Wilson, R.L. Pressey, T.G. Rebelo, and H.P. Possingham. 2009. Diminishing returns for biodiversity data in conservation planning. *Cons. Lett.* 1: 190-198.
52. Hodgson, J., Moilanen, A., and C. D. Thomas. 2009. Metapopulation responses to patch connectivity and quality are masked by successional habitat dynamics. *Ecology* 90: 1608-1619.
51. Thomson, J.R., Moilanen, A., McNally, R., and P. Vesik. 2009. Where and when to revegetate: a quantitative method for scheduling landscape reconstruction. *Ecological Appl.*, 19: 817-828.
- 50.* Moilanen, A., van Teeffelen, A., Ben-Haim, Y. and S. Ferrier. 2009. How much compensation is enough? A framework for incorporating uncertainty and time discounting when calculating offset ratios for impacted habitat. *Restoration Ecology*, 17: 470-478.
49. Moilanen, A. 2008b. Generalized Complementarity and Mapping of the Concepts of Systematic Conservation Planning. *Conservation Biology*, 22: 1655-1658.
- 48.* Arponen, A., Moilanen, A., and S. Ferrier. 2008. A successful community-level strategy for conservation prioritization. *Journal of Applied Ecology*, 45: 1436-1445.

47. Kremen, C., A. Cameron, A. Razafimpahanana, A. Moilanen, C. D. Thomas, et al. Conservation with caveats - Response. *Science* 321: 341-342.
46. Moilanen, A. 2008a. Two paths to a suboptimal solution - once more about optimality in reserve selection. *Biological Conservation* 141: 1919-1923.
45. Leathwick, J. R., Moilanen, A., Francis, M., Elith, J., Taylor, P. Julian, K. and T. Hastie. 2008. Novel methods for the design and evaluation of marine protected areas in offshore waters. *Conservation Letters* 1: 91-102.
- 44.* Kremen, C., A. Cameron, A. Moilanen, S. Phillips, C. D. Thomas, H. Beentje, J. Dransfeld, B. L. Fisher, F. Glaw, T. Good, G. Harper, R.J. Hijmans, D. C. Lees, E. Louis Jr., R. A. Nussbaum, C. Raxworthy, A. Razafimpahanana, G. Schatz, M. Vences, D. R. Vieites, P. C. Wright, M. L. Zihra. 2008. Aligning conservation priorities across taxa in Madagascar, a biodiversity hotspot, with high-resolution planning tools. *Science* 320: 222-226.
43. Moilanen, A., Leathwick, J.R., and J. Elith. 2008a. A method for spatial freshwater conservation prioritization. *Freshwater Biology*, 53: 577-592.
42. van Teeffelen, A., and A. Moilanen. 2008. Where and how to manage: Optimal selection of conservation actions for multiple species. *Biodiversity Informatics*, 5: 1-13.
41. Mikusinski, G., Pressey, R.L., Edenius, L., Kujala, H., Moilanen, A., Niemelä, J., and T. Ranius. 2007. Conservation planning in forest landscapes of Fennoscandia, an approach to the challenge of countdown 2010. *Conservation Biology*, 21: 1445-1454.
- 40.* Moilanen, A. and M. Cabeza. 2007. Accounting for habitat loss rates in sequential reserve selection: simple methods for large problems. *Biological Conservation*, 136: 470-482.
39. Moilanen, A. and B. A. Wintle. 2007. The boundary quality penalty - a quantitative method for approximating species responses to fragmentation in reserve selection. *Cons. Biol.*, 21: 355-364.
38. Arponen, A., H. Kondelin and A. Moilanen. 2007. Area-based refinement for selection of reserve sites with the benefit function approach. *Conservation Biology*, 21: 527-533.
37. Moilanen, A. 2007. Landscape Zonation, benefit functions and target-based planning: Unifying reserve selection strategies. *Biological Conservation*, 134: 571-579.
36. Moilanen, A. and B.A. Wintle. 2006. Uncertainty analysis favours selection of spatially aggregated reserve structures. *Biological Conservation*, 129: 427-434.
35. Moilanen, A., B.A. Wintle., J. Elith and M. Burgman. 2006a. Uncertainty analysis for regional-scale reserve selection. *Conservation Biology* 20: 1688-1697.
34. Moilanen, A., M. Runge, J. Elith, A. Tyre, Y. Carmel, E. Fegraus, B. Wintle, M. Burgman and Y. Ben-Haim. 2006b. Planning for robust reserve networks using uncertainty analysis. *Ecological Modelling*, 119: 115-124.
33. Cabeza, M. and A. Moilanen. 2006. Replacement cost: a practical measure of site value for cost-effective reserve planning. *Biological Conservation* 132: 336-342.
32. Katajisto, J. and Moilanen, A. 2006. Kernel-based home range method for data with irregular sampling interval. *Ecological Modelling* 194: 405-413.
31. Van Teeffelen, A., Cabeza, M. and A. Moilanen. 2006. Connectivity, probabilities and persistence: comparing reserve selection strategies. *Biodiversity and Conserv.*, 15, 899-919.
30. Moilanen, A. 2005a. Methods for reserve selection: interior point search. *Biological Conservation* 124: 485-492.
- 29.* Moilanen, A. 2005b. Reserve selection using nonlinear species distribution models. *American Naturalist* 165: 695-706.
28. Moilanen, A., and Cabeza, C. 2005. Variance and uncertainty in the expected number of occurrences in reserve selection. *Conservation Biology* 19:1663-1667.
27. Moilanen, A., Franco, A.M.A., Early, R., Fox, R., Wintle, B., and C.D. Thomas. 2005. Prioritising multiple-use landscapes for conservation: methods for large multi-species planning problems. *Proc. R. Soc. Lond. B Biol. Sci.*, 272: 1885-1891.
- 26.* Arponen, A., Heikkinen, R., Thomas, C.D. and A. Moilanen. 2005. The value of biodiversity in reserve selection: representation, species weighting and benefit functions. *Conservation Biology* 19: 2009-2014.
25. Moilanen, A. 2004. SPOMSIM: software for stochastic patch occupancy models of metapopulation dynamics. *Ecological Modelling*, 179:533-550.
24. Moilanen, A., Sundström, L. and J.-S. Pedersen. 2004. MATESOFT: a program for deducing parental genotypes and estimating mating system statistics in haplodiploid species. *Molecular Ecology Notes*, 4:795-797.

23. Cabeza, M., Araujo, M.B., Wilson, R.J., Thomas, C.D., Cowley, M.J.R. and A. Moilanen. 2004b. Combining probabilities of occurrence with spatial reserve design. *Journal of Applied Ecology* 41: 252-262.
22. Grimm V., Lorek H., Finke J., Koester F., Malachinski M., Sonnenschein M., Moilanen A., Storch I., Wissel C. and K. Frank. 2004. META-X: A generic software for metapopulation viability analysis. *Biodiversity and Conservation*, 13:165-188.
21. Matter, S.F., Roland, J., Moilanen, A., and Hanski, I. 2004. Migration and survival of *Parnassius smintheus*: detecting effects of habitat for individual butterflies. *Ecol. Appl.* 14: 1526-1534.
20. Cabeza, M. and A. Moilanen. 2003. Site-selection algorithms and habitat loss. *Conservation Biology*, 17:1402-1413.
19. Moilanen, A. 2002. Implications of empirical data quality for metapopulation model parameter estimation and application. *Oikos* 96:516-530.
18. Moilanen, A. and M. Cabeza. 2002. Single-species dynamic site selection. *Ecological Applications*, 12:913-926.
17. Moilanen, A. and M. Nieminen. 2002. Simple connectivity measures in spatial ecology. *Ecology* 84:1131-1145.
16. Moilanen, A. 2001. Simulated evolutionary optimization and local search: Introduction and application to tree search. *Cladistics* 17:512-525.
15. Moilanen, A. and I. Hanski. 2001. On the use of connectivity measures in spatial ecology. *Oikos*, 95:147-152.
14. Cabeza, M. and A. Moilanen. 2001. Design of reserve networks and the persistence of biodiversity. *Trends in Ecology & Evolution* 16:242-247.
13. Petit, S., A. Moilanen, I. Hanski and M. Baguette. 2001. Metapopulation dynamics of the bog fritillary butterfly: Movements between habitat patches. *Oikos*, 92:491-500.
12. Moilanen, A. 2000. The equilibrium assumption in estimating the parameters of metapopulation models. *Journal of Animal Ecology* 69:143-153.
11. Hanski, I., Alho, J. and A. Moilanen. 2000. Estimating the parameters of survival and migration of individuals in metapopulations. *Ecology* 81:239-251.
10. Moilanen, A. 1999a. Patch occupancy models of metapopulation dynamics: efficient parameter estimation using implicit statistical inference. *Ecology* 80:1031-1043.
9. Moilanen, A. 1999b. Searching for most parsimonious trees with simulated evolutionary optimization. *Cladistics* 15:39-50.
8. Moilanen, A. and I. Hanski. 1998. Metapopulation dynamics: effects of habitat patch area and isolation, habitat quality and landscape structure. *Ecology* 79:2503-2515.
7. Moilanen, A., Smith, A.T. and Hanski, I. 1998. Long-term dynamics in a metapopulation of the American pika. *American Naturalist* 152:530-542.
6. Vainio, E.J., Moilanen, A., Koivula, T.T., Bamford, D.H. and Hantula, J. 1997. Comparison of partial 16S rRNA gene sequences obtained from activated sludge bacteria. *Applied Microbial Technology* 48:73-79.
5. Hanski, I., A. Moilanen, M. Gyllenberg. 1996a. Minimum viable metapopulation size. *American Naturalist* 147:527-541.
4. Hanski, I., A. Moilanen, T. Pakkala and M. Kuussaari. 1996b. The quantitative incidence function model and persistence of an endangered butterfly metapopulation. *Conservation Biology* 10:578-590.
3. Wahlberg, N., A. Moilanen, and I. Hanski. 1996. Predicting the occurrence of endangered species in fragmented landscapes. *Science* 273:1536-1538.
2. Moilanen, A. 1995. Parameterization of a metapopulation model: An empirical comparison of several different genetic algorithms, simulated annealing and TABU search. In Proceedings of the IEEE International Conference on Genetic Algorithms, ICEC95: 551-556.
1. Moilanen, A. and I. Hanski. 1995. Habitat destruction and competitive coexistence in a spatially realistic metapopulation model. *Journal of Animal Ecology* 64:141-144.

Book chapters

- B9. Moilanen, A., 2012. Reserve selection and conservation prioritization. Pp. 617-624 in Encyclopedia of theoretical ecology, A. Hastings & L. Gross, eds. University of California Press, CA.
- B8. Leathwick, J.R., D.W. West, and A. Moilanen. 2012. Development of a systematic, information-based approach to the identification of high value sites for freshwater conservation in New

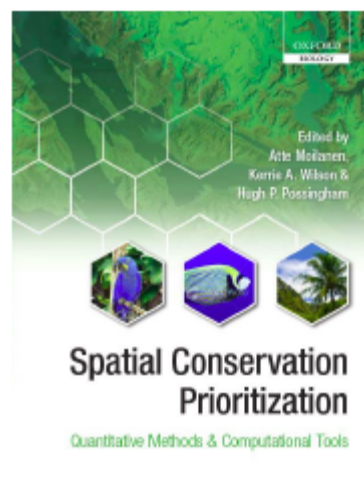
- Zealand. in Philip J Boon and Paul J Raven (eds.), *River Conservation and Management*. Wiley-Blackwell (release scheduled March 16, 2012).
- B7. Moilanen, A., Possingham, H.P., and S. Polasky. 2009. A mathematical classification of conservation prioritisation problems. Pp. 28-42 in Moilanen, Wilson and Possingham (Eds.), *Spatial Conservation Prioritization*, Oxford University Press.
- B6. Moilanen, A. and I. Ball. 2009. Heuristic and approximate optimization methods for spatial conservation prioritization. Pp. 58-69 in Moilanen, Wilson and Possingham (Eds.), *Spatial Conservation Prioritization*, Oxford University Press.
- B5. Moilanen, A., Kujala, H. and J. Leathwick. 2009. The Zonation framework and software for conservation prioritization. Pp. 196-210 in Moilanen, Wilson and Possingham (Eds.), *Spatial Conservation Prioritization*, Oxford University Press.
- B4. Moilanen, A., Possingham, H.P., and K. Wilson. 2009. Spatial conservation prioritization: past, present and future. Pp. 260-267 in Moilanen, Wilson and Possingham (Eds.), *Spatial Conservation Prioritization*, Oxford University Press.
- B3. Possingham, H.P., Wilson, K.A., and A. Moilanen. 2009. Accounting for habitat dynamics in conservation planning. Pp. 135-144 in Moilanen, Wilson and Possingham (Eds.), *Spatial Conservation Prioritization*, Oxford University Press.
- B2. Moilanen, A., and I. Hanski. 2006. Connectivity and metapopulation dynamics in highly fragmented landscapes. In *Connectivity Conservation* (K.R. Crooks and M. Sanjayan, eds.). Cambridge University Press, Cambridge, UK, pp. 44-71.
- B1. Cabeza, M., Moilanen, A. and H.-P. Possingham. 2004a. "Metapopulation dynamics and reserve network design", Pages 542-564 in *Metapopulation Ecology, Genetics, and Evolution* (I. Hanski and O. Gaggiotti, eds.). Academic press, London, UK.

ISI Web-of-Science summary information, based on the ISI-publications above

h-index = 30
citations in 2011 = 490
total citations ~ 3250

Monographs and edited volumes

- M4. Moilanen, A., L. Meller, J. Leppänen, F. Montesino-Pouzols, H. Kujala and A. Arponen. 2011. Zonation spatial conservation planning framework and software V3.1, User manual, 288 pp. ISBN 978-952-10-7893-4 (paperback) <http://www.helsinki.fi/bioscience/consplan/software/Zonation/downloads.html>
- M3.* Moilanen, A., K. A. Wilson, and H.P. Possingham, editors. 2009. *Spatial Conservation Prioritization: Quantitative Methods and Computational Tools*. Oxford University Press. www.oup.com/uk/catalogue/?ci=9780199547777
- M2. Moilanen, A. and H. Kujala. 2008. Zonation spatial conservation planning framework and software v. 2.0, User manual, 136 pp. www.helsinki.fi/bioscience/consplan
- M1. Moilanen, A. and H. Kujala. 2006. Zonation spatial conservation planning framework and software v. 1.0, User manual, 126 pp. Edita, Helsinki, Finland.



Most recently in Finnish journals

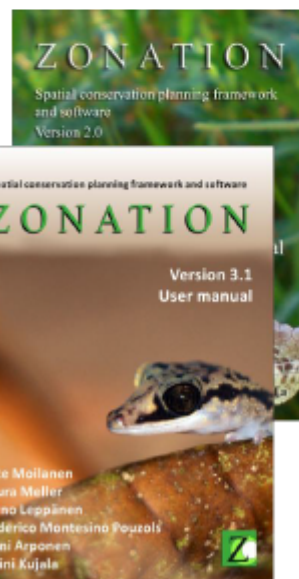
- F1. Moilanen, A.. 2010. Luontokohteiden ekologiset verkostot, Suomen metsät ja ilmastonmuutos. Ympäristö ja Terveys.

SOFTWARE (See also www.helsinki.fi/science/metapop + software)*Major software*

- S1 **ZONATION** v1, v2, v3 & v3.1. Landscape zoning for conservation prioritization. Implementing e.g. Moilanen et al. 2005, 2006a,b, 2008, 2011a, 2011b; Moilanen and Wintle 2006, 2007; Moilanen and Kujala 2006, 2008. Moilanen 2007; Kremen et al. 2008; Rayfield et al. 2009; Leathwick et al. 2008, 2010; Lehtomäki et al. 2010, Moilanen and Arponen 2011a, Moilanen et al. 2011a,b. See www.helsinki.fi/bioscience/consplan/Zonation/index.html.
- S2 **SPOMSIM**: Large analysis package for stochastic patch occupancy models, including the incidence function model (Moilanen 2004). Implementing techniques from Moilanen 1999a, 2000, 2002; Moilanen and Nieminen 2002, and Moilanen and Cabeza 2002.
- S3 **MateSoft**: Software for parentage analysis of haplo-diploid organisms (Moilanen et al. 2004); software homepage www.bi.ku.dk/staff/jspedersen/matesoft.
- S4 **RobOff**: Focus on conservation actions, including Robust Offsetting (Pouzols, F.M. and A. Moilanen, implementing Pouzols et al. 2012).
<http://consplan.it.helsinki.fi/software/projects/roboff>

*Minor software*

1. **RSW- Reserve Selection with Weights**. Site selection algorithm with species weighting, valuing of over- and under-representation and replacement cost calculations. Implementing Arponen et al. 2005, 2007; Cabeza and Moilanen 2006; Moilanen and Cabeza 2007.
2. **NLRS**: Large-scale reserve selection using nonlinear habitat models (Moilanen 2005b).
3. **B-Range** (Katajisto and Moilanen 2006): Software for calculating Bayesian time -kernel utilization density distribution estimates for animal home range analysis.
4. **VMProgs**: software for the parameter estimation and simulation of the virtual migration metapopulation model (Hanski, Alho and Moilanen, Ecology 2000)
5. **Si**: Software for the calculation of connectivity measures (Moilanen and Nieminen, Ecology 2002).
6. **Parsigal**: Software for the calculation of minimum evolution trees (Moilanen 1999b in Cladistics).
7. **Manage**: Software for management-oriented simulation of metapopulations in dynamic landscapes. (Hodgson, Moilanen, Thomas, Ecology 2009).



Helsinki - Sep 26, 2012, Atte Moilanen

CURRICULUM VITAE

NAME: Vesa Mikko Mönkkönen
DATE AND PLACE OF BIRTH: 20 March 1961, Kuopio, Finland
NATIONALITY: Finnish
ADDRESS AND TELEPHONE: Office: Department of Biological and Environmental Science, POB 35, FIN-40014 University of Jyväskylä
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 Home: Tähteläntie 7, FIN-40420 Jyskä
EMAIL: Mikko.Monkkonen@jyu.fi
HOME PAGE: <http://users.jyu.fi/~vemonkko/>

EDUCATION AND TRAINING:

1987	M.Sc., Animal Ecology	University of Oulu, Faculty of Sciences
1989	Ph.Lic., Animal Ecology	University of Oulu, Faculty of Sciences
1991	Ph.D., Animal Ecology (Thesis: Geographical patterns and local processes in Holarctic breeding bird communities)	University of Oulu, Faculty of Sciences

PRESENT POSITION: Professor in Ecology and Environmental Management 1.8. 2005–

ADJUNCT PROFESSORSHIPS

Docent in Ecology and Biogeography, University of Oulu, Faculty of Sciences 1995–

PREVIOUS PROFESSIONAL APPOINTMENTS:

Research Scholar, Department of Zoology, University of Oulu, 1. May 1987 – 30. April 1990 (Emil Aaltonen foundation scholarship)
 Research Associate, Department of Zoology, University of Oulu, 1. May 1990– 31. Dec. 1991
 Research Associate, Canadian Wildlife Service, Conservation and Protection, Nepean, Ontario, Canada, 1. August 1990– 31. July 1991
 Assistant Teacher, Department of Zoology, University of Oulu, 1. Jan. 1992 – 31. July 1994
 Fee-paid Teacher, Department of Zoology, University of Oulu, 1. August – 30. September 1994
 Associate Professor in Animal Ecology, Department of Zoology, University of Oulu, 1. October 1994 – 31. July 1995
 Junior Research Fellow, The Academy of Finland, 1. August 1995 – 31. July 1998
 Associate Professor in Evolutionary Ecology, Department of Biology, University of Oulu, 1–31. August 1998
 Assistant Teacher, Department of Biology, University of Oulu, 1. September 1998 – 31. January 1999
 Senior Assistant Teacher, Department of Biology, University of Oulu, 1. February – 31. July 1999
 Senior Research Fellow, Academy of Finland, 1. August 1999 – 31. July 2000.
 Senior Assistant Teacher, Department of Biology, University of Oulu, 1. August 2000 – 31. July 2001
 Professor in Animal Ecology, Department of Biology, University of Oulu, 1. August – 31. December 2001
 Senior Research Fellow, Academy of Finland, 1. January 2002 – 31. July 2002.
 Professor in Animal Ecology, Department of Biology, University of Oulu, 1. August 2002 – 31. July 2003
 Senior Curator, Zoological Museum & Experimental Zoo, Department of Biology, University of Oulu, 1. August 2003– 31. July 2005.

SUPERVISED DOCTORAL THESES

1. Forsman, J. 2000. Heterospecific attraction in breeding bird communities – implications to habitat selection and species interactions in a landscape perspective. Acta Univ. Ouluensis A 345.
2. Tornberg, R. 2000. Effects of changed landscape structure on the predator-prey interaction between goshawk and grouse. Acta Univ. Ouluensis A346. (Supervisors: Erkki Korpimäki and Mikko Mönkkönen).
3. Reunanen, P. 2001. Landscape responses of the Siberian flying squirrel (*Pteromys volans*) in northern Finland. Acta Univ. Ouluensis A 371.
4. Similä, M. 2002. Patterns of beetle species diversity in Fennoscandian boreal forests: effects of forest age, naturalness and fertility, and covariation with other forest dwelling taxa. Faculty of Forestry, Univ. Joensuu (Supervisors: Jari Kouki and Mikko Mönkkönen).
5. Bokma, F. 2004. Why most species are small? A macro-ecological approach to the evolution of avian body size. Acta Univ. Ouluensis A 411.

6. Juutinen, A. 2005. Biodiversity conservation in forestry: essays on the economics of site selection. Acta Univ. Ouluensis G18. (Supervisors: Markku Ollikainen, Rauli Svento and Mikko Mönkkönen)
7. Thomson, R. 2006. Breeding habitat selection and its consequences in boreal passerines: Using the spatial dispersion of predators and heterospecifics as a source of information. Acta Univ. Ouluensis A 456. (Supervisors: J. Forsman and M. Mönkkönen)
8. Seppänen, J.-T. 2007. Interspecific social information in habitat choice. Jyväskylä Studies in Biological and Environmental Science 178. (Supervisors: M. Mönkkönen and J. Forsman)
9. Hurme, E. 2008. Ecological knowledge towards sustainable boreal forest management: habitat requirements of the Siberian flying squirrel in Finland. Acta Univ. Ouluensis A 515.
10. Honkanen, M. 2011. Perspectives on variation in species richness: area, energy and habitat heterogeneity. Jyväskylä Studies in Biological and Environmental Science 219 (Supervisors: M. Mönkkönen and J.S. Kotiaho).
11. Timonen, J. 2011. Woodland key habitats: A key to effective conservation of forest biodiversity? Jyväskylä Studies in Biological and Environmental Science 220 (Supervisors: M. Mönkkönen and J.S. Kotiaho).
12. Lampila, P. 2011. Populations and communities in human modified forest landscapes Acta Univ. Ouluensis A590
13. Laita, A. 2012. Conservation in Space. Jyväskylä Studies in Biological and Environmental Science 234 (Supervisors: M. Mönkkönen and J.S. Kotiaho).

SUPERVISED POST-DOCTORAL RESEARCHERS

Maria Triviño de Cal, post-doctoral fellow at Univ. Jyväskylä, 2012-2014
 Dmitry Podkopaev, post-doctoral fellow at Univ. Jyväskylä, 2011-2013
 Jean-Michel Roberge (Uppsala, Sweden), post-doctoral fellow at Univ. Jyväskylä, 2007-2008
 Jukka Forsman, post-doctoral fellow at Univ. Oulu, 2002-2003
 Lluís Brotons (Barcelona, Spain), post-doctoral fellow at Univ. Oulu, 2001-2002
 Bohdan Sklepkovych (Stockholm, Sweden), post-doctoral fellow at Univ. Oulu, 2000-2001
 Louis Imbeau (Quebec, Canada), post-doctoral fellow at Univ. Oulu, 1999-2000

SCIENTIFIC EXPERT POSITIONS

Member of the BiodiERsA research program (EU FP6) evaluation committee. Scientific evaluation of research proposals. Lisbon March, 2008.

Invited external referee at the Spring symposium for post-graduate students, Department of Ecology and Systematics, University of Helsinki, March 16-18, 1998.

Scientific secretary of the working group preparing Biodiversity research programme for the Academy of Finland, March - June 1996.

Invited external evaluator. Scientific evaluation of ecological waterfowl studies conducted in the Finnish Game and Fisheries Research Institution in 1989-1995, November 1995.

Docentship refereeing

- Ilpo K. Hanski, docent in zoology, Faculty of Sciences, University of Helsinki, 1996
- Hanna Tuomisto, docent in tropical ecology, Faculty of Sciences, University of Turku, 1999
- Sami Kurki, docent in landscape ecology, Faculty of Forestry, University of Joensuu, 2000
- Thomas Roslin, docent in ecology, Faculty of Biosciences, University of Helsinki, 2005
- Patrik Byholm, docent in ecology and evolution, Faculty of Biosciences, University of Helsinki, 2008
- Jouko Kumpula, docent in ecology and management of the reindeer, Faculty of Sciences, University of Oulu, 2008
- Jani Heino, docent in aquatic ecology, Faculty of Sciences, University of Oulu, 2009
- Aleksi Lehikoinen, docent in Ecology and evolutionary biology, Faculty of Biological and Environmental Science, 2011

Licentiate thesis refereeing

- Teija Virola, Dept. Biol. Environm. Sci., University of Jyväskylä. Thesis title 'Selection of nature reserves and long-term persistence in aquatic vascular plant communities', 2000.

Doctoral thesis refereeing

- Jukka Jokimäki, Arctic Centre, University of Lapland. Thesis title 'Patterns of bird communities in urban environments', 1996
- Mikko Kurttila, Faculty of Forestry, University of Joensuu, Thesis title 'Methods for integrating ecological objectives into landscape-level planning of non-industrial private forestry', 2001.
- Patrik Byholm, Faculty of Natural Sciences, University of Helsinki, Thesis title 'Reproduction and dispersal of goshawks in a variable environment', 2003.
- Mar Cabeza, Faculty of Natural Sciences, University of Helsinki, Thesis title 'Spatial population dynamics in reserve network design', 2003.

- Gergely Varkonyi, Faculty of Natural Sciences, University of Helsinki, Thesis title 'Population biology of periodic *Xestia* moths', 2003.
- Petri Suorsa, Faculty of Natural Sciences, University of Turku, Thesis title 'Habitat selection, nest predation, sex allocation and stress responses in relation to forest loss and fragmentation in Eurasian tree creeper', 2004.
- Katja Matveinen-Husu, Faculty of Biosciences, University of Helsinki, Thesis title 'Short-term effects of variable retention on spiders and carabid beetles in Finland', 2007
- Janne Miettinen, Faculty of Forestry, University of Joensuu, Thesis title 'Capercaillie habitats in managed Finnish forests – the current status, threats and possibilities', 2009
- Johan Ekroos, Faculty of Biosciences, University of Helsinki, Thesis title 'Effects of management and landscape structure on biodiversity in boreal agricultural farmland', 2010
- Heini Kujala, Faculty of Biosciences, University of Helsinki, Thesis title: 'Climate change, species range shifts and uncertainty – a new era of conservation planning', 2012.

Opponent in doctoral dissertations

- Sami Kurki: Spatial variation in the breeding success of forest grouse: the role of predation in fragmented boreal forest landscapes, University of Turku, 7 November 1997.
- Vesa Selonen: Spacing behaviour of the Siberian flying squirrel – effects of landscape structure, University of Helsinki, 1 November 2002.
- Mikael Nordström, Introduced predator in Baltic sea archipelagos: variable effects of feral mink on bird and small mammal populations. University of Turku, 16 May, 2003.
- Atte Komonen, Insects in wood-decaying fungi: ecology, diversity and response to forest management. University of Joensuu, 28 November 2003.
- Lauri Louekari, Metsän arkkitehtuuri [Architecture of forest]. University of Oulu, Faculty of Technology, 13 June 2006.
- Jean-Michel Roberge, Umbrella species as a conservation planning tool. Swedish University of Agricultural Sciences, Uppsala, Sweden, 20 October 2006.

Professorship refereeing

- University of Turku, Faculty of Mathematics and Sciences, evaluation of the candidates to the associate professorship (tenure track) in biological interactions, 2012
- Oregon State University, Department of Forest Ecosystems and Society, evaluation of professor Matthew Betts' merits for tenure and promotion, 2011
- University of Helsinki, Faculty of Biosciences, evaluation of the candidates to the professorship in population ecology, 2009.
- University of Copenhagen, Department of Biology, Faculty of Science, evaluation of the candidates to the professorship in conservation biology, 2009
- University of Helsinki, evaluation of the merits of Antero Järvinen for a professorship, 2004.
- Högskola i Kristianstad, invited statement and assessment of Johan Elmqvist's scientific merits for professorship, 2002.

MOST IMPORTANT FOREIGN VISITS

Research Associate, Canadian Wildlife Service, Conservation and Protection, Nepean, Ontario, Canada, 1. August 1990- 31. July 1991

SCIENTIFIC ACKNOWLEDGEMENTS AND AWARDS

Status of the Intrinsic Center of Excellence, University of Oulu, based on merits and prospects in research. University of Oulu, 2001-2003.

Award for Publishing Innovation 2012, The Association of Learned and Professional Society Publishers (ALPSP) to Peerage of Science

MAJOR RESEARCH GRANTS AND AWARDS (since 2005):

2003-2005 Ministry of Agriculture and Forestry	
Project 'Integrating ecological knowledge into landscape level forestry planning'	117 000€
2003- 2006 Ministry of the Environment	
Project 'Cost-effective forest protection in southern Finland'	238 000€
2005 Ministry of the Environment	
Project 'Ecological impact assessment of METSO – new tools'	76 000€
2006-2008 Ministry of the Environment	
Project 'Ecological and economic efficiency of integrated management of biodiversity in boreal forests'	210 000€
2007-2010 Academy of Finland	
Project 'Predictions and tests of area-based hypotheses of species	332 890€

diversity: basic and applied implications	
2009-2012 Ministry of Agriculture and Forestry	
Project 'Cost-efficient protection of biodiversity at regional scale'	233 000€
2011-2014 Academy of Finland	
Project 'Optimal joint production of ecological and economic values in forest landscapes'	695 420€

MOST IMPORTANT SCIENTIFIC POSITIONS OF TRUST AND ADMINISTRATION

International positions

Member of the Board of Directors, Society of Conservation Biology European Section (SCB-ES), 2011-

National positions

Member of the scientific advisory board of the Nature Conservation unit of the Finnish Forest and Park Service, 2007-2011

Member of the clearing committee for the plan of actions concerning forest biodiversity in southern Finland 2008-2016 (Etelä-Suomen metsien monimuotoisuuden toimintaohjelman 2008-2016 selvitysrhmä) appointed by the Ministry of the Environment

Social outreach

One of the three founders of Peerage of Science. Peerage of Science is a web-application offering automatically controlled, standardized, rigorous, fully anonymous peer review.

University boards and expert groups

Member of the Advisory Board of Environmental Issues and team-coordinator in the Environment Graduate School, University of Oulu, 2001-2005.

Faculty Board Member, Faculty of Natural Sciences, University of Oulu, 2003-2005

Faculty Board Member, Faculty of Mathematics and Sciences, University of Jyväskylä, 2008-

Department Board Member, Department of Biology, University of Oulu, 2001-2005

Department Board Member, Department of Biological and Environmental Sciences, University of Jyväskylä, 2008– 2009

Vice-head of the department, Department of Biological and Environmental Sciences, University of Jyväskylä, 2008–2010

Head of the department, Department of Biological and Environmental Sciences, University of Jyväskylä, 2010-2011

Editorial assignments:

- *Annales Zoologici Fennici*, editorial board member, January 1993-
- *Avian Conservation Ecology*, editor, January 2005–2011
- *Ecography*, Deputy editor-in-chief, May 2000 –June 2004;
- *Ecography*, Subject Editor, November 2011-
- *Global Ecology and Biogeography*, associate editor, November 2005–May 2009
- *Ornis Fennica*, Editor-in-chief, 1995-1998, Associate editor-in-chief, 1999
- *Wildlife in Finland (Suomen Riista)*, member of editorial board, January 1996–

Editorial refereeing

I have worked as the editorial referee for the following scientific journals:

American Naturalist, Animal Behaviour, Animal Conservation, Annales Zoologici Fennici, Ardea, Auk, Behavioral Ecology, Butlletí del Grup Català d'Anellament, Condor, Ecography, Ecology, Ecoscience, Entomologica Fennica, Forest Ecology and Management, Evolutionary Ecology, Global Ecology and Biogeography, Ibis, Journal of Avian Biology, Journal of Biogeography, Journal of Environmental Management, Landscape Ecology, Oikos, Ornis Fennica, Proceedings of the Royal Society Ser. B., Wildlife in Finland (Suomen Riista), Wildlife Biology.

16 Sept 2012

Mikko Mönkkönen

List of publications • Mikko Mönkkönen

Peer-reviewed scientific articles

- ❖ 10 most important publications are marked (➡) in the margin.
- ❖ Total number of citations = 1922; h-index = 25.
- ❖ Statistics extracted from Web of Science at 17.9.2012.

2012 or in press

1. Elo, M., Roberge, J.-M., Rajasärkkä, A. & Mönkkönen, M. 2012. Energy density and its variation in space limit species richness of boreal forest birds. *Journal of Biogeography* 39:1462–1472.
1. Forsman, J.T., Mönkkönen, M., Korpimäki, E. & Thomson, R.L. 2012. Mammalian nest predator feces as a cue in avian habitat selection decisions. *Behavioral Ecology* (in press).
2. Juutinen, A., K. Reunanen, P., Mönkkönen, M., Tikkanen, O.-P. & Kouki, J. 2012. Conservation of forest biodiversity using temporal conservation contracts. *Ecological Economics* 81:121–129.
3. Laita, A. & Mönkkönen, M. 2012. Space, scales and imperfect detection – hierarchical modeling of the habitat association of the Siberian Jay (*Perisoreus infaustus*) in boreal forest landscapes. *Ibis* (in press)
4. Seppänen, J. T., Mönkkönen, M. & Kotiaho, J. S. 2012. Peerage of Science: by the Peers, for the Peers. *Trends in Ecology and Evolution* 27:191–192.
5. Thomson, R.J., Forsman, J.T. & Mönkkönen, M. 2012. Risk taking in natural predation risk gradients: support for risk allocation from breeding pied flycatchers. *Animal Behaviour* (in press).
- ➡ 6. Tikkanen, O.-P., Matero, J., Mönkkönen, M., Juutinen, A. & Kouki, J. 2012. To thin or not to thin - bio-economic analysis of two alternative practices to increase amount of coarse woody debris in managed forests. *European Journal of Forest Research* (in press) DOI:10.1007/s10342-012-0607-8

2011

7. Honkanen, M., Sorjanen, A.-M. & Mönkkönen, M. 2011. Deconstructing responses of dragonfly species richness to area, nutrients, water plant diversity and forestry. *Oecologia* 166:457–467.
8. Juutilainen K., Halme P., Kotiranta, H. & Mönkkönen, M. 2011. Size matters in studies of dead wood and wood-inhabiting fungi. *Fungal Ecology* 4:342–349.
9. Lampila P., Ranta, E., Mönkkönen, M., Lindén, H. & Helle, P. 2011. Grouse dynamics and harvesting in Kainuu, northeastern Finland. *Oikos* 120:1057–1064.
10. Laita, A., Mönkkönen, M. & Kotiaho, J. S. 2011. Assessing the functional connectivity of reserve networks in continuously varying nature under the constraints imposed by reality. *Biological Conservation* 144: 1297–1298.
11. Laita, A., Kotiaho, J. S. & Mönkkönen, M. 2011. Graph-theoretic connectivity measures - what do they tell us about connectivity? *Landscape Ecology* 26:951–967.
12. Timonen, J. Gustafsson, L., Kotiaho, J.S. & Mönkkönen, M. 2011. Hotspots in cold climate: conservation value of woodland key habitats in boreal forests. *Biological Conservation* 144:2061–2067.
- ➡ 13. Mönkkönen, M., Reunanen, P., Kotiaho, J.S., Juutinen, A., Tikkanen O.-P. & Kouki, J. 2011. Cost-effective strategies to conserve boreal forest biodiversity and long-term landscape-level maintenance of habitats. *European Journal of Forest Research* 130:717–727. DOI 10.1007/s10342-010-0461-5
14. Seppänen, J.-T., Forsman, J.T., Mönkkönen, M., Krams, I. & Salmi, T. 2011. New behavioural trait adopted or rejected by observing heterospecific tutor fitness. *Proceedings of the Royal Society of London. Ser. B, Biological Sciences* 278:1736–1741.

2010

15. Forsman, J.T., Reunanen, P., Jokimäki, J. and Mönkkönen, M. 2010. The effects of small-scale disturbance on forest birds: a meta-analysis. *Canadian Journal of Forest Research* 40: 1833–1842.
16. Halme, P., Toivanen, T., Honkanen, M., Kotiaho, J. S., Mönkkönen, M. and Timonen, J. 2010. Flawed Meta-Analysis of Biodiversity Effects of Forest Management. *Conservation Biology* 24:1154–1156.
- ➡ 17. Honkanen, M., Roberge, J.-M., Rajasärkkä, A. & Mönkkönen, M. 2010. Disentangling the effects of area, energy and habitat heterogeneity on boreal forest bird species richness in protected areas. *Global Ecology and Biogeography* 19: 61–71.
- ➡ 18. Laita, A., Mönkkönen, M. & Kotiaho, J. S. 2010. Woodland key habitats evaluated as part of a functional reserve network. *Biological Conservation* 143:1212–1227.
19. Thomson, R.L., Tomás, G., Forsman, J.T., Broggi, J. & Mönkkönen, M. 2010. Predator proximity as a stressor during breeding: increased mass loss, stress protein induction and work load in female flycatchers. *Ecology* 91(6):1832–1840.

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13. Kuuluvainen, T., Mönkkönen, M., Keto-Tokoi, P., Kuusinen, M., Aapala, K. & Tukia, H. 2004. Metsien monimuotoisuuden turvaamisen perusteet. (In Finnish) In: Kuuluvainen, T. et al. (eds.), *Metsän kätöissä. Suomen metsäluonnon monimuotoisuus*, pp. 142-191. Edita, Helsinki.
14. Sippola, A.-L., Mönkkönen, M., Renvall, P. & Kangasmäki, K. 2004. Avainbiotoopin koon ja puuston rakenteen merkitys Kolin kansallispuiston kääpäälajiston suojelulle. (In Finnish) In: Lovén, L. (ed.), *Tutkittu ja tuntematon Koli. Metsäntutkimuslaitoksen Tiedonantoja* 915: 73-90.
15. Mönkkönen, M. 2001. Biodiversiteetin taloudellinen arvo (In Finnish) [Economic value of biodiversity]. In: Eeronheimo, H., Jortikka, S. & Ränin, P. (eds.), *Tutkimus luonnonsuojelualueiden käytön ja hoidon suuntaajana*, pp. 94-100. *Metsähallituksen luonnonsuojelujulkaisuja, sarja A* 134. METLA, Metsähallitus ja Lapin Ympäristökeskus.
16. Forsman, J. & Mönkkönen, M. 2001. Varpushaukan ja sen riistan monisyinen yhteiselo (In Finnish with English summary: The complex co-existence of sparrowhawk and its prey). *Suomen Riista (Wildlife in Finland)* 47: 7-17.
17. Reunanen, P., Mönkkönen, M. 2001: Kuinka monta liito-oravaa Suomessa todella on? *Suomen Ympäristö* 459: 101-104. (in Finnish)
18. Mönkkönen, M., Huhta, E., Mäkelä, J. & Rajasärkkä, A. 2000. Pohjois-Suomen vanhojen metsien linnusto ja metsämaiseman muutos (In Finnish with English summary: Effects of forest fragmentation on bird assemblages in northern Finnish old forest reserves, Oulanka-Paanajärvi area as a reference). In: Lammi, E. (ed.), *Linnut-vuosikirja 1999*, pp. 39-46. BirdLife, Finland, Helsinki.
19. Hurme, E., Mönkkönen, M., Nikula, A. & Reunanen, P. 2000. Liito-oravan esiintymisen ennustamisesta Pohjois-Suomessa. Maisemaekologinen malli. EU Syöte-Life hankkeen julkaisu 64 s.
20. Mönkkönen, M., Tornberg, R. & Väisänen, P. 2000. Kanahaukka voi vähentää lintujen pesiin kohdistuvaa saalistusta suomalaisissa metsämaisemissa (In Finnish with English summary: Proximity to Goshawk nests may reduce predation rates on birds' nests). *Suomen Riista (Wildlife in Finland)* 46: 27-36.
21. Mönkkönen, M. 1999. Alue-ekologisen metsäsuunnittelun ekologinen perusta ja taloudelliset haasteet. Teos: Walls, M., Vieno, M. & Peltola, E. (eds.), Biodiversiteettitutkimusohjelma FIBRE: Monimuotoinen luonto – monitieteellinen näkökulma. Kooste tuloksista 1997-99. Suomen Akatemian julkaisuja 5/99, pp. 16-17.
22. Mönkkönen, M. 1999. Managing northern boreal forest landscapes for biodiversity: ecological and economic perspectives. In: Walls, M., Vieno, M. & Peltola, E. (eds.), *The Finnish biodiversity programme FIBRE: From species to society – the many faces of biodiversity. 1997-1999 Progress Report. Publications of the Academy of Finland* 6/99, pp. 16-17.
23. Mönkkönen, M. 1999. Ornithologia 1995-98. Editor's report. *Ornis Fennica* 76(4): 237-239.
24. Mönkkönen, M. & Reunanen, P. 1998. Maiseman sidonnaisuus ja ekologiset käytävät alue-ekologisen metsäsuunnittelun välineinä (In Finnish) [Landscape connectivity and dispersal corridors as a tool in landscape ecological forest management]. In: Jokimäki, J., Kangas, J., Varmola, M. & Virtanen, E. (eds.), *Alue-ekologista tietoa metsäsuunnitteluun*, pp. 39-48. *Metsäntutkimuslaitoksen Tiedonantoja* 685.
25. Mönkkönen, M. 1998. Boreaalinen havumetsä. (In Finnish) [Boreal coniferous forest]. In: Sarin, O. & Kumpulainen, K. (eds.), *Vanhaa metsää etsimässä*, pp. 4-14. Metsähallitus, Vantaa.
26. Mönkkönen, M. 1998. Linnuston suojelun kuumat pisteet. (Book review: Stattersfield et al. 1998. *Endemic bird areas of the World: Priorities for biodiversity conservation*. – Birdlife International). – *Ornis Fennica* 75:95-96.

27. Mönkkönen, M. 1998. Lintutietoa Afrikan itä- ja länsilaidalta. (Book review: Gatter, W. 1998. Birds of Liberia. – Pica Press; Ash, J.S. & Miskell, J.E. 1998. Birds of Somalia. – Pica Press). – *Ornis Fennica* 75:96-97.
28. Mönkkönen, M. 1998. BWPC – BWP:n suppea versio. (Book review: Snow, D. & Perrins, C. 1998. The birds of the Western Palearctic. Concise edition. – Oxford Univ. Press). – *Ornis Fennica* 75:201.
29. Mönkkönen, M. 1997. Metsät ja luonnon monimuotoisuus (In Finnish) [Forests and their biodiversity]. In: E. Alasaarela (ed.) *Metsäkonsensus?*, ss. 15-20. *Alueelliset ympäristöjulkaisut*, Pohjois-Pohjanmaan ympäristökeskus, Oulu.
30. Helle, P., Mönkkönen, M. & Niemi, G. J. 1997. Muuttolinnut ja muuttuva metsäluonto (in Finnish) [Migrant birds in changing forest landscapes]. *Luonnon Tutkija* 4/1997: 104-113.
31. Helle, P. & Mönkkönen, M. 1996. Linnut eivät tunne rajoja (in Finnish) [Birds do not acknowledge borders]. *Oulanka Reports* 15: 73-74.
32. Mönkkönen, M. 1994. Diversity of forest avifauna in Europe and North America (in Finnish with English summary). In: Haila, Y., Niemelä, P. & Kouki, J. (eds.) *Metsätalouden ekologiset vaikutukset boreaalisissa havumetsissä*, ss. 39-46. *Metsäntutkimuslaitoksen Tiedonantoja* 482.
33. Mönkkönen, M. & Helle, P. 1994. Lintututkimus Koillismaalla - Merikalliosta maisemaekologiaan (in Finnish) [Ornithological research in Koillismaa - from Merikallio to landscape ecology]. *Luonnon Tutkija* 2/1994: 66-69.
34. Helle, P. & Mönkkönen, M. 1992. Bird fauna and forest succession (in Finnish and in Russian). In: Lindholm, T. (ed.), *Suksessiotutkimusten tuloksia Suomen ja SNTL:n luonnonsuojelualueilla*, ss. 58-61 ja 129-132. *Vesi- ja Ympäristöhallinnon julkaisuja A*, Vesi- ja Ympäristöhallitus, Helsinki.
35. Helle, P., Helle, T. & Mönkkönen, M. 1989. Abundance of arboreal lichens (Usneaceae) in the Oulanka National Park, northeastern Finland (in Finnish with English summary). *Folia Forestalia* 736:94-98.

Theses

1. Mönkkönen, M. 1991. Geographical patterns and local processes in Holarctic breeding bird communities. PhD Thesis. *Acta Universitatis Ouluensis A* 223. 32+135 p.
2. Mönkkönen, M. 1987. Pesivien maallintujen yhteisöt eri ikäisissä pohjoissavolaisissa metsissä: suksessionäkökulma. In Finnish [Landbird communities in boreal forest of different ages: succession perspective]. MSc Thesis 42 p. Department of Zoology, Univ. Oulu.

Publications intended for the general public

1. Hurme, E. & Mönkkönen, M. 2005. Liito-oravasta luonnon monimuotoisuuden sateenvarjolaji? *Metsälehti* 4/2005
2. Juutinen, A., Mäntymaa, E. & Mönkkönen, M. 2004. Luonnonarvokaupasta uusi tulonlähde. *Metsälehti* (2. 12.) 23/2004: 16.
3. Mäntymaa, E. & Mönkkönen, M. 2004. Voiko ympäristöarvoja mitata rahassa? (in Finnish). Newspaper *Kaleva*, 7.10. 2004.
4. Mäntymaa, E. & Mönkkönen, M. 2004. Voiko ympäristöarvoja mitata rahassa? (in Finnish). Newspaper *Kainuun Sanomat*, 7.10. 2004.
5. Mönkkönen, M., Hurme, E., Sippola, A.-L., Hanhimäki, T. & Ukkola, M. 2003. Luonnon monimuotoisuuden säilyttäminen talousmetsissä. In: Pirkko Siikamäki (ed.), *Koillismaan luonto ja luonnonvarat tutkimuskohteena. Naturpolis Kuusamo koulutus- ja kehittämispalvelut, Tutkimuksia* 2/2003.
6. Forsman, J. & Mönkkönen, M. 2001. Lajienväliset vuorovaikutukset lintujen pesimäpaikanvalinnassa ja pesimäyhteisön toiminnassa. *Linnut* 2/2001.
7. Mönkkönen, M. 1997. Biodiversiteetin taloudellinen arvottaminen. *Luontomatkailu* 2-3/1997: 15.
8. Mönkkönen, M. 1997. Tutkimus Puhoksen ja Siikavaaran alue-ekologisesta suunnittelusta. *Puistoväki* 4/1997: 18.
9. Mönkkönen, M. 1996. Ilmoja on pidellyt. (Book review: Burton, J.F. 1995 Birds and climate change. – A&C Black). – *Ornis Fennica* 73:43-45.
10. Mönkkönen, M. 1993. Luonnon monimuotoisuuden taloudelliset haasteet (in Finnish). Newspaper *Kaleva*, 26.3. 1993.
11. Mönkkönen, M. 1993. Monimuotoisuus Kainuun vanhoissa metsissä (in Finnish). Newspaper *Kainuun Sanomat*, 12.12. 1993.
12. Mönkkönen, M. 1993. Uusia tuulia riistabiologiassa (in Finnish). *Luonnon Tutkija* 3/1993:135-136.
13. Mönkkönen, M. 1993. Muuttotapa perusratkaisuna pohjoisen talven haasteisiin (in Finnish) [Migratory habit as a basic strategy in northern environments]. *Aureola* 18:116-117.

14. Mönkkönen, M. 1989, Aikaa Prahassa (in Finnish). *Ornis Fennica* 66.
15. Mönkkönen, M. 1988, VI Pohjoismainen ornitologikongressi (in Finnish). *Ornis Fennica* 65:45-46.
16. Mönkkönen, M. 1987, Ekologisymposio Hailuodon Marjaniemessä (in Finnish). *Oulun Luonnonystävään Yhdistyksen Tiedoituksia* 12:10-13.
17. Helle, P. & Mönkkönen, M. 1985, Oulangan kansallispuiston metsälinnustosta erityisesti 15 viime vuoden aikana (in Finnish) [On forest bird assemblages in Oulanka National Park with special reference to the last 15 years]. *Aureola* 10:21-29.
18. Mönkkönen, M. 1984, Metsäkasvillisuuden sukkession vaikutukset Pohjois-Savon metsälinnustoon (in Finnish) [The effects of forest succession on bird communities in Northern Savo]. *Siivekäs* 5:41-51.
19. Mönkkönen, M. 1982, Naakan ensimmäinen (?) pesintä Kuopiossa. *Siivekäs* 3: 29.
20. Mönkkönen, M. 1980, Pöllökyselyn tulosten tarkastelua (in Finnish). *Siivekäs* 1:29-30.

CURRICULUM VITAE

This curriculum vitae has been prepared according to the guidelines of the Academy of Finland

1. Name and year of birth: Jari Kalevi Niemelä, 1957

2. Degrees, dates and places, major subject, topic of doctoral dissertation

M. Sc., University of Umeå, Sweden, October 15, 1980, major: biology

M. Sc., University of Helsinki, Finland, February 16, 1984, major: zoology

Lic. Phil., University of Helsinki, Finland, December 19, 1985, major: zoology

Ph. D., University of Helsinki, Finland, December 8, 1988, major: zoology (topic of doctoral dissertation: *Distribution of carabid beetles in Fennoscandian archipelagoes: an island-mainland comparison*)

3. Adjunct professorships (docentships)

Docent of Zoology, University of Helsinki, December 30, 1991

4. Present position

Professor of urban ecology, Dept. of Biological and Environmental Sciences, 1 January 2000-

Dean of Faculty of Biosciences, Univ. of Helsinki, 1 January 2004 - 31 December 2013

5. Most important posts and full-time positions

Head of Department of Ecology and Systematics, Univ. of Helsinki, 1998-2003

Acting professor, Dept. of Ecology and Systematics, Univ. of Helsinki, 1995-1999

Acting associate professor, Dept. of Ecology and Systematics, Univ. of Helsinki, 1994-1995

Assistant, Dept. of Zoology, Univ. Helsinki, 1993-1994

Researcher of the Academy of Finland, 1993

Postdoctoral Fellow at the Dept. of Entomology, Univ. of Alberta, Edmonton, Canada, funded by the Killam Fellowship Committee and the Academy of Finland, 1991 - 1992

Killam Postdoctoral Fellow at the Dept. of Entomology, Univ. of Alberta, Edmonton, 1989 - 1991

6. Supervised doctoral dissertations

I have supervised or I am supervising 16 PhD students. Currently I have 4 PhD students: 1. Jukka T. Lehtonen (Madagascar), 2. Stephen Venn (urban ecology), 3. Jarmo Saarikivi (urban ecology), 4. I-Chen Hsueh (Taiwan, urban ecology). The following of my PhD students have defended their thesis: Matti Koivula (year 2001), Innocent Zilihona (from Tanzania, 2003), Paula Siitonen (2003), Susanna Lehvävirta (2005), Vesa Yli-Pelkonen (2006), Kaisa Korhonen (co-supervisor, 2006), Katja Matveinen-Huju (2007), Minna Malmivaara (co-supervisor, 2008), Leena Hamberg (co-supervisor, 2009), Johanna Rainio (2009), Kati Vierikko (2010) and Pertti Ranta (2012).

7. Scientific expert positions

Examiner of the docent application of Dr. Mari Walls, University of Helsinki, 11 Nov. 1995

External examiner (opponent) of the doctoral dissertation of Fred Midtgaard, University of Oslo, Oslo, Norway, 14 September 1996

External examiner (opponent) of the doctoral dissertation of Roger Petterson, University of Umeå, Sweden, 25 April 1997

Member of the evaluation committee of Riccardo Bommarco's doctoral dissertation, Swedish University of Agricultural Sciences, Uppsala, Sweden, 12 September 1997

Member of the evaluation committee of Gregorz Mikusinski's doctoral dissertation, Swedish University of Agricultural Sciences, Uppsala, Sweden, 4 November 1997

Pre-examiner (providing written report) of the doctoral dissertation of Atte Moilanen, University of Helsinki, October 1998

External examiner (rapporteur) of the doctoral dissertation of Elisabeth Fournier, Institut National Agronomique de Paris-Grignon, December 1998

External examiner (opponent) of the doctoral dissertation of Mats Jonsell, Swedish University of Agricultural Sciences, Uppsala, 7 May, 1999

External examiner (opponent) of the doctoral dissertation of Tarmo Virtanen, University of Turku, 11 May 1999

Pre-examiner (providing written report) of the doctoral dissertation of Kaija Virtanen, University of Jyväskylä, 29 June 1999

External examiner (opponent) of the doctoral dissertation of Anne Sverdrup-Thygeson, University of Oslo, Oslo, Norway, 9 May 2000

External examiner (opponent) of the doctoral dissertation of Petri Martikainen, University of Joensuu, 12 May 2000

External evaluator of the candidates for the professorship in conservation biology, Swedish Univ. of Agricultural Science (SLU), 2000

Pre-examiner (providing written report) of the doctoral dissertation of Anna-Liisa Sippola, University of Helsinki, 22 August, 2001.

Assessment of eligibility for professorship, Norwegian technical university (Norges teknisk-naturvitenskaplige universitet), Trondheim, Norja, February 2002 and February 2003

Pre-examiner (providing written report) of the doctoral dissertation of Kimmo Saarinen, University of Joensuu, 18 April, 2002

External examiner (opponent) of the doctoral dissertation of Maarit Similä, University of Joensuu 7 June 2002

Pre-examiner (providing written report) of the doctoral dissertation of Jani Heino, University of Jyväskylä, 4 July, 2002

Examiner of the docent application of Dr. Esa Huhta, University of Turku, 10 February, 2003

External examiner (opponent) of the doctoral dissertation of Jussi Päivinen, University of Jyväskylä 17 May 2003

Evaluator of university lecturer at the University of Karlstad, Sweden, April, 2003.

External examiner (opponent) of the doctoral dissertation of Ilari Sääksjärvi, University of Turku, 4 October 2003

Evaluator of university lecturer at the University of Örebro, Sweden, October, 2003.

External examiner (opponent) of the doctoral dissertation of Orla Fahy, National University of Ireland, Galway, January 22, 2004.

External examiner (opponent) of the doctoral dissertation of Ermias Azeria, Swedish University of Agricultural Sciences, Uppsala, 1 June 2004.

Examiner of the docent application of Dr. Thomas Ranius, Swedish University of Agricultural Sciences, Uppsala, June 2004.

Examiner (providing a written report) of the doctoral dissertation of Fiona Christie, University of Sydney, Australia, August 2004.

Examiner of dr. Jonathan Sadler's merits for the conferment to 'reader', Univ. of Birmingham, April 2006

Examiner of associate prof. Charles Nilon's credentials for promotion to professor, Univ of Missouri-Columbia, July 2006

Examiner of the docent application of Dr. Magnus Nyström, Univ of Stockholm, July 2006.

External examiner (opponent) of the doctoral dissertation of Anu Valtonen, University of Joensuu, 14 December 2006

Examiner of the docent application of Dr. Jukka Suhonen, University of Turku, 2 January, 2007

Pre-examiner (providing written report) of the doctoral dissertation of Tero Toivanen, University of Jyväskylä, 27 February, 2007

Examiner of the docent application of Dr. Atte Komonen, University of Jyväskylä, 16 May, 2007.

External examiner (opponent) of the doctoral dissertation of Marcus Hedblom, Swedish

University of Agricultural Sciences, Uppsala, 29 May 2007
 Examiner of the docent application of Dr. Kalle Ruokolainen, University of Turku, 11 January, 2008.
 Examiner of dr. John O'Halloran's merits for professorship, National University of Ireland, January 2008
 External examiner (opponent) of the doctoral dissertation of Katja Kangas, University of Oulu, November 2009
 Examiner of dr. Bengt Gunnarsson's merits for professorship, University of Gothenburg, Sweden, March 2010
 External examiner (opponent) of the doctoral dissertation of Oskar Forsberg, Swedish University of Agricultural Sciences, Uppsala, 25 November 2010

Other scientific expert positions (since year 2000)

Chairman of BiodivERsA ERA-NET Scientific Evaluation Panel, 2012
 Evaluator of research applications for Luxembourg National Research Fund, 2012
 Evaluator of research applications for Cyprus Research Council, 2012
 Chairman of the evaluation panel of the quality assurance system of the University of Vaasa, Finland, 2011-2012
 Chairman of the evaluation panel assessing the functioning of Bologna degree system in Finland, 2010
 Chairman of the evaluation panel 'Rich natural environment' of research applications of the Swedish Research Council FORMAS, 2009-
 Member of the scientific committee of the *European meeting of the International Association for Landscape Ecology*, Salzburg, Austria, 12-16 July, 2009
 Chairman of the steering committee for quality assurance (laadunvarmistuksen ohjausryhmä), Univ of Helsinki, 2005-2009
 Evaluator of the quality assurance system of the University of Turku, Finland, 2008
 Evaluator of research applications to the Swedish Research Council FORMAS, 2006-2008
 Member of the evaluation of biology teaching at Swedish universities (Högskoleverket), 2005-2006
 Chairman of the organizing committee: *European Platform for Biodiversity Research Strategy*, international symposium, Helsinki, 16-19 November 2006.
 Coordinator of the *Environmental Research Centre* of the University of Helsinki, 2000-2003, chairman of the steering group 2003-
 Chairman of the expert group 'Sustainable use of biodiversity' (Ministry of the Environment), 2004-2005
 Member of scientific committee: *Comparative Ecology of Cities and Towns*, international symposium, Melbourne, Australia, 19-22 July 2003.
 Chairman of the organizing committee: *Environmental problems and policies in growing urban areas: a multidisciplinary approach*, international symposium, international symposium, Helsinki, 8-9 December 2003.
 Member of the Steering Group of the research project *Application of biodiversity research* (Biodiversiteettitutkimuksen hyödyntäminen BITUMI), 2000-2002
 Evaluator of ecology-related research application submitted for the South-African Research Foundation, June 2002
 Evaluator of biodiversity-related research applications for Naturvårdsverket (Sweden), August 2000, March 2002.
 Member of scientific committee: *Indigenous vegetation within urban development*, international conference, Uppsala, Sweden, 14-16. August, 2002.
 Evaluator of biodiversity-related research application submitted for the Norwegian Research Council, October 1999, October 2003
 Member of the international Steering Group of the research programme *Forestry Impact on*

Biodiversity in Ireland 2001-2005

Chairman of the international expert committee to evaluate the research programme *Research to forge the conservation chain*, Naturvårdsverket, Sweden, 2001.

Member of the international expert committee to evaluate the research programme *Sustainable forestry in Southern Sweden* (SUFOR), Stockholm, Sweden, May 3-5, 2000.

Leader of the evaluation group assessing the landscape ecological planning of the Finnish Forest and Park Service, 2000-2001

8. Most important scientific positions of trust and administration

Member of the Scientific Advisory Board of the Finnish Food Safety Authority (EVIRA:n tieteellisen tutkimuksen neuvosto), 2010-

Member of the Scientific Advisory Board of MTT Agrifood Research Finland (MTT:n tieteellinen neuvottelukunta), 2007-

Vice chairman of the Board for Genetechnology (Geenitekniikan lautakunta), 2005-2009

Member of the International Board of WWF, 2008-2009

Member of the board of WWF Finland, 2001-2004, chairman of the board 2004-

Member of the Advisory Board of the Finnish Environment Institute (Suomen Ympäristökeskuksen neuvottelukunta), 2005-2008

Member of the 'Coordination group for environmental research' of the Ministry of the Environment (ympäristötutkimuksen koordinaatioryhmä), 2006-2009

Member of the Board of Maj and Tor Nessling Foundation (environmental research) 2006-

Member of the Scientific Expert panel of the Maj and Tor Nessling Foundation (environmental research), 2001-2003, chairman 2004-2006

Member of the board of the *European Section of Society for Conservation Biology*, 2001-2005

Member of the board of the *European Platform for Biodiversity Research Strategy*, 2003-2008

Member of the scientific advisory board (Luonnonsuojelun tieteellinen neuvottelukunta) of the Finnish Forest and Park Service (Metsähallitus), 2003-

Membership in editorial boards

Member of the Editorial Board of *Ecosystem Services*, 2012-

Member of the Editorial Board of *Biodiversity and Conservation*, 2000-2006, 2008-

Member of the Editorial Board of *Forest Ecology and Management*, 2002-2010

Member of the Editorial Board of *Landscape Ecology*, 2003-2010

Member of the Editorial Board of *Baltic Journal of Coleopterology*, 2002-2005

Board member of *Societas Entomologica Helsingforsiensis*, 1995-2003

Member of the Editorial Board of *Ecography*, 1995-2000

9. Most important foreign visits

Postdoctoral Fellow at the Department of Entomology, University of Alberta, Edmonton, Canada, 1989-1992

International Institute for Applied Systems Analysis, Austria, December 1999

10. Most important scientific acknowledgements and awards

The University of Helsinki J. V. Snellman Prize for popularization of science, 2012

State Award for Public Information (Tiedonjulkistamisen valtionpalkinto) for editing the book *Ihminen ja ympäristö (Man and the environment)*, 2012

LIST OF PUBLICATIONS

Jari Niemelä

Home page: <http://www.helsinki.fi/urbanecologyresearch/>

This list of publications has been prepared according to the guidelines of the Academy of Finland

A. Peer-reviewed scientific articles

A1 Journal article (refereed), original research

1984

1. Söderman, G., Tuhkanen, G., Luther, A. & Niemelä, J. 1984: Geoekologisen aluejaon soveltamismahdollisuudet aluesuunnittelussa. – *Terra* 96:34-48.

1985

2. Niemelä, J., Ranta, E. & Haila, Y. 1985: Carabid beetles in lush forest patches on the Åland Islands, south-west Finland: an island-mainland comparison. – *Journal of Biogeography* 12:109-120.

1986

3. Kuokka, I. & Niemelä, J. 1986: Perinteen ja eristyneisyyden määräämä asutus Habanassa Koillis-Perun sademetsäalueella. – *Terra* 98:152-167
4. Niemelä, J., Haila, Y. & Ranta, E. 1986: Spatial heterogeneity of carabid beetle dispersion in uniform forests on the Åland Islands, SW Finland. – *Annales Zoologici Fennici* 23: 289-296.
5. Niemelä, J., Halme, E., Pajunen, T. & Haila, Y. 1986: Sampling spiders and carabid beetles with pitfall traps: the effect of increased sampling effort. – *Annales Entomologici Fennici* 52:109-111.

1987

6. Niemelä, J., Haila, Y. & Halme, E. 1987: Carabid assemblages in southern Finland, a forest-field comparison. – *Acta Phytopatologica et Entomologica Hungarica* 22:415-422.
7. Niemelä, J., Haila, Y., Halme, E., Pajunen, T., Puntila, P. & Tukia, H. 1987: Habitat preferences and conservation status of *Agonum mannerheimii* Dej. in Häme, southern Finland. – *Notulae Entomologicae* 67:175-179.
8. Niemelä, J., Haila, Y., Ranta, E., Tiainen, J., Vepsäläinen, K. & Ås, S. 1987: Distribution of carabid beetles in four boreal archipelagoes. – *Annales Zoologici Fennici* 24:89-100.

1988

9. Niemelä, J. 1988: Habitat occupancy of carabid beetles on small islands and the adjacent Åland mainland, SW Finland. – *Annales Zoologici Fennici* 25:121-131.
10. Niemelä, J. 1988: Carabid beetles in shore-habitats on the Åland Islands, SW Finland: the effect of habitat availability and species characteristics. – *Acta Oecologica/Oecologia Generalis* 9:379-395.
11. Niemelä, J., Haila, Y. & Halme, E. 1988: Carabid beetles on isolated Baltic islands and on the adjacent Åland mainland: variation in colonization success. – *Annales Zoologici Fennici* 25:133-143.
12. Niemelä, J., Haila, Y., Halme, E., Lahti, T., Pajunen, T. & Puntila, P. 1988: The distribution of carabid beetles in fragments of old coniferous taiga and adjacent managed forest. – *Annales Zoologici Fennici* 25:107-119.
13. Tuhkanen, S., Kuokka, I. & Niemelä, J. 1988: Det generella versus det unika, kulturförändringen och utvecklingsgeografen. – *Terra* 100: 436-449.

1989

14. Niemelä, J., Haila, Y., Halme, E., Pajunen, T. & Punttila, P. 1989: The annual activity cycle of carabid beetles in the southern Finnish taiga. – *Annales Zoologici Fennici* 26: 35-41.

1990

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A4 Conference proceedings

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127. Niemelä, J. 1990: Spatial distribution of carabid beetles in the southern Finnish taiga: a question of scale. – In: N. Stork (ed.), *Ground beetles: their role in ecological and environmental studies*. Intercept Publications, Andover, pp.143–155.
128. Hanski, I. & Niemelä, J. 1990: Elevational distributions of dung and carrion beetles in northern Sulawesi. – In: W. J. Knight & J. D. Holloway (eds), *Insects and the rain forest of South East Asia (Wallacea)*. Royal Entomological Society of London, pp.145–152.

1992

129. Niemelä, J. 1992: Distribution of carabid beetles in the Åland archipelago, SW Finland (Coleoptera, Carabidae). – In: Noonan, G., Ball, G. & Stork, N. (eds), *The biogeography of Carabidae of mountains and islands*. Intercept Publications, Andover, pp.175–186.

1994

130. Niemelä, J., Spence, J. R., Langor, D., Haila Y. & Tukia, H. 1994: Logging and boreal ground-beetle assemblages on two continents: implications for conservation. – In: Gaston, K., Samways, M. & New, T. (eds), *Perspectives in insect conservation*. Intercept Publications, Andover, pp. 29-50.
131. Niemelä, J. & Spence, J. R. 1994: Community impacts of an exotic carabid: *Pterostichus melanarius* (Ill.) in western Canadian forests. – In: Desender, K., Dufrêne, M., Loreau, M., Luff, M. L. & Maelfait, J.-P. (eds), *Carabid beetles: ecology and evolution*. Kluwer Academic Publishers, Dordrecht, pp. 331-335.

1998

132. Niemelä, J. & Halme, E. 1998: Effects of forest fragmentation on carabid assemblages in the urban setting: implications for planning and management. – In: Breuste, J., Feldmann, H. & Uhlmann, O. (eds), *Urban Ecology*, Springer Verlag, pp. 692-695.

1999

133. Niemelä, J. 1999: Biodiversity and forestry: a difficult marriage of guide and doom? – In: Veeman, T., Smith, D., Purdy, B., Salkie, F. & Larkin, G. (eds), *Proceedings of the 1999 Sustainable Forest Management Network Conference*, pp. 573-582.

2000

134. Niemelä, J. & Kotze, J. 2000: GLOBENET: the search for common anthropogenic impacts on biodiversity using carabids. – In: Brandmayr, P., Lövei, G., Brandmayr, T. Z., Casale, A. & Vigna Taglianti, A. (eds), *Natural history and applied ecology of carabid beetles. Proceedings of the IX European Carabidologists Meeting, Cosenza, Italy, July 1998*. Pp. 241-246. Pensoft Publishers, Sofia.

2001

135. Niemelä, J. 2001. To what extent biodiversity of forests can really be measured? – In: Merra, A., Finér, L., Kaila, S., Karjalainen, T., Mali, J., Pajula, T. & Korhonen, M. (eds). *Life cycle assessment on forestry and forest products*. COST Action E9. Directorate-General for Research, pp. 55-64.

2002

136. Niemelä, J. 2002. Restoration of biodiversity. – In: Björk, L. (ed). *Sustainable forestry in temperate regions*. Proceedings of the SUFOR International Workshop, April 7-9, 2002. pp. 31-37. Lund, Sweden.
137. Niemelä, J. 2002. Finnish forestry in transition – finding ways to sustainable forest management. – In: Lindenmayer, D. B. & Franklin, J. F. (eds). *Towards forest sustainability*. Pp. 111-126. CSIRO Publishing, Australia.

B Non-refereed scientific articles**B1 Non-refereed journal articles****1988**

138. Niemelä, J. 1988: Traditional life and cultural change in three villages in the Peruvian upper selva. – *Occasional Papers of the Finnish Association for Development Geography* 23: 59-66.
139. Kuokka, I., Niemelä, J. & Tuhkanen, S. (eds) 1988: General versus unique, cultural change and development geography. – *Occasional Papers of the Finnish Association for Development Geography* 23: 1-154.

1989

140. Tuhkanen, S. & Niemelä, J. 1989: Eldslandet som forskningsobjekt för finländska naturforskare. – *Nordenskiöld-samfundets tidskrift* 49:78-118.

1994

141. Haila, Y., Kouki, J., Niemelä, J. & Niemelä, P. 1994: Metsätalouden ekologiset vaikutukset boreaalisessa havumetsässä: tutkimustuloksista käytännön suosituksiin. – *Metsäntutkimuslaitoksen tiedonantoja* 482:7-17.
142. Langor, D., Spence, J., Niemelä, J. and Carcamo, H. 1994: Insect biodiversity studies in the boreal forests of Alberta, Canada. – *Metsäntutkimuslaitoksen tiedonantoja* 482:25-31.
143. Niemelä, J. Spence, J. R., Langor, D., Haila, Y., & Tukia, H. 1994: Hakkuun vaikutukset havumetsän maakiitäjäisiin kahdella mantereella. – *Metsäntutkimuslaitoksen tiedonantoja* 482:105-110.

1998

144. Henttonen, H., Haukialmi, V. Pirkkalainen, H. & Niemelä, J. 1998: Ekologisten käytävien merkityksestä keski-suomalaisissa talousmetsissä. – *Metsäntutkimuslaitoksen tiedonantoja* 705: 255-271.
145. Niemelä, J. 1998: Global network for assessing biodiversity changes across the landscape (GLOBENET). – *The Finnish Biodiversity Research Programme Newsletter* 2/98: 6-7.

2001

146. Niemelä, J. & Kotze, J. 2001. The search for common anthropogenic impacts on biodiversity: a global network. – *The Nature & Insects* 7: 24-27 (In Japanese with English abstract).

2009

147. Setälä, H., Niemelä, J., Loikkanen, H. A., Kortteinen, M., Vaattovaara, M., Yli-Pelkonen, V., Kurunmäki, K., Ristisuo, H., Ruth, O., Immonen, S. & Sillanpää, N. 2009. How to construct ecologically and socially sustainable urban environments? – A literature review on climate change, runoff waters and land-use impacts in urban environments. – *Publicationes Institute Geographici Universitatis Helsingiensis* C 13. 37 pp

B2 Book section**2006**

148. Vierikko, K. & Niemelä, J. 2006. Arvojen ja arjen ekologinen kestävyys – metsätoimijoiden tulkinta ja ekologisen kestävyysmerkitykselliset. – In: Vehkamäki, S. (ed.), *Metsät ja hyvä elämä. Monitieteinen tutkimusraportti*. Metsäkustannus Oy, ss. 221- 271.
149. Vehkamäki, S., Vierikko, K., Niemelä, J., Pellikka, J. & Lindén, H. 2006. Kestävää metsätaloutta – sosiaalis-taloudellisten ja ekologisten kestävyysmuuttujien vaihtosuhteista. – In: Vehkamäki, S. (ed.), *Metsät ja hyvä elämä. Monitieteinen tutkimusraportti*. Metsäkustannus Oy, ss. 405-447.

2010

150. Niemelä, J., Saarela, S-R., Söderman, T., Kopperoinen, L., Yli-Pelkonen, V. & Väre, S. 2010. Kaupunkiluonnon ekosysteemipalvelut. - In: Hiedanpää, J., Suvantola, L. & Naskali, A. (eds), *Hyödyllinen luonto. Ekosysteemipalvelut hyvinvointimme perustana*. Vastapaino. ss. 203-223

B3 Non-refereed conference proceedings**1986**

151. Niemelä, J. & Haila, Y. 1986: Conservation of carabid beetles in fragmented taiga. – In: Velthuis, H. H. W. (ed.), *Proceedings of the Third European Congress of Entomology*: 469-472. Nederlandse Entomologische Vereniging.

2003

152. Young, J., Nowicki, P., Alard, D., Henle, K., Johnson, R., Matouch, S., Niemelä, J. & Watt, A. (eds). 2003. Conflicts between human activities and the conservation of

biodiversity in agricultural landscapes, grasslands, forests, wetlands and uplands in Europe. A report from the BIOFORUM project. 166 pp.

2004

153. Niemelä, J. 2004. Monimuotoisuustutkimuksen haasteet. – In: Otsamo, A. (ed.), MOSSE puolimatassa – monimuotoisuuden tutkimusohjelman 2003-2006 välitulokset. Hanasaari 17-18.11.2004. Semaarinkooste. MMM:n julkaisu 14/2004, pp. 109-117.

C. Books

C. Scientific books (monograph)

1998

154. Hanski, I., Lindström, J., Niemelä, J., Pietiäinen, H. and Ranta, E. 1998: *Ekologia*. WSOY (ecology book in Finnish).

C2. Edited book, conference proceedings or special issue of a journal

2005

155. Penev, L., Niemelä, J., Kotze, D. J & Chipev, N. (eds). 2005. *Ecology of the City of Sofia. Species and Communities in an Urban Environment*. Pensoft Publishers. Sofia-Moscow.

2008

156. Breuste, J., Niemelä, J. & Snep, R. (eds.) 2008. Special Issue on Applying landscape ecological principles in urban environments. *Landscape Ecology*, 23 (10): 1139-1289.

2009

157. Clark, P., Niemi, M. & Niemelä, J. (eds). 2009. *Sport, recreation and green space in the European city*. The Finnish Literature Society, Helsinki.

2011

158. Niemelä, J., Breuste, J., Elmqvist, T., Guntenspergen, G., James, P. & McIntyre, N. (eds). 2011. *Urban Ecology: Patterns, Processes and Applications*. Oxford University Press, pp. 374.
159. Niemelä, J., Furman, E., Halkka, A., Hallanaro, E-L & Sorvari, S. (toim). 2011. *Ihminen ja ympäristö*. Gaudeamus, 462 s.

D Publications intended for professional communities

D1 Article in a trade journal

1997

160. Niemelä, J. & Samways, M. 1997: Biodiversity benefits from Finnish-South African co-operative venture – *The Finnish Biodiversity Research Programme Newsletter* 1/97: 4-5.
161. Niemelä, J. 1997: Metsien monimuotoisuus ja tutkimuksen tehtävät sertifioinnissa. – *Metsätieteen aikakauskirja* 2 (1997): 268-272.

1999

162. Niemelä, J. 1999: Suomalaisen kaupunkiluonnon monimuotoisuus ja ekologiset ominaispiirteet. – *Ympäristö ja terveys*, 6: 6-9.
163. Niemelä, J. 1999: Kaupunkiekologia ja suomalaisten kaupunkien ekologiset piirteet. – *Luonnon Tutkija* 5/1999: 170-172.

2001

164. Niemelä, J. 2001. Viheralueiden ekologinen kestävyys ja tiivistyvä kaupunkirakenne. – In: Gabrielsson, U. (ed.), *Vihreä kaupunki?* Tutkijoiden ja kansanedustajien seuran julkaisu 3/2001, pp.11-14.

2004

165. Kuuluvainen, T., Jäppinen, J-P., Keto-Tokoi, P., Kuuluvainen, J., Kuusinen, M., Niemelä, J. ja Ollikainen, M. 2004. Suomen metsien monimuotoisuuden turvaaminen. – *Metsätieteen aikakauskirja* 4/2004: 551-559.
166. Niemelä, J., Helle, I. & Jormola, J. 2004. Purovesistöjen merkitys kaupunkiluonnon monimuotoisuudelle. – *Suomen Ympäristö*, 724: 1-116.
167. Niemelä, J. & Raivio, S. 1994: Metsätalous, biodiversiteetti ja tulevaisuus. – *Metsätehosta*, joulukuu 1994: 9-10.

2008

168. Sipilä, M., Yli-Pelkonen, V., Tyrväinen, L., Niemelä, J. & Bäcklund, P. 2008. Ekologia vai luontokokemus? – *Yhdyskuntasuunnittelu* (The Finnish Journal for Urban Studies) Vol. 46 (1):81-90 [In Finnish].
169. Niemelä, J. 2008. Muuttaako luonto kaupunkiin? – *Tieteessä tapahtuu* 7/2008: 3-7.

D2 Article in a professional manual or guide or professional information system, textbook material

170. Söderman, T., Yli-Pelkonen, V., Kopperoinen, L., Saarela, S., Väre, S., Shemeikka, P., Oinonen, K., Eerola, K., Valli, R., Wahlgren, I., Parviainen, S. & Niemelä, J. (2011): *Ekologiset kriteerit ja mittarit*. - In: Söderman, T. & Saarela, S. (eds.). *Kestävät kaupunkiseudut - kriteereitä ja mittareita suunnittelun työvälineiksi*. p. 39-95. Suomen ympäristö; 25/2011.
171. Söderman, T., Saarela, S., Kopperoinen, L., Yli-Pelkonen, V., Valli, R., Kontio, P., Oinonen, K., Perrels, A., Härkönen, M., Väre, S., Shemeikka, P., Wahlgren, I., Berghäll, E., Niemelä, J., Kauppinen, T., Jouslehto, E., Rautiainen, J. & Kuusi, O. (2011). Johdanto. - In: Söderman, T. & Saarela, S. (eds.). *Kestävät kaupunkiseudut - kriteereitä ja mittareita suunnittelun työvälineiksi*. p. 11-33. Suomen ympäristö; 25/2011.
172. Setälä, H. M., Kulonpalo, J., Niemelä, J., Loikkanen, H., Vaattovaara, M., Kortteinen, M., Ruth, O. & Yli-Pelkonen, V. (2011) Kaupunkiympäristö. - In: Bergström, I., Mattsson, T., Niemelä, E., Vuorenmaa, J. & Forsius, M. (eds.). *Ekosysteemipalvelut ja elinkeinot — haavoittuvuus ja sopeutuminen muuttuvaan ilmastoon*. Suomen ympäristö; 26/2011p. 39-41.
173. Setälä, H. M., Kulonpalo, J., Niemelä, J., Loikkanen, H., Vaattovaara, M., Kortteinen, M., Ruth, O. & Yli-Pelkonen, V. 2011: Urban environmenta. In: Bergström, I., Mattsson, T., Niemelä, E., Vuorenmaa, J. & Forsius, M. (eds.). *Ecosystem Services and Livelihoods*. The Finnish Environment; 26en/2011, p. 39-41.

D5 Textbook, professional manual or guide, dictionary**1989**

174. Nurmi, A., Paalanen, R. & Niemelä, J. 1989: *Aavikoitumistutkimuksen esiselvitys - luettelo suomalaisista tutkimusprojekteihdotuksista*. – Helsingin yliopisto, Kehitysmäänt., 46 s.
175. Järvinen, O., Seppälä, E-O. & Niemelä, J. 1989: *Utvärdering av storprojektforskningen i Sverige - två ekologiska integrerade projekt som exempel. Rapport för Forskningsrådsnämnden i Sverige*. – Forskningsrådsnämnden, Stockholm, 38 pp.

1995

176. Niemelä, J. 1995: Maakiitäjäiset. - ‘Talousmetsien luonnonsuojelu’-yhteistutkimushankkeen väliraportti, toim. Suvi Raivio. – *Metsähallituksen luonnonsuojelujulkaisuja*, sarja A, no. 43: 91-96.

2001

177. Niemelä, J., Borg, P., Kuuluvainen, T., Niemi, G., Leppänen, M., Lund, G., Späth, V. &

Urho, A. 2001. Metsähallituksen alue-ekologinen suunnittelu: arviointi ja kehittämissuosituksset.
http://julkaisut.metsa.fi/julkaisut/pdf/mta/evaluoinnin_loppuraportti.pdf

2008

178. Stenius, M., Niemelä, J., Ansala, L., Heino, J., Käyhkö, R., Lempa, H., Holm, K. & Seppälä, H. 2008. Turun yliopiston laadunvarmistusjärjestelmän auditointi. *Korkeakoulujen arviointineuvoston julkaisuja* 11:2008 (61 s).

2009

179. Niemelä, J. 2009. Vastuullisen toiminnan kehittämisen haasteet korkeakouluissa. – In: Virtanen, A. & Kaivola, T. (eds.), *Globaalivastuu ja kestävä kehitys koulutuksessa. Kehittämisen ja seurannan tietopohja. OPM:n julkaisuja* 2009: 56, ss. 181-186.
180. Niemelä, J. 2009. Development and auditing of the quality management system of the University of Helsinki. – In: *Trends of quality assurance and quality management in higher education systems*. Austrian Agency for Quality Assurance, pp. 109-111.

E. Publications intended for the general public

E1 Popularised article, newspaper article

1988

181. Niemelä, J. 1988: Taigan maakiitäjäiset. – *Suomen Luonto* 6: 28-29.
182. Tukia, H. & Niemelä, J. 1988: Liekokurekiitäjäinen - taigan uhanalainen. – *Suomen Luonto* 6:27.

1993

183. Niemelä, J. 1993: Tervetullut ympäristöopas metsätalouteen. – *Suomen Luonto* 10:52.

1996

184. Niemelä, J. 1996: Kovakuoriaiset ja luonnon monimuotoisuus. – *Tieteessä tapahtuu* 6 (1996):15-17.

1998

185. Hyvönen, J., Niemelä, J., Stenroos, S., Tuhkanen, S., & Vanha-Majamaa, I. 1998: Patagoonias ja Tulimaal. – *Eesti Loodus*, March 1998: 142-143.

2000

186. Niemelä, J. 2000: Jääkö kaupungissa tilaa luonnolle? – *Suomen Luonto* 3/2000: 45.
187. Niemelä, J. 2000: Onko Helsingissä tilaa myös luonnolle? – *Helsingin Henki* 7/2000: 15.
188. Niemelä, J. 2000: Löytyykö kaupungeista tilaa myös luonnolle? – *Kouvola Sanomat* (kolumni) 30.9.2000.
189. Niemelä, J. 2000: Kaupunkilaisen ekologinen jalanjälki. – *Kouvola Sanomat* (kolumni) 16.12.2000.
190. Niemelä, J. 2000: Kaupunki luonnossa – luonto kaupungissa. – *Helsingin kaupungin ympäristökeskus - Ympyrät* 2000: 11-15.

2001

191. Niemelä, J. 2001: Ecology in city planning. – *Helsinki Quarterly* 3/2001: 15-19.
192. Niemelä, J. 2001: Elinympäristöt häviävät – sukupuuttoaalto vyöryy. - Teoksessa: Rydman, J. (toim.), *Tiede ja elämä*. Tieteellisten seurain valtuuskunta. Pp. 279-287

2002

193. Niemelä, J., Mäkipää, H. & Raivio, K. 2002. Tutkimusterveisiä Madagaskarilta. – *Yliopisto* 50: 57-59.

2004

194. Niemelä, J. Tuhti paketti metsäluonnon turvaamisesta. – *Helsingin Sanomat* 21.12.2004.

2005

195. Hildén, M. & Niemelä, J. 2005. Biodiversiteetti turvataan yrityksen ja erehdyksen kautta. – *Helsingin Sanomat*, vieraskynä, 9.8.2005.

2006

196. Niemelä, J. 2006. Biodiversiteetin köyhtymistä vaikea pysäyttää tavoiteajassa. – *Helsingin Sanomat*, vieraskynä, 7.10.2006.

2009

197. Niemelä, J. & Tyrväinen, L. 2009. Kaupunkisuunnittelussa tarvitaan tietoa luonnosta ja ihmisistä. – *Helsingin Sanomat*, vieraskynä, 5.7.2009.
198. Niemelä, J., Tyrväinen, L. & Schulman, H. 2009. Ekologisella ja kokemuksellisella tiedolla laatua kaupunkiympäristöön. – In: Faehnle, M., Bäcklund, P & Laine, M. (toim), *Kaupunkihuontoa kaikille. Ekologinen ja kokemuksellinen tieto kaupunkisuunnittelussa*. Helsingin kaupungin tietokeskus, tutkimuksia 6/2009. ss. 9-18. (myös ruotsiksi ja englanniksi).

2011

199. Niemelä, J. & Furman, E. 2011. Luontoa turvaamaan kansainvälinen paneeli. – *Ympäristö* 7/2011: 10-11.
200. Niemelä, J. & Furman, E. 2011. Uusi paneeli biodiversiteetin turvaamiseksi - apua suomalaisosaamisesta? *Suomen Kuvalehden verkkoversio*: <http://suomenkuvalehti.fi/blogit/eri-mielta/uusi-paneeli-biodiversiteetin-turvaamiseksi-apua-suomalaisosaamisesta> 20.05.2011

G. Thesis**G5 Doctoral dissertation (article)**

201. Niemelä, J. 1988: Distribution of carabid beetles in Fennoscandian archipelagoes: an island-mainland comparison. University of Helsinki, Department of Zoology.

Curriculum Vitae Wolfgang Cramer
Professor of Global Ecology
(updated 19.7.2012)

Address:

- ♦ (work) Institut Méditerranéen de Biodiversité et d'Ecologie marine et continentale (IMBE), Bâtiment Villemain, Europole de l'Arbois – BP 80, F-13545 Aix-en-Provence cedex 04, France, Tel. +33-4-42-90-84-86, E-Mail: wolfgang.cramer@imbe.fr
- ♦ (home) 32 Rue Cardinale, F-13100 Aix-en-Provence, France, Tel. +33-4-42-27-52-58

Positions

current:

- ♦ Directeur Adjoint Scientifique, Institut Méditerranéen de Biodiversité et d'Ecologie marine et continentale (IMBE), Aix-en-Provence, France

previous:

- ♦ Postdoctoral research fellow, Modelling Forest Dynamics, Institute of Plant Ecology, Uppsala University, Uppsala (Sweden), 1986
- ♦ Associate Professor for Environmental Geography, Department of Geography, Trondheim University, Trondheim (Norway), 1986-92
- ♦ Director, Dept. Geogr., Trondheim University, 1988-90
- ♦ Research Scholar, Sustainable Development of the Biosphere, International Institute for Applied Systems Analysis (IIASA), Laxenburg (Austria), 1989
- ♦ Professor for "Energy, Environment and Society" ("Brundtland-Professor"), Center for Environment and Development, Trondheim University, 1993
- ♦ Research Domain Head, Earth System Analysis, Potsdam Institute for Climate Impact Research, Potsdam, Germany (Dept Head positions at PIK held since the establishment of PIK 1993 until 2011)
- ♦ Full professor (chair) of Global Ecology, Institute of Earth- and Environmental Sciences, Potsdam University, 2003-2011
- ♦ Visiting scientist, Centre Européen de Recherche et d'Enseignement des Géosciences de l'Environnement (CEREGE), Aix-en-Provence (France) 2007-2008
- ♦ Directeur de Recherche, CNRS, Institut Méditerranéen d'Ecologie et de Paléoécologie (IMEP, May-December 2011)

Academic training

- ♦ Geography (Diploma), Justus-Liebig-Universität Gießen (Germany), 1975-81 (diploma 3.7.1981)
- ♦ Vegetation Science (Ph.D.), Uppsala University, 1981-1986, Dissertation: "Vegetation Dynamics on Rising Sea-Shores in Eastern Central Sweden" (11.4.1986)

Publications

Approx. 120 Papers in refereed journals or book chapters, h=36, 11 edited books and journal special issues, more than 30 reports, editorials and miscellaneous publications (selected recent publications listed below).

Research

Global biosphere dynamics and feedbacks between the biosphere and the rest of the Earth System including human society. Vulnerability of ecosystems to global change. Multiple research projects, funded from German national programmes as well as the environmental research programme of the European Union. Coordinator of the EU-

Project ATEAM (17 partners) and the Concerted Action AVEC (7 partners). PI in numerous EU-supported research projects.

National and international board memberships (selection)

- ◆ Scientific Steering Committee, DIVERSITAS
- ◆ Scientific Steering Committee, Programme on Ecosystem Change and Society (PECS)
- ◆ Conseil Scientifique, CNRS Programme "Zones Ateliers"
- ◆ Conseil Scientifique, Institut Ecologie et Environnement, CNRS, France
- ◆ Conseil Scientifique et Technique, IRSTEA, France
- ◆ Review Panel, Swiss National Center of Competence in Research - Climate

Global Change Impact Assessment

The Intergovernmental Panel on Climate Change (IPCC)

- ◆ Second Assessment Report, Working Group II (1995): Lead Author, Chapter 1 (Climate Change Impacts on Forests) and Contributing Author, Introductory Material A (Primer)
- ◆ Special Report "Land Use, Land Use Change and Forestry" (2000): Lead Author, Chapter 2 (Global Perspective)
- ◆ Third Assessment Report, Working Group II (2001): Lead Author, Chapter 5 (Ecosystems and their goods and services) and Chapter 13 (Europe)
- ◆ Fourth Assessment Report, Working Group II (2007): Review Editor, Technical Summary (with D Murdiyarso, Bogor, Indonesia) and Chapter 4, "Ecosystems" (with S Diaz, Cordoba, Argentina)
- ◆ Fifth Assessment Report, Working Group II (in prep.): Coordinating Lead Author, Chapter 18, "Detection and Attribution of Observed Impacts of Climate Change" (with G Yohe, USA)
- ◆ Scientific advisor of the German government delegation at several IPCC plenary sessions and national policy meetings

The Millennium Ecosystem Assessment

- ◆ Scenarios Working Group: Convening Lead Author (with J Alcamo and D Van Vuuren), Chapter 9 (Changes in Provisioning and Regulating Ecosystem Goods and Services and their Drivers across Scenarios)
- ◆ Conditions and Trends Working Group: Lead author, Chapter 3 (Analytical Approaches for Assessing Ecosystem Condition and Human Well-Being)

Teaching

previous:

- ◆ Regular lectures in climatology, environmental sciences, applied physical geography and landscape ecology (Trondheim)
- ◆ Exercise classes and seminars in geographic methods, graphical programming and landscape planning (Trondheim and Uppsala)
- ◆ Excursions and field courses in Norway, Sweden and Germany (Trondheim and Uppsala)
- ◆ Supervision of diploma and Ph.D. students (Trondheim, Potsdam, Aix-en-Provence)
- ◆ Global Ecology (Potsdam University)
- ◆ Annual International Summer School in Biodiversity and Ecosystem Services

Scientific editing and reviewing

- ◆ Edited eleven books / journal special issues
- ◆ Editor-in-Chief of *Regional Environmental Change* (Springer, impact factor 3.0)
- ◆ Review Editor, *Science*

- ♦ Associate Editor of *Global Ecology and Biogeography* (Wiley)
- ♦ Editorial Board Member of *Current Opinion in Environment and Sustainability*, *Advances in Global Change Research*, *Living Reviews in Landscape Research*
- ♦ Reviewer of numerous journal contributions and project proposals by many agencies

Awards and honorary appointments

- ♦ DAAD-Fellow, Institute of Plant Ecology, Uppsala University (Sweden), 1978/79
- ♦ Kungliga Vetenskaps-Societeten (Uppsala, Sweden): "Linnaeus Award" (1987)
- ♦ Fridtjof-Nansen Stiftelsen (Oslo, Norway): "Fridtjof Nansen Award" (1992)
- ♦ Kennedy School of Government, Harvard University: Associate, Belfer Center for Science and International Affairs (2001)
- ♦ "Best collaborative project at PIK" (2005, awarded by the "Freunde und Förderer des PIK e.V." for the PIK EVA project, shared with Anne de la Vega-Leinert, Richard J.T. Klein and all EVA collaborators)
- ♦ Zayed International Prize for the Environment 2005, for "Scientific/ Technological Achievements in Environment", shared with all other authors of the Millennium Ecosystem Assessment
- ♦ Peace Nobel Prize 2007, shared with all other members of the Intergovernmental Panel on Climate Change (IPCC)
- ♦ Distinguished Professorial Fellowship of Durham University's Institute of Advanced Study, Durham, UK (offered in 2009, declined)

Selected publications (recent and/or much cited)

in press

- ♦ Meyn A, Schmidtlein S, Taylor SW, Girardin MP, Thonicke K, Cramer W in press Precipitation-driven decrease of wildfires in British Columbia. *Reg Env Change*

published

- ♦ Carpenter SR, Folke C, Norström A, Olsson O, Schultz L, Agarwal B, Balvanera P, Campbell B, Castilla JC, Cramer W, DeFries R, Eyzaguirre P, Hughes TP, Polasky S, Sanusi Z, Scholes R, Spierenburg M 2012 Program on ecosystem change and society: an international research strategy for integrated social-ecological systems. *Curr Opin Env Sust* 4(1):134-138
- ♦ Hickler T, Vohland K, Feehan J, Miller PA, Smith B, Costa L, Giesecke T, Fronzek S, Carter T, Cramer W, Kühn I & Sykes MT 2012 Projecting the future distribution of European potential natural vegetation zones with a generalized, tree species-based dynamic vegetation model. *Gl Ecol Biogeogr* 21:50-63
- ♦ Larigauderie A, Prieur-Richard A-H, Mace GM, Lonsdale M, Mooney HA, Brussaard L, Cooper D, Cramer W, Daszak P, Díaz S, Duraiappah A, Elmqvist T, Faith DP, Jackson LE, Krug C, Leadley PW, Le Prestre P, Matsuda H, Palmer M, Perrings C, Pulleman M, Reyers B, Rosa EA, Scholes RJ, Spehn E, Turner II BL, Yahara T 2012 Biodiversity and ecosystem services science for a sustainable planet: the DIVERSITAS vision for 2012–20. *Curr Opin Env Sust* 4(1):101-105
- ♦ Fader M, Gerten D, Thammer M, Heinke J, Lotze-Campen H, Lucht W & Cramer W 2011 Internal and external green-blue agricultural water footprints of nations, and related water and land savings through trade. *Hydrol Earth Syst Sci* 15:1641-1660
- ♦ Hare WL, Cramer W, Schaeffer M, Battaglini A & Jaeger CC 2011 Climate hotspots: key vulnerable regions, climate change and limits to warning. *Reg Env Change* 11(1):1-13
- ♦ Müller C, Cramer W, Hare WL, Lotze-Campen H 2011 Climate change risks for African agriculture. *PNAS* 108(11):4313-4315
- ♦ Gumpenberger M, Vohland K, Heyder U, Poulter B, Macey K, Rammig A, Popp A & Cramer W 2010 Predicting pan-tropical climate change induced forest stock gains and losses - implications for REDD. *Env Res Lett* 5 014013

- ♦ Jupp TE, Cox PM, Rammig A, Thonicke K, Lucht W & Cramer W 2010 Development of probability density functions for future South American rainfall. *New Phytol* 187(3):682-693
- ♦ Mace GM, Cramer W, Diaz S, Faith DP, Larigauderie A, Le Prestre P, Palmer M, Perings C, Scholes RJ, Walpole M, Walther BA, Watson JA & Mooney HA 2010 Biodiversity targets after 2010. *Curr Opin Env Sust* 2:1-6
- ♦ Meyn A, Schmidlein S, Taylor SW, Girardin MP, Thonicke K & Cramer W 2010 Trends in wildfire and summer drought in British Columbia, Canada, 1920-2000. *Int J Wildl Fire* 19:272-283
- ♦ Meyn A, Taylor SW, Flannigan MD, Thonicke K & Cramer W 2010 Relationship between fire, climate oscillations, and drought in British-Columbia, Canada, 1920-2000. *Gl Ch Biol* 16(3):977-989
- ♦ Rammig A, Jupp T, Thonicke K, Tietjen B, Heinke J, Ostberg S, Lucht W, Cramer W & Cox P 2010 Estimating the risk of Amazonian forest dieback. *New Phytol* 187(3):694-706
- ♦ Kuhlbrodt T, Rahmstorf S, Zickfeld K, Vikebø F, Sundby S, Hofmann M, Link PM, Bondeau A, Cramer W & Jaeger C 2009 An integrated assessment of changes in the thermohaline circulation. *Climatic Change* 96(4):489-537
- ♦ Poulter B, Aragão L, Heyder U, Gumpenberger M, Heinke J, Langerwisch F, Rammig A, Thonicke K & Cramer W 2010 Net biome production of the Amazon Basin in the 21st century. *Gl Ch Biol* 16(7):2062-2075
- ♦ Poulter B & Cramer W 2009 Satellite remote sensing of tropical forest canopy dynamics. *Int J Rem Sens* 30(24):6575-6590
- ♦ Poulter B, Heyder U & Cramer W 2009 Modelling the sensitivity of the seasonal cycle of GPP to dynamic LAI and soil depths in tropical rainforests. *Ecosystems* 12:517-533
- ♦ Cramer W 2008 Global change impacts on the biosphere. In: Jørgensen SE & Fath BD (eds) *Global Ecology*, pp 1736-1741, Elsevier, Oxford
- ♦ Cramer W, Fritsch U, Leemans R, Lütkemeier S, Schröter D & Watt A 2008 Training future experts in "biodiversity and ecosystem services" - a progress report. *Reg Env Change* 8:125-134
- ♦ Gerten D, Luo Y, Le Maire G, Parton WJ, Keough C, Weng E, Beier C, Ciais P, Cramer W, Dukes JS, Sowerby A, Hanson PJ, Knapp A, Linder S, Nepstad D, Rustad L 2008 Modelled effects of precipitation, on ecosystem carbon and water dynamics in different climatic zones. *Gl Ch Biol* 14:1-15
- ♦ Kühn I, Cramer W, Böhning-Gaese K & Klotz S 2008 Macroecology meets global change research. *Gl Ecol & Biogeogr* 17:3-4
- ♦ Luo Y, Gerten D, Le Maire G, Parton WJ, Weng E, Zhou X, Keough C, Beier C, Ciais P, Cramer W, Dukes JS, Emmett B, Hanson PJ, Knapp A, Linder S, Nepstad D, Rustad L 2008 Modelled interactive effects of precipitation, temperature, and [CO₂] on ecosystem carbon and water dynamics in different climatic zones. *Gl Ch Biol* 14:1986-1999
- ♦ Metzger M, Schröter D, Leemans R & Cramer W 2008 A spatially explicit and quantitative vulnerability assessment of ecosystem service change in Europe. *Reg Env Change* 8:91-107
- ♦ Bondeau A, Smith PC, Zaehle S, Schaphoff S, Lucht W, Cramer W, Gerten D, Lotze-Campen H, Müller C, Reichstein M, Smith B 2007 Modelling the role of agriculture for the 20th century global terrestrial carbon balance. *Gl Ch Biol* 13:679-706
- ♦ Müller C, Eickhout B, Zaehle S, Bondeau A, Cramer W & Lucht W 2007 Effects of changes in CO₂, climate, and land use on the carbon balance of the land biosphere during the 21st century. *J Geophys Res* 112, G02032
- ♦ Prentice IC, Bondeau A, Cramer W, Harrison SP, Hickler T, Lucht W, Sitch S, Smith B & Sykes MT 2007 Dynamic global vegetation modelling: quantifying terrestrial ecosystem responses to large-scale environmental change. Chapter 15 in: Canadell JP, Pataki D & Pitelka LF (eds.) *Terrestrial Ecosystems in a Changing World*. Springer, Berlin, Heidelberg, New York

- ◆ Reichstein M, Ciais P, Papale D, Valentini R, Running S, Viovy N, Cramer W, Granier A, Ogée J, Allard V, Aubinet M, Bernhofer C, Buchmann N, Carrara A, Grünwald T, Heimann M, Heinesch B, Knohl A, Kutsch W, Loustau D, Manca G, Matteucci G, Miglietta F, Ourcival JM, Pilegaard K, Pumpanen J, Rambal S, Schaphoff S, Seufert G, Soussana J-F, Sanz M-J, Vesala T & Zhao M 2007 Reduction of ecosystem productivity and respiration during the European summer 2003 climate anomaly: a joint flux tower, remote sensing and modelling analysis. *Gl Ch Biol* 13:634-651
- ◆ Zaehle S, Bondeau A, Carter TR, Cramer W, Erhard M, Prentice IC, Reginster I, Rounsevell MDA, Sitch S, Smith B, Smith PC & Sykes M 2007 Projected changes in terrestrial carbon storage in Europe under climate and land use change, 1990-2100. *Ecosystems* 10:380-401
- ◆ Cramer W 2006 Air pollution and climate change both reduce Indian rice harvests. *PNAS* 103(52):19609-19610
- ◆ Lucht W, Schaphoff S, Erbrecht T, Heyder U & Cramer W 2006 Terrestrial vegetation redistribution and carbon balance under climate change. *Carbon Balance Management* 1:6
- ◆ Müller C, Bondeau A, Lotze-Campen H, Cramer W & Lucht W 2006 Comparative impact of climatic and non-climatic factors on global terrestrial carbon and water cycles. *Global Biogeochem Cycl* 20, GB4015
- ◆ Alcamo J, Van Vuuren D, Cramer W, Alder J, Bennett E, Carpenter S, Christensen V, Foley J, Maerker M, Masui T, Morita T, O'Neill B, Peterson G, Ringler C, Rosegrant M, Schulze K, Bouwman L, Eickhout B, Floerke M, Lal R & Takahashi K 2005 Changes in ecosystem services and their drivers across the scenarios. Chapter 9 in Carpenter S, Pingali PL, Bennett EM & Zurek MB (eds.) *Ecosystems and Human Well-being: Scenarios*, Volume 2, Findings of the Scenarios Working Group of the Millennium Ecosystem Assessment, Island Press, Washington, Covelo, London, Pp. 297-373.
- ◆ Alcamo J, Van Vuuren D, Ringler C, Cramer W, Masui T, Alder J & Schulze K 2005 Changes in Nature's Balance Sheet: Model-based Estimates of Future Worldwide Ecosystem Services. *Ecology and Society* 10(2)
- ◆ Cramer W, Bondeau A, Schaphoff S, Lucht W, Smith B & Sitch S 2005 Twenty-first century atmospheric change and deforestation: potential impacts on tropical forests. Chapter 2 in: Malhi Y & Phillips OL (eds.) *Tropical Forests & Global Atmospheric Change*. Oxford University Press. Pp 17-30.
- ◆ DeFries J, Pagiola S, Adamowicz WL, Akçakaya HR, Arcenas A, Babu S, Balk D, Confalonieri U, Cramer W, Falconí F, Fritz S, Green R, Gutiérrez-Espeleta E, Hamilton K, Kane R, Latham J, Matthews E, Ricketts T, Xiang Yue T, Ash N & Thönnel J 2005 Analytical approaches for assessing ecosystem condition and human well-being. Chapter 2 in Hassan R, Scholes R & Ash N (eds.) *Ecosystems and Human Well-being: Current State and Trends*, Volume 1, Findings of the Condition and Trends Working Group of the Millennium Ecosystem Assessment, Island Press, Washington, Covelo, London, Pp. 37-71.
- ◆ Gerten D, Lucht W, Schaphoff S, Cramer W, Hickler T & Wagner W 2005 Hydrologic resilience of the terrestrial biosphere. *Geophysical Research Letters* 32(21):L21408
- ◆ Nakicenovic N, McGlade J, Ma Shiming, Alcamo J, Bennett E, Cramer W, Robinson J, Toth FI & Zurek M 2005 Lessons learned for scenario analysis. Chapter 13 in Carpenter S, Pingali PL, Bennett EM & Zurek MB (eds.) *Ecosystems and Human Well-being: Scenarios*, Volume 2, Findings of the Scenarios Working Group of the Millennium Ecosystem Assessment, Island Press, Washington, Covelo, London, Pp. 449-467
- ◆ Reichstein M, Kätterer T, Andrén O, Ciais P, Schulze E-D, Cramer W, Papale D & Valentini R 2005 Temperature sensitivity of decomposition in relation to soil organic matter pools: critique and outlook. *Biogeosciences* 2:317-321
- ◆ Schröter D, Cramer W, Leemans R, Prentice IC, Araújo MB, Arnell NW, Bondeau A, Bugmann H, Carter TR, Garcia CA, de la Vega-Leinert AC, Erhard M, Ewert F, Glendining M, House JI, Kankaanpää S, Klein RJT, Lavorel S, Lindner M, Metzger MJ, Meyer J, Mitchell TD, Reginster I, Rounsevell M, Sabaté S, Sitch S, Smith B,

- Smith J, Smith P, Sykes MT, Thonicke K, Thuiller W, Tuck G, Zaehle S, Zierl B 2005 Ecosystem Service Supply and Vulnerability to Global Change in Europe. *Science* 310(25.11.2005):1333-1337
- ◆ Schaphoff S, Lucht W, Gerten D, Sitch S, Cramer W & Prentice IC 2006 Terrestrial biosphere carbon storage under alternative climate projections. *Climate Change* 74:97-122
 - ◆ Thonicke K & Cramer W 2006 Long-term trends in vegetation dynamics and forest fires in Brandenburg (Germany) under a changing climate. *Natural Hazards* 38(1-2):283-300
 - ◆ Zaehle S, Sitch S, Prentice IC, Liski J, Cramer W, Erhard M, Hickler T & Smith B 2006 The importance of age-related decline in forest NPP for modeling regional carbon balances. *Ecol Appl* 16(4):1555-1574
 - ◆ Sitch S, Smith B, Prentice IC, Arneth A, Bondeau A, Cramer W, Kaplan JO, Levis S, Lucht W, Sykes MT, Thonicke K & Venevsky S 2003 Evaluation of ecosystem dynamics, plant geography and terrestrial carbon cycling in the LPJ Dynamic Global Vegetation Model. *Gl Ch Biol* 9:161-185
 - ◆ Lucht W, Prentice IC, Myneni RB, Sitch S, Friedlingstein P, Cramer W, Bousquet P, Buermann W & Smith B 2002 Climatic control of the high-latitude vegetation greening trend and Pinatubo effect. *Science* 296:1687-1689
 - ◆ Cramer W, Bondeau A, Woodward FI, Prentice IC, Betts RA, Brovkin V, Cox PM, Fisher V, Foley J, Friend AD, Kucharik C, Lomas MR, Ramankutty N, Sitch S, Smith B, White A & Young-Molling C 2001 Global response of terrestrial ecosystem structure and function to CO₂ and climate change: results from six dynamic global vegetation models. *Gl Ch Biol* 7(4):357-373

Curriculum Vitae

Nom : CURY

Prénom : PHILIPPE, MAURICE

Né : le 03 août 1957 à Montargis (France)

Recrutement à IRD : 1983

Situation administrative

- **Directeur de Recherche de Classe Exceptionnelle – DRCE à l'IRD.**
- **Directeur de l'UMR EME 212** (entre UM2-IRD depuis 2008 et entre Ifremer, IRD et UM2 depuis 2011)
- **Directeur du CRH** (Centre de Recherche Halieutique méditerranéenne et tropicale de Sète) depuis 2004

Adresse actuelle

CRH - Centre de Recherche Halieutique méditerranéenne et tropicale (IRD - Ifremer - Université Montpellier II), Avenue Jean Monnet, BP 171, 34203 Sète cedex France. Courriel: Philippe.Cury@ird.fr

Carrière Universitaire

- **Diplôme d'Agronomie Approfondie** de l'ENSAR (École Nationale Supérieure d'Agronomie de Rennes), spécialité Halieutique, Rennes, 1979.
- **Diplôme d'Étude Approfondie**, spécialité Biomathématiques. Université Paris VII-Jussieu, Paris, 1983.
- **Thèse de Doctorat**, spécialité Biomathématiques, Université Paris VII-Jussieu, Paris, 1989.
- **HDR**, Habilitation à Diriger des Recherches. Université Montpellier II, Montpellier 2007

Distinctions

- **Prix Scientifique Philip Morris des Sciences de la vie 1991**, présidé et décerné par le Professeur Y. Coppens, Palais de la Découverte, Paris, 1991.
- **Médaille de la Société d'Océanographie de France 1995** décernée par le Professeur J. Aubouin - membre de l'Académie des Sciences - à l'Institut Océanographique de Monaco, 1997.
- **Médaille Gilchrist 2002** pour ma contribution à la recherche océanographique sud-africaine (ce prix étant décerné pour la première fois à des chercheurs étrangers), partagée avec P. Fréon et C. Roy Le Cap, 2002.

Chronologie des affectations

Depuis 1980, j'ai successivement été affecté au CROA, Centre de Recherches Océanologiques d'Abidjan, Côte d'Ivoire (1 an) ; PFEG, Pacific Fisheries and Environmental Group de Monterey, Californie, USA (2 ans) ; CRODT, Centre de Recherches Océanographiques de Dakar-Thiaroye, Sénégal (6 ans) ; PFEG, Pacific Fisheries and Environmental Group de Monterey, Californie, USA (3 ans) ; à l'ORSTOM-HEA, Institut français de la recherche scientifique pour le développement en coopération, à Montpellier, France (3 ans) ; à l'Université de Cape Town - Département d'Océanographie et au Marine & Coastal Management (ex-Sea Fishery Research Institute) de Cape Town, Afrique du Sud (6 ans) et enfin au CRH, Centre de Recherche Halieutique méditerranéenne et tropicale de Sète, France (9 ans).

Résumé de carrière

J'ai développé une carrière scientifique dans le domaine de la biologie océanographique avec de forts liens avec la gestion écosystémique des ressources marines qui a influencé la science écologique et la gestion des pêches par :

1. **le développement de concepts écologiques** et la promotion de nouvelles approches intégratives et génériques en écologie (concepts de la 'Fenêtre environnementale optimale - *Optimal environmental window*' (Cury and Roy 1989, Cury et al. 1995) ; de la 'stratégie du retour au bercail généralisé - *Extended homing strategy*' (Cury 1996) ; du 'Piège écologique du banc - *School trap*' (Bakun and Cury, 1999) ; de la régulation ' Taille de guêpe-Wasp-Waist' *ecosystems*' dans les écosystèmes marins (Cury et al. 2000, 2002, 2004), et de la relation prédateurs-proies entre oiseaux marins et les poissons fourrages ('one third for the birds') (Cury et al. 2011)

2. **le développement d'un leadership scientifique international sur l'approche écosystémique des ressources marines exploitées** (Directeur de l'UMR EME 212, Directeur d'un Centre de recherche d'environ 110 personnels (65 permanents), Coordinateur scientifique du Consortium Eur-Oceans, membre de plusieurs comités scientifiques, co-organisateur de 6 grands symposiums internationaux. Participation à plus de 150 conférences internationales ou nationales (en tant que conférencier invité pour plus de 80 d'entre-elles). Participation au Grenelle de la Mer (entretien avec J.L. Borloo), au MBI (Marine Blue Initiative) invité par SAS prince Albert de Monaco Albert II et à de nombreux événements médiatiques – TV, émission radio, débats, articles dans les journaux (Le Monde, Figaro, Le Point, Express, Le Canard Enchaîné...) et des dizaines de conférences grand public, Club de parlementaires "Science & Débats", audition à l'Académie des Sciences... et participation à de nombreuses expertises (ICES, UE, ERC, ANR, AERES, PEW fellows...) et évaluations d'articles (Science, TREE, PNAS, Ecology, Fish and Fisheries, Ecology Letter). Conférencier invité de la session plénière ICES de septembre 2010, conférencier invité à la AAAS annual meeting, Washington DC en février 2011, key-note speaker à EFARO, AAMP 2012.

3. **l'enseignement et la formation de jeunes chercheurs** des pays du sud et du nord (organisation avec B. Mériot et F. LeLoch d'un module en Master 2 AERME de 50 heures auprès de sept universités françaises, tunisienne, sud-africaine et sénégalaise), organisation de 3 écoles d'été européennes sur 'l'Approche Écosystémique des Ressources Marines Exploitées' axées sur le développement de modèles écosystémiques avec la participation de nombreux partenaires du sud (Maroc, Pérou, Afrique du sud...). J'ai encadré ou co-encadré les thèses de 14 Doctorants, été rapporteur principal ou secondaire lors de 34 jurys de thèse ou HDR et encadré 13 DEA ou DAA ou Master. Dans le cadre du Consortium Eur-Oceans/AERME participation future au master post-doctoral européen MARES en 2013. En 2010-11, j'ai donné en moyenne 24 heures de cours magistraux en L1 et M2 à l'UM2 et 16 heures de séminaires dans les grandes écoles (Polytechnique, IDDRI, ENGREF, Ecole Centrale...) et au Master International Mastère Spécialité 'International Environmental Management' de L'ISIGE Mine Paris. En 2011 et 2012 je co-encadre 4 thésards et un master M1 et un de M2.

Direction et animation Scientifique récentes (court extrait)

- **Direction de l'UMR EME 212** (Ecosystèmes Marins Exploités- Exploited Marine Ecosystems- IRD-Ifremer et UM2 : 65 permanents, 110 personnels) - www.umr-eme.org
- **Direction du CRH** (Centre de Recherche Halieutique méditerranéenne et tropicale)
- **Coordinateur Scientifique du Consortium Eur-Oceans** (depuis janvier 2009) - www.eur-oceans.eu
- **Responsable de plusieurs Working Packages** : **WP6 du NOEs Eur-Oceans** - Ecosystem approach to marine resources" du réseau d'excellence européen Eur-Oceans (2005 - 2008), **WP6 de l'Action Concertée européenne CREAM** KBBE.2010.1.4 (Improving research in support to scientific advice to fisheries management in the Mediterranean and Black Seas) et du **WP1 'Project Management and Coordination'** et **WP3 du FP7-ENV-2010.2.2.1-3 'Integration of European Marine Research Networks of Excellence (EuroMarine)'** (2011-2013)
- **Membres des Commissions ou Comités Scientifiques suivants** :
 - ✓ Membre du Comité de Rédaction de l'IPBES France (FRB) (depuis 2011)
 - ✓ Membre du Conseil scientifique de l'Institut Océanographique de Monaco, Fondation Albert Ier, Prince de Monaco (2011-2015)
 - ✓ Membre du Conseil Scientifique d'ALLENVI (depuis 2010)
 - ✓ Président du 'Centre Advisory Panel' de NorMer- Conseil Scientifique du "Nordic Centre for the Study of Nature, Ecosystems, Society, and economic effects of climate change in marine ecosystems" depuis 2010 (Directeur : Prof. N. Stenseth)
 - ✓ Comité sectoriel du département écosystèmes et développement durable EDD-ANR (depuis 2010).
 - ✓ Advisory Committee for the Pew Fellows Program in Marine Conservation (2011-2014)
 - ✓ Advisory panel for the International Nereus Program "Predicting the Future Ocean" (Nippon Foundation, Villy Christensen chair)
 - ✓ Comité de pilotage FRB : Modélisation et scénarios de la biodiversité (depuis 2010)
 - ✓ CST- Comité Scientifique et Technique Agropolis - Agro-environnement (2008-2012)
 - ✓ Comité Scientifique de l'ANR n° 7 (SVSE 7) (2009-2010)
 - ✓ Conseil Scientifique de l'Institut Français de la Biodiversité – IFB (2003-2008)
 - ✓ CVE (Comité de Veille Ecologique) de la fondation Nicolas Hulot (2008-2011).
 - ✓ Conseil Scientifique de l'Agence des Aires Marines protégées (MEEDDM) (2007-2012)
 - ✓ Département BEE (Biologie, Écologie et Évolution) de l'Université de Montpellier II, (2005-2008).
 - ✓ Conseil Scientifique du Fisheries Centre de l'Université de Colombie Britannique (2008-2010)
 - ✓ Steering Committee du réseau d'Excellence Européen Eur-Oceans (2005-2008) (www.eur-oceans.org).
 - ✓ Member of Ecosystem Approaches for Fisheries Management Working Group du MCM (Marine and Coastal Management, Afrique du Sud) (depuis 2003)
- **Co-organisateur des Symposiums Internationaux suivants** :
 - ✓ 2008 - 'Coping with global change in social ecological systems' Rome 8 – 11 Juillet 2008. + 150 participants.
 - ✓ 2004 - SCOR-IOC UNESCO WG 119 ' indicateurs écosystémiques pour l'aménagement des pêches'. Paris Unesco, 2004. 350 participants, 53 pays.
 - ✓ 1999 - 'Ecosystem effects of fishing' Montpellier, 340 participants, 54 pays.
- **Expertises & Evaluation** :
 - ✓ Expertise collégiale Lenfest-Pew (USA) sur les poissons fourrage (2010-2012)
 - ✓ Expertise collégiale Ifremer sur la biodiversité marine (2010-2011)
 - ✓ Evalueur auprès du comité d'évaluation ERC (European Research Council) (2010-2014).
 - ✓ Expert de projets européens dans le cadre FP7 : Evalueur auprès de l'Europe pour quatre projets FP7-KBBE-2009-3/avril 2009, et de six projets pour FP7-OCEAN-2010-1/avril 2010.
 - ✓ Expert européen parmi 6 experts du FARNET Advisory Group (évaluation de la PCP) (2009-2012)
 - ✓ Evalueur pour la PEW pour attribution de bourses de recherche 'PEW conservation fellowship'

Publications

H Index : 24 (Sum of times Cited : 1621 – 1508 without self citation) Web of Science

Publication de plus de 100 articles scientifiques dans les meilleures revues internationales dont 75 de rang A (Science, TREE, Canadian Journal of Fisheries and Aquatic Sciences, Ecology Letters, Fish and Fisheries, Marine Ecology Progress Series, Fisheries Oceanography...), 9 livres et 29 chapitres d'ouvrages dont deux Livres grand-public intitulés « Une mer sans poissons » chez Calmann-Lévy et « mange tes méduses » chez Odile Jacob (2013)

- ✓ Cury P. M., I. L. Boyd, S. Bonhommeau, T. Anker-Nielsen, R. J. M. Crawford, R. W. Furness, J. A. Mills, E. J. Murphy, H. Österblom, M. Paleczny, J. F. Piatt, J.-P. Roux, L. Shannon and W. J. Sydeman. 2011. Global seabird response to forage fish depletion – one-third for the birds. *Science* 334, 1703-1706
- ✓ Perry I.A., Ommer R., K. Cochrane and Cury P. 2011. World fisheries : a socio-ecological analysis. *Wiley-Blackwell Fish and Aquatic resources series* 14, 418p.
- ✓ Cury P. et Y. Miserey, 2008. *Une mer sans poissons. Calmann-Lévy*. 257 pp. (traduit en japonais, chinois et catalan)
- ✓ Cury P. M., Y.-J. Shin, Benjamin Planque, J. M. Durant, J.-M. Fromentin, S. Kramer-Schadt, N. Ch. Stenseth, M. Travers and V.Grimm. 2008. Ecosystem Oceanography for global change in fisheries. *Trends in Ecology and Evolution*. Vol.23 (6) : 338-346 *Google scholar citation: 77*
- ✓ P. Cury, Christensen V. and Daan N. (Eds.) 2005. Quantitative ecosystem indicators for fisheries management. *ICES J. Mar. Science*. 62: 307-614.
- ✓ Cury P., Shannon L.J. and Y.-J. Shin. 2003. The functioning of marine ecosystems: a fisheries perspective. In Sinclair M & G Valdimarsson. *Responsible Fisheries in the marine ecosystem. CAB International Wallingford*: 103-123. *Google scholar citation: 130*
- ✓ Cury P., A. Bakun, R.J.M. Crawford, A. Jarre-Teichmann, R. A. Quiñones L. J. Shannon and H. M. Verheye. 2000. Small pelagics in upwelling systems: Patterns of interaction and structural changes in "wasp-waist" ecosystems. Academic Press, *ICES Journal of Marine Science*, Symposium Edition, 57(3): 603-618. *Google scholar citation: 341*
- ✓ Cury P. 1994. Obstinate Nature: an ecology of individuals: Thoughts on reproductive behavior and biodiversity. *Canadian Journal of Fisheries and Aquatic Sciences (Perspectives)*. Vol. 51 (7): 1664-1673. Nombre de citations sur Google scholar : *Google scholar citation: 91*
- ✓ Cury P. and C. Roy. 1989. Optimal environmental window and pelagic fish recruitment success in upwelling areas. *Canadian Journal of Fisheries and Aquatic Sciences*. 46(4): 670-680. Nombre de citations sur Google scholar citation: *474*.

CV - Paul LEADLEY

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Employment and Education

1997-pres.	Professor, Université Paris-Sud 11, Orsay, France
1993-1997	Post-doctoral researcher, University of Basel, Switzerland
1990-1993	PhD thesis in Ecology, San Diego State University and UC Davis, USA.
1986-1989	Research technician, San Diego State University, USA
1986-1989	Research technician, Smithsonian Env. Research Center, Maryland, USA
1985-1986	Research technician, New Mexico State University, New Mexico, USA
1982-1985	M.S. in Botany, North Carolina State University, USA
1981-1982	Crops manager, WC Guthrie & sons farms, Pavilion, NY, USA
1977-1981	B.S. in Science, Pennsylvania State University, USA

Research Interests*Research activities*

My research focuses on 1) the impacts of global change, especially climate change and rising CO₂ on ecosystem functioning and plant diversity in terrestrial ecosystems, 2) the interactions between biodiversity and ecosystem functioning and 3) modeling nutrient competition between plants as well as rhizosphere interactions between plants and soil micro-organisms. This research is based primarily on field experiments and mathematical models.

I have worked with a variety of models ranging from very fine scale models of nutrient fluxes in soils to large regional scale models of climate change impacts on arctic tundra and forests. I currently lead or participate in several research projects using multi-model comparisons and model-data comparisons to quantify uncertainty in projections of global change impacts on terrestrial ecosystems. In one of these projects we are using models to explore the impacts of climate change on forests, and are collaborating with foresters to develop adaptive management strategies.

Research on grasslands has dominated my experimental research over the last 20 years. Most recently our team has been investigating the combined effects of fire and elevated levels of temperature, CO₂, N deposition and precipitation on nitrogen cycling in California grasslands in collaboration with INRA Lyon, Northern Arizona University and Stanford University. We have also been collaborating with INRA in Clermont-Ferrand on experimental studies of interacting global change impacts on temperate grasslands.

Research co-ordination and assessment activities

At the international level, I have been heavily involved in international science programs for over 20 years including in the GCTE (Global Change and Terrestrial Ecosystems) program, the Global Land Project and DIVERSITAS (the international biodiversity science program). I am currently the chair of the bioDISCOVERY core project of DIVERSITAS that focuses on improving the science of biodiversity assessments, monitoring and scenarios. I have recently become involved in science-policy communication through activities in international assessment processes. I led the biodiversity scenarios review for the Convention on Biological Diversity's Global Biodiversity Outlook 3 which came out in May 2010, participated in key meetings supporting the Intergovernmental Science-Policy Panel on Biodiversity and Ecosystem Services (IPBES) processes and am a lead author as part of the IPCC's 5th Assessment report.

At the national level, I am currently a member of the scientific steering committees of the Foundation for Biodiversity Research (FRB, the inter-institutional body for biodiversity research in France), the national environmental alliance (AllEnvi) and a regional program for interdisciplinary research on climate change (GIS "Climat, Environnement, Société"). I also chair the FRB's flagship program on biodiversity scenarios and modeling.

Publications

journal articles + other significant publications such as books in italics

51 publications indexed on ISI "Web of Knowledge", >2200 citations, citations/paper = 45, h=25

- Cheait A, Badeau V, Boe J, Chuine I, Delire C, Dufrêne E, Francois C, Gritti E, Legay M, Pagé C, Thuiller W, Viovy N, Leadley P. 2012. Climate change impacts on tree ranges: model inter-comparison facilitates understanding and quantification of uncertainty. *Ecology Letters*, in press.
- Bellard C, Bertelsmeier C, Leadley P, Thuiller W, Courchamp F. 2012. Impacts of climate change on the future of biodiversity. *Ecology Letters*, in press.
- Blouin M, Mathieub J, Leadley PW. 2012. Plant homeostasis, growth and development in natural and artificial soils. *Ecological Complexity*. 9:10-15.
- Niboyet A, Brown JR, Dijkstra P, Blankinship JC, Leadley PW, Le Roux X, Barthes L, Barnard RL, Field CB, Hungate BA. 2011. Global change could amplify fire effects on soil greenhouse gas emissions. *PLoS One*. 6: article e20105
- Niboyet A, Le Roux X, Dijkstra P, Hungate BA, Barthes L, Blankinship JC, Brown JR, Field CB, Leadley PW. 2011. Testing interactive effects of global environmental changes on soil nitrogen cycling. *Ecosphere*. 2: article 56
- Kattge J, Diaz S, Lavorel S, Prentice IC, Leadley P, Bönsch G, Garnier E, Westoby M, Reich PB, Wright IJ, ... Wirth C (73 authors). 2011. TRY – a global database of plant traits. *Global Change Biology*. 17:2905-2935
- Pereira H, Leadley PW et al. 2010. Scenarios for global biodiversity in the 21st century. *Science*. 330:1496-1501 (Science Express, 26 October 2010, co-first author)
- Leadley PW et al. 2010. *Biodiversity Scenarios: Projections of 21st century change in biodiversity and associated ecosystem services*. TS-50. Sec. of the Convention on Biological Diversity, Montreal.
- Bloor JMG, Pichon P, Falcimagne R, Leadley P, Soussana J-F. 2010. Effects of warming, summer drought, and CO₂ enrichment on aboveground biomass production, flowering phenology, and community structure in an upland grassland ecosystem. *Ecosystems*. 13:888-900.
- Niboyet A, Barthes L, Hungate BA, Le Roux X, Bloor JMG, Ambroise A, Fontaine S, Price P, Leadley PW. 2010. Responses of soil nitrogen cycling to the interactive effects of elevated CO₂ and inorganic N supply. *Plant & Soil*. 327:35-47.
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- Ojima D, Field C, Leadley P, Sala O, Messemé D, Petersen JE, Borng J, Vanwey L, Mba Wright M. 2009. *Mitigation Strategies: Biofuel Development Considerations to Minimize Impacts on the Socio-Environmental System*. In: Howarth and S. Bringezu (eds.), *Biofuels: Environmental Consequences and Interactions with Changing Land Use. Proceedings of the Scientific Committee on Problems of the Environment (SCOPE) International Biofuels Project Rapid Assessment*.
- Bloor JMG, Barthes L, Leadley PW. 2008. Effects of elevated CO₂ and N on tree-grass interactions: an experimental test using *Fraxinus excelsior* and *Dactylis glomerata*. *Functional Ecol.* 22:537-546.
- Bloor JMG, Leadley PW, Barthes L. 2008. Responses of *Fraxinus excelsior* seedlings to grass-induced above- and below-ground competition. *Plant Ecology* 194:293-304.
- Raynaud X, Jaillard B, Leadley PW. 2008. Plants may alter competition by modifying nutrient bioavailability in the rhizosphere: a modeling approach. *American Naturalist*. 171:44-58.
- Hector A, Joshi J...Leadley PW...Trombais AY. 2007. Biodiversity and ecosystem functioning: reconciling the results of experimental and observational studies. *Functional Ecology*. 21:998-1002.
- Potvin C, Chapin III FS, Gonzalez A, Leadley PW, P Reich, Roy J. 2007. *Plant biodiversity and responses to elevated carbon dioxide*. In: Canadell J, Pataki D, Pitelka L (eds) *Global change and terrestrial ecosystems*. Springer-Verlag, Heidelberg, Germany.

- Barnard R, Le Roux X, Hungate B, Cleland E, Blankinship, Barthes L, Leadley PW. 2006. Several components of global change alter nitrifying and denitrifying activities in an annual grassland. *Functional Ecology*. 20:557-564.
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- Barnard R, Leadley PW, Hungate BA. 2005. Global change, nitrification and denitrification: a review. *Global Biogeochemical Cycles*, 19:GB1007.
- Barnard R, Leadley PW, Lensi R, Barthes L. 2005. Plant, soil microbial and soil inorganic nitrogen responses to elevated CO_2 : a study in microcosms of *Holcus lanatus*. *Acta Oecologica*.
- Raynaud X, Leadley PW. 2005. Symmetry of belowground competition in a spatially explicit model of nutrient competition. *Ecol. Model.* 189:447-453.
- Spehn EM ... Leadley PW ... Lawton JH (39 authors). 2005. Ecosystem effects of biodiversity manipulations in European grasslands. *Ecological Monographs*. 75:37-63
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- Barnard R, Barthes L, Le Roux X, Harmens H, Raschi A, Soussana J.-F, Winkler B, Leadley PW. 2004. Atmospheric CO_2 elevation has little effect on nitrification and denitrification enzyme activity in European grasslands. *Global Change Biology*. 10:1-10
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- Gastine A, Scherer-Lorenzen M, Leadley PW. 2003. No consistent effects of plant diversity on root biomass, soil biota and soil abiotic conditions in temperate grassland communities. *Applied Soil Ecology* 24:101-111.
- Gastine A, Roy J, Leadley PW. 2003. Plant biomass production and soil nitrogen in mixtures and monocultures of old field Mediterranean annuals. *Acta Oecologica*. 24:65-75
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- Niklaus PA, Kandeler E, Leadley PW, Schmid B, Tscherko D, Körner Ch. 2001. A functional link between plant diversity, elevated CO_2 and soil nitrate. *Oecologia*, 127:540-548.
- Hector A, ... Leadley PW, ... Lawton JH. 2000. No consistent effect of plant diversity on productivity - Response. *Science*, 289 : 1255a.
- Hector A, ... Leadley PW, ... Lawton JH. 2000. Biodiversity and the functioning of grassland ecosystems: multisite studies. In: "Functional Consequences of Biodiversity: Experimental Progress and Theoretical Extensions", A. Kinzig, D. Tilman & S. Pacala, Eds., Princeton University Press, Princeton, USA.
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- Stocker R, Leadley PW, Körner C. 1997. Carbon and water fluxes in a calcareous grassland under elevated CO₂. *Functional Ecology*. 11:222-230.
- Stocklin J, Leadley PW, Körner C. 1997. Community and species level responses to elevated CO₂ in designed calcareous grassland communities. *Acta Oecologica*. 18:241-248.
- Leadley PW, Reynolds JF, Chapin FS. 1997. A model of nitrogen uptake by *Eriophorum vaginatum* roots in the field: Ecological implications. *Ecological Monographs*. 67:1-22.
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- Reynolds JF, Tenhunen JD, Leadley PW, Li H, Moorhead DL, Ostendorf B, Chapin FS III. 1996. *Patch and landscape models of arctic tundra: potentials and limitations*. In: *Landscape Function in an Arctic Watershed*. Reynolds JF, Tenhunen JD (eds.), *Ecological Studies Series*, Springer-Verlag, Berlin, p. 293-324.
- Leadley PW, Stocklin J. 1996. Effects of elevated CO₂ on model calcareous grasslands: Community, species, and genotype level responses. *Glob. Change Biol*. 2:389-397.
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- Leadley PW, Reynolds JF. 1992. Long-term response of an arctic sedge to climate change - a simulation study. *Ecological Applications*. 2:323-340.
- Drake BG, Leadley PW. 1991. Canopy photosynthesis of crops and native plant communities exposed to long-term elevated CO₂. *Plant Cell and Environment*. 14:853-860.
- Leadley PW, Reynolds JF, Flagler R, Heagle AS. 1990. Radiation utilization efficiency and the growth of soybeans exposed to ozone - a comparative analysis. *Agricultural and Forest Meteorology*. 51:293-308.
- Curtis PS, Drake BG, Leadley PW, Arp WJ, Whigham DF. 1989. Growth and senescence in plant communities exposed to elevated CO₂ concentrations on an estuarine marsh. *Oecologia*. 78:20-26.
- Drake BG, Leadley PW, Arp WJ, Nassiry D, Curtis PS. 1989. An open top chamber for field studies of elevated atmospheric CO₂ concentration on saltmarsh vegetation. *Functional Ecology*. 3:363-371.
- Leadley PW, Reynolds JF. 1989. Effect of carbon-dioxide enrichment on development of the 1st six mainstem leaves in soybean. *American Journal of Botany*. 76:1551-1555.
- Leadley PW, Reynolds JF. 1988. Effects of elevated carbon-dioxide on estimation of leaf area and leaf dry weight of soybean. *American Journal of Botany*. 75:1771-1774.
- Leadley PW, Reynolds JA, Thomas JF, Reynolds JF. 1987. Effects of CO₂ enrichment on internal leaf surface area in soybeans. *Botanical Gazette*. 148:137-140.

Scientific, Administrative, and Teaching Activities (2000-present only)

International

- Chair the bioDISCOVERY core project of DIVERSITAS (an international program of biodiversity science), 2006-present. Co-author of science plan
- Member of the Scientific Steering Committee of the "Global Land Project" (GLP). The GLP is a project of the IGBP et l'IHDP, focusing on human-environment interactions in terrestrial ecosystems. 2005-2007. Co-author of science plan.

- Liaison between DIVERSITAS and the GLP (and its precursor), 2002-2007.

National

- Member of the Scientific Steering Committee of the French Foundation for Research on Biodiversity (FRB), 2009-present. Co-author of science plan.
- President of the FRB's flagship program on biodiversity modeling and scenarios. 2009-present
- Member of the scientific evaluation committee of the French Institute for Biodiversity (IFB) and ANR "Biodiversité", 2006-2008
- Member of the Scientific Committee of the GICC program of the minister of environment, 2005-present
- Member of the Scientific Committee of the " Evolution et variabilité du climat à l'échelle globale" (EVE) committee of the LEFE programme 2005-2007
- Member of the CNRS "Motive" committee of the PEVS, 1998-2002
- Member of the CNRS "Zone Ateliers" committee, 2000-2002
- President of the French Ecotrons (Montpellier and Foljuif) committee, 2010-
- Member of the Organizing committee of the Journées d'Ecologie Fonctionnelle (JEF) 2004-2008
- President of the AERES evaluation committee for the EEF Laboratory, Nancy, 2/2008.
- Member of CNRS evaluation committee for the CEFÉ Laboratory, Montpellier 12/2005

Local

- Director of the "Ecologie, Systématique et Evolution" Laboratory (ca. 70 permanent staff + ca. 50 postdocs and thesis students), 2006-present
- Director (elected) of the Population and Community Ecology group (ca. 30 researchers, engineers, technicians and graduate students) in the ESE laboratory 2000-2005.
- Member of the Orientation Committee of the GIS "Climat, Environnement et Société", 2008-present.
- Member of the steering committee of the federation IDEV "Institute de Diversité et Evolution du Vivant" (ESE, LEGS et Moulon Laboratories at Orsay and Gif-sur-Yvette), 2009-present
- Member of the steering committee of the IFR 87 "La Plante et son Environnement", 2006-present.
- Member of the "Commission de Spécialistes 66-67", Université Paris-Sud 11, 1998-2003 & 2007-2009.
- President of the Scientific Council of the university botanical garden "Jardin Botanique de Launay" (Université Paris-Sud 11), 2003-present

Research Grants (2005-present only)

- Coordinating PI - HumboldtCES "Human Impacts on Biodiversity, Ocean Environment and Climate in the Anthropocene : Linking environmental and biodiversity research" GIS "Climat, Environment et Society". 2010-2012. 450 k€
- Co-PI (Coordinating PI - L Doyen, CNRS, Paris) - MOBILIS "Modeling for scenarios and sustainable management of terrestrial biodiversity and farming". FRB Biodiversity Scenarios Program. 2011-2012. Budget under negotiation.
- Participant (Coordinating PI- J Scharlemann, UNEP/WCMC, UK) - EU COST project HARMBIO "Harmonizing Global Biodiversity Modelling". 2011-2014. Budget under negotiation
- Participant (Coordinating PI - P Choler, CNRS, Grenoble) - DIVGRASS "Plant Functional Diversity of GRASSlands". FRB CESAB program. 2011-2013. Budget under negotiation
- Participant (Coordinating PI - X Raynaud, UPMC, Paris) - NITRICOMP "Conséquences de la compétition pour le nitrite sur le cycle de l'azote dans le sol" INSU, EC2CO program. 2009-2011. 25 k€.
- PI - UNESCO grant for workshops on "Novel modeling approaches for simulating the impact of global change on terrestrial biodiversity and ecosystem services". 2010. 10 k\$

- Coordinating PI - "Biodiversity Scenarios for the 21st century: Contribution to the Global Biodiversity Outlook 3" for the Convention on Biological Diversity. 2009-2010. 67 k€
- Co-PI (Co-ordinating PI - I Chuine, CNRS Montpellier) - SCION "Scenarios of global change impacts on biodiversity based on innovative modelling approaches". Funding from the IFB and French National Agency for Research (ANR). 2010-2012. 470 000 k€
- Coordinating PI - QDiv "Quantifying the effects of global environmental change on terrestrial plant diversity". Funding from the IFB and French National Agency for Research (ANR). 2005-09. 770 k€
- Participant (Coordinating PI - JF Soussana, INRA Clermont-Ferrand) - DISCOVER, IFB/ANR Biodiversité, 2006-2008.
- Co-PI (Coordinator - L Barthes, Université Paris-Sud 11) - Scientific exchange program with Stanford University and Northern Arizona University. CNRS/NSF, 32 k€, 2006-2008.
- Participant (Coordinating PI - JF Soussana, INRA Clermont-Ferrand) - IMAGINE (Funded by the program GICC-IFB 'Biodiversité et changement global'). 2003-2006

Invited Talks (2010-present only)

March 2012 Planet Under Pressure, London, GB

- Session "Staying away from the edge: avoiding biophysical, ecological and social tipping points" Session co-organized by P. Leadley, with T. Lenton (Climate), & P. Olsson (Society) - GBO3 tipping points - presented by P. Leadley
- Session "Biodiversity and ecosystem services science for a sustainable planet: Scientific priorities for the decade 2012-20 from the DIVERSITAS community" - biodiversity scenarios - presented by P. Leadley
- Session "Putting the concept of ecosystem services into practice: science, assessment and policy" - New approaches to the development of socio-economic scenarios for global change assessments - presented by P. Leadley.

March 2012 - "Tipping Points" workshop in Berlin, Germany. March (joint organization by DIVERSITAS and NEFO Germany). Keynote introductory talk

November 2011 - Presentation of climate change impacts on forests at the RMT AFORCE meeting. This conference attracted more than 100 forest researchers, managers and government representatives and more than 20 journalists (journal article in Liberation)

March 2011 - Testimony for the French "Conseil Economique, Social et Environnemental" concerning national implications of the "Aichi Targets" agreed to at the CBD COP-10 in Nagoya, Japan.

March 2011 - "Changement global, biodiversité et services écosystémiques : Sciences, prévision, prospective". Colloque Le Savant, Le Politique et le Citoyen. Cité des Sciences et de la Technologie. Paris, France.

February 2011 - "Résumé des résultats de la 10ème réunion de la Conférence des Parties de la Convention sur la Biodiversité à Nagoya, Japon". Académie des Sciences. Paris, France.

December 2010 - "Impacts du changement climatique sur les forêts : quelles stratégies d'adaptation ?". Annual meeting of the GIS "Climat, Environnement, Société". Paris, France.

November 2010 - "Scénarios du devenir de la biodiversité à l'échelle mondiale". "Les Rencontres FRB". Paris, France.

October 2010 - Presentation at side event for Global Biodiversity Outlook 3 (GBO3), CBD COP-10, Nagoya, Japan.

October 2010 - Presentation (co-authored by H. Mooney) to launch the "Rio Conventions' Ecosystems and Climate Change Pavilion" with A. Djoghla (Exec Sec CBD), R. Matsumoto (Japanese Minister of Environment) & I. Noble (World Bank). CBD COP-10, Nagoya, Japan.

September 2010 - "Projections des impacts du changement climatique sur les forêts : quelles stratégies d'adaptation face à des incertitudes considérables ?". "Adaptation au

- Changement Climatique : Forêts, Espaces Naturels et Biodiversité." Co-organized by the GIS "Climat, Environnement, Société". Paris, France.
- Septembre 2010 - Talk synthesizing of two days of presentations and discussions for the workshop "Forêts et enjeux d'avenir". Sponsored by the French Senate, Université Paris-Sud, GIS "Climat, Environnement, Société", GIP Ecofor, FRB, APT. Paris, France.
- September 2010 - "Effets du changement climatique sur la biodiversité : état des lieux : Milieu terrestre". CCBio: Connaissances des impacts du changement climatique sur la biodiversité en France" (GIP Ecofor, MEEDDM). Paris, France
- September 2010 - "L'avenir de la biodiversité: le rôle des scénarios comme outil d'interface entre la science et la politique". Ecologie 2010. Montpellier, France.
- August 2010 - "Eco-evolutionary approaches to understanding and predicting the response of species range to climate change". Overview of objectives for a workshop with the same title. Fukuoka, Japan.
- May 2010 - Presentations at side events to 1) launch the Global Biodiversity Outlook 3 (GBO3) and 2) present scientific objectives of IPBES. Presentation of GBO3 at press conference with A. Steiner (Exec Dir UNEP), A. Djoghlaif & T. Lovejoy. CBD SBSTTA, Nairobi, Kenya.
- March 2010 - Global Biodiversity Outlook 3: Scenarios Synthesis. Pre-COP 10 meeting of the CBD. Nagoya, Japan.
- March 2010 - "Scénarios de l'impact des changements globaux sur la biodiversité". "11eme colloque pluridisciplinaire d'Orsay, Biodiversité : de la Molécule à l'Ecosystème." Orsay, France.
- Feb 2010 - "Global Biodiversity Outlook 3 study on Biodiversity futures for the 21st century." Trondheim Conference on Biodiversity, an encounter between CBD delegates and scientists. - co-presented with H. Pereira. Trondheim, Norway.
- Feb 2010 - "Disappearing coral reefs - in light of large scale changes." Trondheim Conference on Biodiversity. Trondheim, Norway.
- Jan 2010 - "Biodiversity Scenarios for the 21st century: contribution to the Global Biodiversity Outlook 3". Presentation to UNESCO delegates. Paris, France
- Jan 2010 - "Genetic evolution and Climate Change". UNESCO International Year of Biodiversity, Science - Policy Conference. 2010. Paris, France.
- Nov 2009 - "L'impact de la biodiversité sur le climat". "Le Colloque Orée : Biodiversité et climat avant et après Copenhague - Rencontres d'experts." Paris, France.

Organization of symposia and workshops (2005-present only)

International

- March 2012 -
- March 2011 - Co-organizer of an international workshop on joint workshop on "Plant Traits and Biome Boundary Shifts". Support from DIVERSITAS, FRB and GIS "Climat", ca. 50 participants. Paris, France
- March 2011 - "Changement global, biodiversité et services écosystémiques : Sciences, prévision, prospective". Colloque : Le Savant, Le Politique, Le Citoyen. Cité des Sciences et de l'Industrie, Paris, France.
- September 2010 - Co-organizer of the conference "Forêts et enjeux d'avenir". Sponsored by the French Senate, Université Paris-Sud, GIS "Climat, Environnement, Société", GIP Ecofor, FRB, APT. Paris, France.
- August 2010 - Co-organizer of an international workshop on "Eco-evolutionary approaches to understanding and predicting the response of species and ecosystems to climate change". Support from DIVERSITAS and the Japanese Environmental Ministry, ca. 25 participants. Kyushu, Japan
- Oct 2009 - Co-organizer (and chair) of a symposium "Projecting 21st century biodiversity change". DIVERSITAS Open Science Conference. Cape Town, South Africa

- Oct 2009 - Co-organizer of an international workshop on joint workshop on "Plant Traits and Biome Boundary Shifts". Support from DIVERSITAS, UK-QUEST, MPI-Jena, UNESCO and GIS "Climat", ca. 35 participants. Cape Town, South Africa
- Aug 2009 - Co-organizer of an international workshop on "Eco-evolutionary approaches to understanding and predicting the response of species and ecosystems to climate change". Support from DIVERSITAS and the EU-Evoltree program, ca. 25 participants. Paris, France
- March 2009 - Co-organizer of a session on "Biodiversity: Enhancement of Resilience or Facilitating Transformation?". IARU International Scientific Congress on Climate Change. Copenhagen, Denmark.
- March 2008 - Co-organizer of an international workshop on "Biome Boundary Shifts". Support from DIVERSITAS, Japanese Ministry of the Environment, and GLP. ca. 40 participants. Yokohama, Japan
- March 2008 - Co-organizer of an international workshop "IGBP - Plant Functional Traits Fast Track Initiative". Support from IGBP, DIVERSITAS and UK-QUEST, ca. 35 participants. Paris, France
- November 2006 - Organizer of a symposium entitled "Climate change and rising CO₂: How serious is the future threat to biodiversity?" at the Earth System Science Partnership open science conference (ESSP). Beijing, China.
- May 2005 - Organizer of an international workshop on "Global Environmental Change and Biodiversity". Sponsored by DIVERSITAS, UK-QUEST and US-TERACC. Dourdan, France. ca. 35 participants.
- November 2005 - Organizer of a symposium entitled "Global change and Biodiversity" for the open-science conference of DIVERSITAS. Oaxaca, Mexico.

National

- Co-organizer of the national workshop series "Journées d'Ecologie Fonctionnelle" (JEF) at Nouan-le-Fuzelier in 2006
- Co-organizer of the national workshop series "Journées d'Ecologie Fonctionnelle" (JEF) at La Londe-les-Maures in 2000

Teaching

- I teach the equivalent of ca. three 3 credit courses per year (196 hours/year of teaching in the French system). Primary subjects: human impacts on biogeochemical cycles, biodiversity and ecosystem functioning and geomatics for ecologists (4th & 5th year courses for Masters students) and community ecology (3rd year courses)
- Coordinate the course "Ecologie Fonctionnelle" of the Master "Ecologie, Biodiversité et Evolution" (EBE) since 2003
- Co-coordinator the course "Biodiversité et Fonctionnement des Ecosystèmes" of the Master EBE since 2003
- Co-coordinator of the du Master "Ecologie, Biodiversité et Evolution" (P11, P6, INA-PG, MNHN), 2003-2006
- Director of the DESS (Masters program) "Génie Ecologique", Université Paris-Sud 11, 1998-2000
- Direction of theses for which I had at least 50% responsibility: Reto Stocker 2/1993-10/1996 (Ch Korner was director), Alexandra Gastine 10/1997-12/2002, Romain Barnard 10/2000-11/2003, Xavier Raynaud 10/2001-12/2004, Audrey Niboyet 10/2005 - 12/2009, Sandrine Fontaine (IE CNRS) 10/2005-present.
- Member of HDR and thesis juries: typically 6-10 per year.
- Thesis direction committees: currently member of 3 committees

Curriculum Vitae (shortened New Zealand RS&T CV)

Personal details				
Full name	Dr	Eckehard	G.	BROCKERHOFF
Present position	Principal Scientist			
Organisation/Employer	New Zealand Forest Research Institute Ltd (Scion)			
Contact Address	Scion, PO Box 29237, Christchurch 8540, New Zealand			
Email	eckehard.brockhoff@scionresearch.com			

Professional positions held

- 2012- : Principal Scientist and Project Leader, Scion (New Zealand Forest Research Institute), Christchurch, New Zealand.
- 1998-2012: Senior Scientist, Project Leader / Scientist until 2005 – Scion / New Zealand Forest Research Institute), Christchurch, New Zealand.
- 1998: Postdoctoral Research Associate, HortResearch, Lincoln, New Zealand.
- 1994-1997: Research Assistant, Canadian Forest Service, Sault Ste. Marie, Canada.
- 1991-1994: Research Assistant, CABI-Bioscience (IIBC), Delémont, Switzerland.

Academic qualifications

- 1998: Ph.D., Forest Entomology and Forest Ecology, University of Toronto, Canada.
- 1994: M.Sc. (equivalent), Biology (major in Zoology), University of Kiel, Germany.

Present research/professional speciality

Forest biodiversity, ecosystem services, biosecurity, biological invasions, entomology, forest ecology

Expertise in biodiversity and ecosystem services

- Research on forest biodiversity (since 1998) and ecosystem functioning/services (since 2002), focussing on relationships between biodiversity and resistance.
- Member, Task Force on Biodiversity and Ecosystem Services, International Union of Forest Research Organisations (IUFRO) (since 2010); Deputy co-ordinator 'Forest Biodiversity' Research Group, IUFRO (2006-2010) and 'Biodiversity and resilience' Working Group, IUFRO (2004-2010).
- Invited Keynote Speaker, "Role of plantation forests in biodiversity conservation and the provision of biodiversity-related ecosystem goods and services", IUFRO Conference, Porto Seguro, Brazil, November 2011.
- Invited symposium speaker, International Symposium for the Convention on Biological Diversity - The role of biodiversity in the sustainable use of ecosystem goods and services. Tokyo, Japan, April 2010.
- Author/co-author of publications on biodiversity and ecosystem services, e.g. in BioScience on 'The role of forest biodiversity in delivery of ecosystem goods and services: translating science into policy.' BioScience 61, 972–981 (2011).
- Invited symposium speaker (Biodiversity) and contributor to proceedings, United Nations Forum on Forests, Wellington, March 2003.

Relevant professional distinctions and memberships (including honours, prizes, scholarships, boards or governance roles, etc)

- Frequent invited contributions to national and international symposia and policy processes (e.g., NZ Ministry of Agriculture and Forestry / Primary Industries, Department of Conservation, CBD COP 10 Satellite Symposium 2010, United Nations Forum on Forestry 2003, International Union of Forest Research Orgs. 2012)
- Editorial board, Associate Editor, Biodiversity and Conservation (Springer journal)

- Invited Keynote Speaker, biosecurity and invasive forest pests, MAF/FOA Annual Forest Biosecurity Workshop, Rotorua, February 2012.
- Invited participant, National Center for Ecological Analysis and Synthesis (NCEAS), University of California, Santa Barbara; Trade and forest invasives, April 2008 - 2011.
- Invited participant of USDA-APHIS Technical Working Group, Light brown apple moth incursion response in San Francisco, California, since 2007.
- President, Entomological Society of New Zealand (2007-2009), (Vice-president 2005-2007; Immediate Past President and Newsletter Editor, 2009-2011).
- Invited keynote speaker, scientific committee member, IUFRO / WWF conference 'Biodiversity and Conservation Biology in Plantation Forests', Bordeaux, 2005.
- Marsden Fund recipient (co-PI), mast seeding ecology (2004).
- Invited participant, Ministry of Agriculture & Forestry Technical Advisory Groups, gypsy moth, fall webworm incursions, bark beetle surveillance (2003-04).
- Membership: Ecological Society of New Zealand; International Union of Forest Research Organisations - IUFRO (Division Leader, forest health); NZ Plant Protection Society; Entomological Society of NZ; NZ Institute of Forestry.

Total number of <i>peer reviewed</i> publications and patents	Journal articles	Books, book chapters, books edited	Conference proceedings	Patents
	65	7	10	-

Relevant research publications and dissemination (Peer-reviewed journal articles)

- Brockerhoff EG**, Jactel H, Parrotta JA, Ferraz SFB. 2012. Role of eucalypt and other planted forests in biodiversity conservation and the provision of biodiversity-related ecosystem services. *Forest Ecology and Management*, accepted for publication.
- Pawson SM, Brin AMB, **Brockerhoff EG**, Lamb D, Payn TW, Parrotta J (2012) Plantation forests, climate change and biodiversity. *Biodiversity and Conservation Biodiversity and Conservation*, accepted with revision.
- Thompson ID, Okabe K, Tylianakis JM, Kumar P, **Brockerhoff EG**, Schellhorn N, Parrotta JA, Nasi R. 2011. The role of forest biodiversity in delivery of ecosystem goods and services: translating science into policy. *BioScience* 61, 972–981.
- Brockerhoff, E.G.**, Jactel, H., Carnus, J.-M., Pawson, S. 2010. Biodiversity of plantation forests and its relevance for ecosystems functioning. *In* K. Okabe and I. Thompson (eds) *Proceedings, International Symposium on the Convention on Biological Diversity - The role of biodiversity in the sustainable use of ecosystem goods and services in agro-forestry, fisheries, and forestry*. Tokyo, Japan, April 2010.
- Pawson, S.M., Ectoyd, E.C., Shaw, W.B., Seaton, R., **Brockerhoff, E.G.** 2010. New Zealand's exotic plantation forests as habitats for threatened indigenous species. *New Zealand Journal of Ecology* 34, 342-355.
- Klenner, W., Arsenault, A., **Brockerhoff, E.G.**, Vyse, A. 2009. Biodiversity in forest ecosystems and landscapes: A conference to discuss future directions in biodiversity management for sustainable forestry. *Forest Ecology and Management* 258, S1–S4.
- Deconchat, M., **Brockerhoff, E.G.**, Barbaro, L. 2009. Effects of surrounding landscape composition on the conservation value of native and exotic habitats for native forest birds. *Forest Ecology and Management* 258, S196–S204.
- Brockerhoff, E.G.**, Jactel, H., Parrotta, J.A., Quine, C.P., Sayer, J. 2008. Plantation forests and biodiversity: Oxymoron or opportunity? *Biodiversity and Conservation* 17, 925-951.
- Berndt, L. A., **Brockerhoff, E. G.**, Jactel, H. 2008. Relevance of exotic pine plantations as a surrogate habitat for ground beetles (Carabidae) where native forest is rare. *Biodiversity and Conservation* 17, 1171–1185.
- Jactel, H. and **Brockerhoff, E.G.** 2007. Tree diversity reduces herbivory by forest insects.

Ecology Letters 10, 835-848.

Carnus, J.-M., Parrotta, J., **Brockerhoff, E.G.**, et al. 2006. Planted forests and biodiversity. *Journal of Forestry* 104(2), 65-77.

Brockerhoff, E.G., Berndt, L.A., Jactel, H. 2005. Role of exotic pine forests in the conservation of the critically endangered ground beetle *Holcaspis brevicula* (Coleoptera: Carabidae). *New Zealand Journal of Ecology* 29, 37-43.

Brockerhoff, E.G., Ecroyd, C.E., Leckie, A.C., Kimberley M.O. 2003. Diversity and succession of adventive and indigenous vascular understorey plants in *Pinus radiata* plantation forests in New Zealand. *Forest Ecology and Management* 185, 307-326.

CURRICULUM VITAE

Personal details				
Full name	Dr	Dennis	Preston	Gordon
Present position	Principal Scientist, Marine Biodiversity and Biosecurity			
Organisation/Employer	NIWA			
Contact Address	Private Bag 14901			
	Kilbirnie			
	Wellington		Post code	6021
Work telephone	4 386 0388		Mobile	
Email	dennis.gordon@niwa.co.nz			

Academic qualifications

1973 PhD, Dalhousie University, Canada, Zoology
 1969 MSc (Hons), University of Auckland, Zoology
 1966 BSc University of Auckland, Zoology

Professional positions held

2004– Principal Scientist, Marine Biodiversity & Biosecurity, National Institute of Water & Atmospheric Research, Wellington, New Zealand.
 1992–2004 Scientist/Research Programme Leader, National Institute of Water & Atmospheric Research, Wellington, New Zealand.
 1979–1992 Scientist, New Zealand Oceanographic Institute/Division of Marine & Freshwater science, DSIR, Wellington, New Zealand.
 1975–1978 Research Fellow, Leigh Laboratory, University of Auckland, New Zealand
 1973–1974 Leverhulme Visiting Commonwealth Research Fellow, University of Swansea, Wales.

Present research/professional speciality

Marine biodiversity and biosecurity, including the biology and distribution of marine invertebrates, with a particular focus on the biology, systematics and phylogeny of living and fossil marine Bryozoa, with applications to biosecurity, biotechnology and conservation, including fishing impacts on biogenic habitat, and research on alien taxa affecting human livelihoods and the role of recreational vessels in introducing alien species to New Zealand. Also biodiversity inventory (all of life) and scoping of New Zealand's total marine biodiversity (all kingdoms). Plus scientific writing and science editing.

Total years research experience

43 years

Professional distinctions and memberships (including honours, prizes, scholarships, boards or governance roles, etc.)

2007 – Steering Committee, World Register of Marine Species
 2006 – Project Team, Catalogue of Life (Species 2000/ITIS)
 2005 – Elected Life Member, NZ Marine Sciences Society (+ Achievement Award)
 2005–2008 Adjunct Research Associate, Victoria University of Wellington

2005–2007	Chair, Species 2000 Asia-Oceania working Group
2004–2007	Chair, RSNZ Committee on Biodiversity
2004–2006	Science/Editorial Board, Ocean Biogeographic Information System (OBIS)
2003	Japan Society for the Promotion of Science Fellowship (Short Term), Hokkaido University
2001–2003	International Committee, Ocean Biogeographic Information System (OBIS)
2001–2004	President, International Bryozoology Association
2000–	Fellow of the Linnean Society, London
1999–	Member, Royal Society of New Zealand
1997–2009	Council Member, NZ Association of Scientists
1973–1974	Leverhulme Visiting Commonwealth research Fellowship, University of Wales, Swansea
1970–1972	Isaak Walton Killam Doctoral Scholarship, Dalhousie University, Halifax, Nova Scotia, Canada

Total number of peer reviewed publications and patents	Journal articles	Books, book chapters, books edited	Conference proceedings	Patents
	101	30	18	0

Summary of activities relating to biodiversity and the environment

I have a broad knowledge of organismal diversity generally and am passionate about increasing knowledge and promoting appreciation of it. In response to government calls to demonstrate the value of CRI-funded research, I conceived a project to review the results of all previous biosystematics and biodiversity studies. I am concept originator, coordinator, editor and contributing author of the trilogy of volumes *Inventory of New Zealand Biodiversity* reviewing and inventorying New Zealand's entire Phanerozoic biodiversity, covering all of life from bacteria to blue whales. No group is excluded. The national tally is around 56,120 living species (about 8000 undescribed in museum collections) and 14,700 fossil taxa. The review and inventory now tell us how many indigenous, endemic (56% of indigenous species), and adventive species we have for marine, freshwater, and terrestrial environments and a gap analysis provides data on how many species remain to be described or are likely to be discovered. Ecological and economic attributes of our biota were also reviewed.

In the past 15 years I have been an informal spokesman for marine biodiversity in New Zealand, having given presentations at the Beehive (ECO/MFish Beehive seminars), to the Royal Society of New Zealand, Sir Peter Blake/Cousteau Foundation, the government's Oceans Policy Group, Japanese Parliamentary and embassy officials, the Minister for the Environment (Hon. Marian Hobbs) and Head of UNEP, Klaus Toepfer. I have participated in national workshops and conferences (e.g. MfE Environmental Performance Indicators Programme, Oceans Policy stakeholder meetings, DoC New Zealand Biodiversity Strategy, Marine Biosecurity Workshop, MFish BRAG meetings, 7th-form EnviroSchool (Lincoln University), and NIWA end-user workshops in Wellington and at Ihumatao Marae, Mangere. I authored a RSNZ *Alpha* issue on marine biodiversity, was chair of the RSNZ Committee on Biodiversity from 2004–2007, gave guest lectures on New Zealand's marine biodiversity to the BIOL 372 class at Victoria University of Wellington 2002 through 2007, and have been interviewed by Radio New Zealand (*Our Changing World*), TV1, and TV7 (appearing most recently on the *Ever Wondered?* programme 'Mysteries of the deep', screened in September 2011). In 2008 I was Acting New Zealand Head of Delegation to the 15th meeting of the GBIF Governing Board (GB15) in Tanzania. I have routinely communicated science and biodiversity issues for many years, most recently in magazines like *New Zealand Geographic* and *NZ Science Teacher*.

Internationally, I have been involved with Species 2000 Global Species Databases since 1999, was an invited speaker on marine biodiversity perspectives at a Global Taxonomy Initiative (GTI) Implementation Meeting, CBD Headquarters, Montreal in 2000, and organised a regional Asia-Oceania GTI workshop in Wellington in 2004. I am currently a

member of the project team of the Catalogue of Life, which has the goal of producing an integrated global database of all 1.8 million named species on the planet. These roles were linked to the Biogeographic Information System electronic ocean atlas (International Team 2001–2004; subsequently the Editorial/Science Board). I am a member of the Steering Committee of the World Register of marine Species (WoRMS), serving as a taxonomic editor of Bryozoa and an adviser on the higher classification of life for a management hierarchy. As a global bryozoan authority I participated in a scoping workshop on the biodiversity of the South China Sea (Singapore, August 2012).

I have undertaken a varied range of environmental projects, mostly collaborative, for commercial clients including government ministries and departments. These include assessments of marine adventive species biosecurity risk, human impacts in the marine environment, degradation of the Cook Strait cable and bridge timbers, and forensic studies for the New Zealand Police. Specific environmental projects include the disposal of liquid effluent from a chemical plant and dairy factory; intertidal and benthic impacts of oil-rig/pipeline emplacement and spills; benthic impacts of seafloor trawling and sediment dumping; and critiques of issues involved in the establishment of marine reserves. Expertise in invertebrate systematics has seen application of this skill to faunal surveys in sediment-dumping grounds, scallop-dredging areas, seamounts, western Ross Sea, in forensic studies, and for biological-resource and threatened-species assessments.

Curriculum Vitae

Full name: Dr Philip LYVER
Present position: Ecologist
Present employer: Landcare Research (Manaaki Whenua)
Present work address: PO Box 40, Lincoln 7640, New Zealand
Whakapapa iwi: Ngāti Toarangatira, Wairau
Academic qualifications: PhD Zoology (University of Otago, 1999)
 CoP Maori 1997 (University of Otago, 1997)
 BSc Zoology (University of Otago, 1992)

Years as a practising researcher: 14

Track record:

Research title	Principal outcome	Principal end-user and contact
<i>Te Hīringa Tangata</i> (Coastal forest ecosystem restoration)	Lifting of a 50-yr old rāhui (embargo) with re-establishment of a customary harvest of grey-faced petrel chicks by Ngāti Awa and translocation of chicks to a mainland reserve.	Te Kei Merito (Te Tapatoru a Toi) Tamsin Ward-Smith (Cape Kidnappers Restoration Trust)
Te Urewera Stakeholder Summit	Establishment of Te Urewera National Park stakeholder principles and priorities for the future governance and management of Te Urewera National Park.	Mr Tamati Kruger (Chair – Te Kotahi o Tūhōe; Ms Kirsti Luke (CEO, Te Uru Taumatua)
<i>Whakapapa o te taiao</i> (Palaeo-ecology and traditional knowledge informs biodiversity restoration)	Fossil pollen and Māori traditional knowledge identifies historic ecosystem states as baseline choices for biodiversity restoration.	Environment Ngātiwai (Mr Clive Stone)
Restoring Ririwha (Stephensons Island)	Improved petrel breeding success with the eradication of kiore (Pacific rat) from Ririwha (Stephensons Island)	Mr Mike Sheehan (Ririwha Restoration Trust)
Adelie penguin population dynamics mediated by climate change	Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR), Ministry of Primary Industries, and Ministry of Foreign Affairs and Trade advised on classifications of ecologically important regions of the Ross Sea through the delivery of data about top predator distribution, breeding population abundance, and foraging ranges.	Dr Colin Southwell (Australian Antarctic Division on behalf of CCAMLR)
Matauranga Kererū - Sustainable Indigenous Forestry	Wider appreciation for power of mātauranga and kaitiakitanga strategies for kererū and forest conservation management	Tūhōe Tuawhenua Trust (Chair, James Doherty)
<i>Kia Mau te Tīti Mo Ake Tōnu Atu</i> (Keep the tīti forever): Conservation and harvest of tīti	Conservation and harvest of sooty shearwaters (tīti) by Rakiura Māori informed by science and mātauranga (traditional knowledge)	Rakiura Tīti Islands Administering Body (Chair, Tane Davis, Invercargill)
Use of traditional knowledge for monitoring wildlife	Interface of Chipewyan First Nations traditional knowledge with ecological science to inform barren-ground caribou management in the Northwest Territories, Canada	Lutsel K'e Environment Committee (Chair, Mr Charlie Catholique)

Honours/distinctions/membership of societies, institutions, committees:

2009– present: Committee member: NZ Antarctic Latitudinal Gradient Project - Science Steering Committee
 2008- present: Committee member: CCAMLR Working Group on Ecosystem Monitoring and Management, Subgroup on Status and Trend Assessment of Predator Populations
 2008–09: Working Group member: Ministry of Economic Development Bio-prospecting Working Group II
 2004-06: Committee member, National Animal Ethics Advisory Committee

Competitive funding (in the last 5 years):

2010-2014: Co-Principle Investigator, Foundation for Research, Science and Technology PGSF, Protecting the structure and function of Ross Sea ecosystems, Antarctica. \$2.08M
 2009-2013: Principle Investigator, Foundation for Research, Science and Technology PGSF, *Te Hiringa Tangata Ki Te Tai Timu Ki Te Tai Pari* (Facilitating bicultural restoration of coastal forests using seabirds as ecosystem engineers). \$2.32M
 2005-2009: Principle Investigator, Foundation for Research, Science and Technology PGSF, *Mauriora ki nga oi* (Safe-guarding the life force of the grey-faced petrel). \$1.84M
 2005-2010: Principle Investigator, Foundation for Research, Science and Technology PGSF, Predictions of Adelie Penguin population responses mediated in the face of climate change in the Ross Sea region, Antarctica. \$650K
 2007-08: Principle Investigator, Foundation for Research, Science and Technology PGSF, Adélie Penguin population responses to climate change in the Ross Sea, Antarctica. \$60K
 2005-07: Co-investigator, Nga Pae o te Maramatanga, Mauriora ki nga oi – Hauraki traditional knowledge of Grey-faced petrels. \$177K
 2003-04: Principle Investigator, Ministry of Research, Science, and Technology, New Zealand Science and Technology Dialogue Fund, A process for enhancing dialogue on biosecurity issues. \$215K
 2003: Foundation for Research, Science and Technology Post-Doctoral Bridging Grant
 1999–2002: Foundation for Research, Science and Technology Post-Doctoral Fellowship
 1999: University of Otago Bridging Grant
 1997–99: Foundation for Research, Science and Technology Tūāpapa Pūtaiao Māori Fellowship
 1995–96: University of Otago Māori Post-graduate Scholarship
 1993–94: University of Otago Māori Post-graduate Award

Professional positions held:

2002– Vertebrate ecologist, Landcare Research, Lincoln
 2001–02 Postdoctoral Fellow, Landcare Research, New Zealand
 1999–2001 Postdoctoral Fellow, University of Manitoba, Canada

Present research/professional specialities:

My core research area focuses on the use of ecological science and/or traditional knowledge to interpret changes in demographic rates and abundance of wildlife populations (e.g., titi, oi, kereru, caribou, Adelie penguins) and in ecosystem structure

and function in New Zealand, Canada and Antarctica. Of particular interest are the climatic and anthropogenic drivers of these populations and the development of population models to future-cast further change and trends. Strong cross-cultural partnerships with iwi (e.g., Rakiura, Hauraki, Ngati Awa, Ngatiwai, Ngapuhi, and Ngai Tahu) and First Nations communities characterize my research projects in NZ and Canada respectively. Of considerable interest are the structures used by Maori and indigenous peoples' internationally to achieve governance, authority and management over their lands and natural resources. I currently run an active research program which addresses various aspects of seabird ecology and ecosystem restoration and is primarily funded by MBIE. This program involves 7 senior scientists, a post-doctoral fellow, and 8 core technicians. I have published my results in international, local and popular journals, and community newsletters which contribute significantly to the understanding avian ecology in New Zealand and Antarctica. Research areas include

- Marine and forest ornithology population and ecosystem ecology
- Indigenous and community-based environmental monitoring
- Traditional knowledge (mātauranga) and customary use of wildlife by indigenous peoples
- Environmental co-management

Number of refereed publications: 41

Number of significant publications not included in the above: (+ another 26 short popular articles in *Te Taiao a Ruamaahua*, *Te Kaahu o Tuawhenua*, *Tiiti Times*, and *Discovery*)

1. Major peer-reviewed publications

1. Jones, C., Barron, M., Warburton, B., Coleman, M., Lyver, P.O'B. and Nugent, G. (*in press*). Serving two masters: reconciling economic and biodiversity outcomes of brushtail possum (*Trichosurus vulpecula*) fur harvest in an indigenous New Zealand forest. *Biological Conservation*
2. Clucas, R., Moller, H., Bragg, C., Lyver, P.O'B., and Fletcher, D. (2012). Hunting diaries for monitoring sustainability of muttonbirding in New Zealand. *New Zealand Journal of Zoology*, 39: 155–177
3. McNeill, S., Barton, K., Lyver, P., and Paiman, D. (2012). Semi-automated penguin counting from digital aerial photographs. International Geoscience and Remote Sensing Symposium, 24-29 July 2011, Vancouver, Canada, 4312-4314.
4. Jones, C.J., Clifford, H., Fletcher, D., Cumming, P., Lyver, P.O'B. (2011). Survival and age-at-first-return estimates for grey-faced petrels (*Pterodroma macrotrema gouldi*) breeding on Mauao and Motuotau Island in the Bay of Plenty, New Zealand. *Notornis*, 58: 71–80.
5. Towns, D.R., Bellingham, P.J., Mulder, C.P.H., and Lyver P.O'B. (2011). A research strategy for biodiversity conservation on New Zealand's offshore islands. *New Zealand Journal of Ecology*, 36(1): 1–20.
6. Lyver, P.O'B., MacLeod, C.J., Karl, B.J., Ballard, G., Adams J., Ainley, D.G., and Wilson, P.R. (2010). Intra-seasonal variation in foraging behavior among Adélie penguins (*Pygoscelis adeliae*) breeding at Cape Hallett, Ross Sea, Antarctica. *Polar Biology*, 34:49–67. DOI 10.1007/s00300-010-0858-0
7. Dugger, K., Ainley, D.G., Lyver, P.O'B., Kerry Barton, K. and Ballard, G. (2010). Survival differences and the effect of environmental instability on breeding dispersal in an Adélie penguin meta-population. *PNAS*, 107(27): 12375-12380
8. Lescroët, A., G. Ballard, V. Toniolo, K. J. Barton, P. R. Wilson, P.O'B. Lyver, and D.G. Ainley. 2010. Working less to gain more: when breeding quality relates to foraging efficiency. *Ecology* 91(7): 2044–2055
9. Ainley, D.G., Russell, J., Jenouvrier, S., Woehler, E., Lyver, P.O'B., Fraser, W.R. and Kooyman, G.I. (2010). Antarctic penguin response to habitat change as earth's troposphere reaches 2°C above pre-industrial levels. *Ecological Monographs*, 80(1): 49–66
10. Lyver, P.O'B., Jones, C. and Moller, H. (2009). Looking past the wallpaper: considerate evaluation of traditional environmental knowledge by science. *Journal of the Royal Society of New Zealand*, 39(4): 219–223
11. Moller, H., Fletcher, D., Johnson, P.N., Bell, B., Flack, D., Bragg, C., Scott, D., Newman, J., Mckechnie, S. and Lyver, P.O'B. (2009). Changes in sooty shearwater (*Puffinus griseus*)

- abundance and harvesting on the Rakiura Titi Islands. *New Zealand Journal of Zoology*, 36: 325–341.
12. Moller, H., Lyver, P.O'B., Bragg, C., Newman, J., Clucas, R., Fletcher, D., Kitson, J., McKechnie, S., Scott, D., Rakiura Titi Islands Administering Body. (2009). Guidelines for cross-cultural Participatory Action Research partnerships: a case study of a customary seabird harvest in New Zealand. *New Zealand Journal of Zoology*, 36: 211–241.
 13. Moller, H.; Charleton, K.; Knight, B. and Lyver, P.O'B. (2009). Traditional Ecological Knowledge and scientific inference of prey availability: harvests of Sooty Shearwater chicks by Rakiura Māori as a case study. *New Zealand Journal of Zoology*, 36: 259–274.
 14. Lyver P.O'B., Jones C. and Doherty J. (2009). Flavour or fore-thought: Tuhoe traditional management strategies for the conservation of kererū (*Hemiphaga novaeseelandiae* novaeseelandiae) in New Zealand. *Ecology and Society*, 14(1). URL: <http://www.ecologyandsociety.org/vol14/iss1/art40/>
 15. Lyver, P.O'B., Davis, J., Ngamane, L., Anderson, A. and Clarkin, P. (2008). Hauraki Māori mātauranga for the conservation and harvest of tītī (*Pterodroma macroptera gouldi*). *Papers and Proceedings of the Royal Society of Tasmania*, 142: 149–159.
 16. Lyver, P.O'B., Taputu M, Kutia ST, and Tahi B. (2008). Tūhoe Tuawhenua mātauranga of kererū (*Hemiphaga novaeseelandiae novaeseelandiae*) in Te Urewera. *New Zealand Journal of Ecology*, 32: 7–17.
 17. MacLeod C, Adams J, and Lyver, P.O'B. (2008). Temporal and spatial variation in Grey-faced petrel (*Pterodroma macroptera gouldi*) distribution at sea during the breeding season. *Papers and Proceedings of the Royal Society of Tasmania*, 142: 73–88.
 18. Lyver, P.O'B., Newman, J. and Rakiura Titi Islands Administering Body (RTIAB). (2007). Titi – muttonbirding', Te Ara - the Encyclopedia of New Zealand, updated 21-Sep-2007. <http://www.TeAra.govt.nz/EarthSeaAndSky/HarvestingTheSea/TitiMuttonbirding/en>
 19. Ainley D.G., Toniolo, V., Barton, K.J., Eastman, J., Karl, B., Focardi, S., Kooyman, G., Lyver, P.O'B., Olmastroni, S., Stewart, W., Testa, W. and Wilson, P. (2006). Managing ecosystem uncertainty: critical habitat and dietary overlap of top-predators in the Ross Sea. *CCAMLR Science Series*.
 20. Kendrick A, Lyver, P.O'B., and Łutsël K'é Dēne First Nation (2005). Denesoline (Chipewyan) knowledge of barren ground caribou (*Rangifer tarandus groenlandicus*) movements. *Arctic*, 58: 175–191.
 21. Lyver, P.O'B. (2005). Co-managing environmental research: lessons from two cross-cultural research partnerships in New Zealand. *Environmental Conservation*, 32: 365–370.
 22. Lyver, P.O'B., and Łutsël K'é Dēne First Nation (2005). Monitoring barren-ground caribou body condition with Denesoline traditional knowledge. *Arctic*, 58: 44–64.
 23. Hayes L, Hom C, and Lyver, P.O'B. (2004). Taking the community with you: a process for developing acceptable pest control strategies. *New Zealand Science Review*, 61: 66–68.
 24. Moller, H., Berkes, F., Lyver, P.O'B., and Kislalioglu, M. (2004). Combining science and traditional ecological knowledge: monitoring populations for co-management. *Ecology and Society*, 9(3): 2. [online] URL: <http://www.ecologyandsociety.org/vol9/iss3/art2>
 25. Lyver, P.O'B. and Gunn, A. (2004). Calibration of hunters' impressions with female caribou body condition indices to predict probability of pregnancy. *Arctic*, 57: 233–241.
 26. Kofinas, G., Lyver, P.O'B., Russell, D., White, R., Nelson, A. and Flanders, N. (2003). Towards a protocol for community monitoring of caribou body condition. *Rangifer*, 14: 43–52.
 27. Jones, C., Bettany, S., Moller, H., Fletcher, D., Lyver, P.O'B., and de Cruz, J. (2003). Burrow occupancy and productivity at coastal sooty shearwater (*Puffinus griseus*) breeding colonies, South Island, New Zealand: can mark-recapture be used to estimate burrowscope accuracy? *Wildlife Research*, 30:377–388
 28. Lyver, P.O'B. (2002). The use of traditional knowledge by Rakiura Maori to guide Sooty Shearwater (*Puffinus griseus*) harvests. *Wildlife Society Bulletin*, 30(1): 29–40.
 29. Cruz, J.B., Lalas, C., Jillett, J.B., Kitson, J.C., Lyver, P.O'B., Imber, M., Newman, J. and Moller, H. (2001). Prey spectrum of breeding Sooty Shearwaters (*Puffinus griseus*) New Zealand. *New Zealand Journal of Marine and Freshwater Research*, 35: 817–829.
 30. Kitson, J.C., Cruz, J.B., Lalas, C., Jillett, J.B., Newman, J. and Lyver, P.O'B. (2000). Interannual variations in the diet of breeding sooty shearwaters (*Puffinus griseus*). *New Zealand Journal of Zoology*, 27: 347–355.
 31. Moller, H., Horsley, P., Lyver, P.O'B., Taiepa, T., Davis, J. and Bragg, M. (2001). Co-management by Maori and Pakeha for improved conservation in the 21st century. Pp. 156–167. In: Perkins, H. and Memon, A. (eds.). *Environmental Planning and Management in New Zealand*, Dunmore Press, Palmerston North, New Zealand.
 32. Lyver, P.O'B. (2000). What limits the harvest of Sooty Shearwaters (*Puffinus griseus*) on Poutama Island. *New Zealand Journal of Zoology*, 27: 381–393.
 33. Lyver, P.O'B. (2000). Identification of mammalian predators of sooty shearwaters from bite marks: A tool for focusing wildlife protection. *Mammal Review*, 30(1): 31–44.
 34. Lyver, P.O'B. (2000). Sooty shearwater (*Puffinus griseus*) harvest intensity and selectivity on Poutama Island, New Zealand. *New Zealand Journal of Ecology*, 24 (2): 169–180.

35. Lyver, P.O'B., Robertson, C.J.R. and Moller, H. (2000). Predation at Sooty Shearwater (*Puffinus griseus*) colonies on the New Zealand mainland: is there safety in numbers? *Pacific Conservation Biology*, 5 (4): 347-357.
36. Lyver, P.O'B., Moller, H. and Thompson, C. (1999). Changes in Sooty Shearwater (*Puffinus griseus*) chick production and harvest precede ENSO events. *Marine Ecology Progress Series*, 188: 237-248.
37. Lyver, P. O'B. and Moller, H. (1999). Titi harvests by Rakiura Maori: a case study of the use of Maori traditional environmental knowledge for sustainable natural resource management. *Proceedings of the Landcare Research Conference*, Wellington, New Zealand. www.landcare.cri.nz/conferences/manaakiwhenua/papers/index.shtml?Lyver
38. Lyver, P.O'B. and Moller, H. (1999). Modern technology and customary use of wildlife: the harvest of Sooty Shearwater (*Puffinus griseus*) by Rakiura Maori as a case study. *Environmental Conservation*, 26 (4): 280-288.
39. Lyver, P.O'B., Hamilton, S., McKenzie, M., Dickson, I., Dooher, M., Broad, T. and Moller, H. (1998). Construction and reliability of an infra-red camera for examining nests in burrows. *Conservation Advisory Science Notes*, 209: 21 p.
40. Talepa, T., Lyver, P.O'B., Horsley, P., Davis, J., Bragg, M. and Moller, H. (1997). Co-management of New Zealand's conservation estate by Maori and Pakeha. *Environmental Conservation*, 24 (3): 236-250.
41. Barr, K., Moller, H., Christmas, E., Lyver, P.O'B., and Beggs, J. (1996). Impacts of introduced common wasps (*Vespa vulgaris*) on experimentally placed mealworms in a New Zealand beech forest. *Oecologia*, 105: 266-270.

Peer reviewed books, book chapters, books edited

42. Lyver, P.O'B. (In press). New knowledge systems from old: interfacing traditional ecological knowledge and science for improved natural resource management. In: *Maori and the Sciences*. M. Mulholland (ed). Huia Publishers, Auckland, New Zealand
43. Lyver, P.O'B. (In press). Kaitiakitanga strategies for reshaping our relationship with the natural world. In: *Maori and the Sciences*. M. Mulholland (ed). Huia Publishers, Auckland, New Zealand
44. Moller H. and Lyver P.O'B. (2010). Using traditional ecological knowledge for improved sustainability: case studies from four customary wildlife harvests by Māori in New Zealand. Pp. 219-234. In: Kristen Walker-Painemilla, Alisa Woolter, Anthony Rylands and Cassie Hughes (eds). "Indigenous Peoples and Conservation: From Rights to Resource Management". Arlington, Conservation International.
45. Lyver, P.O'B. and Moller, H. (2010). An alternative reality: Maori spiritual guardianship of New Zealand's native birds. Pp. 241-264. In: *Ethno-ornithology: birds, indigenous peoples, culture and society*. S. Tidemann and A. Gosler (eds), Earthscan, London, UK.
46. Lyver, P.O'B., Newman, J., and the Rakiura Titi Islands Administering Body (2009). Titi-muttonbirding. Pp: 73-75. In: *New Zealanders and the sea. Te Ara – Encyclopedia of New Zealand*. David Bateman Ltd, Auckland, New Zealand, 272 p.

Conference paper proceedings

47. Lyver P.O'B., Jones C., Doherty J 2010. Flavour or fore-thought: Tuhoe traditional management strategies for the conservation of kereru in New Zealand. 12th International Congress of Ethnobiology. Recent International Developments in Ethno-ornithology – application, methodology and research, 9–14 May 2010, Tofino, Canada.
48. Jones, C., Clifford, H., Fletcher, D., Cuming, P., and Lyver, P.O'B. (2009). Estimation of survival and age-at-first-return of grey-faced petrels (*Pterodroma macroptera gouldi*) breeding in the Bay of Plenty, New Zealand. Australasian Ornithological Conference, 1-4 December 2009, Armidale, NSW, Australia
49. Fletcher, D., Clucas, R., Moller, H., Newman, J., Bragg, C., McKechnie, S., Scott, D., Lyver P.O'B., and Downs, T. (2009). Will the titi remain plentiful enough for the mokopuna? A sustainability assessment of the Rakiura Māori titi harvests. *Proceedings of Ngā Kete a Rēhua*, Christchurch, 4–5 September 2008.
50. Moller, H., Newman, J., Lyver, P.O'B., and Rakiura Titi Islands Administering Body (RTIAB). (2009). Fourteen years on: Lessons for community-led science partnerships from the Kia Mau te Titi Mo Ake Tōnu Atu project. *Proceedings of Ngā Kete a Rēhua*, Christchurch, 4–5 September 2008.
51. Hayes L, Horn C, and Lyver, P.O'B. (2008). Avoiding tears before bedtime: how biocontrol researchers could undertake dialogue with their communities. *Proceedings of the 12th International Symposium on Biocontrol of Weeds*, La Grande Motte, France, 22–27 April 2007.

Non-refereed articles:

1. Phipps, H. Akins, A., Moller, H., Lyver, P., Kahui, V. and Towns, D. (2011). Cross-cultural values for restoring coastal forest ecosystems in New Zealand. Landcare Research Report: LC 243, 134 p.
2. Cummings, V., Lyver, P., Metcalf, V., Ryan, K. and Sewell, M. (2010). Marine Research in the LGP. LGP Special Edition, *Antarctic*, 28(2): 30-33
3. Southwell, C., Emmerson, L., Forcada, J., Goebel, M., Hinke, J., Lynch, H., Lyver, P., McKinlay, J., Ratcliffe, N., Ramm, D., Reid, K., Reiss, C., Trivelpiece, W., Trivelpiece, S., Trathan, P. (2011) Update on inter-sessional work by the Sub-group on Status and Trends Assessment of Predator Populations (WG-EMM-STAPP). CCAMLR WG-EMM-11/30 (restricted document)
4. Sharp, B.R., S.J. Parker, M.H. Pinkerton, B.B. Breen, V. Cummings, A. Dunn, S.M. Grant, S.M. Hanchet, H.J.R. Keys, S.J. Lockhart, P.O'B. Lyver, R.L. O'Driscoll, M.J.M. Williams, and P.R. Wilson. (2010). Bioregionalisation and spatial ecosystem processes in the Ross Sea region. CCAMLR Working Group Paper, WG-EMM-10/30, 1-61 p.
5. Southwell, C., Forcada, J., Goebel, M., Hinke, J., Lynch, H., Lyver, P., McKinlay, J., Ratcliffe, N., Ramm, D., Reid, K., Reiss, C., Trivelpiece, W., Trivelpiece, S., Trathan, P. (2009) Update on progress in inter-sessional work from the Predator Survey workshop CCAMLR WG-EMM-09/39 7pp;
6. Ropert-Coudert, Yan., David Ainley, Grant Ballard, Akiko Kato, Phil Lyver, Silvia Olmastroni, Colin Southwell, Akinori Takahashi, Phil Trathan, Peter Wilson, and Yvon Le Maho (2007). Automatic Monitoring of Penguin Population (AMPPoP): Circumpolar monitoring of the biology of key-species in relation to environmental changes. www.nipr.ac.jp/~ipy/ust/sympo/proc-files/42-Ropert_Coudert.pdf
7. Ratcliffe, N., Trathan, P., Ainley, D., Woehler, E., Southwell, C., Fraser, B., Bost, C., Hindell, M., Lyver, P.O'B. and Trivelpiece, W. (2008). A review of the uncertainties associated with penguin population and abundance estimates for the CCAMLR region. CCAMLR-IWC-WS-08/08. CCAMLR, Hobart, Australia.
8. Lyver, P.O'B., Jones, C., and Doherty, J. (2008). Flavour or fore-thought. Modelling a shift in a Tuhoe traditional management strategy for the conservation of kereru. *Indigena*, (Aug): 4-7.
9. Doherty, J. and Lyver, P.O'B. (2008). Native foods of the kereru: a Tuhoe perspective. *Indigena*, (May): 4-6
10. Lyver, P.O'B., Doherty, J and Tahi, B. (2008). Tuhoe Tuawhenua traditional knowledge of kererū in Te Urewera. *Indigena*, (Feb): 23-25.
11. Moller, H., J. de Cruz, D. Fletcher, K. Garrett, C. Hunter, C.J. Jones, J. Kitson, Lyver, P. O'B., J. Newman, B. Russell, R.P. Scofield and D.S. Scott (1999). Kia Mau Te Titi Mo Ake Tōnu Atu: Goals, design and methods. University of Otago Wildlife Management Report Number 117, 76 p.

CURRICULUM VITAE

NAME: Anton Diderik MEISTER
ADDRESS: 101 Park Avenue, Waikanae 5036. Phone 021-707884/ home: 04-2933-055
Office: Department of Economics and Finance, Massey University, Palmerston North
 Phone: +64-6-3505371 Fax: +64-6-3505660 Email: a.meister@massey.ac.nz
EDUCATION: Lincoln University (NZ) 1965-69, **B.Agr.Sc.** 1969: Mast. Agr Sc. 1971: PhD (USA) 1975
AWARDS: Among others: Bronze Medal, The Royal Society of New Zealand, for significant contributions to the advancement of science and technology. Awarded 1999

EMPLOYMENT RECORD

2011 – Professor Emeritus Massey University, Dept of Economics and Finance. Consultant, ADM Consultance Ltd

1976 to 2010: Massey University, New Zealand. Position: Professor (1990) and HOD of Applied and International Economics (2002-2007)

1971 to 1976: Iowa State University, USA; Position: Research Associate and later Staff Economist

1969 to 1971: Lincoln College, New Zealand; Research Assistant and later Lecturer.

I have been an Guest Professor, Henan Agr. Univ, China (2006-2009); Pontificia Universidade Catolica do Rio Grande do Sul, Brazil (2008-2009); and Visiting Professor Ritsumeikan University, Kyoto, Japan, 2009-2010 (4 months); 2011-2012 (2 months); 2012 (4 months).

TEACHING: at undergraduate and postgraduate level: courses in Resource and Environmental Economics, Benefit-Cost Analysis and Benefit Valuation; Project Evaluation; Development Management; Environmental Management and Economic Evaluation.

WORK EXPERIENCE. I have supervised large numbers of students for postgraduate diplomas, master theses, PhDs. I have done research dealing with environmental policy, policy evaluation, benefit-cost analysis, valuation of ecosystem services, biodiversity protection and many other topics. I have done this work in NZ as well as overseas in collaboration with overseas researchers. I have travelled widely for my work – research, foreign aid, consultancy, teaching. I have worked for a wide range of International Agencies (World Bank, OECD, UNDP, UNEP, AusAid, NZAid, ADB). I also have served on many committees for the NZ Government, evaluation policies, and situations of major resource and environmental issues. I represented the NZ Govt (MAF) at a Biodiversity Workshop in Paris. In what follows I will briefly highlight some specifics of the areas of work mentioned above.

RESEARCH: some of the last research projects I was involved with (before retiring) were:

- with the EU studying the implications of environmental regulations on costs to farmers and international trade competitiveness consequences. This work has been on-going and started in 1993 a NZ Govt research grant, followed up by three research contracts with the European Union, and finished in 2009)
- multifunctionality and the implications for trade and the environment (with Korean and European researchers)
- Land-use; participatory methodologies and project design is a major research topic associated with my work in China.
- policy approaches for dealing with non-point source pollution both in NZ / EU and developing countries.
- on-going research on the use of economic evaluation techniques as applied to the valuation of indirect benefits of major resource projects, or to the valuation of visual and aesthetic effects on property values.
- the efficiency and effectiveness of micro lending (micro enterprise lending) schemes in development.
- Research into community development projects and community based resource management approaches.
- water allocation between agriculture and hydroelectricity; water allocation systems, and water quality policies.
- Economic impact assessment of disasters (volcanoes)

OVERSEAS WORK

Over the years I have been involved in a wide variety of consultancies dealing with teaching, training, environmental impact assessment, environmental and resource policy, and economic evaluation. I have

worked for the United Nations Environment Programme (in Russia(1988 and 1989), Kuwait (1994), the Middle East and Kenya (1995 and 1996) and Indonesia(1995), for the United Nations Development Programme in the Philippines (1991-1992), and for the World Bank in Cambodia. For the Australian Aid programme, I have worked, on and off, over a period of 6 years, to train teachers at Agricultural colleges (the Philippines) on how to integrate the environment in their courses. Recent overseas work:

- Programme leader for a group of nine scientists to work in China on technology transfer using participatory approaches, with emphasis on impact analysis and recommendations for improving the uptake and sustainability of pasture-based livestock development technologies by small holder farmers in western China). ADAF (1999-2003).
- With EEPSEA (Economy and Environment Program of South East Asia) I have conducted workshops on various topics (benefit costs analysis and fishery management (Cambodia March 2000), environmental impact assessment and evaluation especially of pesticide pollution (Vietnam June 2000)), Non-Market Valuation techniques (Thailand, 2006) and have help design research proposals conducted by SEA researchers as well as supervise their research.
- With the Agricultural Economic Research Institute (the Netherlands) I worked on an EU project dealing with the cost of environmental legislation impacts on competitiveness between countries. This work has been published with CAB press in 2001. This work continued under a new project grant till 2009 with specific focus on cross compliance policies. This work is published in a book, CABI press coming out in 2012.
- With OECD and ERS (USDA) on a project dealing with the valuation of public goods and externalities and developing policies for rural amenities and work on the concept of Multifunctionality of Agriculture.

DOMESTIC WORK: RESEARCH, CONSULTANCIES and COMMUNICATION

In New Zealand I have worked on a wide range of topics for central and local government, for environmental organisations, and for firms and other groups.

- DOC (Department of conservation) on developing and evaluating a national coastal zone policy. An Evaluation of the economic value of a skifield area within a national park.
- MFE (Ministry for the Environment) to consider the role of economic instruments in resource and environmental management.
- Local Government Association on the implementation of the Resource Management Act and the Biosecurity Act.
- Review of major catchment control schemes eg. reviewed the environmental impacts of the Waihou Valley Scheme As part of FORST research I studied the impact of European environmental regulations on agriculture (the Nitrate issue) and then looked at implications of these developments for New Zealand.
- Appointed rapporteur to an OECD conference on "Agriculture and the Environment" in Helsinki in 1997.
- Auckland Regional Authority: environmental values and peoples preferences. How to allocate funding. This consisted of a preference survey of the Auckland population as well as valuation work of environmental assets.
- Research in water allocation in NZ: benefit cost analysis and transferable water rights; Transferable emission permits.
- Involved in a project called "Bridging the Gap", looking at the gap between scientific information and policy formulation in the environmental area, and the gaps between policies and behavioural change by landowners to more environmentally sound practices (non-point source pollution, erosion, biodiversity, and pest management).

NZ GOVERNMENT APPOINTMENTS

- Appointed to a committee to look at the sustainable management of the South Island High Country. This was a 6 months job and the report was released in 1994
- Appointed chair of a two-person review panel to review the East Coast Forestry Project. A 28-year \$6.5 million/year afforestation scheme (started in 1991) to deal with soil erosion control and flood protection. The report was delivered to the Government 31 July 1998. Re-appointed for another review in 2005.
- Appointed chair of the Strategic Advisory Group to the Biosecurity Council (2001-2003)
- Appointed member of a committee to review NZ's bilateral aid to the Philippines, by NZAID (2002).

- Represent the Govt at a Convention of Biodiversity Workshop in Paris (dealing with incentives for biodiversity conservation and economic evaluation) 5-9 October, 2009.
- Chairperson of a Government Review Committee of Afforestation and Erosion control policies, Nov 2010 – May 2011 (East Coast Forestry Scheme, Permanent Forest Sink Initiative; Afforestation Grant Scheme, Sustainable Land Management Programme).

EXPERT WITNESS-ADVISORY COMMITTEES

Over the years I have often appeared, in my capacity as a Resource and Environmental Economist at Planning Tribunals (Court hearings to resolve resource use conflicts). In the past these dealt with land use, forestry and water quality issues. During 1989-90. The Department of Conservation (DOC) employed me as an expert witness for the Wanganui River Tribunal. Economic evidence in Tribunal Hearings have dealt with:

- compensation claims for properties washed away by shifting coast lines (1997);
- land subdivision and sustainable land use (1993, 1997)
- tradeable emission permits for non-point source pollution control of Lake Taupo (2006 -2008)
- re-injection of geothermal fluids into the ground rather than into the river (2006)
- allocation of water (2005,2006)

I served on the Royal Society of New Zealand Committee on Science of the NZ Environment.

I was also a member of the Special Advisory Committee of the Ministry for the Environment (1995-1999) to advise on the allocation of funds from the Sustainable Management Fund.

PUBLICATIONS

I have co-authored four books, and have many chapters in books. I have a significant numbers of publication and articles, as well as research / consultancy reports and talks.

In Summary. Nearly all of my research has dealt with environmental and policy issues. I have always worked on the interface of science and policy, and much of it has touched on biodiversity. In more recent years, valuation of ecosystem services, has become a major area of work (and teaching). I just completed teaching two courses on sustainable development in Japan. The maintenance of our natural capital (including biodiversity) is a major aspect of sustainable development, the demonstration of the essentialness of this and the designing of policy tools to achieve it has been part of my work. I have extensive experience working in different cultural environments, communicating and participating at international fora as well as working in multidisciplinary teams (national and international).

Curriculum Vitae

Name: Simon Francis Thrush

Nationality: New Zealand

Date of Birth: 10 November 1958

Place of Birth: Bristol, England

Address: National Institute of Water and Atmospheric Research.
PO Box 11-115
Hamilton
New Zealand
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e-mail: s.thrush@niwa.cri.nz

Present Position:

1986 - Present, National Institute of Water and Atmospheric Research, New Zealand.
Principal Scientist – Coastal Ecosystems

2012- Professor, School of Environment, University of Auckland/ Joint Graduate
School of Marine Science

Research interests:

- Ecology of marine soft-bottom communities, particularly in estuarine and coastal habitats.
- Ecosystem function and scale dependent processes in heterogeneous environments.
- Influence of disturbance events on populations and communities and the consequent recovery processes.
- Spatial and temporal variation in populations and communities.
- Ecological impact assessment, particularly of diffuse source and/or broad-scale effects.
- Design and implementation of ecological monitoring programmes.
- Environmental effects of commercial fishing.
- Organism-sediment interactions.

- Organism-hydrodynamic interactions.
- Resilience and feedback processes in benthic ecosystems.
- Marine ecosystem services
- High Antarctic coastal ecosystems
- Ecological knowledge and its role in framing decision making processes

Academic record:

1977 - 1980 BSc. Hons. (First Class - Zoology) University of Otago, NZ
 1981 - 1985 PhD. School of Biological Sciences, University of East Anglia, UK.
 1985 - 1986 Otago University, UGC Post-doctoral Research Fellow at Portobello Marine Laboratory

Honours/distinctions:

- University of East Anglia postgraduate scholarship; CVPU (UK) overseas student's fees award;
- University of Stirling postgraduate scholarship;
- NZ-UGC Post-doctoral fellowship;
- Smithsonian Visiting Scientist fellowship (SERC);
- NIWA Sabbatical fellowship at Scripps Institution of Oceanography (UC-SD, USA); British Council Higher Education Link fund;
- Research Associate Smithsonian Environmental Research Centre;
- Managing editor Journal of Experimental Marine Biology and Ecology (2006-) Member of editorial board for Marine Ecology and Evolutionary Perspective;
- Member of the Royal Society Marsden Review Panel for Ecology, Evolution and Behaviour;
- Member of the scientific advisory committee for Ecosystem Management of the West Australia Rock Lobster Fishery;
- Member of Faculty 1000 (Biology);
- EU-Marie Curie IIF fellowship, DipTerRis, University of Genoa (Italy);
- Member of the scientific advisory panel for the sustainable management of Venice Lagoon.
- Erasmus Mundas Scholarship in Marine Biodiversity and Conservation.
- New Zealand Marine Sciences Life Time Achievement Award (2010);
- Member of the Scientific Advisory Panel of the Joint Oceans Commission initiative (USA);
- Member of the Royal Society of New Zealand Rutherford Discovery Fellowships primary review panel;
- Fellow of the Royal Society of New Zealand;
- Distinguished visiting professor of marine and environmental Sciences and Knapp chair of liberal arts, University of San Diego, Spring 2012 (unable to take up position due to time conflicts)

Invited presentations in conferences/workshops:

1984 Benthic Boundary Layer Project, (UEA), Lough Hyne, Ireland.
 1992 Statistical methods in water quality sampling programmes, Water Quality Centre, Hamilton.

- 1990 Ecology of Lough Hyne, University College Cork, Ireland.
- 1992 BES/ASLO Conference: Aquatic Ecology - Scale, Pattern and Process, Cork, Ireland.
- 1992 Second International Temperate Reef Symposium, University of Auckland.
- 1994 Co-organised with R. D. Pridmore, Workshop on Matching Pattern to Process, NIWA, Hamilton, which ran for 3 months and involved 8 visiting scientists.
- 1994 Workshop on global change and the marine environment: extent, significance and policy implications. Organised by URI and Greenpeace International, University of Rhode Island, USA,
- 1996 AGU/ASLO Ocean Sciences Meeting: Stability of spatial patterns in a dynamic system. San Diego, Ca., USA.
- 1996 Trawling Impacts workshop: Disturbance ecology and habitat disturbance by commercial fishers, Marine Conservation Society/ Darling Marine Centre - University of Maine, USA
- 1997 Ecology of Estuaries and Soft-Sediment Habitats, Deakin University, Warrnambool, Australia. Keynote: Predation in Estuarine Benthic Habitats (Keynote address)
- 1997 NATO Advanced Research Workshop, Hel, Poland
- 1998 Seaviews - Marine ecosystem management obligations and opportunities. Wellington 11 - 13 February, 1998.
- 1999 Scandinavian benthological meeting, University of Jyvaskyla, Finland (Keynote address)**
- 1999 Ecological comparisons of sandy shores, Wattenmeerstation Sylt (AWI), Germany (Keynote address)
- 1999 South Pacific Conference on Comprehensive Stormwater and Aquatic Ecosystem Management, 21-26 February 1999, Auckland
- 2000 Integrating systematics and ecology in support of marine biodiversity Heraklion, Crete, Greece.
- 2000 New Zealand Marine Sciences Society Conference, University of Waikato, Hamilton (keynote)
- 2001 National Science Foundation Workshop: Victoria land, Antarctica, coastal Biome: marine – terrestrial biocomplexity across a high latitudinal environmental gradient. Byrd Polar Research Center, The Ohio State University, Columbus, Ohio, 26-29 April 2001
- 2002 Invitation as a Discussant to participate in workshop 5th International Conference on Environmental Future, Zurich 2003. Foundation for Environmental Conservation. To present paper on environmental threats to continental shelf benthos.
- 2002 Symposium on effects of fishing activities on benthic habitats: linking geology, biology, socioeconomics and management St. Pete Beach, FL USA November 2002 (Keynote address)
- 2004 ASLO Summer meeting 2004 “ The Changing landscapes of Oceans and Freshwater” June 13-18 Savannah Georgia, USA (Keynote address)
- 2004 LOICZ Workshop "The Impact of Major Dams on Coastal Sedimentation in New Zealand" Dunedin, 18-20 October 2004 (Keynote address)

- 2004 Ecology of the Antarctic Sea ice Zone Final Symposium Korcula Croatia, 27 September – 1 October 2004 (Keynote address)
- 2005 Seachange05, Environmental Defence Society, Auckland (Keynote address)
- 2007 6th PNRA Meeting on Antarctic Biology: Critical issues and Research Priorities for the IPY and 2007-09, 7-9 June, Follonica, Italy
- 2007 Novel Modelling approaches to relate biodiversity of marine sediments to ecosystem functioning, a MarBEF, CoML and EuroCoML workshop, Amsterdam, the Netherlands, 15-17 October 2007
- 2007 Thrush S. (Keynote presentation) Impacts of climate change on coastal soft sediment ecosystems. New Zealand Marine Sciences Society Annual Conference, 28 August 2007, Hamilton, New Zealand.
- 2008 Thrush S.F. (Keynote presentation) 20 years of environmental monitoring in the Manukau Harbour: Adding value to resource management. Manukau Harbour Technical Symposium, ARC, 8 April 2008
- 2008 Thrush, S.F. (Keynote presentation) Catastrophic and chronic consequences of terrestrial sediments on coastal ecosystems, implications for policy and planning (Italian Ecological Society) SItE Congresso (XVIII), Parma, 1-3 Settembre
- 2008 5th West Australian State Coastal Conference. Informing decision making for the sustainable management of coasts and estuaries. (Keynote)
- 2009 Thrush, S.F. (Keynote presentation) Coastal zone management: putting the ecology in ecosystem-based management. Academia Europaea /The Academy of Europe, 21st Annual Conference, Risks, Environment and Sustainable Development, 24 - 26 September 2009, Naples. Italy
- 2009 Thrush, S.F. (keynote) Homogenization of communities and habitats: chronic disturbance effects and the resilience of coastal communities. Incontro dei dottorandi e post-doc di analisi dei sistemi acquatici ed ecologia Ancona, 22-26 Febbraio 2010
- 2009 Ross Sea Workshop, Making Marine Science Matter, International Marine Conservation Congress, Washington DC, USA,
- 2010 ASLO Summer meeting, Santa Fe, June.
- 2011 Simon Thrush (Keynote) Protecting marine ecosystem services. Coastlines: spatial planning for land and sea. SkyCity Convention Centre, Auckland, Environmental Defence Society, 1-2 June 2011
- 2011 Thrush, S.F. Thinking outside the core: Searching for generality and societal relevance in biodiversity and ecosystem function. Themed section “Functional biodiversity” at *Nereis* Park, Kristineberg, Sweden 29th -31st August 2011 (Keynote)
- 2011 Hauraki Gulf State of the Environment Report launch & Seminar, Auckland Museum
- 2011 Thrush, S.F. NZ Marine Sciences Society Annual Conference, Plenary talk under the theme “Change in the Marine Environment”, Changes in nature and the nature of change in our coastal ecosystems.
- 2011 ECO conference, Resilient Environment: Resilient communities, Auckland (Keynote)
- 2012 Simon Thrush (Keynote). Why we need to think about ecology in a socio-ecological context 3rd Annual INTERCOAST Workshop, Bremen, Germany, June 16-23, 2012

Membership of Professional Societies:

New Zealand Marine Sciences Society, Ecological Society of America, Royal Society of New Zealand.

Invited talks at Universities and Research Institutions:

Country	Institution
NZ	University of Otago; University of Auckland; University of Waikato; NIWA; Min. Agriculture and Fisheries; Dept of Conservation; Cawthron Institute
Scotland	Culterty Field Station; University of Aberdeen
USA	Smithsonian Environmental Research Centre; Institute of Marine Coastal Science, Rutgers University; Scripps Institution of Oceanography; Dept Marine Sciences, University of Connecticut; Applied Ocean Physics and Engineering, WHOI; Dept Biological Sciences and School of the Environment, University of South Carolina; Dauphin Island Sea Lab, Alabama;
Ireland	University College Cork
England	Plymouth Marine Laboratory
Canada	Dept Sciences Biologique, Universite de Montreal; Memorial University, St John's Newfoundland,
Norway	University of Oslo
Germany	Alfred-Wegener Institut fur Polar- und Meeresforschung, Bremerhaven
Italy	University of Genoa, University of Bologna, University of Pisa, University of Ravenna, University of Salerno, Stazioni Zoologica Italy;
Australia	WA Fisheries Laboratory, Perth, West Australia
Finland	Finnish Institute of Marine Research, Abo Academi
Spain	Institut de Ciències del Mar- CMIMA (CSIC), University of Cantabria
Belgium	University of Gent
Netherlands	University of Groningen, Netherlands Institute of Coastal Ecosystems Research

Refereed publications from 2005 (out of 170+):**2005**

- Schwarz AM, Hawes I, Andrew N, Mercer S, Cummings V, Thrush S 2005. Primary production potential of non-geniculate coralline algae at Cape Evans, Ross Sea, Antarctica. *Marine Ecology Progress Series* 294:131-140.
- Hewitt, J.E., Anderson, M.J., Thrush, S.F., 2005. Assessing and monitoring ecological community health in marine systems. *Ecological Applications* 15: 942-953
- Hewitt, J.E., Thrush, S.F., Halliday, J. Duffy, C. 2005. The importance of small-scale biogenic habitat structure for maintaining beta diversity. *Ecology* 86: 1619-1626.

- Lohrer, A.M., S.F. Thrush, L. Hunt, N. Hancock and C. Lundquist 2005. Rapid reworking of subtidal sediments by burrowing spatangoid urchins. *Journal of Experimental Marine Biology and Ecology* 321: 155-170
- Thrush, S. F., C. J. Lundquist, and J. E. Hewitt. 2005. Spatial and temporal scales of disturbance to the seafloor: A generalised framework for active habitat management. *in* P. W. Barnes and J. P. Thomas, editors. *Benthic habitats and the effects of fishing*. American Fisheries Society, Symposium Series, Vol. 41. pp 639-649, Bethesda, Maryland.
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SHORT CV Dag Olav Hessen (<http://www.uio.no/hessen/>)

Date of birth: 06 July 1956, Nationality: Norwegian.

Position: Full professor (since 1993), University of Oslo. Dept. of Biology, Centre of Ecological and Evolutionary Analysis (CEES <http://www.cees.uio.no/>). Box 1066 Blindern, N-0316 Oslo, N.

Education, degrees and main positions:

- Master thesis, Zoology, (zooplankton, eutrophication, food webs) University of Oslo, 1982.
- Bachelor in Public Law, University of Oslo, 1984.
- PhD Biology (carbon flux in aquatic food webs), University of Oslo, 1988.
- Full professor at University of Oslo, Dept. of Biology from 1993
- Elected member of the Norwegian Academy of Sciences and Letter since 1998.
- Elected group leader at Centre of Higher Study (CAS), Norwegian Academy of Sciences and Letter, 2003-2004.
- Core member at Centre of Excellence: Ecological and Evolutionary Analysis since 2007.

• **Main scientific interests:** I have worked with aquatic ecosystems and aquatic biodiversity, from phytoplankton to fish, for the past 25 years. Many of the studies have dealt with alpine, sub-Arctic and high-Arctic ecosystems, covering mainly freshwater invertebrates, and both genetic and “classical” methods. Other main fields of research are: carbon and elemental cycling in aquatic ecosystems, effects of nitrogen deposition, ecological stoichiometry, planktonic food web dynamics, genome size evolution in animals. I have served several national and international boards (see below), and have been leading a number of national and international projects. I will especially point to my experience in communicating, promoting and incorporating science into policy development processes via media (radio, TV), popular science writing, talks and other types of outreach, plus involvement in legal instruments for knowledge-based biodiversity protection and ecosystem services (cf. below).

• **Major posts and administration:** Board of Norwegian Research Council (NFR) 2000-2002; Chair of The National Norwegian Committee for Polar Research 2000-2002; The National Committee for Ethics in Science 2005-2009; Board University of Oslo, 2009, The Ethical Council for the Norwegian Pension Fund (Oljefondet), 2010, one of the worlds largest investment funds.

Major positions specifically related to biodiversity:

I was member (1999 – 2004) of the governmental panel for preparing and proposing the Norwegian Act of Biodiversity Protection (2001-2004), which was implemented by 2009 as a rather unique and innovative, legal instrument for biodiversity protection. I am also currently member of governmental panel for assessing and implementing Ecosystem Services, 2011-2014. I have further been member of the UNEP Expert Group on Biodiversity (Roster), and member of the Scientific Steering Committee for ESF Programme “Linking communities and ecosystems” 1999-2003. Also I have worked on the climate-biodiversity issues also acting as reviewer for IPCC-reports. I am currently lead author on climate impacts the North Sea Region Climate Change Assessment (NOSCCA, http://www.loicz.org/projects/documents/009998/index_0009998.html.en).

Publications, outreach and prizes:

In total 200 scientific papers/book chapters mainly in refereed journals
 > 100 papers on popular science (mostly in Norwegian)
 22 “technical reports” (in Norwegian)

> 150 chronicles/ commentary newspaper columns
 12 popular science books on science, science history and science & society
 30-40 speeches and invited talks annually
 Ca. 10 radio programmes annually on science issues
 Regular participant in TV-programmes on popular science
 6 prizes for science and science outreach (for complete list, see: <http://www.uio.no/hessen/>)

ISI: 163 listed works (8 more accepted or in press for 2012), > 4600 times cited, H-index: 36

Biodiversity-related works focus aquatic ecosystems, both ambient drivers of diversity and effects of invasive species. Special competence on aquatic and arctic ecosystems.

Some selected, recent works on biodiversity:

Hessen, D.O., Braathen, J.E., Quenild, T and Skurdal, J. 2004. Plant exclusion of an herbivore; crayfish population decline caused by an invading waterweed. *Biological Invasions* 6: 133-140.
 Hessen, D.O., Bjørn A. Faafeng, Val H. Smith, Vegar Bakkestuen and Bjørn Walseng. 2006. Extrinsic and intrinsic controls of zooplankton diversity in lakes. *Ecology* 87: 433-443
 Walseng, B., Hessen, D.O., Halvorsen, G. and Schartau, A.K. 2006. Major contribution from littoral crustaceans to zooplankton species richness in lakes. *Limnol. Oceanogr.* 51: 2600-2606.
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 Hessen, D.O. and Walseng, B. 2008. The rarity concept and the commonness of rarity in freshwater zooplankton. *Freshwater Biology* 53: 2026- 2035.
 Elser, J.J., Andersen, T., Baron, J.S., Bergström, A.-K., Kyle, M., Nydick, K.R., Steger, L. and Hessen, D.O. 2009. Atmospheric nitrogen deposition distorts lake N:P stoichiometry and alters phytoplankton nutrient limitation. *Science* 326: 835 – 837
 Finstad, A.G., Forseth, T., Jonsson, B., Bellier, E., Hesthagen, T., Jensen, A.J., Hessen, D.O. and Foldvik, A. 2011. Competitive exclusion along climate gradients: energy efficiency influences the distribution of two salmonid fishes. *Global Change Biology* 17: 1703-1711
 Hessen, D.O., Bakkestuen, V. and Walseng, B. 2011. The ecological niches of *Bythotrephes* and *Leptodora*; lessons for predicting long-term effects of invasion. *Biological Invasions*: 13: 2561-2572.
 Kelly, N.E., Yan, N.D. Walseng, B. and Hessen, D.O. 2012. Differential impacts of an invasive predator on prey biodiversity and community composition in Canada and Norway. *Diversity and Distributions*, in press.
 Lindholm, M., Stordal, F., Moe, J.S., Hessen, D.O. and Aass, P. 2012. Climate-drive range retraction of an Arctic freshwater crustacean. *Freshwater Biology*, in press.

Some selected, recent works on Arctic ecosystems:

Hessen, D.O. 2001. UV-radiation and Arctic freshwater zooplankton. p157-184 in D. O. Hessen (ed): *UV radiation and Arctic Ecosystems*, Ecological Series 153, Springer-Verlag.
 Hessen, D.O., Peter Blomqvist, Geir Dahl-Hansen, Stina Drakare and Eva S. Lindström. 2004. Production and food web interactions of Arctic freshwater plankton and responses on increased DOC. *Arch. Hydrobiol.* 159: 289-307.
 Hessen, D.O. and Leu, E. 2006. Trophic transfer and trophic modification of fatty acids in high Arctic lakes. *Freshw. Biol.* 51: 1987-1998.
 Leu, E., Falk-Petersen, S., Kwasniewski, S., Wulff, A., Edvardsen, K. and Hessen, D.O. 2006. Fatty acid dynamics during the spring bloom in a high Arctic fjord: importance of abiotic factors vs. community changes. *Can. J. Fish. Aquat. Sci.* 3: 2760-2779.
 Wal, R. van der and Hessen, D.O. Analogous aquatic and terrestrial food webs in the high Arctic: the structuring force of a harsh climate. 2009. *Perspectives in Plant Ecology, Evolution and Systematics* 11: 231-240.
 Van Geest, G. J., Sachse, R., Brehm, M., van Donk, E. and Hessen, D. O. 2010. Maximizing growth rate at low temperatures: RNA:DNA allocation strategies and life history traits of Arctic and temperate *Daphnia*. *Polar Biology* 33: 1255-1262

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Home address: Grønlandsvegen #8, N-9013, Tromsø, Norway. Ph: 47 99280297**Date of Birth:** 7 November 1956**Citizenship:** Canadian (Resident of Norway)**Career Summary:**

Primary Literature – Scientific Journals: 175

Published Academic Books & Chapters in books: 24

Published Reviews, Letters & Comments/Replies: 8

Reports: 26

Popular writing (books/articles): 29

Presentations (with published abstracts): 123

Invited (Academic) lectures (or lecture series) and plenary talks: 30

Graduate students completed: 26 MSc, 5 PhD, 3 PDF

Research profile: I have conducted research, primarily on marine mammals for the past 25+ years, commencing fieldwork in the High Arctic while still an undergraduate. I have worked extensively with most of the northern phocid seal species, as well as walruses, narwhal, white whales and bowheads in the Arctic and elephant seals, Antarctic fur seals, and several penguin species in the Antarctic during my career. I am a conservation-oriented Polar ecologist that focuses primarily on population dynamics, behavioural ecology and evolutionary biology. “Climate change impacts” is a theme that has dominated much of my recent research activity. I have served the IUCN for the past 5 years as Chair of the Pinniped Specialist Group, which has broadened my expertise in biodiversity assessment methodologies as well as my awareness of broader global biodiversity issues.

Academic Degrees:

	Institution	Year
H.B.Sc. (Biology)	York University, Toronto	1979
M.Sc. (Biology)	Lakehead University, Thunder Bay ON	1982
Ph.D. (Zoology)	University of Guelph, Guelph ON	1986
PDF	Cambridge University/SMRU (NSERC/NATO Scholar)	1986/87

Professional positions since graduating:

Year	Position or Rank	Institution
1987-1993	Assistant Professor	University of Waterloo
1993-1996	Associate Professor	University of Waterloo
Sept. 96 - Feb 97	Senior Research Scientist	Akvaplan-niva
Mar 97 – Aug99	Professor of Biology	UNIS, Svalbard
Sept 99 - 02	Marine Ecology Co-ordinator	Norwegian Polar Institute
2003 - ongoing	Biodiversity Research Programme Leader	Norwegian Polar Institute
2005- ongoing	Prof. II Biology Professor	UNIS, Svalbard

Current Rank: Full Professor (Univ. Sector), Research Programme Leader (Inst. Sector)

Offices held:

Chairman, Academic User's Board of the Huntsman Marine Science Centre 1985-1992
 Board of Directors, Huntsman Marine Science Centre 1990-1994
 Secretary of the Canadian National Council for the International Union of Biological Studies (NSERC) 1989-1992
 Editorial Board Member - Canadian Journal of Zoology 1990-1994
 Norwegian National Research Council - Board Member for Arctic Light & Heat Programme Jan 1997- Dec 31st 2002
 Member at Large – Society for Marine Mammalogy, Board of Directors 2002-2004
 President - International Society for Marine Mammalogy - 2004-2006
 Serving Past-President 2007-ongoing
 Arctic Climate Impact Assessment Working Group - National Committee Member & contributing author to both the Marine and Wildlife ACIA (International) chapters 2002-2006.
 NERC (United Kingdom) Special Committee on Seals (SCOS) – Committee Member 2003-2008
 International Co-ordinator for Ringed Seal Circumpolar Network - Conservation of Arctic Flora and Fauna (CAFF) 2000 –2008, 2012 - ongoing
 NorACIA – Group III – Environment – Member (and Leader of the Impacts of Sea Ice Reductions in the Norwegian Arctic project)
 NorACIA – Barents Sea Advisory Group – Member 2010-2012.
 Norwegian Scientific Academy for Polar Research Executive Board Member – (2010-2012)
 Society for Marine Mammalogy – Conservation Committee – Member 20010-ongoing
 Biodiversity Centre Programme Scientific Committee (Polar Environmental Centre) -Member – 2001-2010.
 SWIPA Panel member and Lead author – Impacts of changing sea ice conditions on arctic biota
 American Cetacean Society, Scientific Advisory Board Member (arctic species specialist) 2004 – ongoing
 Review panel member – Frontiers in Aquatic Physiology 2010-ongoing
 ESF Life Sciences Standing Committee (National rep for Norway) 2010 –
 CCAMRL Alternate Science Representative for Norway (2005, 2006, 2007) 2010 -
 Scientific Committee of the Gunnerus Sustainability Award – 2012
 IUCN (International Union for Conservation of Nature) – Chair of the Pinniped Specialist Group 2006-ongoing

5 most-relevant biodiversity publications:

- Stafford, K.M., Moore, S.E., Berchok, C., Wiig, Ø., Lydersen, C., Hansen, E. and Kovacs, K.M. 2012. Spitsbergen bowhead whales sing through the polar night. *Endangered species* - Accepted as the Feature Article – July 2012.
- Kovacs, K.M., Aguilar, A., Aurioles, D., Burkanov, V., Campagna, C., Gales, N., Gelatt, T., Goldsworthy, S., Goodman, S.J., Hofmeyr, G.J.G., Härkönen, T., Lowry, L., Lydersen, C., Schipper, J., Sipilä, T., Southwell, C., Stuart, S., Thompson, D. and Trillmich, F. 2012. Global threats to pinnipeds. *Marine Mammal Science* 28: 414-436.
- Kovacs, K.M., Moore, S., Overland, J.E. and Lydersen, C. 2011. Impacts of changing sea ice conditions on Arctic marine mammals. *Marine Biodiversity* 41: 181-194 (DOI 10.1007/S12526-010-0061-0).
- Hoffmann, M. et al. (including K.M. Kovacs). 2010. The Impact of Conservation on the Status of the World's Vertebrates. *Science* 330: 1503-1509.
- Schipper, J. et al. (including K.M. Kovacs). 2008. The biogeography of diversity, threat, and knowledge in the world's terrestrial and aquatic mammals. *Science* 322: 225-230.

Prof. Ståle Navrud, School of Economics and Business, Norwegian University of Life Sciences (UMB)	
Introduction	
Dr. Ståle Navrud is Professor of Environmental and Natural Resource Economics at UMB. His interdisciplinary training and long track record of work in large, multidisciplinary teams in numerous national and EU research projects from the 3rd to the current 7th Framework Program for Research (1990-2012); and numerous applied projects for national and international environmental authorities, regional development banks and the World Bank, has given him insight and experience in both theoretical and applied management of ecosystem services, from both a natural sciences, social sciences and the economics perspective. He has a M.Sc. degree in Ecology and Management of natural resources (Agricultural University of Norway 1984), a Dr. Scient (Ph.D.) in Environmental and Resource Economics (Agricultural University of Norway 1989), and was a Fulbright Scholar and visiting researcher at the Department of Forestry, and the Department of Agricultural, Resource Economics and Policy at University of California (UC) – Berkeley in 1986 and 1993/94; and visiting researcher at Department of Economics, UC-San Diego in 1997, 2000, 2009 and 2012 and University of New Mexico 2009/2010. He previously worked at the Norwegian Ministry of Environment and independent research institutes, before joining the university. He took over (from the late David W. Pearce) as rapporteur of the UN ECE Network on Benefits and Economic Instruments (NEBEI) – a network of economists working in ministries of environment and academic environmental economists assessing damage costs to ecosystems, health and cultural heritage from air pollution), and is a member of the board of the European Consortium on Landscape Economics (CEEP). He has conducted extensive ecosystem services valuation work for national environmental and wildlife management authorities (in Norway, Sweden, Denmark, UK, Botswana, Croatia, Canada, China, Ghana, Indonesia, Kenya, Kuwait, Sri Lanka, Tanzania, Zambia, Vietnam), and for international bodies (UNEP, FAO, European Environment Agency, OECD-Environment Division, European Commission DG Environment, Global Environmental Facility and the World Bank).	
1. Scientific or technical expertise in biodiversity and ecosystem services with regard to either the natural sciences, social sciences or economics;	
He has more than 20 years experience in economic valuation of terrestrial, aquatic and marine ecosystem services and biodiversity in both developed and developing countries; and spatial and temporal transfer/generalization and aggregation of these non-market economic values (i.e. benefit transfer / value transfer). He is one of the leading senior environmental economists in the area of environmental valuation and benefit transfer in Europe, and has contributed to administrative guidelines on environmental valuation, benefit transfer and cost-benefit analysis both nationally and internationally. He has also conducted numerous cost-benefit analyses of biodiversity conservation and wildlife management policies as well as environmental, agricultural, transportation, energy and climate change policies with impacts on biodiversity and ecosystem services.	
2. Experience in communicating, promoting and incorporating science into policy development processes;	
He has worked closely with both national and international environmental authorities for more than 20 years on both developing guidelines for and conducting cost-benefit analyses of projects and policies involving ecosystem services. He regularly communicates research results to decision makers through media and scientific meeting (in addition to presentations at the international conferences of environmental and resource economists, and ecological economists). He has also extensive experience in running cost-benefit analysis courses for environmental authorities. His multi-disciplinary background in ecology and economics; and working experience from the Ministry of Environment, project work for national and international authorities and from academia (both teaching and research) is very successful in promoting and incorporating environmental valuation work into policy development processes. He was also awarded (in 2010) by The Norwegian University of Life Sciences for his research communication skills.	

3. Ability to work in international (EU, multilateral and global) scientific and policy processes. Extensive experience in working on international scientific initiatives and agencies. Contributed to the following international processes that concerns biodiversity: - UNEP <i>Global Biodiversity Assessment</i> (1995) Reviewer; contributing author national report - OECD <i>Valuation of Biodiversity Benefits</i> (2001) - European Commission DG Environment and the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety: <i>Review of the Economics of the Global Loss of Biological Diversity</i> (2008) - The Economics of Ecosystems and Biodiversity: <i>TEEB Quantitative Assessment</i> (2010) - European Environment Agency (EEA): <i>Scaling Up Ecosystem Services Values</i> (2011) - The World Bank: <i>Global Economic Value of avoiding future forest and biodiversity loss in the Amazon Rainforest</i> (2011-2012) - Intergovernmental Panel on Climate Change (IPCC), Review editor WG 2, 5th Assessment Report (2011-2014)
4. List of key publications relevant to IPBES Brander, L.; I. Bräuer, H. Gerdes, A. Ghermandi, O. Kuik, A. Markandya, S. Navrud, P. Nunes, M. Schaafsma, H. Vos, and A. Wagtendonk 2012: Using meta-analysis and GIS for value transfer and scaling up : Valuing Climate Induced Losses of European Wetlands. <i>Environmental and Resource Economics</i>, 52 (3); 395-413 Bateman, I. J.; Brouwer, R.; Ferrini, S.; Schaafsma, M.; Barton, D.N.; Dubgaard, A.; Hasler, B.; Hime, S.; Lieken, I.; S. Navrud; De Nocker, L.; Sceponaviciute, R.; Semeniene, D. 2011: Making Benefit Transfers Work: Deriving and Testing Principles for Value Transfers for Similar and Dissimilar Sites Using a Case Study of the Non-Market Benefits of Water Quality Improvements Across Europe. <i>Environmental and Resource Economics</i> 50 (3); 365-387 van der Heide, C. M.; N. A. Powe and S. Navrud 2010 : <i>Environmental and agricultural modelling. Economic principles of monetary valuation in evaluation studies</i> Chapter 13 (pp. 195-317) in Brouwer, Floor M. and Martin van Ittersum eds. (2010): <i>Integrated approaches for policy impact assessment</i>. Springer Stenger, A., P. Harou & S. Navrud 2009: Valuing Environmental Goods and Services Derived From Forests. <i>Journal of Forest Economics</i>; 15(1-2),1-14 Tran Huu Tuan, Mai Van Xuan, Do Nam and S. Navrud 2009: Valuing direct use values of wetlands: a case study of Tam Giang-Cau Hai lagoon wetland in Vietnam. <i>Ocean & Coastal Management</i> 52; 102-122 Lindhjem, H. and S. Navrud 2009: Asking for Individual or Household Willingness to Pay for Environmental Goods? Implications for aggregate welfare measures. <i>Environmental and Resource Economics</i> 43; 11-29 Navrud, S., R. Ready, K. Magnussen and O. Bergland 2008: Valuing the social benefits of avoiding landscape destruction from overhead power transmission lines - Do cables pass the benefit-cost test? <i>Landscape Research</i>, 33 (3); 1-16 (June 2008) Lindhjem, H. and S. Navrud 2008: How Reliable are Meta-Analyses for International Benefit Transfer? <i>Ecological Economics</i>, 66(2-3); 425-435. Bartczak, A., H. Lindhjem, S. Navrud, M. Zandersen and T. Zylicz 2008: Valuing forest recreation on the national level in a transition economy: The case of Poland. <i>Forest Policy and Economics</i>.10 (7-8); 467-472. Navrud, S and R. Ready (eds.) 2007: <i>Environmental Value Transfer: Issues and Methods</i>. Springer, Dordrecht, The Netherlands. 290 pp. Navrud, S. 2007: Practical tools for value transfer in Denmark – guidelines and an example. Working Report No. 28, 2007, Danish Environmental Protection Agency, Copenhagen. http://www2.mst.dk/omkroner/Udgivnings/Frams.asp?http://www2.mst.dk/Udgiv/publications/2007/978-87-7052-656-2/html/alepubl_eng.htm

- Ready, R. and S. Navrud 2006: International Benefits Transfer: Methods and Validity Tests. *Ecological Economics* 60(2), 429-434.
- Veisten, K. & S. Navrud 2006. Contingent valuation and actual payment for voluntarily provided passive-use values: Assessing the effect of an induced truth-telling mechanism and elicitation formats. *Applied Economics*, 38, 735-756
- Veisten, K., S. Navrud, & J.S.Y. Valen 2006: Lexicographic preference in biodiversity valuation: tests of inconsistencies and willingness to pay. *Journal of Environmental Planning and Management* 49 (2); 167-180.
- Bateman, I.J.; P. Cooper, S. Georgiou, S. Navrud, G.L. Poe, R.C. Ready, P. Riera, M. Ryan and C.A. Vossler 2005: Economic Valuation of Policies for Managing Acidity in Remote Mountain Lakes: Examining Validity Through Scope Sensitivity Testing. *Aquatic Sciences* 67 (3); 274-291.
- Ready, R. and S. Navrud 2005: Benefit Transfer – The Quick, the Dirty and the Ugly ? *Choices* (The magazine for food, farm and resource issues), 20 (3); 195-199. <http://www.choicesmagazine.org/2005-3/nonmarket/2005-3-04.htm>
- Marusic, Z, S. Horak and S. Navrud 2005: The Economic Value of Coastal Forests for Tourism. A Comparative Study of Three Valuation Methods. *Tourism*, 53 (2); 141-152.
- Navrud, S. and G. K. Vondolia 2005: Using contingent valuation to price ecotourism sites in developing countries. *Tourism*, 53 (2); 115-125.
- Holland, M, A.Hunt, F. Hurley, S. Navrud, and P. Watkiss 2005: Methodology for Cost-Benefit Analysis of CAFÉ (Clean Air for Europe). Volume 1: Overview and methodology. Report to DG Environment. European Commission, 112pp. http://www.cafe-cba.org/assets/volume_1_methodology_overview_02-05.pdf
- Veisten, K., Hoen, H.F., S. Navrud, & Strand, J. 2004. Scope insensitivity in contingent valuation of complex environmental amenities. *Journal of Environmental Management*, 73; 317-331.
- Ready, R.C. S. Navrud, B. Day, R. Dubourg, F. Machado, S. Mourato, F. Spanninks and M.X.V. Rodriguez 2004: Benefit Transfer in Europe. How Reliable Are Transfers Between Countries? *Environmental and Resource Economics* 29; 67-82.
- Navrud, S. 2004: Value transfer and environmental policy. Chapter 5 (pp. 189-217) in Tietenberg, T. and H. Folmer (eds.) 2004: *The International Yearbook of Environmental and Resource Economics 2004/2005. A survey of Current Issues*. Edward Elgar Publishing, Cheltenham, UK and Northampton, MA, USA.
- Navrud, S. 2001: Economic valuation of inland recreational fisheries. Empirical studies and their policy use in Norway. *Fisheries Management and Ecology* 8 (4-5); 369-382.
- Navrud, S. 2001: Comparing Valuation Exercises In Europe And The United States, Challenges For Benefit Transfers And Some Policy Implications. Chapter 4 (pp.63-77) in OECD 2001: *Valuation of Biodiversity Benefits. Selected Studies*, Organisation for Economic Co-operation and Development (OECD), Paris,
- Navrud, S. and E.D Mungatana 1994: Environmental valuation in developing countries. The recreational value of wildlife viewing. *Ecological Economics*, 11, 135-151. (Selected for reprinting in: "Environmental valuation: a worldwide compendium of case studies" (2000), pp. 35-52. Earthscan Publications Ltd, London, UK)
- Navrud, S. 1993: Economic value of biological diversity in Norway. *Scandinavian Forest Economics* 34;74-97.
- Navrud, S. (ed.) 1992: *Pricing the European Environment*. Scandinavian University Press / Oxford University Press; Oslo, Oxford, New York. 288 pp.

CURRICULUM VITAE



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 E-mail: Kristin.Rosendal@fni.no
 Civilian state: Married, two children (born: 1995 and 2000)

SCIENTIFIC PROFILE

I am a professor in political science and have published extensively with prestigious international journals and publishers. For the last 25 years I have studied international environmental agreements and institutions related to biodiversity, biotechnology and genetic resources. My research has focused on questions related to institutional causes of biodiversity problems and I have looked at governance challenges the international society faces in this area. Furthermore, I have studied challenges concerning the precautionary principle in relation to the CBD as well as its Cartagena Protocol. Part of my work has been dedicated to building domestic and international networks (Costa Rica, Ethiopia, Ghana, and Switzerland). I have participated in program boards and committees for the Research Council of Norway, organized research collaboration with external universities and research institutes (Colombia, Germany, India, Malaysia, Netherlands, the UK, USA), and symposia and scientific panels for international conferences (DIVERSITAS, World Aquaculture Society, International Studies Association), and been brought in as an expert in scientific meetings.

ACADEMIC BACKGROUND

- 2007-: Research professor at the Fridtjof Nansen Institute (FNI).
- 1999-: Dr. Polit., University of Oslo / Senior Research Fellow at the FNI.
- 1997-00 & 2001-03: Programme director, Global Environmental Issues, FNI.
- 1996-97: Research fellow, Centre for Environment and Development (SUM), University of Oslo.
- 1992-93: Research mission at the Norwegian Ministry of Environment.
- 1989-98: Researcher/research fellow/ Doctoral student (PhD) at FNI.
- 1987-89: Cand. Polit. in political science, University of Oslo. Scholarship (Masters) at FNI.
- 1985-86: Diploma of Advanced European Studies, College of Europe, Bruges, Belgium.
- 1982-85: Cand. Mag., Faculty of Social Science, University of Oslo.

ACADEMIC/RESEARCH WORK

Selected publications (biodiversity, property rights and biotechnology):

- Rosendal, G. K., 'Adjusting Norwegian Agricultural Policy to the WTO through Multifunctionality: Utilizing the Environmental Potential?' *Journal of Environmental Policy and Planning*, Available online 10.05.2012, 19 p.
- Rosendal, G. K., 'Biodiversity Protection in International Negotiations: Cooperation and Conflict'. In S. Dinar (ed), *Beyond Resource Wars: Scarcity, Environmental Degradation, and International Cooperation*. Cambridge (USA), The MIT Press, 2011, pp. 59-86.
- Rosendal, G. K. & S. Andresen. 2011. Institutional Design for Improved Forest Governance through REDD. *Ecological Economics*, 7 (11): 1908-1915.
- Rosendal, G. K., *Analytical Framework for Analysing Case Studies of ABS in Africa*. FNI Report 7/2010. Lysaker, FNI, 2010, 11 p.
- Myhr, A. I. and G. Kristin Rosendal, 'GMO Assessment in Norway: Societal Utility and Sustainable Development'. *EMBO Reports*, Vol 10, No 9, 2009, pp. 2-3.
- Andresen, S. & G.K. Rosendal. 2009. 'The Role of the United Nations Environment Programme in the Coordination of MEA', in F. Biermann, B. Siebenhüner & A. Schreyögg (eds), *International Organizations and Global Environmental Governance*. Routledge Publishers.

- Rosendal, G. K., "Interpreting sustainable development and societal utility in Norwegian GMO Assessments" *European Environment*, Vol 18, No 4, 2008, pp. 243-256.
- Rosendal, G. K., 'Convention on Biological Diversity'. In Reinert, K. A. and R.S. Rajan (eds): *The Princeton Encyclopedia of the World Economy*. Princeton: Princeton University Press, 2008.
- Rosendal, G. K. "Balancing Access & Benefit-Sharing and Legal Protection of Innovations from Bioprospecting: Impacts on Conservation of Biodiversity". *Journal of Environment and Development. Special issue on biodiversity*. Vol 15, No 4, 2006, pp. 428-447.
- Rosendal, G. K. 2006. 'Regulating the Use of Genetic Resources – Between International Authorities'. *European Environment*, Vol 16, No 5, 2006, pp. 165-277.
- Rosendal, G. K. I. Olesen, H. B. Bentsen, M. W. Tvedt and M. Bryde, 'Access to and Legal Protection of Aquaculture Genetic Resources: Norwegian Perspectives', *Journal of World Intellectual Property*, Vol 9, No 4, 2006, pp. 392-412.
- Rosendal, G. K. 2006. "The Convention on Biological Diversity: Tensions with the WTO TRIPS Agreement over Access to Genetic Resources and the Sharing of Benefits", in Oberthür, S. & T. Gehring (eds.) *Institutional Interaction in Global Environmental Governance – Synergy and Conflict Among International and EU Policies*. Cambridge (MA), MIT Press, pp. 79-103.
- "The Precautionary Principle: Knowledge Counts but Power Decides", with S. Andresen and L. Walloe, in Cooney, R. and B. Dickson (eds.) *Biodiversity and the Precautionary Principle: Risk and Uncertainty in Conservation and Sustainable Use*. London: Earthscan, 2005, pp. 39-55.
- Rosendal, G.K. 2005. "Governing GMOs in the EU: A Deviant Case of Environmental Policy-making?" *Global Environmental Politics*. 5:1. pp. 82-104.
- Rosendal, G.K. 2001. "Impacts of Overlapping International Regimes: The Case of Biodiversity", in *Global Governance* 7, pp. 95-117.
- Rosendal, G.K. 2000. *The Convention on Biological Diversity and Developing Countries*. Dordrecht: Kluwer Academic Publishers.
- Rosendal, G.K. 1999. "Implementing International Environmental Agreements in Developing Countries: The Convention on Biological Diversity", Oslo University Press, Doctoral Dissertation.
- Rosendal, G.K. 1995. "The forest issue in post-UNCED negotiations: Conflicting interests and fora for reconciliation", *Biodiversity and Conservation*. London: Chapman & Hall. pp. 91-107, vol. 4.
- Rosendal, G.K. 1995. "Genebanks – conservation of biodiversity", in N.C. Stenseth, K. Paulsen & R. Karlsen (eds) *Africa – nature, society and development assistance* Oslo: Ad Notam Gyldendal.
- Rosendal, G.K. 1995. "The Politics of Patent Legislation in Biotechnology: An International View", in R. El-Gewely (Ed) *Biotechnology Annual Review*. Amsterdam: Elsevier. pp. 453-476.
- Rosendal, G.K. 1995. "The Biodiversity Convention: Implications of the US 'no' in Rio", in C. Juma & V. Sánchez (Eds) *Bioplomacy*, Nairobi: ACTS Press.

Selected professional and consultancy work:

- Member of WG for Norwegian Biotechnology Advisory Board: GM Risk Assessment, 2012.
- Referee for various international journals.
- Organising Symposium and Scientific Panels at DIVERSITAS Conference (2005) and International Studies Association (2007); Seminars on aquatic genetic resources, WAS.
- Member of 'Working Group on Biotec Norway 2020'; Member of National Committee on Global Change, 2005-2009. Member of Steering Committee for Research Programme on Biological Diversity; Research Council of Norway.
- Moderator at the Norway / UN Conference on Technology Transfer and Capacity Building, 2003, Trondheim, Norway and Member of Organising Committee for the same Conference in 2007.
- Paper to the participants of the European Platform for Biodiversity Research Strategy (EPBRS).
- Member of Norwegian delegation to COP12 to CITES (2002) and CBD (2002).
- Associate Editor to *Biotechnology Annual Review*, Elsevier Science B.V., the Netherlands, 1994-.
- Consultant to UNEP's *Global Environment Outlook (GEO-1)*, Oxford University Press (1996).
- Board member /deputy board director of the Norwegian Rainforest Foundation: 1996-2001.

CURRICULUM VITAE

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Born: 20 September 1955
 Citizenship: Swedish

EDUCATION

Master of Science, University of Umeå, 1981
 PhD, University of Umeå, 1987
 Docent, University of Umeå, 1992.

SYNOPSIS OF RECENT RESEARCH

My research is focused on ecosystem dynamics, land use change, natural disturbances and components of resilience including the role of social institutions. I am coordinating major interdisciplinary research projects as part of the Stockholm Resilience Centre, Stockholm University. The focus is on governance and management in urban landscapes. I coordinated a major urban research project in metropolitan Stockholm which was part of the Millennium Ecosystem Assessment. I am also principal investigator of multidisciplinary projects in Madagascar and in the south Pacific. Recently, I have contributed with papers that have been internationally very influential in research on the role of biodiversity for ecosystem services and the use of network theory in landscape management.

POSITIONS

1987-1989 Swedish Research Council post doctoral researcher at BYU, Provo, Utah, USA.
 1989-1994 Swedish Research Council "Forskarassistent" (100%) (Jan-May 1993, Paternity leave).
 1994-1996 Universitetslektor with 75% research and 25% teaching Umeå University
 1996-2000 Scientific Research Director, Swedish Biodiversity Centre, Uppsala
 2000- Professor in Natural Resource Management, Stockholm University
 2007 - Steering committee for Stockholm Resilience Centre

MEMBERSHIPS OF BOARDS AND DIRECTORSHIPS

Chair of the Council of Tropical Biology Association 2002 – 2006
 (www.tropical-biology.org)
 Chair of international evaluation panel of FIBRE (Finnish Biodiversity research programme 1996-2002).
 Chair of evaluation panel for research proposals Sarec 2004 – approx. 100 proposals each year and a budget of 1 million €.
 Chair of scientific Committee of bioSustainability of Diversitas 2005-
 (www.biosustainability.org)
 Chair of Man and Biosphere International Coordinating Council (UNESCO) 2006-2008
 (www.unesco.org/mab)
 Study leader "Cities and Biodiversity Outlook I - Assessment of urbanization, biodiversity and ecosystems" a UN-project (decision X/22 vid CBD COP10 in Nagoya, Japan).
 www.cbd.int

Member of "The Economics of Ecosystems and Biodiversity" (www.teebweb.org) a G8-initiative. I have been coordinating lead author for the chapter "Biodiversity, Ecosystems and Ecosystem Services".

Member of "Global Partnership Task force" CBD, IUCN, UNESCO UN-Habitat to develop a system of indicators for sustainable urban development. Reporting to COP- 11, India 2012.

Member of the Swedish delegation at the Ministry of Environment, Convention on Biological Diversity, CBD COP10 in Nagoya Oct 14-28, 2010. Participated as scientific expert

GRANTS (last 10 years)

- 1998 – 2000 Swedish Research Council "Mosaic Landscapes, Pollinators and Islands" 100.000€ Research in collaboration with California State University, resulted in several highly cited papers, one in *Fron. Ecol Env.*
- 2001- 2003 Sarec "Sustainable use of dry forest in Madagascar" 200.000€ . In collaboration with University of Antananarivo, resulted in two PhD-theses and five publications.
- 2002 - Formas "Operationalising sustainability" (together with Carl Folke) 600.000€, two PhD-theses
- 2003 – Formas "Urban Biodiversity – patterns and processes" 180.000€ one PhD thesis
- 2004 – Sarec "Ecosystem services in southern Madagascar" 60.000€ Together with University of Antananarivo.
- 2006 - Vetenskapsrådet " Structure and dynamics of plant-pollinator networks". 150.000€. One PhD-project started 2006.
- 2006- Mistra for "Stockholm Resilience Centre" (together with Carl Folke, Johan Rockström, Karl-Göran Mähler och Sverker Sörlin). 20 million € for the period 2007-2019 for establishing a large centre for research on governance and management of social-ecological systems.
- 2009 - "Modularity and connectivity in social-ecological networks". Formas 2009-2011. 7,4 milj SEK
- 2010 - "Governance of ecosystem services under scenarios of change in southern Africa" Sida 2011-2013, 4,5 milj.
- 2011 – URBES- Urban biodiversity and ecosystem services Biodiversa 2012-2014, 3 milj. €.

INTERNATIONAL COLLABORATIONS

I have extensive ongoing collaboration with several research groups around the world: UC Berkeley, Rutgers University, CSIRO Canberra, Australia, University of Antananarivo Madagascar, University of Cape Town, South Africa, ATREE Bangalore, Institute of Economic Growth, New Delhi, India, Tulane University, New Orleans, Columbia University, New York, Cornell University and Arizona State University.

CONFERENCES AND SYMPOSIA (last 2 years):

International Argumenta Symposium, "Ecological City", Lahti (Finland) 28th -29th January. 2009. Key note presentation "Urban ecosystem services – What and Why?" <http://www.els.salford.ac.uk/urbannature/news/events/argumenta/argumenta.htm>

MillionTreesNYC, Green Infrastructure, and Urban Ecology: A Research Symposium, March 5th and 6th, 2010. New York City. Key note "Urban Social-ecological Systems and Resilience: Building Capacity to Cope with Uncertainty and Change". <http://www.milliontreesnyc.org/html/research/index.shtml>

Urban Biodiversity & Design, URBIO 2010, International Conference Nagoya, Japan. 18 – 22 May. Key note "Natural Capital and Indicators of Ecosystem Services and Biodiversity in Urban Landscapes". <http://www.jilac.jp/URBIO2010/doku.php>

International Symposium—Sub-global Assessment of Satoyama and Satoumi in Japan, May 23, Tokyo, Japan. Keynote “Stockholm Urban Assessment and the Use and Impact on Its Scale and Beyond” http://www.ias.unu.edu/sub_page.aspx?catID=8&ddlID=1233

International Symposium on Cities and Satoyama Landscapes May 22, 2010, Nagoya, Japan. Key note “Cities and Social-Ecological Production Landscapes in Europe” <http://www.cbd.int/iyb/doc/celebrations/iyb-Japan-SymposiumSatoyamaLandscapes-celeb-jp.pdf>

The Second Expert Workshop on CBI 14-16 July, 2010, Singapore. Key note address <http://www.cbd.int/authorities/gettinginvolved/cbi.shtml>

Dynamic Interlinkages between Social and Ecosystem Changes: Towards a Europe Africa Partnership. European Science Foundation. The Netherlands, 8-12 November. 2010, Key note “Ecosystem services: managing trade-offs between provisioning and regulating services” http://www.icsu-africa.org/docs/efs_nov2010.pdf

Biodiversity and the Millennium Development Goals: challenges for research and action 1-3 December. 2010. Frankfurt Germany. Key note “Governance and future biodiversity - ecosystem services” <http://www.biodiversity-conference2010.de/index.php/documents.html>

Resilience 2011, ASU, Phoenix, Arizona March. Organized a symposium on Resilience and transitions in human-dominated landscapes.

First meeting on the Implementation of the Plan of Action on Sub-National Governments, Cities and Other Local Authorities on Biodiversity, Maison des Relations Internationales of the city of Montpellier, France, from 17 to 19 January 2011. CBD meeting concerning decision X/22 COP 10, Nagoya. Gave a presentation

Third International Local Action for Biodiversity (LAB) Workshop, Bergvriër Municipality, South Africa 1 – 4 February 2011. LAB is a global biodiversity programme coordinated in partnership by ICLEI – Local Governments for Sustainability and IUCN. Gave a presentation

The delivery of ecosystems services. Workshop in London March 1 2011 UK Foresight, Department for Environment, Food and Rural Affairs (DEFRA) and the UK Science and Innovation Network. Invited expert on Ecosystem services

Global Partnership on Local and Sub-national Action for Biodiversity meeting Bonn, Germany on 5 and 6 September. Gave a presentation

URBIS- Connecting social and ecological systems for sustainable urban development, workshop - New York 16-18 October. Main organizer

Cornell University, workshop 19-20 October with participants from SRC and Cornell University discussing collaboration. Main organizer together with Marianne Krasny at Cornell University.

Cities and Biodiversity Outlook, a Global Assessment of the Links between Urbanization, Biodiversity and Ecosystems, CBO-1 Workshop, CBD, Montreal November 14, 2011

GEA – meeting on post-tsunami recover, Tokyo, Japan, October 2011. Key note address.

The Third Expert Workshop on CBI 10-14 October 2011, Singapore. Key note address <http://www.cbd.int/authorities/gettinginvolved/cbi.shtml>

Entomological Society of America Annual conference in Reno, November 2011. Invited speaker.

Organized and planned following conferences, symposia and graduate courses (last ten years):

- “Trophic interactions and cascade effects” at University of California, Berkeley april 1997.
- “Local knowledge and ecosystem assessment” workshop, Kauai, Hawaii, May 2001
- “Urban ecology” PhD-course Stockholm 2003.
- “Bayesian statistics” PhD-course Stockholm 2005.
- “UrbanLife 2005” International conference in Gothenburg May 2005.
- “Use of network theory in research on social-ecological systems. International PhD-course in Stockholm January 2006.
- “Ecosystem service indicators: linking the dynamics of ecosystems to human well-being”. Stockholm 19-21 August 2010. A science-policy workshop y bioSUSTAINABILITY of DIVERSITAS, Stockholm Resilience Centre with participants from Asia, Africa, Europe, North and South America.

Invited to give seminars and lectures at the following departments:

-2011

- Laboratory of Biomedical and Environmental Sciences, University of California, Los Angeles, California. (Prof. P H Rundell).
- Department of Botany, University of California, Berkeley, California. (Prof. H G Baker).
- Department of Botany and Range Science, Brigham Young University, Provo, Utah. (Prof. P A Cox).
- Department of Biology, Wayne State University, Detroit, Michigan. (Prof. C D Freeman).
- Department of Botany, University of Massachusetts, Boston, Massachusetts. (Prof. K S Bawa).
- Department of Botany, Harvard University, Harvard, Massachusetts. (Prof. T A Givnish).
- Department of Ecology and Evolution, State University of New York, Stony Brook, New York. (Prof J D Thomson)
- Dept of Biology, University of Northern Arizona, Flagstaff, Arizona. (Prof. P W Price).
- Dept of Biology, University of Utah, Salt Lake City, Utah. (Prof. T D Dawson).
- Dept of Biology, Utah State University, Logan, Utah. (Prof R Mueller).
- Institute of Arctic Biology, University of Alaska, Fairbanks, Alaska. (Prof. J F Fox).
- Dept of Botany, University of Canterbury, Christchurch, New Zealand. (Prof. D G Lloyd).
- Division of Plant Industry, CSIRO, Canberra, Australia (Prof. J. J. Burdon).
- Lund University, Department of Genetics (Prof. B-O Bengtsson)
- Lund University, Department of Ecology (Docent Anders Tunlid)
- Swedish University of Agriculture, Department of Forest Entomology (Prof. S. Larsson)
- Department of Integrative Biology, University of California, Berkeley, USA. (Prof. W. Lidicker)
- Department of Botany, University of Trondheim (Prof. S. Armbruster)
- Department of Biology, State University of California, Fullerton (Prof. S. Banack)
- Dept of Biology, Utah State University, Logan, Utah. (Prof R Mueller).
- Institute of Arctic Biology, University of Alaska, Fairbanks, Alaska. (Prof. J F Fox).
- Dept of Botany, University of Canterbury, Christchurch, New Zealand. (Prof. D G Lloyd).
- Division of Plant Industry, CSIRO, Canberra, Australia (Prof. J. J. Burdon).
- Department of Integrative Biology, University of California, Berkeley, USA. (Prof. W. Lidicker)
- Department of Botany, University of Trondheim (Prof. S. Armbruster)
- Department of Biology, State University of California, Fullerton (Prof. S. Banack)
- Centre for Sustainability Studies, Arizona State University, Phoenix (Prof. C. Redman)
- Department of Biology, Columbia University, New York (Prof. M. Perez)

School of Forestry, Yale University, New Haven (Prof. Pavan Sukhdev)
Department of Natural Resources, Cornell University, Ithaca (Prof. M. Krasny)

FUNCTIONED AS REFEREE FOR THE FOLLOWING JOURNALS

Science, PNAS, Front. in Ecol. Env, Ambio, Oikos, Ecology, Oecologia, Annals of Missouri Botanical Garden, Biotropica, Ecography, Journal of Tropical Ecology, Ecology and Society, Ecology Letters, Conservation and Society

TEACHING EXPERIENCE

Between 1994-1996 I have been Universitetslektor with 100 hours lecturing duties annually. Since 1996 I have been developing the International MSc-course at the Swedish Biodiversity Centre and lectured on population biology, community ecology, natural resource management, tropical botany. Since 2001 I have been responsible for several advanced undergraduate courses in Natural Resource Management and Environmental Science at Stockholm Universities.

Main courses taught (approx. lecturing time given within parentheses) UmU=Umeå University, UU=Uppsala University, SU=Stockholm University, SLU=Swedish University of Agricultural Sciences):

- 1994 - Conservation biology, advanced undergraduate course 10p. UmU (100 hours of lectures).
 - 1995 - Conservation biology, advanced undergraduate course 10p. UmU (100 hours of lectures).
 - 1995 - Plant-microbe interactions, graduate course SLU/UmU
 - 1995 - Current methodologies in Ecology, graduate course UmU
 - 1996 - Conservation biology, advanced undergraduate course 10p. UmU (100 hours of lectures).
 - 1997 - Foundations of Ecology, graduate course at SLU (5 hours of lectures)
 - 1998 - International Master of Science course 80p. SLU/UU (250 hours of lectures)
 - 1998 - Research school in ecological land use, SLU, (5 hours of lectures)
 - 1999 - International Master of Science course 80p. SLU/UU (250 hours of lectures)
 - 2000 - International Master of Science course 80p. SLU/UU (250 hours of lectures)
 - 2001 - Natural resources and Society, 10p. Stockholm University (30 hours of lectures)
 - 2002 - Natural resources and Society, 10p. Stockholm University (30 hours of lectures)
 - 2003 - Natural resources and Society, 10p. Stockholm University (30 hours of lectures)
 - 2004 - Natural resources and Society, 10p. Stockholm University (30 hours of lectures)
 - 2005 - Natural resources and Society, 10p. Stockholm University (30 hours of lectures)
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 - 2007 - Natural resources and Society, 10p. Stockholm University (30 hours of lectures)
 - 2008 - Natural resources and Society, 10p. Stockholm University (30 hours of lectures)
 - 2009 - Natural resources and Society, 10p. Stockholm University (30 hours of lectures)
 - 2010 - Natural resources and Society, 10p. Stockholm University (30 hours of lectures)
 - 2011 - Natural resources and Society, 10p. Stockholm University (30 hours of lectures)
- P=Credit points c. 1 p. ~ 1 week.

STUDENT SUPERVISION

I have supervised six students to complete their PhDs, Ulla Carlsson-Granér (1994), Tor-Mikael Pettersson (1999) Maria Tengö (2004), Jakob Lundberg (2006) Erik Andersson (2007) and Henrik Ernstson (2008). Currently I am supervising four PhD-students. I have supervised approx. 15 MSc-theses during the last 5 years.

ADMINISTRATIVE EXPERIENCE

Member of Matematisk.naturvetenskaplig fakultetsnämnd, UmU, 1985-86,
"Studierektor" at Department of Ecological Botany 1995-1996 and

member of the Departmental board, UmU, 1993-1996.
 Jämställhetsombud at the department, UmU, during 1995-96.
 Studierektor at Department of Systems Ecology, Stockholm University 2001 – 2004.
 Member of the Departemental Board, Systems Ecology, SU 2001 – .
 Member of Miljöberedningen at Faculty of Natural Sciences, SU 2002 – . Biträdande prefekt,
 Dept Systems Ecology, SU 2006- Member of Board for Department of undergraduate studies
 in biology, SU 2006 -

OTHER PROFESSIONAL EXPERIENCES

Member of examination committee for PhD-thesis at Umeå, Australian National University 1995, SLU Uppsala 1995 and 2004, SLU Umeå 1996, Uppsala University 1997, 1998, 2000, (3) 2003, Stockholm University 2003 (4) 2004(2), 2005 and 2006
 Evaluator of applicants (sakkunnig) to position as a Forskarassistent at Stockholm University 1996 (18 applicants), Forskarassistent at SLU-Uppsala 1996 (8 applicants),
 Universitetslektor at Mithögskolan 1997 (5 applicants), Universitetslektor at Stockholm University 1998 (14 applicants), Universitetslektor at Mälardalens högskola 1999 (17 applicants), Universitetslektor at Gotlands högskola 2000 (14 applicants)
 Universitetslektor at Uppsala University 2001 (12 applicants), Universitetslektor at Södertörn 2007 (8 applicants).
 Evaluator of professorship in biodiversity University of Turku, Åbo, Finland 2000.
 Evaluator of professorship in Helsinki, Finland, 2005 (3 applicants)
 Evaluator professorship Copenhagen University 2011 (14 applicants)

Examinator (opponent) Fil.lic. thesis, Stockholm University 1998 (2), and 2000
 Examinator (opponent) PhD-thesis SLU, Uppsala, 2002
 Examinator (opponent) PhD-thesis, Århus, Denmark, 2003
 Examinator (opponent) PhD-thesis, Århus, Denmark, 2004
 Examinator (opponent) PhD-thesis, Oslo, Norway, 2006
 Examinator (opponent) PhD-thesis, Uppsala, Sweden 2006
 Examinator (opponent) PhD-thesis, Helsinki, Finland 2006
 Examinator PhD-thesis University of Manchester, UK, 2010

EDITORIAL RESPONSIBILITIES

Associate editor Ecology and Society 2002–
 Subject editor Biotropica 2002 -
 Editorial board Conservation and Society 2005 –
 Editorial Board of Sustainability Science 2008 -
 Editorial Board of Ambio 2010 -

PROFESSIONAL MEMBERSHIPS

The Society for American Naturalists
 The Nordic Ecological Society Oikos
 The Society for Conservation Biology

PUBLICATIONS

- Hedström, I., and Elmqvist, T. 1984. *Prepona* butterflies (Nymphalidae) and *Holopyga* (Scarabaeidae) on the same food source during the neotropical dry season-a case of commensalism? Rev. Biol. Trop. 32:313-316.
- Danell, K., Elmqvist, T., Ericson, L., and Salomonson, A. 1985. Sexuality in willows and preferences by bark-eating voles: defence or not?. Oikos 44:82-90.
- Ågren, J., Elmqvist, T., and Tunlid, A. 1986. Pollination by deceit, floral sex ratios and seed set in dioecious *Rubus chamaemorus* L. Oecologia (Berl.) 70:332-338.

- Danell, K., Elmqvist, T., Ericson, L., and Salomonson, A. 1987. Are there general patterns in bark-eating by voles on different shoot types from woody plants? *Oikos* 50:396-402.
- Elmqvist, T. 1987. Sexual dimorphism in two boreal dioecious plants in relation to herbivores and pollinators. Doctoral dissertation, Umeå Universitet.
- Elmqvist, T., Ericson, L., Danell, K. and Salomonson, A. 1987. Flowering, shoot production and vole bark herbivory in a boreal willow. *Ecology* 68:1623-1629.
- Elmqvist, T., Ericson, L., Danell, K. and Salomonson, A. 1988. Latitudinal variation in sex ratios in willows, *Salix* spp. and gradients in vole herbivory. *Oikos* 51:259-256.
- Elmqvist, T., and Gardfjell, H. 1988. Differences in response to defoliation between males and females of *Silene dioica* (L.) Clairv. *Oecologia (Berl.)* 77:225-230.
- Elmqvist, T., Ågren, J., and Tunlid, T. 1988. Sexual dimorphism and between-year variation in flowering, fruit set and pollinator behaviour in a boreal willow. *Oikos* 53:58-66.
- Bräutigam, A., and Elmqvist, T. 1990. Conserving Pacific island flying foxes. *Oryx* 24:81-89.
- Cox, P. A., Elmqvist, T. and Tomlinson, P. B. 1990. Submarine pollination and reproductive morphology in *Syringodium filiforme* (Cymodoceaceae). *Biotropica* 22:259-265.
- Carlsson, U., Elmqvist, T., Wennström, A., and Ericson, L. 1990. Infection by pathogens and population age of host plants. *J. Ecol* 78:1094-1105.
- Cox, P. A., Elmqvist, T., Rainey, W. E. and Pierson, E. D. 1991. Flying foxes as pollinators and seed dispersers in Pacific Island ecosystems. *Biol. Rep.* 23:18-26.
- Cox, P. A. and Elmqvist, T. 1991. Indigenous control of rain forest preserves: an alternative strategy for conservation. *Ambio* vol 20:7 pp. 317-321.
- Cox, P. A., Elmqvist, T., Rainey, E. E. and Pierson, E. D. 1991. Flying foxes as strong interactors in South Pacific Island ecosystems: A conservation Hypothesis. *Conservation Biology* vol 5:448-454.
- Elmqvist, T., Cates, R. G., Harper, J. K. and Gardfjell, H. 1991. Flowering in males and females of a Utah willow, *Salix rigida* and effects on growth, phenolic glycosides, tannins and sugars. *Oikos* 61:65-72.
- Carlsson, U., and Elmqvist, T. 1992. Epidemiology of the anther-smut disease *Microbotryum violaceum* and numeric regulation of populations of *Silene dioica*. *Oecologia* 90:509-517.
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- Andersson, E., Ahrné, K. Pykkönen, M. and Elmqvist, T. 2009. Patterns among urbanization measures in Stockholm, Sweden, and their ecological implications. *Landscape Ecology* doi:10.1007/s10980-009-9385-1.
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Date and place of birth: 20 June 1962, Albstadt-Ebingen, Germany

Nationality: German

Family status: Unmarried

Research interests

His main research foci are drivers and functional consequences of biodiversity change, the ecology and evolution of rare and invasive plants, and conservation biology.

Education

1982–1989 Studies in Physics, Technical University Munich, Germany

1991–1992 Studies in Biology, University of Basel, Switzerland

1993–1996 PhD, Institute of Botany, University of Basel, Switzerland; thesis title: Experimental population biology of the rare *Gentianella germanica*

2001 Habilitation in Environmental sciences, especially Population Ecology, University of Zurich; Switzerland; thesis title: Population biology of herbaceous plants: ecology and genetics of life histories.

Academic positions

1990 Research Associate, Department of Mechanical Engineering, University of Maryland, College Park

1993–1996 Research Associate, Botanical Institute, University of Basel

1996–2003 Assistant, Main Assistant, Institute of Environmental Sciences, Univ. of Zurich

2003–2007 Full Professor of Botany and Community Ecology, Institute of Biochemistry and Biology, and Director of the Botanical Garden, University of Potsdam

2007– Guest Professor at the University of Potsdam, and

2007– Full Professor of Plant Ecology, Institute of Plant Sciences, University of Bern

2010– and Director of the Botanical Garden of the University of Bern

Science-Policy activities

2006– Head (Speaker), DFG Priority Program 1374 (Biodiversity Exploratories)

2008– Member, since 2012 vice-chair, of Senate Committee for Biodiversity Research of the DFG (German Science Foundation)

2008– Vice-President (2008, 2012) and President (2009–2011) Swiss Botanical Society

2008– Member, Advisory Board of Vision Landwirtschaft, Switzerland

2009– Member, Fachkommission Naturschutz, Canton of Bern

2009– Member, Steering committee of DFG Research Unit: Kilimanjaro ecosystems

2010– Scientific Head, Alpine Botanical Garden Schynige Platte

2010–2011 Member, Council of Parkforschung Schweiz (A+, Swiss Academies)

2010– Member, Council of DIVERSITAS Germany

2010– Member, Marie-Heim Vögtlin Committee, Swiss National Science Foundation

2011–2013 President, Forum Biodiversity, Swiss Academy of Sciences (Member since 2009)

2012 Member of the Swiss delegation at the IPBES founding meeting in Panama

Scientific committees and societies

1996-	Member, several international scientific societies
1998-	Organisation and co-organisation of 40 conferences and conference symposia
1999-	Head (Speaker), Plant Population Biology Section of the Society of Ecology GfÖ
1999-	>55 reviews of grant proposals submitted to NERC, UK, to the Austrian (FWF), Swiss (SNF), German (DFG), Swedish (FORMAS) and US American (NSF) Science Foundations
2001-	Opponent or Rapporteur in six Swedish, Finnish and French PhD exams
2007-2009	Member, Steering Committee of the Society of Ecology GfÖ
2007-	Member, professorial selection committees (Leipzig, Salzburg, Bern)
2007-	Member, Foundation Councils (Haller-Stiftung, Bern; Bretscher-Stiftung, Bern; Stiftung Zentrum des Datenverbundnetzes der Schweizer Flora, Geneva)
2008-	Member, Steering committee of DFG Research Unit: The role of biodiversity for element cycling and trophic interactions
2008-2011	Head, Biology Department, University of Bern
2012-2014	Director, Institute of Plant Sciences, University of Bern
2012-2015	Member, National Research Council, Swiss National Science Foundation

Awards

1998	John L. Harper Young Investigator's Prize, British Ecological Society
2002	Offer of an Associate (C3) Professorship in Population Biology, University of Regensburg
2010	Offer of a Full (W3) Professorship in Organismic Botany, University of Tübingen

Lecturing

1993-	> 170 lectures at conferences and universities
1997-	About 40 supervised diploma/masters (<20) and PhD students (>20)
1999-	Courses taught: plant ecology, population biology, community ecology, conservation biology, experimental design and statistical analysis for ecologists, scientific writing practice, conservation and population genetics, general botany, systematic botany, including practicals, tutorials, and field courses.

Reviewing and editorial activities

1996-	> 200 reviews for many journals (articles)
2002-	Editorial board of Basic and Applied Ecology
2009-	Editorial board of Journal of Plant Ecology
2009-2011	Editor (Plants, Europe and Africa), Biological Conservation
2011-	Editorial board of Biological Conservation
2011-	Editorial board of Alpine Botany

Larger ongoing projects (total grant sum raised to date ~8 Mio € (= ~10 Mio CHF))

2006-	Large-scale and long-term exploratories for functional biodiversity research (German Science Foundation DFG, project coordination and several subprojects, www.biodiversity-exploratories.de)
2007-2012	Experimental plant introduction: disentangling the roles of propagule pressure, soil disturbance and life-history for plant invasiveness using congeneric pairs of invasive and non-invasive naturalized plant species in their native range (Swiss National Science Foundation; now University of Bern; with Mark van Kleunen)
2008-2012	An experimental approach to identifying determinants of plant invasiveness using congeneric pairs of invasive and non-invasive naturalized plant species in their native range (Swiss National Science Foundation; National Competence Center in research "Plant

- Survival"; now University of Bern; with Mark van Kleunen)
- 2008–2014 DFG Research Unit: The role of tree and shrub diversity for production, erosion control, element cycling, and species conservation in Chinese subtropical forest ecosystems (Subproject on genetic diversity)
- 2008–2014 DFG Research Unit: The role of biodiversity for element cycling and trophic interactions: an experimental approach in a grassland community (Subproject on plant diversity; with B. Schmid and A. Weigelt)
- 2009–2012 DFG Research Unit: Kilimanjaro ecosystems under global change: Linking biodiversity, biotic interactions and biogeochemical ecosystem processes (Subprojects on plant diversity and on coordination)
- 2010–2014 Experimentation in Ecosystem Research (ExpeER); EU FP7 project (Subproject).
- 2010–2014 Functional significance of biodiversity in European forests (FunDivEUROPE); EU FP7 project (Subproject).
- 2010–2014 Status and Trends of European Pollinators (STEP); EU FP7 project (Subproject)
- 2010–2013 Ecological and evolutionary plant epigenetics (European Science Foundation, subproject with Oliver Bossdorf)
- 2011–2013 Begleitforschung zur Revision der Roten Liste der Farn- und Blütenpflanzen (Bundesamt für Umwelt)
- 2012 Flächenbedarf für die Erhaltung der Biodiversität und der Ökosystemleistungen in der Schweiz (Bundesamt für Umwelt, with Daniela Pauli)
- 2012–2014 Ex-situ Erhaltung und Wiederansiedlung von gefährdeten Blütenpflanzen (Bundesamt für Umwelt)

List of publications by Markus Fischer

By 31 July 2012 the 104 of these publications listed in the ISI Web of Science were correctly cited 2797 times (average 26.9) and the h-index is 30 (See <http://www.researcherid.com/rid/C-6411-2008>)

Peer-reviewed original articles

- Dawson W., van Kleunen M., Fischer M. 2012. Common and rare plant species respond differently to fertilization and competition, whether they are alien or native. *Ecology Letters* 15:873-880
- Dawson W., Rohr R.P., van Kleunen M., Fischer M. In press. Alien plant species with a wider global distribution are better able to capitalize on increased resource availability. *New Phytologist*.
- Dostál P., Dawson W., van Kleunen M., Kaser L.H., Fischer M. in press. Central European plant species from more productive habitats are more invasive at a global scale. *Global Ecology and Biogeography*.
- Leimu R., Kloss L., Fischer M. 2012. Inbreeding alters activities of the stress-related enzymes chitinases and β -1,3-glucanases. *PLoS One*.
- Weissshuhn K., Prati D., Fischer M., Auge H. In press. Regional adaptation improves the performance of grassland plant communities. *Basic and Applied Ecology*.
- Dostál P., Dawson W., van Kleunen M., Kaser L.H., Fischer M. in press. Central European plant species from more productive habitats are more invasive at a global scale *Global Ecology and Biogeography*.
- Latzel V., Zhang Y., Moritz K.K., Fischer M., Bossdorf O. 2012. Epigenetic variation in plant responses to defence hormones. *Annals of Botany* 2012; doi: 10.1093/aob/mos088
- Schuldt A., Bruehlheide H., Durka W., Eichenberg D., Fischer M., Kröber W., Härdtle W., Ma K., Michalski S., Palm W.-U., Schmid B., Welk E., Zhou H., Assmann T.. 2012. Plant traits affecting herbivory on tree recruits in highly diverse subtropical forests. *Ecology Letters* 15: 732-739
- Türke M., Andreas K., Gossner M.M., Kowalski E., Lange M., Boch S., Socher S.A., Müller J., Prati D. Fischer M., Meyhöfer M., Weisser W.W. 2012. Are Gastropods, Rather than Ants, Important Dispersers of Seeds of Myrmecochorous Forest Herbs? *American Naturalist* 179: 124-131.
- Klaus V.H., Kleinebecker T., Boch S., Müller J., Socher S.A., Prati D., Fischer M., Hölzel N. 2012. NIRS meets Ellenberg's indicator values: Prediction of moisture and nitrogen values of agricultural grassland vegetation by means of near-infrared spectral characteristics. *Ecological Indicators* 14: 82-86
- Allan E., Weisser W.W., Weigelt A., Roscher C., Fischer M., Hillebrand H. 2011. More diverse plant communities have higher functioning over time due to turnover in complementary dominant species. *Proceedings of the National Academy of Sciences of the United States of America* 108: 17034-17039.
- Bruehlheide H., Böhnke M., Both S., Fang T., Assmann T., Baruffol M., Bauhus J., Buscot F., Chen X.-Y., Ding B.-Y., Durka W., Ermeier A., Fischer M., Geissler C., Guo D., Guo L.-D., Härdtle W., He J.-S., Hector A., Kröber W., Kühn P., Lang A., Nadrowski K., Pei K., Scherer-Lorenzen M., Shi X., Scholten T., Schuldt A., Trogisch S., von Oheimb G., Welk E., Wirth C., Wu Y.-T., Yang X., Zeng X., Zhang S., Zhou H., Ma K., Schmid B. 2011. Community assembly during secondary forest succession in a Chinese subtropical forest. *Ecological Monographs* 81: 25-41.
- Fischer M., Weyand A., Rudmann-Maurer K., Stöcklin J. 2011. Adaptation of *Poa alpina* to altitude and land use in the Swiss Alps. *Alpine Botany* 121: 91-105.
- Potts S.G., Biesmeijer J.C., Bommarco R., Felicioli A., Fischer M., Jokinen P., Kleijn D., Klein A.-M., Kunin W.E., Neumann P., Penev L.D., Petanidou T., Rasmont P., Roberts S.P.M., Smith H.G., Sorensen P.B., Steffan-Dewenter I., Vaissière B.E., Vilà M., Vujic A., Woyciechowski M., Zobel M., Settele J., Schweiger O. 2011. Developing European conservation and mitigation tools for pollination services: approaches of the STEP (Status and Trends of European Pollinators) project. *Journal of Apicultural Research* 50: 152-164.
- Klaus V.H., Kleinebecker T., Hölzel N., Blüthgen N., Boch S., Müller J., Socher S.A., Prati D., Fischer M. 2011. Nutrient concentrations and fibre contents of plant community biomass reflect species richness patterns along a broad range of land-use intensities among agricultural grasslands. *Perspectives in Plant Ecology, Evolution and Systematics* 13: 287-295
- Schleuning M., Templin M., Huaman V., Becker T., Durka W., Fischer M., Matthies D. Effects of inbreeding, outbreeding, and supplemental pollen on the reproduction of a hummingbird-pollinated clonal Amazonian herb. *Biotropica* 43: 183-191.
- Noel F., Prati D., van Kleunen M., Gygas A., Moser D., Fischer M. 2011. Establishment success of 25 rare wetland species introduced into restored habitats is best predicted by ecological distance to source habitats. *Biological Conservation* 144: 602-609.

- Heinze E., Boch S., Fischer M., Hessenmöller D., Klenk B., Müller J., Prati D., Schulze E.-D., Seele C., Socher S., Halle S. 2011. Habitat use of large ungulates in northeastern Germany in relation to forest management. *Forest Ecology and Management* 261: 288-296.
- Chrobock T., Kempel A., Fischer M., van Kleunen M. 2011. Introduction bias: Cultivated alien plant species germinate faster and more abundantly than native species in Switzerland. *Basic and Applied Ecology* 12: 244-250.
- Kloss L., Fischer M., Durka W. 2011. Land-use effects on genetic structure of a common grassland herb: A matter of scale. *Basic and Applied Ecology* 12: 440-448
- Boch S., Prati D., Werth S., Rütschi J., Fischer M. 2011. Lichen Endozoochory by Snails. *Plos One* 6:4
- Wells K., Böhm S.M., Boch S., Fischer M., Kalko E.K.V. 2011. Local and landscape-scale forest attributes differ in their impact on bird assemblages across years in forest production landscapes. *Basic and Applied Ecology* 12: 97-106
- Nestmann S., Rajčić T.S., Dehmer K.J., Fischer M., Schumacher J., Roscher C. 2011. Plant species diversity and composition of experimental grasslands affect genetic differentiation of *Lolium perenne* populations. *Molecular Ecology* 20: 2188-2203.
- van Kleunen M., Schläpfer D.R., Glaetli M., Fischer M. 2011. Preadapted for invasiveness: do species traits or their plastic response to shading differ between invasive and non-invasive plant species in their native range? *Journal of Biogeography* 38: 1294-1304.
- Birkhofer K., Diekoetter T., Boch S., Fischer M., Müller J., Socher S., Wolters V. 2011. Soil fauna feeding activity in temperate grassland soils increases with legume and grass species richness. *Soil Biology and Biochemistry* 43: 2200-2207
- Raabova J., Munzbergova Z., Fischer, M. 2011. The role of spatial scale and soil for local adaptation in *Inula hirta*. *Basic and Applied Ecology* 12: 152-160
- Kempel A., Schädler M., Chrobock T., Fischer M., van Kleunen M. 2011. Tradeoffs associated with constitutive and induced plant resistance against herbivory. *Proceedings of the National Academy of Sciences of the United States of America* 108: 5685-5689.
- Seifert B., Fischer M. 2010. Experimental establishment of a declining dry-grassland flagship species in relation to seed origin and target environment. *Biological Conservation* 143:1202-1211
- Bottom-up effects of plant diversity on biotic interactions in a biodiversity experiment. Scherber C., Eisenhauer N., Weisser W.W., Schmid, Voigt W., Fischer M., Schulze E.-D., Roscher C., Weigelt A., Allan A., Beßler H., Bonkowski M., Buchmann N., Buscot F., Clement L.W., Ebeling A., Engels C., Halle S., Kertscher I., Klein A.-M., Koller R., König S., Kowalski E., Kummer V., Kuu A., Lange M., Lauterbach D., Middelhoff C., Migunova V.D., Milcu A., Müller R., Partsch S., Petermann J.S., Renker C., Rottstock T., Sabais A., Scheu S., Schumacher J., Temperton V.M., Tschamtké T., 2010. *Nature*, 468: 553-556
- Dawson W., Fischer M., van Kleunen M. 2010. Maximum relative growth rate of common UK plant species is positively associated with their global invasiveness. *Global Ecology and Biogeography* 20: 299-306.
- Schmidtke A., Rottstock T., Gaedke U., Fischer M. 2010. Plant community diversity and composition affect individual plant performance. *Oecologia*, 164: 665-677.
- Proulx R., Wirth C., Voigt W., Weigelt A., Roscher C., Attinger S., Baade J., Barnard R., Buchmann N., Buscot F., Eisenhauer N., Engels C., Fischer M., Gleixner G., Halle S., Hildebrandt A., Kowalski E., Kuu A., Lange M., Marquard E., Milcu A., Niklaus P., Oelmann Y., Rosenkranz S., Sabais A., Scherber C., Scherer-Lorenzen M., Scheu S., Schulze E.-D., Schumacher J., Schwichtenberg G., Soussana J.-F., Temperton V., Tschamtké T., Weisser W.W., Wilcke W., Schmid B., Diversity Promotes Temporal Stability across Levels of Ecosystem Organization in Experimental Grasslands. *PLoS ONE* 5(10): e13382.
- Fischer M., Burkart M., Pasqualetto V. & van Kleunen M 2010 Experiment meets biogeography: plants of river-corridor distribution are not more stress-tolerant but benefit less from more benign conditions elsewhere. *Journal of Plant Ecology* 3: 149-155.
- Fischer M., Bossdorf O., Gockel S., Hänsel F., Hemp A., Hessenmöller D., Korte G., Nieschulze J., Pfeiffer S., Prati D., Renner S., Schöning I., Schumacher U., Wells K., Buscot F., Kalko E.K.V., Linsenmair K.E., Schulze E.-D., Weisser W.W. Implementing large-scale and long-term functional biodiversity research: The Biodiversity Exploratories. *Basic and Applied Ecology*, 11: 473-485.
- Leimu R., Fischer M. Between-population outbreeding affects plant defence. *PLoS One* 5: e12614.
- van Kleunen M, Dawson W, Schlaepfer DR, Jeschke JM & Fischer M 2010 Are invaders different? A conceptual framework of comparative approaches for assessing determinants of invasiveness. *Ecology Letters* 13: 947-958. doi:10.1111/j.1461-0248.2010.01503.x.
- Nitschke N., Ebeling A., Rottstock T., Scherber C., Middelhoff C., Creutzburg S., Weigelt A., Tschamtké T., Fischer M., Weisser W.W. 2010 Time course of plant diversity effects on *Centaurea jacea* establishment and the role of competition and herbivory. *Journal of Plant Ecology* 3: 109-121.
- Odat N., Hellwig H., Jetschke G., Fischer M. 2010. On the relationship between plant species diversity and genetic diversity of

- Plantago lanceolata* (Plantaginaceae) within and between grassland communities. *Journal of Plant Ecology* 3: 41-48.
- Schlaepfer D.R., Glaetli M., Fischer M., van Kleunen M. 2010. A multi-species experiment in their native range indicates pre-adaptation of invasive alien plant species. *New Phytologist* 185: 1087-1099.
- van Kleunen M., Weber E., Fischer M. 2010. A meta-analysis of trait differences between invasive and non-invasive plant species. *Ecology Letters* 13: 235-245.
- Marquard E., Weigelt A., Temperton V.M., Roscher C., Schumacher J., Buchmann N., Fischer M., Weisser W.W., Schmid B. 2009. Plant species richness and functional composition drive overyielding in a six-year grassland experiment. *Ecology* 90: 3290-3302.
- Van Kleunen M., Fischer M. 2009. Release from foliar and floral fungal pathogen species does not explain the geographic spread of naturalized North American plants in Europe. *Journal of Ecology* 97: 385-392.
- Raabová J., Münzbergová Z., Fischer M. 2008. Consequences of near and far between-population crosses for offspring fitness in a rare herb *Plant Biology* 11: 829-836.
- Raabová J., Fischer M., Münzbergová Z. 2008. Niche differentiation between diploid and hexaploid *Aster amellus*. *Oecologia* 158(3): 463-472.
- Leimu R., Kloss L., Fischer M. 2008. Effects of experimental inbreeding on herbivore resistance and plant fitness: the role of history of inbreeding, herbivory and abiotic factors. *Ecology Letters* 11(10): 1101-1110.
- Stein C., Auge H., Fischer M., Weisser W.W., Prati D. 2008. Dispersal and seed limitation affect diversity and productivity of montane grasslands. *Oikos* 117: 1469-1478.
- Bowman G., Pernet C., Hoehn S., Galeuchet D.J., Fischer M. 2008. Habitat fragmentation and adaptation: a reciprocal replant-transplant experiment among 15 populations of *Lychnis flos-cuculi* L. *Journal of Ecology* 96: 1056-1064.
- Rudmann-Maurer K., Weyand A., Fischer M., Stöcklin J. 2008. The role of landuse and natural determinants for grassland vegetation composition in the Swiss Alps. *Basic and Applied Ecology* 9(5): 494-503.
- van Kleunen M., Meier A., Saxenhofer M., Fischer M. 2008. Support for the predictions of the pollinator-mediated stabilizing-selection hypothesis. *Journal of Plant Ecology* 1(3): 173-178.
- Fischer M., Winkler E., Schmid B. 2008. Simulating the evolution of a clonal trait in plants with sexual and vegetative reproduction. *Journal of Plant Ecology* 1(3): 161-171.
- van Kleunen M., Fischer M. 2008. Adaptive rather than non-adaptive evolution affects *Mimulus guttatus* in its invasive range. *Basic and Applied Ecology* 9: 213-223.
- Raabová J., Münzbergová Z., Fischer M. 2007. Ecological rather than geographic or genetic distance affects local adaptation of the rare perennial herb, *Aster amellus*. *Biological Conservation* 139: 348-357.
- Rudmann-Maurer K., Weyand A., Fischer M., Stöcklin J. 2007. Microsatellite diversity of the agriculturally important alpine grass *Poa alpina* in relation to land use and natural environment. *Annals of Botany* 100: 1249-1258.
- van Kleunen M., Fischer M., Johnson S.D. 2007. Reproductive assurance through self-fertilization does not vary with population size in the alien invasive plant *Datura stramonium*. *Oikos* 116: 1400-1412.
- van Kleunen M., Lenssen J.P.M., Fischer M., de Kroon H. 2007. Selection on phenotypic plasticity of morphological traits in response to flooding and competition in the clonal shore plant *Ranunculus reptans*. *Journal of Evolutionary Biology* 20: 2126-2137.
- van Kleunen M., Johnson S.D., Fischer M. 2007. Predicting naturalization of southern African Iridaceae in other regions. *Journal of Applied Ecology* 44: 594-603.
- Willi Y., Van Buskirk J., Schmid B., Fischer M. 2007. Genetic isolation of fragmented populations is exacerbated by drift and selection. *Journal of Evolutionary Biology* 20: 534-542.
- Willi Y., Dietrich S., van Kleunen M., Fischer M. 2007. Interspecific competitive stress does not affect the magnitude of inbreeding depression. *Evolutionary Ecology Research* 9: 959-974.
- Willi Y., van Kleunen M., Dietrich S., Fischer M. 2007. Genetic rescue persists beyond first-generation outbreeding in small populations of a rare plant. *Proceedings of the Royal Society B* 274: 2357-2364.
- Leimu R., Mutikainen P., Koricheva J., Fischer M. 2008. How general are positive relationships between plant population size, fitness, and genetic variation? *Journal of Ecology* 94: 942-952.
- Maurer K., Weyand A., Fischer M., Stöcklin J. 2006. Old cultural traditions, in addition to land use and topography, are shaping plant diversity of grasslands in the Alps. *Biological Conservation* 130: 438-446.

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- Galeuchet D., Perret C., Fischer M. 2005. Performance of *Lychnis flos-cuculi* under experimental biotic interactions. *Ecology* 86: 1002-1011
- Maurer K., Gautschi B., Weyand A., Stöcklin J., Fischer M. 2005. Isolation and characterization of microsatellite DNA markers in the grass *Poa alpina* L. *Molecular Ecology Notes* 5: 719-720.
- van Kleunen M., Fischer M., Schmid B. 2005. Three generations under low versus high neighborhood density affect the life history of a clonal plant through differential selection and genetic drift. *Oikos* 108: 573-581.
- Willi Y., Fischer M. 2005. Genetic rescue in interconnected populations of small and large size of the self-incompatible *Ranunculus reptans*. *Heredity* 95: 437-443.
- Willi Y., Van Buskirk J., Fischer M. 2005. A threefold genetic Allee effect: population size affects cross-compatibility, inbreeding depression, and drift load in the self-incompatible *Ranunculus reptans*. *Genetics* 169: 2255-2265.
- Wipf S., Rixen C., Fischer M., Schmid B., Stöckli V. 2005. Effects of ski piste preparation on alpine vegetation. *Journal of Applied Ecology* 42: 306-316
- Fischer M., van Kleunen M., Schmid B. 2004. Experimental life-history evolution: selection on the growth form of a clonal plant and on its plasticity. *Journal of Evolutionary Biology* 17: 331-341.
- Lenssen J.P.M., van Kleunen M., Fischer M., de Kroon H. 2004. Local adaptation of the clonal plant *Ranunculus reptans* to flooding along a small-scale gradient. *Journal of Ecology* 92: 696-706.
- Lienert J., Fischer M. 2004. Experimental inbreeding reduces seed production and germination independent of fragmentation of populations of *Swertia perennis*. *Basic and Applied Ecology* 5: 43-52.
- Pfisterer A., Joshi J., Schmid B., Fischer M. 2004. Rapid decay of diversity-productivity relationships after invasion of experimental plant communities. *Basic and Applied Ecology* 5: 5-14.
- Fischer M., Hock M., Paschke M. 2003. Low genetic variation reduces cross-compatibility and offspring fitness in populations of a narrow endemic plant with a self-incompatibility system. *Conservation Genetics* 4: 325-336.
- Lienert J., Fischer M. 2003. Habitat fragmentation affects the common wetland specialist *Primula farinosa* in NE-Switzerland. *Journal of Ecology* 91: 587 - 599.
- van Kleunen M., Fischer M. 2003. Effects of four generations of density-dependent selection on life history traits and their plasticity in a clonally propagated plant. *Journal of Evolutionary Biology* 16: 474-484.
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- van Kleunen M., Fischer M., Schmid B. 2001. Effects of intraspecific competition on size variation and reproductive allocation in a clonal plant. *Oikos* 94: 515-524.
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- study. *Evolutionary Ecology* 15: 281-301.
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- Stöcklin J., Ryf M., Fischer M. 2000. Small population size puts populations of endangered plant species at risk in remnants of calcareous grassland (Mesobromion) in the Swiss Jura Mountains. *Zeitschrift für Ökologie und Naturschutz* 9: 109-118.
- van Kleunen M., Fischer M., Schmid B. 2000. Clonal integration in *Ranunculus reptans*: by-product or adaptation? *Journal of Evolutionary Biology* 13: 237-248.
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Fischer M., Weisser W.W., Linsenmair K.E., Nuppenau, Buscot F. 2004. Feed back loops in anthropogenic biodiversity change: Genes, species, ecosystems, landscapes, and society. Ein Strategiepapier zuhanden der Deutschen Forschungsgemeinschaft DFG. Unpublished. (This paper initiated the DFG Priority Program Biodiversity Exploratories and the science-policy platform Netzwerk-Forum Biodiversität).

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Müller P., Schindler W., Saemann-Ischenko G., Burzlaff H., Gerstenberg H. Fischer M. 1988. Neutron-irradiation of YBa₂Cu₃O₇ and YBa_{1.2}Cu₃O₇. Physica C 153: 343-344, Part 1.

SUMMARY CV OF JAMES BULLOCK, NERC CENTRE FOR ECOLOGY AND HYDROLOGY
Introduction
I am an internationally-recognised ecologist with 25 years of experience in applied research and the conservation and management of natural resources. I have published widely on aspects of spatial ecology and habitat restoration with reference to biodiversity and, in recent years, ecosystem services. As an applied scientist I have worked closely with Government departments and agencies and NGOs at the UK and European levels to carry out policy-relevant and policy-influencing research. I consider myself ideally suited to serve on the MEP as I have long experience in leading relevant research, in carrying out biodiversity and ecosystem service assessments and in supporting policy.
1. Scientific or technical expertise in biodiversity and ecosystem services;
• <i>My expertise relates mostly to two of the IPBES functions: knowledge generation and assessments.</i> • <i>Experience of managing scientific and/or technical programmes, projects or assessments: I am the Principal Investigator in key projects aimed at assessing ecosystem services and their dependence on biodiversity. These involve field experimentation, landscape scale assessments, and modelling.</i> ✦ <i>'Wessex-BESS', a new £3M project under the UK BESS programme (www.nerc-bess.net) investigating biodiversity - ecosystem services links and responses to land use decisions at the landscape level. I am leading a team of university, research institute and NGO partners with stakeholders from Government departments, Government agencies, NGOs and the private sector.</i> ✦ <i>'Ecosystem Services in Environmental Stewardship (ES-ES)', a £600K project for the UK Department for Environment Food and Rural Affairs (Defra) developing approaches to environmentally-friendly farming for pollination, pest control, water quality and carbon sequestration services. This involves ecologists, hydrologists, climate scientists and water chemists working on a farm-level experiment.</i> ✦ <i>'Ragweed', a €1M project funded by the European Commission to assess the effects of invasive ragweed on biodiversity and ecosystem services, including economic valuation. This involves partners across Europe and is assessing the health, agricultural and biodiversity impacts of ragweed throughout the EU and possible national and international policy responses.</i> ✦ <i>'CRESENT', a CEH-wide project aiming to produce a spatial modelling toolbox for high resolution mapping of ecosystem service delivery in the UK under current and future change scenarios. This will integrate expertise across a range of disciplines and seeks to integrate knowledge into a UK-scale model which can guide land managers and policy makers.</i> ✦ <i>'FARMCAT' under UK RELU (www.relu.ac.uk). We investigated agri-environment schemes which are the major policy approach to environmentally-friendly land management in the EU and elsewhere. We used inter-disciplinary methods to investigate the social and ecological factors determining the success of these schemes; in particular the role of farmer knowledge and engagement.</i> • <i>Scientific/technical qualifications and track record of international standing: I have published scene-setting papers on the science and assessment of biodiversity - ecosystem services links.</i> ✦ <i>I published one of the first studies to show, in farming systems, that plant species diversity could enhance agricultural forage production (Bullock et al. 2001, also Bullock et al. 2007).</i> ✦ <i>In a paper published in Science (Rey Benayas et al., 2009), we showed global trends for restoration to increase both biodiversity and ecosystem services together, across a range of ecosystems. This has been a key citation in illustrating that restoration is a valid policy option to reinstate services.</i> ✦ <i>In a series of reviews (Rey Benayas et al., 2008; Bullock et al. 2011; Rey Benayas and Bullock 2012), I have discussed the role of restoration in achieving biodiversity and ecosystem services targets; in particular we have highlighted the trade-offs in managing for biodiversity and multiple services.</i> • <i>Concerning a third IPBES function - policy-relevant tools and methodologies:</i> ✦ <i>The above projects are producing policy-relevant tools, such as: planning landscape management under future scenarios (Wessex-BESS); guiding agricultural policy for biodiversity and ecosystem service objectives (ES-ES); designing methods to engage farmers in environmentally-friendly actions (FARMCAT); and balancing economic impacts of an invasive plant against control costs (Ragweed).</i> ✦ <i>I was a lead author in the UKNEA – the first analysis of the UK's natural environment in terms of societal benefits. I led the semi-natural grasslands chapter and in doing so provided approaches to</i>

<i>assessing the contribution of this habitat to ecosystem services and biodiversity in the UK.</i> ✧ <i>My work on biodiversity and ecosystem services has focussed on restoration as a policy approach not only to halt declines, but to enhance biodiversity and services. This has involved working to improve agri-environment policy prescriptions to achieve these improvements.</i>
2. Experience in communicating, promoting and incorporating science into policy development; • <i>I have led many research projects for Defra, the EU and UK Government agencies which have directly fed into policy development, such as: new agri-environment prescriptions, applying the ecosystem services approach, re-wilding as a policy option, designing management for endangered habitats, and assessing the impacts and control of invasive species.</i> • <i>In recent years I have worked increasingly across disciplines. In the physical sciences I am working with hydrologists, chemists, climate scientists, etc to best measure and understand ecosystem services (e.g. in ES-ES, CRESENT). The need to understand social needs and responses to changes in ecosystem services and biodiversity has inspired me to work with social scientists and economists in Wessex-BESS, FarmCAT and Ragweed.</i> • <i>Communication of environmental research to different audiences has been a key part of my work, targeted at scientific peers, students, policy makers, farmers and other land managers, conservation advisors and the general public. This has included newspaper, radio and television work, policy briefs, popular articles and illustrated talks, as well as journal papers and books.</i> • <i>I have served on the UK Government Advisory Committee for Releases to the Environment for 3 yrs.</i>
3. Ability to work in international (EU, multilateral and global) scientific and policy processes. • <i>Since 2005 I have been General Secretary for the European Ecological Federation, a federation of European ecological societies which provides ecology inputs to policy processes at the EU level. This has included meeting with EU officials to discuss environmental policy and research needs.</i> • <i>I have a key role in international research consortia, which are feeding into international policy processes particularly to the EU: the EU FP7 project SCALES concerning conserving biodiversity across administrative boundaries; Ragweed, which is feeding into EU invasive species policy; and 'New Biogeographic Processes', which is advising the EU on management of Natura 2000 sites.</i> • <i>I have an international research portfolio. I have published research with colleagues in Europe, USA, Canada, and Australia; including participation in international scientific workshops, such as NCEAS in the USA. I am also subject editor for Oikos and Nature Scientific Reports.</i>
4. List of key publications relevant to IPBES • <i>I have over 100 publications, and an h index of 29. Key papers directly relevant to IPBES include:</i> ✧ <i>Bullock, J.M., Pywell, R.F., Burke, M.J.W., & Walker, K.J. (2001) Restoration of biodiversity enhances agricultural production. Ecol. Lett., 4, 185-189.</i> ✧ <i>Bullock, J.M., Pywell, R.F. & Walker, K.J. (2007) Long-term enhancement of agricultural production by restoration of biodiversity. J. Appl. Ecol., 44, 6-12</i> ✧ <i>Rey Benayas, J. M., Bullock, J. M. and Newton, A. C. 2008. Creating woodland islets to reconcile ecological restoration, conservation and agriculture. Frontiers Ecol. Environ. 6, 329-336</i> ✧ <i>Rey Benayas, J.M., Newton, A.C., Diaz, A. & Bullock, J.M. (2009) Enhancement of biodiversity and ecosystem services by ecological restoration: a meta-analysis. Science, 325, 1121-1124.</i> ✧ <i>Wright, J., Systad, A., Bullock, J.M., et al. (2009) Restoring biodiversity and ecosystem function: will an integrated approach improve results? In: Biodiversity, ecosystem functioning and human wellbeing (eds S. Naeem, et al.), pp. 167-177. OUP.</i> ✧ <i>Bullock, J.M., et al. (2011) Semi-natural grasslands. In: The UK National Ecosystem Assessment Technical Report. UNEP-WCMC, Cambridge.</i> ✧ <i>Bullock, J.M., Aronson, J., Newton, A.C., Pywell, R.F. & Rey-Benayas, J.M. (2011) Restoration of ecosystem services and biodiversity: conflicts and opportunities. TREE, 26, 541-549.</i> ✧ <i>Hooftman, D.A.P. & Bullock, J.M. (2012) Mapping to inform conservation: A case study of changes in semi-natural habitats and their connectivity over 70 years. Biol. Conserv., 145, 30-38.</i> ✧ <i>Rey-Benayas, J.M and Bullock, J.M. (2012). Restoration of biodiversity and ecosystem services on agricultural land. Ecosystems, in press. doi: 10.1007/s10021-012-9552-0</i>

SUMMARY CV OF PROFESSOR IAIN JAMES GORDON JAMES HUTTON INSTITUTE/CHIEF EXECUTIVE AND DIRECTOR	
Introduction	
Throughout my career, which spans research, research management and provision of policy advice, I have played an active role in promoting the value of biodiversity and its importance in the provision of ecosystem services and human wellbeing. Over the past 25 years I have gained an international reputation for scientific leadership and research excellence in interdisciplinary approaches, particularly in the context of managing land use to benefit biodiversity and engaging human communities in the management of natural resources. For seven years I worked for CSIRO, Australia managing major research portfolios on land management to protect the Great Barrier Reef and conserving Australia's biodiversity. In my current role as the Chief Executive and Director of the James Hutton Institute, Scotland (£37M turnover, 600 staff & 120 PhD students), I provide my knowledge and expertise on a range of issues within the broad remit of the Institute and directly engage with all levels of government and across all sectors interested and involved in the science/policy interface.	
1. Scientific or technical expertise in biodiversity and ecosystem services with regard to either the natural sciences, social sciences or economics;	
My areas of scientific expertise are the development of scientific knowledge of the impact of land use on biodiversity and ecosystem services and the integration of conservation with sustainable natural resource use. My work includes leading and managing large projects and programmes that provide scientific evidence to support management and policy including setting guidelines for deer management in Scotland, integrated livestock and conservation in the UK and Africa, sustainable management of wildlife in Africa, South America and Asia and agricultural management to protect the Great Barrier Reef in Australia. For over 20 years I have held senior positions in research organisations with responsibilities for the management of large, integrated, interdisciplinary research programmes included strategic oversight of the research, setting annual performance goals and key performance indicators and achieving external funding targets. My international standing as a research leader in environmental and agricultural research is supported by my publication record, my editorial positions and awards/honours. I have published over 180 papers in international scientific peer review journals, published 4 books (another for Cambridge University Press is in the final editorial stages), and contributed to 27 book chapters. These span a range of research areas including livestock nutrition and health, ecology of natural ecosystems, grazing management to achieve biodiversity and broader environmental objectives, and community based conservation. I hold editorial positions on seven peer-reviewed, international journals, including Biodiversity and Conservation and Animal Conservation. I have been awarded honorary Professorships in three Universities in the UK and Australia. Recently I was made a Fellow of the Royal Society of Edinburgh having been a Fellow of the Society of Biology for over 10 years. My academic qualifications are: BSc 1981 University of Aberdeen, Zoology with Honours; PhD 1986 University of Cambridge, Department of Zoology.	
2. Experience in communicating, promoting and incorporating science into policy development processes;	
Throughout my career I have brought my scientific knowledge and expertise to bear on the management of biodiversity and ecosystems services across the continents of the globe. For example, whilst employed with CSIRO, Australia I was directly engaged with government (State and Federal) to shape policy and funding, including sitting on the multi-stakeholder Advisory Panels for two Government Authorities responsible for the management of The Great Barrier Reef and the Australian Wet Tropics World Heritage Areas. My scientific advice and leadership lead to the development of the ReefRescue package funded by the Australian Governments to secure changes to agricultural land management practices to protect the GBR in the face of threats from climate change. I currently serve on a number of advisory committees which include stakeholders from a range of scientific, government and non-governmental organisations, i.e. Scientific Advisory	

Committee, Australian Centre for Ecological Analysis & Synthesis, Australian Strategic Bushfire Risk and Strategic Cattle Grazing Scientific Advisory Committee, Scottish Government Scottish Biodiversity Strategy Review Board and the UK Darwin Initiative Expert Committee. I am also a Director of the recently formed Centre of Expertise for Climate Change which aims to deliver objective, independent, integrated and authoritative evidence to support the Scottish Government in relation to its activities on climate change mitigation, adaptation and transition to a low carbon economy. As the CEO and Director of the James Hutton Institute, I am sought out to provide my opinion and advice on a range of issues within the broad remit of the James Hutton Institute. Since taking up the position in April 2011, I have been invited to speak at events and conferences across Scotland including distinguished lectures at the University of Dundee and Royal Society of Edinburgh, and plenary lectures at the Holyrood Magazine's Science Scotland event at the Glasgow Science Centre and the Scottish Government's Coordinated Agenda for Marine, Environment and Rural Affairs Science (CAMERAS) 2012 Annual Conference.

3. Ability to work in international (EU, multilateral and global) scientific and policy processes.

Over the past 20 I have led interdisciplinary projects across 5 continents - Africa, Asia, South America, Australia and Europe involving international and local scientists and stakeholders. These projects have involved scientists from a number of local and international organisations across a range of disciplines (including agricultural, ecology, economic and sociological). For example, I lead a large EU funded project in South America comprising scientists from Europe and South America that developed the scientific framework for the sustainable utilization of the historically endangered vicuna, a South American Camelid. Through my scientific leadership and mentoring, several of the South American researchers are now advising the multi-country Vicuna Convention and hold senior positions in their native countries. I am used to working with Governments to provide advice on international issues; whilst with CSIRO, I was the scientific advisor to the Australian Government in their negotiations with the Convention on Biological Diversity (CBD) and the Intergovernmental Science Policy Platform for Biodiversity and Ecosystem Services (IPBES) (I was part of the Plenary that gavelled the Busan Outcome in 2010). I am now a member of the Darwin Initiative Expert Committee that provides advice and guidance to the UK Government on funding of projects supporting the country's commitments to the CBD, the Convention on International Trade in Endangered Species of Wild Flora and Fauna, and the Convention on the Conservation of Migratory Species of Wild Animals. In the past 9 months I have been invited to Beijing by the UNEP-Chinese Academy of Science funded International Ecosystem Management Partnership to present feedback on their first policy document 'Ecosystem Management and the Green Economy' and by UNEP to be part of their team developing UNEP's Ecosystem Based Adaptation briefing document for the next UNFCCC COP meeting.

4. List of key publications relevant to IPBES

Gordon, I.J., Hester, A.J. & Festa-Bianchet, M. (2004) The management of wild large herbivores to meet economic, conservation and environmental objectives. *Journal of Applied Ecology* 41, 1021-1031.

Gordon, I.J. (ed) (2008) *The Vicuna: The Theory and Practice of Community Based Wildlife Management*. Springer, New York.

Waterhouse, J., Grundy, M., Brodie, J., Gordon, I., Yorkston, H. & Eberhard, R. (2010). *Flagship Basin Study – Great Barrier Reef*. In: Ferrier, R. and Jenkins, J. (ed). *Handbook of Catchment Management*. Pp. 351- 375. Wiley-Blackwell, Oxford.

Miller, C & Gordon, I.J. (2012) *Human impacts on terrestrial biota and ecosystems*. In: Mathews, J.A., Bartlein, P.J., Briffa, K.R., Dawson, A.G., de Vernal, A., Denham, T., Fritz, S.C. & Oldfield, F. (ed). *The Handbook of Environmental Change. Volume 2*. Pp. 25-46. Sage Publications, London.

Hill, R., Halamish, E., Gordon, I.J. & Clark, M. (in press) *The maturation of biodiversity as a global social-ecological issue: Implications for future biodiversity science and policy*. *Futures*.

SUMMARY CV OF Professor Edward Maltby, Emeritus Professor of Wetland Science, Water and Ecosystem Management, University of Liverpool, UK .
Introduction
I have over 40 years experience in scientific research with skills in multidisciplinary/international working and the linkage of natural science to social sciences and policy innovation with particular reference to the functioning of water and wetland ecosystems. I competently distil and translate complex science into assessment and decision-support tools especially for wetland ecosystem services. Using my skills and experience in natural sciences, as well as those I have developed in economic and social studies, my ability to tackle problems and with a flair for innovation I have been relied upon to provide technical advice and advocacy at the Conferences of Parties and technical working groups of The Convention on Biological Diversity, The Ramsar Convention and other policy and legislative fora at international, supranational and national levels. I played a key role in the development and implementation of the Ecosystem Approach(CBD/IUCN),the Wise Use concept (Ramsar) and horizontal guidance for wetlands under the EU Water Framework Directive.
1. Scientific or technical expertise in biodiversity and ecosystem services with regard to either the natural sciences, social sciences or economics;
• Empirical and applied research in wetland ecosystems, water and soil science with particular reference to regulating services but a good understanding of environmental economics and methods of stakeholder engagement(1,4,7); acknowledged pioneer of the functional approach to wetland ecosystem assessment both globally as well as in Europe resulting in development of a multidisciplinary tool to assist decision-making (12,5); development of the Ecosystem Approach within the Convention on Biological Diversity as a methodological framework with its application globally(9) and nationally(8);extensive capacity building activities as Chair IUCN Commission on Ecosystem Management (1996 2000) working at a high level with governments/agencies maintaining integrity as a scientist but dealing with cultural sensitivities tactfully; guiding the DEFRA/DFID/NERC funded Ecosystem Services and Poverty Alleviation in South Asia project(ESPASSA,2008)and as Secretary/Trustee of the Sibthorp Trust (established to question conventional thinking in conservation) and as Chair of the Devon Maritime Forum. • Principal Investigator/Coordinator of high impact research projects in both developed and developing countries, securing and managing over £20 million of funding including: • 1988-2004 Development and coordination of successive EC wetlands projects culminating in a new instrument to predict ecosystem functioning and services (5) • 1990-2010 Working with governments and multidisciplinary partners to implement major wetland and other ecosystem projects orientated towards sustainable development and poverty alleviation in developing countries notably SE Asia, , South America, Southern Africa and India (Darwin Initiative, IUCN, EC, SIDA, UKIERI, ESPA, DIFD), resulting for example in the Mekong in a new landuse balance to ameliorate soil acidity and improve water quality. • 1994 Leader of multidisciplinary international investigation of environmental impacts of engineering works in the Tigris-Euphrates basin on the Marshlands of Southern Iraq resulting in advice to new Iraq government, UK Government and UNEP on restoration plans for Mesopotamian Marshes (2003 – 2008). • Member of US AID field mission to Iraq marshes (2004) • 2004-09 Executive Committee and major partner in EUROLIMPACS, a £10 million EU project investigating the effects of climate change on freshwaters (including wetlands) with responsibility for development of a decision support tool at the catchment scale. • 2005-08 EU LIFE project on application of the Ecosystem Approach to Sustainable River Catchment management in SE England (SURCASE) resulting in identification of cost savings from better use of natural resources. • Scientific/technical qualifications and track record of international standing: - International Fellow Award 2012 of Society Of Wetland Scientists ‘in recognition of outstanding achievements in wetland science and Society’. - Founder & Director Institute for Sustainable Water, Integrated Management and Ecosystem Research, Univ. Liverpool (2005-11); Director Royal Holloway Institute for Environmental Research (1994-2005) - Elected by government and NGO members Chair IUCN Commission on Ecosystem

Management 1996-2000 Chair IUCN Wetlands Scientific Advisory Committee 1991-96 Author, co-author or editor of more than 10 books, over 200 articles/reports (including in Nature, 1982(11) the first direct soil process evidence of the speed of prehistoric ecosystem alteration; more than 60 invited lectures/keynote addresses at international meetings.: Widely credited for raising awareness of the importance of wetland ecosystems to society (1). PhD Microbial Indicators of Soil Changes resulting from Moorland Reclamation on Exmoor, UK University of Bristol, 1977; B.Sc (Hons) Geography (1st class) University of Sheffield, 1971
2. Experience in communicating, promoting and incorporating science into policy development processes; Through speaking, engaging in debate, written publications, making personal impact, and my ability to work at the science policy interface, I have facilitated the translation of messages between scientists and policy makers, championed and advocated key issues and methods of resolution at high level meetings and conferences, and influenced decision making at the policy level as well as guiding others towards more evidence based policies. e.g. in European Parliament, Strasbourg 1995; advice to Ramsar Convention on 'Wise Use' and 'Criteria' 1989-1996 and to Convention on Biological Diversity on 'modus operandi' of Ecosystem Approach 1997 - 2005. Member of Technical Panel advising EU on Common Implementation Strategy for wetlands under the Water Framework Directive (2002 - 2004); Member Expert Group advising UK Secretary of State for Environment on the UK National Ecosystem Assessment; coordinating lead author of Freshwater Chapter, contributing to the Environment White Paper 'The Natural Choice' 2011.(2) Key role in the foundations text of Economics of Ecosystems and Biodiversity (TEEB) project: CLA of Biodiversity, Ecosystems and Ecosystem Services chapter.(3)
3. Ability to work in international (EU, multilateral and global) scientific and policy processes. • Member of International Convention technical working groups.(see above) • Member of the Technical Panel advising the EU on Horizontal Guidance in the Common Implementation Strategy for Wetlands under the Water Framework Directive.(6) • Technical advisor on management plan for Danube Delta Restoration, designation of Ramsar and World Biosphere Reserve status in the immediate post Ceausescu era. • Advisor to the US Department of Justice on International Convention obligations and technical issues in relation to the Everglades lawsuit; technical lead of monitoring mission to undertake assessment of the state of conservation of the Everglades National Park under the World Heritage Convention January 2011.
List of key publications relevant to IPBES(1) Maltby, E & Acreman M. (2011) <i>Ecosystem Services of Wetlands: pathfinder for a new paradigm</i>. Hydrological Sciences Journal. (2) Maltby E. & Ormerod S. et al., (2011) <i>Freshwaters-openwaters, Wetlands and Floodplains</i>. In The UK National Ecosystem Assessment, UNEP-WCMC, Cambridge UK (3) Elmqvist, T. Maltby E. & others (2010) <i>Biodiversity, Ecosystems and Ecosystem Services</i>. Ecological and Economic Foundations. Chapter 2. Earthscan. (4) Maltby, E. (2010) <i>Effects of climate change on the societal benefits of UK upland peat ecosystems: applying the ecosystem approach</i>. Climate Research 45 249-259 (5) Maltby, E. (Ed) (2009) <i>Functional Assessment of wetlands: Towards Evaluation of Ecosystem Services</i>. Woodhead Publishers, Cambridge. 672 pp. (6) Blackwell, M.S.A. and Maltby, E. (2006) <i>Ecoflood Guidelines: How to use floodplains for flood risk reduction</i>. European Commission D.G. Research, Brussels p144 (7) Maltby, E. (2006) <i>Wetland Conservation and Management: Questions for Science and Society in Applying the Ecosystem Approach in Ecological Studies</i> Vol. 191 pp93-115 (8) Laffoley, D. d'A., Maltby, E. et al. (2004) <i>The Ecosystem Approach. Coherent actions for marine and coastal environments. A report to the UK Government</i>. Peterborough, English Nature. 65 pp (9) Smith, R. & Maltby, E. (2003) <i>Using the Ecosystem Approach to implement the Convention in Biological Diversity</i>; IUCN/UNESCO/RHUL/WWF 118 pp (10) Maltby, E., Blackwell M.S.A., Baker, C.J (2000) 'Linking Wetland Science to Policy: Meeting the challenge with special reference to water quality issues'. In: E. Balazs, et al. (Eds) <i>Biological Resource Management: Connecting Science and Policy</i>. Pp 291-308. Springer-Verlag, (11) Maltby E. and Caseldine C.J. (1982). <i>Prehistoric soil and vegetation development on Bodmin Moor</i> Nature 297 397-400 (12) Maltby E (1986) 'Waterlogged Wealth. Why Waste the World's Wet Places'

Professor Dominic Moran, Scottish Agricultural College, Edinburgh
Introduction
Dominic Moran is Professor of Environmental Economics at SAC. He is also currently a DFID Senior Research Fellow with the Climate and Environment Research Group (2012-2014) http://www.sac.ac.uk/research/groups/lee/teams/sustainableecosystems/ecosystemeconomicsunit/dominicmoran/ He specialises in applied cost-benefit analysis of environmental and agri environmental policy. This includes the economics of biodiversity conservation and climate change (mitigation and adaptation in agriculture and related land use). He has international project experience in: Albania, Azerbaijan, Bolivia, Brazil, Egypt, Mexico, Peru, Guyana, Kenya, India, Iran, China, Guatemala, Honduras, Mongolia, Malaysia Mozambique, Russia, Senegal, South Africa, Thailand, Turkey, Kazakhstan, Vietnam. Consulting assignments for: European Union, OECD, Global Environment Facility, World Bank (Environment Department, Latin America, Economic Development Institute, TACIS), United Nations Development and Environment Programs (GEF unit), Food and Agricultural Organization, DFID China National Environmental Protection Agency, Danish Cooperation for Environment and Development, Canadian IDRC (Singapore office), IUCN (Senegal). Education: 1997 PhD Economics (Environment and Resource Economics), University College London 1990 MA (Econ). Agricultural Economics. Manchester University 1989 BA Economics with Modern Languages. Stirling University
1. Scientific or technical expertise in biodiversity and ecosystem services with regard to either the natural sciences, social sciences or economics;
As an economist he has been active in the development of biodiversity policy and research (ecosystem valuation) for over 20 years. Key public contributions include: UK BRAG (economic group member) Millennium Ecosystem Assessment - contributing author TEEB - contributing author UK National Ecosystem Assessment - contributing author phase 1 and phase 2 Aichi Targets - currently contracted (Defra) on costing exercise for target 7 (agriculture and biodiversity) He has managed numerous projects for UK government (including devolved government): Scottish Government (RESAS) 2011-2013, Evaluating the cost-effectiveness of biodiversity measures in Scotland Defra (2008) Scoping study for the design and use of biodiversity offsets in an English context Defra (2008) Benefits of Global Biodiversity Assets to UK Citizens: a literature review Defra (2007/2008) Determining monetary values for use and non-use goods and services – Marine Biodiversity – primary valuation CRO383 http://randd.defra.gov.uk/Document.aspx?Document=WC0605_7414_FRP.pdf Defra (2007) Marine Bill – Marine nature conservation proposals – valuing the benefits (CRO 380) http://randd.defra.gov.uk/Document.aspx?Document=WC0603_7653_FRP.pdf
2. Experience in communicating, promoting and incorporating science into policy development processes;
As an economist in a scientific organisation my job is to translate scientific findings (from a range of disciplines) into terms that are most relevant to government project and policy cycles. Moreover, this process involves a job of communication between scientists and government policy staff. I have undertaken a variety of national and international projects demonstrating this role. These include the use of non-market valuation in cost-benefit analysis, its use in (green) adjusted national income accounting, and its use in the development of policy incentives and market-based instruments for biodiversity conservation. Finally, please note that I am a lecturer in environmental economics. This role involves a considerable level of written and verbal communication of economic concepts to non economist audiences. I hope my project and publication experience demonstrate the depth of my engagement with international biodiversity organisations and processes.
3. Ability to work in international (EU, multilateral and global) scientific and policy processes.

As noted in section 1, I have already contributed to three international biodiversity collaborations
 Other international engagements include:
 OECD (2010) Locating biodiversity in the OECD Green Growth Strategy, paper for OECD, Env Directorate
 Chinese Government through SAIN programme (2010-2012) Estimates of future agricultural greenhouse gas emissions and mitigation in Chinese agriculture
 OECD (2009) paper on agriculture: impacts mitigation and adaptation to climate change (with Anita Wreford and Neil Adger)
 Contributing author to EU initiative on the Cost of inaction on biodiversity loss (TEEB)
http://ec.europa.eu/environment/nature/biodiversity/economics/index_en.htm
 Convention on Biodiversity (secretariat) (2008) Background paper on non market valuation of biodiversity
 Global Environment Facility, Scientific and Technical Advisory Panel – Advisor on incremental cost derivation for the Land Degradation Focal Area (appointed February 2006)

4. List of key publications relevant to IPBES

Helen F. Laycock, Dominic Moran, James C.R. Smart, David G. Raffaelli, Piran C.L. White (2011) Evaluating the effectiveness and efficiency of biodiversity conservation spending Ecological Economics, Volume 70, Issue 10, 15 August 2011, Pages 1789-1796
 Laycock, Helen , Dominic. Moran, James Smart, David Raffaelli and Piran White (2009) Evaluating the cost-effectiveness of conservation: the UK Biodiversity Action Plan, Biological Conservation Volume 142, Issue 12, Pages 3120-3127
 Hussain S. A. Winrow-Giffin, D. Moran, L. Robinson, A. Fofana, O. Paramor, C. Frid (2010) An ex ante ecological economic assessment of the benefits arising from marine protected areas designation in the UK Ecological Economics Volume 69, Issue 4 Pages 828-838
 McVittie, A. and D. Moran (2009) Valuing the non-use benefits of marine conservation zones: an application to the UK Marine Bill Ecological Economics
 Velarde, S. Y. Malhi, D. Moran, J. Wright, (2005) Valuing the impacts of climate change on protected areas in Africa, Ecological Economics, 53 pp21-22
 Moran, D., Pearce, D.W., Wendelaar, A., (1996) Global Biodiversity Priorities: A Cost-Effective Index for Investments, Global Environmental Change 6(2) pp 103-119
 Moran, D. and D.W. Pearce (2002) Handbook of Applied Valuation of Biodiversity, Organisation for Economic Cooperation and Development, Paris.
 Eade, J. and Moran, D. (1996) Spatial Economic Valuation: GIS and Benefit Transfer Journal of Environmental Management 48, pp 97-110
 Moran, D. and Pearce, D.W. (1995) Economic Incentive Measures for the Conservation and Sustainable Use of Biological Diversity, Organization for Economic Cooperation and Development, Paris
 Pearce, D.W. and D. Moran (1994), The Economic Value of Biodiversity, Earthscan, London and Island Press, (gone to four reprints)
 Adger, N., Brown K., Cervigni R., Moran D. (1995) Estimating the total economic value of forests in Mexico, Ambio, 24, 5:286-296
 Moran, D. (1994), Contingent valuation and biodiversity: Measuring the user surplus of Kenyan protected areas. Biodiversity and Conservation 3, 8:663-684.

SUMMARY CV OF Professor Ken Norris, University of Reading	
Introduction	
I am a Biodiversity Scientist of over 20 years experience working on how biodiversity responds to environmental change, and seeking more sustainable solutions to biodiversity conservation in the longer-term. A substantial part of this work has focused on the interactions between biodiversity, ecosystem services and agricultural systems in the UK, Europe and overseas (Africa, Asia). I participated in the UK National Ecosystem Assessment (NEA) from 2009 onwards. I was a member of the Panel of Experts providing general scientific input to the NEA. I was also the Co-ordinating Lead Author (CLA) for the Biodiversity Chapter. I have, therefore, relevant scientific knowledge and expertise on the links between biodiversity and ecosystem services; and experience of applying this knowledge in the context of ecosystem assessments.	
1. Scientific or technical expertise in biodiversity and ecosystem services with regard to either the natural sciences, social sciences or economics;	
My expertise is primarily relevant to the knowledge generation and assessments functions of IPBES. I have over 20 years of research experience in the area of biodiversity science. My work mainly focuses on using population, community and ecosystem approaches to understanding how biodiversity responds to environmental change. I have experience working on terrestrial and marine ecosystems in temperate and tropical regions. I participated in the UK National Ecosystem Assessment (NEA) from 2009 onwards. I was a member of the Panel of Experts providing general scientific input to the NEA. I was also the Co-ordinating Lead Author (CLA) for the Biodiversity Chapter. This involved reviewing a wide body of knowledge relating to the links between biodiversity and ecosystem services, status and trends in biodiversity and drivers of biodiversity change in a UK context. I am currently Director of the Centre for Agri-Environmental Research at the University of Reading, a research centre that focuses on biodiversity and ecosystem services in the context of land-use and environmental change. I am responsible for managing a team of about 30 staff and over 40 research projects. I also play a role for NERC as the Theme Leader for Biodiversity. This involves working with the science and policy communities to develop research programmes that address the links between biodiversity, ecosystem services and human well-being. To date, over £30M has been invested in this research area through my role, and has included the establishment of inter-disciplinary programmes on the valuation of ecosystem services (Valuing Nature Network). I have a 1st Class Honours degree in Environmental Biology from the University of Wales and a Doctor of Philosophy degree from the University of Oxford. I was made Professor of Agro-ecology at Reading University in 2005 in recognition of my contribution to academic research (see also section 4). My role with NERC also reflects my international standing in the research community.	
2. Experience in communicating, promoting and incorporating science into policy development processes;	
I can give three relevant examples of my experience in this area. First, my role in the UK National Ecosystem Assessment outlined above. Second, I am a member of Natural England's Science Advisory Committee (NESAC) that provides advice about the incorporation of scientific evidence into policy relating to the Natural Environment in England. Part of my role has involved bringing the work done during the NEA into NESAC's science-policy work. Third, I assisted Environment Canada and Agriculture Canada in assessing and reviewing the evidence underpinning Canada's national agri-environmental standards policy.	
3. Ability to work in international (EU, multilateral and global) scientific and policy processes.	

My role as NERC Biodiversity Theme Leader involves engagement with a number of overseas research organisations to discuss research priorities and needs in biodiversity and ecosystem science and establish joint research programmes. A recent example includes the establishment of the c£10M Human Modified Tropical Forests Programme with FAPESP in Brazil that was announced by the UK Government Chief Scientist Sir John Beddington in June 2012 and involves a pan-tropical programme in Brazil and Malaysia.

4. List of key publications relevant to IPBES

1. Butler, S.J., et al., Quantifying the impact of land-use change to European farmland bird populations. *Agriculture, Ecosystems & Environment*, 2010. 137: p. 348-357.
2. Butler, S.J., et al., A cross-taxonomic index for quantifying the health of farmland biodiversity. *Journal Of Applied Ecology*, 2009.
3. Butler, S.J., et al., An objective, niche-based approach to indicator species selection. *Methods in Ecology and Evolution*, 2012. 3(2): p. 317-326.
4. Butler, S.J., J.A. Vickery, and K. Norris, Farmland biodiversity and the footprint of agriculture. *Science*, 2007. 315(5810): p. 381-384.
5. Gill, J.A., et al., The buffer effect and large-scale population regulation in migratory birds. *Nature*, 2001. 412(6845): p. 436-438.
6. Lens, L., et al., Avian persistence in fragmented rainforest. *Science*, 2002. 298(5596): p. 1236-1238.
7. Lopez-Sepulcre, A., H. Kokko, and K. Norris, Evolutionary conservation advice for despotic populations: habitat heterogeneity favours conflict and reduces productivity in Seychelles magpie robins. *Proceedings Of The Royal Society B-Biological Sciences*, 2010. 277(1699): p. 3477-3482.
8. Lopez-Sepulcre, A., K. Norris, and H. Kokko, Reproductive conflict delays the recovery of an endangered social species. *Journal Of Animal Ecology*, 2009. 78(1): p. 219-225.
9. Mace, G.M., K. Norris, and A.H. Fitter, Biodiversity and ecosystem services: a multilayered relationship. *Trends In Ecology & Evolution*, 2012. 27(1): p. 19-26.
10. Mattison, E.H.A. and K. Norris, Bridging the gaps between agricultural policy, land-use and biodiversity. *Trends In Ecology & Evolution*, 2005. 20(11): p. 610-616.
11. Norris, K., Managing threatened species: the ecological toolbox, evolutionary theory and declining-population paradigm. *Journal Of Applied Ecology*, 2004. 41(3): p. 413-426.
12. Norris, K., Agriculture and biodiversity conservation: opportunity knocks. *Conservation Letters*, 2008. 1(1): p. 2-11.
13. Norris, K., Biodiversity in the context of ecosystem services: the applied need for systems approaches. *Philosophical Transactions Of The Royal Society B-Biological Sciences*, 2012. 367(1586): p. 191-199.
14. Norris, K., et al., Biodiversity in a forest-agriculture mosaic - The changing face of West African rainforests. *Biological Conservation*, 2010. 143(10): p. 2341-2350.
15. Norris, K. and N. Harper, Extinction processes in hot spots of avian biodiversity and the targeting of pre-emptive conservation action. *Proceedings Of The Royal Society Of London Series B-Biological Sciences*, 2004. 271(1535): p. 123-130.
16. Norris, K., S.G. Potts, and S.R. Mortimer, Ecosystem Services and Food Production, in *Ecosystem Services*, R.E.H.R.M. Hester, Editor. 2010. p. 52-69.
17. Sutherland, W.J., et al., A horizon scan of global conservation issues for 2012. *Trends In Ecology & Evolution*, 2012. 27(1): p. 12-18.
18. Wade, A.S.I., et al., Management strategies for maximizing carbon storage and tree species diversity in cocoa-growing landscapes. *Agriculture Ecosystems & Environment*, 2010. 138(3-4): p. 324-334.

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September, 2012

CURRICULUM VITAE

ANN M. BARTUSKA
Deputy Under Secretary for
Research, Education and Economics
US Department of Agriculture
Washington, DC

EDUCATION

B.S. in Biology, 1975 – Wilkes College, Pennsylvania

M.S. in Botany, 1977 – Ohio University

Ph.D. in Biology, 1981 – West Virginia University

PROFESSIONAL EXPERIENCE

2004 – 2010

Deputy Chief for Research and Development, Forest Service, Washington, DC

2009 – 2010

Acting Under Secretary for Natural Resources and Environment, USDA

2001 – 2004

Executive Director, Invasive Species Initiative

The Nature Conservancy

1999-2001

Director

Forests and Rangelands, Forest Service, Washington, DC

1994-1998

Director

Forest Health Protection, Forest Service, Washington, DC

1993-1994

Special Assistant to Chief

Liaison, National Biological Survey, Department of Interior, Washington, DC

1992-1993

Acting Director

Ecosystem Management, Forest Service, Washington, DC

1991-1992

Wetlands Staff Specialist

Forest Environment Research, USDA Forest Service, Washington, DC

1989-1991

Assistant Station Director

Southeastern Forest Experiment Station, Asheville, North Carolina

1987-1989

*Program Manager, Southern Commercial Forest Research Cooperative (air pollution),
Southeastern Forest Experiment Station, Raleigh, North Carolina*

1983-1987

*Program Coordinator, Acid Deposition Program and Visiting Assistant Professor, School of Forest
Resources, North Carolina State University, Raleigh, North Carolina*

1981-1982

*Research and Development, Toxicology Department, Biomedical Reference Laboratories, Inc. (now Roche
Biomedical), Burlington, North Carolina*

1979-1981

Research Fellow, Department of Biology, West Virginia University, Morgantown, West Virginia

HONORS AND AWARDS

USDA Certificate of Merit, 1988, for special efforts in the development of the Macon
Center for Forest Environmental Studies

USDA Certificate of Appreciation, 1990 in support of the Southeastern Experiment
Station's Women's Program

USDA Certificate of Merit, 1991, for leadership in developing the Southeastern Station's
Strategic Plan

Senior Executive Service Candidate Development Program, 1992

Outstanding Performance and Award, 1997, 2000, 2001

Vice-President, Public Affairs, Ecological Society of America, 1996-1999

Alumni Award for Excellence in Environmental Protection, Wilkes University, 2000

President, Ecological Society of America, 2003-2004

Council of Science Society Presidents, 2002 – 2004

Outstanding Performance and Award, 2005, 2006, 2007, 2008

Distinguished Alumni in Arts and Sciences, Ohio University, 2012

PUBLICATIONS

- Bartuska, A. M. and I. A. Ungar. 1980. Elemental concentrations in plant tissues as influenced by low pH soils. *Plant and Soil* 55: 157-161
- Bartuska, A. M. and G. E. Lang. 1980. Factors controlling leaf litter decomposition in two West Virginia forests. *Bulletin Ecol. Soc. Amer.* 61(2): 57.
- Bartuska, A. M. and G. E. Lang. 1981. Detrital processes controlling the accumulation of forest floor litter on black locust revegetated surface mines in nor central West Virginia. IN D. H. Graves (ed). *Proceedings – Symposium on Surface Mining Hydrology, Sedimentology and Reclamation*, 359-365.
- Linthurst, R. A., J. Baker, and A. M. Bartuska. 1983. The effects of acidic deposition: A brief review. IN E.R. Frederick, ed. *Proceedings – First International Specialty Conference on Atmospheric Deposition. Air Pollution. Control Assoc.* 82-113
- Bartuska, A. M. and K. C. Joyner. 1985. Impact of atmospheric Deposition on Forest Ecosystems In *Proceedings – Hazardous Wastes and Environmental Emergencies*. May 14-16, Cincinnati, Ohio, pp. 354-357.
- Bartuska, A. M. and S. A. Medlarz. 1986. Spruce fir decline – Air pollution related? In *Proceedings – Appalachian Society of American Foresters Annual Meeting* January 30-31, Raleigh, NC, pp. 55-73
- Bartuska, A. M. 1990. Air Pollution impacts on forests in North America. IN Grodzinski, W., E.B. Cowling and A.I. Breymer (eds.) *Ecological Risks: Perspectives from Poland and the United States*. National Academy Press, Washington, DC, pp. 141-154.
- Christensen, N. L., A. M. Bartuska, et. al. 1996. The Report of the Ecological Society of America Committee on the Scientific Basis for Ecosystem Management. *Ecological Applications* 6(3): 665-691.
- Harwell, M. A., J. F. Long, A. M. Bartuska, et. al. 1996. Ecosystem Management to Achieve Ecological Sustainability: The Case of South Florida. *Environmental Management* 20(4): 497-521.
- Harwell, M. A., V. Myers, T. Young, A. M. Bartuska, et. al. 1999. A Framework for an Ecosystem Integrity Report Card. *Bioscience* 49(7): 543-556.
- Chornesky, E.A. A.M. Bartuska, G.H. Aplet, K.O. Britton, J. Cummings-Carlson, F.W. Davis, J. Eskow, D.R. Gordon, K. W. Gottschalk, R.A. Haack, A.J. Hansen, R.N. Mack, F.J. Rahel, M. A. Shannon, L.A. Wainger, and T. B. Wigley. 2005. Science Priorities for Reducing the Threat of Invasive Species to Sustainable Forestry. *Bioscience* 55 (4): 335-348.

McKinley, D. C., R. D. Briggs and A.M. Bartuska. 2012. When peer-reviewed publications are not enough! Delivering science for natural resource management. *Forest Policy and Economics* 21 (2012): 1 – 11.

Bartuska, A., M. Walbridge, and S. Shafer. 2012. Long-Term Agro-ecosystem Research (LTAR) and the Global Challenges to Food and Agriculture. *Water Resources IMPACT* 14 (5): 8 – 10.

PROFESSIONAL ACTIVITIES

Panel Chairperson, National Acid Precipitation Assessment Program (NAPAP) Aquatic Effects Review, 1987

Invited participant, National Academy of Sciences/Polish Academy of Sciences workshop on “Assessing Environmental Risk”, Poland, 1987 and Washington, DC, 1988

Chairperson, US/Poland Workshop on “ Long-term monitoring to Assess Environmental Change”. Jaszowiec, Poland, 1988

National Academy of Science-NRC Committee on “Science and Research Program for the National Parks”, 1990-91

Working group chairperson, EPA Risk Assessment Forum, Miami, FL 1991

Forest Service Liaison, SAB Wetlands Research Committee, Corvallis, OR 1991

Co-leader, U.S. delegation – CSCE Seminar of Experts on *Sustainable Development of Boreal and Temperate Forests*, Montreal, Quebec, Canada 1993

Editorial Board, *Ecological Applications*, 1993-1996

Member, External Review Panel, Sustainable Forestry Initiative, 2001-2003

Steering Committee, Aldo Leopold Leadership Program, 1998-present

Member, National Advisory Committee, Long-term Ecological Research Program, National Science Foundation, 1999-2001

Science Panel member, National Commission for Science of Sustainable Forestry, 2000-present

Member, Invasive Species Advisory Committee (to the National Invasive Species Council), 2002 - 2004

Board, Council of Science Society Presidents, 2004

Co-chair, Ecological Systems Subcommittee of the Committee on Environment and Natural Resources (CENR) the White House Office of Science and Technology Policy (OSTP), 2004 – 2010.

Member, Board of Visitors, Nicholas School of the Environment and Earth Sciences, Duke

Univesity, 2005 – 2009

Co-chair, IUFRO working group 6/06, “Managing Forest Research”, 2005 – 2010.

Member, LTER National Advisory Board, 2009 – present.

SELECT PRESENTATIONS

Deadwood Management Issues and Opportunities: Future Directions. 1999. Symposium on the Ecology and Management of Dead Wood in Western Forests, Reno, NV

Meeting the Invasive Species Challenge. 2001. NAPPO (North American Plant Protection Organization) Annual Meeting, Banff, Alberta, Canada

Abating the Threat from Invasive Species. 2002. International Leadership Council of The Nature Conservancy, Snoqualmie, WA.

Public Policies for the Prevention and Control of Invasive Species in the U.S. 2002. Workshop on Invasive Species and Sustainable Development, Punta Grossa, Parana, Brazil

Invited speaker, Graduate Student Forum, Colorado State University, 1999, 2000, 2001

Alien Species and Trade. 2003. Global Biodiversity Forum, Cancun, Mexico.

Abating the Threat of Invasive Species – Linking Science and Policy. 2003. Keynote, Illinois State Academy of Sciences Annual Meeting, IL.

Abating the Threat of Invasive Species – Linking Science and Policy. 2003. Rutgers University, New Brunswick, NJ.

Can Invasive Species Policy be Built upon Sound Science – What really goes on in Washington DC? 2003. IGERT Symposium on Invasive Species, UC Davis, Davis, CA.

The Status of the Most Threatening Invasive Species to North America's Marine and Terrestrial Biodiversity. 2003. Roundtable, The Joint Public Advisory Committee of the Commission for Environmental Cooperation, NAFTA.

Abating the Threat of Invasive Species: Linking Science and Policy. 2004. Plenary, AIBS Annual Meeting, Washington, DC.

A Vision for Forestry Science in the 21st Century. 2004. Keynote, SAF Forest Biology Workshop, Houghton, MI.

Advancing the Fundamental Sciences. 2004. Keynote address, FS Physical Scientists meeting, San Diego, CA.

Open Innovation and Forest Service Research. 2005. Technobusiness Forum, Atlanta, GA.

Linking Science and Policy: A Comprehensive Approach to Invasive Species. 2005. Invited Lecture,

University of Montana, Missoula, MT

Emerging Themes for Natural Resources Research and Sustainability in the United States. 2005. IUFRO World Congress, Brisbane, Australia

Globalization and Sustainable Forestry in the Americas. 2006. Ecology in an Era of Globalization conference, Merida, Mexico

Establishing New Ecosystem Service Markets: The Status of Action in the Federal Government. 2011. Ecological Society of America Annual Meeting, Austin, TX

The 1994 Land-Grant System and the Agricultural Research Agenda for the 21st Century. 2011. Keynote address, First Americans Land-grant Consortium (FALCON), Denver, CO

Participatory Science and Participatory Management. 2012. Keynote address, IUFRO Directors Forum, Sarajevo, Bosnia and Herzegovina

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS

Ecological Society of America

American Association for the Advancement of Science
