

## Short Curriculum Vitae

Nico M. van Straalen  
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Born : 27 November 1951, Spierdijk (Berkhout), The Netherlands  
Sex : male  
Marital Status : married, two children, two grandchildren

### Education

Primary school at Spierdijk, NH, The Netherlands  
1964-1970 : secondary school: gymnasium  $\beta$ ,  
College Hageveld, Heemstede  
1970-1979 : study Biology, Vrije Universiteit Amsterdam  
specializations: biophysics, endocrinology, biomathematics, didactics  
MSc in Biology  
1979 – 1982 : Ph.D. study, Vrije Universiteit Amsterdam  
Ph.D. in Mathematics and Natural Sciences

### Appointments

1974-1978 : student-assistent, Vrije Universiteit  
1979-1982 : PhD student, Netherlands Organisation for Scientific Research (ZWO)  
1982-1988 : lecturer, Vrije Universiteit  
1988-1992 : senior lecturer, Vrije Universiteit  
1992- : full professor of Animal Ecology, Vrije Universiteit  
2011 : dean of the Amsterdam Graduate School of Science (AGSS)

### Teaching

- courses on Comparative Animal Morphology, Faunistics, Ecology, Population Biology (student-assistant)
- courses on Ecotoxicology optional for 3<sup>rd</sup> year Biology students (1989 – 1993)
- summer course Elementary Physics for students entering the Biology programme (1989 – 1994)
- course on General Ecology for 1<sup>st</sup> year Biology and Medical Biology students (1990 – 1996)

- course on Evolutionary Biology for 1<sup>st</sup> year Biology and Medical Biology students, including zoology and botany practicals (1995 – 2007)
- course on Evolution and Diversity of Life for 1<sup>st</sup> year Biology students (2008 – present)
- course on Health and Environment for 1<sup>st</sup> year students of Biomedical Sciences and Health Science (1997 – 2009)
- course on Human Evolution for 1<sup>st</sup> year students of Biomedical Sciences (2004 – 2010)
- course on Human Evolution optional for 3<sup>rd</sup> year Biology and Biomedical Science students (1999 – now)
- course on Animal Physiology for 2<sup>nd</sup> year Biology students (2009 – present)
- course on Spatial Ecology and Global Change for MSc Ecology students (2005 – present)
- course The Evolutionary Origin of Life and its Driving Forces in the Honours programme (2008 – present)
- advanced course (PhD level) Principles of Ecological Genomics (2006, 2009, 2011)
- personally supervised 31 MSc students (1979 – 1989) in research projects on Animal Ecology and Ecotoxicology
- invited lecturer for international advanced courses on Ecotoxicology and Soil Ecology (EERO, PHLO, University of Siena, University of Coimbra)
- awarded with the ABC Laboratories/SETAC-Europe Environmental Education Award (1998)
- elected best lecturer of the faculty (2002)
- textbook: "Leerboek Oecotoxicologie" (VU Uitgeverij, 1991), with J.A.C. Verkleij
- textbook "An Introduction to Ecological Genomics" (Oxford University Press, 2006), with D. Roelofs; second edition appearing November 2011
- study director of the Biology programme at the Vrije Universiteit, Amsterdam (2006 – now)

## **Research**

- 1979 – 1983: PhD study on comparative demography of Collembola populations (promotor: Prof.dr. E.N.G. Joosse, thesis defence 26 January 1983)
- 1983 – 1999: research on ecotoxicology of soil invertebrates, focusing on toxicity, kinetics, mode of action and adaptation of heavy metals and PAH for soil invertebrates (springtails, isopods, oribatids)
- 1999 – present: research on molecular stress ecology and ecological genomics, focusing on mechanisms of metal tolerance and induction of genome-wide stress responses in a model species of springtail
- applied and obtained research funds from various national and international organisations (NWO, VROM, STW, EERO, EU, NATO, WOTRO, BSik)
- registered toxicologist (Netherlands Society for Toxicology and EUROTOX, Association of European Toxicologists and European Societies of Toxicology)
- good command of statistical and mathematical approaches in biology (linear models, non-linear regression, optimization)
- member of the Faculty of 1000 – Biology

## **Current research profile**

I am interested the application of molecular insights on problems of ecology and evolution. How does natural selection act upon genetic variation to cause adaptive change in populations? What is the relative importance of transcriptional regulation in evolutionary processes, as opposed to variation in the coding regions of genes? These questions require in-depth studies at the level of genome structure and function, combined with physiology and population ecology. Stress due to environmental pollution is eminently suitable to investigate evolutionary processes because pollution is often a strong selection pressure that can be quantified and experimentally manipulated. Over the last years my group has developed genomic resources for two species of springtail, *Folsomia candida* and *Orchesella cincta*, including an EST database (<http://www.collembase.org>), and an oligonucleotide microarray for transcription profiling. The databases are presently extended using next generation sequencing. The springtail model allows molecular stress studies to be combined with genetic dissection of the adaptation mechanisms, as well as field studies in polluted soils to investigate the ecological consequences.

## **Supervision of PhD studies**

Promotor: 51x, co-promotor 2x  
10 PhD defences planned 2011 - 2012

## **Administration and professional societies**

- head of department of Animal Ecology (1992 – now)
- director of the Department of Ecology and Ecotoxicology (1992-1998), and the Institute of Ecological Science (1998 – 2001)
- member of Biology Faculty Council, Vrije Universiteit (1990-1993)
- director of the interfaculty research institute Amsterdam Centre of Environmental Science (1995 – 2000)
- board member of the the national Research School on Environmental Science (SENSE) (1995 – 2000)
- general director of the the national Research School on Environmental Science (SENSE) (2001 – 2004)
- member of advisory committees: Netherlands Integrated Soil Research Programme (1990 – 1996), Dutch Research Programme on *in situ* Sanitation of Soils (1994 – 1997), Stimulation Programme on System-oriented Ecotoxicology (SSEO) (2002 – 2007), Advisory Board for the Post-doctoral Education Programme in Toxicology (2005 – now)
- member of the Technical Soil Protection Committee (1988 – 1995)
- member of the Dutch Health Council (1992 – now)
- member of the registration committee of toxicology for the Netherlands Society of Toxicology (2003 – 2007)
- member of the SETAC-Europe Council (1988-1992), chair of the SETAC-Europe Education Committee (1990-1996)

- chair of the scientific committee for SETAC-Europe annual meetings (Sheffield, 1991, 350 delegates; Amsterdam, 1997, 700 delegates)
- member of the Netherlands Society of Toxicology, Netherlands-Flamish Society of Ecology, Netherlands Society of Entomology, Netherlands Society of Environmental Sciences
- member of the British Ecological Society
- member of the Ecotoxicity Advisory Panel of the International Lead Zinc Association, the International Copper Association and the Nickel Producers Environmental Research Association (1997 – 2000)
- advisor for the programme on Human and Ecological Risk Assessment on ingredients of household cleaning products (2001 -2005)
- member of the scientific advisory board for the Institute of Wetland Research, Radboud University, Nijmegen (2006 – 2008)
- member of the Advisory board of the Institute of Risk Assessment Sciences (IRAS), University of Utrecht (2005 – 2010)
- member of the advisory boards of the National Environmental Research Institute, Denmark, the Environment Agency, United Kingdom, and the Institute of Environmental Sciences, Krakow, Poland
- chair of the peer review committee for the Centre for Environmental Science, Leiden (2006)
- member of the Biological Council KNAW (Biologische Raad) (2004 – 2007)
- co-ordinator for the Dutch Ecogenomics consortium (2004 - 2011)
- chair of the board of the Royal Dutch Zoological Society KNDV (2006 – present), chair of the BENELUX Congress of Zoology (2007)
- chair of the NWO programme Ecology Regarding Genetically Modified Organisms (ERGO) (2006 – present)
- chair of the scientific advisory board for the Netherlands Institute of Ecology (NIOO – KNAW) (2007 – 2011)
- member of the Council for Earth and Life Sciences KNAW (2008 – present)
- chair of the peer review committee for the Institute of Water and Wetland Research (IWWR, Radboud University Nijmegen) (2009)
- member of the scientific peer review committee for the Institute of Marine Research and Ecosystem Studies (Wageningen IMARES) (2009)
- board member of the Division of Earth and Life Sciences of the National Science Foundation (ALW-NWO) (2009 – present)
- member of the Netherlands Committee on Genetic Modification (COGEM) (2009 – present)
- board member of the Netherlands Society of Toxicology (2011 – present)
- dean of the Amsterdam Graduate School of Science (collaborative institute for joint master programmes of VU and UvA, [www.agss.nl](http://www.agss.nl)) (2011 – present)

### **Congresses, lectures, reviewing**

- Invited for a key-note lecture on an international congress: ~34 times
- Member of the editorial board and regular reviewer for the journals *Pedobiologia*, *Applied Soil Ecology and Environment International*
- Reviewer for: *Environmental Science and Technology*, *Environmental Toxicology and Chemistry*, *Ecotoxicology and Environmental Safety*, *Ecotoxicology*,

Australasian Journal of Ecotoxicology, Environmental Pollution, Water, Air and Soil Pollution, Science of the Total Environment, Chemosphere, Integrated Environmental Assessment and Management, Soil Biology and Biochemistry, European Journal of Soil Biology, Journal of Applied Ecology, Journal of Ecology, Functional Ecology, Oikos, Oecologia, Biological Reviews, Journal of Theoretical Biology, Entomologia experimentalis et applicata, Neotropical Entomology, Journal of Insect Physiology, Comparative Biochemistry and Physiology, Heredity, BMC Molecular Biology, BMC Genomics, Nature Reviews Genetics

### **Activities with developing countries**

- project officer for the “Biology Faculty Staff Development Programme” (Vrije Universiteit, UKSW, Salatiga, Indonesia) (1990-1996)
- coordinator of the MSc programme for students from South-East Asia at the Vrije Universiteit (1990-1996)
- project officer for the Biology part of the MHO-3 programme (Basic Science, Cantho University, Vietnam) (1996-2000)

### **International contacts**

- participated in EU-funded projects with colleagues in Silkeborg (Dr. H. Løkke), Lund (Dr. S. Rundgren), Innsbruck (Dr. R. Dallinger), Monks Wood (Dr. J. Weeks), Coimbra (Dr. J.P. Sousa)
- collaborated with the All-Russian Research Institute of Nature Protection (Dr. R.O. Butovsky, Dr. A.D. Pokarzhevskii), supported by EERO, NATO and NWO
- consultant for FAO-project on side-effects of anti-locust insecticides, Dakar, Senegal (1999)
- collaboration with Yokohama National University, Graduate School of Environment and Information Sciences (Prof.dr. N. Kaneko)
- Collaboration with the University of Siena (Italy), University of Coimbra (Portugal) and University of Rennes (France)
- supervisor for external PhD fellows (B. Gunadi, A.S. Krave, Suchahyo, J.C. Mangimbulide (UKSW, Indonesia), B. Widianarko, B. Soedarini (UNIKA, Indonesia), M.T. Goeltom (UBAYA, Indonesia), M.A. Khalil, H.M. Abdel-Lateif (Tanta, Egypt), N. Blake (Sheffield, UK), H. Noël (Reading, UK), J. Payet (Lausanne, Switzerland), E. Yehouenou (Abomey-Calavi University, Cotonou, Benin), Z.V. Zizzari (Siena, Italy)
- invited opponent for PhD defences on countless occasions

### **Languages**

- English: effective operational proficiency (CEF level C1, Oxford Quick Placement Test Result: 88 out of 100)
- French: reasonable
- German: reasonable

### **Five recent key publications**

- Van Straalen, N.M. (2003) Ecotoxicology becomes stress ecology. *Environmental Science and Technology*, **37**(17), 324A-330A.
- Van Straalen, N.M. & D. Roelofs (2006, 2011) *An Introduction to Ecological Genomics*. Oxford University Press, Oxford, 307 pp.
- Janssens, T.K.S., Mariën, J., Cenijn, P., Legler, J., Van Straalen, N.M., & Roelofs, D. (2007) Recombinational micro-evolution of functionally different metallothionein promoter alleles from *Orchesella cincta*. *BMC Evolutionary Biology*, **7**, 88.
- Van der Heijden, M.G.A., Bardgett, R.D., & Van Straalen, N.M. (2008) The unseen majority: soil microbes as drivers of plant diversity and productivity in terrestrial ecosystems. *Ecology Letters* **11**, 296-310.
- Nota, B., Verweij, R.A., Molenaar, D., Ylstra, B., Van Straalen, N.M., & Roelofs, D. (2010) Gene expression analysis reveals a gene set discriminatory to different metals in soil. *Toxicological Sciences* **115**, 34-40.

(complete list of publications: over 300, see separate list)

### **Areas of special interest**

- Ecological genomics (textbook published 2006, 2<sup>nd</sup> Ed. 2011, International PhD course February 2006, 2009, 2011)
- Human evolution (courses and public lectures)
- Weekly newspaper column (HDC Media) on various aspects of biology and human interest (evolution, toxicology, human behaviour)