

## Curriculum Vitae



Full name: Peter C. de Ruiter  
Date and place of birth: 23 April 1952, Heemstede, The Netherlands  
Affiliations: *Institute for Biodiversity and Ecosystem Dynamics (IBED)*  
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### Education

- MSc. Biology (with 2<sup>nd</sup> subject Mathematics), Utrecht University (NL), 1981.
  - PhD. Ecology, Utrecht University (NL), 1987.
- (Remark: I already finishing my PhD research in 1985, but I accepted a position at the Ministry of Education and Sciences, which meant that I wrote the thesis in my free time)

### Positions

- 1981-1985, Department Evolutionary Biology, Utrecht University (NL): PhD research assistant;
- 1985-1987, Ministry of Education and Sciences, The Hague (NL): policymaker biological sciences
- 1987-1997, DLO-Institute for Agrobiological and Soil Fertility Research, Haren (NL): Scientist and department leader
- 1997-2006, Department Environmental Sciences, Utrecht University (NL): Full professor
- 2006-2010, Soil Sciences Centre, Wageningen University (NL): Scientific Manager (c. 180 fte)
- 2008-present (from 2015 one day per week), Biometris, Wageningen University (NL): Personal Professor
- 2014-2014, ISRIC World Soil Information, Scientific Director (ad interim)
- 2015-present (four days per week), Institute for Biodiversity and Ecosystem Dynamics (IBED) of the University of Amsterdam (UvA): Scientific director

### Awards

- In 2013 I received the Humboldt-Forschungspreis for ‘*Ihnen Anerkennung Ihrer bisherigen herausragenden Leistungen in Forschung und Lehre*’ (€60.000)
- In 2008 I was appointed as *Personal Professor* at the Wageningen University (NL) for which I received €150.000 (€30.000 per year over a 5-year period) to ‘develop scientific excellence’.
- In 2005 I received the *Environmental Sciences Award* of the Utrecht University for my *Science* paper *Food Web Ecology, Playing Jenga and Beyond*. *Science* **309**, 68, 2005

### **Research Expertise and Interests**

My research interests are in the field of environmental and biological sciences, especially the analysis of structure and stability in complex communities (food webs), and the relationship between biological diversity, ecosystem functioning and environmental quality. Most of my studies have been applied to soil ecosystems. Soils are in particular interesting, as (i) soils contain extremely diverse, complex and dynamic communities, that (ii) govern soil processes such as the decomposition of organic matter, carbon sequestration and nutrient cycling that form major components of the global cycling of materials, energy and nutrients. Key in my approach is the linking of empirical information (mostly from field surveys) to mathematical models. This approach enables to derive ecosystem functioning, e.g. in terms of carbon sequestration and nutrient cycling, from the observed soil food web structures. The analyses show that the relationship between food web structure and soil ecosystem function is mutual in fundamental ways. Soil food webs govern ecosystems processes, while processes shape the structure and stability of the food webs. Along with analysing food webs and ecosystem processes in soils I became interested in the occurrence of ecological ‘tipping points’ and ‘sudden shifts’ in terrestrial ecosystems. These concepts have been developed for aquatic systems, but we found that they also occur during degradation and desertification in arid ecosystems. The occurrence of such shifts seems to be related to soil ecological processes that determine the water and nutrient uptake of the plants. Prevention of such shifts has a great value for securing food productivity in large areas worldwide.

The concepts we proposed to better understand the interrelationship between soil ecosystem processes and the structure and stability of biological communities, i.e. ‘trophic-level dependent interaction strengths’ and ‘weak links in long loops, and ‘local facilitation on small scales versus competition on larger scales’ has been published in high quality scientific journals and are well-received in the international literature.

### **University Teaching**

At the Utrecht University I chaired the committee(s) that designed the new 5-year program Environmental Sciences, including a new 5-year program including a BSc and a MSc Program. Each program consisted of a natural sciences and a social sciences track that were tightly linked through combined courses. From 2004 the MSc. was awarded as *International Prestige Master* of the Utrecht University.

At the Utrecht University I developed two new courses, each 7.5 ECTS: the BSc course *Environmental System Analyses and Modelling* and the MSc course *Themes in Land Use, Environment and Biodiversity* (focused on research methodology).

At the Wageningen University I was member of the committees that designed the new MSc program *Climate studies* and the new MSc program *Earth & Environment*. I also developed two new courses: the BSc course *Food Web Ecology* (2 ECTS) and the MSc course *Academic Research Training* (6 ECTS). In 2012 I supervised the students in the new BSc *Honours Program* in the Environmental Sciences.

### **Scientific and societal committees and boards**

1. Scientific Advisory Board of (Technical University) Delft Cluster (Delft, NL) (ended 2009)
2. NCEAS Working Group Detritus dynamics in ecosystems (UCSB, Santa Barbara CA, USA) (2005)
3. Steering committee DIVERSTAS-AgroBiodiversity (Paris, F) (ended 2005)

4. Chair Committee for Environment and Water Province Utrecht (Utrecht, NL) (ended 2006)
5. Utrecht Centre for Energy Research (Utrecht, NL) (ended 2006)
6. Royal Academy of Sciences (KNAW) committee Global Change (Amsterdam, NL) (ended 2008)
7. Vice-chair and member of the Technical Committee for Soil Protection (the Hague, NL) (ended 2009)
8. Board Knowledge Transfer Soils (Gouda, NL) (ended 2010)
9. Chair of the board of the ISRIC World Soil Information and Reference Centre (Unesco, Wageningen, NL)
10. Member of the Steering Committee NRP68 program 'Soil as a Resource' (Swiss Science Foundation)
11. Member of the Intergovernmental technical Panel on Soil (World Food Organisation FAO, Rome)

### **External Funding achievements (current)**

#### Dutch National Science Foundation

The Dutch National Science Foundation NWO is presently funding three PhD-projects, each covering approximately €250.000 of the costs:

- 2011-2015 Complexity and stability in food webs: the role of nutritional quality
- 2011-2015 Complexity and stability in food webs: the role of infectious disease
- 2012-2016 Linking microbial diversity to the functioning of soil food webs

#### European Communion (Framework KP6 and KP7)

For each project I give the total amount (€) for my participation:

- 2009-2012 **SoilService**: Conflicting demands of land use, soil biodiversity and the sustainable delivery of ecosystem goods and services in Europe (€210.000)
  - sustainable delivery of ecosystem goods and services in Europe (€210.000)
- 2010-2014 **SoilTrEC**: Soil Transformations in European Catchments (€470.000)
- 2011-2015 **EcoFinders**: Ecological Function and Biodiversity Indicators in European Soils (€ 50.000)
  - Soils (€ 50.000)
- 2012-2016 **CASCADE**: Catastrophic Shifts in Drylands: How can we prevent ecosystem degradation? (€400.000)
  - degradation? (€400.000)
- 2015-2019 **Landmark**: How can we make the most of our land? (€400.000)

### **Publication and Citation Profile (source: Google Scholar)**

	Total
Peer-reviewed publications:	98
Peer-reviewed chapter in books	19
Number of articles in <i>Science</i>	5
Number of articles in <i>Nature</i>	4
Books and Monographs	3
Editor multi-author book:	2
Monograph	1
Editor Special Issue Scientific Journal	1
Number of citations	12840
<u>H-index</u>	<u>55</u>

## Research Books and Monographs

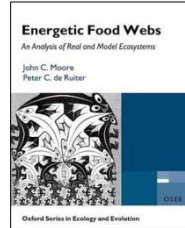


### **Dynamic Food Webs**

*Multispecies assemblages, ecosystem development, and environmental change.*

Editors: Peter C. de Ruiter, Volkmar Wolters, John C. Moore

Academic Press 2005; 590 pages.

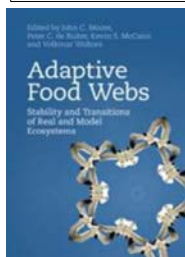


### **Energetic Food Webs**

*An Analysis of Real and Model Ecosystems*

Authors: John C. Moore, Peter C. de Ruiter

Oxford University Press 2012; 350 pages.



### **Adaptive Food Webs**

*Stability and Transition in Real and Model Ecosystems*

Editors: John C. Moore, Peter C. de Ruiter, Kevin McCann, Volkmar Wolters

Cambridge University Press 2017; 380 pages.

## List of top 10 publications

1. Neutel, A.M., Heesterbeek, J.A.P., de Ruiter, P.C. (2002) Stability in real food webs, weak links in long loops. *Science* **296**, 1120-1123.
2. De Deyn, G.B., Raaijmakers, C.E., Zoomer, H.R., Berg, M.P., de Ruiter, P.C., Verhoef, H.A., Bezemer, T.M., van der Putten, W.H. (2003) Soil invertebrate fauna enhances grassland succession and diversity. *Nature* **422**, 711-713.
3. Rietkerk, M., Dekker, S.C., de Ruiter, P.C., van de Koppel, J. (2004). Self-organised Patchiness and Catastrophic Shifts in Ecosystems. *Science* **305**, 1926-1929.
4. Hessen, D.O., Agren, G.I., Anderson, T.R., Elser, J.J., De Ruiter, P.C. (2004) Carbon sequestration in ecosystems, the role of stoichiometry. *Ecology* **85**, 1179-1192.
5. De Ruiter, P.C., Wolters, V., Moore, J.C., Winemiller, K.O. (2005) Food Web Ecology, Playing Jenga and Beyond. *Science* **309**, 68.
6. Kéfi, S., Rietkerk, M., Alados, C.L., Pueyo, Y., Papanastasis, V.P., ElAich, A., de Ruiter, P.C. (2007) Spatial vegetation patterns and imminent desertification in Mediterranean arid ecosystems. *Nature* **449**, 213-217.
7. Neutel, A.M., Heesterbeek, J.A.P., van de Koppel, J., Hoenderboom, G., Vos, A., Kaldeway, C., Berendse, F., de Ruiter, P.C. (2007) Reconciling complexity with stability in naturally assembling food webs. *Nature* **449**, 599-602.
8. Eppinga, M.B., de Ruiter, P.C., Wassen, M.J., Rietkerk, M. (2009). Nutrients and hydrology indicate the driving mechanisms of peatland surface patterning. *American Naturalist* **173**: 803-18
9. Kéfi, S., Rietkerk, M., Roy, M., Franc, A., de Ruiter, P.C., Pascual, M. (2010). Robust scaling in ecosystems and the meltdown of patch size distributions before extinction. *Ecology Letters* **14(1)**:29-35.
10. Fujita, Y., Olde Venterink, H., van Bodegom, P.M., Douma, J.C., Heil, G.W., Hölzel, N., Jabłońska, E., Kotowski, W., Okruszko, T., Pawlikowski, P., de Ruiter, P.C., Wassen, M.J. (2013) Low investment in sexual production threatens plants adapted to phosphorus limitation. *Nature*, doi:10.1038/nature12733.

### **Editor Special Issue/Editorial boards/reviewer**

1. *Theoretical Ecology* (Springer-Verlag), Subject-editor
2. *Pedobiologia* (Elsevier Inc. Amsterdam), Editorial Board.
3. Editor special Issue *Agriculture, Ecosystems and Environment* **121: Biodiversity in Agricultural Landscapes: Investing without losing interest** (2007)
4. Regular reviewer of national and international (USA, Germany, Sweden, Portugal) research councils
5. Regular reviewer e.g. *Science, Nature, PNAS, Ecology Letters, Ecology, and Journal of Animal Ecology*.

### **List of top-10 invited lectures**

1. *Productivity and stability in soil ecosystems*. British Ecological Society, Lancaster, UK, 2003.
2. *The role of soil biodiversity in greening agricultural systems*. Diversitas- Agrobiodiversity Conference, Alexandria, Egypt, May 11<sup>th</sup>, 2004
3. *Vital Soil: Modelling biodiversity and soil ecosystem functioning*. Annual meeting Ecological Society of America (ESA)/Intecol, August 9<sup>th</sup>, 2005.
4. *Ecology of contaminated soils*. Int. Conference on Soil Remediation, Nanjing, China, Nov. 16<sup>th</sup>, 2005
5. *Soil community complexity and soil processes*. Diversitas-Agrobiodiversity workshop, University of California Davis, Davis, CA, USA, April 6<sup>th</sup>, 2008.
6. *Immobilisation to remediate large heavy metal polluted contaminated sites and regions*. International Congress on Soil Remediation, Nanjing, PR China, October 20<sup>th</sup>, 2008.
7. *Soil food webs and climate change*. Ecological Society America (ESA), Pittsburgh, USA, Aug. 2<sup>nd</sup> 2010.
8. *Catastrophic shift in desert ecosystems*. Goldschmidt conference, Prague, 2011.
9. *Soil in a changing world*, Opening address of the Conference on Applied Soil Science: Soil in a changing world. Wageningen, The Netherlands, September 18<sup>th</sup>, 2011.
10. *Complexity and stability in real ecosystems*. Biodiversity and Ecosystem Functioning. University of Göttingen, Göttingen, Germany, June 20, 2011.

### **Congress Organization**

1. April 3-7, 2002: *Trophic Linkages in a Changing World*. ESF-GCTE, Texel, NL.
2. Nov 13-16, 2003: *Dynamic Food Web 2003; Principal Organiser 3<sup>rd</sup> Decadal Conference on Food Webs*. Giessen, Germany, leading to the book *Dynamic Food Webs* - see Books/Monographs above).
3. September 18-22, 2011. Chair of the Scientific Advisory Board: *Wageningen Conference on Applied Soil Science: Soil Science in a Changing World*.
4. Nov 11-13, 2013 *Food Webs: Science for Impact; Principal Organiser 4<sup>th</sup> Decadal Conference on Food Webs*, Giessen, Germany.

### **Promotor PhD-students**

1. M. Vreeken-Buijs. *Ecology of microarthropods in arable soil* (Wageningen UR 1998, co-promotor)
2. O. van Dam. *Forest filled with gaps* (Utrecht University 1998, 2<sup>nd</sup> promotor)
3. M. Bootsma. *Stress and recovery in wetland ecosystems* (Utrecht University, 2000)
4. H. Olde Venterink. *Nitrogen, phosphorus and potassium flows controlling plant productivity and species richness* (Utrecht University 2000)

5. A.M. Neutel. *Stability of Complex Food Webs, Pyramids of Biomass, Interaction Strengths and the Weight of Trophic Loops* (Utrecht University 2001)
6. G. de Deyn. *Soil fauna and plant community interactions in relation to secondary succession and diversity* (Utrecht University 2004)
7. M.A. Tobor Kaplon. *Soil life under stress* (Utrecht University 2006)
8. M. M. Schouten. *Patterns in Biodiversity; Spatial organisation of biodiversity in the Netherlands*
9. S. Kefi. *Reading the signs* (Utrecht University 2008)
10. C. van der Brink. *Land use and groundwater quality. How technical instrumentation can support groundwater planning* (Utrecht University 2009)
11. M. Eppinga. *aMazing pattern: spatial self-organization in peatlands* (Utrecht University 2009, 2<sup>nd</sup> promotor)
12. Remko Holtkamp. *Soils in transition, patterns and processes in soil ecosystems during the restoration of natural ecosystems on former agricultural land* (Utrecht University 2010)
13. Yuki Fujita. *An integrated hydro-ecological model for fen conservation* (Utrecht University 2010, 2<sup>nd</sup> promotor)
14. Monique Gulickx. *The landscape at your service; spatial analysis of landscape services for sustainable development*. WU, October 3, 2013)
15. Roland E. van der Vliet. *Closing in on meadow birds; coping with a changing landscape in the Netherlands* (Utrecht University, November 27, 2013, 2<sup>nd</sup> promotor)
16. Phuong Ngoc Truong. *Expert knowledge in geostistical inference and prediction* (Wageningen University, June 30, 2014)
17. Cassandra van Altena. *Searching for Balance; Stability and equilibria of food webs* (Wageningen University, May 17<sup>th</sup> 2016)
18. Jeroen van Leeuwen. *The Soil Life Cycle; Food webs and ecosystem services during soil transformations* (Wageningen University, Jan 8<sup>th</sup>, 2016)
19. Fernando R. da Silva. *Small is Superior; Plant-provided prey refuges, predator prey dynamics and biological control* (University of Amsterdam, June 6<sup>th</sup>, 2016).
20. Sanja Selakovic. *Infection in ecosystems: Data, Models and Effects* (Utrecht University July 5<sup>th</sup> 2016).
21. Karen A. M. Cárdenas. *What lies beneath? Linking litter and canopy food webs to protect ornamental crops* (University of Amsterdam, June 21<sup>st</sup> 2017)

### **Contribution to the early career of excellent researchers**

Three of my former PhD-students have obtained permanent position at universities or research institutions on the basis of the excellent work they did in the context of their PhD research.

1. Dr. Anje-Margriet Neutel has two *Science* and one *Nature* paper on the basis of her PhD research. She is now staff member at the British Antarctic Survey, Cambridge, UK
2. Dr. Gerlinde de Deyn has one *Nature* paper on the basis of her PhD research. She was guest scientist at the University of Lancaster(UK). She now has a tenure position at Wageningen University (NL)
3. Dr. Sonia Kefi has one *Nature* paper on the basis of her PhD research. She worked at the University of Darmstadt (Germany) on a Rubicon project. She has a tenure position at the University of Montpellier (France).

## Publications: peer-reviewed articles in scientific journals

1. De Ruiter P.C., Ernsting G. (1987). Effect of ration on energy allocation in a carabid beetle. *Functional Ecology* **1**: 109-116
2. De Ruiter P.C., Ouborg N.J., Ernsting G.(1988). Density dependent mortality in the springtail species *Orchesella cincta* due to predation by the carabid beetle *Notiophilus biguttatus*. *Entomologia experimentalis et applicata* **48**: 25-30
3. De Ruiter P.C., van Stralen M.R., van Eeuwijk F.A., Slob W., Bedaux J.J.M., Ernsting G. (1989) Effects of hunger and prey traces on the search activity of the predatory beetle *Notiophilus biguttatus*. *Entomologia experimentalis et applicata* **51**: 87-95
4. Kroeze C., van Faassen H.G., de Ruiter P.C. (1989) Potential denitrification rates in acid soils under pine forest. *Netherlands Journal of Agricultural Science* **37**: 345-354
5. Moore J.C., Zwetsloot H.C.J., de Ruiter P.C. (1990) Statistical analysis and simulation modelling of the belowground food webs of two winter wheat management practices. *Netherlands Journal of Agricultural Science* **38**: 303-316
6. Moore J.C., de Ruiter P.C. (1991) Temporal and spatial heterogeneity of trophic interactions within belowground food webs. *Agriculture, Ecosystems and Environment* **34**: 371-397
7. Bloem J., de Ruiter P.C., Koopman G.J., Lebbink G., Brussaard L.(1992) Microbial numbers and activity in dried and rewetted arable soil under integrated and conventional management. *Soil Biology and Biochemistry* **24**: 655-665
8. De Ruiter P.C., Moore J.C., Zwart K.B., Bouwman L.A., Hassink J., Bloem J., de Vos J.A., Marinissen J.C.Y., Didden W.A.M., Lebbink G., Brussaard L.(1993) Simulation of nitrogen mineralization in belowground food webs of two winter wheat management practices. *Journal of Applied Ecology* **30**: 95-106
9. De Ruiter P.C., van Veen J.A., Moore J.C., Brussaard L., Hunt H.W. (1993). Calculation of nitrogen mineralisation in soil food webs. *Plant and Soil* **157**: 263-273
10. Moore J.C., de Ruiter P.C., Hunt H.W. (1993). Influence of productivity on the stability of real and model ecosystems. *Science* **261**: 906-908
11. Moore J.C., de Ruiter P.C., Hunt H.W. (1993) Soil Invertebrate/Micro-Invertebrate Interactions, disproportionate effects of species on food web structure and function. *Veterinary Parasitology* **48**: 75-85
12. Moore J.C., de Ruiter P.C. (1993) Assessment of Disturbance on Soil Ecosystems. *Veterinary Parasitology* **48**: 247-260
13. Van Noordwijk M, de Ruiter P.C., Zwart K.B., Bloem J., Moore J.C., van Faassen H.G., Burgers S.L.G.E. (1993) Biological activity in hot spots and spatial correlation between roots, cracks and recently added organic inputs in a sugar beet field. *Geoderma* **56**: 265-276
14. Bouwman L.A., Bloem J., van der Boogert P.H.J.F., Bremer F., Hoenderboom G.H.J., de Ruiter P.C. (1994). Short-term and long-term effects of bacterivorous nematodes and nematode feeding fungi on carbon and nitrogen mineralization as measured in microcosms. *Biology and Fertility of Soils* **17**: 249-256
15. De Ruiter P.C., Bloem J., Bouwman L.A., Didden W.A.M., Hoenderboom G.H.J., Lebbink G., Marinissen J.C.Y., de Vos J.A., Vreeken-Buijs M.J., Zwart K.B., Brussaard L. (1994) Simulation of dynamics in nitrogen mineralization in the belowground food webs of two arable farming systems. *Agriculture, Ecosystems and Environment* **51**: 199-208
16. Bloem J., Lebbink G., Zwart K.B., Bouwman L.A., Burgers S.G.L.E., de Vos J.A., de Ruiter P.C. (1994). Dynamics of microorganisms, microbivores, and nitrogen mineralization in winter wheat fields under conventional and integrated management. *Agriculture, Ecosystems and Environment* **51**: 129-143
17. Vreeken-Buijs M.J., Geurs M., de Ruiter P.C., Brussaard L. (1994). Microarthropod biomass-C dynamics in the belowground food webs of two arable farming systems. *Agriculture, Ecosystems and Environment* **51**: 161-170
18. Zwart K.B., Bloem J., Bouwman L.A., Brussaard L., Didden W.A.M., Lebbink G., Marinissen J.C.Y., Vreeken-Buijs M.J., Burgers S.L.G.E., de Ruiter P.C.(1994). Population dynamics in the

belowground food webs in two different agricultural systems. *Agriculture, Ecosystems and Environment* **51**: 187-198

19. Hassink J., Neutel A.M., de Ruiter P.C. (1994) C and N mineralization in sandy and loamy grassland soils, the role of microbes and microfauna. *Soil Biology and Biochemistry* **26**: 1565-1571
20. De Ruiter P.C., Neutel A.M., Moore J.C. (1994). Food webs and nutrient cycling in agro-ecosystems. *Trends in Ecology and Evolution* **9**: 378-383
21. De Ruiter P.C., van Faassen H.G. (1994). Modelling nitrogen mineralization in agro-ecosystems. *European Journal of Agronomy* **3**: 347-354
22. Neutel A.M., Roerdink J.C.T.B., de Ruiter P.C. (1994). Global stability in detritus based food chains. *Journal of Theoretical Biology* **171**: 351-353
23. De Ruiter P.C., Neutel A.M., Moore J.C. (1995). Energetics, patterns of interaction strengths, and stability in real ecosystems. *Science* **269**: 1257-1260
24. Moore J.C., de Ruiter P.C., Hunt H.W., Coleman D.C., Freckman D.W. (1996) Microcosms and soil ecology, critical linkages between field studies and modelling food webs. *Ecology* **77**: 694-705
25. Bouwman L.A., Hoenderboom G.H.J., van der Maas K.J., de Ruiter P.C. (1996) Effects of nematophagous fungi on numbers and death rates of bacterivorous nematodes in arable soil. *Journal of Nematology* **28**: 26-35
26. Vreeken-Buijs M.J., Geurs M., de Ruiter P.C., Brussaard L. (1997). The effects of bacterivorous mites and amoebae on mineralization in a detrital based below-ground food web; microcosm experiment and simulation of interactions. *Pedobiologia* **41**: 481-493
27. De Ruiter P.C., Neutel A.M., Moore J.C. (1998). Biodiversity in soil ecosystems, the role of energy flow and community stability. *Applied Soil Ecology* **10**: 217-228
28. Wolters V., Silver W., Coleman D.C., Lavelle P., Van der Putten W.H., De Ruiter P.C., Wall D.H., Hooper D.U., Dangerfield J.M., Brussaard L., Bignell D.E., Brown V.K., Giller K., Van der Koppel J., Rusek J., Sala O., Tiedje J., Van Veen J.A., Wardle W. (2000) Global change effects on above- and belowground biodiversity in terrestrial ecosystems, Interactions and implications for ecosystem functioning. *Bioscience* **50**: 1089-1098
29. Hooper D.U., Dangerfield J.M., Brussaard L., Wall D.H., Wardle D.A., Bignell D.E., Brown V.K., Coleman D.C., Giller K.E., Lavelle P., Van der Putten W.H., De Ruiter P.C., Rusek J., Silver W., Tiedje J., Wolters V. (2000). Interactions between above and belowground biodiversity in terrestrial ecosystems, patterns, mechanisms, and feedbacks. *Bioscience* **50**: 1049-1061
30. Griffiths B.S., Ritz K., Bardgett R.D., Cook R., Christensen S., Ekelund F., Sørensen S.J., Bååthe E., Bloem J., De Ruiter P.C., Dolfig J., Nicolardot B. (2000) Ecosystem response of pasture soil communities to fumigation-induced microbial diversity reductions, an examination of the biodiversity-ecosystem function relationship. *Oikos* **90**: 279-294
31. Berg M., de Ruiter P.C., Didden W.A.M., Janssen M.P.M., Schouten A.J., Verhoef H.A. (2001) Community food web, decomposition and nitrogen mineralisation in a stratified Scots pine forest soil. *Oikos* **94**: 130-142
32. Neutel A.M., Heesterbeek J.A.P., de Ruiter P.C. (2002) Stability in real food webs, weak links in long loops. *Science* **296**: 1120-1123
33. Olde Venterink H.O., Pieterse N.M., Belgers J.D.M., Wassen M.J., de Ruiter P.C. (2002) N, P, and K budgets along nutrient availability and productivity gradients in wetlands. *Ecological Applications* **12**: 1010-1026
34. De Ruiter, P.C. (2002) Ecosystem structures above- and belowground. Book review of *Communities and Ecosystems, Linking the Aboveground and Belowground Components* (D.A. Wardle, Princeton University Press). *Trends in Ecology and Evolution* **17**: 584-585
35. Moore J.C., McCann K., Setälä H., de Ruiter P.C. (2003) Top-down is bottom-up, does predation in the rhizosphere regulate aboveground dynamics? *Ecology* **84**: 84-857
36. De Deyn G.B., Raaijmakers C.E., Zoomer H.R., Berg M.P., de Ruiter P.C., Verhoef H.A., Bezemer T.M., van der Putten W.H. (2003) Soil invertebrate fauna enhances grassland succession and diversity. *Nature* **422**: 711-713
37. Olde Venterink, H. Wassen, M.J., Verkroost, A.M.W, de Ruiter, P.C. (2003) Species richness-productivity patterns differ between N-, P- and K-limited wetlands. *Ecology* **84**: 2191-2199



38. Schröter, D., Wolters, V., de Ruiter, P.C. (2003) C and N mineralisation in the decomposer food webs of a European forest transect. *Oikos* **102**: 294-308
39. Moore, J.C., Berlow, E.L., Coleman, D.C., de Ruiter, P.C., Dong, Q., Hastings, A., Johnson, N.J., McCann, K.S., Melville, K., Morin, P.J., Nadelhoffer, K., Rosemond, A.D., Post, D.M., Sabo, J.L., Scow, K.M., Vanni, M.J., Wall, D.H. (2004). Detritus, trophic dynamics and biodiversity. *Ecology Letters* **7**: 584–600
40. Hessen, D.O., Agren, G.I., Anderson, T.R., Elser, J.J., de Ruiter, P.C. (2004) Carbon sequestration in ecosystems, the role of stoichiometry. *Ecology* **85**: 1179-1192
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