

Dr Anna Rosling

Department of Ecology and Genetics
Evolutionary Biology
EBC, Uppsala University
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Education, diplomas

2011 Docent in Biology, SLU Uppsala, Sweden
2005 Post Doc, UC Berkeley, CA. USA
2004 PhD in Biology, SLU Uppsala, Sweden
1999 MSc in Biology, Major in Biotechnology, SLU Uppsala, Sweden

Academic appointments and training

2013 – Researcher, Dept. of Evolutionary Biology, UU, Sweden
2012 Researcher, Dept. of Forest Mycology and Plant Pathology, SLU, Sweden.
2010 – 2012 Research Associate, Department of Biology, IU Bloomington, IN, USA.
2006 – 11 Assistant professor, Dept. of Forest Mycology and Pathology, SLU.
2007/08 Visiting Scholar, EPS, UC Berkeley, CA, USA. (4 mon)
2004 Research assistant, Dept. of Forest Mycology and Pathology, SLU (6 mon)
1999-2004 PhD student, Dept. of Forest Mycology and Pathology, SLU.
1999 Research assistant (30%), Faculty of Natural Resources and
Environmental Studies, UNBC, Prince George, Canada. (4 mon)
1998/99 Exchange student at UNBC, Canada.
1997/98 Uppsala Graduate School in Biomedical Research, UU/SLU

Special Merit Awards

2010 Stipendium from the King Carl XVI Gustaf's 50-years foundation for
science, technology and environment. \$11 000

Funded research grants / fellowships for which I am the main applicant

2012 – “Adaptive traits in soil fungal ecology” Research Grant for Young Scientists
from the Swedish research council VR. 4,1 millions SEK.
2012 “Is phosphorus availability and transformation in forest soils determined by
functionally distinct mycorrhizal fungi?” Consumables and analytical costs,
50 000 SEK, Magn Bergvalls foundation.
2011 “Ecological role of Archaeorhizomycetes - A recently described class of
ancient, widespread soil fungi” Funding for a 2 year Post-doc stipendium and
consumables, 540 000 from Carl Trygger Foundation.
2006 - 11 Junior Research Fellow/Assisting professor grant from the Swedish research
council FORMAS (SWE: Forskarassistent, 4 years full-time funding,
extended by 15.5 months of parental leave). Project: “Functional diversity of
ectomycorrhizal fungi in mineral soil”. Totally 3,7 million SEK.
2009 “The ecological role of root-associated fungi from a novel globally
distributed phyla” Salary and consumables for a one-year post doc project,
540 000 SEK from Carl Trygger Foundation
2007 Grant to cover costs associated with the Geomycology workshop 2008 at
SLU, Uppsala. 50 000 SEK from FORMAS

- 2007 “Linking fungal species diversity to nutrient availability in mineral soil”. Funding for 4 months research project at UC Berkeley, USA. 200 000 SEK from Långmanska kulturfond, Magn Bergvalls foundation, KVA, KSLA.
- 2007-11 Four travel grants to present at international conferences, FORMAS.
- 2005 “Fungal promotion of biogeochemical processes by conditioning of mineral soil microenvironments” Funded me for a one-year post-doctoral project at UC Berkeley, US. 400 000 from the Swedish Research Council VR.
- 2005 “Fungal control of biogeochemical processes in mineral soil” for field-work and study trips while in the US on Post doc. 65 000 SEK from Lennanders foundation, Uppsala University.
- 2004 “The role of calcium in wood decomposition by *Serpula lacrymans*” Funded my salary for a half time 6-month research project at the department of Forest Mycology and Pathology, SLU, Uppsala, Sweden. 160 000 SEK from KSLA and Magn. Bergvall foundation.

Commissions and other scientific merits

- 2015 - Biology section co-representative in the Academic senate, UU.
- 2014 Member of the evaluation committee for Licentiate Thesis, Arunkumar Krishnan, Uppsala University. November 4th.
- 2014 Invited speaker at Uppsala Senior University, Nov.
- 2014 Exhibit, Fungi in art and science, Åhuset, Uppsala April 6 -20.
- 2014 External examiner of PhD thesis from Mangalore University, India.
- 2014 - Deputy board member at department of Ecology and Genetics, UU.
- 2013 Speaker at Nobeldagen a science inspiration day, Mora high school, Nov 28.
- 2013 - Member of steering group of Junior Faculty association at Uppsala University
- 2013 Member of the evaluation committee for the PhD defense of Åsa Svanström, Department of Microbiology, Swedish University of Agricultural Sciences, Sweden, October 25.
- 2013 - Member of the evaluation committee for VR international post doc grants starting fall 2013 ongoing twice a year.
- 2013 Speaker at the annual meeting of Uppsala Mycology club, March 25.
- 2013 Member of the evaluation committee for the PhD defense of Atefeh Ramezani Bajgiran, Department of Crop Production Ecology, Swedish University of Agricultural Sciences, Sweden, May 3.
- 2012 Grant evolution for the Rumanian Research Council.
- 2012 Scientific collaboration meeting and oral presentation, State Key Laboratory of Environmental Geochemistry, Institute of Geochemistry, Chinese Academy of Sciences, Guiyang, China. April 7-14.
- 2011 Session co-chair at AGUs fall meeting December 6-10, San Francisco, USA. Title: Biological Weathering: Carbon, Water and Nutrient Flow through Plant-Microbe-Soil Networks.
- 2011 Member of the evaluation committee for the PhD defense of Anna Simanova, Department of Chemistry, Umeå University, Sweden, September 29.
- 2011 Speaker at Symposium on ”Biogeochemical Processes and Chemical Speciation in Soils”, Umeå University, Sweden, September 28.

- 2010 External Expert at Earth System Science and Environmental Management (ESSEM) Domain of the European Cooperation on Science and Technology (COST). Meeting September 2-3, Brussels.
- 2010 Organizer of Geomycology Special Interest Group at IMC9, August 1 2010, Edinburgh, UK.
- 2010 Scientific expert in the SKB Biogeochemistry group
- 2009 Invited speaker at ESF exploratory workshop “Structure and Function in Ectomycorrhizal Communities” December 6-9, Nancy, France.
- 2009 – Member of the editorial board of Fungal Biology
- 2009 Member of organizing committee and session chair at ISEB 19, Hamburg.
- 2009 Theme co-editor of FBR special issue on Geomycology.
- 2008 Invited participant at European SoilCritZone workshop, Sept 5-7, Crete.
- 2008 Invited speaker at GES8, August 18-22, London, UK.
- 2008 Speaker at the Uppsala BioCentre day. Title: “Fungal Weathering”.
- 2008 Organizer of the Geomycology Workshop at SLU Uppsala, May 7-10.
- 2006 – 10 Member of Advisory board, dept. Forest Mycology and Pathology, SLU.
- 2005 Seminar speaker at OSU, Corvallis US.
- 2005 Reviewer of grant proposal for NERC, UK
- 2001 – Member of ISEB International Committee, (International Symposium on Environmental Biogeochemistry).

Since 2005 I have served as referee for numerous scientific journals, including Basic and Applied Ecology, Biogeochemistry, Chemical Geology, Forest Ecology and Management, Fungal Biology, Geology, Geomicrobiology Journal, Global Change Biology, ISME Journal, Symbiosis, Molecular Biology, Molecular Ecology, Mycorrhiza, New Phytologist, Plant & Soil and Scientific Reports.

Supervision and Co-supervision of PhD students

- I serve as the main supervisor of PhD student Kerri Kluting at department of Ecology and Genetics, Uppsala University.
- I co-supervise first year PhD student Zaenab Al-Azzawi together with Prof Roger Finlay and Dr Shahid Mahmood at SLU in Uppsala. Title: Quantification of biotic weathering in forest soils.
- During my post-doc at UC Berkeley, I co-supervised the work of PhD student Karelyn Cruz-Martinez, who successfully completed her doctorate studies in 2009 and subsequently went on to train with me as a post-doc at SLU in Uppsala.
- I also co-supervised PhD candidate Nickolas Rosenstock with Prof Tom Bruns (UC Berkeley, CA, USA). Nickolas Rosenstock did one year of his doctoral studies with me at SLU in Uppsala where he performed a long-term biotic weathering experiment under controlled laboratory conditions. Nickolas Rosenstock completed his thesis in 2010.
- Since 2007 I have been co-supervising PhD student, Xuan Do Thi together with Prof Nils Högberg and Dr Sadhan Ahlström at the department of Forest Mycology and Plant Pathology, SLU. Xuan Do Thi defended her thesis in December 2012. Title: Microbial communities in paddy fields in the Mekong delta of Vietnam.

Supervision of undergraduate students

- 2015 – Supervisor of Martin Rydén, research training and BSc thesis, UU.
 2014 Supervision of Rahul Chitre, research training, UU.
 2014 Supervisor of Tania Tergai, research training, UU.
 2010-2012 Supervision of three undergraduate students projects at Indiana University, two in fungal ecology and one in soil phosphorus biogeochemistry.
 2009 Co-supervisor of individual undergraduate thesis in Biology at Uppsala University. Title: “Massive parallel gene expression analysis of *Serpula lacrymans*”
 2007 Assisting supervisor of Xuan Do Thi undergraduate thesis: Molecular and functional biodiversity of rice straw inhabiting bacteria and fungi in Vietnam.
 2002 Assisting supervisor of a half semester individual course on Biological weathering, including literature discussions and laboratory supervision.

Teaching

- 2015 Lecturing and supervision of BSc thesis, Independent scientific writing.
 2014 Lecture and journal seminars on BSc course in Evolutionary Genetics.
 2014 – Deputy coordinator of master thesis in Biology, Uppsala University.
 2014 Lecture on Fungal diversity at master course in Microbial Diversity. May 14, 2014 at UU.
 2013 Lecturing and supervision of BSc thesis, Independent scientific writing.
 2008 Lecture on “Research in reality” for Uppsala Graduate School in Biomedical research.
 2006 Lecture in “Biological Weathering”, undergraduate class in Soil Biology.
 2004 Keynote lecture on "Biotic weathering", at Annual symposia of the Research School “Focus on Soil”.
 2002 Lecture and demonstrations in “Fungal Ecology” for high school students.
 1999-2002 Supervision of a total of 7 short undergraduate student projects.
 2000-2002 Mycology field excursion and course assistant at Organisms 100 level.

List of publications*International peer-review journals*

- Clarholm M, Skjellberg U, **Rosling A** (2015) Organic acid induced release of nutrients from metal-stabilized soil organic matter – The unbutton model. *Soil Biology and Biochemistry* 84, 168-176.
 Menkis A, Urbina H, James TY, **Rosling A** (2014) *Archaeorhizomyces borealis* sp. nov. and a sequence-based classification of related soil fungal species. *Fungal Biology* 118, 943-955
 Fransson P, **Rosling A** (2014) Fungal and bacterial community responses to *Suillus variegatus* extraradical mycelia and soil profile in Scots pine microcosms. *Plant Soil* 385, 255-272. DOI 10.1007/s11104-014-2231-5
 Cruz-Martínez K, **Rosling A**, Zhang Y, Song M, Andersen GL, Banfield JF (2012) Effect of rainfall-induced soil geochemistry dynamics on grassland soil microbial communities. *Applied and Environmental Microbiology*, **78**: 7587-7595.

- Menkis A, Burokiene D, Gaitnieks T, Uotila A, Johannesson H, **Rosling A**, Finlay R, Stenlid J, Vasaitis R. (2012) Occurrence and impact of the root-rot biocontrol agent *Phlebiopsis gigantea* on soil fungal communities in *Picea abies* forests of northern Europe. *FEMS Microbiology Ecology*, **81**: 438-445.
- Do Thi Xuan, Vo Thi Guong, **Rosling A**, Alström S, Chai N, Högberg N (2012) Different crop rotation systems as drivers of change in soil bacterial community structure and yield of rice, *Oryza sativa*. *Biology and Fertility of Soils* **48**: 217–225.
- Rosling A**, Cox F, Cruz-Martinez K, Ihrmark K, Grelet G-A, Lindahl BD, Menkis A, James TY (2011) Archaeorhizomycetes: unearthing an ancient class of ubiquitous soil fungi. *Science*, **333**: 876-879.
- Eastwood DC, Floudas D, Binder M, Majcherczyk A, Schneider P, Aerts A, Asiegbu FO, Baker SE, Barry K, Bendiksby M, Blumentritt M, Coutinho PM, Cullen D, de Vries RP, Gathman A, Goodell B, Henrissat B, Ihrmark K, Kauserud H, Kohler A, LaButti K, Lapidus A, Lavin JL, Lee Y-H, Lindquist E, Lilly W, Lucas S, Morin E, Murat C, Oguiza JA, Park J, Pisabarro AG, Riley R, **Rosling A**, Salamov A, Schmidt O, Schmutz J, Skrede I, Stenlid J, Wiebenga A, Xie X, Kues U, Hibbett DS, Hoffmeister D, Högberg N, Martin F, Grigoriev IV, Watkinson SC (2011) The Plant Cell Wall–Decomposing Machinery Underlies the Functional Diversity of Forest Fungi. *Science*, **333**: 762-765.
- Finlay R, Wallander H, Smits M, Holmstrom S, van Hees P, Lian B, **Rosling A** (2009) The role of fungi in biogenic weathering in boreal forest soils. *Fungal Biology Reviews*, **23**: 101-106.
- Rosling A**, Roose T, Herrmann AM, Davidson FA, Finlay RD, Gadd GM (2009) Approaches to modelling mineral weathering by fungi. *Fungal Biology Reviews*, **23**: 138-144.
- Rosling A** (2009) Trees, mycorrhiza and minerals –field relevance of in vitro experiments. *Geomicrobiology Journal*. **26**: 389-401.
- Nygren CMR, **Rosling A** (2009) Localisation of phosphomonoesterase activity in ectomycorrhizal fungi grown on different phosphorus sources. *Mycorrhiza* **19**: 197-204.
- Rosling A**, Rosentstock N (2008) Ectomycorrhizal fungi in mineral soil. *Mineralogical Magazine* **72**: 131-134.
- Rosling A**, Suttle KB, Johansson E, van Hees PAW, Banfield JF (2007) Phosphorus availability affects soil fungal dissolution of apatite. *Geobiology*, **5**: 265-280.
- van Hees PAW, **Rosling A**, Finlay RD (2006) The impact of trees, ectomycorrhiza and potassium availability on simple organic compounds and dissolved organic carbon in soil. *Soil Biology and Biochemistry*, **38**: 1912-1923.
- van Hees PAW, **Rosling A**, Lundström US, Finlay RD (2006) The biogeochemical impact of ectomycorrhizal conifers on major soil elements (Al, Fe, K and Si). *Geoderma*, **136**: 364 – 377.
- van Hees PAW, **Rosling A**, Essén S, Godbold DL, Jones DL, Finlay RD (2005) Oxalate and ferricrocin exudation by the extramatrical mycelium of an ectomycorrhizal fungus in symbiosis with *Pinus sylvestris*. *New Phytologist*, **169**: 367-378.
- Püttsepp Ü, **Rosling A**, Taylor AFS (2004) Ectomycorrhizal fungal communities associated with *Salix viminalis* L. and *S. dasyclados* Wimm. clones in a short-rotation forestry plantation. *Forest Ecology and Management*, **196**: 413–424.

- Hoffland E, Kuyper TW, Wallander H, Plassard C, Gorbushina AA, Haselwandter K, Holmström S, Landeweert R, Lundström US, **Rosling A**, Sen R, Smits MM, van Hees PAW, van Breemen N (2004) The role of fungi in weathering. *Frontiers in Ecology and the Environment*, **2**: 258-264.
- Rosling A**, Lindahl BD, Finlay RD (2004) Carbon allocation to ectomycorrhizal roots and mycelium colonising different mineral substrates. *New Phytologist*, **162**: 795-802.
- Rosling A**, Lindahl BD, Taylor AFS, Finlay RD (2004) Mycelial growth and substrate acidification of ectomycorrhizal fungi in response to different minerals. *FEMS Microbiology Ecology*, **47**: 31-37.
- Rosling A**, Landeweert R, Lindahl BD, Larsson K-H, Kuyper TW, Taylor AFS, Finlay RD (2003) Vertical distribution of ectomycorrhizal fungi in a podzol profile. *New Phytologist*, **159**: 775-783.
- Landeweert R, Leeflang P, Kuyper TW, Hoffland E, **Rosling A**, Wernars K, Smit E (2003) Beyond the Roots: Molecular Identification of Ectomycorrhizal Mycelium in Soil Horizons. *Applied and Environmental Microbiology*, **69**, 327-333.
- Taylor AFS, Jonsson L, Jonsson M, **Rosling A**, Hills A & Simonini G (2001) Species delineation within European species of *Xerocomus* using internal transcribed spacer sequence data. *Micologia e Vegetazione Mediterranea*, **16**, 171-192.

Peer-review book chapter

- Rosling A**, Timling I, Taylor DL (2013) Archaeorhizomycetes: Patterns of Distribution and Abundance in Soil. In: Genomics of Soil- and Plant-Associated Fungi, Horwitz BA, Mukherjee PK, Mukherjee M, Kubicek CP (eds), pp. 333-349.
- Rosling A**, Ihrmark K (2006) Identification of ectomycorrhizal symbionts from individual root tips. In: Luster J, Finlay R (Eds.) COST 631: Handbook of methods used in rhizosphere research, Brimensdorf, Swiss Research Institute WSL. pp. 464-470.
- Finlay RD, **Rosling A** (2005) Integrated nutrient cycles in forest ecosystems - the role of ectomycorrhizal fungi. In: Gadd GM (Ed.) Fungi in Biogeochemical Cycles, Cambridge University Press. pp 28-50.

Popular scientific publication (in Swedish)

- Rosling A** (2011) Archaeorhizomycetes – en ny klass av basala svampar. *Svensk Mykologisk Tidskrift* 32 (2): 11–14.
- Rosling A** (2009) Svampar ger träden näring. *Miljöforskning*, 2, 34-35. (With english translation published on line in Sustainability)
- Rosling A**, Finlay R (2004) Mykorrhizasvampar kan vittra mineraljord. *Fakta Skog*, 15.
- Rosling A**, Lindahl B, Ahonen-Jonnarth U, Unestam T & Finlay R (1998) Mikrobiell vittring, mikronäringskedjor och mykorrhizasvampars inverkan på markförsurningens effekter. Växtskyddsnotiser Tema: Mycorrhiza, 62, 73-77.

Oral presentations at conferences (Oral presenter underlined)

- Phillips RP, **Rosling A** (2011) Mycorrhizal influences on soil phosphorus speciation in forests. American Geophysical Union, 5-9 December, San Fransisco, USA.

- Rosling A**, Cox F, Cruz-Martinez K, Ihrmark K, Grelet G-A, Lindahl BD, Menkis A, James TY (2011) Archaeorhizomycetes - a new class of ancient, widespread soil fungi. MSA, 3-6 August, Fairbanks, AK, USA.
- Rosling A**, Kohler A, Eriksson J, Tisserant E, Martin F, Stenlid J, Högberg N (2010) Gene expression of induced Goethite dissolution in *Serpula lacrymans*. SIG at IMC9 – The Biology of Fungi. 1-6 August, Edinburgh, Scotland.
- Rosling A**, Schencke J (2009) Taxonomy vs. habitat as determinants for weathering activity in root associated bacteria. 19th International Symposium on Environmental Biogeochemistry (ISEB-19), 14-18 Sept, Hamburg, Germany
- Rosenstock NP**, **Rosling A**, van Hees PWA (2009) The effects of elevated carbon dioxide on biotic weathering by ectomycorrhizal pine seedlings. 19th International Symposium on Environmental Biogeochemistry (ISEB-19), 14-18 Sept, Hamburg, Germany
- Rosling A** (2009) Weathering of minerals by ectomycorrhizal fungi. ESF Exploratory Workshop “Diversity and Function In Ecotmycorrhizal Communities”, 6-9 Dec, Nancy, France. ([Invited speaker](#))
- Cruz K**, **Rosling A**, Schenck J, Andersen G, Banfield JF (2009) Complex short-term responses of soil microbial communities to rainfall events. 19th International Symposium on Environmental Biogeochemistry (ISEB-19), 14-18 Sept, Hamburg, Germany
- Rosenstock NP**, **Rosling A** (2009) Linking Small Scale Soil Chemical Variability to Fungal Niche Preference. Goldschmidt, 21-26 June, Davos, Switzerland
- Holmström S**, **Rosling A**, Finlay R, van Hees P, Lundström U (2009) Contribution of Ectomycorrhizal Fungi to Biogeochemical Processes during Iron and Calcium Limitation. Goldschmidt, 21-26 June, Davos, Switzerland.
- Rosling A**, Rosenstock N (2008) Ectomycorrhizal fungi in mineral soil. Geochemistry of the Earth Surface, 18-22 August, London, UK. ([Invited speaker](#))
- Rosling A**, Suttle KB, Johansson E, van Hees PAW, Banfield JF (2007) Soil fungi dissolving apatite in response to phosphorus availability. BMS Annual Scientific Meeting, Ecology of Fungal Communities, September 9-12, Manchester, UK.
- Rosling A**, Suttle KB, Johansson E, van Hees PAW, Banfield JF (2007) Soil fungi dissolving apatite in response to phosphorus availability. European Geosciences Union, 15-20 April, Vienna, Austria.