

Curriculum Vitae - Oskar Franklin

Personal Information

Citizenship: Sweden

Contact Information

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Positions

2004/06 – 2019	Scientist/Research scholar, International Institute for Applied Systems Analysis (IIASA), Austria, Ecosystem Services and Management Program (current position)
2012 – 2019	Visiting researcher, Department of Forest Ecology and Management, Swedish University of Agricultural Sciences
2009/01 – 2009/04	Visiting scientist, University of New South Wales, BEES, Sydney, Australia
2006/11 – 2007/03	Visiting scientist, University of New South Wales, BEES, Sydney, Australia
1997/01 – 2003/09	Ph.D. student, Department of Ecology and Environmental Research, Swedish University of Agricultural Sciences, Sweden
1995/09 -1996/12	Radiation protection officer, Swedish Radiation Protection Institute SSI. Supervision and regulation of environmental issues and emissions from nuclear power plants
1994/10 -1994/12	Researcher/MSc student, CSIRO division of Applied Physics, Australia. Thesis project on computer simulation of blood cell aggregation

Education and degrees

2003/09/26	Ph.D. in Systems Ecology. Thesis: <i>Plant and Forest Dynamics in Response to Nitrogen Availability</i> . Supervisor: Prof. Göran I. Ågren, Department of Ecology and Environmental Research, Swedish University of Agricultural Sciences. Extra curricular courses in: popular science writing, web design and project management
1996	M.Sc. Physics Engineering, Uppsala University +1 year at University of Melbourne + 3 months thesis work at CSIRO in Sydney, Australia
1989 -1995	University courses in Biology, Chemistry, Psychology (3 year-credits in total)

Other scholarly activities

2009 - 2013	Supervisor of 3 postdocs at IIASA: Christina Kaiser (Austria) 2 years project, Marianne Hall (Sweden) 2 years project, Tobias Eriksson (Sweden) 1 year project
2005 - 2017	Supervisor of 15 Ph.D. students from 7 different countries in the IIASA YSSP program, of which two, Per Bodin (Sweden) and Cesar Terrer (U.K.), received the Peccei Award for best YSSP project based on external review. Co-supervisor of Ph.D. student Peter Fransson at Umeå University, Sweden
1997 – 2003	Teaching in university courses in technical ecology, basic ecology, and global environmental problems at the Swedish University of Agricultural Sciences. Secretary and Website manager of the forestry PhD student union, Uppsala, Sweden

Prizes and Awards

2006	Prize for best oral presentation at the ESF-JSPS Frontier Science Conference for Young Researchers on Climate Change 2006 in Stockholm. Presentation title: <i>Forest production and carbon storage-potentials of European forestry</i>
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Recent invited lectures and talks

2017/03	Invited keynote presentation in the Annual AGFOREE meeting on Ecological and economical modelling of sustainable natural resources in University of Helsinki. Title: <i>Forest modeling from a tree's perspective</i>
2016/04	Invited presentation and session convener at EGU Meeting, Vienna, Austria. Title: <i>Predicting plants –modeling traits as a function of environment</i>
2015/12	Invited presentation at AGU Fall Meeting, San Francisco, USA. Title: <i>Modeling Dynamic Height and Crown Growth in Trees</i>
2014/03	Invited presentation at Biolink -Linking belowground biodiversity and ecosystem function in European forests - 2nd Annual Meeting, Krakow. Title: <i>Modeling ectomycorrhizal forest: A plant-microbe system perspective</i>
2013/01	Invited presentation at University of Natural Resources and Life Sciences, Vienna, Austria. Title: <i>Modeling carbon allocation in trees</i>
2012/11	Invited presentation at Umeå University, Sweden. Title: <i>Economics for plants and fungi</i>
2012/05	Invited presentation at 2 nd International Enzymes in the Environment RCN Workshop: Incorporating Enzymes and Microbial Physiology into Biogeochemical Models. Title: <i>Extracellular enzyme production from a rational microbe's perspective</i>

Recent review and editor activities

2015 -2018	Member of the research review panel of The Swedish Research Council FORMAS
2016	Proposal reviewer for FWO -Research Foundation – Flanders, Belgium
2016, 2017	Guest editor for Proceedings the National Academy of Sciences of USA (PNAS)
2008	Grant evaluator for The Netherlands Organisation for Scientific Research (NWO)
2010 - 2019	Article reviewer for many journals, including: Nature Ecology and Evolution, Proceedings the National Academy of Sciences of USA (PNAS), Ecology Letters, American Naturalist, Annals of Botany, Ecology, Biogeosciences, Biology Letters, Ecosphere, Functional Ecology, Global Change Biology, New Phytologist, Oecologia, PLoS ONE, Proceedings of the Royal Society of London, Tree Physiology, Geophysical Research Letters

Recent grants and projects

2019/01 -2028/12	Science for Enhanced Forest Productivity (Co-PI). Funded by Knut and Alice Wallenberg Stiftelse, Budget € 10000000
2018/01 -2019/03	Mediated modelling of forest ecosystems services to support management (PI). Funded by the Swedish Environment Protection Agency, budget € 150000
2016/07 -2018/12	Dynamic Vegetation Models –The Next Generation: A multidisciplinary working group coordinated by IIASA (Project leader). Cross-cutting project funded IIASA, budget: € 205000
2013/07 -2015/06	Precision forestry for the future: enhanced forest management by optimized tree selection in thinning operations (partner). Funded by FORMAS, Sweden. Budget: € 478300
2011/01 -2015/12	Modeling plant-soil interactions and the consequences for forest nutrient and carbon fluxes (Project leader) within the program Nitrogen-Carbon Interactions in boreal Forests (NiCaF), lead by the Swedish University of Agricultural Sciences. Budget: € 357000

Publication list - Oskar Franklin

Publications in international peer-reviewed journals

Number of citations = 1913, hi=23. Publications at:

http://scholar.google.at/citations?user=i_G8t64AAAAJ&hl=en

- Franklin O**, Harrison SP, Dewar R, Fariior CE, Brännström Å, Dieckmann U, Pietsch S,..., Prentice IC. (2020). Organizing Principles for Vegetation Dynamics. *Nature Plants* 6, 444–453.
- Fransson P, **Franklin, O**, Lindroos O, Nilsson U, Brännström Å. (2019). A simulation-based approach to a near optimal thinning strategy – allowing for individual harvesting times for individual trees. *Canadian Journal of Forest Research*. doi:10.1139/cjfr-2019-0053
- Terrer C, Jackson RB, Prentice IC, Keenan TF, Kaiser C, Vicca S,..., **Franklin O**. (2019). Nitrogen and phosphorus constrain the CO₂ fertilization of global plant biomass. *Nature Climate Change* 9(9), 684-689.
- Wildemeersch M, **Franklin O**, Seidl R, Rogelj J, Moorthy I, Thurner S. (2019). Modelling the multi-scaled nature of pest outbreaks. *Ecological Modeling* 409, 108745.
- Fransson P, Nilsson U, Lindroos O, **Franklin O**, Brännström Å. (2019) Model-based investigation on the effects of spatial evenness, and size selection in thinning of *Picea abies* stands. *Scandinavian Journal of Forest Research* 34, 189-199
- Högberg P, Näsholm T, **Franklin O**, Högberg MN. (2017) On the nature of the nitrogen limitation to plant growth in Fennoscandian boreal forests. *Forest Ecology and Management* 403, 161-185
- Terrer C, Vicca S, Hungate BA, Phillips RP, Reich PB, **Franklin O**, Stocker BD, Fisher JB, Prentice IC. 2017. Response to Comment on “Mycorrhizal association as a primary control of the CO₂ fertilization effect”. *Science* 355, 358-358
- Palmqvist K, **Franklin O**, and Näsholm T. (2017) Symbiosis constraints: Strong mycobiont control limits nutrient response in lichens. *Ecology and Evolution* 7, 7420-7433
- Franklin O**, Cambui CA, Gruffman L, Palmroth S, Oren R, Näsholm T. (2016) The carbon bonus of organic nitrogen enhances nitrogen use efficiency of plants. *Plant, Cell & Environment*, DOI 10.1111/pce.12772
- Stocker BD, Prentice IC, Cornell SE, Davies-Barnard T, Finzi AC, **Franklin O**, Janssens I, Larmola T, Manzoni S, Näsholm T, Raven JA, Rebel KT, Reed S, Vicca S, Wiltshire A, Zaehle S. (2016) Terrestrial nitrogen cycling in Earth system models revisited. *New Phytologist* 210, 1165-1168
- Evans S, Dieckmann U, **Franklin O**, Kaiser C. (2016) Synergistic effects of diffusion and microbial physiology reproduce the Birch effect in a micro-scale model. *Soil Biology and Biochemistry* 93, 28-37
- Kaiser C, **Franklin O**, Richter A, Dieckmann U. (2015) Social dynamics within decomposer communities lead to nitrogen retention and organic matter build-up in soils. *Nature Communications* 6: Article ID 8960
- Shanafelt DW, Dieckmann U, Jonas M, **Franklin O**, Loreau M, Perrings C. (2015) Biodiversity, productivity, and the spatial insurance hypothesis revisited. *Journal of Theoretical Biology* 380, 426-435
- Franklin O**, Palmroth S, Näsholm T. (2014) How eco-evolutionary principles may guide tree breeding and tree biotechnology for enhanced productivity. *Tree Physiology* 34 (12), 1149-1166
- Näsholm T, Palmroth S, Ganeteg U, Moshelion M, Hurry V, **Franklin O**. (2014) Genetics of superior growth traits in trees are being mapped but will the faster-growing risk-takers make it in the wild? *Tree Physiology* 34 (11), 1141-1148
- Jonas M, Ometto JP, Batistella M, **Franklin O**, Hall M, Lapola DM, Moran EF, Tramberend S, Queiroz BL, Schaffartzik A, Shvidenko A, Nilsson SB, Nobre CA. (2014) Sustaining ecosystem services:

Overcoming the dilemma posed by local actions and planetary boundaries. *Earth's Future* 2:2013EF000224

- Franklin O**, Näsholm T, Högberg P, Högberg MN. (2014) Forests trapped in nitrogen limitation: an ecological market perspective on ectomycorrhizal symbiosis. *New Phytologist* 203, 657-666
- Lindh M, Zhang L, Falster D, **Franklin O**, Brännström Å. (2014) Plant diversity and drought: the role of deep roots. *Ecological Modelling* 290, 85-93
- Kaiser C, Richter A, **Franklin O**, Dieckmann U. (2014) Microbial community dynamics alleviate stoichiometric constraints during litter decay. *Ecology Letters* 17, 680-690
- McCallum I, **Franklin O**, Moltchanova E, Merbold L, Schnullius C, Shvidenko A, Schepaschenko D, Fritz S. (2013) Improved light and temperature responses for light-use-efficiency-based GPP models. *Biogeosciences* 10, 6577-6590
- Näsholm T, Högberg P, **Franklin O**, Metcalfe D, Keel SG, Campbell C, Hurry V, Linder S, Högberg MN. (2013) Are ectomycorrhizal fungi alleviating or aggravating nitrogen limitation of tree growth in boreal forests? *New Phytologist* 198, 214-221
- Hall M, Medlyn BE, Abramowitz G, **Franklin O**, Råntfors M, Linder S, Wallin G. (2013) Which are the most important parameters for modelling carbon assimilation in boreal Norway spruce under elevated [CO₂] and temperature conditions? *Tree Physiology* 33, 1156-1176
- Bodin P, **Franklin O**. (2012). Efficient modeling of sun/shade canopy radiation dynamics explicitly accounting for scattering. *Geoscientific Model Development* 5, 535-541
- Franklin O**, Johansson J., Dewar RC, Dieckmann U., McMurtrie RE, Brännström Å, Dybzinski R. (2012) Modeling carbon allocation in trees - a search for principles. *Tree Physiology* 32, 648-666
- Franklin O**, Moltchanova E, Kraxner F, Seidl R, Böttcher H, Rokityanskiy D, Obersteiner M. (2012) Large scale forest modeling- deducing productivity and stand density from inventory data. *International Journal of Forestry Research*. *International Journal of Forestry Research*, Article ID 934974
- Bodin P, **Franklin O**. (2011) An improved sun/shade canopy radiation model. *Geosci. Model Dev. Discuss.* 4, 1793-1808
- Franklin O**, Hall EK, Kaiser C, Battin TJ, Richter A. (2011) Optimization of biomass composition explains microbial growth-stoichiometry relationships. *American Naturalist* 177, e29-e42
- Hall E, Maixner F, **Franklin O**, Daims H, Richter A, Battin T. (2010) Linking microbial and ecosystem ecology using ecological stoichiometry: A Synthesis of conceptual and empirical approaches. *Ecosystems* 14, 261-273
- Leduc S, Lundgren J, **Franklin O**, Dotzauer E. (2010) Location of a biomass based methanol production plant: A dynamic problem in northern Sweden. *Applied Energy* 87, 68-75
- Franklin O**, Aoki K, Seidl R. (2009) A generic model of thinning and stand density effects on forest growth, mortality and net increment. *Annals of Forest Science* 66, 815
- Franklin O**, McMurtrie RE, Iversen CM, Crous KY, Finzi AC, Tissue DT, Ellsworth DS, Oren R, Norby RJ. (2009). Forest fine-root production and nitrogen use under elevated CO₂: Contrasting responses in evergreen and deciduous trees explained by a common principle. *Global Change Biology* 15, 132-144
- Dewar RC, **Franklin O**, Mäkelä A, McMurtrie RE, Valentine HT. (2009) Optimal Function Explains Forest Responses to Global Change. *BioScience* 59, 127-139
- Franklin O**. (2007) Optimal nitrogen allocation controls tree responses to elevated CO₂. *New Phytologist* 174, 811-822
- Ågren GI, **Franklin O**. (2003) Root : shoot ratios, optimization and nitrogen productivity. *Annals of Botany* 92, 795-800

- Franklin O**, Högberg P, Ekblad A, Ågren GI. (2003). Pine forest floor carbon accumulation in response to N and PK additions: Bomb C-14 modelling and respiration studies. *Ecosystems* 6, 644-658
- Franklin O**, Ågren GI. (2002) Leaf senescence and resorption as mechanisms of maximizing photosynthetic production during canopy development at N limitation. *Functional Ecology* 16, 727-733

Other publications

- Franklin O**, Elena Moltchanova E, Kraxner F. (2019). Modeling Risks and Mitigation Options for the Chronic Wasting Disease (CWD) in Scandinavia. *Report by Swedish Environmental Protection Agency*
- Franklin O**, Krasovskii A, Kraxner F, Platov A, Schepaschenko D, Leduc S, Mattsson B (2018) Mediated modelling of forest ecosystems services to support management. *Report by Swedish Environmental Protection Agency*
- Näsholm T, Högberg P, **Franklin O**, Högberg MN. (2014) Har träden mykorrhiza för att skogen är kvävebegränsad, eller är kanske skogen kvävebegränsad just för att träden har mykorrhiza? *Fakta Skog 1, Swedish University of Agricultural Sciences*
- Schneider UA, Balkovic J, De Cara S, **Franklin O**, Fritz S, Havlik P, Huck I, Jantke K, Kallio AMI, Kraxner F, Moiseyev A, Obersteiner M, Ramos CI, Schleupner C, Schmid E, Schwab D, Skalsky R. (2008) The European Forest and Agricultural Sector Optimization Model - EUFASOM Working Paper FNU-156. In. Hamburg University and Centre for Marine and Atmospheric Science, Hamburg, Germany
- Franklin O**. (2006) Modeling Forest Production and Carbon Storage Potentials in Response to Management in the European Union 2005 – 2050. In: *INSEA EU FP 6, 2006, Project SSPI-CT-2003/503614* (ed. Obersteiner M). EU
- Koca D, Smith B, Bergh J, Nilsson U, **Franklin O**, Obersteiner M, Sykes MT. (2006) Increased accuracy in climate impact studies by incorporating forest management practices within a process-based regional ecosystem modelling framework. In: *Meddelanden från Lunds Universitets Geografiska Institutioner, Avhandlingar*, pp. 77-89
- Franklin O**. (2003) Plant and Forest Dynamics in Response to Nitrogen Availability. *Doctoral thesis, Silvestria 285, Swedish University of Agricultural Sciences*