

1. Personal details

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Nationality: Finnish

Marital status: married, three children (birth 2005, 2008, 2013)

2. Education and degrees completed:

- Adjunct professor (Geography: especially biodiversity and ecosystem services), University of Eastern Finland, date of confirmation 24.6.2013
- PhD (Biodiversity and Environmental Science), University of Turku, March 2010
- MSc (Ecology), University of Turku, December 2004
- Other education:
 - Project leader course at Finnish Environment Institute SYKE, 2012-2013
 - Diploma (Business and administration), University of Kuopio, 45 op, 2005-2008
 - Vocational Qualification, Entrepreneurship, Rastor Oy Kuopio, 30 op, 2007-2008
 - The 7th UEF-UNEP Course on International Environmental Law-Making and Diplomacy: Multilateral Environmental Agreements, Joensuu, Finland 15-27 August 2010
 - ALTER-Net Summer School "Trends in biodiversity: European ecosystems and policy", Potsdam Institute for Climate Impact Research, Peyresq, France 1-13 September 2007
 - University of Utrecht, Courses on Tropical ecology and Conservation biology, ERASMUS student exchange, Utrecht, The Netherlands 1 March - 30 June 2001
 - Conscript, Porin Prikaati (varusmiestoimikunta) 1998
 - Matriculation, Kuopion klassillinen lukio 1997

3. Current position

- Finnish Environment Institute (SYKE), **Leading Scientist**, Biodiversity Centre, since 1 November 2017, and **Head of Unit (Ecosystem services)** since 1 January 2018. *Description: developing biodiversity and ecosystem service research at SYKE, leading projects and participating in international collaboration.*
- European Biodiversity Partnership (Biodiversa+), Leader of Working Area WA#1B: Biodiversity Monitoring, preparatory phase 2021, operational phase 2022-2028, appointed by Ministry of the Environment of Finland. *Description: leading the work to establish a transnational network of national biodiversity monitoring schemes, aiming at improved monitoring of biodiversity (status & trends) across Europe, tentative budget for the WA#1B is 120 M€, and the total partnership 450 M€.*
- My research output: I have published 44 refereed articles in journals, 16 book chapters/ sections, 3 edited books/ professional journals, 5 conference proceedings, 12 articles in professional journals/ handbooks, and 19 reports; H-index 21, i10-index 32, Total citations 2855 of which 563 in 2020 (retrieved Google Scholar 6.3.2021). *My most important long-term research lines include mapping and monitoring of biodiversity and ecosystem services, Earth observation applications in data integration and ecosystem assessment, sustainability science, and holistic management*

of the coupled human-environment systems. I have strong references in multidisciplinary science [highlighted e.g. in Nature Climate Change Vol. 1 (12), 478]. In my research, I have strong tendency for comprehensive holistic understanding of systems and research challenges, resulting to reviews and assessments, as well as development of novel methodologies for environmental challenges, such as integration of remote sensing and in situ data for models.

4. Previous work experience (selected)

- Finnish Environment Institute (SYKE), **Research Programme Manager** (Ecosystem Services), 1.1.2014-31.12.2017;
- Finnish Environment Institute (SYKE), Natural Environment Centre, Ecosystem Change Unit, and later Director's Office, **Senior Research Scientist**, 1.6.2010-31.10.2017;
- European Commission, Joint Research Centre, Institute for Environment and Sustainability, **Visiting Scientist** (paid by SYKE), 27.1.-12.5.2012;
- Biologist Office Vihervaara Ltd., **Managing director**, Owner, established 6 March 2006, changed to Ltd. 1 January 2008, sold 15 June 2010, Y-tunnus 2163535-5, leading over 50 projects
- University of Turku, Department of Biology, Biodiversity and Environmental Science & Department of History, Cultural Research and Art Studies, first as **Researcher**, later as **Postdoctoral researcher** in REGSUS and CORECO projects funded by the Academy of Finland, various periods between 1 Nov 2007 – 31 May 2010
- MTT Agrifood Research Finland, **Researcher** in CORECO project funded by the Academy of Finland, 1.5.2006-31.10.2007

5. Personal research funding and grants

- **Responsible leader** of the project portfolio (past 5 years) with total funding of 8.129.000 € (of which FEO is 6.080.000 €). Three proposals under evaluation: Biodiversa – JPI-Water (250.000 €, PI), ESA Biodiversity+ Precursors (~44.000 €, PI), and Strategic Research Council -BIOD (7.225.000 € of which SYKE budget 2.870.000 €, Consortium Leader).
- Drafting of the National Biodiversity Strategy and Action Plan (NBSAP) (Ministry of the Environment, 2021, 89.449 €, responsible leader);
- Roadmap for implementing eDNA and other molecular biological methods in Finland 2021-2025 (Ministry of the Environment, 2021, 124.813 €, responsible leader);
- Finnish Ecosystem Observatory (FEO) 2020-2024, director, expected total project 6.080.000 € (Ministry of the Environment, 1st year 1.220.000 €, 2nd year 2.448.500 €)
- FEO Pilot/ Phase 1 (MoE, 2019, 60.000€);
- EuroGEO showcases – E-SHAPE (H2020, 2019-2022, PI, SYKE budget ~110.000 €);
- Mapping and Assessment for Integrated ecosystem Accounting – MAIA (H2020, 2018-2021, PI, SYKE budget 210.000 €);

- The Integrated Biodiversity Conservation and Carbon Sequestration in the Changing Environment – IBC-CARBON (Academy of Finland’s Strategic Research Council, 2018-2023, WP4/ Remote Sensing co-lead, SYKE’s WP4 budget ~220.000 € + 55.000 €, total project budget ~3.8M€ for the 1st period);
- European Statistics Action Grants for 2017-2018, 2019 and 2020, consortium leader, total budgets 234.000 €, 245.947 € and 225.252 €, respectively;
- SustainBaltic (Central Baltic Interreg, 2016-2018, consortium, PI of SYKE, budget of SYKE ~320.000 €);
- New tools for sustainable use of ecosystem services, recreation and tourism of forests and waters in Finland (Prime Minister’s Office, 2016-2017, consortium, PI of SYKE, budget of SYKE 80.000 €);
- The Nordic IPBES-like assessment (NCM & MoE, 2016-2018, budget 25.000 € per year); Framework for assessing the state of environment in boreal forest used for pulp production and emissions from logistics and pulp production (UPM & SYKE, 2015);
- MAES for Finland (MoE, 2015-continues, budget ~15k€ per year);
- Finnish Ecosystem Service Indicators FESSI (MoE, 2012-2015, total budget 193.065 €);
- The relationships of biotopes, habitat structure and habitat quality to the provision of ecosystem services ES-LUPPI (Nessling Foundation, 2013-2016, ~85k€)

6. Leadership and supervision experience

- *I work as a head of unit leading a research team which consists currently of 18 persons, and before my current position I worked as a research programme manager at SYKE developing research collaboration across the different research centres. In addition, I am a director of Finnish Ecosystem Observatory (FEO), and was recently elected to the Executive Board of European Biodiversity Partnership (Biodiversa+) as a leader of the working area #1B aiming at establishing a transnational network of national biodiversity monitoring schemes in Europe. I am also a co-lead of GEO BON working group on BON Development. I have been a lead author of the Nordic IPBES assessment for coastal ecosystems (Chp 1), and the Global Environment Outlook GEO-6: Assessment for the pan-European region (Chp 2 and 4). I was a task leader in H2020 ESMEERALDA project 2014-2018, and in TEEB Finland 2013-2017. I have been supervisor/evaluator of five MSc thesis, main supervisor for two PhD students, and in a supervisory group for three PhD students.*
- Supervisory group of PhD candidate Ronoud (University Helsinki); PhD Malkamäki (2019), University of Helsinki; PhD Pohjanmies (2018), University of Jyväskylä; supervisor of PhD Mononen (2017), UEF. Supervisor/evaluator of five MSc thesis: Repo, Silvennoinen (University of Eastern Finland), Luoma, Guan (University of Helsinki), Kalliolevo (University of Turku), and un-official supervisor of one MSc thesis (Pinto) University of Kiel.
- Leadership in the assessments and research projects:
 - **Lead Author** of the Nordic IPBES assessment for coastal ecosystems, Chapter 1 Setting the scene (NCM 2016-2018);

- **Lead Author** of Global Environment Outlook GEO-6, Assessment for the pan-European region. United Nations Environment Programme, Nairobi, Kenya. Chapter 2 Environmental State and Trends, and Chapter 4 Outlooks and Emerging Issues (United Nations, 2015-2016);
- **Task leader** (Biophysical Ecosystem service mapping methods) in Horizon 2020 project ESMERALDA (2014-2018);
- **Lead Author** of TEEB Nordic Report (2012) and TEEB Finland (2013-2014).
- Advisory Board/ Collaborator for the following projects:
 - A Planetary Inventory of Life – LIFEPLAN (2020-2025), ERC Synergy Grant by Prof. Otso Ovaskainen, University of Helsinki. Role: Collaborator.
 - Monitoring Biodiversity from Space – BIOSPACE (2019-2024), ERC Advanced Grant by Prof. Andrew Skidmore, University of Twente, ITC. Role: Collaborator.
 - Implementation of Essential Biodiversity Variables for biodiversity assessment and monitoring at the subnational level in Colombia (2019-2020); PI Maria Loñdono, Instituto de Investigacion en Recursos Biologicos Alexander von Humboldt, funded by USAID Partnerships for Enhanced Engagement in Research (PEER) Program, cycle 7. Role: Collaborator.
 - GlobDiversity – Remote sensing enabled Essential Biodiversity Variables for terrestrial ecosystems, 2017-2019; funded by ESA. Role: Member of advisory board.

7. Other key scientific or academic merits

- Evaluation tasks:
 - Formas' call on Perspectives on the Sustainable Development Goals 2018;
 - ERANet-LAC Multi-Thematic Joint Call 2017/2018 involving Research Infrastructures: Theme Biodiversity / Climate Change;
 - Evaluation of a research proposal for Deutsche Forschungsgemeinschaft (DFG, German Research Foundation) 2016;
 - Evaluation of three proposals for BiodiverERsA 2016;
 - Member of the Societal Impact evaluation panel 2014 for BiodiverERsA ERA-NET and FACCE-JPI call.
 - Invited expert and referee in EEA ETC-ICM: Progress towards European marine ecosystem assessments: Focus on ecosystem services, reviewing the report in December 2011, participating in Technical advisory workshop in March 2013.
 - Consultation for a Member of international peer evaluation committee for UK Natural Environment Research Council (NERC): Biodiversity for Ecosystem services consortiums (BESS)
 - Academy of Finland, 2011, Evaluation of Ecology and Evolution Biology in Finland, member of SYKE delegation
- Academic evaluation tasks:
 - Evaluation of the adjunct professorship of Dr. Aleksi Räsänen, UEF (2019);
 - Opponent of the dissertation of Terhi Ala-Hulkko (2020), University of Oulu;
 - Pre-examinator of the PhD thesis of Aija Kukkala (2017), University of Helsinki.
- Positions of trust:
 - European Biodiversity Partnership (Biodiversa+), Executive Board, Lead of Working Area #1B: Biodiversity Monitoring, 2021- ;
 - Group on Earth Observations (GEO), Principal Programme Board Representative (Finland) 2019-2021;

- Member of GEO BON 2016-, Implementation Committee, Interim Lead Coordinator of Biodiversity Observation Network (BON) Development Working Group 2017-2019;
- Member of Management Board of ALTER-Net III 2014-2017 and IV 2017-2020;
- National representative at European Commission's (DG ENV) Working Group MAES, 2012-2020;
- Finnish delegate on CBD SBSTTA-23 & -24 and SBI-3.

- Editor of *One Ecosystem* journal (Pensoft); Guest editor of a Special Feature, *Methods in Ecology and Evolution* by British Ecological Society; Guest editor of *Futura* 3/2019 Biodiversity special issue

- 44 refereed articles in journals, 16 book chapters/ sections, 3 edited books/ professional journals, 5 conference proceedings, 12 articles in professional journals/ handbooks, and 19 reports; H-index 21, i10-index 32, Total citations 2855 (retrieved Google Scholar 6.3.2021)

- Referee for 14 scientific journals and publication series: *Ambio*; *Ecological Complexity*; *Ecological Indicators*; *International Journal of Biodiversity Science, Ecosystem Services and Management*; *Fennia*; *Biodiversity and Conservation*; *Ecosystem Services*; *Current Opinion in Environmental Sustainability*; *Ecological Modelling*; *Remote sensing*; *Science of the Total Environment*; *Land Degradation and Development*; *One Ecosystem*; *Methods in Ecology and Evolution*; and referee for two books: Cavender-Bares, J., Gamon, J. & Townsend, P. (Eds.) *Remote Sensing of Biodiversity*, Springer (2017); Jongman, R., Paganini, M. & Mora, B. (Eds.) *Sourcebook for Biodiversity Monitoring in Tropical Forests with Remote Sensing* (2017).

- Organizing international symposiums and conferences:
 - *Improving conservation targets for forest biodiversity: towards operational solutions from remote sensing technology* at XXV IUFRO World Congress, Curitiba, Brazil, Oct 2019;
 - *Novel Earth Observation techniques for Biodiversity Monitoring and Research*, 24 May 2018 at SYKE, Helsinki, Finland;
 - *Integrated water landscape planning and management* at IALE European Congress 2017, Ghent, Belgium 12-15 September;
 - *Linking remote sensing data to biodiversity at different landscape scales* at IUFRO Landscape Ecology Conference, Tartu, Estonia 23-30 August 2015;
 - *Systems ecological perspectives on sustainability* followed by intensive course "Introduction to systems ecology" by Sven Erik Jørgensen at SYKE, Helsinki, Finland 24-30 September 2014;
 - *Integrated biogeochemical cycles and their role for ecosystem services* in SYKE, Helsinki, Finland 27.11.2013;
 - *Remote sensing in the mapping of biodiversity, habitats and ecosystem services*, in SYKE, Helsinki (Finland) 6.-7.9.2012;
 - *The First Baltic Bat Researchers meeting*, in Seili (Finland) 2003

- Member of the scientific societies:
 - The Finnish Society of Forest Science (member 2010-2017);
 - Pohjois-Savon Lintutieteellinen Yhdistys Kuikka [Regional ornithological society of BirdLife Finland] (member since 2006, member of board, in charge of conservation 2009-2010);

- Societas pro Fauna et Flora Fennica (member since 2005),
- Finnish Mammalogical Society (member since 2003);
- Finnish Chiropterological Society (Founder member 2002, in various positions, e.g. member of board, treasurer);
- Suomen biologian seura Vanamo [Finnish Biology Society Vanamo] (member since 2000);
- Turun Eläin- ja Kasvitieteellisen Seura [Zoological and Botanical Society of Turku] (member since 1999).

8. Merits in teaching and pedagogical competence

- Lectures at Universities of Eastern Finland, Turku, Helsinki and Oulu (Thule-instituutti), and at Universities of Kiel (Germany), University of Siena (Italy), and Macquaire University of Sydney (Australia).
- Over 50 presentations in international conferences and seminars; invited speaker in the Ecosystem Service workshop for Balkan countries at Joint Research Centre, Ispra (2016), and BECC at Lund & Gothenburg Universities (2017).
- Supervision of theses: see previous chapters

9. Awards, prizes and honours

- SYKE group award 2018 (for novel interdisciplinary research: Piloting Ecosystem Accounting)

10. Other merits and hobbies

- Free time hobbies: Football, fishing, literature, music (jazz especially), board games, and gardening (including bee-keeping).