

# WISDOM DAYS: SCIENCE FOR SUSTAINABILITY TRANSFORMATIONS

6-8 May 2026, Jyväskylä

ABSTRACT BOOK



GREENPEACE



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# **KEYNOTES**

## Rauna Kuokkanen – Sustainability transitions and Indigenous futures



*Rauna Kuokkanen, Research Professor of Arctic Indigenous Politics, University of Lapland*

Rauna Kuokkanen is Research Professor of Arctic Indigenous Politics at the University of Lapland (Finland) and Adjunct Professor of Political Science at the University of Toronto. Her research focuses on comparative Indigenous politics and law, Indigenous feminism and gender, Arctic governance, and settler colonialism in the Nordic countries. Her Sámi name is Jovvna Jon Anne Kirstte Rávdná or Fierranjot Kirstte Rávdná. She's from the Deatnu River, Ohcejohka/Utsjoki.

Sustainability transitions are not only technical shifts but structural and political transformations. Indigenous participation in these processes cannot be reduced to consultation or tokenism; it requires rethinking relations—between states and Indigenous nations, human and non-human communities, and present and future generations. This keynote explores how sustainability transitions framed in technocratic or policy-driven terms risk sidelining the futures, knowledges, and relations of Indigenous communities. By centering Indigenous conceptions of environmental justice, the talk highlights how Indigenous peoples' struggles for land, sovereignty, and self-determination are not marginal but foundational to just transitions. The keynote asks: What would it mean to design sustainability transformations that begin from Indigenous futures, rather than fit Indigenous peoples, their ways of knowing, governing, and relating into pre-existing models?

**Keynote session: Thursday, 7<sup>th</sup> May at 9:00 at Main building C1**

## Christian A. Klöckner – Success and failure stories of sustainability-related behavior change, and the role of democratic innovations in enabling rapid transitions



*Christian A. Klöckner, Professor in Social Psychology, Norwegian University of Science and Technology, Photographer: Elin Iversen*

Christian A. Klöckner is professor in social psychology specialized in environmental psychology. He leads the research group for Citizens, Environment and Safety at the Norwegian University of Science and Technology, several large, interdisciplinary research projects, and is the author of more than 150 scientific papers and books in the area. His work is highly cited in scientific papers, but also in the policy making domain.

In his talk, he will reflect on the potential and limits of behaviour science to address the big challenges of our societies (including climate change, biodiversity loss, and resource overuse). Based on his rich knowledge from many international projects, he will present success stories of how people manage to change their behaviour in a more sustainable direction, but also failures to do so. He will also reflect on how democratic innovations are necessary to manage rapid transitions.

**Keynote session: Thursday, 7<sup>th</sup> May at 13:00 at Main building C1**

## Jörn Fischer – Regenerative dynamics for sustainability



*Prof. Dr. Jörn Fischer, Professor of Sustainable Landscapes at the Social-Ecological Systems Institute (SESI), Leuphana University Lüneburg*

Prof. Jörn Fischer is professor of sustainable landscapes at the Social-Ecological Systems Institute (SESI) of Leuphana University Lüneburg, Germany. His recent work has focused on the intersection of food security and biodiversity conservation in southwestern Ethiopia. His research spans three continents, including Australia, Europe, and Africa. He has authored over 200 journal articles, making significant empirical and conceptual contributions to the field.

In his keynote, Prof. Fischer will explore the emerging concept of regenerative dynamics for sustainability. Notions of regeneration have entered discourses in several fields that are relevant for sustainability, including, among others, ecology, agriculture, economics, management, sociology, psychology and chemistry. A review of existing work shows that there are interesting parallels between these fields. By carefully defining key concepts, such as regenerative dynamics, regenerative practices and regenerative momentum, it is possible to derive generalized insights about what characterizes regenerative systems. Such insights, in turn, promise to spark new insights for sustainability science and practice, and could help to foster new, integrative developments across multiple areas of sustainability practice.

**Keynote session: Friday, 8<sup>th</sup> May at 14:40 at Main building C1**

# PARALLEL SESSIONS & WORKSHOPS

## **Session A1**

### **Theoretical and Conceptual Expansions in Transition**

Thursday 7 May, 10:40-12:00

Room: Main building, C1

Session chair: Miikka Salo

## Wisdom-ing: A Relational Way for Transformations in the Metacrisis

Jessica Böhme

*Institute for Practical ekoPhilosophy gGmbH*

The metacrisis represents a convergence of environmental, social, and existential crises that destabilizes our fundamental understanding of reality, knowledge, and ethics. Conventional approaches often fail because they emerge from the same mechanistic and reductionist paradigms that created these challenges. This talk proposes "wisdom-ing" as a transformative practice—evolving Aristotle's practical wisdom (*phrónēsis*) into a relational, process-oriented art of living suited for navigating complexity.

Drawing from Western, Eastern, and Indigenous philosophical traditions, I present a structured five-dimensional framework that integrates epistemological, ontological, and ethical transformation. Unlike discrete capacity-building, wisdom-ing operates as a meta-capacity—an integrated lifestyle rather than a toolkit. Its unique contribution lies in conceiving transformation as cognitively prompted yet embodied practice, weaving together four ways of knowing (perspectival, propositional, procedural, and participatory) into a coherent ethico-onto-epistemology. This approach is meant as a transformative practice, that not only bridges the knowledge-action gap, but dissolves it from within by fostering internal coherence.

I conclude by exploring implementation strategies across educational, organizational, and practitioner contexts, drawing specifically on a case study of an EU-funded project on "PhilosophyGyms for Regenerative Futures in Small and Medium Enterprises."

Finally, I argue that such philosophical inquiry should become foundational to transformation research.

**Keywords:** practical philosophy, metacrisis, inner transformation, relational ontology, sustainable lifestyles

## **Exploring the role of wealth (in)equality in socioecological transformations**

**Lotta Staffans**

*LUT university*

There is increasing scholarly attention being paid to the need to transform conventional economic thought and institutions in order to find solutions to the global polycrisis. Rapidly growing wealth inequalities of recent decades have led many to identify rentier powers and unearned incomes as central features explaining the malfunctioning of our economic system.

Wealthy individuals fuel the climate crisis through consumption, and even more so through their investments. Increasing concentrations of wealth are undermining democracy and sustainability. Yet question of wealth and power are often overlooked within sustainability debates.

This presentation argues that the public sector is diminishing its own power and wealth to the benefit of financial interests thus hindering rather than enabling socioecological transformations. It explores the interlinkages between wealth inequalities and the sustainability crisis and outlines policy changes needed towards a more equal postgrowth society.

**Keywords:** Wealth inequality, socioecological transformation, finance

## Tracing Neoliberalism in Finnish Biodiversity Policy: Policy Entrepreneurs and Helmi Habitats Programme

Oskari Hakala<sup>1</sup>, Anni Arponen<sup>1</sup>, Anna Salomaa<sup>2</sup>

<sup>1</sup>*University of Turku*

<sup>2</sup>*LUT University*

Neoliberalism is a widespread dominant paradigm in our society. Therefore, it's not a surprise that such a multi-dimensional concept is presented also in Finnish biodiversity policies. This article examines how neoliberal ideas have shaped Helmi habitat program, a relatively recent initiative in Finland's nature restoration policy landscape. Helmi is a relevant case, as restoration policies are expected to play a central role in halting biodiversity loss and the programme is widely regarded as well implemented. Drawing on Kingdon's Multiple Streams Framework, the study examines the role of policy entrepreneurs through semi-structured interviews with public servants involved in the programme's early development. The study traces the mechanisms and rationales through which neoliberal elements, such as commodification of nature, depoliticization of governance, and prioritization of economic growth, entered the policy process and to the final policy proposal.

The analysis situates these findings within critical political ecology and geography debates of neoliberal conservation, which argues that neoliberal approaches to conservation are structurally incapable of addressing biodiversity loss. By clarifying the policy process that produced neoliberal conservation in Finland, the article contributes to understanding the ideological undercurrents shaping current biodiversity governance. It also highlights the role of policy entrepreneurs in advancing particular policy trajectories and the tensions between biodiversity protection and market-oriented frameworks.

**Keywords:** neoliberal conservation, policy entrepreneur, conservation policy, conservation social science, multiple streams framework

## Accepting the Inevitable: Defining and conceptualizing failures as inherent to sustainability initiatives

Raakel Vuojolainen

*University of Jyväskylä*

Sustainability initiatives predominantly overlook or marginalize the role of failure, which is problematic given the urgency and complexity of sustainability challenges (Díaz et al, 2019). To avoid obscuring this persistent reality, we propose that failure is not an anomaly but an inherent feature of sustainability initiatives.

In noteworthy distinction from trade-offs, we define and conceptualize failure as an emergent phenomenon with undesirable, unintended, and intervenable attributes. Drawing on a critical review of case studies, we identify four recurrent types of failure across sustainability initiatives: (1) the intensification of existing social inequalities and systems of oppression, (2) high-cost yet unsuccessful conservation or environmental management efforts, (3) the creation or reinforcement of human-nature separation, and (4) the erosion of future social-ecological resilience.

Through a complex adaptive systems (CAS) perspective, we treat failure not as a definitive endpoint but an opportunity to face the inherent complexities and uncertainties of social-ecological systems (SES) (Preiser et al, 2018). In doing so, we argue that proactively engaging with failure can help decision-makers and societies anticipate, respond to, and adapt to changing harms as complex systems evolve over time. Learning from failures is vital for sustaining the interconnectedness between human well-being and environmental health (Folke et al, 2016). To build realistic futures for people and nature, sustainability initiatives must integrate failure-aware, complex-systems informed practices to ensure more just and resilient outcomes.

**Keywords:** complex adaptive systems, sustainability initiative failures, reflexive sustainability, resilience, social-ecological systems

## **A mechanistic framework for integrating ecological, psychological, and social scientific knowledge to enhance sustainability transformations**

**Tuukka Kaidesoja**

*University of Eastern Finland*

A significant methodological challenge in planning, understanding and advancing sustainability transformations in different societies, regions and cities concerns the integration of knowledge produced in various scientific fields, including ecology, psychology, and the social sciences. This presentation develops a mechanistic framework for addressing this challenge and illustrates it through examples that relate to sustainability transformations in urban environments. The mechanistic framework builds on the new mechanistic philosophy of science (e.g. William Bechtel, Carl Craver, Lindley Darden, and Stuart Glennan), which provides a range of useful concepts and ideas that can be further developed in the context of sustainability transformations. The presentation outlines how mechanistic theorizing can be used to integrate knowledge produced by different sciences, and how interdisciplinary research on interlocking mechanisms that either sustain or transform urban environments can enhance sustainability transformations. These ideas are briefly illustrated with an example that concerns the social, psychological, and ecological mechanisms influencing the spread of invasive species in urban environments and their ecological outcomes. The idea is that interdisciplinary knowledge of these interlocking mechanisms – which operate at multiple spatiotemporal scales – and of their relations enables the planning of effective policy interventions to restrain the spread of invasive species and to mitigate their harmful effects on urban ecosystems.

**Keywords:** mechanism, sustainability transformation, interdisciplinarity, methodology

## **Paradigms of well-being: content analysis of Finnish governmental programs in 1983-2023**

**Annika Lonkila, Teea Kortetmäki, Linda Majander**

*University of Jyväskylä*

The pursuit of well-being guides the functioning of societies. Therefore, the prevailing understanding of well-being has a significant impact on societal goals, also those concerning sustainability transformations. We examine what the prevailing understanding of well-being in contemporary Finnish society by analyzing in Finnish government plans in 1983-2023. To grasp dominant conceptualizations of well-being, we build on the concept of paradigms, identified as Donella Meadows as the deepest leverage point for system transformation.

The paradigms consist of widely shared core beliefs related to the ontological, normative, and epistemological assumptions related to well-being. They concern questions such as what constitutes well-being, whose well-being is being considered, what is the role of the state in promoting well-being, and what kinds of knowledge is valued when discussing well-being. Paradigms are often unspoken, even unconscious, and may appear as common sense and depoliticized, transcending political ideologies. We hypothesize that the paradigms guide the political 'room for maneuver', influencing policy objectives and policy design. For example, the paradigmatic beliefs about individual freedom, autonomy, and responsibility contribute towards constrained ideals of well-being. Further, a critical examination of whether the paradigms of well-being are compatible with sustainability transformation is needed. Does our understanding of well-being create barriers for moving towards a just and sustainable future?

**Keywords:** well-being, paradigms, policy analysis, sustainability

## **Session A2**

# **Rethinking Growth and Sufficiency for Transformations**

Thursday 7 May, 10:40-12:00

Room: Main building, C2

Session chair: Kimmo Aho

# Consumption, Biodiversity, and Sustainability Transitions: Insights from Latour's New Climatic Regime

Maria Pecoraro, Outi Uusitalo

*University of Jyväskylä*

Biodiversity loss, driven by unsustainable consumption and production, remains a pressing global concern (IPBES 2019; Dasgupta 2021). Although research increasingly recognizes the link between consumer culture, economic growth, and ecological degradation, few studies provide holistic perspectives that reframe the relationship between consumption and biodiversity. This conceptual study addresses this gap by exploring how Bruno Latour's Terrestrial perspective offers new insights into the systemic nature of unsustainable consumption and its implications for cultural understandings of sustainability transitions.

The study asks how Latour's Terrestrial perspective challenges conventional views of the relationship between consumption and nature. The analysis is grounded in Latour's New Climatic Regime framework, which is used to examine how consumption is simultaneously shaped by global economic structures and embedded in local cultural contexts.

Findings suggest that few studies explicitly address the need for systemic transformation in connecting consumption and biodiversity. Those that do highlight the importance of moving beyond anthropocentric and growth-oriented paradigms. The study contributes to consumer research by demonstrating how Latour's framework bridges cultural and structural analyses of consumption, offering a theoretical foundation for sustainability transitions that emphasize ecological limits and the interconnectedness of human activities and nature. Ultimately, the Terrestrial perspective enriches debates on sustainability governance by advancing a systemic understanding of consumption within the broader web of human and non-human relations.

Latour, B. (2018). *Down to Earth: Politics in the New Climatic Regime*. Polity Press.

**Keywords:** Biodiversity, consumption, consumer culture

## **Challenging everyday consumerism and supporting sufficiency with a programme for 'sustainable life'**

**Katri Weckroth**

*Tampere University*

The presentation discusses a practice theoretical, ethnographic study of a civil society organisation and social movement in Finland and their participatory programme for adopting what they call 'sustainable life'. The programme, consisting of group workshops or online course, includes tasks for reducing personal consumption emissions, conserving and embracing nature, and enhancing personal and social wellbeing. The empirical analysis of the observations, interviews, and online material from the ethnographic study uncovers a shift in shared meanings behind everyday consumption practices, taking food practices and plant-based food consumption as an example. The presentation discusses the potential of such civil society initiatives to help imagine and enact everyday life beyond the consumerist paradigm and to reach sufficiency in consumption.

**Keywords:** civil society, consumerism, sufficiency in consumption, everyday practices, food consumption

## **Finnish degrowth movement as an everyday utopia – doing sustainability transformation through sufficiency consumption practices**

**Inka Nieminen**

*University of Turku*

Solving climate and environmental crises require rapid changes in ways we produce and consume. Consumption is done through everyday practices which are guided by materials, meanings, and competencies related to, as well as the infrastructure and social expectations surrounding them (Shove, Pantzar & Watson 2012). Thus, sustainability transformation calls for a change in our ways of thinking and doing economy, consumption, and well-being to achieve life within planetary boundaries. Individual consumption choices and political regulation take part in the change, but important level of agency, social movements, offer a window to understanding the change on a more collective level. In my dissertation I study Finnish degrowth movement, Kohtuusliike, as an everyday utopia, a community, which is living in a radically different way guided by alternative policies and practices compared to the surrounding hegemonic culture (Cooper 2014). My goal is to ascertain practices, ideologies, and alternative lifestyles relating to reduction and redefinition of consumption, through which communities and individuals are already promoting and doing alternative future a reality.

I use ethnographic methods, interviewing, and volunteers' diary notes, to collect data about everyday consumption practices, and to find out what participating in social movements provides for the people living in a more sustainable way. In my presentation I will be sharing preliminary results to promote bigger societal change towards eco-social sustainability.

**Keywords:** degrowth, sufficiency, consumption practices, everyday utopia

## Practicing Ethical Sufficiency: Evidence from a community in Ecuador

Heidy Montero-Teran<sup>1</sup>, Manon Filler<sup>2</sup>, Laura Olkkonen<sup>1</sup>

<sup>1</sup>*LUT University*

<sup>2</sup>*Friedrich-Alexander-University Erlangen-Nürnberg*

Sufficiency offers a compelling alternative to the prevailing model of unchecked economic growth and resource consumption by emphasizing the need to balance wants and needs within planetary limits to secure human well-being. Amid escalating ecological and social challenges, sufficiency provides not only a critique of limitless growth but also a practical pathway toward sustainable living. While previous research has explored sufficiency through practices such as repairing goods and seasonal consumption, it has largely overlooked the ethical foundations of these practices—even though practices are the means through which ethical principles manifest. This study addresses this gap by examining how virtue ethics functions as an organizing principle for sufficiency practices, using social practice theory to connect virtue ethics with sufficiency. Drawing on qualitative data from an Ecuadorian non-profit organization, we propose a process model illustrating how sufficiency-ethical practices are initiated, formalized, disseminated, and sustained. Our findings enrich the literature on sufficiency and ethics by offering a detailed account of organizational virtues as guiding principles for sufficiency practices and highlighting their potential to cultivate communities grounded in resilience, justice, solidarity, and environmental stewardship. This case contributes to scholarship on sustainability transformations by illustrating how ethically grounded sufficiency practices can catalyze systemic change toward meaningful and just transitions.

**Keywords:** sufficiency-ethical practices, sufficiency, social practice theory, virtue ethics

# Governing the Twin-Transition: the Interplay of Technology and Sustainability in Digital (Circular) Economy Regulations

Beata Mähäniemi, Beatrice Schütte

*University of Lapland*

The digital circular economy is emerging at the intersection of digitalisation and sustainability, as a reaction to environmental risks posing an existential threat to societies and economies. Data-driven optimisation of production and supply chains shall contribute to mitigating harm to the environment. Artificial intelligence (AI) and data are critical enablers in this regard, facilitating resource efficiency and the avoidance of waste through pattern recognition and predictive analytics. The digital circular economy is a core component of the European Union's 'twin transition', integrating the green and digital transitions. It combines data-driven optimisation with sustainability goals. Yet, AI and big data also raise questions about energy intensity and ecological limits. Integrating the two ongoing transitions underscores a need for regulatory coherence.

Against this background, we examine key EU regulatory frameworks, including the AI Act, the Data Act, and the Digital Services Act. Although these instruments reference sustainability aspects, such provisions remain largely vague.

To foster effective governance of the twin transition, we argue for two guiding concepts: sufficiency and ethical values such as fairness and transparency, the latter being core values in AI-regulation.

The principle of sufficiency or "enoughness" along with sustainability seen as fairness, challenge techno-optimism and the normalization of endless data accumulation, raising critical questions about what constitutes an ecologically sufficient use of data and whether fair and transparent AI practices can incorporate sufficiency. We aim at defining sufficiency and fairness in this context to lay down the missing legal foundations for the legislative change.

**Keywords:** twin transition, regulation, AI, data, sustainability

## From Illbeing to Wellbeing: Exploring Sufficiency in Food Consumption

Kaisa Kurki

*LUT University*

The current food system poses complex challenges that threaten both human and environmental health more broadly. Addressing these issues requires a food system transformation, including both qualitative and quantitative shifts in food consumption. A consumerist perspective tends to frame food as a market commodity, distancing individuals from food production and overlooking the cultural dimension of food. Fast-paced lifestyles further limit time and effort spent with food, hindering the recognition of its deeper significance in everyday life.

The concept of sufficiency broadens the scope of sustainable consumption by shifting the focus from minimizing environmental impacts to exploring what constitutes a good life within ecological limits. While sufficiency strategies have been proposed in broader consumption contexts, their application to food remains relatively unexplored. Previous literature suggests that sufficiency represents a dynamic process, with related practices potentially embedded in everyday life, even within a consumerist paradigm. This study applies a holistic wellbeing framework to examine how sufficiency-related intentions and practices in food consumption can enrich daily life, foster wellbeing, and support food system transformation. Data were collected using a serious gaming method, including group sessions and individual interviews with citizens from diverse backgrounds in Finland. Preliminary findings suggest that people would like to, among other practices, gather more wild foods, dedicate more time to cooking and reduce the use of animal-based foods. However, multiple structural barriers limit these intentions and activities. This study contributes to empirical understanding of sufficiency in food consumption, highlighting its potential to support wellbeing and sustainability in everyday life.

**Keywords:** Sufficiency, Food Consumption, Sustainable Food System, Holistic Wellbeing, Good Life

## **Session A3**

### **Human-Animal Relations and Multispecies Perspectives**

Thursday 7 May, 10:40-12:00

Room: Seminarium, S212

Session chair: Venla Leppilampi

## Advancing animal welfare literacy for transforming animal-based services

Anna-Mari Rimppi<sup>1</sup>, Henna Syrjälä<sup>1</sup>, Nancy Wunderlich<sup>2</sup>

<sup>1</sup>*University of Vaasa*

<sup>2</sup>*Technische Universität Berlin*

Animals are important service actors in a variety of service contexts (Coulter, 2016). But unlike human workers, they lack sufficient legal protection, making them vulnerable (Wunderlich et al., 2021). “Frequent media coverage shapes public concern, which often emerges as guilt after service experiences (Cowan, 2022). Despite these concerns, consumer behaviour often contradicts animal-friendly choices due to limited welfare awareness (Fennell, 2022a). Previous marketing literacy debates have focused on human vulnerability. We propose animal welfare literacy as a conceptual lens for transforming animal-based services toward multispecies wellbeing.

To support a post-anthropocentric shift in service design (Arnould, 2024), we examine how animal welfare literacy can contribute to transforming animal-based services (Fennell, 2022a). We gathered qualitative information from several stakeholders using a relational engagement approach (Ozanne et al., 2017). Using photo-elicited narratives, thirty consumers used self-selected service images to describe their experiences. Eight animal welfare specialists were also interviewed to represent species-specific knowledge.

Our research identifies the elements of animal welfare that consumers are aware of and the areas where significant misunderstandings still exist, especially about communication, species-specific requirements, housing, and whether animals may be giving their consent to participate (Fennell, 2022b). We position animal welfare literacy as a foundational element for multispecies service transformation by combining insights from animal behavioral science and marketing. This allows both consumers and providers to create services that are consistent with post-humanist principles of distributed agency and shared wellbeing (Huopalainen, 2022; Thomsen et al., 2023).

**Keywords:** animal welfare literacy, animal-based services, post-anthropocentric service design, animal service actors

## **Troubled spaces for multispecies activities: Addressing issue of human-dog activeness and wellbeing formation in urban public spaces and policies**

**Aija Siiriäinen<sup>1</sup>, Hanna-Mari Ikonen<sup>1</sup>, Samu Pehkonen<sup>2</sup>**

<sup>1</sup>*University of Jyväskylä, Faculty of Sport and Health Sciences*

<sup>2</sup>*Tampere University, Faculty of Social Sciences*

Public space is a realm of social, physical and bodily encounters - and multispecies relations. By co-constituting urban families and environments, and due to need for activeness that occurs e.g. via outdoor exercise, dogs are prevalent agents in making public spaces. Human-dog physical activity (PA) influences wellbeing of both counterparts in several ways, and happens usually outdoors as facilitation of species-specific needs of the dog. Simultaneously, (in)formal regulations and governmental frameworks effect dogs' presence in public space, often aiming to restrict or somewhat erase the "animality" of the agency dogs exert. In many ways dogs' co-existence in urban society is expected and governed to fit into human-centric socio-cultural norms and desires. Dog-owners are expected to manage the 'appropriateness' of general presence of their dog. Also, obligation to provide dogs wellbeing, such as exercise, is primarily on the owners. Yet, social norms, regulations and accesses regarding the living environments set preconditions for fulfilling these obligations.

In this presentation we ask whether human-dog-dyads are and should be included in health-promoting policies and public spaces, and how dogs' right to wellbeing in urban society appears through those dimensions. We consider these processes in relation to urban environments and public-policed outdoors as places of multispecies participation (including and beyond human-dog dyads).

This presentation links with our mixed-method study that investigates the establishment of opportunities for human-dog outdoor PA in the public and in policy objectives. Our study builds on discussions of political agencies of dogs, and troubling exclusiveness in societal orderings for multispecies flourishing.

**Keywords:** multispecies activity; urban environments; pet animal wellbeing; human-dog relations

## Was it Truly Multispecies? Reflections on Ethnographic Encounters with Ticks in Finland

Alicja Staniszevska

*University of Jyväskylä*

When I began my doctoral research on human–tick relations in Finland, I imagined a multispecies project that would give space to more-than-human perspectives at every stage, admirably from design through fieldwork to writing and research popularisation. Drawing on my fieldwork, where I explored human–tick relations amid human and more-than-human migration and climate change, I revisit my attempts to make sense of the messy multispecies ethics and methodological unease. While multispecies ethnography often focuses on care, empathy, and cohabitation, working with ticks, who are commonly associated with disgust and disease, challenged the process. My initial commitment to include the more-than-human in all stages of research soon revealed frictions between aspiration and practice.

Ticks, as carriers of Lyme borreliosis and tick-borne encephalitis, occupy an ambivalent space in multispecies thinking. They are deeply embedded in northern ecosystems yet provoke unease and exclusion in public discourse. In Finland, their expanding presence is entangled with questions of climate change, mobility, and the purity of nature.

Encounters in forests, health clinics, and everyday conversations revealed how humans negotiate the paradox of protecting life while eradicating some of its forms.

In this talk, I will go over my past research process to point towards gaps and challenges of the multispecies approach, and reflect on the methodological struggles and partial successes of trying to make research truly multispecies in a world where some lives are unavoidably unwanted.

**Keywords:** Multispecies ethics, Human-tick relations, Finland, Researcher positionality

## Coexisting with wildlife: How public perception and media shape hunting narratives in Finland

**Maria Perkkola**

*University of Turku*

Attitudes toward hunting offer insight into how people see human–wildlife relations. Finland is a relevant case, as hunting remains culturally, socially, economically, and ecologically significant. Its future depends not only on game populations but also on how the practice adapts to shifting societal values, urbanization, and demographic change. I present findings from two interconnected studies examining attitudes toward hunting and media portrayals of hunting and cervids. These studies, available as research reports, form the basis for publications and my PhD thesis.

The first study analyses national surveys (2013, 2018, 2023; 3089 respondents), showing how socio-demographics and information affect attitudes toward hunting. While overall perceptions remain largely positive, negative attitudes have slightly increased. Gender, age, residence, and region influence views of hunting. Reduced contact with hunters and reliance on media are associated with more critical attitudes, suggesting that social networks and knowledge shape multispecies worldviews.

The second study examines media representations of hunting and cervids in Finnish newspapers (Maaseudun Tulevaisuus, Ilta-Sanomat, and Helsingin Sanomat) in 2021 and 2024. Content analysis of 1347 articles shows differences: rural-oriented media portray hunting more positively, while urban-oriented outlets emphasize conflicts or isolated events. Across newspapers, cervids are framed in neutral-negative ways.

Together, these studies show how public perception and media narratives shape views of wildlife and the legitimacy of hunting. As a close human–nature interaction, hunting offers insight into broader shifts in human–nature relations. Because hunting involves many stakeholders, understanding how perceptions form is essential for mitigating conflicts and supporting multispecies coexistence.

**Keywords:** Hunting, Cervids, Media, Attitudes

## **Anthropogenic changes in forests: Linking wildlife, human, and ecosystem well-being**

Saija Vuorenmaa<sup>1</sup>, Esa Koskela<sup>1</sup>, Eva Kallio<sup>1</sup>, Phillip Watts<sup>1</sup>, Carita Lindstedt-Kareksela<sup>2</sup>, Jussi Heinonsalo<sup>2</sup>, Saana Kataja-aho<sup>1</sup>, Hein Sprong<sup>3</sup>, Saana Sipari<sup>1</sup>, Toni Jernfors<sup>1</sup>

<sup>1</sup>*University of Jyväskylä*

<sup>2</sup>*University of Helsinki*

<sup>3</sup>*Centre for Infectious Disease Control Netherlands, RIVM, The Netherlands*

Planetary well-being and thriving forest ecosystem processes are essential for humankind. Currently, however, human impacts, such as urbanization and forest management, are reshaping forest habitats at a rate that organisms cannot or do not have time to adapt. These changes affect biodiversity at all levels, from ecosystems and species to the genetic level.

Our research focuses on the impact of human activities on wildlife and their health in urban and non-urban forests. We measure several health-related factors in bank voles, a keystone species in boreal forests and a reservoir host for several zoonotic pathogens. In addition, we monitor the abundance of ticks (*Ixodes ricinus*), which are ectoparasites of voles, and the pathogens they carry, in order to examine the disease risk for wildlife and humans. We also analyze the diversity and functionality of forest soil microbial communities to test the hypothesis that the type of microbial biodiversity has a key impact on wildlife health.

This project enhances our understanding of how human activities influence biological interactions in forests, and how the health of the environment, non-humans, and humans are all interconnected, as stated by the planetary well-being approach.

**Keywords:** wildlife health, forests, urbanization

## **Session A4**

### **Nature Positive Management and Biodiversity**

Thursday 7 May, 10:40-12:00

Room: Main building, C5

Session chair: Satu Aavanranta

## Approaches to Operationalizing Nature Positivity in Agriculture and Forestry

Anna Repo<sup>1</sup>, Kyle Eyvindson<sup>2</sup>, Adriano Mazziotta<sup>1</sup>, Pekka Jounela<sup>1</sup>, Matti Salo<sup>1</sup>

<sup>1</sup>*Natural Resources Institute Finland*

<sup>2</sup>*University of Helsinki*

The concept of “nature positivity” has emerged as a key concept in global biodiversity and sustainability discourse. Nature positivity is widely used in the grey literature, yet its definition and operationalisation remain unclear in the context of agriculture and forestry. This study investigates how nature positivity can be understood and applied in agriculture and forestry, based on a survey of over 800 Finnish experts. Using self-organising maps—an unsupervised machine learning method—the study visualises complex expert views across three dimensions: (1) definitions of nature, (2) indicators for assessing nature-positive actions, and (3) visions for nature-positive futures.

Acknowledging that “nature” is a culturally embedded and contested concept, the study does not seek a universal definition but instead explores context-specific understandings. It highlights tensions between ecological metrics and broader value-based conceptions of nature, revealing diverse expert opinions on what constitutes nature positivity, how it should be measured, and which actions are restorative.

Key themes include the role of biodiversity indicators, regenerative practices, and the need for shared definitions that connect science, policy, and practice. The study also identifies conceptual and practical conflicts, such as views on compensation, restoration, and compatibility with frameworks like no net loss and biodiversity offsetting.

By mapping expert perspectives and proposing pathways for operationalisation, the research contributes to clarifying the nature positivity concept and supports sustainability transformations in land-use and management. It emphasises inclusive, context-aware approaches to defining and measuring nature-positive outcomes in agriculture and forestry.

**Keywords:** "nature positive", survey, machine learning, ecological indicators

## Convergence of biodiversity enhancement and regenerative development

Anu Veijalainen<sup>1</sup>, Matti Salo<sup>2</sup>, Henna Rouhiainen<sup>1</sup>, Juulia Räikkönen<sup>1</sup>, Ilari Sääksjärvi<sup>1</sup>

<sup>1</sup>*University of Turku*

<sup>2</sup>*Natural Resources Institute Finland (Luke)*

The global decline of biodiversity demands transformative change that realigns human activity with planetary processes. Regenerative development may facilitate systemic transformation but remains underexamined in relation to biodiversity. We explore the intersection of biodiversity and place regeneration, conceptually converging the processes of biodiversity enhancement and regenerative development. This requires adopting a refocused concept of biodiversity as a dynamic, relational attribute of life that engenders biocultural diversity, and viewing biodiversity enhancement as the enrichment of place-specific biocultural systems. The complementary regenerative development promotes co-evolving, life-affirming relationships within and between human and natural systems. Regenerative design may catalyse regenerative development capacity in communities by engaging participants in regenerative dynamics, potentially increasing biodiversity beyond the spatio-temporal scope of projects. However, challenges persist due to entrenched anthropocentric worldviews and the difficulty of including human expressions within biodiversity. The refocused biodiversity concept offers a feasible leverage point for fostering transformative change in the short term.

**Keywords:** regeneration, social-ecological systems, worldviews

## **Natura 2000 in a warming EU: Need and capacity for dynamic management of protected areas**

**Jon Brommer<sup>1</sup>, Elie Gaget<sup>2</sup>, Leonie Jonas<sup>1</sup>, Giorgio Zavattoni<sup>1</sup>**

<sup>1</sup>*University of Turku*

<sup>2</sup>*Tour du Valat*

The EU Natura 2000 (N2K) Protected Area (PA) network could be a Nature-based Solution to mitigate the effects of climate change on biodiversity as PAs play a critical role in minimizing biodiversity loss. However, the N2K is based on strict legal grounds that may hamper the dynamic management required in a world that is facing rapid climate change. I present an overview of recent work combining social aspects based on surveys targeting N2K PA managers with macro-ecological consideration on EU scale. Central in these studies is the Resist-Accept-Direct (RAD) framework, and the overarching message is that dynamic management is required in a context-specific manner. At EU scale, national and international collaborations between PA managers are needed to ensure the coherence of local adaptation strategies. Despite there being hurdles, PA managers are already embracing more dynamic management, but science-based solutions are needed.

**Keywords:** Natura 2000; climate change; biodiversity; protected areas

## **Harnessing biodiversity impact assessment for strategic management**

**Aija Hokkanen**

*University of Jyväskylä / Natural Resources Institute Finland*

There is a growing need for quantifiable information on organizations' impact on biodiversity loss to develop operations and business models that steer us towards nature positive future. Thus, multiple methods and metrics are developed and piloted across different sectors to assess the biodiversity impact of organizations. But the practical integration of these assessment results to organizational strategy remains unclear. For the results to have their intended impact, it is paramount that the assessments can provide transparent information translatable to organizational change.

In this research paper, we create a conceptual framework on how biodiversity impact assessment results can be integrated into corporate strategy and management. The objective is for the framework design to be applicable across diverse assessment methods, but we utilize a case example where the Biodiversity Equivalent Impact Assessment (BIOVALENT) method was used. The case results demonstrate that biodiversity impact data can shape strategic decisions. It also illustrates different types and levels of information biodiversity impact assessment can provide an organization, thus aiding in the robustness of the framework.

**Keywords:** biodiversity impact assessment, corporate strategy, decision-making

## Development of biodiversity reporting framework for business and its empirical analysis

Marileena Mäkelä, Tiina Onkila

*Jyväskylä University School of Business and Economics*

Loss of biodiversity is one of the most urgent environmental threats facing the globe today. Business is a main contributor to biodiversity loss, and thus also a key actor for change. As part of companies' sustainability work, biodiversity related topics have received increasing attention within recent years. One of the key tools for companies' sustainability work is sustainability reporting. Sustainability report is expected to be balanced description of both positive and negative sustainability impacts of company's operations. In this study, we develop and reflect a framework for biodiversity loss related reporting in business' sustainability work. First, we theoretically developed a framework on the levels, dimensions and aspects for disclosing biodiversity related information. The framework covers issues that relate to depth, credibility, materiality, comprehensiveness and transparency of disclosing biodiversity related information. Second, based on the framework, we interpret our observations of the biodiversity reporting practices of Finnish forest and food industry companies. The analysis shows focus on qualitative impact and risk identification but lack of more ambitious target setting. Third, based on interviews with sustainability professionals, we empirically analyze the prerequisites for companies to proceed to disclosing biodiversity related information. Inconsistently with the reporting data, the interviewees show ambition and willingness for higher levels of disclosing biodiversity related information, but lack of knowledge and skills in doing so. Our study contributes to research on sustainability reporting by an analytical framework and understanding of company shifts in the level of reporting.

**Keywords:** biodiversity reporting, sustainability work, interviews, sustainability reportings, sustainability professionals

## Wetland Restoration as a Strategic (Eco)logical Defense Buffer

**Juho Toppari**

*Luxembourg University*

Since the Russian aggression into Ukraine in 2022, wetlands have demonstrated their strategic significance in warfare, reaffirming the age-old wisdom that geography is the only thing that cannot be changed in times of conflict. Do the recent developments present a growing logic to extend soft security of environment and climate to hard security of military practices?

Beyond strategic relevance, wetlands are critical habitats for biodiversity. Since the Montreal-Kunming COP-15 agreement in 2022, international commitments to halt and reverse biodiversity loss have intensified. Wetland restoration has a positive impact on local biodiversity and carbon capture. In 2025, major media outlets reported on the potential strategic use of wetland restoration. Adaptation is gaining traction within NATO. This policy innovation could elevate the role of biodiversity infrastructure and mobilize restoration efforts within a sector that has traditionally remained disengaged. Wetland restoration is not traditional conflict prevention, however, integrating biodiversity infrastructure into defense planning could be part of a broader resilience strategy and sustainable transformation.

Due to the geopolitical tensions in Europe and accelerating global environmental degradation, the concept of military-supported nature restoration appears both logical and timely. Yet, key questions remain: can policy innovation emerge at the intersection of ecology and hard security? If so, do we risk co-optation via centralized military restoration? Moreover, what is the current state of sustainability transformations and transnational climate cooperation at NATO? This abstract proposes conducting institutional research on NATO's innovation-facilitation structures and carries out elite interviews to identify policy innovation in nature restoration for military purposes.

**Keywords:** wetland restoration; environmental security; policy innovation; co-optation risks; nato adaptation

## Workshop A5

### Exploring more-than-human relations through creative and embodied methods of applied drama

Room: Outdoors or Paja (I)

Anna Lehtonen<sup>1</sup>, Viola Hakkarainen<sup>2,3</sup>

<sup>1</sup>University of Jyväskylä, Finnish Institute for Educational Research

<sup>2</sup>University of Helsinki, HELSUS

<sup>3</sup>Leuphana Universität Lüneburg, Germany

The current nested sustainability crises can be seen to stem from anthropocentrism, lacking connections between self, others and nature, which we as researchers often amplify through our scientific methodologies and practices. Planetary wellbeing, promoting wellbeing of other species and ecosystems calls for widening perspectives to more-than-human interconnectedness, intra-actions and conflicts. The thinking behind this workshop derives from education for planetary wellbeing (Aaltonen et. al. 2023) that emphasizes dialogical ontology and pedagogy.

Applied drama practices can provide an interconnecting space for creative dialogue on sustainability issues and performative inquiries where embodied, emotional, imaginative and cognitive knowing become intertwined and manifested in open-ended processes. In the collectively created fictive drama worlds anything can happen without the restrictions of reality. This encourages free imagination and the testing of alternative realities, futures and imaginary roles.

In this session, we explore more-than-human perspectives in an embodied by using methods that were developed for both pedagogy and research and tested with doctoral candidates in interdisciplinary

environmental sciences. This workshop invites participants to try out easy applied drama exercises like role-taking, and physical theatre e.g. frozen image and forum play by Augusto Boal to (re)connect with bodies, intuition and emotions and hope to open for new perspectives and relations in research and pedagogy. The idea is to catalyze sense of empathy and connectedness with self (emotions and body) and other species bringing different perspectives together. The aim is to make the complexity of sustainability problems visible through embodied experiences and thus, concretize abstract sustainability issues, and allow creative and free thinking beyond the cognitive mind. This session provides a chance to expand and move beyond the scientifically trained mind to consider ourselves as situated in the multi-species world.

**Keywords:** applied drama, more-than-human, education for planetary wellbeing, forum play

## Workshop A6

### Co-creating sustainability and nature well-being through action – How to create a strong sustainability forest management plan?

Room: Seminarium, S204

**Anu Laakkonen**, Tuomo Takala, Hannes Pasanen, Katri Rusanen, Mirikka Rovamo

*University of Eastern Finland*

Sustainability of forest use depends on concrete actions taken to improve the state of nature and biodiversity in forest ecosystems. Sustainability transformation calls for new ways of planning and implementing these actions. Traditionally in Finland, forest use is guided by a forest management plan, including suggestions on treatment type and timing. Forest management plans are prepared by forest professionals to guide forest owners in decision-making. In Finland, over 60 % of forest land is privately owned, and decision-making is typically done within the family, involving many people. However, forest use also affects other people living in the vicinity of forests, e.g., by altering the landscape and the possibility of recreation in the forest.

In this action-based workshop, we invite participants to join us in solving real-life challenges related to decision-making in forest planning. The challenges have been identified in pilot cases of strong sustainability forest planning process that is developed in Towards strong sustainability forest services (VaKe) -project. The process is based on the framework of strong sustainability, where the well-being of nature guides all human activities.

The workshop has three phases: 1) Common introduction to strong sustainability forest planning and learnings from the pilot cases, 2) interactive problem solving related to the observed real-life challenges in strong sustainability forest planning and 3) a reflective discussion with all workshop participants on what we learnt during the workshop.

**Keywords:** forest management plan; co-creation; sustainability transformation; strong sustainability; decision support

## **Session B1**

### **Governance and Management Perspectives for Transformations**

Thursday 7 May, 14:40-16:20

Room: Main building, C1

Session chair: Annika Lonkila

## **Siloed approaches to the sustainability transformation - consequences for democracy and the dynamics of sustainability conflicts**

**Samu Salonen**

*University of Eastern Finland*

The sustainability transformation in Europe has primarily focused on climate change mitigation, often compromising other critical environmental issues such as biodiversity loss. This imbalance has led to “problem shifting”, where efforts to solve one environmental challenge exacerbate others, creating intra-environmental sustainability conflicts. This dissertation examines two such conflict cases in Southern Finland: Stansvik in Helsinki, involving dense urban development, and Jönsböle in Lohja, concerning large-scale solar power development. Both cases exemplify the ‘green-on-green’ dilemma, where climate goals clash with local ecological values, including carbon sinks and biodiversity.

The study applies a deliberative systems framework to explore how these conflicts interact with democratic governance and the broader socioecological system. It addresses two main research questions: (1) What are the distinctive features, stakeholders, and drivers of the conflicts studied? (2) How do these conflicts interact with the deliberative system, and can deliberative approaches support conflict resolution? Data is collected through semi-structured interviews, focus groups, and a conflict clinic workshop, complemented by e.g. policy documents and media content. Qualitative content analysis based on abductive coding is used as a method of analysis.

By linking local conflicts to the socioecological system, the research contributes to understanding the unintended consequences of sustainability policies to environment and democracy. It offers insights into how deliberative practices can enhance legitimacy, trust, and inclusivity in environmental governance. The study aims to inform policy development in urban planning and renewable energy, while advancing interdisciplinary scholarship at the intersection of environmental policy, law, and political science.

**Keywords:** sustainability transformation, deliberative democracy, sustainability conflicts, urban ecology, renewable energy

## **Antifraile decision-making to encourage policymakers towards a paradigm shift for sustainability transformations**

**Babooshka Shavazipour**

*University of Jyväskylä*

We, as humans, are continually struggling with crises that have been rising rapidly in recent years, including wars, energy and economic crises, pandemics, and the effects of climate change. It highlights the vulnerability and fragility of decisions made based on unreliable predictions, which often overlook plausible but less likely scenarios and disregard the potential consequences of those decisions for all stakeholders. Such decisions/policies are also usually focused only on short-term goals (e.g., during the current positions of managers or policymakers), which are often set based on initial promises and/or sudden events.

Sustainable transformations and making relevant decisions based on multiple conflicting criteria require long-term strategic goals that naturally include dealing with the deep uncertainty posed by various factors. Accordingly, robust and resilient decision-making approaches are introduced to withstand and/or recover from the harmful impacts of uncertainty and to facilitate the required sustainable transformation. However, both strategies adopt a survivalist mindset, aiming to convince managers and policymakers of the need for sustainable transformation by frightening them with the potential negative consequences of current decisions. The appearance of recent crises has proven the low success of these approaches.

In contrast, the antifragility concept explores opportunities raised by shocks and adaptation changes to not only withstand shocks but also adapt to and benefit from them. Here, we propose an antifragile decision-making framework to think beyond robustness and resilience, and to become antifragile, towards a better and more sustainable transformation and a fairer world.

**Keywords:** Sustainability, Antifragile decision-making, Deep uncertainty

## Preferences and trade-offs in forest management: family forest owners' willingness to pay for environmental benefits

Pihla Kortessalmi<sup>1</sup>, Maria Triviño<sup>1</sup>, Gonzalo Cortés-Capano<sup>2</sup>, Anna Hausmann<sup>3</sup>, Iain Fraser<sup>4</sup>, Anna-Kaisa Kosenius<sup>5</sup>, Sari Pynnönen<sup>6</sup>, Daniel Burgas<sup>1</sup>

<sup>1</sup>*University of Jyväskylä*

<sup>2</sup>*University of Göttingen*

<sup>3</sup>*University of Kassel*

<sup>4</sup>*University of Kent*

<sup>5</sup>*University of Helsinki*

<sup>6</sup>*Natural Resources Institute Finland*

Understanding forest owners' preferences for forest management outcomes is essential for designing policies that balance timber production and environmental concerns. Using a choice experiment, we studied how individual characteristics and concern for forest disturbances influence family forest owners' willingness to pay (WTP) for climate change mitigation, biodiversity conservation, and ecosystem resilience. We collected data from Finnish family forest owners through an online survey and analysed it with a mixed logit model in WTP space, including interactions to explore preference heterogeneity. Results show that owners are generally not willing to lose profit for climate change mitigation, possibly because it is perceived as a global issue beyond individual control. In contrast, biodiversity conservation may be viewed as more local and concrete, which may explain its higher priority among respondents. Higher education increased WTP for climate mitigation and biodiversity, while resilience remained less valued, suggesting that its benefits are not well understood. At the same time, respondents who were more concerned about disturbances showed higher WTP for both climate change mitigation and resilience, indicating that greater awareness of risks can increase support for these attributes. Because owners appear unwilling to adopt climate-friendly practices without compensation, financial incentives will likely be necessary to increase participation in climate change mitigation efforts. The limited understanding of resilience highlights the need for targeted communication and education to clarify its relevance. Nevertheless, generally positive attitudes toward biodiversity suggest that promoting biodiversity-friendly management could provide a practical and widely accepted pathway for engaging more owners in climate-friendly forest management.

**Keywords:** forest management, choice experiment, ecosystem resilience

## **Bridging social-ecological-technological system and multispecies justice for sustainability transformations**

**Venla Isomäki**, Dané Smith, Tiia Westerberg, Vilma Ristikangas, Mirjami Lantto Klein, Marko Keskinen

*Aalto University*

In the face of environmental and climate crisis, sustainability efforts have become increasingly prominent. Sustainability transformations are discussed, conceptualized, and sought after in academia and policy arenas on multiple levels. Simultaneously, there is a growing need to facilitate sustainability transformations in a just, and a holistic, manner. We explore how combining social-ecological-technological systems (SETS) and multispecies justice (MSJ) literature could re-contextualize sustainability transformations, SETS offering a frame for systems thinking and MSJ providing a normative frame for transformations beyond human-centric perspectives. While both concepts have gained prominence in recent years, there is a lack of approaches on how and if these concepts meet. This paper offers insight into just and systematic approaches to sustainability transformations through analyzing and synthesizing linkages and differences, between SETS and MSJ through analyzing literature. Key challenges in combining the concepts are explored. Finally, we present a framework for advancing sustainability transformations through combined approach.

**Keywords:** multispecies justice, social-ecological-technological systems, sustainability transformations, literature review

## From exploring alternatives to shaping policies: Advancing sustainability transformations through co-design

Satu Lähteenoja<sup>1</sup>, Jani Lukkarinen<sup>2</sup>

<sup>1</sup>*Demos Helsinki / Aalto University*

<sup>2</sup>*Finnish Environment Institute Syke*

The paces and forms of sustainability transformations are uneven on different domains and sectors of society. For instance, the energy transitions towards renewable and low-carbon systems are already well underway in several countries. Meanwhile, in the food sector, debates on reducing meat consumption are still largely in their early stages.

These varying stages and dynamics of transformation call for different approaches and instruments in collaborative design and knowledge co-production processes that aim to support them.

Advancing sustainability transformations can and should take place in many forms, both as part of official policy and governance processes as well as driven by research or active citizens. Transition arena is a future-oriented co-creation process, where in carefully facilitated workshops participants representing different perspectives co-create future pathways and identify actions needed to achieve desired transformations. Drawing from the analytical research of the results from past processes, this presentation introduces a typology of four types of transition arenas: arenas for exploring alternatives, arenas for shaping policies, arenas for understanding systemic change, and arenas for launching experiments. The presentation will introduce the political contexts, aims, owners and participants, methods and outcomes of these different arena types. All of them are important in advancing transformations, but it is crucial to understand which type of co-design is meaningful in different contexts and phases of transformations. Being mindful of such characteristics of transformation is not only a conceptual challenge, but an increasingly methodological quest for shaping timely policies and support processes for advancing sustainability.

**Keywords:** sustainability transformations, co-design, environmental policies, knowledge co-production

## Voices from the Margins: Counter Accounts in the Face of Impact Investment

Johanna Lähteenmäki<sup>1</sup>, Judith Kahamba<sup>2</sup>

<sup>1</sup>*Jyväskylä University School of Business and Economy (JSBE)*

<sup>2</sup>*University of Jyväskylä*

This paper critically examines the tensions between the promises of impact investing and the realities of environmental and social justice. While impact investing is widely presented as a mechanism for achieving financial returns alongside positive social and environmental outcomes, its implementation also reveals contradictions.

We focus on Nordic impact investors who aim to alleviate poverty by financing projects in vulnerable and developing African markets, contexts where engagement with marginalized communities is central but challenging. These communities, often excluded from formal accounting systems, assert their perspectives through counter accounts, “the voices of others”, which challenge dominant investment narratives. Using information from the Environmental Justice Atlas (EJAtlas), NGO reports, journalistic investigations, and institutional documents, we analyze how land use disputes, displacement, and governance failures contribute to conflicts. Methodologically, we apply critical discourse analysis to investigate how investment narratives construct legitimacy and consider alternative perspectives.

In line with critical dialogical accountability, we emphasize the importance of including these voices throughout accounting and accountability processes, helping to democratize project governance and foster more inclusive, accountability-based systems. This study contributes to the literature on critical dialogical accountability by illuminating the power relations embedded in impact investment conflicts and mapping the evolving responsibility networks surrounding them. In doing so, it offers insight into how more just and context-sensitive impact investing practices might be developed.

**Keywords:** counter accounting, critical dialogical accountability, development finance

## Participatory rights and the social sustainability of EU's green transition

Minna Pappila<sup>1</sup>, Heidi Lehtiniemi<sup>1</sup>, Mia Landauer<sup>2</sup>, Kari Oinonen<sup>1</sup>

<sup>1</sup>*Finnish Environment Institute*

<sup>2</sup>*University of Lapland*

The objective of Europe's green transition is to achieve a climate-neutral, resource-efficient and competitive EU by 2050. The EU has traditionally emphasised participatory rights in its environmental policy, but recent EU legislation has sought to streamline and accelerate permitting procedures. In Finland, the Government Programme stresses the need to expedite investment permitting and promote clean-energy investments, while simultaneously underlining citizens' participatory rights and legal protection. However, the implementation of the transition has raised concerns about the level of environmental protection and the narrowing of opportunities for public participation as permitting processes are accelerated.

We have examined the realisation of participatory rights and the challenges associated with them in key EU green-transition instruments as well as in Finland's national legislation linked to the green transition. Our analysis shows that participatory rights have been weakened under the new regulatory framework. The current legislative amendments do not eliminate opportunities for participation, but they make participation more vulnerable as procedures are accelerated and, in some respects, participation opportunities are reduced.

In addition to legal analysis, we have used surveys and interviews to investigate how residents in Northern Finland perceive wind-power and mining projects, and how they have experienced the related permitting and other procedures. A preliminary analysis of the results indicates that local residents desire more genuine and earlier involvement. We conclude that a just transition requires robust participatory practices and transparent communication, as project acceptability cannot be achieved solely through expedited permitting but rather through trust and meaningful interaction.

**Keywords:** Social sustainability, participatory rights, green transition, acceleration, law

## Different understandings and practices of “water resilience” in flood risk and river basin management

Vilma Ristikangas, Alexandra Malmström, Marko Keskinen,

*Aalto University*

Quality and quantity of water resources are decreasing while water-related catastrophes, crises, pressures, and demands are increasing. These trajectories are intensified as climate change advances. The EU is responding to such challenges with the European Water Resilience Strategy (WRS), which aims to ensure sufficient and sustainable quantity and quality of water for the well-being of ecosystems and people and technological needs in Europe and globally. Implementation of the many (nonbinding) targets of the WRS falls to the EU member states.

Resilience is a versatile concept that applies to many contexts and has no universal definition. Different actors’ common understanding of “water resilience” cannot be taken for granted, which can affect achieving the targets of the WRS. This paper critically explores the concept of water resilience from the perspective of current practices and gaps in the implementation of the Water Framework Directive (WFD) and Floods Directive in Finland, which are central measures in the WRS.

We apply social-ecological-technological systems theory to capture the multifaceted nature of water governance and analyse what kind of meanings of resilience are attributed to different systems. The data includes interviews with flood risk management and river basin management group members and document analysis of the WFD Points of Measures and Flood Risk Management Plans.

We provide an empirical viewpoint on different resilience understandings among many actors and form a shared meaning of water resilience. We develop a new systemic approach to convert resilience from theory to practice, which contributes to advancing sustainability transformation in water governance.

**Keywords:** water resilience, water governance, sustainability transformation, social-ecological-technological systems

## Approaches to meet the EU's Nature Restoration Regulation in a Finnish boreal forest landscape

Kyle Eyvindson<sup>1</sup>, Emma Lipkin<sup>2</sup>, Adriano Mazziotta<sup>3</sup>, Anna Repo<sup>3</sup>

<sup>1</sup>*University of Helsinki*

<sup>2</sup>*Åbo Akademi*

<sup>3</sup>*Natural Resources Institute Finland*

Protecting and restoring ecosystems across Europe is being prioritized through the Nature Restoration Regulation. The regulation requires that at least 20% of the EU's degraded land and sea areas are restored by 2030 and all areas restored by 2050. Meeting these ambitious restoration targets presents both opportunities and challenges for owners of the Finnish forests who ultimately are expected to put in place these measures. Whether the regulation will enhance Finnish nature and be acceptable for forest owners depends on how it is interpreted and applied at the national scale in Finland's National Restoration Plan.

To meet requirements of the regulation, policy tools can be applied to encourage or enforce the restoration. Traditionally, Finland encourages ecological action through voluntary agreements. These approaches cannot ensure the regulations are met. Alternatively, legislative policy could be implemented to compel property owners to meet restoration targets, however likely at a large political cost. While previous studies have investigated the cost-efficiency of different forest protection schemes, the comparison of voluntary or enforced schemes in the context of forest restoration has received less attention.

We use a scenario-based forest simulation and optimization approach to evaluate the potential impacts of voluntary measures to address the restoration needs on a boreal landscape in Finland. These measures are compared to the case when restoration can be conducted in an economically efficient fashion. The results offer insights into how to structure forest restoration actions to meet the requirements of legislation while acknowledging the realities of private forest ownership.

**Keywords:** Conservation planning; forest management; EU regulations

## **Session B2**

### **Circular Economy and Consumer Behavior in Transition**

Thursday 7 May, 14:40-16:20

Room: Main building, C2

Session chair: Raakel Vuojolainen

## Domestic vs. imported food: How country of origin shapes perceived environmental impact and import attitudes

Dorothea Meyer, Achim Spiller, Sarah Iweala

*University of Göttingen*

Food systems are crucial to global sustainability transitions, linking ecological impacts with economic and social resilience. Although challenged by empirical evidence, public discourse continues to idealize domestic food and stigmatize imports as environmentally harmful. This study investigates how consumers evaluate the environmental impact of domestic, EU, and non-EU food products, using bell peppers, apples, and beef as representative categories. Based on an online survey (n = 998) conducted in Germany in September 2024 and analyzed with Partial Least Squares Structural Equation Modeling (PLS-SEM), the study examines how perceptions of value-chain stages, environmental dimensions, site conditions, and country images, as well as attitudinal orientations (environmental concern, ethnocentrism, and attitudes toward self-sufficiency and global trade) shape perceived environmental impact (PEI) and import evaluations.

Across all product categories, domestic products were rated as significantly more environmentally friendly than imported ones, even when site conditions abroad were perceived as favorable. For bell peppers and apples, ethnocentrism and self-sufficiency strongly influenced PEI, indicating heuristic, identity-driven evaluations. In contrast, beef evaluations were more factually grounded: environmental concern, rather than ethnocentrism, drove import attitudes. Non-EU imports (Morocco, Chile, Argentina) were consistently rated as most environmentally harmful, largely due to perceived transport impacts and negative country images, while EU products occupied an intermediate position. PEI and ethnocentrism emerged as the strongest predictors of import rejection, revealing how environmental reasoning and moralized localism intersect in shaping protectionist attitudes. Addressing such biases requires communication and policy strategies that emphasize life-cycle-based evaluations rather than geographic proximity to advance global sustainability goals.

**Keywords:** trade perceptions; consumer perception; environmental impact perception; ethnocentrism; food origin

## Reshaping Consumption Routines: A Longitudinal Study of Household Food Waste

Andrea Králiková, Lucie Veselá

*Mendel University in Brno*

Household food waste is a critical issue in contemporary production–consumption systems, where behavioral routines, market structures, and infrastructural conditions together lead to unsustainable outcomes. This study contributes to discussions on how economic and social systems can transition toward sustainability by examining a three-year longitudinal study targeting household food waste in Czechia. Waste audits from 600 households in various residential contexts were combined with a multifaceted behavioral intervention, including informational materials, nudges, social media engagement, and community-based outreach, to evaluate how consumption practices respond to targeted change efforts.

The findings show that interventions can temporarily reshape consumption routines, reducing food waste by 19.5% during the intervention year, especially in dense urban housing estates where social visibility and shared infrastructure increase normative pressure. However, these effects were difficult to sustain after interventions ended, highlighting structural lock-ins and persistent habits within consumption systems. Seasonal dynamics also influenced waste generation, with summer and autumn peaks reflecting systemic patterns in food availability, storage constraints, and cultural consumption patterns.

By situating household behavior within the broader political economy of food provisioning and waste, the study shows that individual-level interventions alone are insufficient for long-term transformation. Instead, sustained systemic change requires continuous reinforcement, integration with circular economy principles, and alignment with infrastructural and institutional conditions that shape everyday consumption. The results underscore the need for multi-scalar, context-sensitive strategies to reconfigure production–consumption systems toward sufficiency and sustainability.

**Keywords:** Food Waste, Household Food Waste, Behavioral Interventions, Household Consumption

## **Museology of waste: What a lump of grease found in the sewers can do when it's displayed in a museum?**

**Anna-Kaisa Koski**

*University of Jyväskylä*

Whitechapel Fatberg, a lump of grease and debris, was clogging the sewers of London's Whitechapel district. It was removed from the sewer and a piece of it was displayed at the Museum of London's exhibition "Fatberg!" in 2018. Building on a sociological understanding of waste this paper develops an idea of a museology of waste with a focus on unintended objects, the Fatberg as a case. I argue that exhibiting waste objects in museums can create understanding of the normalization and mundane-ification of destructive societal processes that are affecting our planetary living conditions.

Using the concept of an 'unintentional object' I describe the way people living in and visiting London accidentally co-created an object like the Whitechapel Fatberg by simply flushing things down the toilet. This originally 250-metre long, 130-tonne mass of oil and wet wipes also nested insect eggs, bacteria and toxic gases. The Fatberg case illuminates how exhibiting waste in museums can make tangible both environmental crises as well as people's role in creating them. Simultaneously the Fatberg case becomes an interesting metaphor for the Earth's atmosphere, yet the CO<sub>2</sub> the atmosphere has absorbed does not have an object form and is therefore difficult to perceive. The case study opens further questions on through which objects museums are able to collect and preserve the histories of environmental crisis.

**Keywords:** waste society, museology, museum objects

## **Circular, community-based approaches to waste management as grassroots green skills in the UK**

**Helen Holmes, Torik Holmes**

*University of Manchester*

This paper explores overlooked forms of collaborative waste disposal and management and reframes them as every day, circular green skills. It draws on an interdisciplinary study in the UK which investigated the barriers to household recycling. Using qualitative approaches we worked with 30 participant households of varying levels of deprivation to examine the minutiae of their everyday household disposal. This included semi-structured interviews, observations and a two-week trial of an additional bin to disrupt existing practices. The project revealed the care, attention and great lengths households will go to manage waste responsibly. It also illuminated the anxieties and inequalities everyday consumption and waste management can create. While the focus of global just waste transitions is justifiably on illuminating and challenging the catastrophic impacts waste colonialism is having on countries in the Global South, our paper illuminates that local level inequalities also exist in Global North countries. We contend that tackling these inequalities is important for a just global waste transition. In doing so, we demonstrate the numerous innovative and collaborative alternative routes of disposal that households use to be more materially aware and environmentally sustainable. Such activities challenge existing tropes of consumers as greedy, selfish and wasteful. Rather we reframe these community-based forms of waste management as everyday green skills. Green skills which move beyond the techno- and often capitalo-centric focus of policy-led green skills agendas and instead consider the importance of everyday knowledges, care and competence in the move to low-carbon forms of living.

**Keywords:** waste, green skills, just transition, circular economy

## Everyday activism in circular society: stories of collective transformation

Eerika Heinonen<sup>1</sup>, Sarah Walker<sup>2</sup>

<sup>1</sup>*Turku University of Applied Sciences*

<sup>2</sup>*Manchester Metropolitan University*

The social implications of circular economy (CE) are often vaguely defined or even ignored. Therefore, to better understand the outcomes of CE initiatives, we must examine the social aspects and impacts they generate. The motivation behind this research is to address the missing social, and to understand the difference place-based circular society innovations (CSI) make. The aim is to offer insight on the role such grassroots, community-driven initiatives take in advancing sustainable living locally.

We progress through a three-phased participatory research design, from the state of the art, through deep dives and into knowledge translation. We focus on building relationships with the stakeholders in each phase enabling communities and organisation to share their story and co-create pathways towards sustainability transformation. We highlight the lived experience of one CSI case in Turku, Finland and one in Greater Manchester, UK, and draw a picture of how such transformation is realised in place-based circular society.

Through recognising and applying circular society we address the missing social of circular economy and highlight the collective agency, creativity, and action behind sustainability transformation. People engaged in CSI are, based on our findings, passionate and driven individuals dedicating their time for a cause bigger than themselves. Their activism and co-creative practices exemplify how action is not only material but also social, cultural, and relational. By acting together, they build more sustainable living for themselves and future generations, finding both meaning and purpose in the process.

**Keywords:** circular society, activism, collective agency, collective transformation, social innovation

# Harnessing Technology Use Value for Pro-Environmental Behavior

Juuli Lumivalo

*University of Jyväskylä*

Digital technologies are widely promoted as enablers of sustainability transitions, yet many systems designed to foster pro-environmental behavior struggle to achieve sustained engagement. Carbon dashboards, eco-labels, and “green” defaults often rely on the assumption that providing information or nudges is sufficient, while neglecting what people actually value in technology use. This misalignment can limit impact or even trigger contrary effects. For instance, uniform social-comparison features in energy trackers have caused a boomerang effect, where low-consuming households increased their use. In this work, we introduce the concept of technology use value—the diverse, context-dependent benefits that users seek, and experience when engaging with digital technologies. Building on service and information systems research, we conceptualize technology use value as a multidimensional, emergent phenomenon that includes, but goes beyond, instrumental utility to encompass well-being, social belonging, ethical alignment, identity expression, and everyday ease. Empirically, our contribution is twofold. First, drawing on laddering interviews with users of digital sustainability services (n = 217), we derive a typology of technology use value that captures distinct value logics underpinning choices. Second, we outline the development of a corresponding measurement scale that can be applied across technologies and domains to diagnose the activated value dimensions in specific designs. Theoretically, this work reframes the link between digitalization and pro-environmental behavior as a question of value-in-use alignment rather than mere information provision. Practically, it offers a transferable tool for users, organizations, communities, and policymakers to design and evaluate systems that make sustainable choices genuinely valuable in people’s everyday lives.

**Keywords:** Digital sustainability, pro-environmental behavior, digital services, technology use value

## **Circular, safe and economically viable? Barriers to sustainable aquatic food production in Europe**

**Isabell Storsjö**

*Finnish Environment Institute*

Aquatic food is an important resource in the growing global demand for animal-based protein, offering valuable nutrients that are not available in other food sources. However, over-exploitation of marine populations and negative impacts of mariculture and fisheries highlight the need for transitioning to freshwater aquaculture and recirculating systems. Such a growth in the Blue Economy would be especially important for Europe, where freshwater aquaculture production has stagnated in recent years. There is a need to transform the European production of aquatic food into more circular, resilient and profitable systems. This talk will present the preliminary findings from a research project that aims to introduce circular economy solutions in aquaculture production systems. More specifically, the talk provides an overview of European-level policy instruments in the area of sustainable aquatic food production and the gaps that exist at the intersections of relevant policy areas (including the bioeconomy, food safety, and food self-sufficiency), and discusses implications for achieving sustainable, circular aquaculture in Europe.

**Keywords:** Circular economy, aquatic food, policy, bioeconomy, self-sufficiency

**Session B3**  
**Nature Connection**

Thursday 7 May, 14:40-16:20

Room: Main building, C4

Session chair: Linda Majander

## Nature needs eudaimonists, not hedonists

Joha Järekar, Nora Fagerholm, Salla Eilola

*University of Turku*

This study examines how nature supports eudaimonic wellbeing. Hedonia emphasizes immediate pleasure, whereas eudaimonia refers to a deeper form of wellbeing grounded in meaningfulness and value-aligned life. Drawing on Ryff's (1989) model of eudaimonic wellbeing—self-acceptance, autonomy, purpose in life, personal growth, positive relations, and environmental mastery—this research investigates how nature strengthens these dimensions. Findings from Public Participatory Mapping and creative writing workshops indicate that nature supports eudaimonic wellbeing for example by enabling more authentic connections to oneself and to others, including more-than-human beings.

Participants describe meaningful relationships with non-human species as vital sources of purpose and connection. These connections reposition humans within broader ecological networks and emphasize responsibilities that extend beyond immediate gratification. They also highlight the intrinsic value of nature and extend this recognition into human life, providing a wholesome—and often too rare—experience of feeling sufficient and inherently worthy.

The research outline ways a eudaimonic perspective can support responding to the ongoing ecological crisis. Eudaimonic values appear to strengthen motivation for environmental protection, broaden temporal and spatial understandings of responsibility, and align personal wellbeing with the flourishing of diverse species. This presentation argues that nature does not need hedonists but eudaimonists, and that prioritizing eudaimonic values constitutes a necessary cultural shift.

**Keywords:** eudaimonic well-being, nature, more-than-human, cultural shift, human geography

## Multispecies biodiversity actor network and relations from the perspective of Finnish farmers and farm advisors

Tiia Malka, Toni Rynänen, Traci Birge

*Ruralia Institute, University of Helsinki*

Agriculture and food production are partly contributing to biodiversity loss. Farmers are in a key position in preventing the loss of species on farmlands. However, several factors, such as climate change and the political landscape, create pressures that challenge farmers' possibilities to manage and increase biodiversity. The aim of our research is to identify how farmers and farm advisors perceive biodiversity, multispecies actors, and their relations in the multispecies biodiversity actor network.

We apply actor-network theory to understand various multispecies relations that describe complex interrelations between different actors at the farm level. The analyzed relations were discussed in five semi-structured focus group interviews (n = 21) with Finnish farmers and farm advisors in 2023. The focus groups contained discussions related to the themes of biodiversity, biodiversity challenges, and novel biodiversity monitoring technologies. Qualitative thematic analysis was used to code transcribed data segments, which were categorized and grouped into themes that describe relations within the multispecies biodiversity actor network.

The preliminary results indicate that the identified relations are often divided between restrictive and supportive relations between actors, while some relations were considered missing. This study advances the understanding of perceived complex multispecies interrelations at the farm level, which should be considered in future policy designs to advance biodiversity conservation. We apply the concept of a multispecies biodiversity actor network as an extension of classical actor-network theory. The findings of this study give voice to non-human species through farmers' and farm advisors' observations and experiences.

**Keywords:** actor-network theory, multispecies biodiversity actor network, biodiversity, biodiversity perceptions

## Act with Nature (AWN): A Nature-Based Intervention to Promote Planetary Well-Being – A Randomised Controlled Trial

Jane-Veera Paakkolanvaara<sup>1,2</sup>, Katariina Hyvönen<sup>2</sup>, Kirsi Salonen<sup>1</sup>, Julija Chichaeva<sup>2,3</sup>, Sampsa Puttonen<sup>1</sup>

<sup>1</sup>*Tampere University*

<sup>2</sup>*Jyväskylä University of Applied Sciences*

<sup>3</sup>*Jyväskylä University*

The accelerating environmental crises demand innovative approaches that support both human and planetary well-being. Act with Nature (AWN) is a structured, nature-based intervention designed to enhance pro-environmental behaviour (PEB) and individual well-being through experiential, emotionally engaging practices in natural environments.

This randomised controlled trial was conducted in Finland with 188 working-age adult participants (94 intervention, 94 control). The 12-week programme consisted of guided nature-based exercises, reflective tasks, and online materials, implemented through two delivery modes: weekly group meetings and flexible, more independent participation with only three joint meetings and self-paced audio exercises in an online environment. Validated measures were used to assess outcomes: self-reported PEB (in preparation Salonen et al., 2025), the Short Warwick–Edinburgh Mental Well-being Scale (SWEMWBS) for psychological well-being, and RAND-9 for health-related quality of life. Data were analysed using linear mixed-effects models.

Both intervention formats significantly increased PEB compared to the control group ( $p = 0.015$ ). Mental well-being improved significantly more in the weekly group ( $p = 0.02$ ), while no significant differences were observed in overall psychological well-being.

The findings indicate that structured, nature-based interventions can effectively foster pro-environmental behaviour and enhance mental well-being, particularly when participation is regular and socially supported. AWN demonstrates how strengthening human–nature connection through experiential learning and emotional engagement can serve as a pathway toward sustainable behaviour change and planetary well-being.

**Keywords:** Planetary Well-Being, Nature Connectedness, Pro-Environmental Behaviour, Nature-Based Intervention

# Nature-Based Interventions for Pro-Environmental Behaviour and Well-Being: A Scoping Review

Julija Chichaeva<sup>1,2</sup>, Bethany Harries<sup>3</sup>, Eleanor Ratcliffe<sup>3</sup>, Kalevi Korpela<sup>4</sup>, Kirsi Salonen<sup>4</sup>, Jane-Veera Paakkolanvaara<sup>1,4</sup>, Katriina Hyvönen<sup>1</sup>, Sampsa Puttonen<sup>4</sup>

<sup>1</sup>*JAMK University of Applied Sciences*

<sup>2</sup>*University of Jyväskylä*

<sup>3</sup>*University of Surrey*

<sup>4</sup>*Tampere University*

Nature-based interventions have the potential to enhance pro-environmental behaviour and well-being. As global attention to sustainability grows, it is crucial to understand how these interventions affect behaviour and health. This review systematically maps existing literature on nature-based interventions that promote both pro-environmental behaviour and well-being/health. The objectives are to: (1) identify types of nature-based interventions addressing both pro-environmental behaviour and well-being/health; (2) describe and synthesise their outcomes, measures, and results; and (3) identify behaviour change mechanisms underlying successful interventions.

The review followed the JBI Manual for Evidence Synthesis and the PRISMA Extension for Scoping Reviews checklist. The protocol was registered in OSF Registries (<https://doi.org/10.17605/OSF.IO/JAENX>). Eligible studies included those involving general populations, working-age adults, or students, with interventions conducted in natural environments or using nature simulations (e.g., virtual reality). The nature-based interventions were required to address both pro-environmental behaviour and well-being/health outcomes. Both qualitative and quantitative evidence, including experimental, observational, and grey literature published within the last decade, were synthesised.

A comprehensive search was conducted in February 2025 across six databases: Medline (Ebsco), CINAHL (Ebsco), APA PsycInfo (Ebsco), APA PsycArticles (Ebsco), and Web of Science. Screening was performed independently by two researchers and data extraction by one researcher. Data is analysed using descriptive qualitative content analysis and basic coding to classify interventions, strategies, and behaviours. The presentation will share preliminary results of the review. Findings can inform the design of interventions and policies that foster planetary well-being through synergistic benefits for people and nature.

**Keywords:** nature-based intervention, pro-environmental behaviour, psychological well-being, planetary well-being

## The Emergence of Life-Centred Systems

Raisa Uljas

*Aquarian Avatar*

We are moving into a time when true leadership is measured not by ideology or technique, but by coherence with life itself. We need to make systemic changes in ourselves as well as in our communities and in our societies nationally and globally. The necessary new, life-centred systems in service to planetary well-being will manifest organically as we integrate levels of individual, collective, and planetary consciousness individually, in groups and between groups.

This pilot study examines how dance-movement therapy (DMT) can support that process through the integration of unconscious parts of the psyche both individually, collectively and globally. What are the current Shadows on each level of consciousness and in different areas of society, and how can we work our way through a conflict consciously and find de-polarised harmony that is unity expressing itself through diversity in an embodied way?

This qualitative, phenomenological study integrates Jungian psychology, polyvagal and attachment theory and the theory of structural dissociation of personality to DMT methods. During a 5-day retreat we examined the relationship to ancestors, to land and nature, to archetypes (Masculine, Feminine, Animal and Soul) and to power, sex and money. The themes were explored on an individual, collective and planetary level. The participants were able to see how the individual and group processes are linked to their well-being and to that of nature. Connection to nature opens a pathway to organic unfoldment of questions and answers. The findings hint at the components needed in new, life-centred systems.

**Keywords:** life-centred systems, depolarisation, leadership, nature, dance-movement therapy

## **Sag mir, wo die Blumen sind? Plants, Soil, and the Material Grounds of Adaptation Among Ukrainian Refugees in Finland**

**Elena Bogdanova, Elena Nikiforova**

*Aleksanteri Institute of Helsinki University*

This presentation stems from the project *Sensing as a Refugee: Vulnerable Bodies on the Move* (Kone Foundation, 2023–2026), which examines how displaced individuals with chronic illnesses from Ukraine make sense of new environments in Finland. Drawing on phenomenology of the body and sensory anthropology, we explore how embodied and material engagements shape processes of adaptation. The study is based on over 40 semi-structured interviews conducted in 2023–2024 with displaced individuals and professionals facilitating access to healthcare services.

Across our interviews, plants and soil emerge as significant companions in everyday life. Participants compare Finnish vegetation with the landscapes they left behind, describing differences in colors, smells, textures, and seasonal rhythms. Many cultivate plants—houseplants, balcony flowers, small vegetable plots—using seeds purchased locally or sent from Ukraine, thereby sustaining familiar routines and creating transnational horticultural ties. Healing plants, gathered in Finland or mailed from home, preserve cultural medical practices and offer sensory continuity amid healthcare uncertainty. Soil becomes a material link between past and present. Its textures and scents evoke memories of Ukrainian chernozem, village gardens, and agricultural traditions. Working with soil—repotting plants, tending small gardens, participating in community projects—helps individuals “ground” themselves physically and emotionally, fostering attachment to new places and facilitating social connections.

We argue that plants and soil function as material anchors of adaptation, mediating connections to people, environments, memories, and future hopes. This work contributes to research on migration, ecological belonging, and the role of multisensory practices in refugee well-being.

**Keywords:** Refugees, Human-plants relations, Soil, Adaptation, Well-being

## **Envisioning human-nature relationships in the Wadden: an embodied, arts-based approach for exploring relational, more-than-human futures**

**Jay Marisca Gietzelt**

*Wageningen University*

Despite increasing attention to sustainability transformations, most futures research remains anthropocentric, emphasizing socio-technical change without adequately accounting for human-nature relationships. Yet transformative approaches require imagining alternative futures that center multispecies relations and reveal the embodied, place-based, and relational dimensions of human and nonhuman interactions. This paper explores how people envision human-nature relationships in the Wadden region of the Northern Netherlands, using an embodied, arts-based approach. We conducted 20 in-depth interviews extended with photo-elicitation and embodied walking interviews, engaging diverse stakeholders including fishers, farmers, and artists. Participants envisioned transformations across economic, food, infrastructure, and governance systems, with socio-cultural practices playing a key role. Two contrasting modes of engagement with nature emerged: participants critiqued past and present control-oriented approaches and instead imagined futures based on coexistence with nature. The Wadden itself was recognized as an active agent shaping possibilities for human-nature relationships and sustainable futures, demonstrating how ecological dynamics guide both everyday practices and visions of the future. We argue that futures are relational and more-than-human, shaped by human and more-than-human agency, and that embodied, arts-based methods can reveal these complex relations. This research illustrates the importance of multispecies perspectives in imagining, governing, and transforming towards sustainable futures.

**Keywords:** visioning, relational futures, more-than-human futures, arts-based research, sustainability transformations

## **Session B4**

### **Approaches to Biodiversity Conservation**

Thursday 7 May, 14:40-16:20

Room: Seminarium, S212

Session chair: Kaisa Mustajärvi

## Frames and paradigm shifts of biodiversity conservation for transformation

Anni Arponen<sup>1</sup>, Suvielise Nurmi<sup>2</sup>, Lauri Lahikainen<sup>1,3</sup>, Anna Salomaa<sup>4</sup>, Annukka Vainio<sup>5</sup>

<sup>1</sup>*University of Turku*

<sup>2</sup>*Aarhus University*

<sup>3</sup>*Tampere University*

<sup>4</sup>*LUT University*

<sup>5</sup>*University of Helsinki*

With increasing calls for transformative change, the conceptual framings or paradigms of biodiversity conservation have become a target of analysis in conservation science.

Recent developments around conservation research reflect three discussions that are deeply interconnected but usually addressed separately: (1) the frames or paradigms of biodiversity conservation, including examination of how the framing has changed and what would be the most effective and/or comprehensive approach, (2) the need for transformative change, often inspired by the leverage points theory, and (3) relationality as a pathway toward transformation, particularly the relationality of values, participatory agency, and different types of knowledge, especially local and indigenous knowledges, remembering the foundations of ecology as a science of relations.

We review the most commonly cited types of paradigms of biodiversity conservation and analyse the current metaparadigm they express. We argue that despite the differences in categorising conceptual frameworks, the common pattern of discussion depicts a metaparadigm worth examining in the light of its philosophical and practical prospect. We use the concepts of relationality, agency, and pluralism as tools in our analysis, and explore relations of conservation paradigms with economic paradigms and human flourishing. We seek to identify a shared understanding of favorable paradigm shifts and to construct a model of the metaparadigm to address the prospects of diverse framings.

We contend that these discussions collectively constitute a metaparadigm of the current discourse on biodiversity conservation, as depicted in the general features of the proposed ways of framing biodiversity conservation, although precise differences between conceptualisations exist.

**Keywords:** agency, economic paradigms, framing, pluralism, relationality

## Nature irreplaceability as a systematic basis for network level conservation decisions

Santtu Kareksela

*Parks & Wildlife Finland (Metsähallitus)*

It is imperative that we allocate the limited nature conservation resources cost-effectively. It is also important that common systematic approaches are used to define and apply ecological effectiveness. Both the need and the opportunity for considering ecological effectiveness systematically is especially high on decision-making processes for large-scale protected area networks. Here we introduce a real-life systematic conservation planning approach for network level prioritization based on nature irreplaceability. We show how it is applied in Parks & Wildlife Finland for a whole PA network level administration and management. In the approach we utilize detailed habitat mapping data and red list species data to analyze (Zonation) nature irreplaceability across circa 6 million hectares PA network. As a result, we can define the relative conservation importance of different parts of the network at a very high detail spatial resolution. The results are applied for several conservation processes at different decision-making levels through strategical triage decisions to operative tools for single PA level planning and management. We demonstrate the benefits of applying same systematic base analysis through several PA network level processes such as spatial restoration prioritization, land use management, and adapting to pressures such as climate change.

**Keywords:** Conservation decision-making, nature irreplaceability, systematic conservation planning

## Situated Biodiversity and Multispecies Cohabitation in Urban Spaces

Satu-Emilia Myllymäki

*University of Jyväskylä*

The way we understand biodiversity does matter. Biodiversity assessments have become central to urban land-use and environmental policy, reflecting a growing recognition that urban expansion does not necessarily preclude ecological integrity. One strategic approach involves enhancing biodiversity within existing protected areas while also reinforcing the ecological value of other green spaces vulnerable to development. The underlying principle is that selective land use and targeted ecological interventions can help cities mitigate the negative impacts of urbanisation and sustain biodiversity. This dual strategy aims not only to preserve ecological functions but also to improve the quality and resilience of urban green infrastructure (Suomen ympäristökeskus 2025). Less emphasis has been paid to the practical conditions required in such decision-making processes.

In this presentation, I will elaborate this argument, not as an established fact, but as an analytical reference point through which to explore the ethical dimensions involved in the construction of such conservation approaches. By situating the discussion at the crossroads of environmental humanities and environmental philosophy, my work advocates for the concept of the more-than-human landscape (Tsing 2015) as a valuable lens to emphasise the material and situated nature of shared spaces. Biodiversity in the city cannot be reduced to numerical assessments of species diversity and variability alone. A qualitative approach to biodiversity instead provides a platform to critically explore the complexities of more-than-human flourishing. The approach calls for attentiveness, learning to notice and engage with 'others' in ways that foster better conditions for multispecies cohabitation (van Dooren et al. 2016).

**Keywords:** Urban biodiversity, more-than-human landscape, cohabitation, environmental humanities

## From transformative pledges to policy realities: Knowledge co-production in Finland's Biodiversity strategy preparation

Sonja Nielsen<sup>1,2</sup>, Jani Lukkarinen<sup>3</sup>

<sup>1</sup>*Aalto University*

<sup>2</sup>*Lund University*

<sup>3</sup>*Finnish Environment Institute*

Biodiversity loss continues to accelerate despite expanding governance efforts and international commitments. Knowledge co-production among diverse actors is promoted as a means to generate knowledge that can challenge existing problem framings and guide transformative action by integrating diverse knowledge systems into decision-making processes. However, the connections between co-production and institutionalised policy processes remain underexplored.

We approach knowledge co-production through a policy process perspective to provide a more structured understanding of how co-production interacts with formal decision-making. Empirically, we investigate the preparation process of Finland's post-2020 National Biodiversity Strategy and Action Plan. Following IPBES's calls for transformative knowledge, the process included several elements of knowledge co-production and participatory engagement. Drawing on interviews with public officials, organisers, and participants, as well as document analysis, we examine how expectations and motivations regarding co-production emerged and evolved before and during the formal policy process, and whether tensions arose between institutional practices and transformative ambitions of co-production. A processual approach enables an examination of how the relationship between co-production and conventional policy making unfolds in a changing policy landscape.

Our findings indicate that co-production interventions can generate transformative knowledge and novel networks. However, the outputs are substantially reshaped when they encounter conventional policy processes bound by institutionalised practices and established actor relations. Although co-produced knowledge can reframe policy agendas, long-standing controversies remain central in shaping the process. Ultimately, the relationship between co-production interventions and institutional and legislative dynamics plays a decisive role in determining how sustainability transformations are articulated and taken up in policy preparation.

**Keywords:** environmental governance, knowledge co-production, transformative governance, policy process, biodiversity policy

## Envisioning multispecies futures

Satu Aavanranta<sup>1</sup>, Christopher Raymond<sup>1</sup>, Josephine Gillespie<sup>2</sup>, Teea Kortetmäki<sup>3</sup>

<sup>1</sup>*University of Helsinki*

<sup>2</sup>*University of Sydney*

<sup>3</sup>*University of Jyväskylä*

### Multispecies Tampere 2050 intervention

Ambitious global biodiversity targets demand effective envisioning practices for nature restoration, yet current efforts in policymaking and transformation design remain fragmented, missing a crucial opportunity for sustainability transformation. We developed an integrative framework that combines regulatory feasibility with transformative ambition to guide restoration envisioning. Building on this work, we designed and tested an intervention with 31 participants (city council and board members, and civil servants working on environment, biodiversity, or sustainable development) using an audiovisual dome theatre, storytelling, imagination, embodiment, and group conversation grounded in multispecies justice. The intervention co-produced futures knowledge; the visions more thoughtfully addressed nonhuman needs and included paradigm-shifting elements. Participants noted that imagining futures is difficult, but the setting and methods helped shift from analytical, data-based thinking toward sensorial, embodied, relational, and emotive modes. We propose an integrative framework to strengthen transformative envisioning for nature restoration.

**Keywords:** envisioning, multispecies futures, policymaking, coexistence

## **Session B5**

### **Sustainability Education for Nature-Positive Futures**

Thursday 7 May, 14:40-16:20

Room: Main building, C5

Session chair: Saara Vauramo

## Planetary good life as an aim of education

Hannu L. T. Heikkinen<sup>1</sup>, Raili Keränen-Pantsu<sup>2</sup>, Essi Ikonen<sup>3</sup>, Rauno Huttunen<sup>4</sup>

<sup>1</sup>*University of Jyväskylä*

<sup>2</sup>*Tampere University*

<sup>3</sup>*University of Helsinki*

<sup>4</sup>*University of Turku*

This presentation examines the theoretical foundations of the concept of the planetary good life as an aim of education. The concept of “planetary” has been used quite extensively recently, for example across recent discussions of “planetary Bildung”, “planetary well-being,” “planetary youth research,” and “planetary social pedagogy”, some to mention. The concept of planetary good life seems also to be closely related to the concept of flourishing which has particular gained momentum as the OECD tries to shift its focus from human capital theory toward human flourishing as the aim of education. In terms of the history of ideas, however, both the concepts of “flourishing” and “good life” can be understood as translations of Aristotle's concept of the “eudaimonia”. For this reason, we build our ideas of planetary good life on virtual-ethical base with influences on present-day post-anthropocentric approaches.

Building on this lineage, the presentation develops the concept of the planetary good life through a synthesis of (neo-)Aristotelian virtue ethics, posthumanist and deep ecological thinking, and the framework of planetary boundaries. This integrated transdisciplinary approach challenges anthropocentric assumptions and expands the sphere of moral concern from humans to the wider community of life. It argues that living a good life in a sustainable way requires a profound transformation of worldviews.

By articulating these theoretical starting points, the presentation contributes to ongoing discussions on sustainability transformations and highlights how the planetary good life can serve as a guiding concept for reimagining human-nature relations.

**Keywords:** eudaimonia, good life, flourishing, planetary

## **Experimenting transformative higher education pedagogies to promote planetary citizenship: Co-creation of a course on education for global sustainability**

Tiina Kontinen<sup>1</sup>, Heidi Layne<sup>1</sup>, Nyamwaya Munthali<sup>2</sup>, Ben Souza<sup>3</sup>

<sup>1</sup>*University of Jyväskylä, Finland*

<sup>2</sup>*University of Zambia, Zambia*

<sup>3</sup>*Rhodes University, South Africa*

Learning about sustainability is proposed to be transformative UNESCO (2017). However, definitions of and approaches to transformative learning and pedagogies vary from those focusing on individuals' meaning horizons to addressing global power relations. Thus, it is manifested differently in actual practices within multiple learning spaces. This paper asks how diverse approaches to transformative pedagogies could work for a Master-level university course to promote planetary citizenship, encompassing sustainability across global North-South divisions, in ways that go beyond traditional knowledge dissemination and promote joint action among students. The paper demonstrates how a 'community of inquiry' of university teachers, two from Finnish and two from African universities experiments complementary approaches, such as decolonial, feminist and expansive pedagogies and co-creates a feasible approach. First, the paper investigates diverse angles these approaches articulate to inspire learning to act for sustainability and planetary justice. Second, it describes joint design of a course to be implemented in collaborating universities. Third, it critically reflects the ways in which the designed course contributes to transformative learning of the students in a pilot course of 'Education for global sustainable education', offered for students in the two English medium programs (EDUMA and DEICO). The systematic analysis of a pilot course contributes to broader reflection of opportunities and challenges that transformative pedagogies have in higher education. The paper will be developed during the visit of two JYU Fellows from African universities in March-April 2026, hosted by the cross-faculty research group on 'Critical approaches on sustainability, global education, and development' (CritED).

**Keywords:** transformative pedagogy; planetary citizenship; global South; higher education

## The Engaged University Approach for Sustainability Transformation: A Case Study from Cyprus

Angelina Korsunova<sup>1</sup>, Alin Semenescu<sup>2</sup>, Susanna Horn<sup>3</sup>, Piia Lundberg<sup>1</sup>

<sup>1</sup>*University of Helsinki*

<sup>2</sup>*West University of Timisoara*

<sup>3</sup>*Finnish Environment Institute*

Although policymakers and companies place high hopes on circular economy (CE) supporting sustainability transformation, scholars in the field observe that citizens are still hesitant to embrace circularity in practice. The socio-economic complexity and local contexts play a significant role in framing the implementation of circular practices. Also policymakers recognize that in the context of CE, it is important to engage all stakeholders in a way that creates a sense of ownership towards circularity. In this regard, educational institutions play a vital role in transforming societal attitudes. Besides formal education, universities may choose to implement the engaged university approach, developing the interface of collaboration between higher educational institutions, industry and the government to scale the impact of universities on the local communities. Previously, it has been shown that engaged research facilitates societal acceptance and creates environmental knowledge relevant for policymakers. Our research is a case study of a university in Cyprus and the reasons for disengagement with circularity and climate issues among students. The study is based on small explorative survey, semi-structured interviews and a co-creation workshop conducted in the case university in Cyprus. Drawing on social practice theory and engaged university approach, we reflect on the embeddedness of formal education on CE and climate issues in social practices of the educational institution and its infrastructures. We argue that promoting sustainability transformation by universities requires aligning all: educational content with methods of education, but also with infrastructure in universities that shapes everyday practices of students and staff.

**Keywords:** engaged university, circular economy, social practice theory, nature-based learning

## **Transformative education in Nature Based Solutions (NBS) and biodiversity – approaches of eNaBIS EU/Horizon project and UEF Living Lab**

**Elina Oksanen, Oskari Ylikoski, Tiina Ynnilä**

*University of Eastern Finland*

Challenges on climate change and biodiversity loss require transformative education on Nature-Based Solutions (NBS) and Biodiversity (BD). In this presentation we show examples of transformative education pathways from basic courses to practical training and action developed at UEF Living Lab (LL) of the eNaBIS EU/Horizon project. eNaBIS LLs are arenas for learning and transformation, fostering practice-oriented, collaborative learning between science and society and systems thinking, and strengthening competencies for sustainable lifestyles and the green labour market. Multi-, inter- and transdisciplinary education is essential for improving our understanding about interlinkages between climate change, biodiversity, water and food security and health and for identifying opportunities for collaboration across sectors and scales, contributing to synergistic and holistic management, coherent and coordinated decision-making and governance. At UEF, we have co-created multidisciplinary online/hybrid courses on NBS and BD for fostering nature-positive thinking and problem-solving capacity. While basic courses are necessary for understanding principles and theory, problem-based hands-on training is important for motivation and co-learning. Sound scientific basis for the multi- and interdisciplinary courses can be achieved only by intensive cooperation of teachers, researchers and stakeholders with different professional backgrounds and field of science. For example, combining expertise from biology, environmental science, economy, societal science, policy, engineering, land-use change and health has potential to produce attractive courses for the students coming from different study disciplines. Besides the research skills, exposure to real research environments and local problems foster innovative thinking and problem-solving capacity of the students and young researchers.

**Keywords:** biodiversity, nature based solution, education

## Sustainability skills - environmental adult education in the time of ecological reconstruction

Elias Pielikko

*University of Jyväskylä*

Education is one way of pursuing changes in unsustainable ways of thinking and acting. In addition to the education of children and young people in sustainability issues, we should also think about the education of adults. My research asks how the growing mass of sustainability knowledge could be transformed into sustainability action via education – and whether we have the skills sustainability actions presuppose.

In my presentation, I will introduce a qualitative synthesis on sustainability skills in environmental adult education (EAE). The synthesis is based on two main themes: ecological reconstruction and citizenship education. Five auxiliary themes emerge in the process: spheres of transformation and systemic thinking with leverage points as the two main societal themes structuring ecological reconstruction, and planetary citizenship, value-action gap combined with skills and competences, and postcolonial critiques of knowledge as the three themes informing citizenship education. As a result of the synthesis, a set of five sustainability skills for EAE in the time of ecological reconstruction is proposed.

The set of skills offers a new way of looking at the causes and solutions of sustainability issues: perhaps they do not arise only from a lack of information, but also from a lack of skills suitable for a post-fossil world. The research contributes to the practical aims of ecological reconstruction and sustainability transformations, supports the study of EAE in Finland, and strives to find ways to turn knowledge into action.

**Keywords:** environmental adult education, ecological reconstruction, citizenship education, sustainability skills

## Workshop B6

### Envisioning planetary inclusion

Room: Outdoors or Paja (I)

**Silja Holma**, Veera Korhonen

*University of Eastern Finland*

This workshop invites us to explore our planetary connections through the lens of planetary inclusion. We will reflect on our experiences using experiential and dialogical approaches. The workshop will contribute to research aimed at developing both the theoretical foundations and measurement of planetary inclusion.

The workshop takes place outdoors, beginning with a short walk to a nearby garden or forest. Participants engage in a 10-minute presence exercise. This embodied experience sets the stage for a future-oriented perspective on planetary well-being and inclusion. The workshop emphasizes active participation, enabling participants to contribute to shaping what planetary inclusion means in practice.

Working in small groups (3–4 people), three selected statements from the planetary inclusion indicator are reflected. Each statement is introduced one at a time, inviting participants to imagine a situation where the statement is true for them and to describe the feelings, thoughts, ways of being, and actions that emerge from this experience. Each dialogue around the statements lasts approximately 15 minutes, fostering deep reflection and co-creation of knowledge. The workshop concludes with a collective discussion and a closing presence exercise.

By taking part in the workshop, adult participants provide informed consent to participate in the research. Dialogues will be audio-recorded for later transcription and analysis as part of two doctoral research. For the beginning, participants are also informed that participation is entirely voluntary, and participants may withdraw at any time. Names are not collected, and recordings will be pseudonymized.

Preparation of the workshop respects the principles outlined in the Planetary Teaching and Learning Workbook (2025), ensuring inclusive and transformative methods. By combining nature-based practices with dialogical methods, the session aims to advance understanding of planetary inclusion that align flourishing coexistence within ecological limits.

**Keywords:** planetary inclusion, interconnectedness, experimental, dialogue, coexistence

## Workshop B7

### Legal Designing Sustainability

Room: Seminarium, S204

Sade Mäntylä<sup>1</sup>, Nina Toivonen<sup>2</sup>, Sampo Mielityinen<sup>3</sup>, Seita Vesa<sup>4</sup>, Ebru Metin<sup>5</sup>

<sup>1</sup>*Faculty of Law, University of Helsinki*

<sup>2</sup>*University of Helsinki*

<sup>3</sup>*Laurea University of Applied Sciences*

<sup>4</sup>*University of Eastern Finland*

<sup>5</sup>*Tallinn University of Technology*

What role does law play in designing socially, ecologically and economically sustainable systems? While the need for a sustainability transformation in different societal spheres is evident, the central role of law in governing the possibilities for designing solutions remains hidden. Yet, it is the law that sets the framework for which solutions are possible: who designs them, for whom, and for what purpose.

Against this background, the workshop introduces legal design as practical, action-based and participatory method for sustainability transformations that can be applied in different spaces and levels of governance. The goal of the workshop is to equip participants with tools to enhance sustainability in different, local and contextual situations, and to understand the role of law in upholding societal structures that either enhance or undermine sustainability.

The workshop starts with a concise introduction to legal design as an emerging, creative and transdisciplinary field that applies the principles of design thinking, and its methods and tools in law. By drawing on their research in more-than-human approaches to multispecies justice, the inclusion of Indigenous worldviews in economic development, vulnerabilities in the governance of critical raw minerals, designing meaningful stakeholder engagement in human rights due diligence, and creating innovative legal education for sustainability, the convenors show how legal design can offer a framework to co-create contextual and situated sustainability and democratize law.

In the workshop part, the participants will apply design thinking methods and tools in groups to ideate solutions for just, inclusive, community-based sustainability transitions in a particular context. The workshop concludes with discussion and debriefing.

The workshop language is English. No previous experience of legal design, law or design is needed.

**Keywords:** legal design, just sustainability, inclusion, systemic design

**Session C1**  
**Transformations in Forest Systems**

Friday 8 May, 9:00-10:20

Room: Main building, C1

Session chair: Liia Raippalinna

## **ABM for sustainability transformations in a forest social–ecological system**

**Jaakko Litmanen**<sup>1</sup>, Raakel Vuojolainen<sup>1</sup>, George Perry<sup>2</sup>, Caroline Schill<sup>3</sup>, Johanna Yletyinen<sup>1</sup>

<sup>1</sup>*University of Jyväskylä*

<sup>2</sup>*University of Auckland*

<sup>3</sup>*Stockholm Resilience Centre*

Why do sustainability transitions sometimes fail, and how might we steer them back on course? Answering these questions demands tools that can capture the dynamic interactions between people and ecosystems. This presentation describes an agent-based modeling (ABM) approach for exploring sustainability transitions in forest social–ecological systems. The model examines how forest owners, institutions, and ecological processes interact during a transition in progress, and how these interactions can generate unexpected social and environmental consequences. Investigating the diverse outcomes of pursuing sustainability, this work contributes to the latest debate about designing sustainability transformations that are not only effective but also just, robust, and sensitive to local contexts.

**Keywords:** sustainability transitions, social–ecological systems, agent-based modeling, forest systems, transition outcomes

## Leveraging strong sustainability across the Finnish forest sector

Kaisa J. Raatikainen<sup>1,2</sup>, Claudia Kovács<sup>3</sup>, Rémi Duflot<sup>2</sup>, Jelena Salmi<sup>2</sup>, Tuomo Takala<sup>4</sup>, Anna Repo<sup>5</sup>, Johanna Yletyinen<sup>2</sup>, Teppo Hujala<sup>4</sup>

<sup>1</sup>*Finnish Environment Institute*

<sup>2</sup>*University of Jyväskylä*

<sup>3</sup>*Aalto University*

<sup>4</sup>*University of Eastern Finland*

<sup>5</sup>*Natural Resources Institute Finland*

This presentation outlines systemic features to navigate the Finnish forest use towards a sustainable state that respects both social and ecological limits. We identify key leverage points in the forest use system, i.e., places of intervention which, when targeted, can bring about transformative change. We combine social-ecological systems theory with relational analysis to investigate interconnected leverage points across social and spatial scales. We discuss how such cross-scale linkages drive social-ecological system dynamics and form paths through which the sustainability transformation can take place across the forest sector in Finland. These paths lean towards, but are not restricted to, three systemic realms that are crucial for forest use: economy, governance, and culture and practices. The findings are based on a qualitative synthesis of multidisciplinary expertise held by a broader group of researchers, and the co-creation methodology and phases of the iterative inductive-deductive reasoning are outlined. This work advances the newly re-emerged Leverage Points framework by demonstrating the interactions between multiple system elements across governance levels. Recent work has introduced the importance of so-called “chains of leverage” in mediating systemic change. Taking this idea further, we argue that the interdependencies between the leverage points profoundly impact the potential to achieve transformative change. For example, stand-alone interventions targeting powerful leverage points fail to deliver the desired outcomes if they are constrained by other leverage points. We demonstrate this phenomenon by examining systemic lock-ins and suggesting a coherent set of interventions to achieve sustainable forest use in Finland.

**Keywords:** forestry, human-nature relations, sustainability transition, complex systems

## **Practice theory beyond the human: sustainability transition in forest management in Finland**

Jelena Salmi, **Sirpa Tenhunen**

*University of Jyväskylä*

By highlighting the material aspect of practices, the so-called second wave of practice theory has provided a crucial lens for understanding sustainability transitions in many fields of everyday environmental practice. In this article, we apply practice theory to analyse forest management practices in Finland. Although the Forest Act 2014 increased forest owners' autonomy and, in principle, enabled practices more compatible with biodiversity protection, clear-cut forestry continues to dominate forest management in Finland. We use practice theory to understand why old practices prevail and to identify leverage points for change. We also develop practice theory further by incorporating human-nonhuman relations into the analysis of forest management. While the second wave of practice theory acknowledges the materiality of practices, it has overlooked human-nonhuman interactions, including how these are mediated through affects. The paper is based on ethnographic research by the authors as part of the STN project on the sustainability transition of the forest sector in Finland.

**Keywords:** forestry, practice theory, sustainability transition

# Heterogeneity in Stakeholder Expectations on Ecological Responsibility of the Finnish Forest Industry

Maria Nyström<sup>1</sup>, Anne Toppinen<sup>1</sup>, Eric Hansen<sup>2</sup>, Hannes Pasanen<sup>3</sup>

<sup>1</sup>*University of Helsinki*

<sup>2</sup>*Oregon State University*

<sup>3</sup>*University of Eastern Finland*

Environmental responsibility has become a central focus of stakeholder expectations across various industries. In the forest industry, a key aspect of this is the impact of forest management practices on ecosystems and biodiversity, which can be referred to as ecological responsibility. This is particularly relevant given the industry's dependence on natural resources and its significant effects on forest ecosystems.

In this study, we apply stakeholder theory to examine the views and experiences of key stakeholders, such as research institutes, environmental authorities, NGOs, certification bodies, subcontractors and forest owners, on the ecological responsibility of forest industry companies. The qualitative data and thematic analysis are based on interviews that explore how professionals perceive forestry and forest biodiversity, the role and responsibilities of companies in wood procurement, and how stakeholders are considered in corporate responsibility related to forest ecosystems.

We expect that, although regulatory compliance and forest management certification frameworks have contributed to improving ecological sustainability in forestry, they may still be perceived as falling short of fully addressing biodiversity challenges. We also expect that stakeholders hold diverse perspectives yet increasingly agree that forest industry companies should place greater emphasis on ecological considerations. Our results will contribute to the understanding of corporate ecological responsibility by highlighting the role of evolving societal values and the need for companies to proactively adapt their sustainability strategies.

**Keywords:** Corporate responsibility, Sustainability strategies, Forest industry, Biodiversity, Stakeholders

## **Biased understandings of the others on forest sustainability**

**Annukka Näyhä**

*Jyväskylä University School of Business and Economics*

Sustaining biodiversity of the Finnish forests is one of the most urgent and debated sustainability challenges of the Finnish society. Diverse societal actors have divergent views on the current ecological state of the forests and their needs and means to contribute to the issue are varied. Perspectives of silent human and non-human actors are not given enough consideration. This means that joint understandings and goals - which would be basis for value co-creation promoting different sustainability perspectives equally, including biological diversity in forests, have not been attained. The study approaches the problem by asking what the root causes for this dilemma are, can diverse forest-related actors solve problems, and how it could be done in collaboration. This transdisciplinary study applies theoretical perspectives from sustainable business management, transition and future studies and social and natural sciences. The data for the study is composed of 69 semi-structured interviews done among forest-based companies and their interest organizations, policymakers, authorities, researchers, NGO's, citizens and expert organizations in Finland. The data is analyzed by Critical Discourse Analysis.

Most of the actors highlight the utmost importance of sustainability and introduce their understandings on diverse dimensions on sustainability. Beyond these views, perspectives among diverse actors differ largely both in terms of severity of the detected problems and their potential solutions indicating complexity of actor relations and causalities. More nuanced findings and elaborations in terms of the research questions will be presented at the conference.

**Keywords:** forest sustainability, value co-creation, human actors, non-human actors

## **Session C2**

### **Business, Actors, and Agency in Transformations**

Friday 8 May, 9:00-10:20

Room: Main building, C2

Session chair: Janna Jokela

## **Companies' political agency for sustainability: A problematizing review of Corporate Political Activity and Political CSR literatures**

**Maija Lumme, Laura Olkkonen**

*LUT University*

This talk presents a problematizing literature review that examines how companies' political agency for sustainability is conceptualized within the fields of Corporate Political Activity (CPA) and Political Corporate Social Responsibility (Political CSR). While both literatures address the political dimensions of corporate behavior, they do so with different theoretical premises. CPA typically conceptualizes companies as interest-driven actors strategically engaging with policy processes to advance economic objectives (Hillman, Keim & Schuler, 2004). In contrast, Political CSR emphasizes the role of companies as normatively oriented participants in global governance, often invoking ideals of deliberative democracy and extended responsibility (Scherer and Palazzo, 2007; 2011). Despite these differences, both literatures share underlying assumptions that constrain how companies' sustainability-related agency is understood and operationalized. Assuming agency is disembodied from structures and systems, it produces "add-on responsibility" rather than a redefinition of what agency means under ecological and social limits. This review identifies three dominant assumptions about companies' political agency for sustainability across the two fields: (1) the strategic-instrumental framing, (2) limited attention to structural and systemic conditions, and (3) the tendency to depoliticize sustainability. By critically assessing these assumptions this talk opens space for reimagining companies' sustainability agency not as fixed or apolitical, but as relational, contested, and situated within broader socio-political systems.

**Keywords:** corporate political activity, political csr, sustainability agency

## Challenging Dominant Paradigms: Sustainable and Responsible Leadership in Advancing Transformations

Henna Väättäin<sup>1</sup>, Santeri Halonen<sup>1</sup>, Anna-Mari Simunaniemi<sup>2</sup>

<sup>1</sup>*University of Oulu Kerttu Saalasti Institute*

<sup>2</sup>*Jamk University of Applied Sciences*

Author of Abstract:

Sustainable and responsible leadership (SL and RL) are widely discussed as approaches to embed sustainability in organizations, yet their conceptual boundaries and systemic implications remain unclear. SL integrates personal values, moral principles, and organizational objectives, enabling leaders to balance environmental, social, and economic priorities through strategic and long-term visions. It emphasizes interpersonal skills, stakeholder engagement, and a long-term vision that fosters collaboration, resilience, and innovation. RL, positioned at the crossroads of ethics, leadership, and corporate social responsibility (CSR), emphasizes trust-building, shared values, and stakeholder engagement to align societal impact with business results. Although complementary, these approaches reveal paradoxes when applied within growth-oriented economic and organizational structures.

In this conference presentation, we will synthesize research on SL and RL within entrepreneurial contexts, identifying their attributes, foundations, and organizational impacts with a focus on collaboration for sustainability. The central question is: What kind of leadership practices enhance sustainable development in collaborative actions, and how can they act as intervention points for deeper change? Addressing this question deepens understanding of how ethical values, strategic orientation, and interpersonal capabilities foster effective partnerships and organizational transformation. Beyond summarizing existing research, this presentation critically examines conceptual overlaps, normative assumptions, and gaps in current academic discourse, and assesses the presence of these concepts in the topical political discourse the discussion invites reflection on leadership's potential to reshape governance and organizational practices for sustainability. This perspective is timely, given fluctuating EU-level corporate responsibility legislation and persistent imbalance between global sustainability goals (e.g., UN SDGs) and their implementation.

**Keywords:** sustainable leadership, responsible leadership, transformation

## Strategic Moves in Climate-Oriented Shareholder Activism: A Decade of Engagement with U.S. Oil and Gas Firms (2013–2022)

Atalay Yavan

*Jyväskylä University School of Business and Economics (JSBE)*

Climate change poses an unprecedented threat to sustainable human progress. The Paris Agreement called the international community for immediate action to avoid potentially catastrophic outcomes of climate change by keeping the atmospheric temperature well below 2°C on a global scale above the pre-industrial level. This ambitious goal can only be achieved if the carbon-intensive industries commit themselves to transitioning toward a low-carbon economy. Among these sectors, the oil and gas industry—comprising more than half of the global energy mix—stands out for its major contribution to the climate crisis.

Environmentally conscious investors enter the scene here as prominent stakeholders who can hold such firms accountable for climate action. Over the last few years, responsible shareholders have formed alliances to consolidate their position over the petroleum industry. They filed resolutions with the support of such partnerships and raised their unified voice on green transition. The way in which these investors exert their power is expected to play a major role in the Paris alignment of extractive sectors.

This study employs a qualitative content analysis approach to examine this under-researched yet impactful form of activism. Focusing on climate-related proposals directed at major U.S. oil and gas companies between 2013 and 2022, it seeks to illuminate how climate-conscious shareholder groups engage with this high-impact sector. Specifically, the paper aims to (1) analyze the strategic moves employed by climate activist shareholders, (2) assess their effectiveness in driving corporate engagement, and (3) trace the evolving trends in climate-oriented shareholder resolutions over the past decade.

**Keywords:** Climate activism, shareholder activism, shareholder proposals, strategic moves, oil and gas industry

## Transforming Adaptation Pathways: Intergenerational agency and geographic inequalities in island responses to sea level rise

Quivine Ndomo<sup>1</sup>, Ilona Bontenbal<sup>2</sup>

<sup>1</sup>*University of Jyväskylä*

<sup>2</sup>*Lappeenranta University of Technology (LUT)*

Sea level rise is a slow-onset climate hazard that demands not only technical adaptation but deep sustainability transformations in governance and social systems. Island communities, from low-lying Pacific nations such as Kiribati and Tuvalu to European islands like Portsea, Venice, and the Wadden Sea, face existential risks, yet their adaptation options diverge sharply. In the Global South, retreat is quickly becoming the only viable strategy due to limited financial and infrastructural capacity, while wealthier regions can “afford precarities” of sea level rise threats through engineered defences, insurance markets, and climate gentrification. These disparities expose structural inequalities that challenge the ethical foundations of sustainability.

Drawing on the Sinking Islands in Europe project’s research, this talk explores how intergenerational and interregional perspectives on retreat and (im)mobility illuminate the complex social dimensions of sustainability transformations. We draw on our empirical material to interrogate how human agency, and vulnerability shape adaptation decisions, revealing rationales such as “not in my lifetime” that underpin voluntary immobility. Our preliminary findings underscore that sustainability transformations cannot be reduced to technological fixes; they require governance frameworks that integrate intergenerational justice, participatory decision-making, and resource-sharing across geographies.

By situating adaptation within the broader discourse of sustainability, we argue that responses to sea level rise must transform societal norms around responsibility, solidarity, and equity. This entails rethinking mobility as a justice issue, not merely a logistical one, and embedding ethical considerations into resilience pathways. Such transformations are essential to ensure that adaptation strategies foster dignity and sustainability across generations and regions.

**Keywords:** Sea level rise adaptation, Geographic inequalities, Intergenerational justice, Climate mobility and (im)mobility, Sustainability transformation

## Envisioning pathways towards circular agriculture: a backcasting approach for exploring farm trajectories in Finland and The Netherlands

Jeroen Poelert<sup>1</sup>, Tanya Santalahti<sup>2</sup>, Irene Kuhmonen<sup>3</sup>, Ville Kankare<sup>2</sup>, Elina Kasvi<sup>2</sup>, Matti Kummu<sup>1</sup>, Federico Andreotti<sup>4</sup>

<sup>1</sup>*Water and Development Research Group, Aalto University*

<sup>2</sup>*Department of Geography and Geology, University of Turku*

<sup>3</sup>*School of Business and Economics, University of Jyväskylä*

<sup>4</sup>*Earth Systems and Global Change Group, Wageningen University and Research*

Circular agriculture is increasingly known for its potential to enhance food security, reduce reliance on finite resources, and address environmental challenges such as water pollution, climate change, and land degradation. However, achieving this transition demands farmers to make significant operational changes while they are already experiencing a lack of transformative capacity. Yet, little is known about how farmers themselves envision circular agriculture at their farm, which creates a critical gap in understanding desirable transition pathways. Backcasting is recognized as an effective participatory approach for addressing complex sustainability challenges, although adaptations of the method in a locally relevant and structured way remains a significant challenge. In response, we developed a structured backcasting approach and facilitation guide tailored to Finnish and Dutch farms, enabling the exploration of farmers' preferred trajectories towards circular agriculture.

During our interactive backcasting workshops, we are gathering empirical qualitative insights from individual farmers, about what circular agriculture could look like on their farms in 2050 and what kinds of capacities they would need to enable this transformation. First, we use cognitive mapping to support farmers visualizing future opportunities within circular agriculture. Secondly, participants identify the obstacles that could hinder these opportunities, as well as the capacities that would allow them to overcome these barriers. The results cover a variety of transition pathway maps, reflecting the importance of considering local agroecological and socioeconomic systems for enabling just and sustainable transition pathways. We aim to inform policy makers and other food system actors for enabling a well-informed transformation.

**Keywords:** Sustainability transformations, agriculture, participatory planning, backcasting, circular economy

**Session C3**  
**Sustainable Business for Sustainable Futures**

Friday 8 May, 9:00-10:20

Room: Main building, C5

Session chair: Emma Nykänen

## Green claims and harvesting realities: how do investment funds use Finland's forests?

Daniel Burgas<sup>1</sup>, Mari Selkimäki<sup>2</sup>, Rémi Dufлот<sup>1</sup>, María Triviño<sup>1</sup>, Anna Härri<sup>3</sup>

<sup>1</sup>*University of Jyväskylä*

<sup>2</sup>*University of Eastern Finland*

<sup>3</sup>*Aalto University*

Investment funds are becoming increasingly prominent forest owners in Finland, often promoting their portfolios as green and sustainable solutions. Yet it remains unclear whether their actual forest management practices support these claims. We investigate this question using a mixed-methods approach. First, semi-structured interviews with eight investment funds reveal strong sustainability narratives centred on certification, conservation projects, carbon-positive goals and climate-smart forestry.

Second, we compare these narratives with realised practices using Forest Use Declaration data, cadastral information and remote sensing metrics. Our dataset includes all forest properties owned by investment funds in Finland at the end of 2024 (3,949 properties). For comparison, we use a random sample of forests from other owner categories provided by Metsäkeskus, including private individual owners, companies, municipalities, the state, parishes and others. Remote sensing data allow us to assess stand characteristics, structural conditions and potential ecological consequences of different owners' harvest decisions.

Across all datasets, a consistent pattern emerges: investment funds harvest at intensities similar to industrial owners, and clearly more intensively than municipalities and the state. Regeneration fellings and even-aged thinnings comprise a larger share of their harvested area compared to most public owners.

These findings challenge the perception that forest investment funds offer a significantly more sustainable alternative. They underscore the need for transparent evaluation tools, such as those developed here, to critically assess sustainability claims in emerging market-based solutions for the sustainable use of forests.

**Keywords:** forest governance, financialised land ownership, management intensity, bioeconomy transitions

## Value creation archetypes of carbon management business

Emma Nykänen, Leena Aarikka-Stenroos, Mikko Sairanen

*Tampere University*

To prevent climate change, policies and regulations increasingly steer particularly industrial companies to manage carbon in their operations, which promotes new business potential from carbon circulation and storing. Carbon management, consisting of capturing, storing, and utilizing carbon, is a nascent cross-industrial field in technology and business that drives decarbonization while also enabling the preservation of biodiversity. Nascent studies have highlighted the relevance of understanding how technology and policy driven decarbonization can translate to economic value creation. However, there is a lack of business research empirically investigating how companies can create economic value from carbon management. Thus, we rely on research on value creation and sociotechnical transitions, and conduct a qualitative multiple case study to explore value creation in carbon management. We interview 20 companies covering all parts of carbon management value chains within the biggest emitting industries in Finland. We identify value creation logics from decarbonization and conceptualize six distinct value creation archetypes, namely: preventing harm, removing harm, providing recovered carbon, replacing fossil carbon, connecting carbon flows, and optimizing carbon flows. We also investigate the influences of the three contextual layers on value creation in carbon management business; policy and regulation, market, and physical geographical context. These contributions add to business research by conceptualizing how carbon management business can manifest, and how economic value can be created from carbon management. Managerially our study advises how businesses can create value in this emerging field, as well as how the three contextual layers influence value creation.

**Keywords:** carbon management, CCUS, value creation

## Exploring food value chain actors' agency and responsibility in addressing biodiversity decline

Irene Kuhmonen<sup>1</sup>, Tiina Onkila<sup>1</sup>, Anne Touboulic<sup>2</sup>

<sup>1</sup>*University of Jyväskylä, School of Business and Economics*

<sup>2</sup>*University of Nottingham*

Food systems are major drivers of biodiversity decline. Business actors generally and food value chain actors specifically have increasingly indicated willingness to take responsibility for counteracting biodiversity decline. However, the forms and effectiveness of such outspoken commitments remain poorly understood. In this study, we investigated the perceptions of Finnish food value chain actors of their agency and responsibility in addressing the biodiversity crisis. Our data consists of interviews with 37 food value chain (business) actors, from farmers and input producers to manufacturers, trade and retail and food services. Our findings indicate that despite the worsening situation with biodiversity, the majority of food value chain actors believe they are doing the right thing and going to the right direction. At the same time, the interviewees expressed a lot of confusion of how to address biodiversity decline in the first place. While many identified the proximate causes of biodiversity decline, it was difficult for them to identify the causal relationships their own actions had with the ultimate or more distant causes of biodiversity decline, such as the price pressures they exert upon agricultural producers. The measures for promoting biodiversity relied largely in measuring the impacts, the further away the value chain actor was from the actual land use phase. In terms of land use, distinct and even opposing views of how to best address biodiversity decline were presented. In all, our findings call for awareness-raising about biodiversity among food value chain actors, as well as engagement with future visioning about biodiversity.

**Keywords:** agrifood value chains, responsibility, agency, biodiversity

# The role and responsibility of businesses in addressing overconsumption

Milla Sarja

*Jyväskylä University School of Business and Economics (JSBE)*

Overconsumption has been recognised as one of the profound reasons behind the environmental crisis (Brown & Cameron, 2000). Societal discourse holds consumers responsible for overconsumption. The narrative states that consumers hold the power over what they consume and thus influence what is being produced, while companies are merely servants to the public good. However, businesses are known to have a significant role in influencing and manipulating both consumer wants and political arenas, resulting in what is being offered in the market (Heikkurinen et al., 2019; Ardley & May, 2020).

In this study, the aim is to bring the relevance of businesses' role in overconsumption to the forefront and distance the disproportionate focus of the consumers from the discussion. To fulfil the research aim, a comparative study on relevant literature is conducted. First, by reviewing academic literature in the field of business and management, focusing on supply and demand, justifications for overproduction, and how production and sales are being reasoned by customers' wants. Second, the study incorporates understandings of more sustainable business practices by reviewing literature streams of sufficiency, degrowth, doughnut economics and circular economy, all offering insights into alternatives to production and consumption practices. Later, this study will include empirical data.

This work contributes to sustainable business management research in two ways: first, by showing how companies contribute to overconsumption and placing responsibility rightfully on those functions that actually create it. And second, by actively seeking alternative solutions on how to replace the current, insufficient activities or modify such functions.

**Keywords:** overconsumption, sufficiency, sustainable business, overproduction, sustainable change

## Towards critical realist marketing as a discipline curbing overconsumption and -production

Laura Forsman

*University of Vaasa & University of Helsinki*

As humanity confronts the polycrisis, marketing must stop looking away and develop science capable of curbing the overconsumption and -production it has long fueled. In this nexus, marketing scholars are equipped to examine the relationships between companies' economic value capture and citizen-consumers' subjectively perceived value. Thus, they are uniquely positioned to reimagine the detrimental link between overproduction and overconsumption. Key here is the concept of value, through which marketing is defined as "the activity, set of institutions, and processes for creating, communicating, delivering, and exchanging offerings that have value for customers, clients, partners, and society at large" (AMA, 2017). By focusing on the multiperspectivity of value, marketing can reconceptualize businesses from extractive capitalist actors into holistic value creators for people, society, and planet. However, this demands marketing confronting its own philosophical assumptions and their mostly unexamined roots in capitalism (Ahlberg et al., 2022). A self-scrutiny of its prevailing axiology and onto-epistemology can encourage marketing scholars to see their role in developing tools for curbing intertwined overconsumption and overproduction. For this marketing should face its philosophical divide between modernist positivism and postmodern interpretivism, currently keeping the two realms in isolated silos. Paradigm of critical realism (CR) reconciles this seeming philosophical contradiction. CR highlights the differing onto-epistemologies simultaneously prevailing in company-citizen/consumer relationships (Forsman & Luomala, 2024). Thus, through its stratified ontology and pluralist epistemology CR may assist marketing in cross-exposing how production-consumption system practices and the underlying economic system's axiology structuring them operate and can be transformed for human- and planet-oriented sustainability.

**Keywords:** Philosophy of science, Onto-epistemology, Marketing, Value, Critical realism

## Values as guiding principles for outdoor recreation entrepreneurs

**Tero Viljanen**

*University of Jyväskylä*

In this presentation, I will introduce the second article of my doctoral dissertation in social sciences of sport, entitled "Values as guiding principles for outdoor recreation entrepreneurs." The article examines outdoor recreation entrepreneurs and how values guide their activities in the outdoor recreation sector. Outdoor recreation is a very important form of exercise in the Scandinavia, where it has been examined specifically through the concept of friluftsliv, loosely translates as "outdoor life".

One key factor in the values associated with outdoor recreation is whether nature is seen merely instrumental value or whether it is also given intrinsic value. I focus on the intrinsic value of nature specifically through the concept of friluftsliv. I examine concept of friluftsliv through Arne Naess's deep ecosophy.

Naess's deep ecosophy provides a philosophical foundation for the sustainability of nature and sustainable development in outdoor recreation, and for the values on which outdoor recreation entrepreneurship is based. In Naess's ecosophy, ethically and ecologically responsible "friluftsliv" includes respect for all life, deep, rich, and diverse interaction with nature, minimizing the burden on nature, and a natural lifestyle.

The article is based on semi-structured interviews and uses thematic analysis as its method. The concept of friluftsliv helps to anchor the interviewees' own relationships with nature in a theoretical framework which is strongly philosophical. The study provides information on how entrepreneurs' values influence their business activities in a sustainable manner.

**Keywords:** friluftsliv, values, outdoor recreation, ecosophy

## Navigating CSR Paradoxes in Microenterprises: Environmental, Social, and Economic Trade-offs

Anna-Mari Simunaniemi<sup>1</sup>, Henna Väätäinen<sup>2</sup>

<sup>1</sup>*Jamk University of Applied Sciences*

<sup>2</sup>*University of Oulu*

Despite their critical role in economies and sustainability transitions, little is known about how microenterprises balance environmental, social, and economic responsibilities under paradoxical pressures. While prior research suggests microenterprises often emphasize social responsibility, escalating environmental challenges demand a broader perspective. An exclusive focus on social aspects is insufficient for advancing regenerative business models.

This study asks how microentrepreneurs legitimize their leadership choices amid conflicting expectations, obligations, and economic pressures that emphasize different dimensions of responsibility. This study is based on 54 thematic interviews with Finnish microentrepreneurs from diverse sectors participating in a sustainability training program. The study explores how environmental actions are prioritized—or subordinated—to immediate economic needs, and whether limited ecological efforts are offset by emphasizing social responsibility.

Preliminary findings indicate that while participants acknowledge the importance of the triple bottom line—balancing economic viability, social responsibility, and environmental stewardship— environmental measures often remain secondary to financial survival. In some cases, entrepreneurs adopt symbolic or compensatory strategies, highlighting strong social engagement to offset limited ecological actions. Nevertheless, personal values and community ties foster creative, context-specific solutions that diverge from conventional corporate CSR models.

This study contributes to the understanding of CSR in microenterprises by exposing tensions and adaptive strategies used to navigate them and situates these insights within paradox theory and leadership debates. In the conference presentation, these findings will be linked to the broader academic discussion on paradoxical responsible leadership in small businesses, offering actionable insights for policymakers and sustainability practitioners seeking to enable microenterprise-driven transitions.

**Keywords:** microenterprises, CSR, responsible leadership, Paradox Theory

## **Understanding how to protect the Baltic Sea: An assessment of conceptions among business organizations**

**Jean-Pierre Imbrogiano**

*Jyväskylä University School of Business and Economics*

Ecosystems are complex and so are the efforts needed for their protection. Yet, in public and practical discourse, certain ideas of environmental protection prevail as standard operating procedures, such as the reduction of pollution sources as well as the increase of resource efficiencies. In this project, I deploy a phenomenographic research design to reveal how organization members in businesses of diverse industries operating both at sea and on land understand in different ways what it means to protect the Baltic Sea. Using semi-structured interviews as primary data, the phenomenographic approach leads to the presentation of the diverse, separate, and often conflicting conceptions that people hold about a phenomenon, and how, in dependence of these conceptions, they would subsequently also engage in diverging practices. Using the phenomenographic insights as a state-of-the-art of contemporary protection practices, I delineate what it could mean for governance actors who aim to entice business organizations to advance to more sophisticated conceptions of ecosystem protection.

**Keywords:** Conceptions and conceptual change; ecosystem protection; sustainability governance; phenomenography

# An Unmade Green Production: Understanding Industry Realities for Sustainable Film Production

Kaisa Astikainen<sup>1</sup>, Pietari Kääpä<sup>2</sup>

<sup>1</sup>*Aalto University/ Department of Film (ELO)*

<sup>2</sup>*Professor in Media and Communications, University of Warwick, UK*

This research explores the case of "Memory of Water" (original title: "Veden vartija" by Saara Saarela, 2022), which was intended to be the first sustainable film production in Finland. The production company wanted to support the ecological theme in the script (that was based on Emmi Itäranta's novel by the same title) and in 2018 started to actively pilot a more ecologically sustainable production method. One of the authors of this research was hired to join the production, reportedly as the first sustainability coordinator in Finnish film history. Although comprehensive plans were made, repeated financial setbacks and ultimately Covid-19 eventually paralyzed the production's environmental goals.

The research examines the chain of events that led to the breakdown of the sustainability strategy of the production. The "failure" of the sustainability pilot project indicates that there are multiple industry realities and in the way of sustainable film production, and that pro-environmental behaviour is especially challenging in the context of international co-production.

The methodology of the research is based on interviews with the film's artistic and production core team. The study draws from contemporary film and media ecocriticism (e.g. Maxwell and Miller 2012, Walker and Starosielski 2015, Cubitt, 2017, Kääpä 2018, and Vaughan 2019), combining it with production studies (Mayer, Banks & Caldwell, 2009) and the emerging field of "Unmade cinema" (Fenwick et al, 2022).

The research is one part of an article-based PhD, which delves into the prerequisites for sustainable film production in a small nation cinema ecosystem.

**Keywords:** film production, sustainability, sustainable film production, green production, ecological production

## **Session C4**

### **Alternative Learning and Knowing for Change**

Friday 8 May, 9:00-10:20

Room: Main building, C4

Session chair: Elias Pielikko

## What is Finnish teacher education and social work education for in the age of polycrisis? Alternative responses to modern-colonial habit-of-being

Linda Majander<sup>1</sup>, Anna-Leena Riitaoja<sup>2</sup>

<sup>1</sup>*University of Jyväskylä*

<sup>2</sup>*University of Helsinki*

Socio-ecological conditions and values are changing in times of polycrisis in unpredictable ways, having myriad consequences to schools and social services, and to teacher and social work education. Aligned with global education politics, higher education programs are made more accountable for the economic growth of the society. Educational objectives are increasingly built around work life-oriented competence-based models that have started to define the purposes of education also in teacher and social work education. In those models, the knowledge interest informing educational theory and acts is instrumental. Such approaches ignore the ontological level, our way of existing on the planet, which is based on dualism, instrumental reason, exploitation and violence. Seeing how we have got to this point requires deeper theoretical and historical knowledge and understanding about the systemic nature of polycrisis.

The presentation is based on our article manuscript in which we first introduce what modern-colonial habit-of-being is. We then introduce two metaphors by Vanessa Andreotti et al. (2018), 1) Tree Metaphor that illustrates how methodological, epistemological, and ontological problematization and responses to global crises differ from each other, and 2) House of Modernity that provides a systemic approach to the origins of the global problems, the processes sustaining them and to the responses trying to overcome them. We then examine how these aspects resonate with the discourses of recent teacher and social work education development policies in Finland. Finally, we discuss the implications of these discourses and alternative approaches to respond to polycrisis in teacher and social work education.

**Keywords:** Teacher education, social work education, polycrises, decolonialism

## **If I don't do this who will? A narrative approach to teachers' change agency towards sustainable future**

**Raili Keränen-Pantsu, Inkeri Rissanen**

*Tampere University*

In addressing the eco-crisis, climate change, and mounting social inequalities, transforming cultural structures supporting unsustainable lifestyles is crucial. Cultural structures are perpetuated but also renewed within educational systems (Sterling 2014). Researchers and policy-makers alike perceive teachers as key agents of cultural transformation for sustainability; yet the purposes teachers see in their work are sometimes in contrast to the ideal of teachers as transformative agents (Evans et al. 2017; Timm et al., 2023). While aware of the relevance of global change for education teachers may be hesitant to assume the role of change maker. A better understanding of teachers' learning processes through which the agency for social, ecological and cultural change may occur, is needed.

This paper introduces an on-going mixed methods research project that focuses on exploring the core features of teachers' mindsets for transformation, and how these can be influenced in pre- and in-service teacher education. We present results from a narrative phase of the project, in which 14 Finnish teachers with a particularly strong change agency, were interviewed. The narrative in-depth interviews focused on respondents' lives, and particularly the development of their professional purposes and agency to foster sustainable future. Results indicate how their role identity as change agent teachers occurs via (1) self-perceptions and self-definitions; (2) ontological and epistemological beliefs; (3) purpose and goals; and (4) perceived action possibilities. (Kaplan & Garner, 2017).

**Keywords:** teacher education, change agency, sustainable future, mindset for transformation

## The Planetary Food Game as a Pedagogical Tool in Medical Education: Advancing Transformative Learning in Planetary Health

Saska Tuomasjukka, Mitja Jakonen, Marta Stachnik, Anu Hopia

*University of Turku*

Planetary health is an emerging paradigm and interdisciplinary domain that examines how human disruptions to Earth's natural systems impact human health and the health of all life. It highlights the ecological foundations of well-being—clean air, safe water, nutritious food, and a stable climate—and the urgent need to protect them. Healthcare professionals must not only understand these interconnections but also shift their focus more strongly toward prevention and systemic change.

The Planetary Food Game is a serious game designed to support transformative learning and relational agency in the context of food-related sustainability challenges. Through structured dialogue, students explore the implications of dietary choices. The game avoids prescriptive answers, instead fostering negotiation, critical reflection, and shared understanding. It challenges essentialist narratives around food and encourages systems thinking.

As part of a planetary health course at the University of Turku Faculty of Medicine, the game was implemented with medical and health sciences students. It served as a tool for generating qualitative research data. Post-game interviews were conducted to assess whether and how the game supported transformative learning and enabled the emergence of relational agency.

Preliminary findings suggest that the game helped students question assumptions, engage with complexity, and see their role in collective action. By creating a dialogical space where diverse views are essential, the game supported relational agency. Within transformative learning, this enabled critical reflection and appreciation of others' perspectives. Rather than offering fixed solutions, the game fostered shared responsibility and emphasized that meaningful change arises through mutual understanding.

**Keywords:** planetary health, pedagogies of sustainability, serious games

## **Enablers and constrains of sustainability education in the interfaces of nonformal and formal education**

**Tiia Kontkanen**

*University of Jyväskylä, Finnish Institute for Educational Research*

Many third sector organisations are doing nonformal sustainability education related to their mission and purpose as a non-governmental organisation. Many of these organisations are well connected with different societal actors and are collaborating with formal education.

In my doctoral research I'm interested in what NGOs mean by sustainability and how do they carry out sustainability education. I'm interested in finding out what kind of practices are in place in their sustainability education and what enables and constrains them in achieving preferable sustainable futures.

Practices have preconditions that enable or constrain them and therefore effect the possible actions and agency. These practices and their cultural-discursive, material-economic and social-political preconditions are intertwined, relational and site-ontological, meaning that the practices are rooted to the places where they are happening. In this setting the aim of the sustainability education is to change practices so that they support life within planetary boundaries and change the practices of education itself to support this. (Kemmis, 2022.)

My data consists of interviews and workshop materials from NGOs and schoolteachers working with those NGOs in four different European countries. I'm interested in their possibly conflicted and situated practices and how do they act to change them to gain sustainable futures and planetary wellbeing. Nonformal learning might also have more to give to change practices of education itself towards sustainability.

Kemmis, S. (2022). *Transforming practices: Changing the world with the theory of practice architectures*. Springer Nature Singapore. <https://doi.org/10.1007/978-981-16-8973-4>

**Keywords:** Sustainability education, Nonformal learning, Practices

## Evolution in Action –project: How to impact society through science and art education?

Carita Lindstedt<sup>1</sup>, Michaela Casková<sup>2</sup>, Tiina Hirvonen<sup>2</sup>, Aigi Margus<sup>2</sup>, Elli Liimatainen<sup>2</sup>

<sup>1</sup>*University of Helsinki*

<sup>2</sup>*University of Jyväskylä*

Human induced environmental changes are rapidly altering the distribution ranges of organisms and disrupting species interactions with unpredictable ecological, social and economic consequences. The uncertainty of the future places even greater emphasis on education and analytical decision-making grounded in research knowledge. However, the challenge for education is that the mechanisms underlying the impact of environmental changes on ecological networks are complex to understand and require a holistic understanding of how living systems operate. While we have a high abundance of teaching materials related to the impact of climate change and biodiversity loss in general, very few of those materials actually shed light on the ecological and evolutionary mechanisms underlying those changes.

The “Evolution in Action –project” is a science education project that combine science, art-based methods, games and storytelling to ensure learning about biodiversity and evolutionary processes. Our aim is to support youth & children’s understanding of the evolution, its timescales and how humans impact ecological and evolutionary processes. We develop teaching materials and organise workshops for schools and different education institutions. In addition, we have explored how to support scientific understanding with art based practices, and what kind of new layer can art-science collaboration bring to understanding of the evolutionary processes and individual’s own role in the environmental crises. In the symposium, we are interested to present our project, and discuss how and why art-science collaboration is meaningful in an education dealing with the environmental crises and, (how) can it promote more aware and responsible thinking?

**Keywords:** Environmental education, art and science, environmental change, science education

## **Skills vs Information: Balancing the roles of scientific and experiential knowledge with 1) Artistic Research and 2) Indigenous Research Methodologies**

**Raisa Marjamäki**

*University of Jyväskylä*

In my talk I'll try out two different approaches to the concrete and personally experienced problem of living and cultivating different kinds of knowledge concerning sustainability transformations. On the one hand I follow – never enough, but still – current scientific research on the issue (such as that by the research group BIOS), especially leaning towards environmental humanities and philosophy of energy. On the other hand I've spent a fair amount of time working with a plot of pretty untouched land in the remote archipelago, making pathways, preparing to build a log house and clearing space for a garden – all this with a two year old and living in a yurt.

The understanding of what heavy physical work does to thinking and what prolonged exposure

to the weather and other more-than-human elements (vipers, waves, juniper) does to the understanding of sustainability transformations is something that I find hard to express (and haven't read by others) in an academically credible way.

My hypothesis is that important, situated, knowledge of sustainability transformations is likely left outside academic discourse because the basic notions of what is credible and meaningful still reflect worldviews that are in part responsible for the ecological crisis we're facing. The two orientations considered possible of bridging these gaps are artistic research (as articulated by e.g. Juha Varto) and active discussions in indigenous studies on methodologies.

But to what extent is it proper for me (majority by birth, if not by lifestyle) to utilise the latter?

**Keywords:** knowledge systems, artistic research, physical labor, paradigm

## Museums as facilitators of cultural sustainability transformation in Finland

Katriina Siivonen<sup>1</sup>, Kristiina Korjonen-Kuusipuro<sup>2</sup>

<sup>1</sup>*Finland Futures Research Centre, University of Turku*

<sup>2</sup>*Juvenia, South-Eastern Finland University of Applied Sciences*

The transformation towards life within planetary boundaries implies a fundamental shift from the current way of living, altering values and practices in relation to over-consumption. Evidence is solid about the fact that we will have serious consequences of climate change and biodiversity loss without sustainability transformation.

Museums are often seen as places where only past is present. We turn this idea upside-down and take the notion that museums have a key role in anticipating futures and sustainability transformation in society as our starting point. We argue that people's actions in time are parallelly informed by individual and collective memories, images of futures and imaginations of futures. To understand people's actions, we also need to scrutinize their past- and futures-oriented affects and emotions. These are intertwined with each other in people's temporal understanding and anticipatory actions.

In our presentation, we ask how museums may support imaginations of sustainable futures and cultural sustainability transformation. We draw on qualitative research data produced in four in-person Heritage Futures Workshops organized in different museums in Finland. These workshops have been developed to support cultural sustainability transformation including emotional skills and planetary thinking. Our results indicate that achieving cultural sustainability requires understanding how people navigate the past, present, and future. Our research is part of Sufficiency solutions for a resilient, green, and just Finland (SISU) project, funded by the Strategic Research Council of Finland.

**Keywords:** cultural sustainability transformation, affects, anticipation, memories, heritage futures

**Session C5**  
**Co-living in More-than-Human Worlds**

Friday 8 May, 9:00-10:20

Room: Seminarium, S212

Session chair: Satu Aavanranta

## Relational biodiversity care in Finnish production forests

Jelena Salmi<sup>1</sup>, Martta Nieminen<sup>2</sup>

<sup>1</sup>*University of Jyväskylä*

<sup>2</sup>*Aalto University*

How can biodiversity be made care-able in the everyday contexts where people live and work with multispecies worlds? This question guides our examination of biodiversity practices in Finnish production forests, where institutional models often frame care as standardized interventions and measurable outcomes. Drawing on ethnographic fieldwork and 46 interviews with private forest owners and forestry professionals, we explore how biodiversity becomes recognizable and actionable through lived, relational engagements with forest places.

Forest owners routinely practice quiet, situated forms of care that fall outside institutional definitions. They describe their forests as places of memory, identity, and multispecies presence, and their biodiversity decisions emerge from embodied encounters: sparing individual trees, tolerating messiness, or leaving certain sites unmanaged. These actions arise from relational ways of sensing the forest rather than from checklists or ecological indicators. Such practices reveal cultural-ecological forms of care that broaden what biodiversity stewardship can mean in managed landscapes.

Silent practices, however, have limits: attentiveness is constrained by what humans can perceive, and ecological knowledge does not always translate into everyday decisions. Making biodiversity care-able therefore requires translation work that aligns scientific knowledge with local experience, as well as care networks that distribute responsibility beyond individual owners. Advisory services, joint field visits, and culturally grounded species tools can support these relational forms of care.

By foregrounding plural, multispecies forest relations, the paper expands understandings of biodiversity stewardship and highlights relational values as pathways for coexistence in intensively managed forests.

**Keywords:** relational values, multispecies relations, cultural-ecological care, production forests

## **Living together with grandfather volcano: Changing our relationship to the more-than-human by changing our research paradigm and lens for inquiry**

**Zita Tedjokusumo<sup>1</sup>, Niti Bhan<sup>2</sup>**

<sup>1</sup>*Metropolia University of Applied Sciences*

<sup>2</sup>*Aalto University School of Engineering*

'Respected Ancestor' or 'Si Mbah' is the Javanese name of the volcano on whose slopes communities have farmed for tens of thousands of years. "It is only now" they told us, that an eruption "is called a disaster. In my grandfather's time, we used to say Si Mbah was cleaning house". Living together with grandfather volcano represents an entirely different cosmology, ontology, axiology, and relatedly, epistemology for 'disaster preparedness' than that of western modern science such as volcanology or geology.

We present findings from our year-long study implementing a novel inquiry protocol grounded in post-colonial indigenous research paradigms to reveal knowledge traditions rooted in kinship with the volcano reflecting a deep interconnection with nature and environment. Using cognitive justice as our lens for inquiry makes visible knowledge products embedded in nature's signs and symbols used by local communities for monitoring Si Mbah's volatile moods and thus their preparedness for eruptions. Through reflexive critical inquiry, we share lessons learned from ancestral and local wisdom of life lived together with Si Mbah to rethink our place and position as human beings within the planetary web of life. Insights facilitate transformation of our relationship to what is called 'natural disasters'; towards building social and cultural approaches for navigating uncertainty and volatility of changes to environmental conditions. Embracing indigenous research paradigms has re-connected us in kinship with the more-than-human web of life. Can interrogating our own research paradigms - as we did in this study - transform our relationships with our more-than-human kin?

**Keywords:** disaster preparedness, volcano eruption, Java, kinship, indigenous research paradigms

## **UnWorlding and reWorlding: Re-imagining ‘the Human’ in a Multispecies World**

**Corinna Casi**

*University of Jyväskylä*

In a fast-changing polycrisis world, it is time to re-think and re-envision what does it mean to be human in a multispecies world.

How can we be part of the world without reproducing binary structures (nature/culture; dominant/dominated...) or without mainly prioritizing human benefits at the cost of non-humans? How can humans be actors without (or at least with less) anthropocentric goals? Is this type of world even possible?

This calls for a paradigm shift, which I refer to as a “worlding (or world-making) process”, understood as change within the theoretical apparatus with its values and categories. This process has two stages: the unWorlding and reWorlding process. In this context, unworlding means to de-construct the theoretical world and refers to the letting go of at least a part of the modern ideas about: ourselves (humans), our habits, perceptions, values and categories.

This is followed by a reworlding process, meaning to re-imagine and re-construct the world by starting with the “human being”. In the activity of re-imagining what does it mean to be human in a world cohabitated by various species, we should first start noticing how the descriptions of natural and sustainability science are made. Since, I argue, descriptions are not neutral as we thought, they carry normative and justice implications which are hidden or not analyzed sufficiently.

In this presentation, I attempt to identify knowledge productions, practices and spaces of knowing that disrupt seemingly hegemonic anthropocentric regimes, binary thinking and prioritize the economic aspects over all others.

**Keywords:** rethinking the human; worlding; multispecies; paradigm shift

## Integrating human and ecological values for urban green infrastructure connectivity

Nora Fagerholm<sup>1</sup>, Maria Hällfors<sup>2</sup>, Alex Lechner<sup>3</sup>, Arpa Aishwarya<sup>1</sup>, Mike Christie<sup>4</sup>, Risto Heikkinen<sup>2</sup>, Essi Heiskanen<sup>1</sup>, Kaisa Jaalama<sup>2</sup>, Aapo Kahilainen<sup>2</sup>, Risty Khoirunisa<sup>3</sup>, Claudia Krohn<sup>1</sup>, Aino-Maija Määttänen<sup>2</sup>, Saman Sobhani<sup>4</sup>, Kaisa Vainio<sup>1</sup>

<sup>1</sup>*University of Turku*

<sup>2</sup>*Finnish Environment Institute*

<sup>3</sup>*Monas University, Indonesia*

<sup>4</sup>*Aberystwyth University, U.K*

Planning and decision making for a just green transition requires acknowledging both human and ecological aspects of values for nature. This means that solutions should be balanced across not only humans and the diverse communities they belong to, but also across multiple species and elements of biodiversity. While the topic of multispecies justice (MSJ) is gaining traction, it remains unclear how to integrate these aspects in the planning of urban nature areas, including how to create a network of green infrastructure and ensuring the availability of different habitats that support multiple species. Here, we present preliminary findings on identifying and comparing methods of green infrastructure landscape analysis that integrate ecological connectivity and place-based social values in Turku, Finland. Ecological values were derived for species archetypes based on trait data to model connectivity needs of different types of species, and human values were derived from a PPGIS survey that elicited residents' place-based values on nature following the IPBES nature values typology. Using these data, we test different approaches and aim to 1) evaluate spatial hotspots between human and ecological values, 2) examine how human values influence resistance to ecological connectivity, and 3) analyze the overlap between connectivity networks for multiple species, including humans. We assess the characteristics of the different connectivity analysis methods and how they support MSJ in terms of representation, distribution, and agency as well as their benefits, trade-offs, and conflicts.

**Keywords:** Multispecies Justice (MSJ); Green Infrastructure; Ecological Connectivity; Place-Based Social Values; Urban Nature Planning

# More-than-human Urbanism in Practice: Towards a Process-oriented Framework

İdil Gaziulusoy<sup>1</sup>, Daniel Koch<sup>2</sup>

<sup>1</sup>*NODUS Research Group / Aalto University, Finland*

<sup>2</sup>*Division of Architecture and Urban Design / KTH, Sweden*

This paper presents findings from an integrative scoping review of 49 publications that engage with more-than-human (MtH) perspectives in urban design and planning. The review sought to clarify how MtH approaches are conceptualised and justified, and to synthesise the forms of practice knowledge they imply. Rather than prescribing methods or models, the study advances a process-oriented framework that understands more-than-human urbanism as a situated, iterative, and ethically charged practice. The framework conceptualises design and planning as relational processes through which humans learn to act with, rather than for, the multiplicity of beings that co-constitute urban environments.

The resulting process-oriented framework comprises interrelated dimensions that together articulate how practice can evolve toward multispecies coexistence. Diagnosing expands what and who becomes perceptible to design through multisensory, embodied, and ethnographic inquiry. Grounding situates action within justice, plural knowledges, and knowledge of place, including attention to ruderal and novel ecologies. Designing and co-creating emphasise relational frameworks and redistributions of participation that make nonhuman agencies visible and actionable. Attunement to temporalities calls for planning in and with ethical, seasonal, and life-cycle rhythms. Careful technological mediation urges selective use of digital tools that reveal rather than instrumentalise multispecies relations. Governing and maintaining coexistence foregrounds everyday practices of negotiation and care, while learning and transformation highlight the pedagogical work of nurturing more-than-human literacy.

Taken together, these dimensions articulate more-than-human design and planning as an open-ended socio-ecological process aimed at fostering situated responsibility, epistemic plurality, and sustained coexistence within urban systems.

**Keywords:** more-than-human; multispecies; design; planning; urban

## **Modelling the effects of wind turbines in Finnish forested social-ecological system.**

**Pierre Moulin**

*University of Jyväskylä*

The global energy transition has led to substantial investment in renewable energy production. With its ambition to achieve carbon neutrality by 2035, Finland is investing in wind energy, and many wind farms are under planning. Many of the wind farms are planned to be built in Finnish forests, which constitute critical habitats to boreal biodiversity and provide numerous benefits to people. While the knowledge on the direct impacts of wind turbines on their environment is emerging, much less is known on their indirect impacts on the local social-ecological systems. This study utilizes causal loop modelling to investigate the holistic effects of wind farms on local social-ecological systems. With this model we are able to identify novel system dynamics in social-ecological systems that arise from wind farm installation. Critically, we suggest that such dynamics may indicate a green energy transition – driven regime shift, i.e. a hard-to-reverse shift to new social-ecological conditions. This model also helps to understand how the different scales of sustainability transformation (international, national and local) interact with each other. Our results detail how energy transition may advance sustainability yet cause significant changes in local social-ecological systems in Finland. This work could help to ease the installation of wind farm projects by pinpointing critical components of the social-ecological systems, and working on mitigating their disturbances. The systems science perspective on the impacts of wind farms will give decision makers and local communities better tools to understand the future of a local social-ecological system after wind farm development.

**Keywords:** Wind turbines, forests, social-ecological system

## Workshop C6

# Living with the tensions of sustainability transformations: An experiential approach using embodied ways of knowing

Room: Outdoors or Paja (I)

Miia Toikka<sup>1</sup>, Kirsi Hakio<sup>2</sup>, Essi Huotari<sup>2</sup>, Jari Autioniemi<sup>1</sup>

<sup>1</sup>*University of Vaasa*

<sup>2</sup>*Aalto University*

Sustainability transformations are complex societal processes characterized by persistent tensions and dilemmas that impede effective action and innovation, often leaving actors overwhelmed. Advancing such transformations therefore requires holistic approaches that incorporate embodied intelligence – sensorial, intuitive, and relational ways of knowing – to complement rational thinking. Mobilizing multifaceted human intelligence is crucial for fostering collective learning, deepening understanding of the barriers, and enabling transformative change.

This workshop offers an experiential exploration of sustainability tensions through embodied methods – approaches well-suited for engaging tacit, affective knowledge often neglected in conventional frameworks. Participants will engage in facilitated exercises to heighten awareness of embodied responses to complex sustainability dilemmas, building resilience and creative agility in high-tension situations. This approach highlights how embodied strategies can foster more nuanced engagement with sustainability tensions, contributing to the co-creation of sustainable futures.

The aim of the workshop is to embody a new kind of space for action in tense situations. Participants will work with a personal theme relevant to sustainability within their research or practice – one that evokes feelings of tension. The session begins with grounding exercises to connect with the body and explore dialectical coexistence of conflicting experiences, enhancing capacity to hold opposing forces.

A core method of the workshop is a constellation exercise, which facilitates embodied reflection on participants' relationships to sustainability tensions through movement in space. This approach is effective for visualizing relational dynamics and revealing fluidity and multiplicity of perspectives often overlooked in verbal analysis.

The workshop concludes with group reflections, focusing on insights gained and how embracing tensions through embodied methods can contribute to sustainability transformations. These reflections will be utilized in further research on the potential of embodied practices in fostering relational shifts and holistic awareness as part of the RELIEF research project exploring the complexity of the legal system.

**Keywords:** embodied intelligence, embodied methods, sustainability tensions, co-creation

## Workshop C7

# Finding Your Media Voice to Amplify Sustainability Transformations

Room: Seminarium S204

**Sini Holopainen**, Susanna Lehvävirta

*HELSUS, University of Helsinki*

This workshop is a highly interactive 80-minute session, designed as a practical skills lab. It will blend short facilitator inputs with collaborative exercises. The aim is to help researchers to find their comfort zone in approaching media and producing content, having a strong/deep sustainability approach as a starting point in the process.

Media plays a crucial role in informing the public and decision makers of matters of importance. Therefore, it is an important channel and co-operating partner for sustainability researchers in their efforts to gain publicity to their research.

Two key Questions to be Explored:

- How can I, as a sustainability scientist, communicate my research effectively with the media?
- What is my authentic communication style, and how can I use it in media interactions (interviews, podcasts, op-eds) to bridge the gap between research and public discourse?

Elements of the workshop:

We will use a variety of facilitating methods to ensure everyone can participate in a meaningful way. These include mind mapping, paired & small group discussions, interactive polling and structured end discussion.

Facilitators represent media expertise and sustainability science with both journalist and researcher backgrounds.

This workshop directly enables the "putting into action" of sustainability transformations by focusing on the individual and collective agency of the scientist as a communicator.

The workshop is facilitated by Media at Planetary Boundaries project's team Marja Heinonen (media expert), Susanna Lehvävirta (project leader), and Sini Holopainen (project planner). The project is based at HELSUS, University of Helsinki, and is funded by the Kone Foundation.

**Keywords:** media, sustainability transformation, communication

## **Session D1**

### **Capacities for Transformations**

Friday 8 May, 10:50-12:10

Room: Main building, C1

Session chair: Corinna Casi

## Renewing Food Education in Early Childhood through Eco-Social Thinking: Towards Planetary Well-Being

Aila Johanna Naalisvaara

*University of Jyväskylä*

This abstract introduces the renewal and development of food education in early childhood based on eco-social thinking, aiming to integrate planetary well-being into everyday pedagogy. Early childhood is a formative stage where values, habits, and worldviews begin to take shape, making it a critical leverage point and intervention point for sustainability transformations. Principles of planetary well-being - safeguarding ecosystem integrity and enabling the long-term coexistence of species - provide food education with a new ethical foundation and a grassroots continuum where human and non-human well-being are interconnected.

The approach builds on the Finnish early childhood learning conception, which emphasizes holistic, experiential, play-based, and participatory learning. These principles enable children to understand ecological, cultural, social, and even economic interconnections and responsibility through everyday practices. Planetary food education acts as a bridge, linking the meaning of food to broader dimensions of planetary well-being and creating practical pathways for transformative change.

This abstract draws on insights from a master's thesis completed at the University of Jyväskylä, where the author currently holds alumni status and continues to develop the topic from a practitioner's perspective. It also builds on practical experience as a trainer in child-centered food education. It represents a development-oriented perspective and opens pathways for future research. The poster aims to demonstrate how planetary food education in early childhood can serve as both a leverage point and an intervention point for promoting planetary well-being from multiple perspectives. I am ready to create a poster for the conference and invite dialogue and collaboration to advance this work further.

**Keywords:** early childhood education, planetary well-being, planetary food education, sustainability transformations, eco-social literacy

## **Energy geopolitics, an opportunity or new vulnerability for sustainability transformations?**

**Ratih D. Adiputri**

*University of Lapland*

China dominates the global supply and processing of critical minerals, significant for the world's energy supply chains for green transitions. Middle-income countries, usually located at the Global South also prefer to work with China—instead of the Western countries, to process their mineral resources, such as Chile (rich with Lithium) and Indonesia (nickel). Could the energy geopolitics shift to the Global South, with China's leading? How about the West?

So far, the US reacted the Chinese domination with trade tariffs and cooperation with other like-minded countries, while the EU pushed more on sustainability policies with renewables, certification and circular economy, however there is a tension such competition. Global order is changing, and this shifts paradigms of energy security, supply chains and access towards market and technology.

The presentation/paper will reflect the energy geopolitics from the perspective of green transition (and critical minerals) from the Global South policies and regulations (governance), including the role of China. The data is derived from the international news scraped after the 2022, after the Russian invasion to Ukraine that shift the attention to the world energy security. The study will assess whether energy geopolitics serves as an opportunity or create new vulnerability for the Global South in terms of energy in the context of sustainability and green transitions.

**Keywords:** energy, geopolitics, critical minerals, global south, policies

## Unpacking tensions between science education, technology, and society

Sara Komulainen

*University of Helsinki*

In response to global crises and uncertainty, contemporary society calls on education to foster democratic citizenship and agency. Some argue that citizens need a better understanding of scientific literacy in order to make well-informed decisions and create innovations that support the sustainable transition of society.

While promoting scientific literacy and scientific thinking as civic skills, we cannot overlook the critical need to address the societal and political role of science education. Western and European science education are historically accumulated, politically oriented practices capable of reproducing or transforming structures that sustain unsustainable living conditions and oppression. Science education is often linked to socio-technological development, in which technology appears as an unstoppable, neutral force that naturally changes living conditions.

To promote political action through science education, we must address the tensions between science, technology, and society in a manner that acknowledges the complex role of science education and its inherently political stance toward socio-scientific issues.

**Keywords:** science education, uncertainty, technology

## **Sustainability for whom? Pluralism and Power in Sustainable Transformations**

**Emilia Ganslandt**, Carmen Margiotta, Sahana Subramanian, Juan Antonio Samper, Jonas Alleesson, Stefan Schüller

*Lund University Center for Sustainability Studies*

Sustainability is a contentious issue with a multitude of definitions, raising questions about who gets to define it, benefit from it, and ought to enact it. This paper draws on knowledge obtained through qualitative and ethnographic work conducted by six doctoral students in Sustainability Science engaged in multi-sited fieldwork. Our case studies range from the coastal areas of Sweden to glacierized environments in Chile and India, and the Amazon forest of Colombia. Bringing in these diverse perspectives, we aim to discuss how environmental problems are framed and understood in different contexts and how these plural understandings are shaped by and reinforce preexisting systems of power, enabling or limiting different pathways to sustainable transformations. Comparing how local inhabitants envision the future and contentions between these framings, from assumptions of an assured tomorrow in high-income contexts to narratives of sacrifice in areas most affected, we discuss whose voices get amplified and silenced in dominant framings of sustainability. We argue that ignoring these differentiated views risks naturalizing hegemonic perspectives of transformations and leaving out worldviews that would otherwise offer useful frameworks for change.

**Keywords:** Sustainability, Transformations, Ontological Pluralism, Hegemony

## **Benchmarking Capacities, Skills and Methods for Inclusive Engagement of Vulnerable Groups in Climate Adaptation: Evidence from the FairFuture Project**

**Seona Candy, Johannes Klein, Kaisa Schmidt-Thome, Lu Chen**

*Demos Helsinki*

As societies strive for deep sustainability transformations, it is increasingly recognised that adaptation to climate change must go beyond technical fixes to include meaningful engagement of marginalised and vulnerable groups. Yet, evidence on how to effectively engage marginalised and vulnerable groups in climate adaptation remains fragmented across disciplines and governance levels. This study presents a systematic benchmarking of enabling capacities, skills and engagement approaches for inclusive adaptation governance, undertaken as part of the FairFuture project, funded by Horizon Europe. Employing a Structured Scoping Review (SSR) guided by the PRISMA-ScR framework, we mapped both peer-reviewed and practice-oriented sources (2000-2025) across global and European contexts. The analysis is theoretically guided by frameworks of deliberative democracy, recognition-based justice, participatory governance, and social learning, which together explain how institutional and reflexive capacities shape inclusive and transformative adaptation practices. Our analysis identified necessary dimensions that facilitate the operationalisation of inclusive engagement, as well as critical gaps and barriers in real-world adaptation planning. The findings generate a benchmark matrix that informs subsequent development of guidance and training modules within FairFuture, and offers transferable insights for practitioners and policymakers seeking to embed justice-oriented engagement in adaptation governance. By situating inclusive engagement as a leverage point in sustainability transformations, this work contributes to deeper systemic change in adaptation practice.

**Keywords:** climate adaptation, inclusive engagement, vulnerable groups, capacity building, transformative adaptation

## Entangling with More-than-Human Worlds: Posthuman Pedagogies for Youth Engagement

Yingying He

*University of Helsinki*

This presentation explores the potential of posthuman pedagogical approaches to cultivate relational awareness and ethical engagement with more-than-human worlds among youth and activists. Drawing on posthumanist theory alongside deep ecology and Buddhist relational concepts, the project examines how educational events can generate emergent intra-actions between humans, nonhumans, materials, and ideas. Rather than focusing on conventional outcomes, it considers the workshop as a site of relational phenomena, where ethical and ecological sensibilities unfold. The discussion will highlight conceptual frameworks, research questions, and theoretical implications for developing transformative, non-anthropocentric education, inviting feedback on the integration of relational pedagogy and posthumanist thought.

**Keywords:** posthuman pedagogical approaches, post-qualitative, more than human world

## **Session D2**

### **Energy and Twin Transitions: Institutional Perspectives**

Friday 8 May, 10:50-12:10

Room: Main building, C5

Session chair: Emma Nykänen

## **A scoping review of practices of green and digital transition (twin transition)**

**Anni Tuomaala**

*University of Helsinki, Ruralia Institute*

Twin transition is a key policy agenda for reaching European Union's carbon neutrality target. Twin transition refers to green and digital transition, which are promoted concurrently. Green transition aims for reducing greenhouse gas emissions. Digital transition means digitalisation and digital technologies. Although the twin transition is increasingly discussed in the media, EU's policies, and scientific research, there is a lack of unified scientific consensus of how digital transition jointly promotes the green transition. The aim of this study is to analyse how green, digital, and twin transition are defined in the scientific literature and what concrete actions there are to merge and advance both green and digital transitions. The research is conducted by using the scoping review method combined with text mining and topic modelling. Topic modelling is a machine learning method that uses natural language processing to identify topics in scientific articles. This scoping review examines how earlier scientific literature defines implementation of green and digital transition and what are the concrete actions of twin transition.

**Keywords:** green and digital transition, twin transition, scoping review, topic modelling, text mining

## **Bridging Renewable Deployment and Biodiversity: A Finnish Study of Shutdown-on-Demand**

**Edward Kluen, Aku Kalliomäki, Linda Uusihakala, Juho Jolkkonen**

*Ramboll Finland Oy*

One side effect of the transition to more sustainable living (e.g., the energy transition) is that, in the short term, there is increasing demand for natural resources (e.g., rare earths) and space for renewable energy. As a result, we frequently encounter conflicts between biodiversity and human needs. As lifeforms come with specific conditions and needs, there is a need to explore innovative techniques and science-based evidence to mitigate these conflicts and promote coexistence. It is critical that scientists, technicians, consultants, developers, and authorities work together to create solutions. Within this collaboration, environmental consulting translates science and modern sensing into actionable guidance under applicable national and international legislation, ensuring that evidence informs planning and permitting.

We present an ongoing study applying modern camera technology to evaluate “shut down on demand” mitigation under Finnish wind energy conditions. This mitigation system temporarily stops or slows wind turbines when target bird species are detected nearby, helping to prevent collisions and reduce mortality. Together with wind power developers, a university, technology providers, and consultants, we aim to provide scientific evidence on system reliability and operational feasibility, and to quantify conservation benefits for bird life—focusing on golden eagles, other raptors, and migratory birds—to support wind power planning. Ultimately, the study seeks to support adoption of this mitigation strategy as a practical tool to reduce avian collision risk in Finnish wind power projects.

**Keywords:** Mitigation, wind-energy, birds, cross discipline

## Multi-Level Governance and Regional Pathways to the Just Twin Transition in Europe

Giga Mukutadze, Mashiur Rahman, Farid Karimi, Tapio Litmanen

*University of Jyväskylä, Department of Social Sciences and Philosophy*

This paper examines regional governance in the European Union within the framework of the twin transition. It aims to deepen the understanding of how regional multi-level governance (MLG) systems function and contribute to the just digital and climate transitions. The study reviews national legislation, as well as state and regional strategies in four countries: Finland, Norway, Latvia, and Poland. It traces the development of regional digital and climate policies, assesses institutional capacities, explores cooperation in the just EU twin transition, and identifies good practices in regional governance. In addition, it looks at the role of NGOs and civil society actors in regional digital and climate transitions, mapping their involvement and contributions to advancing the just twin transition.

The results show that these EU member states follow different approaches to regional governance, including how they manage the EU twin transition. The study also finds significant differences between regions in terms of their capacity and influence on shaping and driving these transitions. These variations are linked to national administrative traditions, degrees of centralization, historical development, exposure to climate risks, and the level of dependence on the EU and other funding sources. In some countries, regions hold specific competencies in certain areas of the twin transition that are not found elsewhere. Moreover, participation of cities and municipalities in international networks contributes to differing outcomes, depending on the number of memberships, access to international funding, and the forms of cooperation involved.

**Keywords:** regional governance; multi-level governance; twin transition; just transition; regional innovation

## Uneven landscapes of the green transition: Land-use intensity and municipal burdens of wind power in Finland's energy future

Hanna Paulomäki<sup>1</sup>, Mika Järvinen<sup>2</sup>

<sup>1</sup>*LUT University*

<sup>2</sup>*Aalto University*

Global warming poses an immediate threat to planetary systems, demanding urgent and systemic action. Electrification and green hydrogen are pivotal for achieving climate neutrality while phasing out from fossil fuels. Accelerating renewable energy transition marks a profound re-industrialization, necessary for decarbonization but accompanied by new socio-ecological challenges related to land use, nature conservation, and social acceptability.

This study first demonstrates how methodological variation in assessing land-use intensity can significantly alter spatial estimates of renewable energy deployment, potentially misleading planning and underestimating socio-ecological impacts. Second, we examined the land area required for industrial-scale wind power in order to meet the projected increase in electricity demand from Finland's energy system, industry, and emerging hydrogen economy. We discuss this topic by using municipal burden levels, to showcase how renewable energy infrastructures, potential for hydrogen production and pressures on nature are unevenly distributed across Finnish regions and, what are the implications of these spatial inequalities for a fair, balanced, and sustainable green transition.

At a broader level, this work situates land-use intensity within the context of energy landscapes in green transition, emphasizing the integration of ecological and social considerations in renewable energy and hydrogen production. The study is part of the H2EnergySCAPES project, which builds a science-based framework that expands traditional techno-economic analyses to include ecological, social, and cultural dimensions of sustainability. The project is based on the idea that grounding energy transition in local ecological, social, and cultural realities can improve both the sustainability and the spatial efficiency of energy projects.

**Keywords:** Energy transition, renewable energy, land use, socio-ecological impact, hydrogen

## **Institutional Complexity of Sustainability Transitions: Insights from Energy and Circular Economy Transformations**

**Nina Tynkkynen, Taina Lahtinen, Anastasia Tsvetkova, Magnus Hellström, Johan Malmberg, Sam Grönholm, Magnus Gustafsson**

*Åbo Akademi*

Sustainability transitions are inherently complex governance processes, shaped by dynamic interactions between institutions, (technological) innovations, public and private actors and evolving socio-technical systems. Our paper explores the conditions for advancing such transitions by examining two empirical cases studied by our interdisciplinary research group: the energy transition and the shift towards a circular economy. Drawing on the Multi-Level Perspective (MLP) framework, institutional theory and experimental governance, the paper investigates how institutional arrangements and actor agencies co-produce transformation pathways under conditions of uncertainty and contestation.

The analysis highlights how diverging governance practices across sectors, scales and actor constellations generate both friction and innovation in transition processes. By focusing on the interplay between structure and agency, the study reveals how institutional inertia and policy ambiguity can hinder progress, while ecosystem strategizing, institutional entrepreneurship, and experimental governance practices offer avenues for adaptive learning and co-creation. The cases illustrate how actors navigate institutional landscapes, mobilize resources and engage in strategic experimentation to shape transition trajectories.

Our contribution advances theoretical and practical understanding of sustainability transitions by integrating governance and business perspectives with institutional analysis. It offers insights into how transitions can be promoted through inclusive, reflexive and context-sensitive governance and business arrangements. The findings are relevant to scholars and practitioners interested in transformative processes within production and consumption systems, co-creation of sustainability and planetary well-being.

**Keywords:** energy transition, circular economy, institutional complexity, transition governance

## **Institutional complexity for accelerating sustainability transitions: insights from the offshore wind energy transition in Finland**

**Thaysa Portela de Carvalho**

*Åbo Akademi*

The accelerated expansion of offshore wind energy is being promoted at the European Union level, with increasing economic, environmental, and social considerations at play. While the rapid scalability of offshore wind power presents numerous opportunities, it also generates conflicts, from national to local governance levels. In Finland, offshore wind remains a nascent industry, and the different levels of government have been taking steps to address institutional barriers hindering its deployment. Drawing on the Multi-Level Perspective (MLP) framework, institutional theory and experimental governance, this case study examines the institutional arrangements shaping the prospective scale-up of offshore wind deployment in Finland. It explores how diverse stakeholders perceive evolving institutional landscapes under conditions of uncertainty and contestation and how multilevel governance dynamics influence the transition. The study is based on qualitative data derived from in-depth interviews, observations from policy and industry stakeholder meetings, and document analysis. The findings highlight the interplay between landscape pressures, regime forces, and niche developments, and how these dynamics intersect with sustainability challenges. The paper is expected to provide both empirical and theoretical contributions. Empirically, it unpacks the institutional complexity surrounding Finland's offshore wind transition. Theoretically, it tests the applicability of the MLP framework for socio-technical transition analysis. Moreover, by integrating multilevel governance and business perspectives with institutional analysis, the study aims to advance understanding regarding institutional re-arrangements in sustainability transitions, particularly how these reconfigurations may be connected to experimental governance.

**Keywords:** energy transition, offshore wind energy, governance

## Clean transition investment failures: the role of stakeholder suspicion and distrust

Outi Behm<sup>1</sup>, Kirsimarja Blomqvist<sup>1</sup>, Simon Schafheitle<sup>2</sup>

<sup>1</sup>*LUT University*

<sup>2</sup>*UTwente*

Several clean transition projects in Finland have recently been delayed or put on hold due to lengthy formal processes. While stakeholder literature assumes shared interests as a foundation for firm-stakeholder relations and considers stakeholders integral to a firm's value creation, the stakeholder trust literature reveals disputes, conflicts, neglect, and even willful obstruction between firms and stakeholders in clean transition. In response to calls for a better understanding of how trust dynamics impact these relations, this study identifies tipping points between trust, suspicion and distrust in clean investment projects, aiming to understand why stakeholder processes in clean transition investments fail.

This empirical extended case study examines a Chinese Finnish joint venture, from initial partner scouting in 2018 through project development, including public stakeholder consultations and judicial processes, to the withdrawal of the technology owner in 2025. The data consists of 41 semi-structured interviews with the firm and its stakeholders from public, private, and third sectors, supplemented by documentation on the environmental impact assessment (EIA), environmental permit application, and judicial processes to validate the interview data.

This study adopts a process approach to map the chronology of investment failure by identifying critical incidents where trust dynamics shifted, leading to escalated stakeholder relations. Preliminary analysis indicates that poor information dissemination and careless language by the firm triggered negative emotions and conflicting strategies among stakeholders. Beyond theoretical contributions to stakeholder trust research, this study aids practitioners in identifying and timely addressing potential bottlenecks in investment processes.

**Keywords:** Stakeholder trust, Stakeholder engagement, distrust, suspicion, case study

**Session D3**  
**Youth Activism and Active Citizenship**

Friday 8 May, 10:50-12:10

Room: Main building, C4

Session chair: Katri Savolainen

## **"We must act, now!": Youth transformative and historical agency on the ecological crisis**

**Paula Ahola**

*University of Helsinki*

Climate and environmental action of youth has proved to be one of the most significant civil society phenomena of our time. The ever-intensifying ecological crisis forms a unique and extraordinary challenge and task to be acted upon especially for the young generation with lifetime ahead (Ahola et al., forthcoming; Stetsenko, 2023).

This paper focuses on the young generation of climate activists becoming a unique historical actor. The paper contributes to an emerging line of research on young people's transformative agency in contributing to social change locally and globally (e.g. Gutierrez et al., 2019). Agency is theorized in the nexus of people changing the world and them being changed in the process of changing the world – as two poles of a dynamic, recursive process of a simultaneous self-and-world-co/realization (Stetsenko, 2023). The heavily theoretical paper involves dialogue with empirical data which draws from focus-group interviews of Finnish young climate activists. The findings tentatively suggest following themes in illustrating the process of the young generation becoming a historical actor in tackling the climate crisis: Awakening to the task, Taking on the task, Problematizing the task. Through in-depth analysis of the data, we can learn how young climate activists build their historical and transformative agency and, thereby, re-define the urgent task of the climate crisis.

**Keywords:** youth, agency, historical task

## Defining youth sustainability agency in the 21st century: a systematic literature review

Liisa Mäkinen

*University of Jyväskylä*

This study aims to provide a comprehensive conceptualisation of youth sustainability agency. As current research is fragmented across disciplines, we map out and synthesise the literature, analysing how youth sustainability agency is defined and addressed across fields. We examine different levels and forms of agency and consider the various contexts in which young people's actions manifest.

Following PRISMA guidelines, we conduct a systematic literature review of peer-reviewed articles focusing on youth (aged 15-30) and sustainability agency, published in English between 2000-2024. We look at three databases: Scopus, Web of Science, and ABI/INFORM Complete. Both empirical and theoretical research is included.

Initial findings suggest a variation in definition; however, most studies recognise youth sustainability agency as rooted in and shaped by local and cultural contexts. Collective agency is more prominent in the literature, highlighting activism and movements such as Fridays for Future. Individual agency is expressed through everyday actions such as consumption choices. The role of education is noted as crucial in developing and forming youth agency.

Youth are recognised as a vital actor group in sustainability transformations. By synthesising these findings, we deepen understanding of how young people engage in sustainable action and what factors enable, limit, and shape their agency. Understanding the diversity and nuances of youth sustainability agency is crucial for informing teachers, youth workers and policymakers in how to best support youth in building more sustainable futures.

**Keywords:** youth, sustainability agency, sustainability transformations, systematic literature review

## Climate citizenship as a solution to climate change

**Minna Havukainen**

*LUT University*

Current climate strategies rely heavily on technological innovation, economic instruments, and regulatory frameworks rooted in continuous growth and neoliberal paradigms. These approaches have not achieved the rapid systemic change required to mitigate climate change. This research positions climate citizenship—a concept emerging from environmental and global citizenship—as a central force for transformative climate governance. Climate citizenship emphasizes collective responsibility, democratic participation, and ethical agency in addressing climate crises.

The study investigates how climate citizenship manifests within societal structures and policy frameworks, and how participatory practices influence climate narratives and action. Drawing on Ostrom's theories of collective resource management and Kingdon's policy window model, the research combines literature review, media and policy analysis, and qualitative data from an interactive exhibition functioning as a "living lab." This exhibition engages citizens in imagining a world of climate citizenship, visualization, and guided decision-making as well as fostering experiential understanding of climate citizenship.

Key research questions include: How is climate citizenship defined and operationalized in policy? Which narratives support citizen engagement? How do individuals identify with climate citizenship? The study applies institutional grammar and discourse analysis to uncover the interplay between political strategies, societal norms, and participatory mechanisms.

By integrating political, cultural, and behavioral perspectives, this research aims to advance knowledge on enabling inclusive, democratic climate transitions. Findings will inform EU climate policy by highlighting conditions that strengthen citizen participation and counteract polarization, ultimately promoting socially just and effective climate governance.

**Keywords:** Climate change, citizenship, participation, living lab

## **Fostering Youth Engagement in Climate Action through Immersive Virtual Reality: A Mixed-Methods Study of 'Magical Forest VR'**

**Julia Carlow, Sohail Dahdal, Jessica Davis**

*American University of Sharjah*

Climate change represents an unprecedented global crisis, demanding immediate and comprehensive action to mitigate its far-reaching consequences. Young people, who will inherit a world profoundly shaped by today's climate decisions, have a crucial role to play in addressing this challenge. While traditional educational approaches have contributed to raising environmental awareness among youth, the sheer scale and complexity of the climate challenge necessitate the exploration of more innovative and impactful methods to cultivate deep understanding, lasting engagement, and moral obligation towards climate action among young people. Immersive virtual reality has emerged as a transformative technology with the potential to revolutionize educational experiences across various disciplines.

This interdisciplinary study examines the potential of immersive Virtual Reality (VR) storytelling to enhance youth engagement in climate action. Using Magical Forest VR, an innovative virtual reality experience designed to foster environmental connectedness and inspire pro-environmental behaviors, the research investigates how immersive media impacts users' cognitive understanding, emotional connection, and behavioral intentions towards climate action. A mixed-methods approach was employed, incorporating a survey that measures pre- and post-experience with qualitative and quantitative questions. The experience and survey were administered to 200 undergraduate students at the American University of Sharjah. Preliminary findings suggest that immersive storytelling fosters a stronger sense of moral obligation for environmental stewardship. This study contributes to the growing body of literature on immersive media and climate action by demonstrating how VR storytelling can serve as an effective tool for addressing the environmental knowledge-action gap.

**Keywords:** Climate Change, Immersive Storytelling, Environmental Education, Virtual Reality, Youth Empowerment

## Environmental Youth Activism through Ecofeminist lenses

Mari-Anne Okkolin<sup>1</sup>, Kerttu Kalliorinne<sup>2</sup>

<sup>1</sup>*Rauhankasvatusinstituutti ry*

<sup>2</sup>*University of Eastern Finland (UEF)*

"Taking urgent action to combat climate change and its impacts" was ranked among the top concerns in a 2021 Ipsos survey across 23 European countries, with over 20,000 participants aged 15–35. In Finland, Youth Barometer data shows growing youth interest in societal participation. Young people have taken an active role in climate discussions and actions, yet many also express frustration, disappointment, and hopelessness. Alarming, optimism about the future has declined, although – paradoxically – belief in global solutions to environmental challenges has increased.

In the talk, we explore how youth across Europe define and understand their environmental and climate justice activism. Interviews with young adults (aged 20–29) who joined a study trip to Madagascar traces their perspectives on building a socially just and ecologically sustainable world. The trip prompted deep reflection on personal choices, ethics, and sustainability. We also consider how an ecofeminist approach and lenses might enrich the analysis of youth environmental activism.

The aim of the trip was to increase knowledge and skills of youth around environmental and climate justice, and gender. Afterwards, crass-roots activities were established in Croatia, Poland, France, Finland, and Hungary. Understanding youth perspectives is vital in a time when climate discourse is dominated by crisis narratives. Equally important is recognizing how hope and optimism can be nurtured – and how they manifest in youth-led action and activism.

**Keywords:** environmental and climate justice, youth activism, ecofeminism

## The Planetary Garden Field Station – Co-creative and Intergenerational Initiative for Sustainable Future

Sofia Laine

*Nuorisotutkimusseura ry*

The Planetary Garden Field Station is a sub-project of the Planetary Youth Research Programme at the Finnish Youth Research Society. Planetary youth research is my proposed framework for youth research in the context of sustainability transformation (Laine 2023). The original Planetary Garden concept, developed by the French architect Gilles Clément, emphasises the human responsibility to sustainably maintain and protect the Earth's ecosystems, valuing diversity and minimising ecological damage in food production. In addition, our Field Station promotes multi-species coexistence through arts-integrated gardening, where diverse eco-emotions are collectively explored (Kingsbury 2025). This presentation will explain how the Field Station combines the arts, somatics, activism and research. It describes how we create youth-led sub-projects, grow organic food crops, and learn about sustainable living in a community-based way that also aims to restore a sense of place and belonging (Dixon-Declève et al. 2022). The presentation demonstrates how collaboration brings meaning and hope in these changing times. Well-being and a deepening relationship with nature are creatively intertwined through a variety of art-based methods, that apply both the process model of eco-anxiety (Pihkala 2022) and various creative ways to address ecological grief (Kingsbury 2025).

Clément, Gilles (2023) "The Planetary Garden". In 'Garden Futures, Designing with Nature'.

Dixon-Declève, S. et al. (2022). Earth for All. A Survival Guide for Humanity

Kingsbury, Christina (2025) Exploring the Effects of Arts-Integrated Gardening on Experiences of Ecological Grief <https://scholars.wlu.ca/etd/2732>

Laine, Sofia (2023) New Framework Proposal: Planetary Youth Research <https://doi.org/10.1163/25895745-bja10027>

Pihkala, Panu (2022) The Process of Eco-Anxiety and Ecological Grief <https://doi.org/10.3390/su142416628>

**Keywords:** arts-integrated gardening, planetary youth research, planetary garden

## **Session D4**

### **Biodiversity Accounting for Nature-Positive Futures**

Friday 8 May, 10:50-12:10

Room: Seminarium, S212

Session chair: Saara Vauramo

## A quantitative examination of biodiversity metrics in the context of biodiversity footprint assessment

Essi Pykäläinen<sup>1,2</sup>, Sami El Geneidy<sup>1</sup>, Mari Heikkinen<sup>2</sup>, Aapo Kahilainen<sup>2</sup>, Veera Norros<sup>2</sup>, Jani Salminen<sup>2</sup>, Hannu Savolainen<sup>2</sup>, Päivi Sirkiä<sup>2</sup>, Janne Kotiaho<sup>1</sup>, Maria Hällfors<sup>2</sup>

<sup>1</sup>*University of Jyväskylä*

<sup>2</sup>*Finnish Environment Institute*

Production and consumption of goods and services cause significant biodiversity loss worldwide through global supply chains. Biodiversity footprint assessment enables the quantification of biodiversity impacts from the consumption perspective by modelling the impact of human-induced pressures on biodiversity, i.e., land and sea use, exploitation of natural resources, pollution, climate change, and invasive alien species. Although several approaches and metrics for measuring and monitoring biodiversity impacts already exist and new ones are being developed, the lack of unified and comparable metrics applicable across different sectors hinders the operationalization of common goals to halt biodiversity loss. In this study, we review scientific and grey literature to identify and quantify the use of metrics and methods that are applied in biodiversity footprint assessments. Additionally, we identify linkages between 1) metrics and the level of biodiversity measured (genetic, species, ecosystem), 2) metrics and assessment methods (e.g., EEIO, LCA), 3) metrics and assessments of different scopes (e.g., product, sector, national consumption), and 4) metrics and the sectoral coverage. We present the results on how well different levels of biodiversity are captured through the most commonly used methodologies for different scopes and within different sectors. The findings of this study have the potential to direct future development of biodiversity footprint research towards sectors that have been poorly addressed and metrics that have potential in measuring a wider variety of biodiversity impacts.

**Keywords:** biodiversity, biodiversity footprint, consumption, impact, metric

## **Biodiversity footprinting is proceeding – but what kind of pioneers are the frontrunners?**

Päivi Pelli<sup>1</sup>, Daniel Bengtsson<sup>2</sup>

<sup>1</sup>*European Forest Institute (EFI)*

<sup>2</sup>*Research Institutes of Sweden (RISE)*

International commitments to halt biodiversity loss have speeded up development of biodiversity footprinting (BDF) methods to assess impacts and dependencies on nature. There is no standardized metrics for biodiversity. The frontrunner companies testing BDF face an evolving landscape of methods and tools development, advance in technologies for environmental data and monitoring, and uncertainties due to geopolitics, market and regulation changes. They also learn on the way about the local to global and short to long term risks that biodiversity and climate change nexus implies for their operations.

This study investigates what the forerunners in BDF perceive as the most significant changes in their operating environment that affect how biodiversity becomes integrated into production/consumption systems. Data is collected with interviews of the companies testing and organizations promoting BDF methods. The change factors in mainstreaming biodiversity are purposefully contrasted with data on emerging signals of socio-techno-economic system change identifiable in sustainability strategies and horizon scanning reports. Systematic combination of inside-out and outside-in perspectives is based on strategic foresight methodology.

Findings are presented for feedback from the conference audience with an analytical framework to assess signals towards three parallel horizons of system change. Significance of this research is to trigger frontrunners' thinking on the multiple possible outcomes of their pioneering work irrespective whether the focus was on risk management, strategic management or innovation for transformative change.

**Keywords:** biodiversity impacts, environmental footprints, system change, strategic foresight

## Global offsetting of the outsourced biodiversity footprint of consumption

Hanna Kalliolevo, Sami El Geneidy, Janne Kotiaho

*University of Jyväskylä*

International trade outsources environmental impacts of consumption through complex value chains causing biodiversity loss across Earth. There is a need to examine the negative biodiversity impacts and the opportunities to mitigate and offset the impacts, as a global systemic phenomenon. Traditional biodiversity offsetting is used to offset local land use impacts but no means to offset the outsourced biodiversity impacts exist. Here we explore location-independent global offsetting based on biodiversity equivalent, an analogue of the carbon dioxide equivalent, and scrutinize the assumptions behind the suggestion in the context of operationally important planning decisions of traditional biodiversity offsets. We find global offsetting to be operational but emphasize that it should not replace, but rather complement, the traditional offsetting. We conclude that until a global degrader pays -principle has been worked out and adopted, global offsetting is a viable option to offset at least some of the outsourced biodiversity impacts of consumption.

**Keywords:** biodiversity offsetting; value chains; environmental impact; biodiversity net gain

## The carbon and biodiversity footprint of Finnish transportation system

Venla Leppilampi<sup>1</sup>, Stefan Baumeister<sup>2</sup>, Sami El Geneidy<sup>2</sup>, Janne Kotiaho<sup>1</sup>

<sup>1</sup>*University of Jyväskylä*

<sup>2</sup>*Jyväskylä University School of Business and Economics*

Transportation systems have diverse, usually negative, impacts on biodiversity and climate. Traditionally we have focused on the environmental impacts of the transportation systems resulting from land use of the infrastructures and emissions from the vehicles and have largely ignored the impacts arising from consumption that exports the local impacts around the globe along supply chains. The aim of this research is to assess the carbon and biodiversity footprint of the Finnish transportation system. We applied a biodiversity footprint method, BIOVALENT, that combine databases and frameworks, such as ecoinvent and LC-IMPACT. The biodiversity footprint is estimated with the biodiversity equivalent, a common currency for measuring biodiversity impact across the planet, with desirable characteristics like the carbon dioxide equivalent. The assessment requires four items of information: 1) the amount and type of consumption, 2) the amount and type of the drivers of biodiversity loss, 3) the geographical locations of the drivers and 4) the damage to biodiversity caused by the drivers in each specific location. In this conference, I will present the results of the study. I will discuss how production and consumption within transportation system could be changed for sustainability from the viewpoint of biodiversity footprint. This study amplifies knowledge of how many species will potentially disappear globally due to the use and maintenance of the Finnish transportation system and stress the importance of acknowledging the biodiversity impacts of production and consumption.

**Keywords:** Transportation system, biodiversity footprint, sustainability transformation

## Assessing the empirical knowledge base behind biodiversity footprint characterization factors

Vilma Sandström<sup>1</sup>, Essi Pykäläinen<sup>1,2</sup>, Sami El Geneidy<sup>2</sup>, Mari Heikkinen<sup>1</sup>, Aapo Kahilainen<sup>1</sup>, Jani Salminen<sup>1</sup>, Hannu Savolainen<sup>1</sup>, Päivi Sirkiä<sup>1</sup>, Janne Kotiaho<sup>2</sup>, Maria Hällfors<sup>1</sup>, Veera Norros<sup>1</sup>

<sup>1</sup>*Finnish Environment Institute (Syke)*

<sup>2</sup>*University of Jyväskylä*

Halting global biodiversity loss requires robust methods to measure human impacts and link them to both direct drivers as well as the underlying human activities that are mediated through value chains. Biodiversity footprint accounting has emerged as a key tool, with many different methods and approaches being rapidly developed. However, major uncertainties and knowledge gaps remain, limiting the analytical precision, overall robustness, comparability, and reliability of biodiversity impact assessments. Two widely used metrics are the Potentially Disappeared Fraction of species (PDF), which estimates species extinction risk, and the Mean Species Abundance (MSA), which quantifies population-level responses to human pressures. Both metrics rely on characterization factors from global models derived from limited sets of empirical studies, which are prone to taxonomic, phylogenetic, and geographic biases—particularly toward well-studied species groups in the Global North. In this study, we identify overlaps and differences in biases related to taxonomy and geography in the pressure-impact relationships and explore potential new datasets that could be integrated to strengthen the knowledge base. We present preliminary results of the analysis, aiming to highlight the most urgent research gaps and provide pathways to improve the data basis and transparency of biodiversity footprint assessments.

**Keywords:** biodiversity footprints; environmental impact assessment; characterization factors; biodiversity and business

## Value-transforming financial, carbon and biodiversity footprint accounting

Sami El Geneidy, Maiju Peura, Viivi-Maija Aumanen, Stefan Baumeister, Ulla Helimo, Veera Vainio, Janne Kotiaho

*University of Jyväskylä*

Transformative changes in our production and consumption habits are needed to halt biodiversity loss. Organizations are the way we humans have organized our everyday life, and much of our negative environmental impacts, also called carbon and biodiversity footprints, are caused by organizations. We explore how the accounts of any organization can be exploited to develop an integrated carbon and biodiversity footprint account. As a metric we utilize spatially explicit potential global loss of species across all ecosystem types and argue that it can be understood as the biodiversity equivalent. The utility of the biodiversity equivalent for biodiversity could be like what carbon dioxide equivalent is for climate. We provide a global country specific dataset that organizations, experts and researchers can use to assess consumption-based biodiversity footprints. We also argue that the current integration of financial and environmental accounting is superficial and provide a framework for a more robust financial value-transforming accounting model. To test the methodologies, we utilized a Finnish university as a living lab. Assigning an offsetting cost to the footprints significantly altered the financial value of the organization. We believe such value-transforming accounting is needed to draw the attention of senior executives and investors to the negative environmental impacts of their organizations.

**Keywords:** Consumption systems, biodiversity impact, biodiversity offsetting, financial accounting, environmental accounting

## Workshop D5

### Slow embodied listening to the Earth

Room: Outdoors or Paja (I)

**Hanna Ellen Guttorm, Alyssa Coffin**

<sup>1</sup>*University of Helsinki*

<sup>2</sup>*University of Arts Helsinki*

Many Indigenous peoples still have diverse rituals and ceremonies, where they remind each other about the interconnectedness of humankind and other nature and celebrate the flow of the energy going through all of them/us. Many of these ceremonies are based on slow and respective listening. Many Indigenous people have lost the ceremonies, but still live in close connection with the Land, in close reciprocal listening (in North Sámi gulahallat) of the lands, animals and weathers.

In this workshop we recognize our bodies and body-minds as pieces of the Earth through silent listening and slow exercises. This workshop is also a small step towards "re-indigenizing the people of the planet to the planet" (John Mohawk 2008). Re-indigenizing can mean bringing back the Earth-based and community centered ways of thinking, feeling and acting on the planet. It can mean understanding the circularity of everything, it means understanding the place and responsibility of the humankind of taking care of the other multibeings, Earthlings, of the planet.

The methods in our workshop will include all kinds of relating with the Land through attention and perception, connecting and gathering through body and all the senses, and breathing the land, as science has revealed that all the different bacteria of the land are good for us. The workshop will include listening the environment and following the invitations of it and connecting with each other through open eyes, ears and bodily gestures.

The facilitators of this workshop are an Indigenous Sámi scholar, who as an adult has worked with revitalising the connection with the Earth, also through learning from other Indigenous peoples, and an American interdisciplinary artist, who wants to cultivate relationship with Finland through creating indigenizing practices.

**Keywords:** listening, slowness, embodiment, Earth

## Workshop D6

### Placemaking Maptivity - A serious game for sustainable urban development

Room: Seminarium, S204

**Tamara Hajdu**

*Smart Innovation Norway*

This workshop introduces Placemaking Maptivity, an interactive serious game designed to support community stakeholders in envisioning and co-creating smart and sustainable neighbourhoods. Built on systems thinking, stakeholder engagement principles, and serious gaming methodologies, the Maptivity integrates the ISO 37101 standard for sustainable community development as a guiding framework. This ensures that local initiatives explored during the game are aligned with internationally recognised sustainability objectives.

In this hands-on workshop, participants are invited to become familiar with the ISO standard for sustainable community development through a collaborative card-based gameplay. Working in interdisciplinary teams, participants will take on the roles of various community actors and work toward a shared goal: designing a sustainable neighbourhood. The game encourages critical thinking, negotiation, and creativity while illustrating how different priorities and resources interact within complex urban systems.

By participating, attendees will experience how the Maptivity strengthens cross-sector collaboration, enhances informed decision-making, and accelerates the development of locally grounded sustainability strategies. The workshop aims to demonstrate how communities can move from fragmented initiatives to coordinated, impactful transformation, making sustainability concepts concrete, practical, and achievable.

**Keywords:** sustainable communities, urban planning, serious game

## Workshop D7

# Inclusive planning process for Nature-Based Solutions: a role-play approach to sustainability education

Room: Seminarium S203

**Oskari Ylikoski**, Elina Oksanen, Tiina Ynnilä

*University of Eastern Finland*

Nature-Based Solutions (NBS) have been identified by the European Commission as key strategies for addressing sustainability challenges, including sustainable urbanization, ecosystem restoration, climate adaptation and environmental risk management. However full embedment of NBS as real tools to combat societal challenges has not happened. This far, NBS has tended to serve high-income areas, which is unfair to the disadvantaged groups in society (Anguelovski et al. 2022). Like with other sustainability related solutions, NBS is also subject of green washing. Focusing on transparent decision making processes is essential regarding NBS.

eNaBIS is an EU/Horizon project aiming to create new ways for Higher Education Institutes to teach and discuss about Nature-Based Solutions, using education as a way of streamlining NBS to society at large. Recent eNaBIS survey by Keryan et al. (2025) revealed that the integration of NBS in university curricula remains fragmented, with limited interdisciplinary collaboration and a noticeable gap between theoretical knowledge and practical application. However, innovative formats such as Living Labs and co-creation with societal actors was found to have strong potential to support transformative, challenge-based learning.

In this workshop we want to introduce an educational exercise designed to foster systems thinking and simulate inclusive decision making among students. Participants will simulate NBS planning processes, using realistic information about a case location, including ecological, environmental and socio-economic data. Combining information processing and role play we want to create a possibility for students to explore what is important in NBS planning.

By piloting this approach during Wisdom Days, we aim to collect feedback on its pedagogical value and explore how this kind of learning can help future professionals to integrate NBS into society in a fair and effective manner. The session is relevant for educators and researchers interested in transformative sustainability education.

**Keywords:** Nature-Based Solutions, biodiversity, education, systems thinking

**Session E1**  
**Decolonial and Just Transformations**

Friday 8 May, 13:10-14:30

Room: Main building, C1

Session chair: Heli Kukkurainen

## **Just Sustainability: Strategies for Diversifying, Decolonizing, Deglobalizing**

**Bonn Juego**

*University of Jyväskylä*

This talk or workshop will engage with the concept of 'just sustainability', treated both as an analytical framework and a set of practical strategies of diversifying, decolonizing, and deglobalizing. It will problematize and strategize against the capitalist, colonialist, and nationalist orientation of mainstream sustainability discourses and policies.

The starting point is the observation that the dominant discourse of sustainability is informed and shaped by the interdependent ideologies of capitalism, colonialism, and nationalism. As such, we problematize and strategize against the capitalist, colonialist, and nationalist orientation of predominant sustainability projects and programs from governments to international institutions.

Utilizing a decolonial, historical, and global approach, central to the analysis is a critique of capitalism as a mode of techno-economic production and socio-political relations that profits from the accumulation of waste, thru wasted living and wasted lives, wasting people and nature, converting valuable beings into wasteful things.

**Keywords:** just sustainability, global justice, decolonization, deglobalization, capitalism

## Affectively Just Sustainability Transitions

**Katja Tiisala**

*University of Helsinki*

It has become recognised that concerns of justice are central in sustainability transitions. To analyse just sustainability transitions, multidimensional frameworks of justice have often been applied. In these frameworks, justice can, for instance, be theorised through recognition, distribution, and procedural justice. In philosophy, critical social theorist Nancy Fraser's three-dimensional view of justice (recognition, distribution, and political representation) has been a theoretical ground for these developments.

However, the prevailing ways to theorise just sustainability transitions in a multi-dimensional manner have not hitherto taken into consideration recent theorisation of affectivity as an issue of justice. For example, Kathleen Lynch argues for adding the fourth dimension of relational justice to Fraser's model, and this relational dimension of justice pertains to affective relations. Furthermore, philosophical research on the concept of affective or emotional injustice has emerged recently. It has addressed, inter alia, distribution of affective goods and treatment of emotions as issues of justice. So far, sustainability transitions have not been theorised from the perspective of affective and relational justice.

This paper of ethics argues for including affective and relational justice into considerations of justice in sustainability transitions. I propose how to integrate both under the notion of affective sustainability justice into the framework of multidimensional justice for sustainability. Also, my analysis entails that sustainability transitions may inevitably entail changes in affective relations to forward just socio-ecological futures with consideration of justice to all affective beings, including both humans and nonhuman sentient animals.

**Keywords:** affective justice, emotions, relational justice, sustainability ethics, sustainability transitions

## Exploring tensions in pluriversal sustainability transformations: Empirical insight from Ecuador

Riina Bhatia<sup>1,2</sup>, Javier Cuestas-Caza<sup>3</sup>

<sup>1</sup>*University of Helsinki*

<sup>2</sup>*VTT Technical Research Centre of Finland*

<sup>3</sup>*Escuela Politécnica Nacional, Ecuador*

Pluriversality is emerging as a critical lens in sustainability transitions research. It emphasizes transformations as enabling the coexistence of diverse place-based ways of life, knowledges, and ontologies. This paper explores the tensions in pluriversal transformations. Drawing on empirical research conducted in Ecuador—a country whose 2008 constitution enshrined the concept of Buen Vivir (Sumak Kawsay) and aimed to decentralize governance, recognize nature’s rights, and integrate indigenous knowledge into development policy. Through interviews with indigenous communities, civil society organizations, universities, and government officials, we examine how differing epistemological and ontological understandings of sustainability shape visions for the future, pathways, and practices. Our findings reveal that while Ecuador’s constitutional reforms were initially celebrated as a model of epistemic pluralism, persistent extractivist economic policies, ecomodernism and strengthened state control have limited transformative potential and undermined indigenous autonomy. We argue that persistence of different worldviews, results in key tensions for pluriversality - growth versus harmony, efficiency-led mitigation versus regenerative re-existence, and centralized governance versus community self-determination. These stem from different understandings of sustainability. We argue that that a meaningful pluriversal transformation requires not only formal recognition of differences, but also weaving together different worlds through recognizing alternative ways to exist, redistributing power, supporting local actions, and the creation of alliances across diverse actors.

**Keywords:** sustainability transformations, pluriverse, tensions, Ecuador, decolonial studies

## Green Competition and Its Losers: Indigenous Rights in the Arctic Non-Transition

Sade Mäntylä, Dorothee Cambou, Berfin Osso, Tero Kivinen

*Faculty of Law, University of Helsinki*

What role does law play in designing a just sustainability transformation?

In this talk, I explore the systemic tensions in the economy and its regulation in the context of the society's need to undergo a sustainability transformation. While much attention has been geared towards what is new about the transition to a more sustainable society, less focus has been put to what remains the same. Whilst designing a socially, environmentally and economically sustainable system requires shared accountability, cooperation and a common goal, the current economic culture and its legal framework that encourage a race for competitive profit and extractive value creation discourage, if not outright make it impossible. How might we overcome this paradox at the core of the planetary crisis?

By drawing on the green transition's impacts on the rights of the Indigenous Saami Peoples in Finland, I will explain how the dominant economic culture and its legal framework shape the transition. The talk will bring the critical systems analysis to practice by discussing the practical, lived experiences of Saami

communities and their legal protection in the capitalistic world-ecology. These perspectives can serve as counter-narratives that challenge dominant sustainability paradigms and redefine what transformation means.

**Keywords:** green and just transition, economic sustainability, justice, human rights

**Session E2**  
**Professions and Workplaces in Transition**

Friday 8 May, 13:10-14:30

Room: Main building, C2

Session chair: Linda Majander

## Deep Leverage Points in Healthcare: Reframing Human–Nature Relationships for Systemic Change

Charlotta Holmström, Jaana Laisi, Leena Helenius

*University of Helsinki*

Healthcare increasingly engages in environmental sustainability, yet the deepest leverage points for systemic transformation—paradigms shaping system intent—remain largely overlooked. Donella Meadows' leverage points framework (1999; 2008) identifies paradigm shifts as the most effective but challenging interventions for sustainability. HUMUS – Health Care for a Sustainable Future (2021–2024), a transdisciplinary project at the University of Helsinki, explored how healthcare can act as a driver of sustainability by targeting these deep leverage points.

We combined co-creational and participatory approaches with systemic thinking to identify and challenge prevailing paradigms of human–nature and health–nature relationships. Sustainability scientists and primary healthcare professionals collaborated to co-create alternative perspectives that integrate ecological and health systems.

Our findings reveal that dominant healthcare paradigms disconnect health from ecological systems, limiting sustainability potential. Through participatory dialogue, researchers and participants developed new conceptual pathways emphasizing human–nature connectedness and planetary health principles. These insights translate into actionable strategies for embedding sustainability into clinical routines, medical education, and organizational practices.

HUMUS demonstrates that paradigm shifts in healthcare are not only possible but essential for systemic sustainability transformation. By reframing health as inseparable from ecological wellbeing, healthcare professionals can become key agents of change. We present practical recommendations for integrating these paradigm shifts into everyday healthcare and outline their implications for broader societal transitions toward sustainability.

**Keywords:** sustainability transformation, healthcare, leverage points, paradigms, planetary health and well-being, transdisciplinarity

## Sustainability Competencies in the Workplaces: A Systematic Review

Lu Fu, Ulla Kemi, Ilkka Ratinen

*University of Lapland*

In past decades, a growing body of research has identified sustainability competencies as a pivotal element in the process of sustainability transition. However, the topic is mainly discussed in the educational field, and few studies have investigated it in the workplaces. The aim of this study is to identify sustainability competencies required in the workplaces and propose a conceptual model applicable across diverse work contexts. Based on PRISMA guidelines, this study synthesizes findings from 23 articles between 2011 and 2025, using the following databases: ERIC, Scopus, Web of Science, and EBSCOhost. The findings show that key competencies in higher education such as systems thinking, values thinking, anticipatory thinking, strategic thinking, and interpersonal competency are still prevalent in the work-places. Basic academic competency, although not identified as a key sustainability competency, is highly recognized among professionals in practice. Intrapersonal and implementation competence assumes a secondary role. Furthermore, this study identifies four additional competencies: leadership competency, political competency, entrepreneurial competency, and connection-to-nature competency. In the end, a conceptual model integrating all the identified competencies is proposed. This model consists of cognitive competency, affective competency, social competency, and functional competency, and its implications are discussed in detail as a conclusion.

**Keywords:** sustainability competencies, sustainability transition, workplace, professionals.

## **The sustainability agency of civil servants: navigating tensions of sustainability transformations within the politico-administrative system**

**Miia Toikka**

*University of Vaasa*

This study explores the role of civil servants as agents of sustainability within the Finnish politico-administrative system, focusing on the tensions, constraints and opportunities encountered in policy and legal processes relevant to ecological sustainability transformation. While study of systemic change often emphasizes top-down approaches, this research highlights the significance of human agency and everyday practices in fostering societal shifts towards ecological sustainability. Drawing on practice theory and a relational ontology, the study investigates how organizational practices, relationships, and situated contexts enable or constrain civil servants' capacity to advance sustainability goals.

Utilizing a qualitative, abductive methodology, data is collected through in-depth thematic interviews with civil servants across various government levels, complemented by participatory observation and document analysis. The analysis aims to develop a nuanced understanding of how everyday practices contribute to broader systemic change, emphasizing the relational and material aspects that shape agency. Preliminary findings indicate that normative organizational cultures, routines, and situational constraints influence sustainability agency, but small modifications to practices may present opportunities for meaningful change.

Theoretically, this research demonstrates the importance of everyday interactions and practices in driving sustainability transformations, offering practical insights for policy makers and administrative leaders seeking to foster a culture of sustainability. By illuminating the complex realities faced by civil servants, the study contributes to a deeper understanding of agency within complex governance systems and emphasizes the potential for cumulative practice changes to co-create sustainability efforts across societal levels.

**Keywords:** sustainability agency, governance systems, relational agency, practice theory

## Work as a deep lever in socioecological transformations

**Eeva Houtbeckers**

*University of Eastern Finland*

Although work is a fundamental part of modern societies and a key component in social metabolism, it relatively less discussed in the models and thinking about socioecological transformations. While citizens may be recognised in these models as consumers, the role of workers is often overlooked. Based on research in three separate projects since 2017, I argue that there is a need to critically examine and redefine what work is and what it could be in socioecological transformations.

First, this presentation discusses the omissions and tensions in existing literature on work in socioecological transformations spread across various disciplines. For example, theorising on “green work” tends to emphasise waged labour, the growth economy, and global North. Previous research in, for example, degrowth and diverse economies highlights the existing practices and potentialities of other types of work, such as care, reproductive and subsistence labour. Yet, some debates may omit planetary boundaries. Second, to address this, I present a framework of transformative work based on empirical research among workers and work-related institutions in Finland. By focusing on people participating in socioecological transformations at their work, places of production and reproduction, it is possible to consider new deep levers for advancing a more ecologically and socially just societies.

This presentation draws from existing research focusing on the participation of workers in socioecological transformations—such as workers of the Earth, Earthcare, worker agency, sustainability agency, and labour agency in socioecological transformations—and complements these with empirical evidence from workers engaged in waged and non-waged transformative work.

**Keywords:** Work, livelihoods, agency, workers, socioecological transformations

## Promoting the sustainability transition: Advancing political and structural action in social work

Satu Ranta-Tyrkkö<sup>1</sup>, Kati Närhi<sup>2</sup>

<sup>1</sup>*Finland*

<sup>2</sup>*University of Jyväskylä*

This presentation examines how social work can be a potential transformative actor in the sustainability transition towards more sustainable societies. The sustainability transition acknowledges the interdependence between social and ecological issues caused by the global environmental crisis, combining ecological, economic, and social dimensions of development. The presentation draws on elements from two social work traditions – structural and ecosocial work – as a means for moving away from a traditional anthropocentric perspective towards a more ecocentric understanding of wellbeing. As part of the sustainability transition, social work aims to stimulate awareness of the intrinsic link between human wellbeing and environmental wellbeing and to address the disproportionate impacts of the global environmental crisis on people and communities experiencing poverty and disadvantage. More broadly however, social work endeavours to engage in political action to challenge oppressive structures in societies that cause these disproportionate impacts. This transformative approach to the sustainability transition involves creating an agenda for solutions (politics) to the ecological crisis, instead of only implementing the agenda of others (policy). Neoliberal ideas emphasising the economicisation and individual responsibility weaken the possibilities of practicing ecosocial work. Specific strategies are identified with consideration of how social work can be a transformative actor at multidimensional levels of practice to work politically, ecosocially, and structurally towards a more sustainable society.

**Keywords:** sustainability transition, structural social work, ecosocial work, political action

**Session E3**  
**Collective Action, Art, and Agency**

Friday 8 May, 13:10-14:30

Room: Main building, C4

Session chair: Anna-Kaisa Koski

## **When civil society actors meet citizens on the low-carbon energy turf: Insights for enacting everyday energy citizenship in Zambia**

**Felix Dade**

*University of Jyväskylä*

The energy transition slowly occurring in Sub-Saharan Africa goes beyond the technical dimensions into how communities participate in the transition. In Zambia, sustained droughts have limited electricity supply from hydro sources shifting policies towards renewables and the involvement of non-state actors such as Civil Society Actors (CSAs). CSAs provide communities with renewables and support poor communities to adopt and adapt to renewable technologies and fuels. These interventions enhance both access and sustainability vital for energy transition. This article examines two such CSAs-led interventions in Zambia that mobilize local citizens as active participants in clean distributed energy systems. Drawing on 65 interviews with representatives of CSAs, key informants, and households across two communities implementing renewable energy projects, we analyze the strategies used to foster “energy citizenship.” We explore how citizens take up (or resist) new roles and responsibilities in energy governance, and how these practices are embedded in everyday social routines. By situating energy citizenship within the lived experiences of communities in the Global South, the article contributes to expanding the concept beyond its Northern framing, highlighting how everyday acts and practices shape low-carbon transitions in local contexts.

**Keywords:** energy citizenship, Zambia, renewable energy

## Unlocking Flexibility Through Community: Insights from a Qualitative Study of Swedish Energy Communities

Oula Terttunen

*Smart Innovation Norway*

This presentation explores how Swedish energy communities understand and approach energy flexibility, drawing on a qualitative interview study conducted within the EU project BeFlexible's Northern European demonstration. Energy communities are increasingly viewed as key actors in enabling more adaptive, resilient, and citizen-centered energy systems. Yet in Sweden, their potential remains largely untapped. Through in-depth semi-structured interviews with existing and emerging community initiatives and stakeholders, the study examined perceptions of flexibility, practical barriers, desired benefits, and conditions needed for participation.

The findings show strong interest in contributing to local sustainability goals, enhancing community resilience, and supporting broader electrification efforts. Participants associated flexibility with fairness, local control, and shared responsibility; motivations extending far beyond financial incentives. However, several obstacles persist, including unclear regulation, limited technical capacity, lack of standardised tools, and insufficient support for automation. Interviewees emphasized that meaningful participation requires transparent communication, trust in system operators, and solutions that reduce the cognitive load on citizens. Importantly, automation and "invisible" integration of flexibility into everyday routines were seen as essential for long-term engagement.

These insights reveal that energy communities hold significant social capital for advancing flexibility solutions but require enabling frameworks that acknowledge their collective identity, values, and capacities. By highlighting the lived experiences behind flexibility adoption, this study contributes to a deeper understanding of how community-based action can support sustainability transformations in practice.

**Keywords:** Energy communities, Flexibility, Prosumer participation, Citizen engagement

## Voicing a Landscape –Negotiating Place-based Belonging through Multimodal Recalibration of Aesthetic Sensibilities

Teemu Lehmusruusu

*Aalto University*

In the presentation, I align the resonant ways of ecological engagement of the regenerative sustainability paradigm with transdisciplinary place-based artistic practices. By bridging the processes of contemporary art and sustainability transformations, I aim to facilitate the fluidity and ease of their co-creative entanglements and kinship. I demonstrate that art does not need to be instrumentalized or applied to participate in transdisciplinary processes.

Highlighting the open-ended, reflexive, and ongoing engagement with place, enabled by artistic practices, I present the method of 'voicing a landscape' as a reflective action of renegotiating belonging and recalibrating sensibilities through multimodal discursive encounters. On-site, the embodied sensory perception is rattled by other epistemic sources, such as environmental data monitoring, traces of political decision-making, and ecological knowledge. I present cases of how the process has manifested in public space artworks. The method aims to foster a shift in cultural paradigm, in values, beliefs, and worldviews – in accordance with the ethos of 'inner sustainability,' an area where artistic practices are particularly relevant.

I base my inquiry on long-term field engagement and correspondence with farmer-researchers and soil and climate researchers (through the Carbon Action platform by FMI and BSAG), as well as on the artistic productions in the Trophic Verses project. I view the co-creative process as regenerative place-making through art. It offers sites of attention and attunement for multispecies encounters and recalibration of aesthetic sensibilities and valuations – all forming part of the ongoing negotiations of belonging in the age of sustainability transformations.

**Keywords:** Regenerative sustainability, Eco-Aesthetics, Farming Landscapes, Sensory Ethnography, Transdisciplinarity

## **Toward transformative planetary agency: science-integrated community art as a catalyst for sustainability transition**

**Sonja Salomäki**

*University of Lapland, visiting researcher at the University of Jyväskylä*

Community-based artistic practices can contribute to the sustainability transition and co-creation of knowledge. Beyond scientific knowledge, cultural and creative responses are needed to influence beliefs, values, and worldviews. Art's capacity to offer alternative perspectives can counteract paralysis from declining planetary viability, perceived lack of agency, and sociopolitical threats.

This paper examines Planetbic and the Planetary Workshops, an initiative in Jyväskylä (2025–26) that integrates scientific knowledge about planetary boundaries with diverse art forms. The project aims to enact and disseminate creative interventions addressing planetary boundaries across physical and digital environments. It provides a discursive and experiential platform for fostering shared planetary agency among the working group, participants, and collaborators.

Building on previous research, the project combines established bodily and multisensory approaches with integrated scientific knowledge to support the systemic thinking required to internalize planetary well-being realities.

Collective artistic processes and critical examination of phenomena challenge passive knowledge consumption and consumerist paradigms, enabling participants to articulate values, process emotions, and strengthen confidence—potentially extending planetary agency beyond artistic contexts.

Building on my doctoral dissertation, which demonstrates community art as a particularly powerful mode for promoting sustainability transitions, this initiative explores whether sustained creative interventions can deepen transformative engagement.

Although one year is insufficient for a comprehensive impact assessment, the analysis beginning in May 2026, using participant surveys, observational data, and discussion notes, will present preliminary findings on the impact, illuminating the planetary agency generated by the workshops and challenges in Finland's socio-economic context, where financial imperatives outweigh planetary boundaries.

**Keywords:** planetary wellbeing, community art, sustainability transition, transformative learning

## The Heritage Futures Network of Museums as a Catalyzer for Sustainability Transformation

Pauliina Latvala-Harvilahti<sup>1</sup>, Leena Paaskoski<sup>2</sup>, Pauliina Latvala-Harvilahti<sup>1</sup>

<sup>1</sup>*Suomen Museoliitto / Finnish Museum Association*

<sup>2</sup>*The Finnish Forest Museum Lusto*

Planetary well-being requires socially influential and reliable actors, such as museums. Towards eco-social all-round education. The Heritage Future Network of Museums as a catalyzer for sustainability transformation project (starting April 2026) is a science-based project funded by The Nessling Foundation. The project is based at the Finnish Museums Association. The project strengthens and accelerates the cultural sustainability transition of individuals, communities, and society as a whole by bringing together Finland's 152 museums into a professional museum network that will serve as a permanent Heritage Futures Network for this work. The process of joint development between museums aims to create new museum strategies, tools and practices that accelerate the transformation to sustainability. The ultimate goal of the project is to bring about ambitious change in both the core activities of museum work and the everyday lives of museum users. The three “developing museums” in the project are Finnish Forest Museum Lusto, Forum Marinum Maritime Centre and the Finnish Museum of the Photography. In addition, the pilot museums invited to participate in the project will test new tools and operating methods.

**Keywords:** heritage futures, museums, network, sustainability transformation

## Co-creating change in heritage futures workshops

Janna Jokela

*Finland Futures Research Center / University of Turku*

In a world facing a multitude of ecological and social crises, it is apparent that a profound sustainability transformation is needed. This means a complete upheaval of current ways of doing and being in the world. It requires shifting attention from external factors to the most powerful leverage points embedded in culture: people's mindsets, values, and worldviews. However, such a change cannot be imposed from the outside: it must emerge from within the very people it concerns. How can we create opportunities for this kind of transformative thinking?

Heritage futures workshops are one platform where these discussions can take place. Heritage futures is a new concept that combines critical heritage studies, futures studies, and sustainability studies. It refers to a new form of intangible cultural heritage – skills, practices, values, and ways of thinking – that are aimed at building ecologically sustainable futures. The co-creation of heritage futures enables people to consider the legacy of their actions and to make changes in their everyday lives that can eventually help achieve sustainability transformation.

This presentation shares examples of several heritage futures workshops organised in collaboration with Finnish museums. The focus is on the results the workshops have yielded and the experiences the participants have shared. By folding the future into the present, heritage futures workshops create space for new insights to emerge. They represent one way to bring about cultural sustainability transformation on a very personal level: in people`s everyday practices and thinking.

**Keywords:** cultural sustainability transformation; heritage futures; heritage futures workshops

## **Bridging the divide: shared cultural meanings of “eating well”**

**Tanja Niemi, Teea Kortetmäki**

*University of Jyväskylä / Department of Social Sciences and Philosophy*

Transforming the food system to better support human and planetary health is one of the central challenges of the sustainability transition (e.g., Willett et al 2019). In addition to its material elements of consumption and production, the food system encompasses cultural dimensions, such as considerations of good and acceptable food. These culturally embedded understandings shape dietary practices and influence the feasibility of transition pathways. Current discourses on food system transformation often overlook the role of cultural values (Tulloch et al 2023), which are essential for developing context-sensitive and regionally feasible solutions (Biesbroek et al 2023). Paradigmatic assumptions have been suggested as one of the deepest leverage points for sustainability transitions (Meadows 1999). Sustainability transformation is not solely a material issue, but also a matter of consciousness and meaning. Participatory approaches that explore perceptions can illuminate the epistemological foundations of the sustainability crisis and support more culturally grounded and feasible transition pathways (Caccamo et al. 2023).

In this study, we collaborated with Martat (The Martha Organization), a Finnish civic organisation focused on home economics and well-being. We co-organised cooking courses under the theme “Finnish food culture in transition”, where participants prepared dishes that both represent Finnish food culture and promote dietary change. Cooking together and the shared meal at the end of each session provided a space for facilitated discussions on themes such as “eating well” and the evolving food culture. Preliminary insights from these conversations will be presented, offering a window into culturally embedded understandings of dietary change and sustainability.

**Keywords:** dietary transition, behavioral change, transition discourse, food culture

## **Session E4**

### **Ways of Living in Planetary Well-Being**

Friday 8 May, 13:10-14:30

Room: Seminarium, S212

Session chair: Corinna Casi

## Changing the Way We Live: Ecological Renouncing as Responsible Relational Action

Taina Kalliokoski

*University of Eastern Finland*

Exceeding planetary boundaries have awakened individuals and communities: we must give up things that have been taken for granted in the past. In order to enhance the ecological transition, new ideas are needed. This talk aims to examine a coined term ecological renunciation and how it relates to the concepts of responsibility and social action. The examination applies philosophical analysis: thorough thinking and clarifying conceptual distinctions and connections. For ecologically effective change in lifestyle, the change in moral and social thinking is needed.

The term renouncing is used in many religions where ascetic lifestyle is practised. For an action to be renouncing, there needs to be a way of acting that the individual or group agent or their relevant communities considers normal. This notion gives grounds for arguing that renouncing is inherently relational concept. For example, there would not be need for giving up flying for ecological reasons if flying had not become a collective norm as a means of travel. Still, the ecological renouncers might argue that abandoning flying is a responsible thing to do.

Responsibility is a relational concept as well, because it encompasses ideas of a responsible agent, someone for whom the agent responds to, and an agent's area of responsibility. An ecological renouncer, however, could say that we have an obligation to preserve the living conditions of all living creatures and future generations. In that sense, in ecological renouncing the renouncer indicate a strong moral commitment to non-human and non-existent parties as well.

**Keywords:** ecological renunciation, responsibility, social action, philosophy of action

## Proposing Wisdom Forests as Support for Sustainability Transformations

Hendrik Stark, Stefan Schmidt

*University of Freiburg*

Contemplative science suggests that creating sustainable societies requires a shift in existential awareness: a widening of perspective and a reduction of self-fixation. We refer to this shift as the cultivation of wisdom: the experiential insight into the construed nature of self, meaning and reality, and how they are based on interdependent processes that guide action and orientation. We propose a setting for this shift in existential awareness: Wisdom Forests. Drawing on environmental psychology, contemplative science, ecosystem-services research and Buddhist psychology, our aim is to develop the Wisdom Forest Islands (WFI) framework as a basis for empirical research. We define WFIs as selected natural or curated forest patches with diverse structures, tree regeneration, vital canopy, veteran trees, decay phases and dead wood, together displaying multiple life-cycle stages in close proximity. Our research question is whether WFIs can help modulate existential awareness and thereby foster sustainability. Consistent with existing literature, WFIs first provide conditions for calming the mind, enhanced by meditative practices that stabilise attention. WFI-cues of change, impermanence and dependence are then applied to oneself through analytical meditation. Building on evidence on nature-based experiences, awe and self-transcendence, we hypothesise that WFIs promote interconnectedness, humility, care and sufficiency, qualities that support pro-environmental engagement and wellbeing. We are developing WFIs as a nature-based educational intervention within the IPBES framework of Nature's Contributions to People. Should WFIs show measurable support for sustainability-related behaviour and engagement across societal spheres, they can be scaled as curated community-level interventions in support of planetary health.

**Keywords:** forests, meditation, self, behavior, culture

## Connection with Nature and Well-Being in the Roma Communities

**Ionut Cioarta**

*University of Glasgow*

This study explores how Roma communities understand and live in connection with nature, and how this relationship supports collective well-being and offers insights for sustainable futures. Based on the findings of a multi-national research project in Scotland, England, and Spain – “Gypsies Forging Sustainable Futures”(GFSF) – this presentation underlines everyday practices of Roma, including repairing, recycling, and reusing materials, the use of plants, sharing resources and communal living and mutual support. These practices demonstrate a commitment to sustainability grounded in respect, reciprocity, and living simply.

By exploring Romani sustainable values and ecological wisdom, this study unpacks how members of the community engage with intergenerational knowledge sharing, artistic expression, and cultural sustainability.

Viewing the connection with nature and collective well-being from a Romani perspective, the study contributes to broader debates on planetary well-being, demonstrating how marginalised ecological knowledge systems expand our understanding of sustainability beyond policy frameworks. Additionally, Roma practices of collective well-being illuminate alternative pathways for living in harmony with nature, offering relational, cultural, and ethical models essential for reimagining communities and ecological flourishing.

The GFSF project is conducted by a consortium of three Universities (University of Glasgow, Coventry University, and University of Almeria), supported by four local Roma organisations, and funded by the Arts and Humanities Research Council in the UK.

**Keywords:** Roma community, wellbeing, sustainability

## **The voice of rural areas in Guinea, West Africa. How do rural development projects influence the communities and their future visions?**

**Tanja Lumme**

*University of Helsinki*

The research is situated in Guinea, where an NGO (non-governmental organisation) collaborates with communities to develop agricultural practices that restore soil fertility and natural resources, and promotes rural employment. The chosen research method, ethnography, includes participation in everyday life, collaboration in workshops, spontaneous conversations, and key actor interviews to get a deeper understanding of the drive and inspiration for the change.

The goal of the research is to increase understanding of what the drivers of rural development are; how development projects impact social sustainability in the communities; what are the community's future visions and the pathways to achieve their goals; how the locals define the good life and how the Global North can help them to reach that?

The research is important because it helps to understand e.g. how to trigger climate actions, create more space for nature and how to fight against hunger. In addition, the aim is to give a voice for the rural population in the Global South and share their thoughts about the future. Furthermore, contribute to the discussion of a good life and how to increase equality between the Global South and the Global North.

The first visit for material collection in Guinea is planned between January and April 2026. The expectation is that there are some experiences to share in addition to the research plan.

**Keywords:** rural development, Future visions, the Global South

## **From Metacrisis to Flourishing: Leveraging Positive Psychology for Resilience and Regeneration in Times of Collapse**

**Philippe Arnez**

*Culture4Flow*

As humanity confronts the Metacrisis—environmental collapse, societal breakdown, rising youth anxiety, epidemic loneliness, and escalating conflict—despair threatens our collective capacity for action. With seven of nine planetary boundaries crossed and mounting evidence of societal unravelling, finding meaningful pathways forward becomes essential for survival.

This presentation argues that positive psychology offers critical insights for navigating collapse with agency rather than passivity. Drawing on 25 years of research, we explore how individual and community flourishing remains possible—and necessary—even amid crisis. Mihaly Csikszentmihalyi's concept of "evolutionary cells" provides a framework for creating laboratories of new ways of being and organizing that can seed regenerative futures.

Rather than incremental change, evidence demonstrates that fundamental system transformation is required—a "giant leap" in behaviors, structures, and living patterns. This generation's responsibility lies in laying groundwork for what emerges from collapse. Key to this process is moving through denial to face truth directly, allowing appropriate grief for the world we're losing, while building antifragility—the capacity to grow stronger through adversity.

This presentation synthesizes positive psychology research on resilience, flourishing, and community well-being to offer practical frameworks for thriving through civilizational transition. We examine how mental well-being intersects with physical and ecological health by recognizing our embeddedness in larger living systems. The presentation concludes with actionable starting points for individuals and communities seeking to build resilience and meaning during unprecedented upheaval.

**Keywords:** Metacrisis, resilience, flourishing, antifragility, evolutionary cells

## Theories of human wellbeing within planetary wellbeing

Liia Raippalinna, Miikka Salo

*University of Jyväskylä*

The concept of planetary well-being (PW) has recently been advanced to overcome the entrenched human–nature dichotomy in well-being research and to provide a shared language for addressing the well-being of all life. PW emphasizes the integrity of Earth system and ecosystem processes as the foundation of well-being, defining it as a state in which the integrity of these processes remains unimpaired to the extent that lineages can persist into the future as parts of ecosystems, and organisms—human and nonhuman—can realise their typical characteristics and capacities.

Yet, the position of human well-being within PW remains under-theorized. To address this gap, we examined existing scientific theories of human well-being and assessed their compatibility with the core premises of PW. Our aim is to explore whether, and in what ways, prevailing theories can contribute to conceptualising human well-being within PW.

PW aspires to a paradigm shift: from individual, static, and anthropocentric notions of well-being towards systemic, processual, and non-anthropocentric understandings. Most existing theories of well-being, however, embed assumptions—about methods, values, and indicators—that contradict or limit this shift. At the same time, these theories are not without value: they can highlight blind spots and problematic assumptions in PW itself, thus offering constructive tensions for refining the concept.

In this presentation, we discuss preliminary findings from our investigation, outlining how theories of human well-being both challenge and potentially enrich the emerging framework of planetary well-being.

**Keywords:** planetary well-being; well-being theories; sustainability transformation

## **Session E5**

# **Regenerative Business and Sustainable Economic Futures**

Friday 8 May, 13:10-14:30

Room: Seminarium, S204

Session chair: Claudia Kovács

## Leading sustainability transition in bioeconomy with challenge-driven open innovation

Anna Aalto

*BioBoosters by Jamk University of Applied Sciences*

Implemented between 2023 and 2025, the BioBoosters – Boosting Circular Transition project advanced the circular transition of bioeconomy businesses across the Baltic Sea Region. Recognizing the untapped potential of rural areas—rich in natural resources and highlighted in regional and macroregional strategies—the project aimed to foster sustainable growth in bioeconomy sectors through circular economy models. These models offer a pathway to create employment and economic opportunities in rural regions without compromising environmental sustainability. Achieving this transition requires innovation, collaboration, and cross-sectoral partnerships.

To address this need, the project facilitated 18 inter-regional open innovation processes—BioBoosters hackathons—linking bioeconomy innovation ecosystems across nine regions in seven Baltic Sea countries: Finland, Sweden, Germany, Poland, Estonia, Latvia, and Lithuania. These hackathons provided a practical and effective method for generating and prototyping solutions to real-world industry challenges. The project demonstrated the value of this model in accelerating sustainability transitions by fostering dialogue between academia, industry, and regional actors across sectors and borders.

The analysis draws on a dataset of 18 circular bioeconomy challenges sourced directly from companies operating in the region. The findings highlight the potential of open innovation to catalyze systemic change in bioeconomy sectors and underscore the importance of regional collaboration in driving circular solutions. The BioBoosters model offers a scalable framework for future initiatives aiming to strengthen circular bioeconomy transitions demonstrating the value of open innovation dialogue in leading sustainability transition of business and industry.

**Keywords:** Sustainable development, circular economy, bioeconomy, open innovation, hackathon

## Regenerative organising – can big companies be regenerative?

Anna Härri, Minna Halme

*Aalto University*

The sustainability paradigm is criticized for failing to answer deep-rooted environmental challenges. Regenerative business is a nascent concept foreseen to go beyond traditional sustainability thinking, aiming at the regeneration of degenerated socio-ecological systems. Empirical examples on organisations implementing regenerative strategies are often on small, local organisations. The focus on smaller companies likely reflects the depicted nature of regenerative business. In the definitions of regeneration, local socio-ecological systems are at the core of the concept, and regeneration implies an interactive relationship between the business and local socio-ecological systems. Co-creative partnerships with social communities and nature are key enablers of regeneration. In practice, this could mean local solutions adjusted to specific local contexts, instead of homogenized one-size-fits-all business policies. This is in stark contrast with the developments of the last decade, where corporations implement homogenized sustainability policies around the globe – begging the question: can a large company be regenerative and under what conditions?

Our case study delves into the practices and strategies of a large Finnish forest company developing a regenerative strategy and trying to implement regenerative forestry. We have conducted 15 qualitative interviews with the company and its stakeholders. Early findings suggests that big companies may face difficulties in implementing ambitious regenerative business, especially if the leadership and the frame for their activities is too rigid. There are several core elements that should be considered when large businesses engage in efforts for regeneration, such as regenerative end-use and place-based regeneration. A co-operative business model may enable more ambitious regenerative activities.

**Keywords:** regenerative business, forestry, regenerative organising

## Bringing organizations into the more-than-human world through perceptual expansions

Heini Salonen<sup>1</sup>, Tuukka Toivonen<sup>2,3</sup>

<sup>1</sup>*University of Helsinki*

<sup>2</sup>*University College London*

<sup>3</sup>*Loughborough University London*

Contemporary organizations remain deeply disconnected from the living world, operating within frameworks that privilege human-centered ways of knowing and acting. In this talk, we suggest that this disconnection is one of the root causes of our current sustainability crisis and that it stems from a deeper issue: how organizations perceive — or fail to perceive — the more-than-human world around them.

Drawing on the phenomenological insights of Merleau-Ponty, Abram, and others, we explore the concept of organizational perception and how expanding it can help reweave organizational relationships with the more-than-human world. We identify four forms of perceptual expansion: (1) opening up to direct, pre-reflective perceiving to transcend the dominance of analytical thought; (2) reclaiming the embodied, sensuous faculties of organizational members as a foundation for perceiving the living world; (3) engaging directly with Earth-others to (re-)enter a reciprocal relation with them; and (4) synthesizing different modes and technologies of perceiving, knowing, designing and innovating based on a more-than-human world consciousness.

We explore how these transformations, understood as a continuous and deepening process, can enable organizations to re-establish meaningful relations with the living world. Moreover, we explain how this process gestures toward a new organizational ontology — one that recognizes the agency of non-human life and fosters regenerative possibilities beyond conventional boundaries.

Our first-person phenomenological approach complements new materialist and multi-species perspectives, contributing to the broader project of imagining post-anthropocentric organizations and research practices oriented toward more-than-human and more-than-capitalist futures.

**Keywords:** organization, more-than-human, perception, sustainability, transformation

## Ecologically unequal exchange as a structural barrier to the circular economy

Tiina Häyhä

*Stockholm Resilience Centre, Stockholm University*

The European Union has taken a leadership role in advancing a circular economy. Yet, the transition to circular systems has been slow, as the linear economy remains resilient to change. While technological or behavioral barriers are often cited, we posit a more structural explanation: the global economy's reliance on "ecologically unequal exchange". We conjecture that ecologically unequal exchange reinforces the linear economy and make circular business models systematically uncompetitive. Recent empirical research supports this hypothesis, showing the ecologically unequal exchange as a key systematic factor maintaining high-income countries' overconsumption of materials and energy. This dynamic allows externalisation of environmental and social costs of extraction, keeping virgin material prices low. Consequently, circular economy strategies like recycling and repair, which bear high internal processing cost, cannot often compete with virgin inputs. Nevertheless, the role of ecologically unequal exchange has largely been overlooked in the context of a transition to a circular economy.

**Keywords:** circular economy, linear economy, ecologically unequal exchange, over-consumption

## Transitions towards regenerative strategies in business

Kirsi Salonen<sup>1,2</sup>, Saira Tykkyläinen<sup>1</sup>, Paavo Ritala<sup>1</sup>

<sup>1</sup>*LUT University*

<sup>2</sup>*Maastricht University*

Regenerative business strategies go beyond traditional sustainability practices that aim to minimize harm. They are grounded in systems thinking and seek to actively restore and revive ecological and social systems. While regenerative discourse is gaining traction, the implementation of regenerative approaches in firms remains poorly understood. In this study, we investigate the capabilities that are needed to support an organizational transition toward regenerative strategies. The longitudinal qualitative study follows five Finnish companies participating in a capacity-building program on regenerative business in 2024–2025. The theoretical framing of our study draws from complexity theory, which sees organizations as complex adaptive systems characterized by non-linearity, feedback loops, and emergent outcomes. This perspective provides a lens for understanding how small-scale changes can generate broader shifts in organizational direction and systemic engagement. Our preliminary findings suggest that the adoption of regenerative approaches within firms is often initiated by motivated individuals or teams. These actors introduce new ideas, acquire external knowledge, and experiment with regenerative thinking in ways that can gradually influence organizational routines and strategies. This external exploration and its internal translation is central to our analysis. If businesses are to play an active role in sustainability transitions, they must cultivate new organizational capabilities. Regenerative strategies may offer tools for that, but they require a shift in mindset, organizational routines, and modes of interaction with external systems. This study contributes to both research and practice by identifying critical capabilities for systemic transformation, and by showing how even mainstream firms can engage in regenerative approaches.

**Keywords:** regenerative strategies, regenerative business, capabilities for sustainability transition

## **Bridging Innovation and Justice: Exploring Contextual and Ethical Dimensions of Climate Innovation for Sustainability Transformations**

**Masoud Radvar**

*University of Helsinki*

This research examines how innovation can advance sustainability transformations when guided by principles of climate justice. While many climate initiatives emphasize technological and market efficiency, they often overlook fairness and participation, risking new forms of inequality. Drawing on a qualitative, mixed-methods study that combines an extensive literature review with semi-structured expert interviews across academia, NGOs, and policy sectors, the study explores how innovation processes can be more inclusive, ethical, and context-specific.

The findings identify five key dimensions of just climate innovation: participatory and ethical approaches, appropriate and frugal solutions, structural and institutional critiques, equity and justice considerations, and the concept of ex-novation—the creative phasing out of harmful systems. Together, these themes illustrate that sustainability transformations require rethinking innovation not only as technological progress but as a social and ethical process embedded in power relations.

By integrating diverse expert perspectives, this research contributes to the “Transformations” and “Action, arts, and agency” sub-themes by showing how co-creation, participatory governance, and ethical reflection can foster fair transitions. It offers a framework for policymakers, educators, and practitioners to design climate actions that are both effective and equitable, supporting systemic change toward planetary well-being and sustainable futures.

**Keywords:** sustainability transformations, climate justice, innovation, participatory governance, ex-novation

## **From contingency management to transformative climate risk adaptation? - Analysis of private sector's agency in navigating complex climate risk realities**

**Päivi Tikkakoski, Sirkku Juhola**

*University of Helsinki*

The growing complexity and severity of cross-border climate risks characterised by non-linear impact chains and deep uncertainty questions the capacity of the environmental governance to tackle these problems effectively and in a just manner. To increase the efficiency of climate action, the private sector has been called upon to leverage market-based solutions and technologies especially with regards to emission reduction. However, the extent to which this approach is viable in addressing more complex climate risks is not clear.

We investigate the sustainability argumentation of ten Finnish companies to see how the understanding of climate risks critically shapes their strategic agency. We argue that while some companies are embracing more transformative climate strategies, their assumed roles and responsibilities are caught with the traditional and reactive sustainability discourse underpinned by ecomodernist ideas and rationales of risk governance. This effectively curtails their agency and contributes to unresponsiveness to new climate risk realities.

**Keywords:** climate risk, private sector, agency, environmental governance,

## Workshop E6

### An Ocean of Webs Drowned In Every How

Room: Main building C5

**Ni Lin**

*University of Lapland*

In the non-linear happenings, *An Ocean of Webs Drowned In Every How*, I will invite participants to lay down, fall asleep, and dream as soft words about human/non-human entanglement were spoken and bounced off the walls of a defunct fish processing facility inside a fish factory in Iceland and travel through routes of broken web in the ocean globally. How does the ocean speak to the land? How does an artist provide alternative experiences in communication and initiate re-connection to deeper time? Petrichor—the rain’s breath upon the earth—mingles with the briny scent of the sea, with sulfurous whispers of dimethyl sulfide, with the ghost of phytoplankton and fish; and through the cylindrical metal walls of the fish silo, the ferry horn resounds like a distant summons from the ocean floor. Then, sounds of air reverberated through broken maps, touched and played by my toes and fingers, were recorded and transported through electrical signals accompanied by prepared instruments. “How does Land teach us—and how do we listen through creative practice?” Through underwater fieldwork, performative lecture workshop, I will bring forth experiences of ocean immersions to land, and invite participants to listen to these deep echoes of jellyfish, whales, historical-current narratives...and reflect, imagine, and dream on possibilities of collective re-inhabitation.

**Keywords:** participatory action, decolonization, ocean, sustainable transition

# POSTER SESSION

Thursday 7 May, 16:30-17:40

Space: Main building lobby

# 1 WiT Programme for Global Sustainability and Humanitarian Development

Saija Hollmén, Taru Niskanen, Hani Tarabichi

*Aalto University*

WiT Programme is an interdisciplinary post-master's program, focusing on the resilience of human settlements in the Global Majority context. It is aimed for professionals who aspire to develop their skills and capacities to make a meaningful impact in the field of global humanitarian development through participatory action research and community engagement. It is suitable for professionals with a master's degree and compatible with doctoral-level studies.

Enhancing the resilience of human settlements in low- and middle-income countries, the WiT Programme equips participants with the critical skills and insights needed to drive positive change. The programme is developed in collaboration with partnering organisations globally and hosted by the World in Transition Research LAB (WiTLAB) at Aalto University.

The 3.5-month, 24-credit WiT Programme combines an intensive on-site learning on the Aalto campus, grassroots fieldwork, and online project work. It applies theoretical and practice-based pedagogical methods in resilience and systems thinking. It strives towards decolonial practices with engaged partners, based on mutual knowledge creation and sharing, aiming at societal impact and local development. In addition to academic research methodologies, the studies include problem-based and transformative learning approaches in real-life case studies, research and project design, knowledge creation and cross-cultural communication – to better understand wicked problems and challenges of grassroots cases in real-life settings.

Bringing together the capacities of universities, organisations, and committed professionals, the WiT Programme fosters action towards a more resilient, inclusive, and sustainable world.

**Keywords:** Post-master's programme, Decolonial practices, Humanitarian development, Participatory action research, Community engagement

## 2 Filmed Ecologies and Eco-emotions

**Mika Nousiainen**

*University of Helsinki*

Two exhibitions on the impact of humans on environment have recently been held in Finland. These were IHME Helsinki commission 2025 from Ukrainian artist Zhanna Kadyrova and her exhibition 'The Forest' (24.8.–2.10.2025) in Power Plant Museum, Helsinki. The other one was from German artist Agnes Meyer-Brandis and her exhibition 'As Trees Go By' (12.04.2025–19.04.2026) in Serlachius Manor, Mänttä. 'The Forest' contained a looped video that depicted a single boat in a canopy of the forest which grew in a year after the destruction of the Kahovka dam during the Russo-Ukrainian war in 2023. In 'As Trees Go By', one of the artworks in the exhibition was a multi-channel video installation depicting the Siikaneva peatland and the colour of the vegetation in the area during different seasons. The installation deals with the theme of tree migration, which is a real phenomenon caused by climate change.

This poster focuses on the eco-emotions evoked by these exhibitions. It asks: What emotions does video art evoke in the context of environmental crises? What role can video art play in the sustainability transition? The poster is inspired by the ecocriticism and the recent research on eco-emotions, and it is based on the surveys conducted in the exhibitions.

**Keywords:** Art Exhibitions, Eco-emotions, Ecocriticism, Video Art

### 3 Human Saplings in a Changing World: Youth, Eco-Emotions, and Future Visions in School Gardens

Sirpa Kortelainen

*University of Jyväskylä*

Climate change and biodiversity loss threaten human wellbeing and planetary health, demanding action across society. While existing research primarily explores sustainability agency through sociological theories at the system or niche level, interdisciplinary approaches reveal the role of individual emotions, values, and future visions. The importance of empowering young people to tackle eco-social challenges inherited from previous generations is increasingly emphasised by UN and researchers. However, despite their willingness, young people rarely have direct influence over sustainability issues and are often seen passive recipients of the future. Understanding youth perspectives is crucial in identifying roots for sustainability agency and strengthening it. This study approaches youth agency through perceptions including eco-emotions, nature relationship and visions of sustainable future society and their perceived role in it. I used ethnographic complete- and non-participative observations for in-depth exploration of the perceptions of 11–12-year-olds, school garden workers during summers 2023 – 2024 in a Finnish school and interviews after the gardening season. In the results emerging principles of agency are clearly visible in these human saplings. Four sustainability agency types are identified and related to perceiving different levels of empowerment and tangibility of emotional connection to nature and sustainability. This aligns with youth intrinsic normative future visions reinforcing the idea of emotions being central to future visions and agency. However, the age seems to be a watershed, with societal power structures and prevailing practices acting as counterforces. Therefore, to nurture sustainability agency, acknowledging reciprocal eco-emotions and fostering active nature engagement from an early age is essential.

**Keywords:** sustainability agency, youth agency, sustainable future vision, Eco-emotion

## 4 Exploring Personal Responsibility, Autonomy, and Agency in Sustainable Action

Ruihan Bai

*Tallinn University*

Sustainability transformations require major mindset shifts and behavioural change, yet widespread awareness of sustainability issues often fails to translate into meaningful action. Personal responsibility may serve as a conceptual bridge linking awareness, autonomy, and moral motivation with everyday sustainable practices, but its conceptual foundations remain fragmented and under-examined across disciplines. This study therefore asks: What is personal responsibility, and what role does it play in fostering sustainable behaviour and contributing to wider social, political, and cultural change? The study tentatively posits that autonomy provides the capacity for self-determined choice, while personal responsibility may channel such autonomy into moral agency and lasting sustainable action. In this view, autonomy underpins responsibility, and their interaction may foster deeper individual engagement in sustainable behaviour. Methodologically, the study proceeds in two phases. The first phase undertakes a conceptual analysis to clarify the definition and components of personal responsibility and to explore its conceptual relationship with autonomy and other potential antecedents of agency. The second phase involves an exploratory empirical inquiry using available secondary datasets to examine preliminary associations among autonomy, personal responsibility, and sustainability-related behaviours. As this research is ongoing, the presentation will share preliminary insights from both phases, highlighting emerging patterns and open questions regarding the relationships among autonomy, personal responsibility, and sustainable action. These early findings aim to support further discussion on how individuals may become active agents in co-creating sustainability transformations.

**Keywords:** Personal responsibility; Autonomy; Agency; Sustainable behaviour; Sustainability transformation

## 5 What values underpin transformations of human-nature relationships? Insights from envisioned futures in the Northern Netherlands

Jay Marisca Gietzelt

*Wageningen University*

Sustainability transformations require reconfiguring human-nature relationships, yet much research emphasizes technical or policy solutions without attending to the underlying values that guide people's interactions with nature. This paper investigates the values of nature that underpin visions of sustainable futures in the Northern Netherlands, focusing on both the Wadden and Lauwers regions. We conducted 32 in-depth interviews using embodied, arts-based methods, including walking interviews, guided meditations, and visual-elicitation exercises, engaging diverse stakeholders such as farmers, scientists, and policy actors. Analysis revealed that participant visions are grounded in plural values of nature—intrinsic, instrumental, and relational—that are often intertwined rather than neatly separable. Relational values were especially salient, supporting the positive enactment of instrumental values (e.g., sustainable livelihoods) and ensuring that instrumental uses are informed by care, responsibility, and a sense of place. Intrinsic values further connected to both relational and instrumental dimensions, creating a complex, mutually reinforcing value system. The findings illustrate the fuzzy boundaries between value types and the importance of embracing plural, relational values to enable transformative change in human-nature relationships. By surfacing these nuanced ethical orientations, the study highlights how sustainability transformations can be grounded in lived experiences, relational responsibilities, and value pluralism. These insights highlight the need for governance and participatory approaches that recognize and navigate diverse value framings to support more just, ecologically attuned futures.

**Keywords:** visioning, values, sustainability transformations, relationality, pluralism

## 6 The Fuzzy Front-End of Transformation: Operationalizing Leverage Points Perspective for Intervention Design

Niti Bhan

*Aalto University School of Engineering*

Donella Meadows' concept of leverage points - places in complex systems where small shifts may lead to fundamental changes in the system as a whole - is gaining attention for developing a 'leverage points perspective' on systems transformation. Distinguishing a 'system of interest' as well as identifying 'where' and 'how' to intervene, as well as for 'whom' are all matters of practical concern.

Building from the theoretical landscape of service design, a novel protocol for inquiry at the fuzzy front-end of transformation is developed and tested in real world conditions to inform planning and design of interventions to trigger positive beneficial transformations in complex human systems. The protocol sequentially integrates contextual research with user inquiry, followed by prototype testing of co-creation interfaces designed to foster creative agency and skills for self-determined innovations towards enhancing resilience and sustainable transformation in response to changing environmental conditions and other systemic shocks (for ex. pandemic, war, climate change). This research contributes a human-centered approach for mapping a 'system of interest' and identifying how, where, and with whom we intervene, i.e. intervention points are re-interpreted as building blocks for a service design brief to plan actions and mobilize resources.

The multi-phase protocol was successfully implemented by a novice to co-develop clear decision-making stage-gates for data-gathering, analysis, and synthesis. The protocol is designed to deliberate changes of research paradigm to better fit conditions of epistemological and cultural plurality. In this way, barriers to adoption are lowered for just and equitable knowledge-making in service of system transformation.

**Keywords:** Leverage Points Perspective, user research, fuzzy front-end, system transformation, paradigm change

## 7 The ecological impacts of variation in implementation of conservation regulations – a PhD project plan

Silja Koukka

*University of Jyväskylä*

The global decline in biodiversity must be halted by 2030 in accordance with the Kunming-Montreal agreement. Complementary to area-based conservation methods, such as establishing large reserves, legal tools provide an important way to reduce negative human impacts on biodiversity. The ecological effectiveness of these tools highly depends on their interpretation and implementation but despite their significance, the topic has received minimal attention in conservation research. Given the limited conservation resources, assessing the existing tools' efficacy is necessary. In my PhD thesis I aim to critically evaluate the ecological impacts of variation in implementation of conservation regulations. I approach this topic via three example cases focusing on: I) habitat type protection by Finnish Forest Act, II) species protection by EU's Habitats Directive, and III) retention regulations of voluntarily restored habitats. It can be assumed that differing interpretations of conservation regulations can be observed concretely in delineated sites in the field. Thus, I use spatial data on protected sites supported by field validations to examine the ecological effects of implementation. I hypothesize that the implementation practices vary among regions and administrative units, as well as in time, resulting in variability in sizes of the delineated protected sites. Consequently, I hypothesize that this variability adversely affects the ecological effectiveness of the studied legal tools as conservation measures. Understanding the implementation variation, particularly the ecological impacts of it, is crucial for the improvement of current conservation regulations and the halting of biodiversity loss.

**Keywords:** conservation law, forest management, Siberian flying squirrel, small waterbodies, woodland key habitats

## 8 Traces of use: springs, people and place in the changing countryside

Ilina Eskelinen, Liia-Maria Raippalinna

*University of Jyväskylä*

Springs have shaped the cultural and environmental landscape of Keitele, but their meanings have changed and diminished over time. The springs that once carried names are now isolated and scattered across pathless commercial forests, gradually fading from memory.

This research combines ecological and cultural approaches to address four key questions: how springs were situated in the historical village environment, how and why they were used, where they are located today and in what condition, and how their significance has persisted or transformed. The forgotten springs of Keitele and the people who still remember them are discovered through the guidance of Perttu Puranen, an extraordinary local history and nature enthusiast who serves as the study's key informant. The research combines cultural history and ecology into a framework, where the nature of springs can no longer be understood without recognising their shared past with earlier generations.

**Keywords:** springs, ecology, cultural landscape

## 9 Review of social-ecological challenges in European wolf conservation, with a focus on Finland

Annetjie Pöntinen

*University of Jyväskylä*

Finland's wolf population is strictly protected and highly endangered, however, like the Namibian cheetah, the Finnish wolf is currently under lethal control. This leads to indiscriminate killing of these carnivores. In 2007 Finland was found guilty of unselective hunting of wolves and was ordered to rectify its failure to provide strict protection for wolves by the European Court of Justice. Subsequent corrective measures only increased fear among people and Finnish wolf population did not increase. Recently, Finland voted in favour of the European Union's downgrading of the wolf protection status from "strictly protected" to "protected". Changes in large carnivore populations could therefore be reflective of social events, such as legal proceedings and changes in laws and regulations, as well as conflicts between stakeholders and citizens at many administration levels. These among other challenges highlight the need for continually re-evaluating large carnivore management policies, incorporating approaches that address both social and ecological aspects and finding lasting solutions that benefit both stakeholders and large carnivore conservation efforts. The aim of this study is to synthesise knowledge on challenges, mitigation, and management policies, of wolf conservation, and the applicability of existing conflict resolution strategies to the Finnish social-ecological system. We review the social-ecological challenges of wolf conservation in Finland and other wolf ranges, while outlining current conservation efforts from other regions which address human-large carnivore conflict. This study is important in filling the social-ecological knowledge gap in large carnivore conservation especially from a Finland-wolf perspective.

**Keywords:** Large carnivore conservation, human-wildlife conflict, social-ecological systems, conservation challenges

## 10 Harnessing Earth Observation for evaluating the state of Flads and Glo-lakes in the coast of Finland

Joni Koskikala, Annika Wester

*Parks & Wildlife Finland*

Flads and glo-lakes are considered as Baltic variety of coastal lagoons, protected via The Habitats Directive. The flads and glo-lakes are found all over Finnish coastline and are a special responsibility habitat of Finland, classified as vulnerable in the red list of habitats. These ecosystems hold generally high biodiversity values, offering important reproduction and feeding areas for fish and migrating birds. However, natural development of flads and glo-lakes is often disturbed by human activities such as dredging, recreational boating and excess nutrient loads from the catchment area. Anthropogenic pressures may alter or even change the ecological functionality of these habitats causing changes in water quality and flow and consequently changes in flora and fauna. To evaluate the current state and prognose the future of these habitats and to form basis for targeting the upcoming restoration efforts, innovative approaches are needed.

In this research our aim is to categorize flads and glo-lakes of Finland by seasonal watercolor dynamics utilizing earth observation. We have created a data driven approach for categorization based on dense Sentinel-2 time series of blue and green bands. The categorized flads and glo-lakes are further evaluated based on available in situ data on vegetation and substrate, human pressure and catchment area characteristics in order to develop descriptive categories for the entire habitat.

We will present our results in the conference and discuss the significance of the approach in evaluating the state and restoration potential of the flads and glo-lakes in Finland.

**Keywords:** Flads and Glo-lakes, Habitat restoration, Earth Observation

## 11 Cohabitability framework for environmental ethics in humanized landscapes

Yousef Sakieh, Teea Kortetmäki, Corinna Casi, Linnea Luuppala, Kaisa Raatikainen

*University of Jyväskylä*

This presentation introduces a novel theoretical framework to advance environmental ethics for environments with active human presence. Many of the existing environmental-ethical approaches are ill-fitted for that purpose because they are grounded on assumptions about the desirability of 'naturalness', ideals of 'intactness', and the normative primacy of non-interference or minimized human involvement in the environment. In response, we have applied grounded theory methodology with interdisciplinary sourcing and, as a result, created a theoretical framework of cohabitability as a perspectival lens for human inhabitation and human ways of using land and resources on Earth. Cohabitability means the suitability of a place for cohabitation by diverse lifeforms in a way that supports their continued existence and flourishing in the long term. Its main conceptual constituents include (1) resources and space for architectural structures, food webs, and mobility systems; (2) intra- and interspecific interaction opportunities; and (3) sufficient safety. Cohabitability concept is flexible across spatial and temporal scales and allows contextual sensitivity and application from micro-environments, such as residential gardening, to large-scale questions, such as regional land-use planning and discussions of globally influential human practices. Encouraging attention to circumstances that promote or hinder cohabitability, the framework helps address many cohabitation conflicts in a new way and holds promise for redefining humans, as well as their potential to have a positive role as co-inhabitants of the Earth. To make the Earth better for human and nonhuman lifeforms in their diversity, it is time to think cohabitability.

**Keywords:** Cohabitability, Environmental ethics, Multispecies and planetary well-being

## 12 Mobilizing Citizen Science for Biodiversity Baselines: The Nature Positive Journey at AUS

**Julia Carlow**

*American University of Sharjah*

As part of its commitment to the Nature Positive Pledge, the American University of Sharjah (AUS) has initiated a comprehensive biodiversity baselining program that places citizen science at its core. The initiative seeks to document and understand the diversity of species within the university's 130-acre campus, while cultivating a culture of environmental awareness and stewardship among the campus community.

Through participatory biodiversity surveys, students, faculty, and staff are trained to observe, identify, and record species using mobile applications and standardized protocols. This collaborative approach democratizes biodiversity monitoring, transforming the campus into a living laboratory for sustainability learning and ecological engagement. Data collected by participants are validated by expert reviewers and compiled into an open biodiversity inventory, forming the foundation for future conservation and restoration strategies.

Early outcomes of the initiative highlight the discovery of diverse plant, insect, and bird species thriving within landscaped and semi-natural campus habitats. The project has also enhanced environmental literacy, inspired course-based research, and strengthened interdisciplinary collaboration across departments.

By integrating citizen science into institutional sustainability efforts, AUS demonstrates how higher education institutions can operationalize the Nature Positive agenda through inclusive, participatory, and evidence-based approaches. The initiative illustrates the potential of citizen science to bridge the gap between research, education, and action, fostering meaningful contributions to biodiversity conservation and sustainability transformation.

**Keywords:** citizen science, biodiversity baseline, Nature Positive Universities, conservation, living laboratory

## 13 From Niche to Norm: Sustainable Business Futures

Marileena Mäkelä, Paula Hokkanen, Minna Käyrä, Milla Sarja

*Jyväskylä University School of Business and Economics*

Global environmental problems and inequality issues call for urgent attention. The paper combines two disciplines to address these problems, namely sustainable business and futures studies. The companies' approach to solving global environmental and social problems is called sustainable business, where companies take responsibility for their economic, environmental, and social impacts. Futures research focuses on highlighting future possibilities, so called alternative futures. One way to discuss these alternatives is to build futures images, which can be called as snapshots of possible future states. As companies are a major cause of the current global sustainability challenges, we are interested in studying their future role as problem solvers.

The aim of our paper is to create futures images of sustainable business. We have gathered two sets of data. We interviewed 27 experts and analyzed 30 future-oriented reports or scientific articles. Based on this data, we created four futures images. The images were further refined in three researcher workshops. "Insecure society" is based on the global geopolitical unrest, where sustainability has only a minor role. "Sustainability as new normal" is a sustainability utopia, where the whole society is built on sustainability principles. "Sustainability as a niche" is based on the strict polarization of societies. In "Technological market fix", the large companies have taken a leadership position to solve global environmental problems.

Imaging future alternatives shows us the possibilities where the current trends might take us. The sustainable future requires actions and decisions from all of us urgently today.

**Keywords:** sustainable business, future image, futures studies, sustainable futures

## 14 Light pollution and sustainability

**Paula Hokkanen**

*Jyväskylä University School of Business and Economics*

Light pollution is an environmental issue which is often overlooked in the general discussion surrounding ecological sustainability, despite its increasing amount in recent years. The research surrounding light pollution focuses on its impacts on biodiversity, health, energy saving and technology, among others. It has not been studied in the context of Finnish public organisation corporate sustainability actions (CSR). The study applied a qualitative method to study light pollution as a phenomenon via interviews of Finnish cities and universities. The aim was to find out how it is addressed in these organisations and their various CSR strategies, why it is often an overlooked aspect of CSR, and what the drivers and barriers of mitigating it are.

The data gathering was undertaken via 13 interviews, conducted online and with semi-structured interview questions. The interviewees consisted of Finnish city representatives with various backgrounds, all with some level of knowledge of the issue. The higher education sector was also interviewed, participants being university representatives, with background knowledge either on sustainability or light pollution. The results showed that light pollution is indeed an easily overlooked aspect of CSR, and the most common reasons were, for example, the lack of general awareness on the topic, competing priorities and scarce resources, as well as missing regulation. The identified drivers included increasing awareness, with multi-disciplinary cooperation, certifications and other types of regulation, preferably on the EU-level, as well as addressing other means which affected how it is perceived.

**Keywords:** light pollution, public organisations, CSR

## 15 Transforming Agricultural and Horticultural plastics : Pathways to Sustainable Recycling and Circular Economy

**Aaqib Mohammad, Johanna Yliskylä-Peuralahti**

*University of Turku*

Plastics used in agriculture and horticulture have become integral to contemporary farming practices, offering numerous advantages such as enhanced productivity, better water usage, and protection of crops from environmental stress. However, the widespread application of these plastics has raised notable environmental issues, including the presence of microplastics in soil, difficulties in managing plastic films tainted with soil, and a lack of sufficient recycling facilities. The widespread application of plastics in agricultural sector are linked to greenhouses, mulching, storage and transportation of chemicals, furthermore the consumption of water through drip irrigation technique. This study considers sustainable pathways to transform existing linear models of plastic production and disposal into a circular economy loop that recover value chain, mitigation of plastic pollution and finding alternatives. The key concept of this study is to include environmental collaboration approaches between local community, farmers, waste recyclers, production companies and other stakeholders. one way to define with observations from recycling facilities and farms and accompanying stakeholder interviews with local farmers, agricultural plastic waste recyclers and policy makers which gives insights about existing practices and barriers and later develop a model for innovative approach. The comprehensive examination of the sites and companies to evaluate the disposal system, methods of sorting the farm plastics, and collection order to ease the recycling process and quality of recycled material. Preliminary finds highlight that incorporation of recycling with agricultural farm waste level management and recycling campaigns through take back programs and incentives can extremely reduce concern and establish the circular economy models.

**Keywords:** Circular Economy, Sustainable Transformation, Agricultural Plastic Waste

## 16 From tubes to bioreactors: scalable and sustainable in vitro cultivation of the endemic species *Silene grisea*

Wiktorija Huras, Ewa Kochan

*Medical University of Lodz*

Plant biotechnology can support sustainability transformations by offering cleaner and more resource-efficient ways to produce plant biomass. Instead of relying on collecting plants from the wild—which consumes resources and may harm biodiversity—in vitro cultures allow plant material to be grown under controlled and environmentally friendly conditions. In this study, we focused on *Silene grisea* Boiss, an endemic species from Syria and Israel listed on the 2018 IUCN Red List and known to contain several biologically active compounds.

Our aim was to compare two cultivation systems and evaluate their potential for sustainable scale-up by using productivity ( $\text{g}\cdot\text{L}^{-1}\cdot\text{day}^{-1}$ ) as the main parameter. Shoot cultures were established from seeds ( Botanical Garden of the Hebrew University, Jerusalem) and grown for 28 days in glass test tubes and in a nutrient-sprinkle bioreactor.

Test tube cultures reached biomass productivity of  $0.914 \text{ g}\cdot\text{L}^{-1}\cdot\text{day}^{-1}$  and  $0.079 \text{ g}\cdot\text{L}^{-1}\cdot\text{day}^{-1}$ . For fresh and dry biomass respectively.

Bioreactor cultures achieved  $0.983 \text{ g}\cdot\text{L}^{-1}\cdot\text{day}^{-1}$  for fresh biomass and  $0.110 \text{ g}\cdot\text{L}^{-1}\cdot\text{day}^{-1}$  for dry biomass, representing increases of 7.1% and 27.3%, respectively. This shows that the bioreactor supported more efficient biomass accumulation of shoot cultures than the tubes over the same cultivation period.

The sprinkle bioreactor also required less manual handling and used nutrients more efficiently, making it suitable for larger-scale biomass production.

These results show that scalable bioreactor cultures can support sustainable production of plant material and help protect threatened species.

**Keywords:** culture in vitro, endemic plants, bioreactor

## 17 Securing Water for a Warming North: Adaptive Strategies for Sustainable Finnish Agriculture

Kateryna Yuhai<sup>1</sup>, Kari Hyytiäinen<sup>1</sup>, Matti Hyyrynen<sup>2</sup>

<sup>1</sup>*University of Helsinki*

<sup>2</sup>*Natural Resources Institute Finland (LUKE)*

Fresh water is one of the planet's most precious shared resources, yet it is under growing pressure from agricultural runoff, a warming climate, and emerging shifts in Nordic precipitation patterns. This study, part of the Water and Food Futures project within the Strategic Research Council's Water for Welfare, Security and Peace programme, links climate scenarios with soil-water dynamics, crop productivity, and economic behaviour through an integrated modelling framework that identifies adaptation strategies that are both ecologically grounded and economically feasible. This research examines how adaptive water management can support sustainability transitions in Finnish agriculture by reshaping water use, reducing environmental pressures, and strengthening resilience. Finnish crop systems face rising risks from drought and nutrient losses, pushing freshwater use and biogeochemical flows towards ecological limits. To address these challenges, the study develops a bioeconomic model that joins long-term climate projections, crop productivity modelling, soil hydraulic simulations, and economic assessments of water allocation. Climate and CO<sub>2</sub> trajectories drive a calibrated AquaCrop model that represents crop growth and soil moisture across multiple soil layers and intercropped systems. Outputs are validated using in-situ soil sensor data, while the economic component assesses trade-offs between water demand and biodiversity protection across inland and coastal settings.

The novelty lies in combining high-resolution biophysical modelling, sensor-based validation, and economic-ecological trade-off analysis within a single integrated framework, capturing both the technical feasibility and the systemic implications of adaptive water management. The research conducted is designed to offer evidence to inform decision-support tools and future policy development.

**Keywords:** Sustainable Agriculture; Bioeconomic Modelling; Natural Resource Economics

## 18 Consumer acceptance and perceptions on wood-based clothing

Linnea Raaska, Joonas Myllärniemi, Ritva Toivonen, Anne Toppinen, Jaakko Jussila

*University of Helsinki*

This abstract is for to be presented as poster or talk. The textile industry urgently needs to transition toward more sustainable practices. Currently, it places a significant burden on the environment through cotton production and the widespread use of synthetic fibers. Cotton cultivation consumes vast amounts of water, while synthetic fibers contribute to marine pollution through microplastic release. One promising solution is the adoption of wood-based fibers, which can be used to produce casual clothing in an eco-friendlier way. The aim for this study is to gather better knowledge about the consumer acceptance towards wood-based casual clothing. We explore the consumer acceptance for the wood-based clothing through the theory of quality perceptions and diffusion of innovations theory with online survey with 2000 Finnish respondents. One part of the survey consists of claims about different quality attributes of textile product with linkages to consumers' purchase intentions and quality perceptions. The other part of the survey explores the consumer perceptions of new innovative textiles aiming to enhance our understanding about the demand potential for wood-based fibres. The analysis is done with multivariate statistical methods, such as factor analysis, for exploring the consumer preferences about the quality attributes; what are the most preferred quality attributes affecting the purchasing intentions of consumers; and the relationship between consumer characteristics and innovativeness. These results could be used to promote more sustainable consumer practices and facilitate the market diffusion of wood-based textiles through enhanced attractiveness of new wood-based products by maintaining their relevant quality features.

**Keywords:** consumer, wood, innovation, quality, perception

## 19 Effects of taxes, prices, and labels on consumption rates of animal-based and plant-based food products

**Tarun Bishop**

*University of Eastern Finland, Lewis & Clark Law School (alum of both school)*

This presentation focuses on economic forces, such as subsidies and taxes, that affect meat, dairy, and egg consumption rates. It discusses a variety of examples and their impacts.

First, this presentation discusses direct economic policies, such as increases in egg prices and environmental taxes on meat and dairy in the United States and Europe (especially Sweden). It examines the effects of taxes and prices on consumption rates, and concludes that eggs are a relatively inelastic good, while taxes lead to lower consumption rates of other animal products. Second, this presentation discusses regulation on terminology used for plant-based and animal-based products, and regulations on product labels. For example, government regulation of labels such as free range, cage free, fair trade, and organic vary by country/jurisdiction; and Switzerland requires labels that indicate animal suffering. The presentation concludes that labels can affect consumption rates; for example, consumers are more likely to select plant-based food products if they have “sustainable” or “healthy” labels, and consumers are often willing to pay higher prices for animal products if they have labels that suggest higher animal welfare standards, though research is mixed. This presentation concludes that this appears promising, but it is important to regulate labels, to prevent misleading advertising to consumers.

Reductions in meat/dairy/egg consumption can have significant environmental and animal welfare benefits, because animal agriculture causes major water and air pollution, land and resource use, and factory farming of billions of animals. This presentation examines potential for similar impacts of future regulations.

**Keywords:** tax, food, meat, plant-based

## 20 Biobased 3D-printing: developing solutions for construction industry

Melina Maunula, Peppi Kuosa, Ari Haapanen

*South-Eastern Finland University of Applied Sciences*

Construction and the built environment have been identified nationally and globally as one of the largest industries with environmental impact. The construction industry is also one of the most significant consumers of virgin raw materials, and it is estimated that it produces 35% of all carbon emissions in the world. The harmful effects of construction can be reduced by moving to more localised production and by increasing the utilisation of bio-based and side stream materials. By developing biomaterial based 3D printing, the use locally produced biomaterials such as reed, hemp and mycelium, can be developed to accelerate the sustainability transition of the construction industry. The research aims at creating resilient and nature-based solutions and supporting the use of locally produced raw-materials and side-streams in construction industry. 3D printing technology enables the production of difficult shapes, as well as small production batches of different building components like boards, blocks and decorative details.

As a result of multidisciplinary research work, the South-Eastern Finland University of Applied Sciences has developed recipes for bio-based 3D printing masses and produces blanks for utilising technology and locally produced materials in the manufacture of construction products. The Taguchi method has been used to optimize the recipes, and tests have been carried out with different biomasses and mixtures. Printing tests show significant potential, and masses can also be utilised using moulds. Research collaboration between robotics and design expertise, supports the development of solutions from the perspectives of technology and design as well as material and application development.

**Keywords:** 3D-printing, production systems, design

## 21 Advancing Urban Ecosystem Accounting in Tampere: Integrating Nature's Value into Decision-Making

Kaisa Mustajärvi, Emmi Nieminen

*City of Tampere*

Urban growth and climate change challenge cities to maintain ecosystem services vital for well-being, biodiversity, and resilience. Tampere has pioneered urban ecosystem accounting since 2021, systematically measuring ecosystem extent, condition, and economic value in collaboration with SYKE as well as other national and international partners, following the UN SEEA EA framework. Pilots show green infrastructure delivers substantial annual benefits: stormwater regulation (€45M), recreation (€149M), and carbon sequestration (€45M). These results demonstrate that investing in nature is economically sound, as cumulative benefits far exceed the costs of biodiversity measures.

A key focus is the ongoing development of monetary valuation for urban cooling services, with results expected in spring 2026. This work is crucial for strengthening the evidence base for integrating nature-based solutions into urban planning and climate adaptation strategies. Urban cooling, in particular, highlights how ecosystem accounting can make natural capital visible in economic terms, support scenario analysis, and inform sustainable land-use decisions.

From a city development perspective, it is especially interesting to link ecosystem accounting to trends in the development of ecosystem extent analysis and to the advancement of habitat quality assessments. Typologies and quality assessments developed in the BOOST project, LUTU habitat quality evaluation, and the ARVO project's RYTY habitat types provide valuable frameworks for integrating urban nature typologies and value-per-hectare calculations into ecosystem accounting. These approaches support reliable national reporting and resilient urban development, as EU legislation will mandate ecosystem accounting by its Member States by 2026.

**Keywords:** Ecosystem accounting, habitat quality, ecosystem services, nature values

## 22 Law as a Catalyst for Sustainability Transformation: A Human-Animal-Environment Perspective

Helene Frieda Luise Theil

*University of Eastern Finland*

This research investigates how law itself can become a catalyst for sustainability transformation by rethinking the relationship between humans, animals, and the environment. While legal systems have traditionally prioritized human interests, often overlooking the wellbeing of nonhuman life and the ecosystems that sustain all species, courts in the Global South have begun to challenge this anthropocentric focus. Through innovative interpretations of existing constitutional frameworks, they have recognized animals and ecosystems as equal parts of the wider community of life, demonstrating how law can shift toward ecological and social justice by integrating a systemic nexus perspective without requiring new legislation. Building on these insights, the study applies a Human-Animal-Environment (HAE) Nexus perspective, which sees human, animal, and ecosystem wellbeing as mutually dependent, where neglect of one unavoidably affects the whole system. Using this as an analytical tool, this research examines how similar interpretive approaches could shape the development and application of European Union law, exploring whether existing EU principles may already support more systemic and interconnected understandings of justice and wellbeing. Methodologically, it combines doctrinal legal analysis with perspectives from sustainability law and adaptive law to identify pathways for transformative change. The findings aim to demonstrate how existing EU legal principles can be reinterpreted to advance a form of justice that treats humans, animals, and ecosystems as interconnected and equally significant for safeguarding the foundations of life. It addresses a marginalized topic by bringing post-anthropocentric and multispecies perspectives into sustainability debates, challenging human-centered assumptions that still dominate legal and policy discourses.

**Keywords:** Human-Animal-Environment Nexus, Multispecies Justice, Post-Anthropocentric Law, Systemic Change, Sustainability Transformation

## 23 Securitization of Rohingya: Raising uncertainty about Sustainable Refugee Governance

Manidipa Bhattacharjee

*DEICO, University of Jyväskylä*

The securitization of Rohingya refugees in Bangladesh by the key securitizing actors – state authorities, law enforcement agencies, civil society, and media has influenced public discourse from humanitarian protection to national security concerns. This shift has raised questions about the sustainability of refugee governance, as securitization poses critical challenges to dignified and just living conditions. The study explores research questions concerning the securitization of Rohingya refugees and the ambiguity with sustainable refugee governance in Bangladesh through an analysis of mainstream newspaper narratives from January 2021 to January 2025. Based on securitization theory, particularly the Copenhagen School's discursive approach and the Paris School's non-discursive mechanisms—this research examines how violent activities within refugee camps by different non state organizations such as Arakan Rohingya Salvation Army (ARSA), Rohingya Solidarity Organization (RSO) are projected as existential threats to Bangladesh's national security. This narrative frames the entire Rohingya refugee community as a security threat to Bangladesh, even though Rohingyas themselves have suffered greatly by these groups. Through thematic analysis of 50 articles from five major Bangladeshi newspapers and one private agency, the study unfolds how speech acts and symbolic representations construct the Rohingya as a threat, while non-discursive practices institutionalize this perception in practice. This framing legitimizes extraordinary measures such as biometric surveillance, movement restrictions, and the militarized governance in the camps. This study finds that securitization is strongly institutionalized and compromises the Rohingyas' rights to integration and social cohesion while reinforcing marginalization and statelessness contradicting sustainable refugee governance. Focusing on media discourse to policy outcomes, the study highlights the need for more research on inclusive rights-based policies and sustainable refugee governance that balance security concerns of host country and resilience of refugees.

**Keywords:** Rohingya, Bangladesh, Securitization, discursive approach , non-discursive mechanisms

## 24 Strategic Partnerships for Transformative Science Communication: A Conceptual Framework

**Heidi Aisala-Aalto**

*University of Oulu*

Transformative science communication relies on building shared understanding across diverse audiences rather than delivering ready-made messages. Yet achieving this understanding reveals fundamental tensions: (1) no single actor possesses all necessary forms of legitimacy and expertise, (2) different audiences respond to different messengers, and (3) attempting to serve all audiences simultaneously generates contradictory role expectations. These tensions mean individual communicators cannot succeed alone.

Partnership thus becomes a structural necessity rather than an optional strategy. Yet partnerships often emerge reactively, without conceptual tools for deliberate design.

This work introduces a framework for understanding and designing strategic partnerships, enabling researchers, practitioners, and organizations to identify complementary strengths and make use of hidden diversity within communities. The framework builds on three principles:

- **Understanding:** Recognize your own communicative assets and limitations, such as scientific expertise, institutional credibility, public trust, or access to specific audiences.
- **Connecting:** Identify and engage with actors who bring complementary strengths that address gaps in your own capacity.
- **Collaborating:** Coordinate roles and timing – who communicates what, when, and to whom – within partnership structures.

The aim is to amplify diverse voices and turn shared understanding into coordinated action that accelerates sustainability transformations.

**Keywords:** science communication; partnerships; legitimacy; collaboration; sustainability transformations

## 25 A conceptual framework for assessing the respiratory health effects of household and ambient air pollution in sub-Saharan Africa

Abraham Openy<sup>1</sup>, Heli Kukkurainen<sup>1</sup>, Haile M.Fenta<sup>1</sup>, Inês Paciência<sup>1</sup>, Aino K Rantala<sup>1</sup>, Timo Hugg<sup>1</sup>, Jouni J.K. Jaakkola<sup>2</sup>

<sup>1</sup>Center for Environmental and Respiratory Health Research (CERH), Oulu University

<sup>2</sup>Finnish Meteorological Institute (FMI), Helsinki, Finland

Air pollution remains a leading environmental cause of adverse health effects, contributing to an estimated seven million premature deaths annually. According to World Health Organization (WHO), about 99% of global population breathes air exceeding WHO safety limits. Over 80% of Sub-Saharan Africans (sSA) was exposed to household air pollution (HAP) in 2020 alone. In several sSA cities, ambient PM<sub>2.5</sub> (particulate matter of aerodynamic diameter  $\leq 2.5 \mu\text{g}$ ) concentrations exceed WHO standards by 10–20 times, reflecting widespread exposure from unregulated urbanization, motorized traffic, industrial emissions, seasonal Sahara and Sahel desert dust storms. Within households, traditional biomass fuels like firewood, charcoal and dung burned in poorly ventilated kitchens, combined with cultural cooking practices such as mothers carrying infants on their backs, significantly elevates exposure among these vulnerable populations.

This study introduces a novel framework conceived through a systematic review (PROSPERO No. CRD420251064034) to assess the synergistic or antagonistic effects of concurrent household air pollution (HAP) and ambient air pollution (AAP) on respiratory health in sSA. The framework integrates exposure metrics, spatial gradients, and vulnerability profiles to better characterize health outcomes including acute respiratory infections, asthma and chronic obstructive pulmonary disease.

By grounding the analysis of air pollution in the social and environmental realities of sSA, the framework aims to guide contextually appropriate research and policy responses. It underscores the health co-benefits of sustainability transformation; particularly the adoption of clean cooking technologies and reduced fossil fuel reliance which simultaneously improve air quality, lower respiratory disease burden, and advance equitable well being across the region.

**Keywords:** Air pollution, respiratory health, sub-Saharan Africa, clean energy transition, sustainability transformation

## 26 Barriers and Enablers of Integrating Nature in Urban Planning: A Case Study of Daycare Yards in Lahti

Anni Lyytikäinen

*University of Helsinki*

Children's opportunities to connect with nature have declined, particularly in urban areas where access to green spaces is limited. Despite growing evidence of the benefits of nature exposure for children's physical, mental, and emotional development, this knowledge has not been effectively translated into urban planning and design practices.

This thesis explores the barriers and enablers to implementing nature-based solutions in urban environments, focusing specifically on daycare yards in the City of Lahti. What prevents the integration of nature-based solutions in urban settings and why, despite extensive research demonstrating the benefits of nature for children, this knowledge rarely translates into practice. Drawing on a literature review and qualitative interviews with city officials, the study sheds light on the gap between understanding and implementation in creating greener, more child-friendly cities.

Findings suggest that nature-based urban design can promote health, physical activity, emotional resilience, cognitive development, and environmental awareness among children. However, implementation is often constrained by institutional fragmentation, limited cross-sectoral collaboration, short-term planning horizons, and a lack of knowledge, resources, and risk tolerance.

By identifying these barriers, the study highlights opportunities for a shift toward greener, more nature-oriented playgrounds and public spaces. Promoting everyday contact with nature through urban planning can simultaneously support children's development and advance broader sustainability and well-being goals.

**Keywords:** nature connection, nature based play, knowledge intergration, urban planning

## 27 Dyeing for transformation? The futures of natural textile colourants

Laura Virta, Päivi Fernström, Riikka Räisänen

*University of Helsinki*

This review study explores the sustainability transformation of the textile industry through colouration practices, specifically natural and bio-based colourants. Textile dyeing has significant environmental and health impacts, and the question of synthetic versus natural colourants is situated within a broader discussion about fossil fuel phase-out in our societies. The review synthesises the literature on natural textile colourants in socio-cultural contexts beyond the laboratory, using reflexive thematic analysis as a method, and the Three Horizons framework of change as an analytical lens. The framework guided exploration of the ways textile colouration and its alternatives are discussed in the present (Horizon 1), what possible futures are imagined for natural colourants (Horizon 3), and how natural colourants' ability to challenge the hegemony of synthetic ones is tested in the transformative middle period (Horizon 2). The literature portrays natural colourants as a re-emerging field with much potential for more sustainable textile futures. Simultaneously, natural colourants are burdened by the dominance of synthetic colourants with their hard-to-match technical performance as well as our established consumer and producer mindsets of abundance, constancy and control. For natural colourants to prosper may thus require not only their technical improvements, but also questioning our ideas about aesthetics, quality and sufficiency. This paper draws attention to the roles of images of the future and a transformative intent in making lasting and comprehensive change. What the textile industry considers possible and worth pursuing will have resources devoted to it, improving it and giving it an advantage over any other alternative future.

**Keywords:** natural colourant, textile dyeing, sustainable textile, sustainability transformation, futures

## 28 How to measure sustainable enough? Assessing the EU forest sector against planetary boundaries

Juulia Suuronen, Jing Yang, Elias Hurmekoski

*University of Helsinki*

The sustainability of products and systems is commonly measured with life cycle assessment (LCA), but LCA only gives information on the relative sustainability of one process in comparison to another. A recent development in LCA has aimed to take a step further to determine if products and systems are sustainable enough considering the current planetary crisis. Absolute environmental sustainability assessment takes the LCA results and compares them to environmental thresholds, such as the planetary boundary framework, to determine if a product or system is sustainable enough. This study takes the case of the EU forest sector and evaluates its absolute sustainability by determining if it operates within its share of the global carrying capacity in 16 environmental impact categories arising from the Environmental Footprint LCA method. The results show that the EU forest sector is not operating within its carrying capacity in all 16 impact categories, although the principle used in assigning the carrying capacity influences the results. This study also incorporates biogenic carbon into the assessment to provide more precise information on the climate impacts of wood-based products and the forest sector, as considering only fossil emissions can lead to underestimated climate impacts in some time horizons. This study highlights the need to determine what is sustainable enough to support decision-making in the EU forest sector for sustainable production and consumption within the planetary boundaries.

**Keywords:** Sustainability assessment, planetary boundaries, forest sector

## 29 The Social Work Climate Handbook by the Finnish Professional Organization Talentia in Nutshell

Satu Ranta-Tyrkkö

*Finland*

The presentation summarises the key contents of the Sosiaalialan ilmastokäsikirja (Social Work Climate Handbook), published in Finnish in August 2023 by Talentia, Finland's only professional organization of higher education graduates in the social sector. While explaining the basics of climate change and the importance and urgency of mitigation and adaptation measures, the focus of the altogether 24-paged online handbook is on the reasoning and concrete measures why and how social professionals should and can do their part in facilitating the mitigation of and adaptation to the climate crisis.

Besides envisioning the role of social work in the sustainability transition of societies, the Climate Handbook addresses the importance of social and cultural change as a core of the sustainability transition underway, working out which social professionals have expertise. Other topics addressed include importance of visions of good life within ecologically sustainable limits, need to develop intergenerational and future ethics, nurture connectedness and sense of being part of nature, importance of emotional work and maintaining hope, experimenting, and collaboration with likeminded allies across professional and disciplinary barriers.

**Keywords:** climate change, climate action, social work practice, professional association, Finland

## 30 Faculty and staff in higher education institutions' sustainability transformation. A systematic review

Milja Heikkinen<sup>1</sup>, Janna Pietikäinen<sup>1</sup>, Jean-Pierre Imbrogiano<sup>1,2</sup> Rami Ratvio<sup>1</sup>, Janne Salovaara<sup>1</sup>, Ilona Södervik<sup>1</sup>, Tuija Veintie<sup>1</sup>

<sup>1</sup>*University of Helsinki*

<sup>2</sup>*University of Jyväskylä*

Higher education institutions are considered important for sustainability transformation through education, research, and their own actions as organisations. Higher education institutions often state that finding solutions to climate change, biodiversity loss, and social unsustainability is high on their agenda. At the same time, the higher education institutions themselves need to transform, and often it is their faculty and staff acting as their change agents. In this systematic review, we analyse what we know and do not know about the role of faculty and staff in transformations towards sustainability in higher education institutions. Our sample consists of 73 research articles published between 1992 and 2024 in English. The literature is biased towards North America and Europe, and most of it has been published after 2020. Most of the articles focus on organisational transformation in general or transformation in education, while transformation in research is the focus of only eight articles. We analyse the articles focusing on what has worked fully, partly or not at all in relation to three dimensions which transformational change can impact in an organisation: tangible organisational elements, design archetypes and interpretative schemes. Based on our preliminary results, individual change agents are important for transformation, but for deeper and long-term changes, widely shared understandings of sustainability are needed. Transformation at the level of interpretative schemes is the dimension we know least of. As the dimension covering the worldview the organisation holds, it is decisive for successful sustainability transformation. We outline an according agenda for future research.

**Keywords:** sustainability transformation, higher education institutions, change agents, organisational change, review

## 31 OpinEKO – A Model for Finnish Municipalities: Turning Integration Opportunities into Sustainability Solutions, A Circular Model Integrating Social Inclusion and Sustainable Development

Aruna Sampath Galagama Ralalage, Eevaleena Taala

*City of Hämeenlinna*

OpinEKO is a social innovation model that transforms immigrant integration challenges into sustainability implementation through structured multi-stakeholder collaboration. The concept is designed for the Finnish municipal context. The program addresses two interconnected challenges: industries struggle to meet rising sustainability compliance requirements, while international graduates with relevant expertise face persistent labor market exclusion.

This program creates triangular collaboration with municipal integration services, local industries, and immigrants. In partnership with regional universities and state institutes, participants receive 3-4 months of training in environmental management systems, greenhouse gas accounting, waste management, and Corporate Sustainability Reporting Directive (CSRD) compliance. The program includes practical projects with partner companies, offering practical experience.

The OpinEKO concept supports achieving UN Sustainable Development Goals (SDGs). Industries benefit from sustainability expertise for compliance and improvements (SDG 12, 13). Also, SMEs will benefit by avoiding costly sustainability solutions, while immigrants gain work experience, build networks, and enhance employability (SDG 8, 10). The model challenges and breaks barriers to employment and sustainable development. Municipalities advance SDG 11 (sustainable cities) and SDG 17 (partnerships), strengthening implementation capacity beyond their own resources. Moving beyond traditional integration programs that treat employment and sustainability separately, the OpinEKO program connects them by creating a circular model where integration and sustainability reinforce and collaborate with each other. A pilot project can be aimed at training 18-20 candidates and engaging with 20 companies over three years, with potential for regional adaptation and scalability. OpinEKO demonstrates how collaborative systems can deliver inclusive and sustainable transformation.

**Keywords:** Social innovation, immigrant integration, sustainability transformation, circular collaboration, multi stakeholder collaboration

## 32 A conceptual framework for understanding how dietary shifts reduce agricultural ammonia emissions and air pollution related health impacts

Heli Kukkurainen<sup>1</sup>, Abraham Openy<sup>1</sup>, Rami Echriti<sup>2</sup>, Aino Rantala<sup>1</sup>, Inês Paciência<sup>1</sup>, Haile Fenta<sup>1</sup>, Timo Hugg<sup>1</sup>, Jouni Jaakkola<sup>1</sup>

<sup>1</sup>Center for Environmental and Respiratory Health Research, University of Oulu

<sup>1</sup>Finnish Geospatial Research Institute

The global food system is a major driver of environmental degradation, accounting for 40% of ice-free land use, 70% of freshwater withdrawals, and nearly one-third of anthropogenic greenhouse gas emissions. Less visible but equally critical, agriculture is a leading source of ambient air pollution. It contributes roughly 58% of global primary particulate matter (PM) and 81% of ammonia (NH<sub>3</sub>) emissions, with NH<sub>3</sub> acting as a major precursor to secondary PM formation through atmospheric chemical reactions. Chronic exposure to PM is associated with significant health burdens, including cardiopulmonary disease, diabetes, and premature mortality. Yet current mitigation efforts focus largely on technical controls at the farm level, leaving the role of consumer-side dietary shifts underexamined.

This presentation introduces a conceptual framework developed through an ongoing systematic literature review (PROSPERO No. CRD420251133438) that maps the indirect health effects of dietary patterns as mediated through PM air pollution from food production. Drawing on planetary health, the framework traces how dietary demand drives emission-intensive agricultural practices, how these emissions interact with atmospheric processes to form PM, and how resulting exposures influence population-level health outcomes.

By positioning dietary shifts as a leverage point within the broader food system, the framework highlights opportunities for transformative change that extend beyond farm-level interventions. It provides a structured lens for linking consumption patterns to environmental exposures and identifying intervention points capable of reducing health burdens. The presentation will outline the framework, demonstrate its application, and discuss implications for research and policy pathways toward more sustainable food systems.

**Keywords:** Dietary patterns, agricultural emissions, planetary health, sustainability transformation

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