SOCIAL-ECOLOGICAL SYSTEMS INSTITUTE
ANNUAL REPORT 2022

SESI
Social-Ecological Systems Institute

FACULTY OF SUSTAINABILITY
LEUPHANA UNIVERSITY OF LUENEBURG
GERMANY

LEUPHANA
UNIVERSITÄT LÜNEBURG

FOREWORD

While 2020 and 2021 were overshadowed by the Covid pandemic, 2022 was clouded most notably by Russia's attack on Ukraine. If we zoom out in time, then for the first time in decades, the very real possibility of violent conflict has been brought back to the minds of Europeans. If we zoom out in space, we realise that the fear of violence that is troubling us now in Europe unfortunately has been prominent for years in many other parts of the world – albeit without attracting the same amount of attention by Western media as the attack on Ukraine. Perhaps the most vivid recent example is the Tigray war in northern Ethiopia, which has cost the lives of hundreds of thousands of people already, including large numbers of innocent civilians.

Peace across cultural gradients and national boundaries is vital for a sustainable world in which humans and other species can thrive. We are both glad and grateful that in the current time of global instability, Leuphana's Social-Ecological Systems Institute remains a multicultural beacon of intercultural respect and understanding. As you will see when you read this report, our researchers come from many different countries, including from places where individual freedom is much more restricted than in Germany. Thank you to everyone who works with us on a daily basis for making our institute an academic home to talented minds from all over the world!

As in previous years, our report covers some of the highlights of the year, and also includes portraits of our institute's members. Feel free to get in touch with any feedback or questions!

Wishing you peace, prosperity, and many good ideas for 2023, so that we can collectively further advance science in support of a better and more sustainable world.

Joern Fischer & Berta Martín-López

(Heads of the Social-Ecological Systems Institute)

Some of the social-ecological systems in Germany, Ethiopia, and Romania in which SESI researchers work.

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ABOUT THE SOCIAL-ECOLOGICAL SYSTEMS INSTITUTE (SESI)

The Social-Ecological Systems Institute (SESI) was founded in 2020. It is part of the School of Sustainability at Leuphana University of Lueneburg, Germany. The institute provides a space for like-minded faculty members at Leuphana who are particularly interested in links between social and ecological phenomena. SESI researchers come from many different parts of the world, and a substantial proportion of SESI's research takes place outside Germany, including in Africa and Latin America. SESI researchers are interested in the ecological sciences, the social sciences, and especially the linkages between the two.

The SESI logo was inspired both by an unfolding fern leaf and by the Celtic double spiral – which symbolises the balance between opposing forces (e.g. change and preservation; or collapse and renewal). Arguably, many social-ecological systems are now on an unsustainable trajectory because they have lost this balance.

Leuphana University's central building.

VISION AND MISSION

OUR VISION

We envision a fair world where the benefits generated within social-ecological systems are shared sustainably with other species, both within and across generations. Solutions to sustainability challenges are developed collaboratively across diverse scientific disciplines, knowledge systems, and social interests.

OUR MISSION

To realise our vision, we recognise the need for transformative change. In pursuit of such change, we:

- Use place-based social-ecological systems thinking to understand and resolve sustainability challenges such as biodiversity loss and environmental injustice
- Bring together insights and approaches from the natural sciences, social sciences and the humanities in genuinely collaborative endeavours
- Integrate experiences, practices, and understandings from diverse knowledge systems
- Embed tools for transformative change into social-ecological systems thinking via a leverage points perspective
- Develop and apply methods to bridge multiple scales and governance levels
- Provide spaces for people sharing our vision to meet and exchange ideas.

RESEARCH HIGHLIGHTS

RESEARCH HIGHLIGHT: TEN YEARS OF THE PROGRAMME ON ECOSYSTEM CHANGE AND SOCIETY (PECS)

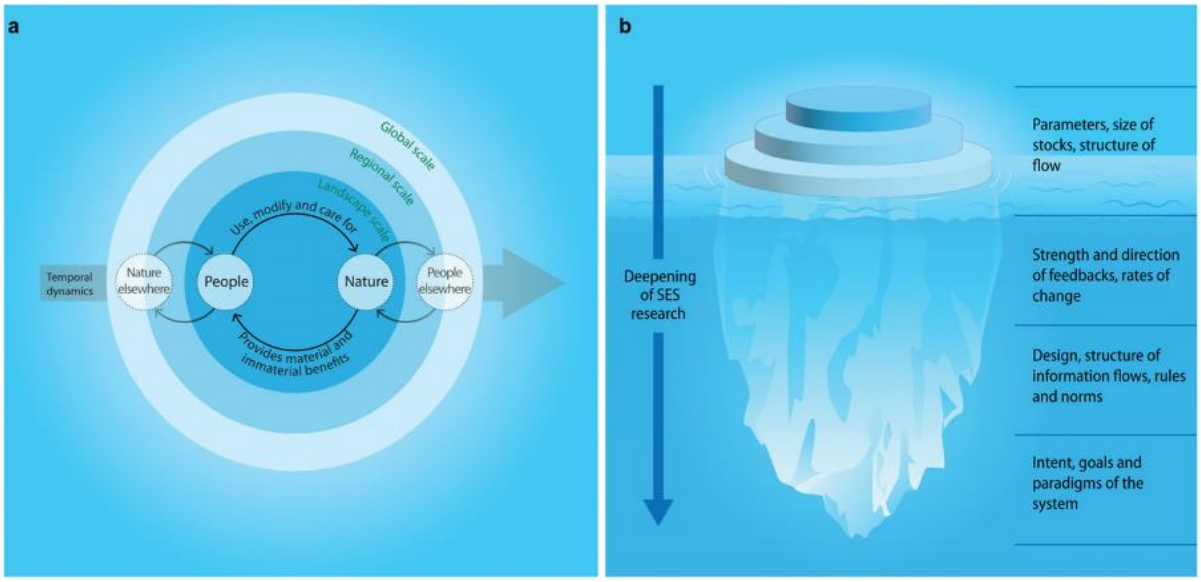


Figure 1. (a) Schematic summary of social-ecological systems thinking; and (b) a schematic "iceberg" to show the different levels of systemic depth that can be explored with social-ecological systems thinking (reproduced from Norström et al. 2022).

The Programme on Ecosystem Change and Society (PECS) is a core project of Future Earth, a global network of scientists and innovators collaborating for sustainability. Several SESI members have been active in PECS for many years, including Berta Martin-Lopez, Joern Fischer, Jacqueline Loos, Jan Hanspach, and David Lam.

The year 2021 marked the tenth anniversary of PECS, and in 2022, Norström et al. published a synthesis paper to summarize key academic advances made through the programme. Over the ten-year period covered by the programme so far, social-ecological systems thinking has grown in scope and depth – such that it is now a widely recognized and influential sub-field within the broader context of sustainability science.

In a nutshell, social-ecological systems thinking sees humans and nature as intimately intertwined – human actions shape the natural environment, and this, in turn, makes diverse material and immaterial contributions to people and their

wellbeing. In addition, social-ecological systems thinking recognizes dynamic interactions through both space and time.

While these main facets have always been central to social-ecological systems thinking, Norström and colleagues show that as social-ecological systems thinking has engaged more and more scholars, the focus of this sub-field became not only broader but also deeper (see Figure 1). In greatly simplified terms, much early social-ecological systems research was especially interested in social and ecological parameters and the dynamic links and feedbacks between them. This focus gave rise to what has grown into a massive and influential body of work on the resilience of social-ecological systems. Somewhat in parallel to this (but receiving attention only later on), and spearheaded by Nobel Laureate Elinor Ostrom, social-ecological system researchers became interested in how social-ecological systems could be designed such that their sustainability could be ensured. And while feedbacks and system design remain important to social-ecological scientists today, an additional major research theme has emerged around the deeper characteristics of social-ecological systems, including the paradigms and values that shape them.

This development – from parameters and feedbacks to a focus on system design, to a focus on deeply held values and paradigms – can be seen as a continuous deepening of the enquiry into social-ecological systems. Akin to an iceberg, early work focused on what was more or less readily visible (and remains vitally important!), while more recent work has reached more and more deeply below the surface to touch upon hidden but fundamentally important features of the world (see Figure 1).

Ten years into PECS, we can thus conclude that social-ecological systems thinking has become firmly established as a powerful analytical lens within sustainability science. It has helped us to understand the complexity of the world, and to dig more and more deeply into its many layers.

FOR FURTHER INFORMATION:

Links:

https://futureearth.org/

https://pecs-science.org/

(You can find all the links under https://bit.ly/3XAdL9N)

References:

Albert V. Norström, Bina Agarwal, Patricia Balvanera, Brigitte Baptiste, Elena M. Bennett, Eduardo Brondízio, Reinette Biggs, Bruce Campbell, Stephen R. Carpenter, Juan Carlos Castilla, Antonio J. Castro, Wolfgang Cramer, Graeme S. Cumming, María Felipe-Lucia, Joern Fischer, Carl Folke, Ruth DeFries, Stefan Gelcich, Juliane Groth, Chinwe Ifejika Speranza, Sander Jacobs, Johanna Hofmann, Terry P Hughes, David P.M. Lam, Jacqueline Loos, Amanda Manyani, Berta Martín-López, Megan Meacham, Hannah Moersberger, Harini Nagendra, Laura Pereira, Stephen Polasky, Michael Schoon, Lisen Schultz, Odirilwe Selomane & Marja Spierenburg (2022) The programme on ecosystem change and society (PECS) – a decade of deepening social-ecological research through a place-based focus. Ecosystems and People, 18:1, 598-608, DOI: 10.1080/26395916.2022.2133173

RESEARCH HIGHLIGHT: "VOCES INDÍGENAS CHIQUITANAS", A PODCAST NARRATING PEOPLE'S DAILY LIFE AND HUMAN-NATURE RELATIONS IN THE BOLIVIAN ANDES

Figure 2. One of the workshops held in the community

As part of the transdisciplinary research with indigenous communities in Bolivia, the Biokultdiv project developed a collaborative audio-based method for elucidating values in people's daily life practices, such as agriculture, cooking, hunting and honey gathering. During the interviews in the field, several narrations emerged that became an opportunity for establishing collaborative research process with local leaders through the recording of co-designed interviews. With the resulting materials, we initiated the production of podcasts that will be broadcast in community messaging systems and local radio. We invited a Bolivian journalist, Mercedes Fernández, to lead workshops in two communities especially for young people interested in becoming "community reporters", so that they will be able in the future to produce their own stories and news. Hence, the audio-based methods are becoming both an empirical research method, a transdisciplinary strategy and an outreach tool adapted to the sociocultural context. This is an ongoing activity with potential to support the co-production of knowledge within the research project and community-led initiatives for strengthening communication strategies at the local level.

Indígenas Urbanas has launched the social media publications of short photo stories that tell what people do in their daily lives and the relevance of these activities for people's life. Stefan Ortiz-Przychodzka and Camila Benavides-Frias

got engaged in this campaign by sharing pictures and stories they collected in the field during their data collection.

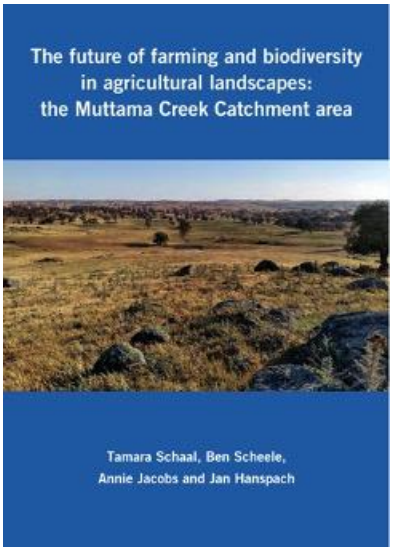
Figure 3. Picture on the left: During field work in the Chiquitania in Bolivia in May 2022: Most of the typical dry forest of the region has been destroyed for intensive large-scale cropping of soy, maize and sunflower. Image on the right: Example of the visual story telling published in Voces Indígena Urbanas Facebook page.

FOR FURTHER INFORMATION:

https://www.bioculturaldiversity.de/indigenous-voices/. The first published episode of the podcast is available here: https://soundcloud.com/voces-indigenas-urbanas-136228588/voces-indigenas-chiquitanas

(You can find all the links under https://bit.ly/3XAdL9N)

RESEARCH HIGHLIGHT: THE FUTURE OF BIODIVERSITY CONSERVATION IN FARMING LANDSCAPES IN SOUTH-EASTERN AUSTRALIA



This research project was funded by the German Research Foundation from April 2019 until August 2022. It was implemented through a collaboration with the Australian National University in Canberra and the Muttama Creek Landcare Group.

Download link to Synthesis booklet:

https://www.leuphana.de/fileadmin/user_upload/Forschungseinrichtungen/sesi/forschungsprojekte/BioKultDiv/Dateien/The_Future_of_Farming_and_Biodiversity_booklet_online_version.pdf

Overall, the project aimed at harmonizing agricultural land use with biodiversity conservation in an intensively used farming landscape in an endangered ecoregion in Southeastern Australia. Understanding different views and preferences about how to protect biodiversity in such a farming landscape is key for guiding actions and improving conservation outcomes. Using the Q-methodology, 94 interviews with people who may influence biodiversity outcomes were conducted to explore shared understandings of the farming-biodiversity intersection. Based on this, four discourses on the relationship between farming and biodiversity, the farmers' role and responsibility for biodiversity, and the preferred approaches to improve biodiversity outcomes in the future were identified. In a second step, this project used a participatory approach to develop strategies for integrating these different perspectives in the future. For that, the so called Three Horizons method was applied, which is a pathways approach that uses a set of heuristics to structure discussions about how to move away from the current system trajectories towards desirable futures. Two workshops with the rural community were conducted and storytelling was used to explore systems change. During the workshops, six pathways for change were developed. These narratives of change present different contrasting problem framings, future aspirations, and mechanisms of change. This project elicited different priorities for biodiversity conservation in an intensively used farming landscape and contributed to the growing literature on plural values and diverse perspectives in conservation. Through participatory

methods, it integrated these different perspectives and created visions of positive futures. By outlining pathways of change and creating actionable knowledge it empowered the local community to move towards desired future outcomes. At the end of the project, a synthesis booklet was launched, and the project results were presented to the local community in the Muttama Creek catchment area.

FOR FURTHER INFORMATION:

Publication on the Q study:

https://www.sciencedirect.com/science/article/abs/pii/S0264837722003337

(You can find all the links under https://bit.ly/3XAdL9N)

RESEARCH HIGHLIGHT: GRASSWORKS - WHAT WORKS AND WHY IN GRASSLAND RESTORATION IN GERMANY? A MULTI-REGION SOCIAL-ECOLOGICAL ASSESSMENT AND PILOT IMPLEMENTATION OF SUCCESSFUL APPROACHES

Figure 4. Species-rich grassland in Northern Germany

2022 was the start of the 2nd Phase of Grassworks - an inter and transdisciplinary project funded under the BMBF BioDivert and FEdA programme. The first phase of Grassworks ran from October 2020 until September 2021, which mainly focused on identifying potential grassland sites to be included in our research, as well as potential future stakeholders with whom we can start building our research activities. The project aims to explore which factors lead to success in grassland restoration in three different regions across Germany, taking ecological, socio-ecological, and socio-economic factors equally into account in the overall analysis. Grassworks is built around several work packages, which follow two main approaches. The first focuses on assessing already restored grasslands sites across Germany both ecologically and socially, while the second part focuses on co-creating live restoration with local stakeholders in a transdisciplinary process in three regional “Living Labs” (one per region).

In March 2022 our team of ecologists ventured out on their first field trips, where they started to collect empirical data, taking soils samples, assessing vegetation and plant diversity, and sampling butterflies, and wild bees). This activity involved countless trips to in total 20 restored sites and 10 references sites (5

positive and 5 negative) per region) restored sites, permit requests, talking to land managers, farmers and performing the actual assessments one time per measurement per site. During this time, other members of our research team (the social-ecologists together with the social scientists) organized weekly discussions and brainstormed to understand better the different conceptual frameworks that we are planning to use in Grassworks, as well as how to design the upcoming data collection process in a way that brings together the different perspectives, but also with the goal of trying to avoid stakeholder fatigue. To better integrate our transdisciplinary approach and the work we envision as part of the Living Labs, we started to build close collaborations and extend our network of different stakeholders (local authorities, farmers, nature conservation organisations, NGOs, and other relevant stakeholders) cross-linked with several actors from federal state level and national level.

The end of this year looks exciting, as we'll soon start sending out our first round of surveys that will investigate relational values, but also gather information on the costs of grassland restoration and maintenance, as well as on perceptions of social-ecological restoration success.

FOR FURTHER INFORMATION:

Links:

https://www.leuphana.de/en/institutes/institute-of-ecology/team/vicky-temperton/grassworks.html

(You can find all the links under https://bit.ly/3XAdL9N)

RESEARCH HIGHLIGHT: WORKSHOPS

With the drop of numerous Covid protective measures in 2022, researchers of the Social-Ecological Systems Institute (SESI) engaged again with knowledge production in workshops.

Some of the workshops organized or attended by SESI researchers are highlighted below. These workshops covered multiple topics, spanning from global questions related with the sustainable stewardship of the biosphere to more specific topics, such as sense of place or Indigenous and Local Knowledge.

Joern Fischer participated in a workshop hosted by the Beijer Institute of Ecological Economics (Sweden). This annual workshop is held on the island on Askö and seeks to bring together leading ecologists and economists to discuss cutting-edge questions related to the sustainable stewardship of the biosphere. This year's Askö meeting focused on the harmful effects of some subsidies on the environment -- for example in agriculture and fisheries.

The Move'n'Sense research project, co-led by Sarah Gottwald, and in collaboration with the borders in motion center of the Viadrina University, organized a workshop on the nexus(es) of senses of place and mobilities, in Frankfurt Oder and Słubice, Poland-Germany. In the workshop, participants explored the nexuses of senses of place and mobilities in their own research experiences.

Jasmine Pearson and Stefan Ortiz Przychodzka participated in the Synthesising Indigenous and Local Knowledge (sILK) workshop at the German Centre for Integrative Biodiversity Research (iDiv) in Leipzig. Led by Barbara Muraca and Austin Himes, the five-day workshop was dedicated to exploring Indigenous and local knowledge (ILK) perspectives through a relational value (RV) lens.

Other participation by SESI scholars in various workshops included:

- the 5th International Workshop on Archetypes in Sustainability Research organized by the Archetypes in Sustainability Research Network (Manuel Pacheco-Romero)
- Workshop on "Cultural importance of freshwater biodiversity", June 30th, World Biodiversity Forum, Davos/Switzerland (Jan Hanspach)

- Workshop on "The social-ecological trap dynamics of the EU Common Agricultural Policy", 13.-15.09.2022, University of Hohenheim, Stuttgart, Germany (Jan Hanspach)
- Workshop on "Investment in a Decarbonizing Economy" at the Frankfurt School (Dave Abson)
- Workshop on Contested Landscapes: Shifting Planning & Spatial Imaginaries in Peri-Urban Areas, Landscapes for Future? – Landschaften Und Sozial-ökologische Transformationen, Kassel, Germany (Cormac Walsh)

RESEARCH HIGHLIGHT: NEW RESEARCH PROJECT “MOVE’N’SENSE - SENSE OF PLACE AND MOBILITY IN CROSS-BORDER CONTEXTS – ESSENTIALIST AND PROGRESSIVE PERSPECTIVES”

Figure 5. The move'n'sense team

The Odra and Nissa rivers are social-ecological systems that offer various benefits for people’s livelihoods, while creating natural and administrative boundaries, dividing Poland and Germany. Despite the need and requirements for cross-border cooperation for sustainable river development, formal landscape planning instruments are limited within the national border. In contrast, people are constantly on the move. Open borders allow for cross-border activities, yet the historic burden and socio-economic differences still create a division between both sites of the border, provoking very specific mobility patterns. Simultaneously, new forms of corporal as well as virtual travel develop with the Internet of Things. These trends in people’s mobility call for new governance approaches in sustainable river management, where people can act as environmental stewards overcoming administrative boundaries. Environmental stewardship is tightly linked to the emotional and cognitive connections between people form with places – understood as senses of place. Concurrently, mobility provokes that people are confronted with new places, which forces a rethink of how we understand senses of place. In contrast to essentialist perspectives, which are related to assumptions of sedentarism, the

more progressive understanding accounts for dynamic lifestyles, assuming mobility as the natural human condition.

Therefore, this project explores the relations between mobilities and senses of place and in consequence with environmental stewardship activities in the context of cross-border regions, in which people can support sustainable river management as they are able to transcend borders.

The project started in January 2022, when we conducted interviews with local experts working on cross-border and/or environmental topics in our study region. Furthermore, we held a workshop in the study area with a group of international academics researching on the nexus of senses of place and mobilities. For 2023 we plan to: first, March launch a participatory mapping survey; second, encourage a sub-sample of the respondents to participate in a GPS tracking exercise, and finally conduct semi-structured interviews with them to get more nuanced understanding on the topics of the nexus and environmental stewardship and improve our interpretation of the survey results.

FOR FURTHER INFORMATION:

Visit our website: https://movensense.web.leuphana.de/

(You can find all the links under https://bit.ly/3XAdL9N)

RESEARCH HIGHLIGHT: SESI CONTRIBUTES TO THE IPBES VALUES ASSESSMENT

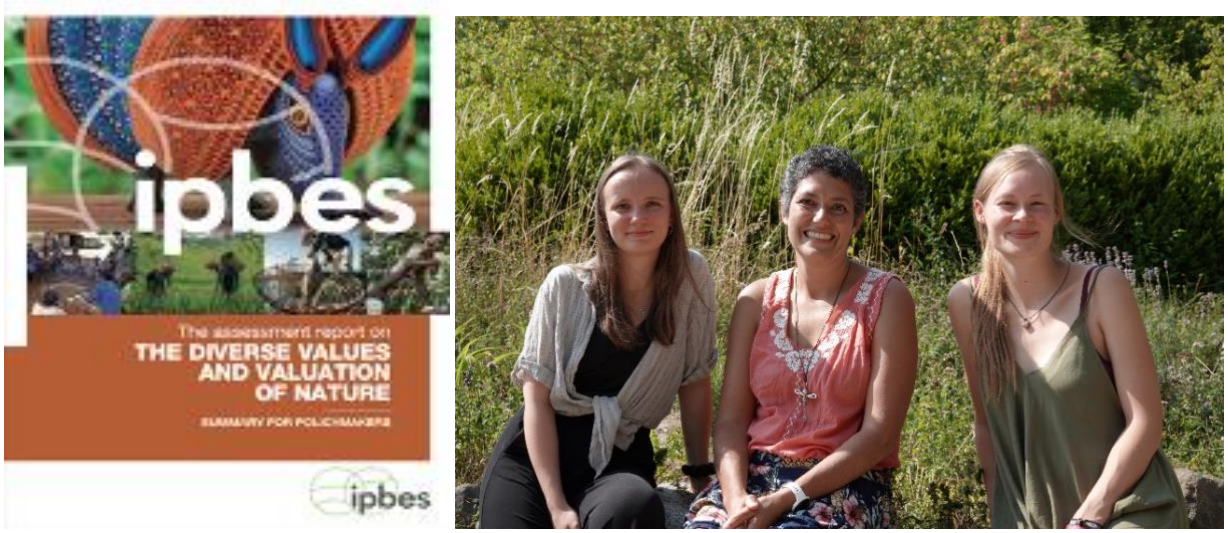


Figure 6. The IPBES report on the Diverse Values and Valuation of Nature, where Rieke Schneider (left), Berta Martin-Lopez (center) and Jeanne Freitag (right) are authors. Photo by Stella Eick.

In October 2022, the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) released the Assessment Report on Diverse Values and Valuation of Nature, in which Berta Martín-López and five students from Leuphana University Lüneburg – i.e, Hanne Carla Bisjak, Jeanne Freitag, Mira Kracke, Rieke Schneider, and Alyssa Solvie – joined as contributing authors (see Figure 6).

In chapter three of the report, we review the literature on nature valuation in order to identify which scientific methods are used in different social and ecological settings and which methods are leading to different sets of values. The main results of this chapter show that only 2% of methods (out of 50 methods) are used for political decision-making, only 2% of all reviewed studies consult stakeholders on valuation findings, and only 1% involve stakeholders in every step of the process. The chapter also shows that while many papers highlight the advantages of looking at internal power dynamics of collaborative research, very few papers reflect those – less than 1%.

The chapter demonstrates that different types of values can be measured using different valuation methods and indicators; however economic methods are the most popular in the scientific literature. The chapter also shows that values elicited in scientific studies largely depend on how valuation is designed. For example, since economic methods are dominant in the scientific literature, most

studies emphasize instrumental values, while relational values remain overlooked.

This report shows that people value nature because of multiple reasons, which have been often overlooked by past narratives highlighting only arguments based either on nature's right to exist or on the idea of nature as a provider of resources to people. The new report brings other narratives: People are part of nature, people are nature, and people value being in a relationship with nature.

FOR FURTHER INFORMATION:

Link to Chapter 3 of the Assessment Report on Diverse Values and Valuation of Nature: https://zenodo.org/record/7154700#.Y0ksGy-21QK

To learn more about the contributions of SESI to IPBES, see the interview with Berta Martín-López and her students Rieke Schneider and Jeanne Freitag.

https://www.leuphana.de/en/institutions/faculty/sustainability/news/single-view/2022/12/08/how-we-value-of-nature-affects-how-we-treat-nature.html

(You can find all the links under https://bit.ly/3XAdL9N)

RESEARCH HIGHLIGHT: RESEARCH ON TOP OF THE ROOF OF AFRICA: MOUNT KILIMANJARO

Figure 7. Photo on the left: Berta Martín-López (left) and Milena Gross (right) on top of Mount Kilimanjaro (5895 m asl). Photo on the right: Milena Gross reading the Summary for Policymakers (SPM) of the Diverse Values and Valuation of Nature IPBES report at Karanga Camp (3995 m asl).

In the context of the DFG project Kili-SES, Milena Gross and Berta Martín-López summitted the highest free-standing mountain in the world, Mount Kilimanjaro (5895 m asl) on September 16th 2022 (see Figure 7). This achievement was the culmination of two goals: one scientific and one personal. Scientifically, hiking up the roof of Africa helped us to better understand how this experience can impact the way people, particularly tourists, value nature, which is the main objective of Milena Gross' PhD. The personal goal was to climb Mount Kilimanjaro to collect funds through the fundraising campaign "Climbing Kilimanjaro for Healing Cancer" for the Cancer Care at the Kilimanjaro Christian Medical Center. In 2021, the research members of the project started dreaming about hiking up Mount Kilimanjaro, something that was an essential motivation to start and keep training.

The hike was very challenging as we had to overcome a large altitude difference in a short period of time. Milena and Berta got some high-altitude sickness symptoms, but with the support of the team and the reminder by our mountain guide to differentiate between being tired and feeling sick, we summitted in 5 hours. This was an achievement in itself because the average time for summiting from basecamp is 7 hours. With the motto *let's summit at a reasonable pace*, our mountain guide started pushing us faster and faster. Sometimes, all of us need that trustful relationship with someone who believes more in our capacities than we do.

Hiking up Mount Kilimanjaro was a reminder of what we are capable of, a reminder of the power of our bodies, nature and community. There are several parallels between doing research and hiking up Mount Kilimanjaro. In both, research and climbing, we are aware that listening to our bodies and working in team are essential. And in both, endurance is a key factor to succeed.

FOR FURTHER INFORMATION:

Links:

https://kili-ses.senckenberg.de/

https://www.gofundme.com/f/climbing-kilimanjaro-for-healing-cancer

http://www.kcmc.ac.tz/cancer-care

(You can find all the links under https://bit.ly/3XAdL9N)

RESEARCH HIGHLIGHT: WILDLIFE, VALUES, JUSTICE – WHAT HAPPENED IN 2022?

Figure 8. For the wider Katavi-Rukwa Ecosystem, we found that wildlife declines happened before land cover changes occurred. The National Park became more and more isolated by the increasing amount of agricultural land, which tripled over the last two decades. Especially buffaloes declined during this period. In our surveys of 2020 and 2021, we found very few wildlife signs outside the protected areas left.

In our "Wildlife, Values, Justice" project, we published first findings from our remote-sensing analysis of land cover changes and wildlife trends. Our PhD student Richard Giliba successfully finalized his thesis with a focus on wildlife, butterflies and land use change in the wider Rukwa-Katavi ecosystem in Tanzania, examined by Prof. Matthias Waltert from Göttingen University, and Prof. Stephen Syampungany from the Copperbelt University, Zambia.

Three further manuscripts emerged from Richard´s research, including a study on elephant corridors, a wildlife survey in relation to conservation governance, and a butterfly study. These articles are under review and hopefully, we will report more insights from these investigations soon. Moreover, together with Simon Thomsen, Alex Piel and Fiona Steward, we analyzed wildlife observations in relation to land cover changes in the Greater Mahale Ecosystem of Tanzania, ready to be submitted soon. Meanwhile, Pascal Fust has completed design suggestions for unmanned aerial vehicles and undertaken field trials, and although our drone material burnt down this year due to a broken battery, we will soon release a survey pattern protocol for wildlife counts.

Rhoda Kachali started her fieldwork in Zambia, where she currently explores the potential relation between governance arrangements on justice perceptions. Based on our interviews conducted during our first fieldwork phase in 2019, Marina Frietsch has conceptualized social-ecological interactions in protected areas. This work, too, is currently under review, and represents a continuation of the call for more focus on social-ecological indicators published by Ghouddousi et al. 2022. To what extend protected area success is related to local people´s involvement in protected area management was the question of an extensive literature review, which we started in 2020. This work, in which Jule Huber, Jens Newig and Jacqueline Loos collaborated, is also currently in revisions. Another comprehensive literature review on conservation interventions and their relations to environmental justice as well as the ecological and social outcomes will soon be released as an output of the research group "Just Conservation", in which the project serves as collaboration partner.

In 2023, we plan to disseminate our research findings in Tanzania and complement our surveys in Zambia. Although the finalization of the project was envisioned for 2023, we obtained an extension for the project duration by the Robert-Bosch Foundation, to follow up with research goals that we could not achieve during the pandemic.

FOR FURTHER INFORMATION:

Links:

https://wildlife-values-justice.net/#:~:text=Wildlife%2C%20Values%2C%20Justice%20Reconciling%20conservation%20and%20sustainability%20in,human%20population%20growth%2C%20and%20the%20industrialization%20of%20agriculture.

https://www.fondationbiodiversite.fr/en/the-frb-in-action/programs-and-projects/le-cesab/justconservation/

References:

Ghoddousi, A., Loos, J., & Kuemmerle, T. (2022). An Outcome-Oriented, Social–Ecological Framework for Assessing Protected Area Effectiveness. BioScience, 72(2), 201-212.

(You can find all the links under https://bit.ly/3XAdL9N)

TEACHING HIGHLIGHTS

TEACHING HIGHLIGHT: THREE DAYS AROUND THE MUDFLATS

In May 2022 Cormac Walsh and Simon Thomsen led a group of 18 undergraduate students on a three-day excursion to Cuxhaven at the North Sea coast of Lower Saxony. The students worked in groups on a range of themes concerning the social-ecological relations at the coast, from nature conservation at the Wadden Sea to coastal management, climate adaptation, tourism, and sustainable mobility. The students presented their results during the excursion by means of multi-media presentations including interviews with local residents and visitors and impressions from the 'field'. A guided mudflat walk (*Wattwanderung*) complete with horizontal rain and hailstones and a tour of the coastal meadows rounded off the excursion experience. The excursion was offered as part of the Minor in Spatial Science.

TEACHING HIGHLIGHT: INTERNATIONAL AND INTERDISCIPLINARY COLLABORATION DURING A WEEK AROUND THE WADDEN SEA

In September 2022, Cormac Walsh co-led an international group of twenty students and staff from the Universities of Groningen, Oldenburg, Bremen, Hamburg, Southern Denmark and Lüneburg on a week-long excursion to the Wadden Sea coast at the German-Danish border. The fieldtrip began in the village of Klanxbüll on the mainland and continued on to explore islands of Sylt and Rømø before finishing up in Tonder in Denmark. The field trip was unique for a number of reasons including its balanced composition with approximately equal numbers of staff and students, international comparative attention and interdisciplinary focus. The excursion was accompanied by a series of online lecture modules.

FOR FURTHER INFORMATION:

Links:

https://www.rug.nl/sustainable-society/research/sustainable-landscapes/files/triwadwalk-2022-crossing-borders-blending-perspectives

https://cormacwalsh-consult.eu/2022/10/14/crossing-borders-and-blending-perspectives-at-the-wadden-sea/

(You can find all the links under https://bit.ly/3XAdL9N)

TEACHING HIGHLIGHT: TRANSFORMATIVE LEARNING IN SUSTAINABILITY SCIENCES, CO-CREATION OF KNOWLEDGE WITH DECOLONIAL PERSPECTIVES

Figure 9. Impressions and results from the participatory methods for teaching-learning

The teaching experience at the faculty of Sustainability - Leuphana University has been an opportunity to reflect on critical intersectionality in the relationship between nature and culture. One experience of co-creation of knowledge took place in the seminar "*Indigenous and local communities' perspectives towards sustainability"*. We have accompanied the process of dialogue with other worlds, the so-called relational ontologies of peoples living in pericapitalist spaces, and making resistance to extractive megaprojects including those promoted by the transition to green energies.

The course has placed at the center questions to modern colonial matrix extender in scientific discourses of science and development, which persist dividing nature and culture, north and south, developed and developing countries. To imagine alternatives, we addressed categories of indigenous, peasant and afro-descendant social movements, the proposals of radical decolonial feminism, feminism political ecology, and global movements for climate justice and dissident academics in a sort of reencounter with voices from below, perspectives of those who are making other worlds possible.

An important part of the seminar consisted in the application of participatory methods for teaching-learning. The contents related to complex problems were approached with embodiment. Students reflected from their bodies and situated experiences on what is their positionality and how they can contribute to structural changes; recognizing the interdependence of actions between

regions, taking as a starting point the body, the territory, and the care of life, to respond to geopolitical problems.

An example of this experience was the application of the five fields of action of community feminism. These are: body, memory, space, time, and movement. These were used as a diagnosis in the relationship of students with their territories. They reflected on their collective memories through a ritual, where they recovered names of important entities that accompanied their lives, including political figures, animals, plants, elders, spirits. To return to memory is to recover the value of the word and the past in an anti-futuristic proposal which imagines the world from the roots. A second component was the diagnosis through drawings of what are the current conditions of their bodies, their concrete experiences of violence, their relationship with time and spaces for the reproduction of life, and spaces for dialogue. Finally, the students drew banners to express what their social movements are, and how personal experience dialogues with collective desires.

SOCIAL-ECOLOGICAL SYSTEMS: A GLOBAL CONVERSATION

GLOBAL CONVERSATION: HOW CAN WE FOSTER ENVIRONMENTAL JUSTICE AND EQUITY IN PROTECTED AREA MANAGEMENT?

Protected and conserved areas (PCAs) around the globe have been increasing in number and area since the 1990s, as their importance due to ecosystem services and cultural values become clearer. PCAs are geographical spaces that are dedicated to long-term conservation of nature using management tools such as legal frameworks. The renewed Convention on Biological Diversity foresees an increase of PCA coverage up to 30% of the Earth, accompanied by effective and equitable management and ensuring PCA connectivity and embedment into the wider landscape. Hosted by Jacqueline Loos, the guest speakers Olamide Olayiwola (International Sustainability Academy, Germany), Neil Dawson (University of East Anglia, UK) Noelia Zafra-Calvo (Basque Center for Climate Change), Rhoda Kachali (Leuphana University and the Department of National Parks & Wildlife Zambia); Arash Ghoddousi (the Humboldt University Berlin, Germany); Marina Frietsch (Leuphana University, Germany) explored the question of whether protected areas can be a just and effective conservation tool. This global conversation discussed that the answer to this question is context-specific and depends on management processes and relations with local

communities, who often face the brunt of trade-offs in PCA decision-making. PCAs may negatively affect local people´s livelihoods, but the ontology of dividing people and 'nature' also impacts the way people may relate to the PCA. Thus, PCAs oftentimes miss an opportunity to spark and engage agency and knowledge systems of local and Indigenous peoples. Based on a social-ecological system understanding, pluralistic approaches both to governing and managing PCAs might provide a way forward to PCAs causing less injustices. Measuring these injustices requires multidimensional assessments, including the recognition of cultural and social contexts and diversity of knowledge, procedural equity, consent and participation, and the distribution of benefits and burdens. The harmonization of justice and conservation, eventually, is also influenced by legacies of relations between various actors. Thus, more self-awareness and reflection of researcher´s and NGO positionality within power and funding structures for PCAs are needed, particularly when acknowledging the similarities and difference between the Global South and the Global South.

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GLOBAL CONVERSATION: A LEVERAGE POINTS PERSPECTIVE ON SOCIAL-ECOLOGICAL SYSTEMS TRANSFORMATION

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In this SESI global conversation we explored the application of a ‘leverage points lens’ as a way of studying transformative change in complex (adaptive) social-ecological systems. The notion of leverage points was first described by the systems thinker Donella Meadows, as places in complex systems where relatively small interventions can cause systemic changes (Meadows, 1999). Meadows Identified 12 leverage points from relatively easy place to intervene, but with limited capacity for systemic change (e.g., changing incentives, rules or shortening system feedback loops) through to place where interventions are harder to do but the possibility of transformative change are greater (e.g., who gets to make the rules, or changing the underpinning paradigms from which such rules flow). Meadows’ 12 leverage points were adapted by Abson et al (2017) to identify four generic system ‘characteristics’: 1) the systems material structures and flows; 2) the main feedbacks in the system; 3) the design of the social structures that manage materials, flows and feedbacks; and 4) the underpinning intents, values, and goals to which the system is oriented.

In this conversation we discussed if, and in which ways, the use of system characteristics could provide a useful lens for characterizing and studying change in social-ecological systems (e.g., Fischer et al. 2022). In particular, to what extent such a leverage points lens could act as a boundary object (e.g., Star & Griesemer, 1989) for comparing diverse sets of social-ecological systems. We

also discussed the broader application and critiques of the leverage points perspective in sustainability science (Leventon et al. 2021), with a particular focus on how such an approach might shape or reshape our system boundaries and problem framings.

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GLOBAL CONVERSATION: SENSES OF PLACE AND MOBILITIES NEXUS WITHIN DYNAMIC SOCIAL-ECOLOGICAL SYSTEMS

The Global Conversation session focused on the nexus of senses of place and mobilities. Following Doreen Massey's call from the early 90s (Massey, 1991), we see a un urge to understand the places beyond the place we look at. Global challenges, such as climate change related droughts, are able to affect the emotional and cognitive connections we form to places, also conceptualized as senses of place. Senses of place can be understood "as the plurality of place-related meanings, interpretations and values that are continuously produced, contested, negotiated, reconstructed and embodied by individuals and among collectives of people in relation to changing physical, social, political and ideational environments." (Raymond et al., 2021, p. 6). Following this thought, Chris Raymond gave a talk on 'Senses of Place in the Face of Global Challenges' which is based on the book edited by Raymond et al. (2021). He highlighted the plurality of perceptions and connections people have of and with places and the need to talk about senses instead of sense of place. While the definition above may account for changes and dynamic social-ecological systems, we argue for the need to understand mobilities in relation to senses of place. Therefore, Iga Kołodyńska presented some preliminary results of a systematic literature on the nexus of senses of place and mobilities, where she highlighted that (1) specific

physical characteristics are often overlooked or poorly described, (2) from all mobility types, migration is the most dominantly explored and virtual travel the least, and (3) very little has been done in border regions.

The discussion showed that, first, a systematic literature review on senses of place can be very contested for the broad understanding and vast amount of related terms. Second, how virtual mobilities may support or maintain senses of place when access is restricted. And finally, there may be mobility types that go beyond the ones commonly used (Büscher & Urry, 2009), but are specific to some cultures.

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VISITORS

Figure 10. Team building activities with visitors at SESI. Amanda Manyani (left front) and Francy Daniela Alba Patiño (left back) joined members of SESI in a hike at the Untere Seeveniederung Nature Reserve near Lueneburg.

In 2022, SESI welcomed several researchers from other academic institutions in Europe, Africa and North America. In spring 2022, **Sasha Kosanic**, from Liverpool John Moores University (UK) visited SESI as part of the Erasmus mobility training, through which she started a collaboration with Berta Martín-López, aiming to explore the role of non-material nature's contributions to people on the wellbeing of people with disabilities.

Emily Sigman, from Yale University in the USA, visited SESI in September 2022, when she presented her work on the social aspects of ecosystem restoration as part of the SESI seminar series. Plans are underway to deepen the collaboration with SESI in the future.

In October 2022, **Ruth Kansky** and **Amanda Manyani**, who are based at Stellenbosch University in South Africa, visited SESI. Ruth Kansky's visit was embedded within a research project funded by the VW Foundation and in collaboration with Joern Fischer. The project investigates sustainable management of conservancies in Namibia, including in the context of human-wildlife management. Amanda Manyani visited SESI in the context of her PhD, where she is studying the emergence, conceptual and institutional development of Social-Ecological Systems (SES) research.

Francy Daniela Alba Patiño from University of Almería, Spain, visited on an extended a research stay during September-December 2022 hosted by Berta Martín-López. The aim of her research stay was to conduct a global systematic review on the role of Social-Ecological Systems (SES) research to analyze and understand human-wildlife conflicts. The stay was part of the vivid collaboration with the research group 'Sustainability, Resilience and Governance of Socio-Ecological Systems (SOCIECOS Lab)' at University of Almeria.

ENGAGEMENT WITH LOCAL COMMUNITIES

In 2022, SESI researchers working in the Global South engaged in different local initiatives to foster sustainability and transformation. In the Kili-SES project (Tanzania), we contribute to different conservation projects by, for example, engaging in tree planting near a river reserve as well as in building and hanging up a beehive. The latter took place in the context of a project initiated by the Tanzanian Elephant Foundation (TEF) in West Kilimanjaro to foster human-elephant coexistence while supporting the Masai community through selling honey and offering touristic activities.

Figure 11. Photos illustrating different moments of building and hanging up a beehive as part of the Tanzanian Elephant Foundation project to foster humans-elephants coexistence in West Kilimanjaro. (Left) Milena Gross, SESI PhD student, extends wax on parts of to attract bees. (Middle) Researchers from Kili-SES building a beehive from scratch, following the instructions of Mr. Lameck and Vaileth, CEO and human-wildlife officer at TEF, respectively. (Right) Beehive fence.

In Bolivia and within the context of BioKultDiv, we started a collaboration with a Bolivian journalist to lead some workshops in the communities as a capacity-building exercise. As a result, around 10 community reporters are being trained and they will produce information that will be shared as podcasts locally and in a national radio station in Bolivia. This is a way to co-produce knowledge, test transdisciplinary methods, and make the local realities visible both inside and outside the communities.

FOR FURTHER INFORMATION:

https://kili-ses.senckenberg.de/

https://www.tef.or.tz/

https://www.bioculturaldiversity.de/

TEAM BUILDING

SUNRAY CANOE TOUR

Our SUNRay group (this comes from Jacqueline´s denomination "**S**ustainable **U**se of **N**atural **R**esources") consists of people from three different projects plus our wonderful lecturers from the minor Spatial Sciences. The three projects are: 1) Wildlife, Values, Justice; 2) Conservation of the butterfly *Colias myrmidone*, and 3) Grassworks. Given the different topics within which people are working requires space for exchange and opportunities to learn from each other. What is a better space for doing this than being out in nature? Alas, we floated down the river Ilmenau in June, enjoying the view on dragonflies, and the company of (it seemed) numerous kingfishers.

Figure 12. Members of the SUNRay Group (left to right: Annette, Jacqueline, Lukas, Konrad, Gudrun, Simon, Pascal, Richard. Missing: Cormac, Rhoda). BEFORE they went on the canoe tour. For reasons of discretion, there will be no image of the group AFTERWARDS ;-)

WEBSES BUILDING HUMAN-NATURE CONNECTIONS

This summer, a group of students from the WebSES team led by Prof. Martín-López, gathered at Ilmenau river to more deeply connect with each other outside of work and with nature. And connect with nature we did. With what turned out as very limited naval skills and expertise, we borrowed a paddleboat with the plan to cruise upstream and enjoy a bit of cool and shade that the river environment provides. However, both moving and steering our vessel turned out to be more of a challenge than any of us expected. Our cruise turned into physical exercise on a painfully slow zigzag against the current. We zigged and zagged so much, that we frequently and strongly physically connected with the river vegetation. Fortunately, our boat was sturdy enough to forgive our adventure and we avoided capsizing. In the end, we had a great time with many laughs, we enjoyed the beautiful nature, and connected with each other.

Figure 13. Right picture: WebSES on the Ilmenau river (left to right: Lukas, Milena, John, Konrad, Johanna). Left picture: Connecting with nature.

PUBLICATIONS

SESI publishes across a broad range of journals in ecology and the social sciences. The following list shows publications led or co-authored by SESI members in 2022.

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PEOPLE

Prof. Dr. David Abson (secondary affiliation), Junior Professor in Sustainability Economics. I am an interdisciplinary scientist working at the intersection of the natural sciences and economics. I focus on land use change, ecosystem services, systems thinking and transformative changes in social-ecological systems.

Martin Balaš, Research Associate and PhD Student (based at Eberswalde University for Sustainable Development). My research is focused on indicator development for social and ecological assessment of tourism, with a particular focus on the impacts of tourism in biosphere reserves.

Camila Benavides-Frias, Research Associate and PhD student. I am an agro-ecologist. My research is part of a transdisciplinary project on biocultural diversity, I focus on agroecosystems functioning (integrating social and biological components) and linking it to sustainability topics such as food sovereignty.

Felipe Benra, Postdoctoral researcher. I am conservation scientist with a background in environmental engineering. I developed my PhD in mapping and modeling ecosystem services in southern Chile looking at distributive and inequality issues and policy development. I am generally interested in sustainability sciences and restoration.

Maria Brück, Research Associate and PhD student. I am a sustainability scientist with a background in economics. My PhD work focuses on equity issues related to land use change and ecosystem services in southwestern Ethiopia.

Dr. Miguel A. Cebrián-Piqueras, Senior researcher. My research interests include community-based conservation, plural valuation, human-nature connectedness, and transdisciplinary approaches. I am currently working on a project that researches the applicability of transdisciplinary research to navigate diverse typologies of nature values to enhance social-ecological restoration.

Caroline Hélène Dabard, PhD student. My research focuses on small-scale innovations and their transformative potential in rural to peri-urban Biosphere Reserves. I thereby integrate content analysis, clustering techniques, network analysis and spatial perspectives on how, where and why sustainability innovation develop - and with which impact.

Dr. Isabel Díaz Reviriego, Postdoc Researcher. My research focuses on the role that social relations and social difference play in shaping environmental governance and in the plurality of understandings and practices of human-nature relationships (biocultural diversity) and ways of living with biodiversity.

Annika Drews-Shambroom, Project Coordinator. I am in charge of the administrative and team processes, budget, website and social media in the research project “Biocultural Diversity in Farming Landscapes of the Global South”.

Dr. Girma Shumi Dugo, Postdoc Researcher in social-ecological systems sustainability. I am deeply motivated to enhance the resilience of social-ecological systems and the ecosystem services they produce. My research focuses on land use change, biodiversity (woody vegetation), ecosystem services and human well-being. ecological systems in southwestern Ethiopia.

Dula Wakassa Duguma, Research Associate and PhD Student in Ecology. I am working on land use change, biodiversity and ecosystem services in social-ecological systems in southwestern Ethiopia.

Prof. Dr. Joern Fischer, Professor of Sustainable Landscapes. I have a background in landscape ecology and work at the intersection of social and ecological systems. I am particularly interested in biodiversity conservation, food security, and sustainable development in the Global South.

Marina Frietsch, Research Associate and PhD Student. I am a sustainability scientist with a background in landscape ecology and nature conservation. My work is based on social-ecological systems thinking and focuses on the restoration of degraded ecosystems.

Richard Giliba, PhD Student in Ecology. I am a spatial ecologist. My research is part of a transdisciplinary project on wildlife, values, and justice. I focus on understanding wildlife and land cover responses to different biodiversity governance in southern African protected areas.

Konrad Gray, PhD student. I am a sustainability scientist with an interdisciplinary background in human-nature relationships. My work deals with the social-ecological system of grassland restoration. In my PhD I want to explore different relationships and relational properties in a transdisciplinary approach to grassland restoration in the context of a real-world laboratory.

Milena Gross, Research Associate and PhD Student. I am a sustainability scientist aiming to unravel how people are connected with and value nature as well as how natures contribute to people's quality of life.

Dr. Jan Hanspach, Junior Research Group Leader. I have a background in ecology and conduct interdisciplinary work on biocultural diversity in the global south as well as on the integration of biodiversity conservation in farming landscapes. In 2021, I received the Leuphana Young Researcher Award.

Gudrun Harms. I am responsible for all secretarial and administrative work, financial processing, budget monitoring and the preparation of employment contract matters at the Social-Ecological Systems Institute.

Roman Isaac, Research Associate and PhD Student. I am interested in the role of governance in human-nature interactions. More specifically I focus on the multi-level governance of natural and anthropogenic capitals in the co-production of ecosystem services.

Dr. Amanda Jiménez Aceituno, Researcher. My research seeks to explore ways to operationalize transformations theory into analytical frameworks and participative and art-based methods that can improve sustainability practice. Currently I explore how co-designed processed can contribute to sustainable transformations of the food system in drylands.

Dr. Tolera Senbeto Jiren, Postdoctoral researcher. My research interest is on the governance of rural development and social-ecological systems. My current work focuses on teleconnected stakeholders' power analysis, and the application of transdisciplinary scenario backcasting in southwest Ethiopia.

Rhoda Nthena Kachali, Research Associate and PhD Student. I am particularly interested in the interface between people and nature and how a better understanding of these interactions can enhance protected area effectiveness and capabilities among people living in and around them.

John Sanya Julius, Research Associate and PhD Student. I am a social environmentalist interested in sustainability management and socio-ecological systems. I focus on understanding how human-nature interaction with existing Indigenous and Local Knowledge can influence the demand for and value of nature contribution's to people.

Lukas Kuhn, Research Associate and PhD Student. I am a sustainability scientist with a special interest is understanding why people and groups of people do what they do. My research focusses on the diverse values and value compositions that motivate the sustainable use and restoration of grasslands in Germany.

Dr. David P. M. Lam (visiting scholar), Scientific Director of the project tdAcademy - Platform for transdisciplinary studies and research. I work on transdisciplinary research methods, processes to increase the impact of sustainability initiatives, and the role of indigenous and local knowledge in change processes.

Dr. Elizabeth Law (external consultant) Statistics and Modelling Advisor. My research focuses on effective, efficient, and equitable biodiversity conservation and environmental management. I evaluate evolving incentives for conservation, and develop tools for effective conservation and environmental management in complex socio-ecological systems.

Dr. Aymara Victoria Llanque-Zonta, Research Associate and lecturer. I am interested in food justice and sustainability, with special emphasis on feminist and decolonial studies connected to sustainable consumption, co-production of knowledge with peasant and indigenous communities, transdisciplinary and transformations in science, politics and practice.

Prof. Dr. Jacqueline Loos, Robert-Bosch Junior Professor for Research into the Sustainable Use of Natural Resources. I research environmental justice in development and biodiversity conservation, applying a social-ecological understanding of protected areas to scrutinize interdependencies between governance arrangements, management effectiveness and social-ecological outcomes.

Prof. Dr. Berta Martín-López, Junior Professor in Sustainability Science. I am a collaborative, inter- and transdisciplinary researcher aiming to understand the role of values, knowledge and institutions in supporting transition pathways towards sustainability.

Stefan Ortiz Przychodzka, Research Associate and PhD student. I am an Ecological Economist with experience in transdisciplinary research with peasant and indigenous communities. I work on topics related to biocultural diversity, agrarian change and social-environmental conflicts.

Dr. Jasmine Pearson, Postdoc researcher. My research interests include nature valuation, Indigenous and local knowledge (ILK) systems, gender equity and sustainable livelihoods. I am currently working on a project which seeks to elicit the demand and values of nature´s contributions to people at Mt Kilimanjaro, Tanzania.

Manuel Pacheco-Romero, postdoctoral researcher (Margarita Salas Postdoctoral Fellow, Ministry of Universities, Spain). My research focuses on understanding social-ecological factors driving success or failure of ecosystem restoration actions. I am conducting post hoc assessments of restoration activities in grasslands (Germany) and Mediterranean ecosystems (Spain).

Dr. Maraja Riechers, Postdoc researcher. My research interests include leverage points for sustainability transformation, especially in the domain of human-nature relations, including human-wildlife conflicts, and land-use changes.

Lena Rölfer, PhD Student. I am a research associate at the Climate Service Center Germany (GERICS), Helmholtz-Zentrum Hereon. I have a background in environmental science and marine ecology and am particularly interested in inter- and transdisciplinary approaches for coastal social-ecological systems that advance sustainable and climate resilient coastal governance.

Patricia Santillán Carvantes, Research Associate and PhD Student. My project aims to co-design sustainable management strategies that foster biodiversity conservation, nature's contributions to people, and farmers' good quality of life in the context of a tropical dry forest socio-ecological system.

Tamara Schaal, Research Associate and PhD Student. I am a social scientist interested in understanding perceptions of local people and communities related to biodiversity as well as land use and implications for policy and governance.

Judith Schmitz, Master's student and responsible for the SESI Blog & social media. In my master's thesis, I'm concentrating on the conceptualization of recognitional justice in nature conservation projects in East Africa.

Dr. Matthias Schröter-Vinke (visiting fellow). I am an environmental scientist with a broad interdisciplinary background, including landscape ecology, conservation biology, ecological economics and environmental ethics. I am interested in spatial ecosystem service assessments, social-ecological systems, and the science-policy-interface of ecosystem services.

Dr. Jannik Schultner (visiting fellow), Researcher in rural social-ecological systems. I am interested in human-environment interactions, including ecosystem services, human-wildlife conflicts, biodiversity conservation, land use and rural livelihoods, and in mixed methods.

Prof. Dr. Vicky Temperton (secondary affiliation), Professor of Ecosystem Functions and Services. I have a background in experimental plant ecology and test ecological theories and knowledge for its potential to improve ecological restoration in a global change world.

Simon Thomsen, Research Associate. I have a background in Geography and am interested in the spatial analysis of land use change, their direct and underlying causes as well as assessing the environmental impact of these changes.

Dr. Cormac Walsh (secondary affiliation), Lecturer and Researcher. I am a human geographer and spatial planning researcher by training. My research interests include protcted area management, spatial and environmental planning on land and at sea, coastal management and climate adaptation. My research is focused on Northwestern Europe.

Hannah Wahler, Intern. I am involved in two research projects. Firstly, I work on relational values regarding coastal ecosystems represented in social media together with Dr. Maraja Riechers. Secondly, I apply resilience principles and leverage points to woody vegetation diversity in Ethiopia with Dr. Girma Shumi Dugo. I am especially interested in social-ecological forest systems.

COURSES TAUGHT BY SESI

SESI members teach a diversity of subjects at the Bachelor, Master and PhD level. These include:

- Basics of Inter- and Transdisciplinary Research
- Basics of Sustainable Development
- Biocultural diversity, a useful concept to re-think rural areas
- Conservation ecology
- Critical Geographies of Nature Conservation (BSc Spatial Sciences, with Cormac)
- Ecological restoration for sustainability
- Ecological restoration for Sustainability-Introduction
- Ecological restoration for Sustainability-project development
- Ecological restoration for Sustainability-project planning
- Ecological restoration for Sustainability-second module
- Ecological restoration for Sustainability-transdisciplinary project
- Environmental Justice in Conservation and Development (at MSc level, complementary)
- Environmental Sciences - an Introduction. Humanities seminar Ecological restoration for sustainability
- Fundamentals of Sustainability Economics
- Mensch-Umwelt-Beziehungen in der Raumplanung – partizipative kartenbasierte Methoden
- Sustainability and Biodiversity Governance in Einführung in die Nachhaltigkeitswissenschaften

THESES COMPLETED IN 2022

The following theses were completed in 2022 after supervision or co-supervision by SESI members.

PHD THESES

- Biodiversity Responses to a Protection Gradient in Tanzania
- Diversified farming systems- an evaluation of ecological benefits, economic costs & risks farmers face

MASTER THESES

- An empirical analysis of the contribution of Clear the Air Meetings to the Inner Development Goals
- Assessing the initial effect of Holistic Planned Grazing (HPG) on vascular plant diversity, soil carbon and nitrogen stocks: A comparison to continuous grazing in two northern German pastures.
- Attitudes of Active Residents toward Utility-Scale Solar Development on Maui
- Characterisation of East African Wildlife Conservation Stakeholders in international Newspapers
- Environmental Justice and Protected Areas in Nigeria, Osse River Park, Ondo state as case study
- Exploring plural values of nature through narratives & photographs inspired by memorable moments by tourists on Kilimanjaro
- Living Wages for Rural India: Calculation and Implementation of a Living Wage for Rural Maharashtra
- Reduction of Wolf Attacks on Sheep through Herd Protection Measures in Lower Saxony, Germany
- Relationality and Sustainability Pathways in the Ecuadorian Amazon: Exploring Student´s Transformations in an Immersive Study Abroad Program with Indigenous Communities

- Successful participatory protected area decision-making: A systematic review of the scientific evidence
- Sustainability through Relationality. A framework to explain the influence of `Relationality' and ´Separateness´ on relations with nature and community
- The invisible hand that shapes climate discourse: Corporations at COP26
- The True Cost Accounting Method as an approach to include positive and negative externalities in business decisions in the food and land use system

BACHELOR THESES

- Anreize und Motivation zur Steigerung der Nutzpflanzenvielfalt für konventionell wirtschaftende LandwirtInnen in Niedersachsen
- Biodiversity Patterns of Reclaimed Desert Areas: A Case Study from the Baharriya Region, North Sahara, Egypt
- Challenges for the European financial sector arising on the path to net-zero financed emissions
- Das Potential regenerativer Landnutzungsmaßnahmen im subsaharischen Afrika
- Das Potenzial regenerativer Landnutzungsmaßnahmen im subsaharischen Afrika
- Die Relevanz von Climate Smart Conservation in Alpenraum: Eine Analyse von Natur- und Artenschutzstrategien am Beispiel des Nationalparks Hohe Tauern
- Die vegetarische Gastronomie im UNESCO-Biosphärenreservat Rhön im Kontext einer nachhaltigen Entwicklung
- Does Fair Trade circumvent Ecologically Unequal Exchange, or does it simply support exploitative relations?
- Einfluss der Grünlandbewirtschaftung auf ausgewählte Insektengruppen im Biosphärenreservat Elbtalaue: Untersuchungen auf den Pevestorfer Wiesen
- Green Growth and Degrowth in the Sustainable Mobility Transition

- How can the implementation of a circular economy in the agri-food system contribute towards achieving the SDG 2 of attaining food security and sustainable agriculture?
- Indigenous values of nature and insights of applying a gender lens – A literature review
- Indigenous values of nature and insights of applying a gender lens – A literature review
- Linking worldviews, informal institutions and Indigenous and local knowledge on biodiversity management across Europe, Central Asia and the Americas
- Linking worldviews, informal institutions and Indigenous and local knowledge on biodiversity management across Europe, Central Asia and the Americas
- Nature, People and the Policy in Between: an analysis of ecosystem service co-production in German and European forestry and agriculture policy
- RECUP-Einführung in Ericeira, Portugal – eine Machbarkeitsstudie
- Stakeholder engagement in transdisciplinary coastal research of the Global South: A systemic literature review
- Sublittoral primary production and grazing behaviour in the eastern Mediterranean Sea – a comparison of key habitats
- The institutional logic of the RDC-HU microfinance project that is being applied within the projects work in the field of the rural community “13 villages”
- Three modes of participatory research in nature valuation
- To what extent do feminist economic orientation and sustainability play a role in the development and support of startups? A qualitative multi-case study focused on female startups
- Use and distribution of risks and benefits of carbon offsetting – a political ecology analysis
- Wirkung des Besucher:Innendrucks auf die Diversität und Frequenz von Tagfaltern und Hummeln in Wiesenbereichen am Marchfeldkanal, Wien

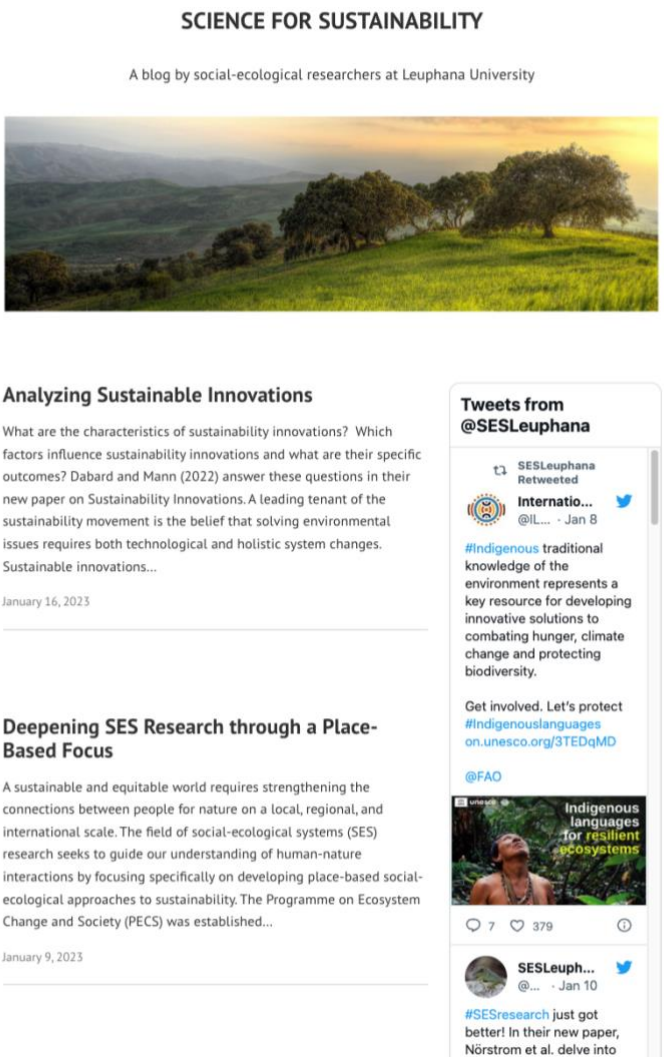
Pictures from a study site in Ethiopia. Photo credit: Girma Shumi Dugo.

FOR MORE INFORMATION

Visit our website to learn more about us and our work!

You can also follow our institute's news and publications on social media. Many of our papers are featured on our blog science4sustainability soon after publication. You can engage with us on Twitter @SESLeuphana. Recorded talks by SESI members can be found on our YouTube channel Social Ecological Systems Institute SESI.

We thank Lukas Kuhn for editing this report, Annika Drews-Shambroom for helping compile documentation throughout the year, and all of SESI for the collection and contribution of the pieces and photos.



A screenshot of the SESI blog.

IMPRINT
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