BOOK OF ABSTRACT

I. SESSION DESCRIPTION

ID: T6c

Justice, distribution, conflicts and power relations in ESS definition and assessment:

Hosts:

	Title	Name	Organisation
Host:	Dr.	Joachim H. Spangenberg	Helmholtz Centre for Environment Research & Sustainable Europe Research Institute SERI Germany
Co-host:	Dr.	Johannes Langemeyer	

Abstract:

Equity, justice and conflicts and the power relations shaping them are still widely overlooked dimensions in many Ecosystem Services (ESS) research and practice. Despite the success of the 'integrated valuation school' (Jacobs et al. 2017) to put social, moral, ethical and other concerns on the research agenda, ES research and practice remain widely dominated by standard economic optimisation procedures. The current introduction of Nature's Contribution to People (NCPs) by the International Panel on Biodiversity and Ecosystem Services (IPBES) highlights the need to reconcile the moral and the analytical dimension of ESS. This includes the need to stronger consider the social dimension in ES research, including further discussion between scientifically robust and politically effective terminology and analyses. In this session, we discuss how to mainstream social/conflict issues into ES research and application, both conceptually and methodologically. We embrace a perspective of social/environmental justice to better conceptualize conflicting dimensions of ES and ecosystem disservices (EDS). Furthermore, we aim at discussing

methodological requirements for ESS / EDS assessments to stronger account for trade-offs, (hidden) conflicts and equity, addressing the following core questions:

- How to address trade-offs between different ESS/EDS, stakeholders, benefits and detriments (across social groups – spatial and temporal scales)?
- Are there different types of EDS, how can they be classified, which ones are important for the overall ESS concept?
- How to balance local vs. global in ESS / EDS determination and relevance assessment?
- What is the role of international trade in ESS provision (embodied ESS in trade)? (tele-coupling; production based and the consumption based accounting)
- How to deal with tensions between inter- and intra-generational justice in ESS/EDS trade-offs?
- Which role do the subjective and the objective definition of ESS, and the power relations they represent, play in the real-world application?
- How has the ESS discourse been abused to drive extractive activities and socially invasive change?

The overarching goal of this session is to show pathways for (a) awareness raising, (b) assessment, (c) avoidance and (d) reduction of ESS/EDS trade-offs and conflict.

The additional questions we developed in Shenzhen about morality, valuation etc. are not forgotten but stored for subsequent discussions!!

Goals and objectives of the session:

The purpose of the discussion is further refining and beginning to answer these questions.

Planned output / Deliverables:

The result may be a publication, or further work in a subgroup of ESP WG T6. The synthesis could also serve as input to different Thematic Groups (e.g. 6, 8, 10, 14, 18) which are all exposed to the problem to some degree without it being their core theme.

Related to ESP Working Group/National Network:

Thematic Working Groups: T6 – Integrated valuation of ES

II. II. SESSION PROGRAM

Date of session: Tuesday, 16 October 2018
Time of session: 8:45 – 13:00

Timetable speakers

Time	First name	Surname	Organization	Title of presentation
8:45–9:00	Johannes Joachim H.	Langemeyer Spangenberg	UAB SERI Germany	Welcome, Introduction to the session
9:00–9:15	Béla	Kuslits	Hungarian Academy of Sciences, Centre for Ecological Research	Social Network Analysis in Management of Ecosystem Services
9:15–9:30	Rita	Lopez	Centre for Environmental and Sustainability Research – NOVA University Lisbon.	Social Network Analysis and power relations: An approach to understand the effect of stakeholder's behaviour in ESS management
9:30–9:45	Améline	Vallet	Ecologie Systématique Evolution, AgroParisTech, CNRS, Univ. Paris-Sud, Université Paris-Saclay	Linking equity, power and stakeholders' roles in relation to ecosystem services
9:45–10:00	Christina	Von Haaren	Leibniz University Hannover, Institute of	Trapped in a multipole power field – Cross-national comparison of how legislation, the planning system, and

Time	First name	Surname	Organization	Title of presentation
			Environmental Planning	public participation shape the conditions for ecosystem service planning and evaluation.
10:00–10:15	All	Participants	ESP Europe	Discussion section 1: Power relations and ESS planning & management
11:30–11:45	Felipe	Benra	Helmholtz Centre for Environment Research; iDiv, Leipzig	A trilogy of distribution inequality: land, forests, and ecosystem services
11:45–12:00	Karen	Mullin	University of Leeds	Assessing the social distribution of natural capital and ecosystem services in England
12:00–12:15	Susanne	Raum	Imperial College London, Centre for Env. Policy	A framework for integrating systematic stakeholder analysis in ecosystem services research
12:15–12:30	All	Participants	ESP Europe	Discussion section 2: Distribution, social impacts and ESS planning & management
12:30–13:00	Johannes Joachim H.	Langemeyer Spangenberg	UAB SERI Germany	Future work planning: how to strengthen the social and political dimensions of ESS assessments, policy, planning and management

I. ABSTRACTS

The abstracts appear in alphabetic order based on the last name of the first author. The first author is the presenting author unless indicated otherwise.

1. *Type of submission:* ***Abstract***

T. Thematic Working Group sessions: T6c Justice, distribution, conflicts and power relations in ESS definition and assessment

A trilogy of distribution inequality: land, forests, and ecosystem services

First author: Felipe Benra, Laura Nahuelhual

Affiliation, Country: Helmholtz Zentrum für Umwelt Forschung; German, Centre for Biodiversity Research, Leipzig, Germany, Instituto de Economía Agraria, Universidad Austral de Chile, Valdivia, Chile

One of the greatest challenges in sustainability sciences is to incorporate social distribution and access into the management of natural resources and ecosystem services (ES). We explore distributional patterns of land and forest distribution and their relation to ES supply, based on information for 5,584 private properties of southern Chile and ES spatial indicators for forage provision, water supply, and recreation opportunities. Large properties (>1,000–30,000 ha) represented 0.8% of total and comprised 47.6% of land and 69.4% of native forests. In turn, they concentrated 52.9% of water supply and 46.2% of recreation potential. Contrarily, small properties (0.1–60 ha) represented 85.9% of the total, comprised 18.2% of the land, and 8.6% of native forest. They accounted for 16% of water, 21.4% of recreation, and 36.9% of forage provision. Gini coefficients revealed medium to high inequalities for water supply (Gini=0.38) and recreation (Gini=0.475), and lower inequality values for forage (Gini=0.29). Spatial analysis showed that 92% of hotspots for water and 57% of recreation were located in large properties. The unequal distribution of ES supply reflects a history of land and forest concentration by large properties, a structural condition that challenges ES interventions in developing countries, and therefore should be brought to the forefront of environmental policy design.

Keywords: green grabbing, distributional justice, ecosystem services supply, land grabbing, payments for ecosystem services

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2. *Type of submission:* ***Abstract***

T. Thematic Working Group sessions: T6c Justice, distribution, conflicts and power relations in ESS definition and assessment

Impacts of changing nutrient loads on the coastal ecosystem services

First author: Anna-Stiina Heiskanen, Heikki Peltonen

Other author(s): Vivi Fleming-Lehtinen, Anna Villnäs, Letizia Tedesco, Susanna Jernberg, Pirkko Kauppila

Affiliation, Country: Finnish Environment Institute, Finland

Coastal areas provide ecosystem services like partial retention of nutrient loading from land. Those are also important biodiversity hot spots providing nursery habitats for several commercial fish species and important areas for recreation. Linking coastal ecosystem structures and functions quantitatively to intermediate and final ecosystem services (ES) has been a challenge. In this work, we develop a new modelling approach for linking intermediate services with underlying ecosystem processes and functions. The modelling approach combines dynamic biogeochemical model with a Bayesian Network (BN) model. A conceptual model was used to set up a BN model structure in order to evaluate how changes in nutrient loading and climatic change affect ES in a coastal site. The biogeochemical model was used to simulate functions of the marine ecosystem, and BN model was used as an emulator to estimate the changes in structural variables of the coastal ecosystem. The model approach was tested using data from a coastal site in the Finnish archipelago, in the Baltic Sea. A wide range of available information, including marine biogeochemical and bio-optical modeling, national monitoring data, citizen-based observations and expert estimations, were used to support the model-based evaluations. Water clarity and absence of visible cyanobacterial blooms were used as proxies/ or indicators for intermediate services that can be linked to recreation. Likewise the production of fish prey (mesozooplankton) was used as a indicator for intermediate service that supports the provisioning service like extraction of fish by commercial fisheries. Sediment phosphorus buffering capacity was used as an proxy for intermediate service influencing ecosystem capacity for 'eutrophication mitigation'. The responses of these four intermediate ES proxies were tested under two nutrient load scenarios and two climatic and hydrographic conditions corresponding to mild or severe ice-seasons.

Keywords: coastal ecosystems, biogeochemical model, Bayesian network model, ecosystem services, nutrient loading scenarios

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3. *Type of submission:* ***Abstract***

T. Thematic Working Group sessions: T6c Justice, distribution, conflicts and power relations in ESS definition and assessment

Exploring subjective perceptions for social impacts of Protected Areas: Evidence from three NATURA 2000 sites in Greece

First author: Nikoleta Jones

Other author(s): Panayiotis G. Dimitrakopoulos

Affiliation, Country: Global Sustainability Insitute, Anglia Ruskin University, UK, United Kingdom

PAs provide significant ecosystem services to local communities and can have a very beneficial impact on human well-being. The present paper explores social impacts of Protected Areas (PAs) and highlights the need to further investigate these social aspects in order to achieve a better balance between non-economic costs and benefits for local communities influenced by the designation of a PA. These impacts are increasingly recognized as a key issue that needs to be explored and combined with existing evaluation frameworks assessing economic and environmental impacts. Furthermore, there is now an increasing literature emphasizing that PAs can also result to ecosystem disservices which impact local communities in a negative way. The results of an empirical study are presented which was implemented in three PAs in Greece where perceptions of locals on positive and negative impacts -linked with the ecosystem services they receive- were explored. A list of explanatory factors for these perceptions was also explored such as, social capital, quality of life and place attachment, in order to understand the subjective measurements of social impacts. A main conclusion of the paper is that measuring ecosystems services is not sufficient for the planning and designation of a protected area. It is crucial that subjective measurements of positive and negative social impacts, which are closely linked with cultural ecosystem services, are also explored in order to find optimum ways to minimizing ecosystem disservices taking into consideration the socio-economic context where a PA is established.

Keywords: social impacts, cultural ecosystem services, Greece, ecosystem disservices, subjective indicators

4. *Type of submission:* ***Abstract***

T. Thematic Working Group sessions: T6c Justice, distribution, conflicts and power relations in ESS definition and assessment

Social Network Analysis in Management of Ecosystem Services

First author: Béla Kuslits

Other author(s): Réka Aszalós, Ildikó Arany, Eszter Tanács, Ágnes Vári

Affiliation, Country: Hungarian Academy of Sciences, Centre for Ecological Research, Hungary

Network Analysis is a powerful methodology for qualitative and quantitative analysis of social-ecological relationships. It has contributed in many cases to the understanding of management challenges of protected areas. In the Eco Karst project this method was used to analyse and compare patterns of influence on information flows among stakeholders of five protected karst areas in Central and Southern Europe. Our goal was to find influential institutions and individuals to ensure an efficient and inclusive participatory planning in the project areas. Information on social ties were collected with surveys both online and on paper. We have analysed the role of individuals and institutions in special positions (such as "trusted players" and "information brokers"), communication patterns between groups that have different decision-making power, and also how relationships with ecosystem services influence human connections. This methodology allowed project partners to prepare an inclusive stakeholder involvement process, where the views of various groups are represented by their most trusted and well-connected members. Our results also indicate leverage points, where changing the institutional structure or communication flow could improve the efficiency of conservation and natural resource management. Most important among these is that dependence on the same ESs is a predictor of strong communication between groups of stakeholders while exceptions to this rule usually indicate conflicts in landscape management. Finally, we discuss methodological challenges and practices that help to overcome them in an environment where social-science methods are not widely used.

Keywords: stakeholder involvement, social network analysis, information flows, power relations

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5. *Type of submission:* ***Abstract***

T. Thematic Working Group sessions: T6c Justice, distribution, conflicts and power relations in ESS definition and assessment

Social Network Analysis and power relations: An approach to understand the effect of stakeholder's behavior in ES management

First author: Rita Lopes, Pedro Clemente

Affiliation: Center for Environmental and Sustainability Research – NOVA School of Science and Technology – NOVA University Lisbon, Portugal

The concept of Ecosystem Services (ES) frames conservation on the essential services for human wellbeing and provides means for linking multiple services and assessing trade-offs. Still the socioeconomic and cultural contexts are key to determine the way people value ES. The inclusion of different groups with diverse values, knowledge and relationships with the environment is essential to avoid aggravating conflicts, ensure that the marginalization of certain groups is not reinforced, and fairly represent diverse interests. In this research we explore the role of stakeholder's networks to promote equity and balance conflicts, from an ES perspective, understanding the effect that distinct networks and power relations can have in different ways ES are managed. Are these networks of stakeholders able to foster justice and equity in CES assess and management? Or are do they grow in power to a scale where they concentrate most benefits in detriment of other stakeholders, such as local communities? Are free riders "supported" by a network of this nature?This research was applied in a Natural Park in the southwestern coast of Portugal, where the expansion of irrigated agriculture, polluting industries and growing pressure from tourism are resulting in multisectoral conflicts. Benefiting from this protected area is the Rota Vicentina Association, a network of local businesses that promotes nature-based tourism strategies for the region based on a system of 700 km hiking trails. By sharing a successful infrastructure this network is growing in numbers, promoting environmental awareness and enforcing a sustainable policy towards cultural ES. A sample of businesses was interviewed to assess the importance of collaboration with other stakeholders, the impact and level of confidence on this network, and to examine the relationships of power and dependency between individuals and the network, and the way they motivate their behavior towards each other and a common strategy.

Keywords: social network analysis; environmental justice; stakeholder's networks; sustainable tourism

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6. *Type of submission:* ***Abstract***

T. Thematic Working Group sessions: T6c Justice, distribution, conflicts and power relations in ESS definition and assessment

Assessing the social distribution of natural capital and ecosystem services in England

First author: Karen Mullin

Other author(s): Dr Gordon Mitchell, Dr Ruth Waters

Affiliation, Country: University of Leeds, United Kingdom

Environmental inequalities where more deprived or ethnic minority populations are disproportionately burdened with environmental harms (e.g. polluted air, higher flood risk) and have fewer environmental amenities (e.g. urban greenspace, public parks) have been demonstrated in many countries. However, few studies examine the social distribution of a broad range of natural capital (NC) or the multiple ecosystem services (ES) generated by that NC which ultimately benefit human health and wellbeing. Typically, consideration of social equity in the context of ecosystem services has focussed on payments for ES, upon a single type of NC (e.g. trees) and on lower income countries. Yet assessment of the social distribution of ES is important in all contexts for facilitating equitable management of ecosystems, required for adoption of an ecosystem approach.Our study applies a multi-scale spatial analysis to examine environmental inequality with respect to NC and selected ES in England, as an example of a high income, urbanised country. Firstly, we conducted a national analysis which examines differences in deprivation across districts classified by 15 NC indicators. We find higher deprivation is often associated with lower extent and quality of NC but this pattern is not consistent for all places or NC types. This implies that equitable management of ecosystems should be driven at a local level. Thus secondly, for an urban case study we assessed the social distribution of three ecosystem services. Whilst this reveals no notable evidence of inequalities, we ascertain some key considerations in modelling ES required for assessment of their social distribution. This includes careful consideration of how ES demand is conceptualized and the need for a multi-scale approach which incorporates the flows of ecosystem services from source to beneficiaries. Finally, we discuss how analysis of the social distribution of ES may be utilized to assist with equitable management of ecosystems.

Keywords: natural capital, ecosystem services, social inequality, environmental justice, spatial analysis

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7. *Type of submission:* ***Abstract***

T. Thematic Working Group sessions: T6c Justice, distribution, conflicts and power relations in ESS definition and assessment

A framework for integrating systematic stakeholder analysis in ecosystem services research

First author: Susanne Raum

Affiliation, Country: Imperial College London – Centre for Environmental Policy, United Kingdom

The concept of ecosystem services offers a useful framework for the systematic assessment of the multiple benefits ecosystems deliver. However, the anthropogenic focus of the concept also requires a detailed understanding of the stakeholders interested in the goods and services ecosystems provide. Indeed, linking ecosystem services to stakeholders and systematically mapping their potential stakes in these is essential for effective, equitable and sustainable ecosystem governance and management because it specifies who is in the system and why. This paper endeavours to provide a better appreciation of systematic stakeholder analysis in ecosystem services research by, first, presenting an illustrative stakeholder analysis example, using a key natural resource in relation to ecosystem services: forests in the UK. In this exploratory study, a qualitative approach was adopted, using a literature review and interviews to identify the stakeholders with a stake in the provisioning, regulating and cultural ecosystem services of forests, to distinguish their characteristics, and to examine their relationships towards each other on different levels. The illustrative example then informed the design of a conceptual framework for the systematic application of stakeholder analysis in ecosystem services research. The comprehensive framework consists of a three-phase model entailing the planning phase, the execution of the actual stakeholder analysis phase, and, finally the subsequent actions. The framework incorporates stakeholders and ecosystem services on a geographical, institutional and ecosystem level. Systematic stakeholder analysis can be used to develop future activities linked to ecosystem services, including new policy or instruments, stakeholder engagement activities, and decision-making processes. It is particularly useful to address trade-offs between different ecosystem services and stakeholders.

Keywords: stakeholder analysis; ecosystem services; forests; framework; trade-offs

8. *Type of submission:* **Invited speaker abstract**

T. Thematic Working Group sessions: T6c Justice, distribution, conflicts and power relations in ESS definition and assessment

Stop dreaming of win-win solutions! Conflicts are the norm

First author: Joachim H. Spangenberg

Affiliation, Country: Sustainable Europe Research Institute SERI, Germany

People experience three types of Ecosystem Disservices EDS: natural disasters, coupled effects of Ecosystem Service ESS generation, and being excluded from a fair share of ESS.Even natural disasters can offer both, ESS and EDS – think of the river flooding providing ancient civilisations with their most important fertilisers and replenishing ground water tables, or the fertile soils emerging from volcanic eruptions. However, victims and beneficiaries may be widely separated in space and time, and social position.ESS and EDS alike are often the immediate and unavoidable result of human interventions into the regulatory processes of nature. For instance, when humans realise the use potential of a grassland to produce specific grasses for human use (cereals) and realise this ESS, the naturally occurring herbivore organisms become an EDS, and the organisms feeding on them become an ESS. Farmers are exposed to this co-produced EDS and either react by supporting the biocontrol ESS or by trying to suppress the natural mechanisms and replace them with chemicals-intensive management, with the well established environmental and health impacts.EDS are often linked to conflicts of interest – either certain groups are particularly exposed to them (with or without compensation), or the definition and realisation of ESS and EDS result in an unequal distribution of ESS and EDS. Such conflicts can emerge between

- consumptive direct use and preserving the non-consumptive direct resp. the indirect use potential;

- different agents pursuing the same goals of appropriating direct consumptive use potentials;

- different agents pursuing different goals when enjoying the same non-consumptive ESS (mountain biking and meditating in the forest – both leisure).

All these uses constitute ecosystem services with a positive value for humans, but due to the trade-offs, many of them can if pursued turn into a disservice for those demanding a competing service.

Keywords: Ecosystem disservices, co-generation, distribution, conflicts

9. Type of submission: ***Abstract***

T. Thematic Working Group sessions: T6c Justice, distribution, conflicts and power relations in ESS definition and assessment

Linking equity, power and stakeholders' roles in relation to ecosystem services

First author: Améline Vallet

Other author(s): Bruno Locatelli, Harold Levrel, Nicolas Dendoncker, Cécile Barnaud, Yésica Quispe Condé

Affiliation, Country: Ecologie Systématique Evolution, AgroParisTech, CNRS, Univ. Paris-Sud, Université Paris-Saclay, France

The issues of power and equity are gaining attention in the research on ecosystem services (ES). Stakeholders who benefit from ES are not necessarily able or authorized to participate in ES management. We propose an analytical framework for identifying and qualifying stakeholders' roles in relation to ES flows. Building on existing frameworks in the ES literature, we specifically aim at unraveling the different direct and indirect management contributions to ES flows, and at linking them with ES benefits. We apply this framework to the Mariño watershed (Peru) to describe stakeholders' roles using a set of eight ES, and we discuss the implications of our findings in terms of equity and power. We conducted face-to-face semistructured interviews with representatives of 52 stakeholders of the watershed to understand how they managed ES and benefited from them. We used statistical analysis (permutation tests) to detect significant differences between stakeholder sectors (civil society, NGOs, business, public sector) and scales (from local to national levels). Indirect forms of ES management were more frequent than direct ones for all ES, and water quantity, water quality and agricultural production received the most management attention. The differences we observed between ES benefits and management could result from intentional choices (e.g. preferences for local benefits). We also found clear differences between those who managed ES and those who benefited from them. ES benefits were higher for local stakeholders and the business sector, while public organizations and NGOs were the most involved in ES management. These inequities reflected the different rights and capabilities of

stakeholders to benefit from or participate in ES management. They also emanated from spatial and structural interdependences between stakeholders. Participatory governance of ES could offer solutions to enhance both distributive and procedural equity.

Keywords: Ecosystem management, Ecosystem Services Governance, Environmental justice, Landscape sustainability, Tradeoff

10. Type of submission: ***Abstract***

T. Thematic Working Group sessions: T6c Justice, distribution, conflicts and power relations in ESS definition and assessment

Trapped in a multipole power field – Cross-national comparison of how legislation, the planning system, and public participation shape the conditions for ecosystem service planning and evaluation

First author: Christina von Haaren, Rachelle Alterman

Affiliation, Country: Leibniz University Hannover, Institute of Envrionmental Planning, Neaman Institute for National Policy Research, Technion Haifa, Israel, Germany

Good environmental planning and resulting implementation relies on efficient and transparent ways to evaluate ecosystem services (ES). Many countries have already begun to map and assess ES, but the discussion of what is the "right" evaluation approach is still incomplete. Not enough research attention has been directed to each country's governance context and how it shapes the conditions for ES evaluation and implementation. There is a gap in knowledge both on the theoretical level and on the empirical level. The double aim of this paper is, first, to propose a theoretical framework to characterize the key aspects of governance for ES evaluation; and second, to apply this framework to the real-life contexts of selected national (or subnational) jurisdictions. Four advanced economy countries are analysed as examples: the USA/Oregon, Japan, Germany, and Israel. They share a common denominator important for any cross-national analysis: All are OECD member countries with (relatively) functioning democracies and public administrations. At the same time, the four countries exhibit a variety of physical-geographic and socio-cultural characteristics. We hypothesize that these may have both positive and negative influences on the options for designing appropriate modes of ES evaluation and planning. The theoretical framework conceptualizes the governance context as the interplay between types of legislation, degrees of participation opportunities, and division of planning authority along spatial or political

lines. Ostensibly ancillary aspects – such as data availability – can also influence the capacity to undertake good ES evaluation in practice. We conclude that there is no "one size fits all" approach to the governance of ES planning and evaluation. We thus hope to enable environmental planners and decision makers to design ES approaches that, while seeking to be optimal and emulate good practices, are also realistic in recognizing the opportunities and constraints of their current legal and governance contexts.

Keywords: Ecosystem service evaluation, governance systems, environmental planning, cross-national