BOOK OF ABSTRACTS

I. SESSION DESCRIPTION

ID: T8b

Nature on a plate. Linking people and nature in local food

Hosts:

	Name	Organisation	E-mail
Host:	Marta Derek	University of Warsaw, Poland	m.derek@uw.edu.pl
Co-host(s):	Sylwia Kulczyk	University of Warsaw, Poland	skulczyk@uw.edu.pl

Abstract:

Food is essential to our health and well-being. It also serves as a fundamental link between humans and nature: it exemplifies our dependence on nature, and how we use it to fulfil our physiological needs to satisfy hunger. Although it is commonly included as a provisioning service in many ecosystem services classifications, food also has a cultural value. This is especially pertinent in relation to local food: a concept that links the supply side of the ecosystem with human demand, via a plate.

Although the local food trend is not new, it has become even more significant in recent years due to the intense discussions about global climate change, environmental crises, and biodiversity loss. The ecosystem services concept is a powerful framework for analysing local food systems. It may also be a useful lens through which we can understand how local food production interacts with the natural environment, and what benefits it provides to humans.

In this session, we invite contributions that demonstrate how the relationship between nature and people is expressed through the concept of local food. We welcome presentations focusing on both environmental and social aspects, as we believe that bringing these two perspectives together is essential in order to understand local food, create sustainable local food chains, and identify synergies and trade-offs between the natural environment and its 'consumers'. We

encourage presentations that explore the role of local food, along with contributions that discuss the relationship between local, nation-wide, EU or global food systems.

Food for thought:

- How to build more resilient food systems that benefit both people and nature?
- Wild food as an iconic ecosystem service – a provisioning or cultural service?
- How is local food embedded into the natural environment where it is produced?
- What synergies exist between the natural environment, food, food producers and food consumers that can help local actors create successful and sustainable local food chains?
- What trade-offs between the natural environment, food, food producers and food consumers need to be addressed in order to improve the functioning of local food chains?

Goals and objectives of the session:

To share experiences on local food research within the framework of ecosystem services.

Planned output / Deliverables:

Proposing a joint paper on understanding local food through the lens of the ecosystem services concept.

II. SESSION PROGRAM

Room: Expert Street 3

Date of session: 19th of November 2024

Time of session: 16:00-18:00

Timetable speakers

Time	First name	Surname	Organization	Title of presentation
16:00-16:05	Marta Sylwia	Derek Kulczyk	University of Warsaw	Intro to the session
16:05-16:10	Marta Sylwia	Derek Kulczyk	University of Warsaw	How local is local food? A systematic review of the concept

Time	First name	Surname	Organization	Title of presentation
16:10–16.15	Tobias	Plieninger	University of Kassel, University of Göttingen	Landscape products for linking people and nature
16:15–16:20	Sebastian	Candiago	University of Bayreuth	A socio-ecological perspective to study local food systems: the case of winegrowing under climate change
16:20–16:25	Nynke	Schulp	Vrije Universiteit Amsterdam	Regional production of plant-based meat alternatives can support a transformation to sustainable food systems
16:25–16:30	Priya	Sharma	Hungarian University of Agriculture and Life Sciences	Teach a man to fish: Promoting sustainable food systems by harnessing the potential benefits of fishponds for society
16:30–17:00			**DISCUSSION**	
17:00–17:05	Agita	Treimane	Latvian State Forest Research Institute 'Silava'	Pursuing multiple goals in forestry: does commercial thinning decrease bilberry cover and yield?
17:05–17:10	Krossy	Mavakala	Ecole Régionale Postuniversitaire d'Aménagement et de Gestion intégrés des Forêts et Territoires tropicaux	Administrative bricolage in a bushmeat trade hub: decoding formal and informal interactions at Kinshasa's river ports
17:10–17:15	Luisa F.	Eusse-Villa	University of Padova	Societal Willingness to Pay for Wild Food Conservation in Italy
17:15–17:20	Lidia	Poniży	Adam Mickiewicz University in Poznań	Actively retired—benefits of gardening for elderly people
17:20–17:25	Naji	Sulaiman	University of Gastronomic Sciences	Going or Returning to Nature? Insights from a Field Study on Wild Vegetable Uses in the Restaurant Industry of Lombardy, North Italy
17:25 – 18:00			**DISCUSSION**	

III.ABSTRACTS

first author is the presenting author unless indicated otherwise.

1. A socio-ecological perspective to study local food systems: the case of winegrowing under climate change

First authors(s): Sebastian Candiago

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Local food products are linked in a unique way to the natural and human attributes of their areas of origin. However, global drivers of change are threatening this link by altering the specific conditions under which these products are made. Winegrowing in Europe is a paradigmatic case to study the interaction between ecosystems and human demand for food production at a fine scale due to the economic, cultural, and ecological value of European vineyard landscapes. In this presentation, we show how to apply an ecosystem service framework to study viticultural systems under climate change. We further analyze how geographical indications labels can influence the benefits provided by winemaking areas in Europe under new climates. Additionally, we present a multi-indicator characterization of European viticultural areas to analyze their climate change vulnerability based on social, economic, and ecological characteristics. The results illustrate the importance of considering multiple and diverse ecosystem services in studying food systems, including cultural ecosystem services, to better support decision-makers in sustainable landscape management. We show how the rigidity of quality schemes, such as restricting the exploitation of plant varieties, can affect the supply of provisioning services in the future. Lastly, by analyzing the vulnerability of wine regions, we exemplify how interdisciplinary approaches can be used to weigh different features (e.g., availability of ecological niches, financial assets) and suggest tailored adaptation strategies for strengthening the resilience of vineyard landscapes. By focusing on these examples, the talk will shed light on methods that can be used to analyze agricultural systems and support policies, such as the EU Green deal and Farm to Fork Strategy, in preserving the values related to local food.

Keywords: Protected designation of origin; traditional landscape; terroir; food quality; adaptation.

2. Societal Willingness to Pay for Wild Food Conservation in Italy

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Forests contribute to human well-being, offering various ecosystem services (ES), including wild foods and other products. Our research focuses on these wild forest products, which hold significant societal value across ecological, economic, cultural, and social dimensions. While previous studies have typically concentrated on formally marketed wild foods, there is a growing need to understand their broader significance as cultural ES and the factors influencing societal preferences for their supply and maintenance.

To explore this topic, we conducted a study in Italy, a country with a rich cultural heritage associated with wild foods. Using data from a discrete choice experiment (DCE), we investigated societal preferences for these ES, aiming to examine their spatial variation and identify potential drivers of heterogeneity. Our approach aimed to understand how people value these wild foods (mushrooms, wild berries, and wild herbs, specifically) and consequently map their preferences.

Our findings revealed respondents' willingness to allocate resources to forest programs that increase and conserve these wild foods, indicating their high perceived value as ES. While we detected some weak spatial heterogeneity patterns, our initial hypotheses about the influence of geographic factors were ultimately disproven. The preferences for specific wild foods were diverse but not significantly explained by proximity to forests or other spatial variables included in our models. Importantly, we found that variations in willingness to pay (WTP) might be more closely related to cultural traditions and sense of place identity rather than geographical factors.

The results of this study highlight the importance of integrating spatial dynamics to comprehensively understand societal preferences for ES, particularly in the context of local food systems. These insights can inform decision-making processes and foster sustainable management practices.

Keywords: wild foods, cultural ecosystem services, societal preferences, local food systems, spatial heterogeneity

3. Administrative bricolage in a bushmeat trade hub: decoding formal and informal interactions at Kinshasa's river ports

First authors(s): Krossy Mavakala

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Public service provision in the Democratic Republic of the Congo (DRC) is notoriously inadequate and struggles to fully address the needs of citizens for human development. Biodiversity is similarly challenged which has resulted in the government outsourcing biodiversity conservation to international environmental NGOs. Findings from our research in Kinshasa's river ports are far-reaching because Kinshasa is one of Africa's main bushmeat trade hubs. Its population of around 18 million weighs heavily on wildlife upstream in Congo's vast forest landscapes. Administrative complexities of how public servants interact with other actors in the bushmeat supply chain has not been adequately studied in central Africa from a political economy perspective. To fill this research gap, we examined the formal and informal negotiation processes that govern the bushmeat trade. We therefore analyzed the trade through the concepts of negotiation, institutional and legal frameworks, and social norms. This research is a qualitative anthropological based. In addition to hundreds of informal conversations in the years leading up to this study, 80 formal interviews were conducted and transcribed over a period of 15 months from late 2021 to early 2023. Results point to a complex situation of 'bricolage' in which formality and informality overlap. Bushmeat bricolage in this article refers to the perpetually negotiated dynamics of pragmatic and opportunistic solutions to negotiating bushmeat trade. The strategies and drivers of relationships between actors have been analyzed and discussed. For many actors, bushmeat is far more than a monetary commodity. Its social, cultural and symbolic values also drive - and are used to account for- its trade. Delving into the administrative obstacles and opportunities of the bushmeat political economy in Kinshasa can inspire research in other central African countries where institutional landscapes have their own idiosyncrasies but also similarities in terms of public service delivery challenges.

Keywords: bushmeat, overlapping interactions, political economy, bricolage, Maluku

4. Landscape products for linking people and nature

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Certain types of food, which we call landscape products here, link to low-input practices and traditional ecological knowledge, and they have multiple functions supporting human well-being and sustainability. Here we explore landscape products worldwide, with a particular focus on those from the Mediterranean region, to identify these multiple functions in the context of food commodification and landscape sustainability. Based on an expert survey, we find that landscape products support biocultural diversity in the landscapes of production, but their positive socio-economic outcomes remain limited, with problems of inequity and lack of empowerment among producers and a tendency towards intensification or abandonment of the farming practices. We distinguished three types of products based on their localness and how their qualities were shared with consumers. Overall, we show that a landscape products lens can improve food systems by fostering sustainability strategies and standards that are place-sensitive, and as such can mitigate conflicts related to food production, social justice and the environment. Co-management strategies and information policies, such as certification, labelling, product information and raising of awareness could accelerate, incentivize and catalyse actions to support landscape products in the context of sustainability strategies. Combining landscape ecology and food systems research allowed us better understand the outcomes of landscape products in the landscapes of production and suggest pathways for fostering landscape sustainability.

Keywords: Social-ecological systems; Telecouplings; Food systems; Landscape ecology; Landscape sustainability

5. Actively retired—benefits of gardening for elderly people.

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There is no doubt that European societies are ageing. The European Commission indicates that by 2030, there will be a significant increase in the number of people in the 65+ age group in almost all statistical regions of the European Union. Meeting the needs of this group and ensuring their active and healthy ageing is already a challenge for European cities.

From 2018 to 2022, we researched urban gardening as part of the FEW-meter project. We invited allotment gardeners from Poland, France and Germany to cooperate. Analyzing surveys on motivation, behaviour and benefits related to allotment gardening conducted in 2019 among gardeners involved in the project, we noticed that a significant part of allotment garden users were people over 60, and almost all of this group were retirees.

Since older people are eager to use allotment gardens, what needs do they meet in this age group?

We analyzed the benefits that allotment gardens bring to their users, especially the 60+ age group, in the context of ecosystem services.

The survey results allowed us to assess the importance of the provided provisioning services for the oldest users of allotment gardens and to what extent these benefits meet the allotment gardeners' demand for fresh fruit and vegetables. We also looked at the motivations behind owning and using an allotment garden and what benefits for mental and physical health and well-being come from time spent caring for cultivated and ornamental plants and talking to and meeting other allotment gardeners.

The results should serve as a beacon for policymakers deciding whether to create or retain small, non-commercial urban agriculture interventions. Of course, allotment gardens do not compete with commercial agriculture to provide supply services and have a larger carbon footprint. However, besides providing allotment holders with fruit and vegetables for their own use, allotment gardens, unlike conventional agriculture, provide many social benefits (also significant for the oldest inhabitants of cities), which may justify the presence of allotment gardens in cities.

Keywords: allotment gardens, ageing societies, provisioning services, cultural services, benefits from gardening

6. Abstract ESP Local Food

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Regionalized value chains are considered an important tool to deal with current sustainability challenges, and to connect humans to their living environment. But throughout Europe, regionalized value chains require crop diversification, particularly an increase in protein crops, to support a regional healthy diet. Protein crops have many co-benefits in terms of ecosystem service provision, including supporting pollinator communities and soil quality. Establishing regionalized value chains and simultaneously increasing plant protein production therefore benefits consumers and landscapes. A main barrier for developing these value chains are market opportunities for plant proteins, but plant-based meat and dairy alternatives (PBA) might provide a valorization opportunity for plant proteins. However, we lack understanding of the current status and future potential for such value chains in Europe.

We integrated publicly-available datasets with a web-derived inventory of PBA processor locations to map regionalized PBA value chains across Europe. Using processors' visions and employee interviews, we did an exploratory assessment of how processors perceive their role in the food system transition and in connecting consumers with their region.

Regions in north-western Europe demonstrate moderately-strong value chains for regionalized PBAs. The absence of PBA processors is the most widespread barrier for more regional value chains, particularly in Eastern Europe. Most of current PBA processors that source and sell regionally have actions in place to make both plant protein production and consumption more sustainable. For example, by supporting farmers to implement measures that enhance biodiversity or soil quality, or by informing consumers about the plant protein production agroecosystem. Interviews demonstrated that PBA processors expect a further growth of the PBA market. Together, our results showcase the potential to expand regionalized PBA value chains to improve sustainability throughout the EU, but regionalisation may not be possible

everywhere, highlighting the need for a cross-scale and context-specific approach to plant-based protein transitions.

Keywords: short value chains, regional food, Europe, plant-based proteins

1. Teach a man to fish: Promoting sustainable food systems by harnessing the potential benefits of fishponds for society

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Freshwater fishpond systems, an important and growing sector of EU aquaculture production, have been recognized not only as a source of local food production and food security but also for their other regulatory and cultural aspects. These systems are complex ecological units that integrate social, environmental, and economic factors to provide a variety of ecosystem services (ES). Pond processes are also highly interactive with the surrounding environment. Therefore, to better understand the complex realities of fishpond agroecosystems and to predict future ecosystem responses, it is particularly important to have a mechanistic understanding of the many inter- and intra-system environmental interactions and their possible links to ES.

Understanding the impact of various local fishpond management practices on ES provision remains a challenge. Therefore, our work aims to make a methodological and empirical contribution by developing a process-based planning model to assess the impact of different hypothetical fishpond management scenarios (such as different stocking densities, feeding regimes, reed cover, reed management practices, etc.) on environmental interactions. Furthermore, according to the CICES classification, the quantitative model outputs were used to determine the indicators for ESs (e.g., fish produced, sediment, carbon sequestration, and microclimate regulation, etc.) and ecosystem services (e.g., waste and nutrient emissions, water use, etc.). Other ESs, such as cultural and habitat support functions, were derived based on the calculated quantitative data and some additional rules provided by experts or users.

The model-based assessment provides a clear overview of sometimes overlapping and sometimes conflicting ecosystem service indicators quantitatively. The ability of the model to

assess multiple management scenarios and provide a realistic view of the associated uncertainties should provide a sound basis for decision-makers to design and promote the ecological intensification of fishpond food systems.

Keywords: Aquaculture, Fishponds, Dynamic process modelling, Environmental interactions, Ecosystem Services

2. Going or Returning to Nature? Insights from a Field Study on Wild Vegetable Uses in the Restaurant Industry of Lombardy, North Italy

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Wild vegetables (WVs) have been an important source of human nutrition since ancient times. Foraging is a millennia-old practice that gained more attention recently, becoming fashionable, especially in restaurants in urban areas, as they attract customers who see WVs as an innovative sensory element and specialty food. Some cooks have been using very few WVs for decades, but most chefs have only recently introduced them in their modern restaurants. Our study aims to have a deeper understanding of the diversity of WVs used by restaurants in the Lombardy region in North Italy and to know how they are introduced on different menus. We also aim to know the source of knowledge and the innovation paths related to the use/introduction of WVs in the selected sample of restaurants. Semi-structured interviews were conducted with 14 restaurant chefs and professional foragers in the Lombardy region in North Italy in 2021. The collected data was analyzed to understand the current situation and the potential developments of this practice by exploring the reasons/motivations that underpin the inclusion of WVs in restaurants. A broad spectrum of restaurants was considered to evaluate the potential differences in handling and sourcing these ingredients. Results demonstrated that this trend has mainly been driven by attempts to revitalize traditional cuisines and to generate a positive impact on health, but the actual culinary preparations based upon WVs are often original and remarkably diverge from the Italian food ethnobotanical heritage. Moreover, concerns related to the environmental sustainability of these practices have been addressed by the present study.

Keywords: ethnobotany; wild food plants; Lombardy; Italy; gastronomy

3. Pursuing multiple goals in forestry: does commercial thinning decrease bilberry cover and yield?

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Long-term goals of multipurpose forestry include sustaining high timber yield and economic profit, low management costs, biological diversity and availability of non-wood forest products (NWFPs). In Latvia, public forests and private forests (unless restricted by the owner), are freely accessible, and foraging for NWFPs, especially berries and mushrooms, comprises several ecosystem services, from provisioning (healthy supplement to the diet) to cultural (recreation). Commercial thinning, a widely implemented silvicultural measure to decrease the mutual competition of trees thus improving productivity and vitality of the stand, yearly affects a considerable forest area significant for the before-mentioned alternative purposes. A widespread public opinion states that any silvicultural intervention reduces the abundance and yield of forest berries and mushrooms, therefore, scientifically sound data are necessary to model the availability of NWFPs under different forest management scenarios.

Our study, performed in 33 experimental sites in young and middle-aged Scots pine (Pinus sylvestris L.), Norway spruce (Picea abies (L.) Karst.) and birch (Betula sp.) forests, focuses on the occurrence of bilberry (Vaccinium myrtillus L.), changes in its projective cover, as well as yield trends after thinning. The field experiment following the before-after-control-impact (BACI) design, includes eight sample plots with control and different intensity thinning in two repetitions in each experimental site. In each plot, bilberries were assessed in 36 subplots before thinning and four, five and six years after it.

Regardless of the establishment year, the projective cover of bilberry in different intensity thinning and control plots significantly increased after thinning in all site types and stand age classes, providing data on short-term changes after disturbance. No significant change in berry yields (at 100% projective cover, both on thinned and control plots) was recorded during six years after thinning. Climatic conditions, i.e. draught during the time of flowering, had significant negative effect on berry yield.

Keywords: healthy wild food, forest berries, projective cover, commercial thinning, berry yield

4. How local is local food? A systematic review of the concept

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Food serves as a fundamental link between humans and nature: it exemplifies our dependence on nature, and how we use it to fulfil our physiological needs to satisfy hunger. The ecosystem services concept is a useful lens through which we can understand how the supply side of the ecosystem links with the human demand, via a plate. The term, however, is socially contracted. The more it is popular, the more blurred its meaning is. No consensus exists over its understanding also in the academic research. For these reasons, we have performed a systematic and wide literature review on the understanding of local food within the framework of social-ecological system. Our aim was to better understand how the concept of local food is defined and operationalized.

Our review was based on Scopus. We started by identifying all articles with "local food" in a title or in keywords (n=1580). We then chose articles with a focus on products, groups of products, or meals (n=275). Product was understood here as a link between different elements of a social-ecological system. We then analysed the chosen articles and described how the research referred to the elements of both the social and the ecological subsystems.

The results show that researchers rarely define local food, assuming that this is a commonly understood term. They hardly include core provisioning services, but rather focus on a wide array of human-based elements that co-produce it. Studies on local food focus much more on social rather than ecological part of the system.

Keywords: local food, social-ecological system, systematic literature review, nature-human relations