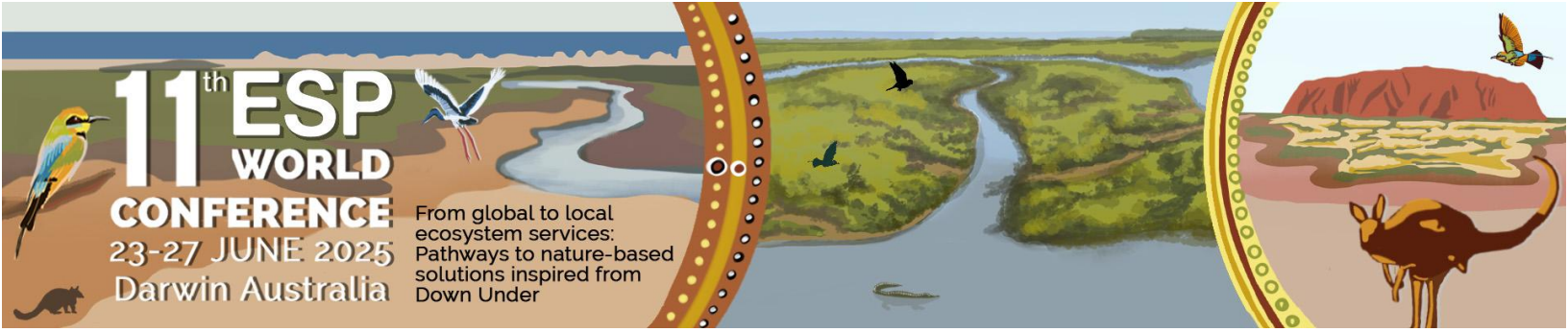



# BOOK OF ABSTRACTS



## I. SESSION DESCRIPTION

ID: O6

### Local food as a carrier of ecosystem services: from local to global flows

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

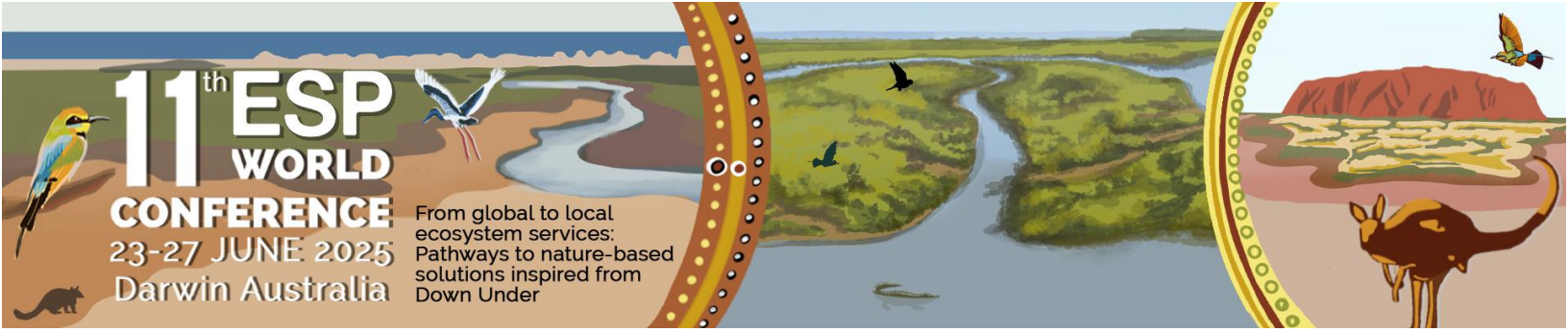
**Abstract:**

The concept of local food is deeply intertwined with the provision of ecosystem services, offering a broad range of benefits. These include food provision, supporting local agrobiodiversity, regulating climate, preserving cultural heritage, and fostering social connections within communities. However, the very "localness" of food makes this term inherently contradictory: as local food often requires larger markets to remain economically viable, it becomes increasingly detached from its original area of production. Moreover, as global interest in local food grows, the term—being a social construct—has become more blurred, nuanced, and challenging to define.

This session aims to share experiences from research on local food within the ecosystem services framework. We seek to explore the boundaries of the local food concept and examine the gradients of natural-social conditions that co-produce diverse ecosystem services which carry local food. Additionally, we will investigate the evolving role of local food in promoting sustainable food systems.

Food for thought:

- Which ecosystem services ensure the localness of local food?
- How do natural and social conditions of food production co-produce ecosystem services?
- How does local food contribute to the global flow of ecosystem services, and what challenges arise when scaling its benefits beyond local contexts?




- How local food systems can be integrated into global food supply chains in a sustainable way?
- The sustainability of local food: when is local food sustainable and when is it not?

**Goals and objectives of the session:**

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

**Planned output / Deliverables:**

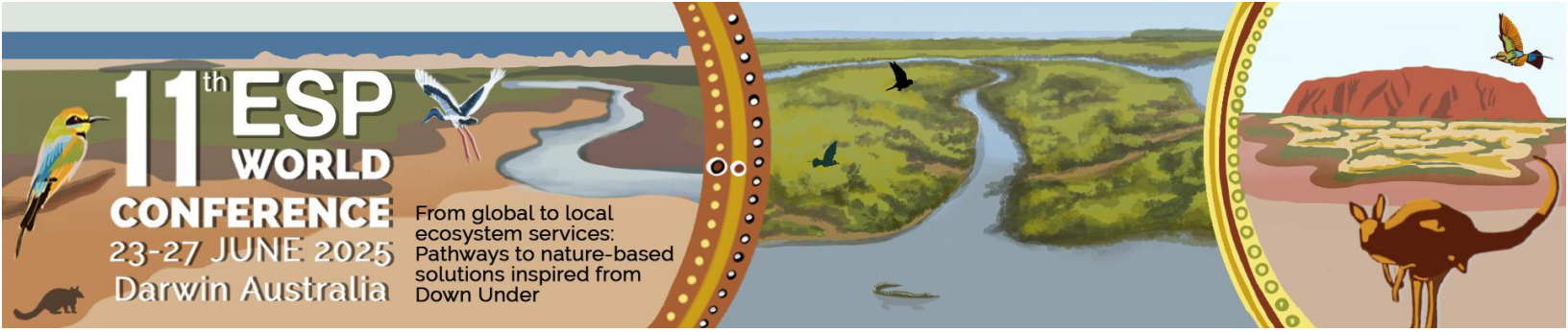
Proposing a joint paper on understanding local food through the lens of the ecosystem services concept.

## II. SESSION PROGRAM

**Room:** Madla 2
**Date of session:** 23 June, Monday
**Time of session:** 16:00 – 17:30

**Timetable speakers:**

| Time | First name | Surname | Organization | Title of presentation |
|---|---|---|---|---|
| 16.00–16.10 | Marta<br>Sylwia | DEREK<br>KULCZYK | University of Warsaw | Introduction to the session |
| 16.10–16.20 | Marta<br>Sylwia<br>Ada<br>Alina<br>Luis | DEREK<br>KULCZYK<br>GÓRNA<br>GERLEE<br>INOSTROZA | University of Warsaw<br>University of Warsaw<br>University of Warsaw<br>University of Warsaw<br>Mendel University in Brno | Landscapes and food. Assessing the co-production of ES within local food |
| 16.20–16.30 | Krossy | MAVAKALA | ERAIFT | Alternative Proteins to Bushmeat in Kinshasa: From One Problem to Another? Exploring the Resilience of Small Producers in the Face of Competition |
| 16.30–16.40 | Philipina<br>Anna C. | SHAYO<br>TREYDTE | Mbeya University of Science and Technology<br>Stockholm University | Ethnobotany of Oyster nut (*Telfairia pedata*) in Northern Tanzania |




| Time | First name | Surname | Organization | Title of presentation |
|---|---|---|---|---|
| 16.40–16.50 | Philipina<br>Emmanuel F. | SHAYO<br>MWAKASEGE | Mbeya University of Science and Technology<br>Mwalimu Nyerere University of Agriculture and Technology | Potential of Oyster nuts: Composition and health benefits |
| 16.50–17.00 | Joost<br>Tipakhon<br>Chamaiporn<br>Patimakorn<br>Nantasak<br>Mik<br>Dries<br>Apostolos<br>Felix<br>Decha<br>Jozef Vanden | VAN ITTERBEECK<br>PHUSAKON<br>BUAMAS<br>KLAIPRASITTI<br>PINKAEW<br>Van Der BORGHT<br>VANDEWEYER<br>PEKAS<br>WÄCKERS<br>WIWATWITAYA<br>BROECK | KU Leuven<br>Jiradech Agriculture Technology Part., Ltd.<br>Ministry of Agriculture and Cooperatives<br>Khon Kaen University<br>Kasetsart University<br>KU Leuven<br>KU Leuven<br>Biobest Group NV<br>Biobest Group NV<br>Kasetsart University<br>KU Leuven | Chemical control does not outperform weaver ant biocontrol in Thai mango |
| 17.00–17.30 | LOCAL FOOD AND ECOSYSTEM SERVICES – DISCUSSION | | | |

## III. LIST OF ABSTRACTS

*The first author is the presenting author unless indicated otherwise.*

## 1. Landscapes and food. Assessing the co-production of ES within local food

**First authors(s):** Marta Derek

**Other author(s):** Sylwia Kulczyk, Ada Górna, Alina Gerlée, Luis Inostroza

**First author affiliation:** University of Warsaw

**Contact:** m.derek@uw.edu.pl

**Keywords:** local food, values, co-production of ES, landscape

Under a capitals approach, the delivery of ecosystem services occurs as a result of the interaction between natural, built, social and individual capital. In food systems as well, ecosystem services are co-produced through the interaction of natural and non-natural capitals. In this paper, we examine how the natural landscape elements, that serve as prerequisites for ecosystem services, are assessed in studies focusing on local food. Specifically, we explore the methods and indicators used to evaluate the values of ES, using the IPBES methodology.

Our work is based on a systematic review of articles from the Scopus database. We searched for articles using "local food" in the title or the keywords. After reviewing all abstracts, and in some cases all articles, we selected articles focusing on food products, groups of food products, or meals. We first analysed how these articles referred to the elements of the social-ecological system, which helped us identify articles that included natural landscape elements into the research.

Out of 1.580 articles which were extracted from Scopus, only 279 focused on specific food products. In 87 articles natural landscape elements related to the food product were taken into account. The results of our analysis show that half of them (43) assessed values of ES. The methods used the most often include nature-based valuation methods (especially using species lists and statistical data), which appeared in 21 research papers, and statement-based valuation methods (with surveys and interviews as the most popular), which appeared in 20 papers.

These results show that studies which focus on local food rarely acknowledge the natural landscape components and their contributions. The 'local food' approach mainly focuses on non-natural capital (e.g. cultural heritage, types of distribution, or consumers' interests and preferences), often overlooking the role of nature in the co-production of ecosystem services related to food.

## 2. Alternative Proteins to Bushmeat in Kinshasa: From One Problem to Another? Exploring the Resilience of Small Producers in the Face of Competition

**First authors(s):** Krossy Mavakala

**Other author(s):** No

**First author affiliation:** ERAIFT

**Contact:** krossymavakala@yahoo.fr

**Keywords:** alternative proteins, bushmeat, farmers, competition, Kinshasa

A study we conducted in Kinshasa reveals that bushmeat hunting and trade remains a big threat to biodiversity. Bushmeat is being traded and sold in the river ports of Kinshasa with the complicity of both formal and informal actors such as traders and public agents. Formality and informality therefore overlap and are quite difficult to desintangle in a way that law is subject of negotiation between all the actors. In that context, advocating for alternative proteins to bushmeat appears to be a part of the solution if not the solution. Countries in central and western Africa have set up number of community (Wicander & Coad, 2018) or household (Brittain, Kamogne Tagne, Roe, et al., 2022) oriented bushmeat alternative proteins projects. In Kinshasa, the Democratic Republic of Congo, research have shown any properly alternative protein project to deal with bushmeat trade and consumption. The research we conducted found that individuals and institutions deal themselves with initiatives that try to fill the gap. Universities, Ngos, Churches women's associations, and singular breeders try to offer alternative food to a city of around 18 millions of inhabitants. This article shows how middle and small farmers sttrugle themselves to survive to one big farmer with an important support from politics. The big farmer manipulates economic drivers such as price and competition to oblige others both to close or sell him their farms as he has already bought its biggest competitor and conducted several small farmers to close. Scenario about shifting from bushmeat to alternative proteins consumption therefore remains a big challenge. In that context question we ask is to figure out what between monopoly or competition is the best way to feed Kinshasa with bushmeat alternative proteins.

## 3. Ethnobotany of Oyster nut (Telfairia pedata) in Northern Tanzania

**First authors(s):** Philipina Shayo

**Other author(s):** , Anna C. Treydte

**First author affiliation:** Mbeya University of Science and Technology

**Contact:** pinashayo@yahoo.com

**Keywords:** Telfairia, Livelihood, Utilization, Indigenous knowledge, Conservation

The Oyster nut [Telfairia pedata (Sims) Hook] is an important native climber plant commonly grown in East Africa. It bears nuts which are eaten either raw or cooked and consumed mostly by expectant mothers, and as cooking oil. The survey was conducted between September 2019 to February 2020 in Sambaa, Meru, and Pare communities of Lushoto, Bumbuli, Arumeru and Same Districts, Northern Tanzania to assess the ethnobotany of Oyster nut from a sample of 346 respondents using semi-structured questionnaires. Results indicated that, 21% of respondents used Oyster nuts for cooking with other staple foods while 18% claimed that pregnant, lactating mothers for used the nuts as medicinal, and breast milk stimulation and nine (9) percent indicated that the nuts were used for cultural and ritual purposes. Despite its importance, the cultivation of Oyster nuts in the study area are declining and the gap why such decline is experienced needs to be answered in further studies. Secondly, respondents within the 36-50 age groups reported the greatest diversity of uses of Oyster nuts of 51% compared with those aged below 36 years old of 21% signifying that the traditional knowledge known by younger aged groups may be declining. Thus, this gap of traditional knowledge between the groups should be addressed in order to improve the utilization and conservation of this seriously declining yet important nut in the study area and other places of Tanzania.

## 4. Potential of Oyster nuts: Composition and health benefits

**First authors(s):** Philipina Shayo

**Other author(s):** Emmanuel F. Mwakasege

**First author affiliation:** Mbeya University of Science and Technology

**Contact:** pinashayo@yahoo.com

**Keywords:** Potential, Minerals, Antioxidants, Oyster nut, Composition

Oyster nut (Telfairia pedata (Sims) Hook) has a substantial benefits as a nutrient-dense nut with protein, dietary fiber, magnesium, sodium, fat, carbohydrate, potassium, zinc, manganese, calcium, copper, iron, selenium, vitamins, water, phytochemicals and healthy fatty-acid profile. They function as phytoestrogens, anti-oxidant, anti-inflammatory and other protective mechanisms. Because of its important lactogenic characteristics, which are highly sought after by expecting and nursing women, oyster nuts are considered to be among the healthy nuts consumed by East African communities, especially those in Tanzania, Kenya, Uganda, and Mozambique. The brownish-color kernel is mostly eaten fresh, boiled, roasted for confectionery purposes or grounded to thicken staple foods and soups. The kernel from squash-like fruit grows on vines along hardwood tree species. Despite its relevance to small-scale farmers particularly women, finds useful for generating income, conserving the environment and ensuring food security, it remains an underutilized and neglected crop with low productivity. The study highlights its composition and potential benefits of the underused crop, which will be useful by stakeholders including researchers, agriculturist, nutritionists and conservators to maximize the crop's primary utilization. Hence, raise a concern and create a specific agenda for this crop, which has to be acknowledged as an important food and promote it as a nutritious food to meet the world's nutritional needs and contribute to fight malnutrition.

## 5. Chemical control does not outperform weaver ant biocontrol in Thai mango

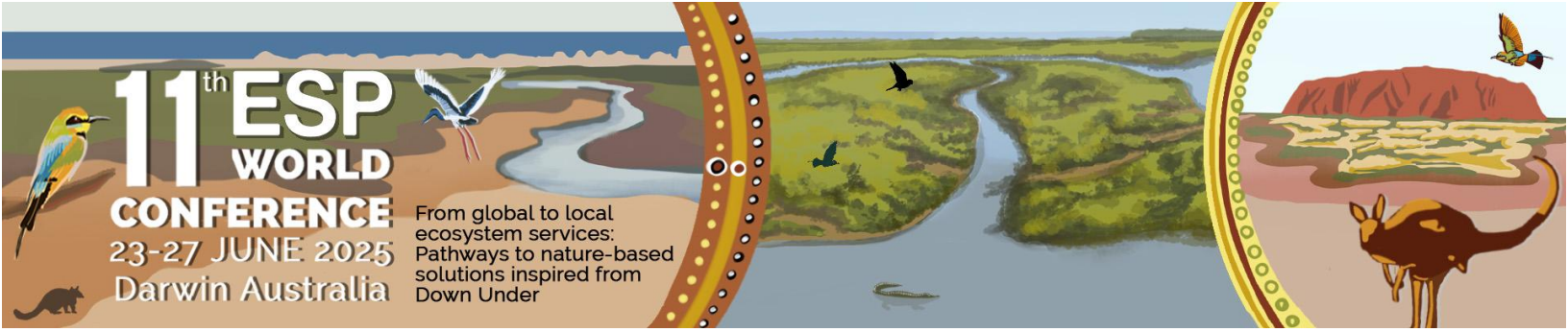
**First authors(s):** Joost Van Itterbeeck

**Other author(s):** Tipakhon Phusakon, Chamaiporn Buamas, Patimakorn Klaiprasitti, Nantasak Pinkaew, Mik Van Der Borght, Dries Vandeweyer, Apostolos Pekas, Felix Wäckers, Decha Wiwatwitaya, Jozef Vanden Broeck

**First author affiliation:** Animal Physiology and Neurobiology, Department of Biology, KU Leuven

**Contact:** joost.vanitterbeeck@kuleuven.be

**Keywords:** pest control, food insects, local culture, multi-production system, sustainability




Oecophylla smaragdina weaver ants are important biocontrol agents of fruit crops but their mutualistic association with honeydew-producing insect pests (HPIs) can result in an ineffectual crop protection. We tested the hypothesis that 50% diluted molasses provisioning will disrupt the association of O. smaragdina with HPIs, and will result in improved pest control, mango yield, and edible queen larvae and pupae (ant eggs) yield in comparison to 50% sugar water provisioning, chemical control (cypermethrin), and control group (i.e., weaver ants only).

The impact of these four experimental groups was tested in a mango (Mangifera indica) orchard in Kalasin province, Thailand, from October 2023 until June 2024 on 1) weaver ant presence; 2) HPIs abundance; 3) abundance of weaver ants tending HPIs, sugar, and molasses; and 4) mango and ant eggs yield. Ten weaver ant colonies were used in each of the sugar, molasses, and control groups, and each colony had access to six trees. Sugar/molasses were provisioned in rubber collecting bowls and refreshed twice per week. Twenty trees were used for the cypermethrin group and were sprayed every 1.5–2 months.

The mean mango yield per tree was 74.8±20.6 kg in the molasses group, 77.3±19.6 kg in the sugar group, 80.9±38.4 kg in the cypermethrin group, and 82±11.3 kg in the control group. There was no statistically significant difference between the four treatments. Due to extreme heat and severe lack of rain from October 2023 until April 2024, the nature calendar was disrupted. The production of ant eggs was negatively affected: 11 of the 30 colonies used did not produce ant eggs. The remaining 19 colonies produced extremely small amounts.

Chemical control did not outperform O. smaragdina biocontrol in mango production. The potential additional value that sugar/molasses provisioning could have on weaver ant performance was not actually tested due to a disrupted nature calendar.