BOOK OF ABSTRACTS

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I. SESSION DESCRIPTION

ID: S6b

Setting standards for biodiversity and ecosystem services for the corporate sector

Hosts:

	Name	Organisation	E-mail
Host:	Bettina Matzdorf	ZALF	matzdorf@zalf.de
Co-host(s):	Masahiro Ryo	ZALF	Masahiro.Ryo@zalf.de
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Abstract:

The requirements for companies to monitor their impacts on biodiversity and ecosystem services are increasing in Europe. The EU Corporate Sustainability Reporting Directive (CSRD) requires companies to undertake a double materiality analysis of their impact on and dependence on biodiversity and aims to increase transparency and accountability. In the agri-food sector, compliance with the directive means that the environmental impact, social responsibility and management practices for the management measures applied must be disclosed. So far, quantifying impact factors and setting reduction targets on the production side (measure level) is still popular, but sustainability reporting will have to shift to monitoring results or impacts, as well as rewarding the measures. Appropriate standards and monitoring methodologies are therefore required to enable both reporting and business models e.g. through to product labelling or ecosystem service provision. This session will focus on the current framework conditions for companies and the possibilities for standard setting. We will present and discuss standard setting in the context of reporting but also in the context of labelling-based approaches and business models and give examples of how to approach monitoring challenges with digital tools and artificial intelligence.

Goals and objectives of the session:

Improving the exchange on standard setting for the corporate sector

Planned output / Deliverables:

joint paper, in case of interest and input

Session format:

The session hosts will give an introductory presentation focusing on the current framework conditions and challenges. In addition, current use cases (e.g. CSRD monitoring, certificates) for standardisation will be presented. This overview will be sent to the session presenters before the conference so that the contributions within the session can refer to it. This will be followed by presentations on various research in the field of standard setting and a final discussion. Depending on the number of contributions, a length of 60 to 90 minutes is planned for the session.

II. SESSION PROGRAM

Room: Expert Street 3

Date of session: 18th of November 2024
Time of session: 11:00–12:30

Timetable Speakers

Time in min	Format	Presenter Surname	Title of presentation
6	Introduction	Matzdorf	Introduction into the session
12	Presentation +answer common questions +discussion	Wildner	Corporate biodiversity reporting in transition – Opportunities, Challenges and the importance of the Corporate Sustainability Reporting Directive of the European Union
12	Presentation +answer common questions +discussion	Evans	Biodiversity information pathways: a unified data structure to facilitate corporate sustainability reporting
12	Presentation +answer common questions +discussion	Reichenspurner	A trusted biodiversity standard: Foundation for corporate conservation engagement

12	Presentation +answer common questions +discussion	Garrido-Mateos	Bridging the Gap: Aligning Business and Biodiversity Metrics for Effective Conservation
12	Presentation +answer common questions +discussion	Kronenbitter	Basic Set of Biodiversity Criteria, a Blueprint to help Implementing and Measuring Biodiversity Governance and Performance in the Food Sector
12	Presentation +answer common questions +discussion	Ryo	Artificial Intelligence and Citizen Science for scalable monitoring and assessment of biodiversity and ecosystems
12	Discussion, common questions	all	Final moderated discussion/ potential joint publication?
90			

III.ABSTRACTS

The first author is the presenting author unless indicated otherwise.

1. Biodiversity information pathways: a unified data structure to facilitate corporate sustainability reporting

First authors(s): Alexandra Evans
Other author(s): Bruno Smets, Daniel Whitaker, Catarina Braga, Jacob Bedford
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With the recent adoption of the EU Corporate Sustainability Reporting Directive (CSRD), companies will be required to report on their environmental and social impacts according to the European Sustainability Reporting Standards (ESRS). The significant risk that biodiversity loss poses to business and societal functioning is reflected in the ESRS as an increased focus on biodiversity impact reporting requirements. Concerns have been raised regarding the increased

reporting load for businesses and ambitious double materiality reporting target, as the complexity of the topic of biodiversity loss makes it difficult to identify, quantify and communicate relevant impacts. The need to meet the requirements of reporting directives has resulted in the development of a plethora of databases and tools, but a holistic method to manage biodiversity data, calculate indices and report impacts to comply with the CSRD remains lacking. As a co-lead in the Horizon Europe project A-TRACK, Vito is developing a common data structure to facilitate and harmonise biodiversity impact reporting for businesses. With the use of remote sensing and Natural Capital Accounting, Vito aims to accelerate the transition to green business by compiling a core set of biodiversity pathway data, accompanied by practical guidelines on applications in different business sectors.

Keywords: Corporate Sustainability Reporting Directive, biodiversity, Natural Capital Accounting, OpenEO, A-TRACK

2. Basic Set of Biodiversity Criteria, a Blueprint to help Implementing and Measuring Biodiversity Governance and Performance in the Food Sector

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The Basic Set of Biodiversity Criteria, developed by Food for Biodiversity in 2022, is a comprehensive compilation of relevant biodiversity guidelines for agricultural and food production. This initiative involves collaboration among food companies, food standards, scientific institutions, and environmental organizations. While not a standalone "Biodiversity Standard," it serves as a blueprint for food companies and standards to update their criteria for agricultural production.

In September 2024, the EU-LIFE project "Biodiversity Governance and Performance in the Food Sector" will commence, aiming to revise and expand the Basic Set. This revision will incorporate feedback from member organizations' testing and align with new legal requirements. The project will tailor the general criteria to six high-risk, high-relevance commodities for the European market, with the goal of implementing these updated criteria across various supply chains involving Food for Biodiversity members.

A critical aspect of the project is the evaluation of suitable tools to measure the impact of these biodiversity criteria. The focus will be on different decision-making levels and the supportive tools required, specifically:

1. Tools for assessing potential risks to biodiversity,

2. Tools for evaluating the current state of biodiversity performance,

3. Tools for monitoring the progress of biodiversity performance over time.

By addressing these needs, the project aims to enhance biodiversity governance and performance in the food sector.

Keywords: Biodiversity criteria, standard setting, agricultural production, supply chain, biodiversity tools

3. Bridging the Gap: Aligning Business and Biodiversity Metrics for Effective Conservation

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Biodiversity has declined at an unprecedented rate in the last decades. In order to halt this process, public funds might not be sufficient, making it necessary to unlock private financing. At the same time, there is a growing social demand for more transparency on the effects of economic activity on nature. As a result, new legislation is being passed requiring companies to disclose information that identifies their impacts and dependencies on nature. The demand for biodiversity metrics and measurement tools has increased consequently, with a growing number of voluntary approaches and initiatives trying to meet those demands and set a benchmark. However, as biodiversity is a multidimensional concept, not all metrics refer to the same attributes, making it a fuzzy term to measure. To this end, we propose, on the one hand, a typology that contributes to a clearer understanding of the concept of biodiversity, and, on the other, we check the degree of alignment between the notion of biodiversity held by different stakeholders and the metrics available for its measurement, following the approach of

Balmford et al. (2022). This allows us to observe whether business preferences for biodiversity are reflected in the standard instruments to measure it. Furthermore, we also examine what role such potential dissonance may play in the efficient allocation of resources for biodiversity by firms, both in target-setting and in the channeling of financial flows to conservation policies.

Keywords: Biodiversity, firms, decision-making.

4. A trusted biodiversity standard: Foundation for corporate conservation engagement

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Economic activities have a profound negative impact on biodiversity and related ecosystem services. At the same time, 50 % of the global economy is at risk due to biodiversity loss. In Europe, the decline is particularly pronounced in agriculture landscapes. To halt or reverse this trend, agricultural production methods must become more nature-friendly, and a larger share of land must be converted into non-crop habitats dedicated to biodiversity protection. Despite public funding supporting these efforts, the results are insufficient, partly due to limited budgets. To explore how corporate investments could complement public funding for agricultural conservation projects, 33 semi-structured interviews were conducted with companies outside the agri-food sector in Belgium, The Netherlands, France, UK and Germany between 2021 and 2022. The findings highlight that the development of a common standard and a trusted certification system are a necessary, even if not sufficient, basis for companies to engage in conservation. Both are needed for companies to set specific targets, report and communicate their actions effectively, and avoid accusations of greenwashing. In Germany, the Naturplus standard represents an initial effort to establish a high-qualitative standard for conservation. However, many challenges remain to improve and mainstream this standard as a basis for increasing corporate spending for biodiversity and ecosystem services.

Keywords: biodiversity standard, certification, reporting, communication, greenwashing

5. Artificial Intelligence and Citizen Science for scalable monitoring and assessment of biodiversity and ecosystems

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Protecting biodiversity and ecosystem services (BES) is crucial for the agri-food sector, requiring an efficient monitoring tool, stakeholder engagement, and innovative tools beyond state support. In this talk, we will present an overview of a research framework that develops a scalable, user-friendly AI tool for monitoring biodiversity and ecosystem structure status in agroecosystems using smartphones. We will train a state-of-the-art multimodal large language-vision model with one of Germany's largest citizen-collected biodiversity datasets. The model should be able to predict ecosystem structural complexity, identify species across multiple taxonomic groups, and estimate land use intensity. After validation in experimental fields across Germany, the tool will be integrated into an online marketplace for certified nature conservation projects. The online marketplace assesses how well biodiversity conservation action is conducted in fields, and the AI is used for assisting the assessment. Additionally, we will evaluate the AI's potential and limitations for BES monitoring in terms of the institutional framework and social acceptance through standards review and stakeholder interviews. Our transdisciplinary consortium includes social management, AI, agronomy, biodiversity assessment, business consulting and NPOs. Typically handled by experts, biodiversity visual assessments can now be enhanced or replaced by our AI model and citizen science. Our project suggests a new business model that supports extensive local biodiversity assessments and conservation efforts with AI in practical, real-world applications.

Keywords: Biodiversity and ecosystem services assessment, Agroecosystems, User-friendly AI monitoring, Citizen Science, Large-Language Model