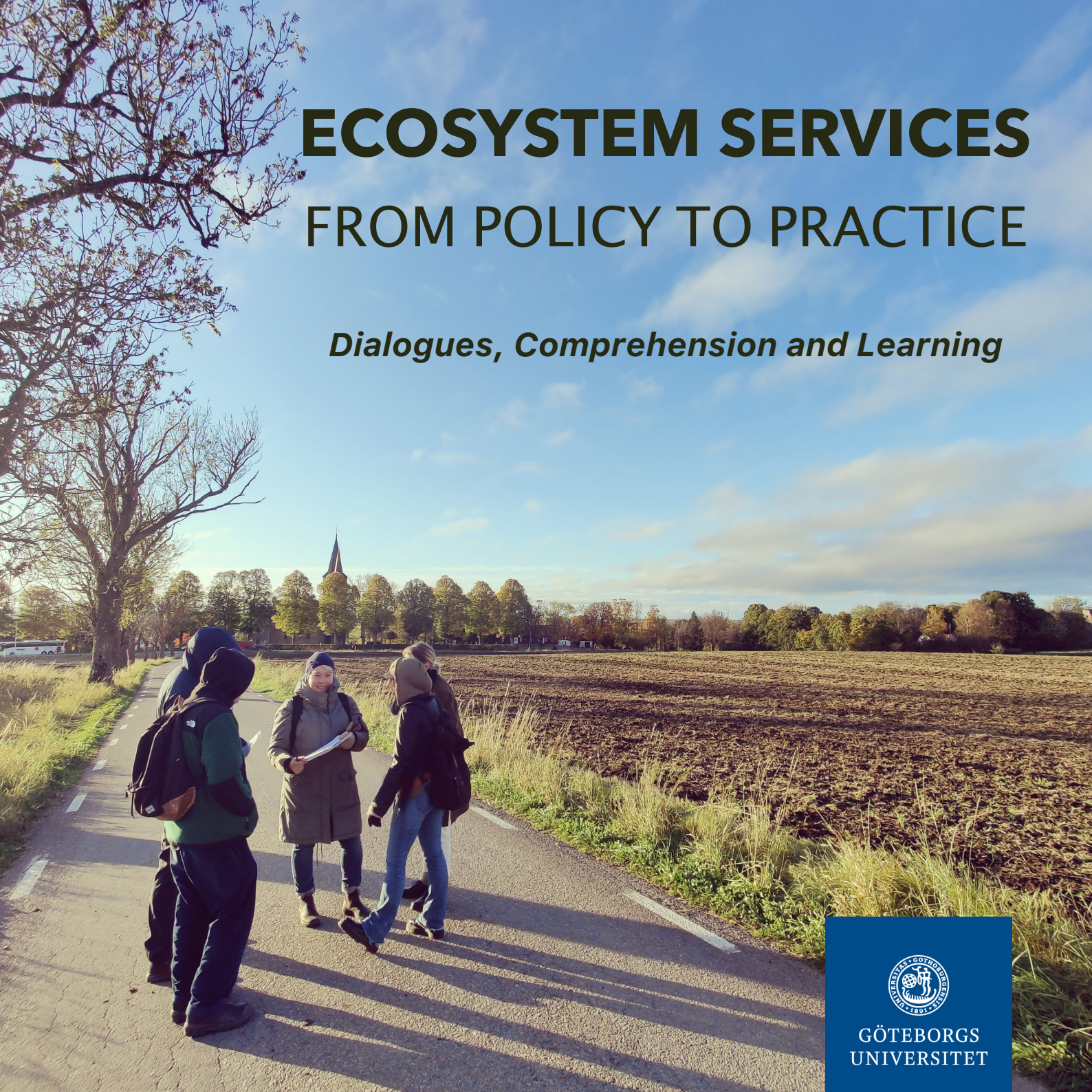
ECOSYSTEM SERVICES
FROM POLICY TO PRACTICE
Dialogues, Comprehension and Learning
GÖTEBORGS
UNIVERSITET

Ecosystem services

are becoming more central to how we plan and develop our living environments. Swedish policymakers and urban planners are now integrating this concept into their strategies and policies. Despite these advancements, challenges remain in translating nature's role in enhancing human well-being into practical, actionable solutions, and in fully integrating it with social sciences and heritage-related fields.

In this booklet, we share key insights from the *Ecosystem Services as an Integrative Instrument in Practice* research project, funded by Formas (2020-2025). Our research explored ways to incorporate this new perspective into existing planning frameworks.

We also highlight how our findings may be used in education, particularly in fields like conservation, heritage studies, and other related social science disciplines. This helps equip future professionals with the knowledge and tools to integrate ecosystem services into their work.

We hope this booklet inspires you to apply these ideas in your own field, whether in research, policy, planning, or education.

Explore the key findings of our research!

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Content

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Understanding Ecosystem Services in Sweden

We explored the understanding and implementation of ecosystem services (ES) within Sweden's urban planning, focusing on its integration into both policy and practice. Through an analysis of the interplay between governance, sustainability, and heritage conservation, we identified key challenges and opportunities for fostering a more holistic approach to landscape management.

Integrated Approaches

We understand the urban landscapes to be composed of a diverse mix of buildings, green spaces, water features, and other elements. The interactions between natural environments, human-made structures, and people pose challenges for achieving sustainable transitions (Adolfsson and Brorström, 2021). An integrated view of the landscape requires cooperation across sectoral boundaries, especially at the local and regional planning levels where sustainable development initiatives are implemented (Sjölander-Lindqvist, 2015).

Despite political efforts to foster sustainable planning, the holistic perspective emphasized by the European Landscape Convention (Council of Europe, 2000) is often underrepresented in both theory and practice. While landscape planning increasingly prioritizes ecological and nature conservation goals, it often overlooks cultural dimensions and insights from the humanities and social sciences. This tendency, which aligns with broader trends in urban densification, risks sidelining the complex interplay between ecological, cultural, and social values in shaping landscapes (Agnoletti, 2014; Díaz et al., 2018).

Ecosystem services (ES)

For nearly two decades, the concept of Ecosystem Services (ES) has profoundly shaped international policy on the analysis of social-ecological systems within landscapes. ES emphasizes the integrated assessment of both natural and cultural values, aiming to enhance governance of biological and cultural diversity. Its focus on human well-being and evidence-based decision-making has been pivotal (MA, 2005; TEEB, 2010). Although the concept holds considerable potential as an integrative tool for planning and decision-making, the scientific literature often centers on provisioning, regulating, and supporting services, frequently neglecting cultural dimensions (Setten et al., 2012; Tengberg et al., 2012; Blicharska et al., 2017; Knez and Eliasson, 2017; Hølleland et al., 2017; Díaz et al., 2018; Eliasson et al., 2019). Practical implementation encounters significant barriers, such as limited awareness and the use of diverse methodologies (Beery et al., 2016; Hilding-Rydevik and Blicharska, 2016; Fredholm and Frölander, 2021; Eliasson et al., 2019). The absence of legally binding frameworks for the ES concept, coupled with disciplinary silos in research further complicates the pursuit of integrated landscape planning and management.

ES in Swedish Planning

In response to European Commission directives, EU member states are working to identify and assess ecosystem services' condition and value (EU, 2011). In Sweden, the parliament (Riksdag) has prioritized biodiversity and ecosystem services, integrating them into economic and political decision-making. By 2025, most Swedish municipalities are expected to incorporate ecosystem services into urban planning, construction, and management.

Overarching Research Aim and Questions

In our research project, we explored how the concept of ecosystem services was introduced in Sweden and how public organisations and professionals interpreted and applied it. The research questions guiding this multidisciplinary project include:

What meaning is attributed to the international and EU policy concept of ecosystem services within a national context?

How do different local authorities utilize ecosystem services?

How does conventional heritage conservation complement ecosystem services to promote social and environmental sustainability?

What are the interchanges and trade-offs in terms of professional integration?

To address these questions our main results will be presented under two themes; **From policy to practice** and **Facilitating dialogues on ecosystem services**. As part of the research project a course module was created to elaborate on how ecosystem services could be part of cross-interdisciplinary education at the university. This course module is presented in the end of “Facilitating Dialogues on Ecosystem Services”.

From Policy to Practice

Ecosystem services play a crucial role in shaping sustainable policies, but how does this concept transition from policy to practice within public organizations? In a Swedish context, we have explored this journey through document analysis, interviews, and observations, tracking how ecosystem services are interpreted and implemented across different levels of governance.

Introduction

Our research, conducted between 2019 and 2024, began with a broad review of policies and academic literature (2020–2021), and continued with in-depth interviews and workshops (2022–2024). The aim was to follow how the concept of ecosystem services has developed and been used at national, regional, and local levels in Sweden.

We were especially interested in how this relatively new concept is understood and applied within public organisations. We interviewed officials working in different roles—mostly in planning—across national agencies, regional bodies, and local municipalities. Due to the pandemic, these interviews were conducted digitally, each lasting around 50 minutes and following a semi-structured format.

Key themes included:

Why was the concept of ecosystem services introduced?

Who is involved in its implementation?

Has the adoption of ecosystem services led to new ways of working?

The insights we gathered have formed the basis for several scientific articles. Since these articles cannot be published in full here, we instead present them as themes that highlight key aspects of our findings.

Theme: Comprehension

This theme aims to address why progress in the implementation of the ecosystem service concept remains slow and why policy efforts often fall short of expectations. Through interviews and document analysis, our studies highlights how implementers across national, regional, and local levels perceive ecosystem services, exploring the factors that shape policy comprehension and implications for planning practice.

Theme: Strategy

This theme explores how various actors actively shape the strategic integration of ecosystem services at both national and local levels. We found that, throughout this process, key stakeholders translate the concept into actionable strategies by developing narratives and frameworks—essentially stories and recipes that guide its practical application. As ecosystem services become embedded in strategic planning, they generate both organizational and operational changes, influencing how public agencies incorporate sustainability into their long-term policies.

Theme: Integration

This theme explores the integration of heritage and environmental values within Swedish urban and regional planning, addressing the challenges posed by sectoral divisions and disciplinary boundaries. By applying an expanded heritage values framework, we examine the intersections of ecosystem services (ES) and cultural heritage, focusing on governance, planning methodologies, and stakeholder engagement. Using qualitative methods, including policy analysis, interviews, and workshops, we investigate how these values are conceptualized and applied in practice. The exploration aims to contribute to a more holistic understanding of landscape planning by identifying strategies that bridge environmental and heritage-based planning approaches.

For example, County Administrative Boards and local urban planners in Sweden act as key interpreters, translating the broad concept of ES into practical public sector actions. However, the integration of these services faces difficulties due to separations between regional and local agencies, each with distinct regulations and priorities. This fragmentation across different levels of governance complicates the creation of unified and effective policies. At the local level, individual planners significantly influence the incorporation of ecosystem services by either adopting innovative approaches or adhering to conventional planning methods. Their role is crucial in shaping how these services are understood and implemented in urban development.

Facilitating Dialogues on Ecosystem Services

In the ongoing effort to integrate ecosystem services into urban planning, we explored how this concept can bridge the gap between different professional disciplines - how ecosystem services can facilitate a deeper understanding among experts from various fields, such as landscape architecture, heritage conservation, and environmental planning.

Introduction

The concept of ecosystem services is significantly influenced by historically established professional roles and responsibilities in land-use planning. There exists a pronounced political division between managing nature and culture. For instance, Fredholm and Frölander (2019) show that when assessing ecosystem services in public parks, they are often treated as isolated entities within the urban landscape, without considering their historical and contemporary connections to neighboring structures. Nevertheless, some landscape architects argued that the ecosystem service concept is outdated. They contend that conventional landscape assessments naturally transcend the nature/culture divide, recognizing cultural ecosystem services such as recreation, aesthetic experiences, and heritage values in alignment with existing environmental goals and regulations.

In our research project we have cases where professional roles and cooperation among actors from different fields in relation to ecosystem services have been on the agenda. In these cases, facilitating dialogues in relation to the concept has been important. Below in this section, we describe an educational module that we developed and conducted as part of the research project. A basic idea for this education module was to let the students become familiar with ecosystem services as a concpet and to use transformative learning to facilitate dialogue among the participants. We also discuss these themes further in upcoming scientific articles.

Theme: Private/Public actors

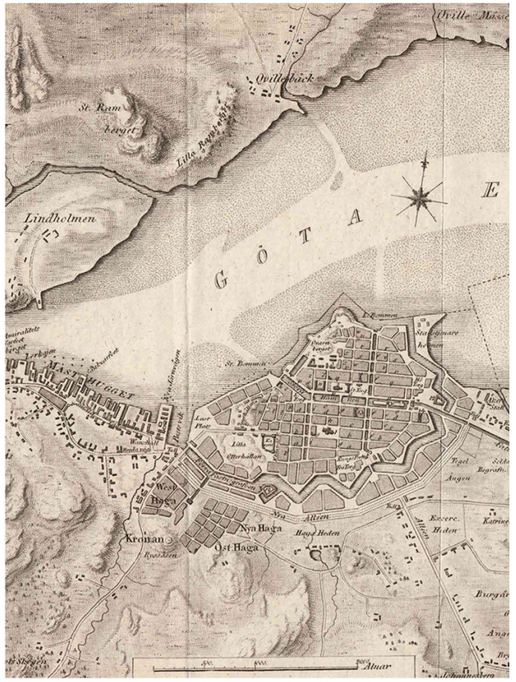
This theme highlights the interactions between public institutions and private actors in shaping how ecosystem services are understood and applied. In some of our case studies, we saw consultants playing an educational role—helping politicians and municipal staff grasp the concept. In others, municipal officials invited developers into dialogue to discuss and shape emerging strategies around ecosystem services.

These exchanges reveal that both understanding the concept and figuring out how to apply it in practice are collaborative processes. Public and private actors each bring different perspectives, and their interactions help to co-produce the meaning and practical use of ecosystem services in planning.

Theme: Urban Design

This theme explores how professionals—such as artists, designers, and architects—engage with the historical relationship between people and nature in urban settings to inform future design. By revisiting past human-environment interactions and ecological conditions, they find inspiration for creating more sustainable and inclusive cities. Through artistic and participatory approaches, these practitioners reveal and reinterpret historical ecosystem services, using them as a lens to envision urban spaces that address the needs of both humans and more-than-human life.

This theme highlight the importance of historical depth in understanding place. Recognizing how people have shaped—and been shaped by—their environment over time (ecosystem services) adds richness to urban design, helping to create spaces that are ecologically grounded, culturally resonant, and socially inclusive.



Above: Historic images of Hisingen, Gothenburg City Museum.
Below: Varelse-Værelse, sculpture- and sound installation by artist Ulrika Jansson, 2023, part of the Nordic art project The Conference of the Birds. Photo: Ulrika Jansson.

Theme: Dialogue among different professional disciplines

A workshop aimed to explore how ecosystem services could help professionals with green infrastructure and heritage conservation in large-scale projects understand each other's approaches. Participants used maps and photographs of real landscapes to discuss their strategies. A key insight was the need to balance material-centered approaches with people-centered approaches, and ecosystem services could connect these by supporting both environmental sustainability and cultural heritage. Integrating work across disciplines is challenging due to different priorities, methods, siloed thinking, lack of common language, and structural barriers. Facilitated discussions helped participants understand and respect diverse perspectives, revealing how ecosystem services could be a common foundation for integrated urban planning and highlighting shared goals. Maps, aerial photographs, and GIS are essential for understanding and integrating ecosystem services by providing a shared visual reference that simplifies complex information and clarifies connections between ecological features and the built environment. These tools are crucial for fostering interdisciplinary understanding and collaboration, which is often lacking.

Read more:

Fredholm, S., Adolfsson, P, Eliasson, I., Sjölander-Lindqvist, A. (2025) “Making Heritage Matter: At the Boundaries Between Ecosystem-Based Planning and Conservation of the Built Environment*”, Urban Futures - Cultural Pasts. AMPS PROCEEDINGS SERIES* - 2025

Interdisciplinary fieldwork in higher education

In this section we focus on our results on using transformative learning to facilitate dialogue and understanding of ecosystem services. As part of the research project, a course module was developed focusing on the assessment of ecosystem services. The students participating were admitted to bachelor programs in different humanities and social sciences.

To support learning of ecosystem services we identified important dimensions for the course module:

- **Combining students doing the last year of their bachelor program**
- **Mixing traditional and transformative teaching activities**
- **Introducing student-made tools and assignments with no ‘correct’ answers to facilitate interdisciplinary dialogue**
- **Doing fieldwork in a new setting**

In this chapter we will present the content of the course module and practical implication for teaching. We start with a general background on sustainability and transformative teaching in higher education.

Background - sustainability and higher education

The United Nations' Sustainability Development Goals, which came into force in 2015, include goals that clearly indicate the need to advance collaboration, co-operation and leadership as these dimensions are vital to cope with the complex global challenges of sustainability (United Nations, n.d.). Thus, tomorrow's workforce needs to manage various sustainability issues; this requires the ability to work across organizational boundaries, and critical thinking regarding sustainability.

In higher education, sustainability education refers to when 'an individual is exposed to learning experiences that build their knowledge, skills, competence, and agency as individuals and professionals to take private-sphere and public-sphere actions to improve sustainability outcomes' (Sidiropoulos 2022, 4). This highlights the individual's ability to perform sustainability in relation to other actors and the surroundings, thus agency is essential. In higher education, it can be challenging to support interdisciplinary education. One reason for this is that universities, and many other organizations, tend to be organized as silos, and emphasize expert knowledge within a specific discipline instead of working towards training their students to think and act in a trans- and interdisciplinary way (Nandan and London, 2013).

Previous research indicates that sustainability education is dependent on transformative learning. Transformative learning is related to for example solving problems without a pre-defined or 'right' answer. Thus, it stimulates the exchange of perspectives and assumptions, and builds grounds for new perspectives (Nandon and London 2013).

Creating a course module

The interdisciplinary course module was part of our research project on ecosystem services. The course module was financed by the research project, and the first module was done during the second year of the four-year research project, but the preparations, at the start of the research project, have been a recurrent subject in the research project meetings. We perceived ecosystem services suitable for a transformative learning approach focusing on interdisciplinary dialogue. One reason for this was that the concept in a Swedish context does not have one single definition and in general students have limited experience of the concept.

Thus, the course module was based on the idea to work with an assignment on ecosystem services with no 'correct' answers to facilitate interdisciplinary dialogues on sustainability. Nevertheless, this attempt to create an interdisciplinary education activity was, due to administrative reasons challenging.

In the end, the course module was made within existing courses in two different bachelor programs. It was not mandatory to participate in the course module, but the students could have exam questions on ecosystem services based on material provided during their courses. A third group of students, reached by a poster distributed to relevant departments, was given the opportunity to join the course module voluntarily, without getting any credits.

The course module took place on three occasions in 2021-2023. Two major locations for fieldwork were used on all three occasions; first, Husaby, a very small village with a medieval church and an old ruin located in a farming area, second, Österplana hed, a sanctuary area close to a church and a historical industry site. The locations were chosen to include dimensions that the students, coming from different culturally oriented educations, could relate to.

The course module in practice

Feedback from the participating students was important for the development of the course module to the following year module. Even though all three years had a lot of similarities we will here focus on the third round when we present the content of the course module more in detail.

In round three, the students were from year three in their bachelor programs. The first day, after a joint lunch, lectures were provided on site, and in the morning of the second day. These lectures covered ecosystem services, ways of conceptualizing landscape as well as the research project. Beehives during the lectures were used for recurrent discussions and reflections in small groups.

An exercise was made to introduce ecosystem services and to create an opportunity to create interdisciplinary groups. Different honeys from local producers were served and generated a discussion on the local landscape and pollination as an example of ecosystem services. Then students made their own checklists on ecosystem services in interdisciplinary groups. Students tested their checklists in a park close to the campus and had the opportunity to update them based on their experiences.

Next morning, the student groups used their checklists in the first location. The assignment was formulated as a practical question about what would happen if a tourist centre was to be built there. To provide time for joint summing up, the second location for fieldwork was carried out as a joint group activity where two of the teachers guided the whole group around the area while asking students about their impressions and how they related ecosystem services to the site based on their experiences.

Reflections

The teachers' discussions about interdisciplinary transformative learning also facilitated their understanding of their interrelated roles as interdisciplinary researchers in the research project. As teachers, their dialogue facilitated reflections on their role as well as pedagogic approach (cf. Sandri and Holdsworth, 2022) and allowed them to manage the dual role of being a teacher; meeting students during fieldwork but also their roles as designers of teaching activities and taking on more administrative dimensions of teaching.

After the third course module, we concluded that our experience was that being outdoors conducting fieldwork in a new place, can facilitate learning by interrupting ordinary routines, such as lectures on campus. Nevertheless, lectures can still be important part since the use of interactive lectures can facilitate an understanding of a new concept, for us ecosystem services, and support the preparation to other teaching activities, in our case the upcoming field work. Also, practical activities such as making checklists on ecosystem services in interdisciplinary groups may facilitate dialogue and understanding around complex issues and assignments with no clear ends.

Practical implications

The practical implications for interdisciplinary transformative learning in higher education with the aim to educate students to take on complex issues related to sustainability and the United Nations' SDG in their future professional role, is that teachers need forums to discuss their own roles and pedagogic approaches. Such dialogues facilitate the interdisciplinary research project as well as it highlights exchange of knowledge and experiences in general.

Regarding teaching, a mix of traditional teaching and interactive activities seems to facilitate interdisciplinary dialogue among students with similar professional maturity in situations when the course module revolves around an unfamiliar concept.

Interactive lectures and creating self-made tools, such as a checklist, can support interdisciplinary fieldwork and facilitate discussion on complex phenomenon such as sustainability and ecosystem services.

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This booklet summarizes our work in the research project **Ecosystem Services as an Integrative Instrument in Practice**, funded by Formas (2020–2025). We explore how the concept of ecosystem services—nature's benefits to people—is understood and applied in Swedish planning, policy, and education contexts. Our research highlights both the potential and challenges of integrating environmental and cultural values. We also share insights from an educational module we developed to promote interdisciplinary learning about heritage values as a cultural ecosystem service through dialogue and fieldwork.

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