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Advancing science on the multiple connections between biodiversity, ecosystems and people

This Editorial of the *International Journal of Biodiversity Science, Ecosystem Services & Management (IJBESM)* marks the end of this Journal's publications under Rudolf de Groot. He has been instrumental in bringing the concept of ecosystem services to the fore, through seminal publications, books, lectures, through founding and chairing the Ecosystem Services Partnership (ESP); and finally, through 'adding the ecosystem services to *IJBESM*'. After almost 8 years as Editor-in-Chief, he has decided to step down and hand over to a next generation.

In the final part of this co-written Editorial, Rudolf de Groot will look back one last time at some highlights of the past years, partly together with his editorial team. The first part of this Editorial introduces the new co-Editors in Chief and how they envision the future of the Journal. Berta Martín-López (Leuphana University of Lüneburg, Germany) and Alexander van Oudenhoven (Leiden University, Netherlands) have gladly accepted to take over as co-Editors in Chief of *IJBESM*. They are interdisciplinary scientists at the forefront of research on social-ecological systems, ecosystem services, ecosystem management and sustainability transformation. Both are heavily involved in the Intergovernmental science-policy Platform on Biodiversity and Ecosystem Services (IPBES) and both have been actively involved with this Journal for several years. While acknowledging and building on the achievements of the last couple of years, they suggest a way forward for publishing research on human–nature relationships.

1. Future: sustaining human well-being in balance with nature

As was highlighted by the ongoing publication of the recent reports of IPBES (<https://www.ipbes.net/outcomes>), many facets of human well-being are underpinned by nature. Hence, in a rapidly changing world in which biodiversity continues to decline, the main challenges for humanity are to protect, manage and restore nature in such a way that human well-being can be sustained, in balance with nature. As in the past, the Journal will continue to focus on the interface and the multiple connections between humans and ecosystems, but will broaden its focus to society. Hence, we acknowledge that conservation of nature is about people as much as it is about biodiversity and ecosystems. People are

beneficiaries and co-producers of ecosystem services and nature's contributions to people (NCP), they are users, managers, planners and decision-makers.

1.1. Broadened scope

The change of Editors comes along with a broadened scope of the journal, in line with the main challenges illustrated above. While the origins of the journal suited with the drift from framing biodiversity conservation in terms of species conservation and protected areas to the realization that nature is essential to provide ecosystem services to societies' quality of life ('Nature for people' as framed by Mace (2014)), in this new phase of *IJBESM*, we acknowledge that people are an integral part of ecosystems, thus better matching with the current phase of conservation, 'Nature and people', as framed by Mace (2014). Acknowledging that people and ecosystems are inextricably linked leads us to pursue greater understanding about the diverse ways by which people relate with nature and the role of societal and cultural processes for designing and implementing management actions towards sustainability (Fischer et al. 2012; Mace 2014; Martín-López and Montes 2015; Díaz et al. 2018). This goal can only be achieved by seeking for truly interdisciplinary research on human–nature relationships (ecosystem services amongst them, see Raymond et al. (2013)). This relies on the integration of multiple disciplines, such as environmental science, conservation biology, ecology, social sciences and humanities, and the consideration of disciplines that are per se interdisciplinary, such as political ecology, ecological economics, gender and feminist studies or sustainability science. Likewise, *IJBESM* also aims to embrace transdisciplinary, and even unidisciplinary (Haider et al. 2018) research, resulting from close collaborations between researchers and non-academic actors. Therefore, the inclusive approach of the Journal also applies to different knowledge systems, including formal scientific knowledge; lay knowledge from practitioners, and indigenous and local knowledge.

Yet, the consideration of different knowledge systems can be challenging because they ground on different ontologies and epistemologies (Tengö et al. 2014, 2017). Similarly, the inclusion of multiple disciplines is equally challenging as each of them is characterized by different research questions, epistemologies, methodological approaches and terminologies (Moon and Blackman 2014; Haider et al. 2018). To tackle this challenge,

IJBESM adapts an inclusive approach (see below) in which different conceptual theories and methodological approaches are embraced, whilst maintaining and ensuring the essential scientific standards required in both natural and social sciences (e.g. appropriate procedures for sampling and data analysis, representativeness in samples, reliability).

Many opportunities might come as a result of this new beginning of *IJBESM*. As an illustration, this wider scope perfectly aligns with the new developments driven by the IPBES (Pascual et al. 2017; Díaz et al. 2018). IPBES has recognized the relevance and necessity to incorporate social sciences and humanities, along natural sciences, in current and future research on biodiversity, ecosystem services and human–nature interactions (Stenseke and Larigauderie 2018; Vadrot et al. 2018; Watson et al. 2018). In fact, the conceptual framework of IPBES does not only point out the need of social sciences and humanities by highlighting the central role of drivers, anthropogenic assets and institutions (Díaz et al. 2015), but also emphasizes the relevance of indigenous and local knowledge for interpreting human–nature interactions (Tengö et al. 2014; Díaz et al. 2015, 2018). Moreover, the scope of *IJBESM* also responds to recent calls in the field of biodiversity conservation for inclusiveness, where different disciplines, worldviews and research perspectives are respected, accepted and acknowledged (Tallis and Lubchenco 2014).

We envision that *IJBESM* provides an inclusive platform, where scientists with uni-, inter- and transdisciplinary approaches, can build knowledge and trigger debates in order to move towards sustainability and more equitable societies.

1.2. Personal, inclusive approach

The Journal will continue to provide an open access platform, which publishes rigorous double-blind peer-reviewed science available to anyone. We publish research findings and insights that are relevant for decision-makers, as well as practitioners and other social actors. First submissions are usually handled within days and personal advice is often given ‘at the gate’ whenever prereview revisions are needed. Handling editors at *IJBESM* are encouraged to (and often do) provide an additional, editorial judgement that provides guidance on how to handle the reviews to improve manuscripts and how to highlight the relevance for management and decision making. To foster an inclusive approach, we seek to assemble an Editorial Board with members from all the continents, who represent different stages in the scientific career from junior to senior researchers. We also envision to have gender balance in the Editorial Board by the end of 2018. We foresee that these three criteria of inclusiveness (i.e. region, gender and seniority level) in the Editorial Board will spur more diverse

representation of authors and research contributions. In this light, we are very excited to announce that our Editorial Board has been strengthened by the addition of Rosemary Hill (CSIRO, Australia), Sander Jacobs (Research Institute Nature and Forest, Belgium), Sarah Klain (Oregon State University, USA), Suneetha Subramanian (United Nations University, Japan), Maria Martinez-Harms (Pontifical Catholic University of Chile), Eszter Kelemen (ESSRG, Hungary), Nadia Sitas (CSIR, South Africa) and Marina García-Llorente (IMIDRA, Spain). Together, these new Editorial Board members bring a wealth of hands-on experience on social-ecological systems, integrated valuation approaches, indigenous and local knowledge, collaborative governance, equity, and the science–policy–practice interface. We will be happy to further introduce our Editorial Board to you later in this year’s Volume.

1.3. Diverse ways to measure the impact of different publications

At *IJBESM*, we believe that impact can be measured in many ways. Our publisher, Taylor & Francis, provides Altmetric scores for each publication that allows to track the uptake of the research beyond citations, for instance in policy reports and on news sites and social media. *IJBESM* will continue to urge authors to emphasise and discuss the management relevance of their findings. In that way, and together with the open access to the research, we hope to enable the uptake of findings in *IJBESM* in management and decision-making.

As a truly inter- and transdisciplinary journal, *IJBESM* hosts different types of publications that can match with the myriad of possible research perspectives (e.g. fundamental research, conceptual advancements, place-based empirical research, big data analysis, participatory or model-oriented assessment approaches, or policy-oriented analyse) and roles of scientists. Besides the existing article types in *IJBESM* (i.e. Research Papers, Short Communications, Review Papers or Book Reviews), we are excited to introduce two new types of papers: ‘Perspectives’ and ‘Data Papers’.

‘Perspectives’ are succinct, innovative viewpoints on topics that fall within the journal’s scope. They can be thought-provoking essays that highlight new ideas, or present conceptual developments of relevance to biodiversity science, ecosystem services and management, human well-being, or human–nature relations. This type of article can present reflections about important aspects to consider in transdisciplinary research on human–nature relations, such as reflexivity and reciprocity (Faria and Mollett 2016; Iniesta-Arandia et al. 2016; Jacobs et al. 2016), the role of different visual and artistic tools when conducting and communicating research (e.g. Heras et al. 2016; Rathwell and Armitage 2016; Galafassi et al. 2018), or

considerations of ethical guidelines when conducting fieldwork with indigenous people and local communities (e.g. International Society of Ethnobiology 2006).

'Data papers' present the opportunity to contribute with new data that relate to the major themes covered in the scope; biodiversity and ecosystems, ecosystem services, well-being and other social aspects of human–nature relations. Data should be clearly described, with a special focus on the methodology and critical reflections on their usefulness, application and possible implications for future research and management.

We hope that this diversity in available publication types will stimulate authors from all over the world, in different phases of their career and from different scientific disciplines to share their research findings, insights and perspectives.

Alexander van Oudenhoven, Berta Martín-Lopez, Matthias Schröter

2. Past: open access to interdisciplinary policy-relevant publications (2010–2017)

Before giving the word to our outgoing Editor-in-Chief, Rudolf de Groot, we would together like to highlight a few important developments in the Journal's history, as editorial team. Throughout the past years, many different aspects have been highlighted in several Editorials, of which three stand out: (a) the need for a broad, yet policy-relevant scope, (b) the need for open access publication and (c) the wealth and diversity of publications, in terms of geographical range and scientific disciplines.

In 2015, we broadened the scope of *IJBESM* to further emphasise management and policy relevance of the research findings we published (Schröter et al. 2015). In the years before, we had already welcomed more interdisciplinary contributions, moving slightly away from a predominantly natural science-based approach. We also welcomed contributions that focus on method development within the ecosystem service field. This was because the originally strong focus on links between ecosystem services and biodiversity, and between ecosystem services, biodiversity and management was perceived as too rigid by the community. Judging by the number of new submissions received, and their quality, we are confident that the broadened scope was appreciated by our authors.

At the end of 2016, it was agreed that *IJBESM* would move to a fully open access publishing model (van Oudenhoven et al. 2016). Although some might initially be reluctant to pay a publication charge, we noticed that many authors now also choose the journal to comply with their institutions' or funders' open access requirements for the publication of their findings. In addition,

we note that many authors will be eligible to partial or full waivers of the already very affordable publication costs. And, naturally, the biggest advantage is that all publications, including our rich archive, is freely accessible, to anyone, anywhere on the world. A year and a half after the transition to open access, we can confirm that we are very positive about this development. Compared to 2016, up until then the most successful year in terms of downloads, we noticed that the number of downloads in 2017 had more than tripled to around 100,000 downloads. A clear sign of the impact of open access publication was the fact that papers published in 2012 or before were suddenly downloaded hundreds of times per month. In addition, citations per paper are continuously increasing as well, although this naturally follows a more gradual trend.

The journal has become a truly international journal. Our Associate Editors and Editorial Board members come from all continents, and we receive submissions from all over the world too. A colleague and Editorial Board member recently emphasised the unique character of the journal: 'We provide an opportunity to researchers from developing countries in Africa, South America and Asia to present their findings to the international community'. In addition, we have provided a platform for the publication of highly interesting Special Issues, for instance on 'Operationalising Marine and Coastal Ecosystem Services' (Garcia Rodrigues et al. 2017), 'Traditional Forest Knowledge and Sustainable Ecosystem Services Provision' (Parrotta et al. 2016), and 'People and Nature in Mountains' (Setten and Austrheim 2012). We are delighted to have provided such a platform and are excited about the inclusive approach envisioned by the new co-Editors in Chief.

Alexander van Oudenhoven, Matthias Schröter, Rudolf de Groot

3. Personal reflection by outgoing Editor-in-Chief

The origin of this Journal dates back to 2005 when it was called the *International Journal of Biodiversity Science & Management*, with Martin Price as Editor-in-Chief and published by Sapiens. In 2010, the Journal was taken over by Taylor & Francis and I became Editor-in-Chief after having been on the Editorial Board since the beginning. Around the same time The Economics of Ecosystems and Biodiversity (TEEB) published its final report (TEEB 2010) with me as coordinating lead author of the Framework Chapter (De Groot et al. 2010). The TEEB conceptual framework defined ecosystem services as the direct and indirect contributions of ecosystems to human well-being and placed the concept as the binding element between 'ecosystems' (process and function) and 'people' (benefits and values), emphasising the interactive nature of the relationship. At that time (2010), there was no

journal that explicitly used the term, Ecosystem Services, in its title, so, I suggested to Taylor and Francis to use the occasion of the transition from publishing house and Editor-in-Chief to add the 'ES': the *International Journal of Biodiversity Science, Ecosystem Services and Management (IJBESM)*.

Also in 2010, preparations had started to establish IPBES and the ESP was formally established (www.es-partnership.org). The idea for ESP had been born in 2008 during a conference in Kiel, Germany entitled 'Ecosystem Services: solution for problems or a problem that needs solution?' with the aim to create a worldwide network to enhance the science, policy and practice of ecosystem services for nature conservation, ecosystem restoration and sustainable management.

Another important development was the establishment of the journal *Ecosystem Services: Theory, Policy and Practice* in 2012 with Leon Braat as Editor-in-Chief. Although *Ecosystem Services* and *IJBESM* were published by different publishers (Elsevier and Taylor & Francis, respectively), the connection through ESP and the personal relationship between the Editors, ensured that the journals were largely complementary: *IJBESM* focussed on the 'natural science and management side' of the TEEB (and MA) framework and *Ecosystem Services* on the 'socio-economic and policy side'.

As mentioned above, both journals, and their Editors, acknowledge the fundamental importance of a multi- and interdisciplinary approach to the science, policy and practice of ecosystem services. However, because of the enormous range of topics in this emerging and still developing field (e.g. ESP has over 40 different working groups), it was considered important that both Journals had a clear 'work division'. Therefore, I find the recent debate about the perceived distinction between ecosystem services and NCP, promoted by IPBES to emphasise the non-economic, and even non-anthropocentric, values of nature unfortunate, because 'inclusiveness' (of worldviews) and multi- and trans-disciplinarity has been part of the ecosystem services paradigm from the beginning. However, these developments, and the changing of the Editors of *IJBESM* make the time ripe for yet another step in the evolution of the Journal, as outlined by the two new co-Editors in Chief elsewhere in this Editorial.

I would like to close by saying I greatly enjoyed my time as Editor-in-Chief of *IJBESM*, at first by myself but quite soon I received excellent support from Alexander van Oudenhoven (since 2011) and Matthias Schröter (since 2014) as Managing (and later on also Associate) Editors, and in 2015 Sara Mulder joined as Assistant Managing Editor. Of course, also the dedicated Editorial Board, and the very efficient and pleasant support team at Taylor & Francis, were essential. According to the feedback we receive from authors, the vast majority is very

satisfied with the way their papers have been handled and published.

I feel a bit sad leaving the Journal at this quite exciting point in time, with IPBES really taking off, more than 40 years after Westman introduced the term 'Nature's Services' (Westman 1977). In fact, my first official publication on ecosystem services dates from 1987 (De Groot 1987), when there was still little interest in the topic. Nowadays, a rapidly growing community of scientists, practitioners and policy makers are using the ecosystem services/NCP concept to safeguard biodiversity, manage ecosystems more sustainable and bring nature and people closer together. I wish the new Co-Editors in Chief (Alexander van Oudenhoven and Berta Martín-López) much success in further developing the Journal and contributing to this common goal.

Rudolf de Groot

Disclosure statement

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