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Editorial

Embarking on A New Journey in Regional Ecology and Management—A Vision for Interdisciplinary Research and Sustainable Solutions

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1. Introduction

As the inaugural Editor-in-Chief of the "*Regional Ecology and Management* (*REM*)", I am delighted to introduce to you the inaugural editorial of our publication. *REM* is committed to investigating the intricate interactions between landscape pattern, ecological processes, human activities, ecosystem services, regional development, and human well-being, all within the context of sustainability. Our journal promotes the integration of ecological, social, economic, and policy sciences to address pressing regional ecological issues. We aim to highlight cutting-edge methodologies, tools, and governance strategies for ecosystem management, while providing scientific insights to inform regional environmental policies and regulations. This journal is positioned to serve as a vital platform for advancing knowledge and fostering solutions to complex regional ecological challenges, striving to bridge the gap between theory and practice, between research and application, and between disciplines. We believe that a comprehensive understanding of *Regional Ecology and Management* requires an interdisciplinary approach, and we encourage contributions from all relevant fields.

As explicitly outlined in the journal's aims and scope, we particularly encourage submissions in the following research areas, though submissions are not confined to these topics: (1) regional ecological structure, processes, functions and dynamics; (2) conservation and restoration at regional scale; (3) biodiversity conservation strategies; (4) ecosystem restoration and rehabilitation; (5) sustainable development; (6) management approaches and governance. Also, our editorial board members are a group of passionate and dedicated professionals in their respective fields.

2. Importance of Ecological Management at Regional Scale

Since the mid-20th century, the rapid increase in population and the swift development of science and technology have triggered a sharp expansion in resource demand, while significantly enhancing humanity's capacity to transform nature [1]. This has in turn led to an explosive growth in the scale and intensity of disturbance to the Earth's ecosystems [2]. Global and regional ecological issues have become increasingly prominent, with a multitude of severe challenges across various regions [3]. Research findings have unequivocally demonstrated that over 24 percent of the Earth's terrestrial surface is impacted by ecological degradation [4]. Ecological security is nearing its limits, regional ecological functions are degrading and facing a grave crisis, and the application of ecological principles and methods to the practice of solving regional ecological issues has become a hot and focal point of social concern. In this context, there is an urgent and compelling need to optimize regional spatial development patterns to carefully plan and distribute natural resources in a rational and scientific manner, taking into account various factors such as population distribution, economic development, and environmental carrying capacity. Thus, in such an era marked by rapid environmental change, the increasing interdependence of ecological, social, and economic systems, the need for innovative, interdisciplinary research has never been more pressing [5]. It is necessary to achieve sustainable development, ensuring that regional resources and ecosystems

are managed in a way that maximizes economic benefits without compromising ecological and environmental protection.

To address such regional challenges, it is urgently necessary to construct a large-scale ecosystem scientific theory and technology system to scientifically guide regional ecological protection, sustainable management, and dynamic monitoring [6]. Therefore, the new stage of ecology development requires "multi-element, multi-process, multi-functional, multi-scale and multi-dimensional" systematic research, committing to integrative ecological research. Currently, macroecology is one of the major subdisciplines of ecology and is a rapidly growing field [7]. The research of macroecosystem science originates from the urgent need of people to solve major issues such as regional food security, resource security, ecological security, and environmental security [8]. Focusing on the basic relationship of "environmental change, ecosystem service, human well-being and social development," contemporary ecological theories and practices drive the integration research from landscape, regional to continental and global scales. In the related disciplinary development, landscape ecology emphasizes the interaction between the structure, function, and process of the landscape and human society [9]. Modern landscape ecology focuses on the "pattern-process-scale" paradigm, which has now developed into a new paradigm of "pattern-process-service-sustainability" [10].

Therefore, research on regional-scale ecology and management is of paramount importance, as it integrates the complexity of ecosystems, the impacts of human activities, policy implementation, biodiversity conservation, ecosystem services, ecological adaptability and resilience, interdisciplinary integration, sustainability goals, and the connections between local and global issues [11]. Studies at the regional scale contribute to the formulation of effective policies, the protection of critical ecological services, the enhancement of ecosystems' capacity to adapt to climate change, and the promotion of coordinated development among society, economy, and the environment. Moreover, findings from regional research can be readily translated into practical management measures—such as ecological restoration and resource management—thereby directly serving both local practices and global United Nations Sustainable Development Goals (SDGs) [12].

Actually, there exists a close and extensive correlation between regional ecological management and the SDGs, which significantly influences the achievement of multiple goals [13]. As an essential component of natural resources and a fundamental carrier for socio-economic development, the rational ecosystem management are foundational and crucial for realizing several SDGs. Ecosystem management are intimately related to SDG 2 (Zero Hunger). Sustainable land management practices, such as conservation agriculture and integrated land and water resource management, can enhance agricultural productivity, ensure food security, and reduce the risks of food production due to ecological degradation, providing a safeguard for eradicating hunger [14]. Furthermore, regional ecological management has a significant impact on SDG 11 (Sustainable Cities and Communities). Efficient ecosystem protection and land use in the urbanization process can reduce the consumption of natural resources by urban expansion, lower the costs of infrastructure construction, and improve the livability and sustainability of cities. For instance, optimizing urban planning and increasing public spaces and green areas can enhance the quality of life for urban residents. In addition, regional ecological management are directly related to SDG 15 (Life on Land). Sustainable management can prevent ecological degradation, protect biodiversity, and maintain the stability and sustainability of ecosystems [15]. Measures such as implementing sustainable forest management and restoring degraded ecosystem can be taken. Regional ecological management have synergistic effects with several other SDGs. For example, improving ecosystem services such as water conservation, carbon sequestration can ensure water quality and quantity, supporting the achievement of SDG 6 (Clean Water and Sanitation) and SDG 7 (Affordable and Clean Energy). The sustainability of ecosystem management is also closely related to SDG 13 (Climate Action), by reducing greenhouse gas emissions and increase carbon sinks. In terms of economic development, sustainable regional ecological management can enhance ecosystem compensation and job opportunities in rural areas, helping to reduce poverty (SDG 1), promote the development of ecological and related industries, create more employment opportunities, and stimulate economic growth (SDG 8). To summarize, through scientific and rational regional ecological management can advance the comprehensive realization of global sustainable development goals, fostering sustainable development in economic, social, and environmental aspects, and propelling the global sustainable development process.

3. Research Framework

Research related to *Regional Ecology and Management* represents a sophisticated interdisciplinary exploration that highlights the importance of collaboration between various fields, such as ecology, economics, and sociology, to develop comprehensive solutions to the complex challenges associated with ecological issues [16]. Regional ecology is committed to analyzing the multiscale and multidimensional coupling of human–land

coupled systems, their spatiotemporal dynamic evolution, and sustainable regulation. Figure 1 illustrates the framework with the "Ecology–Economy–Management" synergy at its core, nests natural, social, and economic dimensions into a multiscale space. The comprehensive regional ecological management strategy emphasizes the importance of ecological structure, processes, and functions and points out how these factors interact with regional conservation and restoration, sustainability, and management approaches.

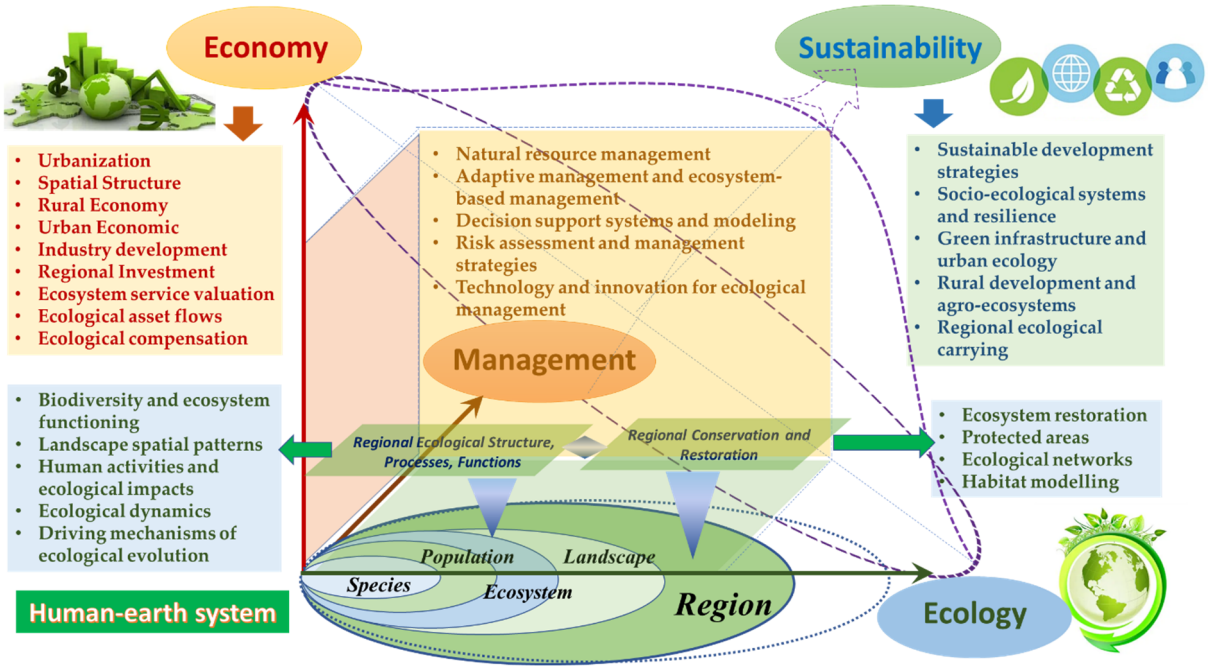

Figure 1. The research dimensions in regional ecology and management.

In terms of ecology, theoretical research focuses on biodiversity and ecosystem functions, landscape ecology and spatial patterns, human activities and their ecological impacts, regional ecological dynamics, and the driving mechanisms of ecological evolution. For example, the conversion of natural habitats into agricultural land or urban areas can have significant impacts on biodiversity and ecosystem services [17]. Practical research, on the other hand, is concerned with ecosystem restoration, the construction of nature reserve systems, ecological network and habitat modeling, and places importance on biodiversity conservation strategies, ecosystem restoration, and ecological security pattern at regional scale [18]. For example, based on the assessment of regional ecosystem services and their spatial differentiation characteristics, regional ecological security pattern can be effectively optimized [19]. Regional management, which revolves around the tasks and goals of resource, environmental, and ecosystem management, studies the state and evolution mechanisms of the components, structure, processes, functions, services, and effectiveness of regional systems of different types, in different regions, and at different scales. Management focuses on natural resource management, adaptive management, ecosystem-based management, decision support systems and models, risk assessment and management strategies, and the technology and innovation of ecological management. For example, Nature-based Solutions (NbS) are gaining increasing attention in ecological restoration [20]. From the economic perspective, regional ecological management conducts research on urbanization, spatial structure, rural economy, urban economy, industrial development, regional investment, ecosystem service assessment, ecological asset flow, and ecological compensation. Relevant studies reflect the impact of economic development on the regional ecosystems and how economic means can promote ecosystem management. Similarly, land use decisions can also affect economic development and social welfare, as they influence the distribution of resources and the livelihoods of local communities [21]. The ultimate goal of the above three dimensions is regional sustainability, with relevant research including sustainable development strategies, social–ecological systems and resilience, green infrastructure and urban ecology, rural development and agroecosystems, and regional ecological carrying capacity, among others [22].

The framework constitutes the core contents for submissions to the *REM* journal. The regional ecology structure–process–function complex is regarded as the base map of the "human–earth" system, with urbanization, industrialization, and agricultural expansion superimposed as the main driving forces, triggering a chain of responses in landscape patterns, population dynamics, and ecosystem services. The rural–urban economic differentiation shapes different ecological risk sources and receptors, necessitating a combination of adaptive and

ecosystem-based management. Rural areas need to focus on agroecosystems and rural landscapes, enhancing soil carbon sinks and biodiversity through technological innovation, watershed management, and land consolidation. Urban areas should build green infrastructure to mitigate urban heat islands, stormwater runoff, and air pollution, while leveraging green industrial transformation to attract regional investment. Meanwhile, decision support models integrate remote sensing monitoring, habitat modeling, machine learning, and artificial intelligence to assess management strategies under uncertainty and different scenarios.

4. Contents of This Journal

This platform promotes interdisciplinary dialogue and knowledge exchange among researchers, practitioners, and policymakers across various domains, aiming to accelerate collaborative progress in the field of *Regional Ecology and Management* by fostering rigorous academic discourse and innovative research methodologies.

4.1. Interdisciplinary Approach and Innovation

We welcome original research articles, reviews, technical comments, and policy analyses that advance our understanding of regional ecosystems and their management. Our journal particularly emphasizes the development and application of novel tools, models, and frameworks that can guide effective policy-making and sustainable practices.

4.2. Supporting Policy and Practice

REM aims to bridge the gap between scientific research and policy implementation. By providing rigorous, evidence-based insights, we support the development of environmentally sound policies at regional scale. Whether it is through studies on ecological restoration, biodiversity conservation, or the implementation of NbS, *REM* seeks to empower decision-makers with actionable knowledge.

4.3. Types of Submissions

REM publishes work on a diverse array of topics as outlined above, without any methodological, theoretical, or geographical constraints. Regarding the types of articles, this journal accepts the following categories of content:

(1) Research Article: Presents original and unpublished research findings. The maximum word count is 8000 words (excluding references, tables, and figures, but including table/figure titles and legends), in addition to a title (maximum 30 words) and an abstract (maximum 350 words).
(2) Review Article: Provides a critical assessment of specific topics or emerging areas of inquiry and public interest, highlighting key insights and future research directions. The maximum word count is 10,000 words (excluding references, tables, and figures, but including table/figure titles and legends), in addition to a title (maximum 30 words) and an abstract (maximum 350 words).
(3) Perspective Article: Enhancing theoretical and conceptual dimensions of earth, environment, or sustainability. A perspective article offers a fresh and distinctive perspective on existing challenges, fundamental principles, or common beliefs related to a specific subject. It proposes and validates a novel hypothesis or examines the consequences of a recently introduced innovation. Such articles may concentrate on current advancements and future prospects within a field, incorporating original data and personal insights. The article can reach a maximum of 4000 words (excluding references, tables, and figures, but inclusive of their titles and legends), in addition to a title (limited to 30 words) and an abstract (restricted to 250 words).
(4) Short Communications: These concise communications address urgent matters or report preliminary findings, necessitating prompt publication. They may encompass up to 4000 words (text only, excluding references, tables, and figures, but including their titles and legends), in addition to a title (up to 30 words) and an abstract (up to 200 words).
(5) Editorial: Editorial articles are commissioned by the editorial team or guest editors for special issues, although suggestions are gladly considered.

Aiming at the discipline evolution, unscheduled special issues are also welcomed on timely and important topics related to regional ecology and mangement. Special issues can be commissioned to guest editors. Materials should be sent to the most appropriate editor based on the topic. Guest editors will typically be responsible for sending papers out for review, making initial editorial decisions, and ensuring timely submission of the entire set of papers comprising their special issue. We express our heartfelt gratitude to our publisher for their support in launching this journal. We warmly welcome the submission of papers, as well as proposals for special issues.

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Conflicts of Interest

The author declares no conflict of interest.

Use of AI and AI-Assisted Technologies

No AI tools were utilized for this paper.

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