SYSTEMS
ECOLOGY
ECOLOGICAL RESEARCH THROUGH SYSTEMS SCIENCE

EDITORIAL
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Open questions for systems ecology

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CENTRAL QUESTION

How can a scientific journal be organized so that publishing serves the advancement of systems-level ecological understanding?

ANSWER

This founding editorial introduces *Systems Ecology* as a question-driven, diamond open access journal for ecological research through systems science. It argues that scientific publishing should serve science by helping communities ask better questions, evaluate evidence rigorously, organize knowledge coherently, preserve reliable contributions, accumulate understanding over time, and ensure that scientific knowledge remains openly accessible to all.

FIELD MAP COORDINATES

Emergence; Energy, matter, and information; Persistence and fragility; Transformation; Recovery; Scaling; Space and connectivity; Inference and prediction.

A founding editorial

The founding of a journal is a scientific act as well as an institutional one. It creates a place where claims will be evaluated, archived, connected, and made visible. It can reinforce established divisions or help a community reorganize its questions. It can ask authors to adapt their science to the expectations of a journal, or pose the question of what kind of journal would better serve the science. Deciding how, by whom, and on whose terms science is made public is not a neutral choice.

Systems Ecology begins from a simple premise: a journal should be designed to serve science rather than require science to adapt to it. This premise is not only a statement about access, review, or editorial procedure. It is a claim about the relationship between scientific inquiry and the institutions that make inquiry public.

Concretely, we introduce *Systems Ecology* as a question-driven, independent, diamond open access journal for ecological research through systems science. By systems science, we mean an approach that seeks to explain ecological phenomena through relations among components, flows, constraints, feedbacks, histories, evolutionary processes, and levels. The journal is organized not around methods, taxa, scales, or historical traditions, but around open systems-level ecological questions (including how ecological properties emerge, why systems persist or become fragile, and how they can be inferred, diagnosed, and predicted), among those detailed in Box 1. As one of its defining features, the journal organizes these questions through the Field Map, a living cartography rather than a fixed taxonomy, maintained and updated on the journal's website. Its editorial philosophy follows directly from this perspective: manuscripts are evaluated by the quality of the question they address, the contribution and scholarly soundness of the answer, transparency and reproducibility by default, and clarity of scientific communication.

This founding editorial makes that case in two parts. Part One asks why a new journal is needed: current publishing incentives can drift away from serving science, scientific understanding accumulates around questions more durably than around journals, methods, or disciplinary labels, and ecological systems increasingly require explanations that are relational, multilevel, open, historical, and dynamic, a need made urgent by the pace of environmental change. Part Two follows from that case: if publishing should be organized to serve those questions, then the journal's Field Map and its open questions, the criteria by which contributions are evaluated, the review process, the cooperative editorial model, and the diamond open access structure are all consequences of that argument.

PART ONE

Why a new journal

Scientific publishing has grown at an extraordinary pace. Tens of thousands of active, peer-reviewed journals now compete for attention [1], and the volume of articles they publish keeps climbing: the number of articles indexed in Scopus and Web of Science grew by roughly 47 percent between 2016 and 2022 alone, an annual rate of about 5.6 percent [2]. This growth has not been matched by a comparable growth in the number of scientists available to write, review, and edit that work. In biomedicine alone, journal peer review was estimated to consume some 63 million hours of reviewer time and require nine million individual reviews in 2015, a burden carried disproportionately by a small fraction of active reviewers [3].

More published articles do not automatically mean more understanding. They can also mean diluted visibility, literatures that are harder to navigate, and reviewers and editors stretched thinner across an ever-growing volume of submissions.

This growth is also concentrated: a handful of commercial publishers now account for more than half of all articles published in the natural and social sciences [4]. Concentration matters because the actors who set the terms of publication can also shape the incentives to which researchers respond. Journals owned and governed by scholarly communities provide one way to change those terms rather than only describe them. In this landscape, why create another journal?

Publishing should serve science

Scientific publishing exists to advance scientific understanding. Publication makes claims public, places them in relation to previous work, exposes them to evaluation, and allows others to build upon them. At their best, peer review improves the reliability, clarity, and interpretation of scientific work, and editorial judgment helps organize contributions into a coherent intellectual archive.

Yet, publishing can also invert its proper relationship to science. Authors may learn to shape manuscripts for journals rather than for questions. Journals may optimize for visibility, citation metrics, submission volume, speed, or brand position. Reviewers may infer what a journal is supposed to want and expand revision beyond what is scientifically necessary. Editors may be asked, implicitly or explicitly, to predict future impact. Scientific communities may gradually confuse proxies for value with value itself.

These pressures do not stay contained within journals. Because hiring, promotion, and funding decisions are themselves made largely on the basis of where (and how much) someone has published, distortions in publishing incentives propagate directly into structures that shape scientific careers. Such criteria can provide administrators with tractable information when evaluating work outside their expertise. But when they become substitutes for evaluating scientific contributions, they can encourage researchers to optimize for journal-brand signaling rather than for the question, evidence, transparency, and cumulative value of the work itself.

No single actor needs to intend this outcome. It can arise from ordinary incentives. Novelty becomes easier to recognize than cumulative contribution. Citation potential turns into a proxy for scientific importance, and journal identity into a proxy for quality. Speed grows attractive because it reduces waiting, but velocity is not the same as scientific progress. Selectivity gets confused with prestige, and review turns into a ritual of expansion rather than clarification. Manuscripts end up organized around anticipated gatekeeping rather than the structure of the scientific question.

The science of science has made these dynamics increasingly visible. Scientific discovery is not only a sequence of individual insights; it is also a collective process shaped by collaboration networks, institutional structures, cumulative traditions, patterns of attention, evaluative practices, and incentives [5, 6, 7]. Work on atypical combinations has shown that influential research often recombines existing ideas in ways that are partly conventional and partly unusual [8]. Studies of research strategies have emphasized the tension between tradition and innovation, and the difficulty of sustaining exploratory work within systems that reward predictable success [9]. Research on scientific impact has shown that impact is temporally structured, difficult to predict, and not equivalent to the intrinsic quality or long-term value of a scientific contribution [10, 11, 12].

Metascience and open-science movements have made a related point from another direction. The reliability of science depends not only on publication, but on the conditions under which claims can be evaluated, reproduced, extended, corrected, and synthesized [13, 14]. Research-assessment reform has likewise argued against using journal-level indicators as substitutes for the evaluation of individual scientific contributions [15, 16, 17]. These literatures do not provide a blueprint for a journal, but they do provide a warning: publishing systems shape scientific behavior, and therefore they should be designed with explicit scientific purposes in mind.

The purpose of scientific publishing is not to predict which discoveries will matter most. Nor is it to maximize the speed, visibility, or prestige of the publication process. It is to help scientific communities ask better questions, evaluate evidence rigorously, organize knowledge coherently, preserve reliable contributions, make knowledge openly accessible, and accumulate understanding over time. A journal should not ask science to adapt itself to publishing. Publishing should be designed around what science needs. For *Systems Ecology*, this means organizing publication around scientific questions rather than disciplinary categories, evaluating manuscripts for their contribution and scholarly soundness rather than predicted impact, directing peer review toward essential scientific issues, making transparency the default, and keeping both reading and publishing free of charge.

Why questions?

What does science need? Publishing organized around its questions, not around journals, methods, or disciplinary labels. This is the premise on which *Systems Ecology* is built as a question-driven journal.

Scientific questions often outlive individual theories, datasets, methods, technologies, and even disciplines. Methods evolve. Theories are revised. Instruments improve. Datasets expand. Fields split, merge, and rename themselves. But original and well-defined questions can persist for decades because they define a direction of inquiry rather than a particular answer. They generate successive contributions, competing explanations, new evidence, conceptual refinements, and methodological innovations.

This is why question-driven science is not the same as broad or unfocused science. A good scientific question constrains inquiry. It identifies what is at stake, what kind of evidence is relevant, what existing knowledge matters, and what would count as progress. A poorly posed question can make even technically correct answers scientifically unhelpful, because it directs attention toward the wrong object or hides the assumptions that should be examined. There are many wrong answers in science; evaluation exists partly because of that. But poorly posed questions can be more damaging, because they organize effort around an unproductive frame.

Ecology offers many examples. Hutchinson's question of why there are so many kinds of animals did not disappear when particular answers changed [18]. May's question about the stability of large complex systems remains alive even though models, data, and interpretations have changed substantially [19, 20]. Levin's problem of pattern and scale continues to structure ecological thinking because scale is not a technical nuisance but a central problem of explanation [21]. Questions of resilience, regime shifts, and thresholds have generated decades of work across theory, empirical ecology, management, and global change science [22, 23].

A question-driven journal therefore organizes manuscripts according to the scientific problems they address rather than the tools or traditions they employ. Methods matter, but methods are instruments. A network analysis, field experiment, dynamical model, remote-sensing product, synthesis, microbiome perturbation, or restoration trajectory is valuable because of the question it helps answer. The question should choose the method, not the other way around.

This matters especially for systems-level ecology because the questions are rarely owned by one subfield. How ecological systems persist is not only a community ecology question, an ecosystem ecology question, a theoretical ecology question, or a restoration question. It is a systems-level question that may require all of these perspectives. A journal organized around such questions can help connect work that would otherwise remain separated by method, scale, or disciplinary identity. The open questions that currently organize *Systems Ecology*'s submissions are collected in Box 1.

Why systems?

Systems Ecology focuses on systems-level ecology, but the word "systems" can easily be misunderstood. It should not imply that only large, complicated, highly connected, or mathematically formal studies belong here; that systems ecology is a separate domain competing with population, community, ecosystem, macro-, restoration, or conservation ecology; or that ecological systems are optimized wholes, harmonious entities, or objects with purposes. Systems ecology is therefore not synonymous with ecosystem ecology or with the study of ecosystems. A systems perspective can be applied across levels of ecological organization, from organisms and populations to communities, ecosystems, landscapes, and coupled human–natural systems.

A systems perspective is a way of asking ecological questions. It asks how ecological phenomena depend on relations among components, flows, constraints, feedbacks, histories, evolutionary processes, and levels. It treats organisms, populations, communities, ecosystems, landscapes, microbiomes, and coupled human–natural systems as open configurations whose behavior cannot always be understood by isolating parts. Systems are not merely objects of study. They are also a mode of explanation [24, 21, 25].

This mode of explanation has deep roots in ecology. The ecosystem concept made energy flow and material cycling central to ecological analysis [26, 27]. Earlier and later systems traditions emphasized feedback, openness, succession, development, constraint, and the organization of ecological wholes [28, 29, 25]. Work on complexity and scale clarified that macroscopic ecological patterns can arise from local interactions without implying global design or optimization [24, 21, 25, 30]. Work on stability and food webs showed that increasing complexity does not automatically imply robustness, and that the relation between structure and persistence is itself a scientific problem [19, 20, 31].

The systems perspective is also increasingly necessary because ecological change is increasingly relational. Climate change, land-use change, biodiversity redistribution, habitat fragmentation, altered disturbance regimes, exploitation, pollution, and biological invasions do not merely change isolated variables. They alter the conditions under which ecological relations form, persist, and break. They change interactions, flows, feedbacks, constraints, and spatial connections. They can transform not only the state of a system, but the set of states that remain possible [32, 33, 34].

Systems ecology is therefore not defined by a particular scale or method. A small experiment can be systems ecology if it reveals how interactions, feedbacks, or constraints generate system-level behavior. A theoretical model can be systems ecology if it clarifies which ecological configurations are feasible or fragile. A restoration study can be systems ecology if it asks whether recovering components rebuild the relations that allow persistence. A forecasting study can be systems ecology if it connects prediction to the structure and dynamics of ecological systems.

What makes a study systems ecology is not size, complexity, or disciplinary label. It is whether the work asks a systems-level ecological question: a question whose answer depends on relationships among parts, processes, levels, flows, histories, evolutionary processes, constraints, or feedbacks.

Why now?

The need for systems ecology is not new. Ecologists have long studied ecosystems, energy flow, material cycling, food webs, resilience, complexity, scaling, disturbance, and feedback. What is new is the combination of urgency and opportunity.

The urgency comes from environmental change. Climate change, land-use change, biodiversity loss, species redistribution, fragmentation, pollution, exploitation, and altered disturbance regimes are not merely changing ecological variables. They are changing the conditions under which ecological systems arise, persist, transform, and recover. Ecology increasingly has to explain reorganization, not only response [32, 33].

The opportunity comes from the convergence of theory, data, computation, and observation. Ecologists now have access to long-term datasets, high-resolution environmental monitoring, experimental systems, genomic and microbiome data, remote sensing, network methods, mechanistic models, causal inference, simulation, forecasting, and machine learning. These tools make it possible to ask systems-level questions in ways that were previously difficult or impossible.

But more data and more methods do not automatically produce systems understanding. They must be organized by questions. Without questions, data accumulate without direction and models multiply without synthesis. A question-driven systems ecology can help make the relationship between theory and observation reciprocal: observations and experiments constrain theory, while theory and systems-level questions help identify what needs to be measured, manipulated, compared, or inferred. The data that are available are not always the data needed to distinguish among explanations.

This is why *Systems Ecology* is needed now. The field does not lack ecological research. It needs a venue organized around the open questions ecological systems pose. The question, then, is what kind of journal can best serve that purpose.

BOX 1: THE FIELD MAP

Open questions for systems ecology

These questions are not a definition of systems ecology. They are not exhaustive, mutually exclusive, hierarchical, or intended to imply deterministic answers. Contingency, evolutionary processes, history, time, and space cut across many of them. They are the recurring open questions that currently organize *Systems Ecology*'s Field Map, a living cartography rather than a fixed taxonomy. Papers may connect to several questions, and original and well-defined contributions may expose questions not yet represented here. The map will evolve with the journal's archive and community and will be kept current on the journal's website.

01 How do system-level ecological properties emerge?

Persistence, resilience, trophic structure, and other system-level properties arise from relations among parts, not from components considered in isolation [24, 25, 30]. How do local interactions and feedbacks generate such patterns, and when does a pattern reflect causal structure rather than statistical description?

02 How do energy, matter, and information shape ecological possibilities?

Ecological systems do not occupy all imaginable states: energy, matter, body size, and information constrain which configurations can arise, which can be sustained, and which are possible only under narrow conditions [35, 36].

03 What allows ecological systems to persist, and why do they become fragile?

Persistence can be compositional, functional, structural, or dynamic, and a system may be locally stable yet globally fragile [19, 22, 23, 20, 37], or, in some cases, antifragile, strengthened rather than eroded by variability [38]. What is being maintained, through what mechanism, and under which conditions?

04 How do ecological systems transform?

Not all change is transformation: transformation occurs when feedbacks, functions, or dominant constraints shift in ways that alter what a system is [39]. When does disturbance produce recovery rather than reorganization, and when is a threshold crossed [32, 33]? Systems facing similar conditions may nevertheless follow different trajectories because of historical contingency and the order of past events [40].

05 When can ecological systems recover, repair, or be rebuilt?

Recovery of components (species, biomass, function) is not always recovery of the system. This question distinguishes return, repair, replacement, and reorganization, and asks what kind of recovery remains possible under present and future constraints [41, 42].

06 How do ecological processes scale across levels?

Individual physiology alters population dynamics; population processes aggregate into ecosystem function; short-term dynamics accumulate into long-term change [43, 44]. Which variables matter at which level, and how are levels coupled without losing causation [21]?

07 How does spatial structure shape ecological dynamics?

Ecological interactions are rarely well-mixed: distance, connectivity, and movement determine who interacts with whom, and self-organized spatial patterns can reveal a system's state before other signals do [45]. Fragmentation and reduced connectivity can destabilize populations that would otherwise persist [46].

08 How can ecological systems be inferred, diagnosed, modeled, and predicted?

Ecological systems are only partially observed. This question spans mechanistic modeling, statistical inference, causal reasoning, and forecasting, asking not which method is used, but whether it reveals how ecological systems work [47].

PART TWO

What kind of journal

If *Systems Ecology* is that venue, what does it actually look like? A journal's structure is not a neutral container: what it categorizes, what it rewards, and how it is governed all shape the science that passes through it. We now turn from why to how: how the journal is organized, what it selects for, how it is reviewed, and who it belongs to.

Why a Field Map?

If journals help organize knowledge, then classification matters. The categories used by journals are not neutral. They influence how authors position their work, how readers search for connections, how reviewers interpret relevance, and how fields remember what they have produced [48]. Papers are often organized by subfield, method, taxon, habitat, or level of organization. Those categories are useful, but they can obscure the questions that connect work across boundaries.

The Field Map is an attempt to organize knowledge by relation rather than by category. Instead of sorting contributions into fixed subfields, methods, or taxa, it connects papers to the recurring questions in Box 1. These questions provide the initial coordinates of an evolving cartography rather than a fixed classification of the field.

A paper may connect to multiple coordinates. A microbial study may also be about emergence, persistence, and prediction. A restoration paper may also be about recovery, transformation, and constraints. A food-web paper may also be about energy, fragility, scaling, and inference. A theoretical paper may clarify principles that apply across ecological systems. Conversely, a manuscript may pose an original and well-defined systems-level question that cuts across the current coordinates or is not yet adequately represented by them.

The purpose of the Field Map is not to place manuscripts in boxes, but to make relationships among questions and contributions visible. It is intended to develop as an interactive, searchable interface in which each paper can be linked to one or more of the questions it addresses, allowing readers to navigate the journal through questions rather than conventional disciplinary categories. As the archive grows, the Field Map can reveal how contributions connect, where answers converge or diverge, where gaps remain, and where new questions and intersections are emerging.

The map is therefore both practical and epistemic. Its coordinates are provisional and will be revised as the journal develops. The Editorial Collective maintains the map, informed by the questions and contributions emerging from the community. When a manuscript poses a systems-level question that the current coordinates represent poorly, that is information about the map rather than a defect of the manuscript. The criterion for revising the map is not whether a question is fashionable or already well populated, but whether it helps connect work that would otherwise remain separated.

Familiar questions will often map onto several coordinates rather than one. How biodiversity change alters ecosystem functioning, for instance, may touch emergence, persistence, scaling, and transformation at once. This is a property of a relational map, not a failure of classification. In this sense, the Field Map is not only a way to navigate the journal; it embodies the journal's central claim that ecological research can be organized around questions rather than boundaries.

What should a scientific contribution be?

The questions set out in Box 1 are what the journal exists to serve. If publishing should serve science, then evaluation should be anchored in what allows scientific knowledge to progress. A journal cannot reliably know in advance which papers will become influential. It can, however, ask whether a manuscript makes a credible contribution to understanding. This distinction is crucial. Predicting impact asks editors to anticipate future attention. Evaluating contribution asks editors to judge present scientific value: the question, the answer, the evidence, the transparency, and the clarity of the work.

For *Systems Ecology*, selectivity will be anchored in four criteria: First, the question. Does the manuscript ask an original, well-defined ecological-systems question? Is that question anchored in the relevant literature? Does the paper make clear why the question matters for understanding ecological systems?

Second, the contribution and scholarly soundness. Does the work genuinely move the question forward? An answer need not be universal: identifying what an ecological outcome depends on, under which conditions, and why can itself constitute a substantive contribution. Are the methods, data, models, analyses, arguments, and interpretations appropriate to the claims being made? Does the evidence support the answer?

Third, transparency and reproducibility. Are the data, code, assumptions, workflows, and analytical decisions available or described clearly enough for others to evaluate, reproduce, and build on the work? Sharing should be the default [49, 50]. There may be legitimate ethical, legal, conservation, privacy, or confidentiality constraints, but there should be no undisclosed exceptions. Limitations should be declared and justified, not waived silently.

Fourth, clarity of scientific communication. Are the question, reasoning, methods, evidence, figures, and conclusions communicated clearly? This is a high standard, but it is not a demand for stylistic uniformity or native-like English. The journal should judge the clarity of the science rather than the polish of the prose.

These criteria are not administrative details. They express a view of how science progresses. Scientific communities advance when they ask meaningful questions, make reliable contributions, expose the pathway from evidence to claim, and communicate clearly enough that others can evaluate, use, contest, and extend the work.

This is also how selectivity should be understood. Selectivity should not be prestige filtering, novelty for novelty's sake, or a bet on predicted citation impact. It should protect readers' attention, sustain reviewer and editor effort, and maintain trust in what the journal publishes. Selectivity, properly understood, is disciplined service to scientific contribution.

Peer review as disciplined service to the question

Peer review should improve scientific understanding. It should not become a ritual of maximal revision. A constructive review process is not a lenient review process. Rigorous evaluation is essential. But rigor should be directed toward the question, the contribution, the evidence, the reasoning, the transparency of the work, and the clarity of communication. Review should help editors decide whether the manuscript advances understanding and, when appropriate, help authors make that contribution clearer and more reliable.

This requires discipline. Reviewers should distinguish essential revisions from optional suggestions. Essential revisions concern issues that must be addressed for the claims to be reliable, the contribution to be clear, or the work to meet the journal's standards. Optional suggestions may improve the paper, but they should not be treated as conditions for publication. Authors should not be asked to turn a manuscript into a different paper.

Reviewer recommendations are advisory. Final decisions rest with the Handling Editor, informed by reviewer reports, editorial consultation when appropriate, and the editor's own scientific judgment. This matters because peer review is evidence for a decision, not a substitute for judgment.

Reviewer and editor effort are scarce scientific resources, and the structure of peer review affects how efficiently that effort is used [51]. Readers' attention is also a scarce scientific resource. Selectivity, understood properly, protects all three. It protects readers by publishing work that contributes meaningfully to systems-level ecological understanding. It protects reviewers by reserving review for manuscripts with a plausible path to publication. It protects editors by making evaluation criteria explicit and consistent.

Timeliness also matters. Authors should not be left waiting unnecessarily, and journals have a responsibility to move manuscripts through evaluation with care and attention. But speed should not become the signature of a scientific journal. The goal is not velocity for its own sake, but thoughtful, constructive, and timely editorial assessment. A humane review process is not merely kinder. It is better aligned with science.

Preprints are one way to keep speed and rigor apart. We encourage authors to post preprints; doing so has no bearing on consideration at *Systems Ecology*. This makes results public while evaluation takes the time it requires. We are also open to manuscripts that have been evaluated through Peer Community In and, where appropriate, Handling Editors may take those reviews and recommendations into account rather than unnecessarily duplicate evaluation.

Transparency as default

Systems-level ecological research often depends on complex data, models, simulations, workflows, assumptions, and decisions. The path from evidence to claim can be long. For that reason, transparency is not an accessory to systems ecology. It is part of the science.

Wherever possible, data, code, and analytical workflows should be shared. When they cannot be fully shared, the reason should be explicit. Sensitive ecological data, human-subject information, legal restrictions, conservation risks, or confidentiality constraints may justify limits. But those limits should be declared and justified. There should be no invisible exceptions.

This standard is not intended as bureaucratic compliance. It is a condition for cumulative science [52]. Readers, reviewers, and future researchers need to understand not only what was concluded, but how the conclusion was reached. Transparency allows work to be checked, reused, extended, compared, and sometimes corrected [53]. It makes scientific disagreement more productive because it clarifies where the disagreement lies.

The same principle applies to AI-assisted tools. Responsible use is not prohibited, but authors remain fully responsible for submitted work and should disclose meaningful use. Reviewers and editors must protect the confidentiality of manuscripts and review materials. Tools can assist science, but responsibility cannot be delegated to them.

A cooperative editorial model

If systems ecology is organized around questions that cross boundaries, the journal's editorial model should reflect that. *Systems Ecology* is governed by an Editorial Collective rather than a traditional Editor-in-Chief hierarchy. Editors have equal editorial standing. Administrative coordination is necessary, but the journal's intellectual direction, review culture, and evolution should be shaped collectively.

Editorial judgment should be grounded in active scientific practice. Professional editorial support, copyediting, production, and platform administration can be valuable and necessary, but they should support scientific judgment rather than substitute for it. In this sense, editorial work is scholarly service to a community of inquiry, not journal-brand management.

This does not mean that responsibility is diffuse. Each manuscript requires a Handling Editor who is responsible for the decision. But systems-level ecological work often crosses areas of expertise. Mixed reviews, difficult judgments, interdisciplinary manuscripts, unusual methods, and ethical questions may benefit from consultation among editors. Consultation should support judgment, not replace it.

A cooperative model is especially appropriate for a field that connects empirical ecology, theoretical ecology, ecosystem science, complex systems, network science, restoration, microbiomes, macroecology, forecasting, conservation, and more. No single editorial center can adequately represent that space. A collective can better preserve plurality while maintaining shared standards. The goal is not governance as performance. The goal is editorial judgment in service of the scientific question.

Diamond open access and shared responsibility

The journal is independent diamond open access: free to read and free to publish, with no subscriptions and no article processing charges. Authors retain copyright, and articles are published under the Creative Commons Attribution 4.0 International License.

This is not only a matter of principle. Against the concentration described in Part One, studies of scholarly publishing have shown substantial differences between the direct costs of producing and disseminating research articles and the prices charged through subscriptions or article processing charges [54]. Initiatives are also emerging to help researchers identify publication venues that better align with community-oriented and non-commercial models of scholarly communication [55]. Diamond open access demonstrates that access to scientific knowledge need not depend on charges to either readers or individual authors.

This publishing model follows from the same principle that motivates the journal's editorial philosophy. If publishing should serve science, access should not depend on a reader's ability to pay or an author's ability to pay publication charges. Ecological systems research is global, and the communities affected by ecological change are global. A journal that seeks to connect systems-level ecological research should make that research accessible.

Diamond open access is not cost-free, only differently funded. The journal currently runs on Open Journal Systems, with direct costs for hosting, its domain, and Crossref membership for DOI registration. These total approximately US$1,000 per year and are currently supported through discretionary research funds, with funding secured for the journal's first three years. We state these costs explicitly because financial transparency is part of building a sustainable diamond publishing model. Beyond these direct costs, the model depends on shared scholarly labor, responsible governance, reviewer generosity, and community trust. Peer review itself is a shared responsibility. Authors who benefit from review should recognize that the system depends on researchers contributing thoughtful reviews in turn.

The challenge is to build a publishing model that is accessible without being careless, rigorous without being extractive, selective without being prestige-driven, and constructive without becoming permissive. That is the experiment *Systems Ecology* is undertaking.

An invitation

Systems Ecology begins from the open questions that opened this editorial, now gathered and growing in its Field Map (Box 1). These questions do not belong to one subfield. They belong to ecology as a systems science.

We invite work that advances understanding of ecological systems through theory, evidence, models, synthesis, computation, observation, experiment, and conceptual clarification. We welcome manuscripts that connect methods, scales, and traditions when doing so helps answer systems-level ecological questions. We welcome work that clarifies mechanisms, reveals constraints, diagnoses fragility, explains transformation, identifies principles, or builds better ways to infer and predict ecological systems.

The aim of *Systems Ecology* is not simply to create another venue for ecological papers. It is to help build an intellectual home for ecological research through systems science: a place where publishing is organized around questions, evaluation is organized around contribution, review is organized around improvement, and access is organized around the needs of science. We do not expect this editorial to define systems ecology. We hope it instead helps create a place where the field can continue defining itself through the questions it chooses to ask.

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