



# ECOLOGICAL MODELLING

International Journal on Ecological Modelling and Systems Ecology

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### DESCRIPTION

The journal is concerned with the use of **mathematical models** and **systems analysis** for the description of **ecological processes** and for the **sustainable management** of **resources**. Human activity and well-being are dependent on and integrated with the functioning of ecosystems and the services they provide. We aim to understand these basic ecosystem functions using mathematical and conceptual modelling, systems analysis, thermodynamics, computer simulations, and ecological theory. This leads to a preference for process-based models embedded in theory with explicit causative agents as opposed to strictly statistical or correlative descriptions. These modelling methods can be applied to a wide spectrum of issues ranging from basic ecology to human ecology to socio-ecological systems. The journal welcomes research articles, short communications, review articles, letters to the editor, book reviews, and other communications. The journal also supports the activities of the [International Society of Ecological Modelling \(ISEM\)](#).

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### AUDIENCE

Ecologists, Biologists, Applied Mathematicians, Engineers, Environmental Managers, Systems Analysts, and any others who develop and use ecological models to understand and manage environmental resources.

### IMPACT FACTOR

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## ABSTRACTING AND INDEXING

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### INTRODUCTION

The journal is concerned with the use of mathematical models and systems analysis for the description of ecological processes and for the sustainable management of resources. Human activity and well-being are dependent on and integrated with the functioning of ecosystems and the services they provide. We aim to understand these basic ecosystem functions using mathematical and conceptual modelling, systems analysis, thermodynamics, computer simulations, and ecological theory. This leads to a preference for process-based models embedded in theory with explicit causative agents as opposed to strictly statistical or correlative descriptions. These modelling methods can be applied to a wide spectrum of issues ranging from basic ecology to human ecology to socio-ecological systems. The journal welcomes research articles, short communications, review articles, letters to the editor, book reviews, and other communications. The journal also supports the activities of the International Society of Ecological Modelling (ISEM).

### *Types of contributions*

Before submitting an article to Ecological Modelling please read carefully the editorial policy which can also be found on the ECOMOD homepage. [Editorial Policy](#)

1. Original research papers (regular papers)
2. Review articles
3. Short communications
4. Letters to the Editor
5. Book reviews
6. News and announcements
7. Viewpoint

*Original research* papers should report the results of original research. The material should not have been previously published elsewhere, except in a preliminary form.

*Review articles* should cover subjects falling within the scope of the journal which are of active current interest. They may be submitted or invited.

A *Short communication* is a concise but complete description of a limited investigation, which will not be included in a later paper. Short communication should be as completely documented, both by reference to the literature and description of the experimental procedures employed, as a regular paper. They should not occupy more than 6 printed pages (about 12 manuscript pages, including figures, tables and references).

*Letters to the Editor* offering comment or useful critique on material published in the journal are welcomed. The decision to publish submitted letters rests purely with the Editor-in-Chief. It is hoped that the publication of such letters will permit an exchange of views which will be of benefit to both the journal and its readers.

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## Submission checklist

You can use this list to carry out a final check of your submission before you send it to the journal for review. Please check the relevant section in this Guide for Authors for more details.

### Ensure that the following items are present:

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### Further Details on Editorial Policy

#### Editorial Policy Ecological Modelling

We most recently provided a thorough framework for authors in an editorial published in 2006 (Jørgensen et al. 2006). The editors have followed this framework in deciding which papers are within the journal scope. Due to the large increase in the number of submissions during the ensuing years, we have had to maintain a fairly strict interpretation of this scope, and as such the rejection rate has increased. Some authors may not be aware of this framework so it is repeated below.

1. All papers must present a new model or a new contribution to systems ecology.
2. Papers based on the use of statistical analyses on ecological data cannot be accepted. There are other journals that publish the use of statistics in ecology.
3. Papers that apply an existing model to a new case study will not be published as research articles. Unique case studies can be published as a short communication (a few pages only) but are more appropriate for specialty or national/regional journals.
4. Papers should include the support of ecological data for calibration and validation.
5. All papers should highlight the model's novelty compared with previous models focusing on the same or approximately the same topic and ecosystem. The readers inevitably will ask: why should I use this new model and not an existing one?
6. The journal is called Ecological Modelling, which means that we want to publish papers on models of ecosystems or ecological processes, not models of physical or technological systems. For example, models of strictly atmospheric, chemical, or hydrological systems have other outlets. The models

should bring new ecological knowledge and should emphasize the ecological implications of the model results. There is rapid rise in the need for integrated socio-ecological models which fall within the journal scope, but the focus must be on the ecological aspects not the sociological or economic.

7. New results in ecological theory are welcome, but the authors must emphasize the paper novelty. The papers must present how the paper expands our knowledge and if possible how we can utilize this new knowledge in ecological modelling or in our general understanding of ecosystems.

8. New results in modelling theory are also welcome; but with the implications of an ecological model that has been improved by this new modelling theory.

9. New controversial results are also welcome. We do not have in Ecological Modelling an editorial policy to reject papers that are not in accordance with orthodox theories. On the contrary, we encourage new ideas even if they are controversial because that will inevitably lead to new scientific results. In this context, you have the possibility to publish a letter to the editor, which can be used to start a discussion among the readers on new but still not fully accepted ideas.

This refined editorial policy is encapsulated in the following short questions, which are applied during the review process:

- (A) Does the paper focus on an ecological model or on systems ecology?
- (B) Are the results original and novel?
- (C) Does the paper clearly emphasize the scientific progress compared with existing literature?
- (D) Are the results based on ecological observations?
- (E) Is the ecological component sufficiently strong?

All five questions must be answered by "yes" for a paper to be considered for publication. Papers not meeting these standards will be rejected by the handling editor prior to external peer review.

In addition to these five questions about the content of the paper, the following questions focus on the presentation of the results:

- (F) Has the model been presented by a conceptual diagram?
- (G) Has the model been presented in such details that the reader is able to develop the model? In Ecological Modelling "Material and Methods" is the model. Note, this does not mean that computer code must be in the text of every paper, but enough information should be given.
- (H) Are the state variables, forcing functions, and the parameters clearly defined and dimensionalized (preferably in a table)?
- (I) Are the equations presented in sufficient detail? Should they be presented in an appendix (or on-line)?
- (J) Are all relevant references included?
- (K) Does the discussion focus on the scientific progress in ecological modelling (question C)?
- (L) Is the paper well written and the English language presentation clear?

These seven presentation questions will be considered in the review process, and if some of the questions will be answered by "no", then minor, moderate, or major revisions will be required. We would like to encourage the authors of papers to be submitted to Ecological Modelling to use these 12 questions (A-L) when they are reviewing their own paper before submission to reduce the probability for rejection. If one of the questions A-E will be answered by no, then Ecological Modelling is not the right scientific journal for your paper.

We hope that this editorial policy will result in the submission of higher quality papers because the authors will know before submission if a paper fits to the editorial policy of Ecological Modelling. The end result will be a higher quality journal, which benefits both authors and readers.

## References

Jørgensen, S.E., Fath, B.D., Grant, W., Nielsen, S.N. 2006. The editorial policy of Ecological Modelling. *Ecol. Model.*, 199(1), 1-3.

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Submission of an article to ECOMOD implies that it is an original submission which has not been published previously or has not been submitted to any other journal. All authors must suggest 4 reviewers on submission, together with their full addresses and email details. The suggested reviewers should not be a colleague, a close collaborator or in the same institutional location as the author(s). Before submitting a manuscript to ECOMOD, please carefully read the Editorial Policy that can be found at the journal website. Be sure that the answer to the following five questions concerning the content of the manuscript is Yes:

- Does the paper focus on an ecological model or on systems ecology?
- Are the results based on ecological observations?
- Is the ecological component sufficiently strong?
- Does the paper present new results in ecological modelling or in systems ecology?
- Does the paper clearly emphasize the scientific progress of results in ecological modelling or systems ecology compared with our established knowledge and with previously published results?;

As outlined in the Editorial Policy, all submissions will be reviewed according to the following criteria:

- Has the model been presented by a conceptual diagram?
- Has the model been presented in such details that the reader is able to develop the model?
- Are the state variables, the forcing functions, and the parameters clearly presented?
- Are the equations presented in sufficient details? Should the equations eventually be presented in an appendix (or on-line)?
- Are all relevant references included?
- Is the discussion also focusing on the scientific progress in ecological modelling?

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State the objectives of the work and provide an adequate background, avoiding a detailed literature survey or a summary of the results.

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Provide sufficient details to allow the work to be reproduced by an independent researcher. Methods that are already published should be summarized, and indicated by a reference. If quoting directly from a previously published method, use quotation marks and also cite the source. Any modifications to existing methods should also be described.

### *Theory/calculation*

A Theory section should extend, not repeat, the background to the article already dealt with in the Introduction and lay the foundation for further work. In contrast, a Calculation section represents a practical development from a theoretical basis.

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Results should be clear and concise.

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This should explore the significance of the results of the work, not repeat them. A combined Results and Discussion section is often appropriate. Avoid extensive citations and discussion of published literature.

### *Conclusions*

The main conclusions of the study may be presented in a short Conclusions section, which may stand alone or form a subsection of a Discussion or Results and Discussion section.

### *Appendices*

If there is more than one appendix, they should be identified as A, B, etc. Formulae and equations in appendices should be given separate numbering: Eq. (A.1), Eq. (A.2), etc.; in a subsequent appendix, Eq. (B.1) and so on. Similarly for tables and figures: Table A.1; Fig. A.1, etc.

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