

Writing a scientific paper

The Players

Motivation of Editor – Personal prestige and advancement. Improve the overall reputation and ranking of journal by citation index. The underlying reasons related to control of the quality of information that is considered to form the basis/underpinning for a particular discipline. **Referees** have less at stake in the journal itself but are motivated by the same things. Choosing an Editor – Good scientist who has demonstrated good judgment, consistency and reliability.

Motivation of Authors - Young authors want to publish scientific papers to build their CV. After they become established they want to improve their reputation as a scientist (improve their citation rating), influence the scientific direction of a field and finally changes to management, practices and policy. Make new/innovative findings, develop new models of processes. How is this done? Ask good research questions. Write clear, concise and innovative papers. Publish work in the best journals possible. Attend conferences to verbally present work.

Motivation of Readers - Want to get a new understanding of a discipline. Want efficient transfer of knowledge. Select best/most appropriate journals to scan for this knowledge. Look for articles on the correct topic (title, key words, search engines). Scientists then read (cite) articles that are clearly written and convey a clear message/contribution.

How to write a scientific paper (article on new findings):

Selection of a Journal: What is the readership of this journal compared to the topic of your paper? Does this journal have a history of publishing similar work? Status of the journal in the field that you work (vs. the quality and innovation of the paper you are writing).

Title: Short, informative of what is in the paper. Source of key words. Interesting.

Abstract: Very important, as it is read by more people than the text. Brief statement of objectives and methodology. Summary of key findings. This should be informative (numbers and directions) not just “We discuss the results of this experiment.” Limit abbreviations. Provide scientific names of species. Severely limit speculation.

Introduction: Provide the context of the system that is studied. Intro should lead the reader to believe that the objectives of this paper are logical, and needed to advance the knowledge of this field. Cite the best and most pertinent literature to provide the background for the objectives of the paper but lead the reader through the topic yourself. Do not cite every paper in the discipline (article vs. review). Hypotheses should be identified. Introduction should end with a clear statement of the objectives of the paper.

Methods: What did you do? Make it logical, easy to follow and well-planned. Chronological and development sequence are essential for the reader. Provide clear

indication of experimental design and the statistical models. (The work may be correct but if the referees cannot follow it, it will be rejected). Provide diagrams of complicated equipment or designs.

Results: A presentation of what you found. Use statistics to support the increased understanding of the biological or environment coming out of your experiment. Use same graphic style throughout. Use tables and graphs but do not duplicate their content. Make sure that captions and footnotes to tables are complete and logical. Set up your results in a logical order to fit the structure of your most important findings and ultimately the way that your Discussion will be developed.

Discussion: Discuss the important findings of your study, their implications, and how they contribute to the field. Link finding back to objective statements. Readers expect you to discuss the big findings at the beginning of the Discussion. Early in the Discussion, make sure that the reader (referee) understands the scientific contributions of the paper. The lead sentence in every paragraph should be related to your results. Discussions are usually at the conceptual level compared to the technical level of the Methods and Results section. Only bring in literature to compare and contrast to your findings (article vs. review). Discussions are places to present a limited amount of speculation about the results, provided that the reader knows you are speculating.

Conclusions: Overview of findings. Editors do not like long conclusions that simply repeat the abstract or the discussion. In long and complex papers there will be a need for review of the findings. In situations where the Results and Discussion are combined a Conclusion section is almost always needed. Concluding paragraphs often cite an even higher level of implication of the work to policy or management.

Canadian Journal of Forest Research Handling Procedures

Internal working of journal: At submission the editor assigns the manuscript to the most appropriate Associate Editor (AE) (one of 30+).

The AE selects referees and forwards the names to the Journal office.

These are then contacted and the paper is sent to them for evaluation. A <1 month turnaround is targeted but it often takes 2 months.

Once the reviews are in they are bundled up and sent to the AE for recommendation. The referees provide advice about the disposition of the manuscript but the Editors make the final decision about the fate of the manuscript. The AE writes a letter of recommendation for acceptance (and the type of revisions needed) or the reasons it should be rejected.

The Editor then sends this letter, the referees' comments, and any other additional comments to the author. I there are any specific comments by the Editors, make sure that you take these very seriously – these are the critical issues identified by the Editors.

Once the revised manuscript is returned, the Editor or AE will examine the manuscript to determine if the most important issues have been addressed or refuted. Editors do not

like to be taken lightly. Through this process remember that this is your paper and you should agree with what it says.

The aim is to have time from submission to acceptance to be < 150 days.

Copy editors go over the manuscript after it is accepted. Galley proof stage.

Handles ~ 700 manuscripts/year. 55% rejection.

Common Reasons for Rejection

The paper does not make sufficient contribution to the discipline.

The manuscript does not have a testable hypothesis. It is purely descriptive of a phenomenon in a field which already has a lot of descriptive work.

The manuscript has experimental design flaws (wrong statistical procedures, pseudo-replicated).

The manuscript is poorly written and needs substantial work before it reaches the communication standard of a journal (grammar, spelling sentence structure, organization, too long and unfocussed). Don't expect editors and referees to polish up your paper for you.

The authors fail to address the referee's comments.

Writing issues:

Write as simply, clearly and logically as possible. Authors must judge everything that they write in terms of how a reader will see it - be considerate of your readers. Spend the time on the work to make sure that this is so. Sentences and paragraphs should not be puzzling. If it is not well-written it is more likely to be rejected or ignored if published. Keep the papers as short and simple as possible. Design experiments that are as simple as possible. E.g. 4 way ANOVAs.

Avoid data series ending with respectively. Avoid jargon.

Avoid excessive use of nouns as adjectives in strings. E.g. 'trembling aspen sample tree mean characteristics' or 'large fine particle size fraction' or '*Armillaria ostoyae* root disease antagonistic bacteria'

Ethical Issues

1) Honesty in data collection, analysis and interpretation.

2) Plagiarism.

3) Duplication of work and unnecessary splitting of projects into several papers (salami science).

Authorship: (design, proposals/funding, data collections, trouble shooting, analysis, writing).

