

## Some guiding ideas writing interesting, publishable manuscripts

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Scientists might have the impression that journal papers aim to report the outcomes of experiments. That goal is only a piece of a larger endeavor, an endeavor that strives to take a grand, overall story and provide a new chapter for the benefit of colleagues. The strongest, most effective papers recognize the context of new investigation within the larger story, and convey new insights that enhance the fuller story.

All writing is story telling, and all good stories share some features:

- a) Capturing the interest of readers;
- b) Conveying information with a clarity that lets the threads of the story show clearly; and
- c) Using the new insights to lead the reader to a better understanding of broader themes.

The best papers use introductions to attract and captivate reader interest. Why should a reader spend her time trying to understand this science paper? Statements like, “not much is known about this tiny aspect of forest science” do not catch attention as much as others such as, “this small aspect of forest science may have large implications for the forest science you care about most.” Not all research projects in fact do have substantial implications for forest science, so the first step in effective science writing is developing experiments with the potential to be important.

A core aspect of the best projects is the “population of inference.” How far can the results of an experiment be applied? This population is large for studies that sampled and experimented across large regions, and for studies of processes that apply without much variation across many forests. Not many readers find large value in papers that elaborate details of a local case study that may not give insights for any other locations or times.

Even strong experiments may be of low value to readers if the presentation fails to tell a clear story. Common problems that obscure the value of papers include:

- a) Presenting too much information, diluting the information that is central to the story;
- b) Relying on tables to convey information, when figures would reveal patterns more effectively;
- c) Littering the prose with redundant, unnecessary statistical clutter (including too many  $r^2$ 's, p's, and F's); and
- d) Asking readers to learn new abbreviations or acronyms, when perfectly good whole words convey information more simply.

Good stories need to link what happens at the beginning with what happens at the end. If the experiment sets out to test an overall hypothesis, readers expect to have a clear statement that the hypothesis was supported or refuted by the experiment.

Good stories are only as complex as necessary. How often do authors use what they think are the most powerful, most rigorous statistics – but these methods fail to give clear, understandable insights about the subject of the paper? Simplicity can provide the sort of clarity that readers value in trying to understand stories.

Some useful background for the workshop include an editorial on key points in designing experiments (<http://www.elsevier.com/inca/publications/misc/keypointsindesign.pdf>), and a video of an earlier presentation on how to design and publish strong research projects (<http://www.journals.elsevier.com/forest-ecology-and-management/author-workshop/forest-ecology-and-management-author-workshop>).