Writing Restoration Reports

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Originally written in 1999 by Richard Hebda with suggestions from Don Eastman and David Polster

Introduction

Written restoration reports are a requirement for most restoration projects and many courses in the Restoration of Natural Systems Program at the University of Victoria. They provide a clear and lasting way of communicating about restoration to clients, students and the public. Students search for past reports and build on the good work and effort you have put in. Clients use reports to judge progress and success of projects, justify approving or withholding payment, and make decisions about further steps. Community groups, government bodies and others often look to the raw data and recommendations in a report. In other words, it is important not only for your mark in a course, but society at large, that you learn how to write a good restoration report.

There is no widely accepted standard format for a restoration report, rather there are numerous models ranging from scientific papers, to consultant reports to essays. This brief guide suggests a structure for a restoration report derived largely from the model of a scientific paper. This model emphasizes the presentation of rigorously collected data followed by a clear analysis and explicit recommendations. *The guide also provides a brief overview of the differences in expected components between a restoration report and other kinds of restoration documentation* (see the **Helpful Hints** section, **Figure 2** specifically).

This guide is not intended to teach you how to write. Several books with excellent advice on this topic are available in the UVic library. Examples include:

- Fowler, Alastair. How to write. Oxford University Press, 2006.
- Heard, S. B. (2022). The scientist's guide to writing: how to write more easily and effectively throughout your scientific career. Princeton University Press.
- Kostera, M. (Ed.). (2022). How to Write Differently: A Quest for Meaningful Academic Writing. Edward Elgar Publishing.

However, we have included a few key suggestions on structure and narrative flow to give quick tips on good writing practices.

This outline is a guide only. Clients, such as government agencies often have specific formats that you must follow. However, the general points concerning content and style apply to almost all reports in restoration work. As a last important note, be aware that when writing from alternative worldviews or project contexts (for example, in Indigenous-led restoration projects), this formula and structure usually is not appropriate.

General Comments

Restoration reports in a western or scientific framework should be viewed as reports in which data, collected in as "objective" manner as possible, are clearly presented and the basis and reasons for the recommendations are well explained. Content should be organized in a standard and predictable manner and written clearly. When writing, consider these important points.

- Clear thinking helps with clear writing. Sort out your data and ideas and how they relate, before beginning your report.
- Organize ideas into a logical sequence from observations to conclusions.
- Use a simple overall structure with short headings to help the reader follow your ideas.
- Use clear words and sentences. Complex ideas can be expressed clearly in words and by using diagrams and tables.
- Avoid unnecessarily flowery language; but punchy or interesting phrasing may bring a smile to a reader and reinforce their wandering attention.
- All writing is a form of story telling, even reports. It might not be high literature, but to be literate, it must thoughtfully and easily guide the reader through the sequence of ideas or events it is trying to communicate.

Narrative flow

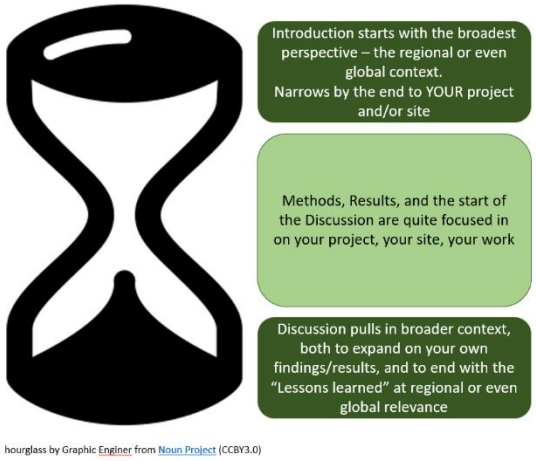

Figure 1: The writing hourglass shows how you can start broad, narrow in to your work, and end broad again. It's a common narrative structure in reports and scientific publications.

Many writing lessons start with the hourglass idea (**Figure 1**), and this is good advice for most reports – start general, get more specific as you narrow to your individual topic or project, then by the end of the discussion get broad again. This has to be interpreted at the scale of your project. What does "broad" mean? Is it contextualizing a threatened ecosystem or species, and then narrowing to point out that your site contains those elements? Is it discussing loss of biodiversity across your urban area, and emphasizing why that means your green roof project is particularly important? Is it discussing the history of a watershed, and narrowing to how much community care and investment rests in your site? The context is key, but you get to decide what that context is exactly.

Your paragraph structure is also very important to telling your story well. Each paragraph should capture ONE idea. This can be in a topic sentence, or not, but the reader should be able to state in one sentence what the paragraph is about. Then there should be at least three sentences developing and expanding the idea. Each paragraph should lead to the next, in the same way that when you're talking to a friend, one sentence leads logically to the following sentence (most of the time!).

Headings for a Report

The usual headings included in a report are:

- Title
- Abstract or executive summary
- Introduction
- Methods and materials
- Results and interpretation
- Discussion and recommendations
- Acknowledgments
- References

Title

Use simple wording, avoid words such as “and & the” in a title. The reader should get a good sense of what to expect from the report by reading the title.

Abstract or executive summary

The abstract is a very important component of the report. It provides a concise overview of the project, its purpose, method, and findings. That is, it summarizes what was studied, why, how, and what were the findings and recommendations. Usually there should be one to three sentences each on the why and how of the study, followed by three to four sentences of summarized observations (=data) followed by two to four sentences of recommendations (about ¼ to ¾ of the abstract).

An abstract must be brief, but concise and comprehensive. In some cases, it is all that may be read of a report (in cases such as contract competitions); therefore, it is important to be as clear and comprehensive as possible. Length should be about 250-300 words. Do not write the abstract as an introduction — these are separate sections. NOTE: Do not write “… will be discussed” or “… recommendations will follow” etc. Include a summary of the discussion and recommendations.

Introduction

The introduction serves as a background and sets out the purpose of the report and should be:

- written in the present tense;
- define the nature and scope of the problem being investigated;
- give a general sense to the approach of the project;
- refer to other reports if pertinent, i.e., those that are similar in scope (topic, site) to this project (similar to a literature review);
- refer to the scientific literature if pertinent
- must include clearly stated project goals and objectives; these can even be given a separate section to delineate them more strongly

Methods — What was done?

The methods section covers all of the work that you did, often in chronological order or grouped by overarching activity type. It almost always starts with a site description (and map). It should:

- use the first-person and past tense. Be objective.

- clearly identify what approaches were used including how measurements were made, how identification of flora/fauna was carried out according to what published standards, what samples were taken and how.
- include enough detail so that someone else could do the same work.
- refer to standard methodology, which should be sound and reliable. Include an actual reference (report, text book, scientific paper) that describes the method wherever possible.
- include notes on site assessment, use of professional consultants, consultations with experts, community members etc.
- describe how physical and biotic data were collected, how public input and individual consultations carried out, and how the various types of information were gathered and by whom.
- describe community engagement methods, if present

Results and outcomes

This section covers the results of surveys, data collection, *etc.* Additionally, it should discuss the results of the restoration work - who ended up being involved; how many events were there; how many plants were planted; what was the survival rate and/or growth rate of the plants; *etc.* This section should:

- be in past tense
- describe what you found
- summarize high points
- be concise, use tables, graphs, maps, site drawings, diagrams, photos, and lists (pertinent lists can be inserted here, others in the appendix).
- the results are NEW knowledge, or a NEW SYNTHESIS of old knowledge, upon which the recommendations are based
- generally do not include interpretation- leave that for the discussion

Use appendices for material that may have been gathered that is not to be directly used in the report (*e.g.*, data sheets; photos; actual data). Such material may prove to be useful to others in the future. Or perhaps report readers may see trends or patterns that you did not. Your data provide a reference condition for future work at the site.

Discussion and recommendations

This section touches on the important results, interpreting them and linking them back to your project goals and objectives. Was the project successful? This is also where you can compare your findings and outcomes to other projects or studies. It should end with your recommendations for next steps, and any broader connections to regional or global work. The section should:

- present an overview and discussion of the results and your interpretation.
- compare your results to data and models from other studies; are they same or different?
- identify strengths, weaknesses and gaps in your methodology or results.
- explain the meaning of the results within the context of the report.
- outline the steps to be taken towards meeting the objectives.
- provide recommendations — these often appear under a separate heading.
- present recommendations in chronological order — that is, in the order in which they should be taken.
- include how monitoring will be done.

Acknowledgments

Always give credit to those who have helped you.

References

These provide an acknowledgment of other people's work, texts, publications, and ideas. They give the reader access to additional data and other information. Include scientific papers, identification books, descriptions of standard methods, other restoration reports pertinent to this site, data files, maps, photos, *etc*. These should be cited in the text using scientific standards (see the Chicago Manual of Style for details if you are uncertain what this means). Then all cited references should be listed in full here, generally in alphabetical order. All material not collected or developed by you should be referenced. Do not include references to publications not directly cited in your report. Please use standard organization and format for references by following the examples in scholarly journals (*Canadian Journal of Earth Sciences*, *Botany*, *Zoology*, *Restoration Ecology*, *etc.*) or use one of the style manuals as a guide.

Helpful Hints

These sections listed above don't always apply, and they generally don't apply to different types of restoration documentation (**Figure 2**). Remember that flow and logical organization are the highest priority, so if you need to have different section headings, have different section headings! A few extra things to consider:

- in general, a restoration report should always include a map with place names mentioned in the text, latitude/ longitude, topographical map number or other reference, north arrow and a scale.
- use tables to present or organize data in text, or put the data into appendices and summarize with figures (better option!).
- use figures! Figures/plots of data, schematic diagrams, illustrations of the plans and work, conceptual diagrams of processes in ecosystem, climate diagrams, whatever is useful to convey what you mean.
- don't over-figure the text. Choose them wisely, and make sure they are meaningful.

There are copies of student restoration reports available online for helpful models.

Site reports / restoration planning studies

Description

- Observations and knowledge of the site, often collected as remote and field data
- Generally includes figures, plots, charts, tables, maps, or some other visual components

Comparison

- Places data in a broader framework
- Compare the data to what you and others already know
- Can include a connection with existing ecosystem classifications or descriptions regionally

Interpretation

- Draw conclusions from the comparison
- What is expected or unexpected about the site?
- What does the comparison mean? What may be causing what you've seen?

Application

- What should be done based on the findings above?

Restoration proposals

Context and problem

- Context of problem and/or site
- Description of problem
- Description of site (include map where possible)

Project goals and objectives

- State goals and objectives clearly

Project partners

- List active partners

Methods

- Basic methods to achieve objectives

Timeline

- Timeline of objectives with corresponding methods

Expected budget

- Expected expenses
- Expected sources of funding/support

Expected outcomes

- Deliverables
- Indirect or broader outcomes

REMEMBER: Despite needing lots of detail, these should be relatively short, usually 2-4 pages max.

Restoration reports

Abstract / Executive summary

- Include main idea from each of the four major components – the intro (set the stage; include the project goals!); the methods (what you did); the results (how it worked); and the discussion (what it all means)

Introduction / Background

- Context of problem and/or site
- Description of problem
- MUST include project goals and objectives

Methods

- Site description (with map!)
- Describe methods of project, in the same order as the objectives listed in the intro

Results

- What did you find?
- What did you achieve in total?
- How well did it work?

Discussion / Conclusion

- What worked or didn't and why?
- What did you learn?
- What are the next steps/recommendations?
- What does it all mean, project-specific but also regionally and even globally?

REMEMBER: Restoration projects are often steps of survey, and then recommendations, and then do the work, and then measure the outcomes. That means you may not follow a strict single methods followed by singles results section. Go with what makes sense for your project! Don't sacrifice good communication in order to stick to these headings and order.