

WRITING MANUAL AND STYLE GUIDE

9th Edition
August 2007

FACULTY OF FORESTRY AND THE FOREST ENVIRONMENT

**Lakehead University
Thunder Bay, Ontario**

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Edited by

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PREFACE

Much of this manual was adopted from the Writing Manual and Style Guide (6th edition) by Yves Prévost and Anthea Kyle. The first version of a writing manual, which was accepted by the School of Forestry's Faculty Council in 1982, was prepared by N.J. Phillips, and was based on the third edition of *Format Requirements for Theses and Reports in the Faculty of Forestry, University of New Brunswick*.

The present edition has two purposes: 1) to provide a guideline for students in the Faculty of Forestry and the Forest Environment for the appropriate style and format requirements for course reports, essays and undergraduate theses and 2) to describe how students will be supported and evaluated in their writing through a Writing Across the Curriculum (WAC) program. If you have any comments about additions or corrections or requests for clarification, please contact Peggy Smith at peggy.smith@lakeheadu.ca.

ACKNOWLEDGEMENTS

Various people have worked on this manual over the years. We would like to acknowledge especially Dr. Yves Prévost, Anthea Kyle and Sandy Dunning who initially wrote and then worked to improve this Manual. Peggy Smith has been the WAC co-ordinator since 2004, compiling Manual editions 6-9. In 2006, Jane Parker was hired as the WAC consultant and she has provided new input to this edition of the Manual.

CONTENTS

PREFACE.....	II
ACKNOWLEDGEMENTS.....	III
INTRODUCTION.....	1
ABOUT WRITING ACROSS THE CURRICULUM.....	1
What is WAC?.....	1
How Does WAC Affect the Student?.....	2
The WAC Assessment Process.....	2
GENERAL DIRECTIONS.....	4
TYPING, PAPER AND SPACING.....	5
MARGINS.....	5
PAGINATION.....	5
CAPITALIZATION.....	6
ERRORS.....	6
PLAGIARISM.....	6
FORMAT OF AN UNDERGRADUATE REPORT OR ESSAY.....	7
COVER.....	7
PRELIMINARY PAGES.....	7
Report.....	7
Essay.....	7
TITLE PAGE.....	7
ABSTRACT.....	8
Keywords.....	9
TABLE OF CONTENTS.....	10
TABLES.....	10
FIGURES.....	11
BODY OF THE REPORT OR ESSAY.....	11
Reports.....	12
Essays.....	14
HEADINGS.....	15
TABLES.....	17
In-text Reference to Tables and Figures.....	17
Fitting Tables into Text.....	18
Long Tables.....	18
Table Headings.....	19
Table Sources.....	19
Lines and Spacing.....	19
Capitalization and Fonts.....	20
Footnotes.....	20

FIGURES.....	21
In-text Reference to a Figure.....	21
Fitting Figures into Text.....	21
Figure Captions.....	22
Figure Sources.....	22
Illustration of Figures.....	22
IN-TEXT LITERATURE CITATIONS.....	23
Referring to a Source.....	24
Direct Quotations.....	25
FOOTNOTES IN THE TEXT.....	27
LITERATURE CITED.....	28
What to Include in a Literature Cited Entry.....	28
APPENDICES.....	30
STYLE EXPECTATIONS.....	32
GENERAL GUIDELINES FOR REPORTS.....	32
GENERAL GUIDELINES FOR ESSAYS.....	33
WRITING CONCISELY.....	34
ABBREVIATIONS AND ACRONYMS.....	35
INTERNATIONAL SYSTEM OF UNITS (SI).....	35
HYPHENATION AND DASHES.....	36
NUMBERS.....	37
NUMBERED AND BULLETED LISTS.....	38
SCIENTIFIC NOMENCLATURE.....	38
EQUATIONS, CHEMICAL REACTIONS AND FORMULAE.....	39
USE OF "E.G." AND "I.E.".....	39
THE UNDERGRADUATE THESIS AND FOURTH YEAR PROJECT.....	41
ABOUT THE THESIS.....	41
THESIS COVER.....	42
THESIS TITLE PAGE.....	42
LIBRARY RIGHTS AND CAUTION TO THE READER.....	43
ABSTRACT.....	43
CONTENTS.....	44
FIGURES AND TABLES.....	44
ACKNOWLEDGEMENTS.....	44
INTRODUCTION OF THE THESIS.....	44
LITERATURE REVIEW.....	46
BINDING.....	47
THESIS GUIDELINES.....	47
FOREST CONSERVATION FOURTH-YEAR PROJECTS.....	51
APPENDIX I EXAMPLE OF A REPORT TITLE PAGE.....	53
APPENDIX II EXAMPLE OF AN ABSTRACT.....	54
APPENDIX III EXAMPLE OF CONTENTS.....	55

APPENDIX IV EXAMPLE OF LIST OF TABLES	56
APPENDIX V EXAMPLE OF LIST OF FIGURES	57
APPENDIX VI EXAMPLE OF A TABLE WITH TEXT.....	58
APPENDIX VII EXAMPLE OF A FIGURE IN THE TEXT.....	59
APPENDIX VIII STYLES FOR IN-TEXT CITATIONS AND QUOTATIONS	60
APPENDIX IX EXAMPLES OF LITERATURE CITATIONS.....	62
APPENDIX X EXAMPLE OF A LITERATURE CITED SECTION	69
APPENDIX XI AVOIDING WORDY CONSTRUCTIONS.....	70
APPENDIX XII USING SI UNITS AND NUMERALS.....	72
APPENDIX XIII EXAMPLE OF A THESIS COVER PAGE.....	76
APPENDIX XIV EXAMPLE OF A THESIS TITLE PAGE	77
APPENDIX XV EXAMPLE OF A LIBRARY RIGHTS STATEMENT	78
APPENDIX XVI EXAMPLE OF A CAUTION TO THE READER.....	79

If you have writing skills ..., come and talk to me because I probably have a summer job for you.

Peter Barynin, Forest Sector Competitiveness Secretariat
Ontario Ministry of Natural Resources, 2006

INTRODUCTION

This manual provides details of the format to be followed by students in the Faculty of Forestry and the Forest Environment when they are submitting essays, technical reports, undergraduate and graduate theses. Term papers and written assignments should meet the standards set out in this book. Use the checklist on the back inside cover to help you familiarize yourself with the basic format and style requirements.

Individual professors may indicate format and style preferences that they wish students to follow. If you are in doubt, check with the professor for whom you are preparing material, and follow the professor's preferred writing guidelines.

ABOUT WRITING ACROSS THE CURRICULUM

What is WAC?

In 1996, the Lakehead University Faculty of Forestry and the Forest Environment initiated its Writing Across the Curriculum (WAC) program for its students. The intent of WAC is to improve communication skills by providing more and varied occasions in all forestry courses for students to write and speak publicly. Rather than having students take a first-year writing course offered by the English department, a writing consultant was hired to support students as they work to meet the communication needs identified by forestry faculty and industry professionals. Working together, professors and the writing consultant design writing and speaking assignments to offer a more integrated

program that addresses specific skills and offers increased feedback and support to students.

How Does WAC Affect the Student?

The Faculty applies the WAC approach in all of its courses; however certain courses over the first three years of both the HBScF and BES/HBES programs are designated as WAC courses in which students must achieve a pass. By 4th year, students are expected to have reached a satisfactory writing level. The WAC courses are Forestry 0190, 0290 and 0390. Students must register in these courses. Student achievement (pass or fail) is assessed in the following courses for each program:

HBScF (Regular and Co-op) - Forestry 1050 (F0190), Forestry 2210 (F0290) and Forestry 2130 [Genetics—will be renumbered as 3rd year course] (F0390)

BES and HBES - Forestry 1050 (F0190), Forestry 2210 (F0290) and Forestry 4213 (F0390)

Students are coached and assessed in writing skills by instructors of the Faculty of Forestry and the Forest Environment and the Writing Consultant.

The WAC Assessment Process

1. The instructor for the designated WAC course will assign each paper a mark using his/her rubric.
2. When the instructor finds a student's writing is below expectations because of style, writing correctness, organization and/or format, the student will be referred to the writing consultant. Using the paper as a teaching tool, the writing consultant will work

with the student to identify communication problems and undertake a review to improve writing techniques.

3. Reassessing the student's WAC level could take one of the following forms:
 - a) The student could be given the option of writing a shorter paper, under the supervision of the writing consultant, which would be used to reassess the WAC level.
 - b) The student's writing could be reassessed on a subsequent class assignment.

Whether the instructor gives the student the opportunity to upgrade his/her mark on the original paper would be the decision of the individual instructor.

GENERAL DIRECTIONS

The following items are mandatory format details, and although they seem inflexible, they are typical of the requirements you would have to follow if you were to submit a paper for publication to a refereed journal. Get used to these few details; they are constants in your undergraduate documents. If an individual professor's preferences vary from what is presented here, follow the professor's preferred guidelines.

Not all formatting and grammar issues are addressed in this manual. You may want to consult other sources for further direction. Two recommended references are:

Anonymous, 1997. *The Canadian Style: A Guide to Writing and Editing*. Dundurn Press Ltd., Toronto, Ontario. 312 pp.

Style Manual Committee, Council of Biology Editors. 1999. *Scientific Style and Format. The CBE Manual for Authors, Editors and Publishers*. 6th Edition. Cambridge University Press, Cambridge, UK. 825 pp.

Most students use Microsoft Word software which has a "Style" function under "Format." You can set up and save a template with this Manual's formatting requirements so that the software will automatically do the formatting. You will then be able to spend more time on the content of your assignments, rather than formatting. Word also allows you to mark text so that a Table of Contents will be automatically generated. For tips on getting the most out of Microsoft Word, visit Microsoft Office Online at <http://office.microsoft.com/en-us/word/FX100487981033.aspx> or see Shaun Kelly's "Making the Most of Word in Your Business" at <http://www.shaunakelly.com/word/index.html>.

TYPING, PAPER AND SPACING

Essays and reports must be typewritten in plain typeface, such as Times Roman or Arial, in 12-point font. The bold function is generally not used at all, and underlining is used sparingly. A medium-weight bond paper, 21.5 by 28 cm in size, without punched holes, is to be used. Text is usually double-spaced, although single spacing should be used for quotations longer than three lines, for footnotes, in the Abstract, in some tables, in lists of tables and figures, in headings of more than one line, within Literature Cited entries, and in appendices included. Print on one side of the paper only. Avoid “hanging headings” where the heading is at the bottom of the page.

MARGINS

Set up page margins for all papers as follows:

1. Left margin: 4.0 cm (to allow room for binding);
2. Top, bottom, right margins: 2.5 cm; and
3. First order headings begin 4.0 cm from the top of the page; other headings and text begin at top margin (2.5 cm).

PAGINATION

All pages, except the title page and appendix divider, are to bear a number.

Preliminary pages that occur before the first page of the text proper are to be numbered with lower-case Roman numerals (i.e., i, ii, iii), centred at the top of the page and without embellishments (e.g., dashes, periods, parentheses). Although the title page bears no number, it is considered to be page i. Pages in the text proper are numbered

consecutively in Arabic numerals (i.e., 1, 2, 3). Numerals, also without embellishments, are centred in the top margin or header of each page, 1.27 cm from the top of the page.

CAPITALIZATION

This manual describes requirements for capitalization in headings, tables, figures and literature cited. In the body of the text, many students unnecessarily capitalize.

Capitals are required only to distinguish proper nouns from common ones.

ERRORS

Submitted written assignments are an indication of a student's academic skills and rigour, and it is the student's responsibility to ensure that submissions are professionally done. All assignments must be proofread for accuracy of data, adherence to assignment requirements and quality of writing.

PLAGIARISM

Understanding what constitutes plagiarism is the best way to ensure you have not plagiarized in your assignments. If you copy someone else's work or ideas without credit, you are plagiarizing. Plagiarism extends to sharing, word for word, the data or results of a partnered experiment in labs. To ensure that you are not plagiarizing your sources, keep careful notes when you are doing research. When writing, give credit for verbatim quotations or paraphrased ideas (ones that you have put into your own words) by citing the author and year in parentheses. When in doubt, choose the most cautious route, and cite your source. University regulations on plagiarism and its penalties are described in the University calendar.

FORMAT OF AN UNDERGRADUATE REPORT OR ESSAY

COVER

The first page of a technical report (which is optional) can be a cover that includes the title of the work and the author's name. Other than those two restrictions, the cover can be as creative as the writer wishes.

PRELIMINARY PAGES

Report

Most reports contain at least the following preliminary pages in the order given: a title page, an abstract, and a table of contents. Other pages following the table of contents are added as appropriate: tables, figures, acknowledgements.

Essay

Unless otherwise specified, essays should have a title page. Instructors might request other preliminary pages for an essay (i.e., cover page, table of contents, tables and figures), but ordinarily these are not required.

TITLE PAGE

The following information must appear on an essay or report's title page:

- title, centred, single-spaced, in capital letters, in the upper half of the page;
- author's full name, centred, upper and lower case letters, just below title;

- the following statement, with information modified to suit the submission, positioned at the middle point of the page, e.g.,

An undergraduate essay submitted in partial fulfillment
of the requirements for the degree of
(Honours) Bachelor of Environmental Studies (Forest Conservation)

or

An undergraduate report submitted in partial fulfillment
of the requirements for the degree of
Honours Bachelor of Science in Forestry

- the date of submission, centred, 8 cm from the bottom of the page
- the course number, course title and instructor's name. An example of a complete undergraduate report or essay title page appears in Appendix I (p. 53).

ABSTRACT

An abstract is an information summary of a report or thesis designed to give the reader a clear idea of the scope and contents of the longer work. Requests from outside agencies for copies of the report are made on the basis of the abstract alone, so the information must be complete and well-written. An abstract includes: 1) a full citation (author, title, date and number of pages); 2) keywords in alphabetical order, and 3) a concise summary of the contents of the report. The information summarized follows the sequence of the report itself: that is, problem/scope, methods, results, discussion and conclusions. In your abstracts, avoid general, non-specific statements such as "The implications of the results were discussed."

The first order heading, ABSTRACT, is to be capitalized and centred, 4.0 cm below the top margin. The citation of the abstract should begin 1.5 cm below the heading. The abstract itself may be single-spaced and should occupy no more than one page; an

abstract for an undergraduate report will usually be one paragraph, or approximately 600 words. A length guideline used by journals recommends that you use one line of abstract text for each page of text.

Follow these specific rules when writing abstracts:

1. Single space the full citation.
2. Skip one line.
3. Include at least three keywords in alphabetical order; single space if keywords take up more than one line.
4. Skip two lines.
5. Single space the text of the abstract (double space if text is brief).
6. Keep abstract to one page in length. Distance from the top of the first line of the title to the bottom of the last line of the text must not exceed 16.5 cm.

See page 37 for further instructions on abstracts. An example of an abstract is found in Appendix II (p. 54).

Keywords

Many journals and institutions require the author(s) to provide keywords or descriptions, and in formal reports, you will also be required to submit an abstract, with a full citation and key words. The use of keywords helps the abstractor or reader catalogue the report under the proper subject areas. Types of subject areas included in keywords are: the science or area of the report (e.g. tree biology, forest genetics), special techniques employed or developed in the report (e.g. vegetative inoculum, root regeneration potential), the name(s) of the organisms used in the study (e.g. scientific and common name-- white pine (*Pinus strobus* L.)), or the geographical region if it is

important (e.g. northwestern Ontario). Terms of more than one word (e.g. vegetative inoculum) are considered as one keyword.

These keywords, usually numbering between five and ten, are placed below the citation, separated by a line and following "Keywords." Keywords are listed alphabetically, in lower case except for proper nouns and are separated by commas.

TABLE OF CONTENTS

The Table of Contents sets forth all the subdivisions of the work. Microsoft Word will automatically generate a Table of Contents if headings have been marked using Styles. Beginning 5.0 cm below the top of the page, the list of the contents is as follows: Abstract, list of Tables, list of Figures and Acknowledgments. The table of contents continues with the headed subdivisions of the body of the report (e.g. Introduction, Materials and Methods, Results, Discussion, Conclusion), then Literature Cited, and ends with an Appendix or Appendices, if included. The titles of the Appendices are to be given in sequence using Roman numerals.

Page numbers that correspond with the table of contents entries are to be justified along the right margin, proceeding to the left as many spaces as there are digits in the number. See the example of Appendix III (p. 55) and the Table of Contents for this manual. *Note:* the cover, title page and appendix divider page are not listed in the Table of Contents.

TABLES

The list of tables titled Tables commences on a new page, with the title centred and 4.0 cm below the margin. It is a listing of the full headings of the numbered tables

used in the text. The table headings are to be listed in sequence, by number. The page on which each table occurs (or begins) is to be placed in the Table of Contents. Table captions may be single spaced, but a double space must be left between titles. See Appendix IV (p. 56) for an example of a list of tables. If you include a table in an appendix, it should not be included in the Tables. Short reports that have few tables list them in the sequence in which they appear in the Table of Contents.

FIGURES

The list of figures titled Figures normally commences on a new page centred 4.0 cm below the top margin. The figures listed must contain the complete caption (or a summary of a caption where the complete caption contains extensive explanatory material) and indicate the page number on which each illustration occurs or begins. Titles may be single spaced, but a double space must be left between titles. See Appendix V (p. 57) for an example of figures. A figure in an appendix should not be included in the Figures. Short reports that have few figures list them in the sequence they appear in the Table of Contents.

BODY OF THE REPORT OR ESSAY

Each major section of the technical report or essay following the introduction should be more or less complete in itself, and should convey a whole message on the intended subject matter. The section's scope should be outlined in a paragraph or two, and should be brought to a conclusion in such a way that it is obvious the subject matter has been presented completely. Headings must be chosen with care, and sections must

contain meaningful material that warrants their separation. Headings do not replace text; they are signposts only, and the work must read coherently without the titles.

Reports

Most reports have four divisions: 1) introductory material, which includes the necessary background and a hypothesis or purpose of the investigation; 2) the methods used to complete the investigation; 3) an account of the investigation and its results; and 4) discussion, conclusion and recommendations (if any are made). The organization and distribution of content should follow a logical sequence and should be such that each subsection represents an important division of the subject investigated and discussed. Headings used will reflect the category of material discussed.

Introduction

The Introduction should contain prefatory statements that described the subject to be investigated or researched. Normally, they briefly answer five of six “journalist’s questions:” What? When? Who? Where? and Why? The purpose of the investigation (why) is often the last statement of the introduction. As well, you may be required to have a literature review in your introduction. Presentation of methods and results should not be included in this section.

Methods

The sixth journalist’s question, How?, is developed in the Methods section, and it describes in detail the equipment and techniques used to complete the investigation. Write in your own words, but use the third person; care must be taken that no first or

second person pronouns appear. Instead, choose a passive construction to eliminate a subject; e.g. "Measurements were taken of each sample and recorded."

If any of the work involves mathematical calculations, explain where the equations come from, including sample calculations in your work. You must show that you have understood what you have done in the lab.

Results

The Results section contains objective descriptions of what was discovered through investigation. Essentially, you are answering the question: "What do the data show?" You should not comment on the results; simply report them, in paragraph form, using explanatory text and tables and/or figures. Do not begin with a table or figure. Keep the focus on reporting your findings. Tables and figures are used to support, not replace, the text. Table and figure contents must be summarized as needed for clarity. Each table or figure must be referred to in the text before it appears in the lab report. Ordinarily, the results section is written in the past tense. Begin the results sections with an introductory passage that tells readers what they will find in the section. Summarize briefly what the tables and figures will show, then proceed with detailed explanations and tables and/or figures.

Discussion

The Discussion section shows the significance of the results and contains insights into the thesis or data presented. Typically, a discussion looks at questions such as: "How do the results relate to the problem or hypothesis presented in the assignment?"

or “What are the practical applications that can be drawn from the results?” In addition, deficiencies that have come to light in the report are discussed.

Conclusion

A Conclusion is a final, brief summary of what can be drawn from the results. Major points might be restated and conclusions or solutions summarized; perhaps, recommendations are made.

Essays

Essays have three parts: 1) an introduction, which usually includes a thesis statement, literature review and background material relevant to the subject; 2) the body, where major points are identified and discussed; and 3) a conclusion, which may also explain any recommendations made, answer your thesis question clearly, and put forward a call to action.

The introduction identifies the subject and articulates the thesis. It also acts as a type of blueprint and describes the structure of the essay. It might give historical background, introduce and define key terms and include a literature review.

The body of the essay moves through the subject matter in the sequence described in the Introduction. All major points in the essay should support the thesis claim made and any supporting information should relate directly to both the major points and thesis.

The conclusion might summarize the essay, articulate the significance of the subject matter, or make recommendations based on the essay’s findings. A well-written

conclusion leaves the impression that the subject has been adequately discussed and any questions or “holes” have been covered.

If the essay is of sufficient length and complexity, headings are useful signposts for the reader and can be a valuable organizational device for the writer. However, they are not necessary and should be used sparingly as they tend to disrupt the flow of the writing. Check with your instructor about specific preferences regarding format.

HEADINGS

In technical reports, headings are used for subdivisions of subject matter within the text; thus they serve to break up a mass of text into meaningful sections and act as signposts to aid reader comprehension. Headings are less frequently used in essays, but can be useful if the information you are presenting is detailed or particularly complex. Spacing, capitalization and font are used to distinguish the six levels/orders of headings.

Follow these specific instructions when using headings:

1. Centre first order headings and place them 4.0 cm below the top of the page; other headings are placed 2.5 cm below the top of the page and 1.5 cm after previous text. (Word also uses points as a measurement. One centimetre = 28.3 points; therefore 1.5 cm = 42.5 points, 2.5 cm = 71 points and 4 cm = 113 points.)
2. Place second and third order headings along the left margin.
3. Indent fourth order headings .7 cm (six spaces) from the left margin.
4. Indent fifth and sixth order headings tab space (1 cm) from the left margin.
5. Place second to sixth order headings 1.5 cm after previous line of text.

6. Begin the next line of text 1.5 cm after the heading after first, second, third and fourth order headings.
7. When using fifth and sixth order headings, continue text two spaces after the period which ends the heading
8. Headings requiring more than one line are single spaced.

Heading sequence depends on the number of orders of headings required in the work but you should always begin with level one and move through in order. For example, if you need five types of headings, choose first, second, third, fourth and fifth. Typical first order headings include CONTENTS, LIST OF TABLES, LIST OF FIGURES, INTRODUCTION, METHODS, RESULTS, DISCUSSION, CONCLUSION(S) and LITERATURE CITED.

Headings are extras to the text, and should be removable without affecting the coherence or completeness of the text. No references to the headings should appear in the text of the report or essay. Note that in the following heading orders, bold and italic functions are not used. First and second order headings appear in uppercase letters; third, fourth and fifth orders have initial capitals on key words; and sixth order headings have only the first word of the heading capitalized. Third, fourth, fifth and sixth order headings are underlined.

The system of headings to be used is as follows:

1 st Order	CENTRED, CAPITALS AND NOT UNDERLINED
2 nd Order	CAPITALS, ALONG LEFT MARGIN AND NOT UNDERLINED
3 rd Order	<u>Initial Capitals on Key Words, Along Left Margin, Underlined</u>
4 th Order	<u>Initial Capitals on Key Words, Indented Six Spaces, Underlined</u>
5 th Order	<u>Initial Capitals on Key Words, Indented One Tab, Underlined, Ends with a Period.</u>
6 th Order	<u>First word capitalized, indented one tab, underlined, ends with a period.</u>

TABLES

A simple array of facts can be suitably presented in the text of the report or essay, either following a colon or in tabular form; however, most data are best presented in a formal table. The purpose of the table is to clarify, not confuse, and complicated data should be divided into two tables. Tables also help readers to compare factual or numerical information. Data which add to the overall presentation, but which are not necessary to an understanding of the points being made, should be included in an appendix which then is referred to in the text. See Appendix VI (p. 58) for a sample table.

In-text Reference to Tables and Figures

Although it seems redundant to do so, you must describe the tabled or figured information in the context of your report, so that when you present data in a table or figure, you also explain (briefly) the data in the report text and refer the reader to the information in the table or figure. For the reader's convenience, each table and figure is numbered, using Arabic numbers that begin the caption. Tables and figures are referred

to by number (not title) in the text. Tables or figures are placed as close to the reference as possible; no table or figure should be continued from one page to the next unless it is unavoidable.

Fitting Tables into Text

To fit onto one page, a table can be reduced in size, placed in landscape orientation, or presented as a foldout. If the table appears alone on the page, it should be centred vertically and horizontally. A table should not extend into the normal margins of the page. Pagination continues normally on pages with tables. If a table has more than one part, each is designated by a capital letter and sub-heading (which is not to be listed in the table of contents).

Long Tables

Very long tables can be presented on more than one page; in this case, the word "Table," the table number, a period and the word "Continued" in parentheses [e.g. Table 1.2. (Continued)] should be placed in the table heading position. As well, headings within the table must be repeated in full on each subsequent page. However, the bottom horizontal line is inserted only at the end of the table, not at the bottom of each page. This convention serves to tell the reader that the table is not yet complete. If data are summed for each page, the subtotal should appear at the end of the row or column on the page, and subtotals should appear at the beginning of the row or column on the subsequent page.

Table Headings

A table heading/caption should convey the nature and scope of the data presented without being too long-winded. Punctuation can be used to help convey the message (colons can be particularly useful). Table headings are placed above the table. The heading begins along the left margin with the word “Table,” followed by the Arabic number, a period and one space. The first word in the table caption begins with a capital, but no other words, unless they are proper nouns, are capitalized. The caption ends with a period.

Table Sources

A table source should be acknowledged. If the table is of data from another author’s work, the source is indicated in a parenthetical reference [e.g. (Smith 1997)] at the end of the caption. The reference does not form part of the heading caption in the List of Tables. A table source can also be referenced at the bottom of the table itself.

Lines and Spacing

Tables should be presented in the most reader-friendly way possible. Neatness, spacing, quantity and quality of information are important considerations for the writer. A table is to be separated from the text by a solid horizontal line, typed one single space below the last line of the heading. The bottom of the table is indicated by a solid horizontal line which is placed one single space below the last item in the table.

Use white space, not lines, to separate material in the table, leaving enough space between lines and columns so that data can be easily read. Judicious use of horizontal lines and spaces within and between the columns of data and their spacings should

clearly indicate how the table should be read. Avoid the use of solid (or partial) lines between the columns and rows. Vertical rulings should be avoided where the table content can be effectively presented without them.

Capitalization and Fonts

The word "Table" is capitalized; the first word in the caption is capitalized; proper nouns are capitalized. No other words in the title/caption are capitalized. The initial letter of the first words in column and row headings and sub-headings should be capitalized.

Text font should be of sufficient size and neatness for reader ease; for uniform appearance, use the same font as that of the report. Avoid using bold and italics.

Footnotes

Use superscript lower case letters (e.g. 20.6^a) to refer to footnotes for a table. If letters cause confusion (as where equations are employed), asterisks, daggers or minute numerals may be used instead; however, the recognized use of asterisks to indicate statistical significance must be respected. Footnote references appear serially from left to right, line to line, within each table. The footnote itself (and other explanatory notes if required) should be placed a double space below the bottom solid horizontal line of the table. Each letter or other footnote designation is to be indented five spaces from the table margin and is followed by explanatory text. Footnotes of more than one line should be single spaced. A double space separates two different footnotes for the same table. If a table is longer than one page, the footnote is placed at the end of the table, not at the bottom of the page where the footnote has been designated.

FIGURES

Any illustration, such as a photograph, map, drawing, chart or graph that is used in the body of the report or essay is a figure. Figures are used to graphically support the information presented. The purpose of the figure is to enhance the reader's understanding, not to decorate the page, and gratuitous use of figures should be avoided. Figures can help readers to visualize or compare data. However, as with tables, information presented in a figure that is not necessary to an understanding of the points being made, should be included in an appendix which then is referred to in the text. See Appendix VII (p. 59) for a sample figure.

In-text Reference to a Figure

As when using a table, with figures you must explain information contained in a figure in your report and refer the reader to the appropriate figures. Like tables, each figure is numbered, using Arabic numerals which begin the figure's caption, and figures are referred to by number (not title) in the text of the report. The figure referred to is placed as close to the reference as possible.

Fitting Figures into Text

The rules governing use of figures are similar to those regarding tables, so use your common sense when including figures in a report. To fit onto one page, a figure can be reduced in size, placed in a landscape orientation, or presented as a foldout. If the figure appears alone on the page, it should be centred vertically and horizontally. A figure should not extend into the normal margins of the page. Pagination continues normally on pages occupied by figures. If a figure has more than one part, each is

designated by a capital letter and sub-heading (which is not to be listed in the table of contents). Set figures off from the text with white space; borders are not necessary.

Figure Captions

A figure caption should convey the nature and scope of the data presented without being too long-winded. If it is necessary that the caption contain a legend or extensive explanatory material, then the first part of the caption is to be sufficiently descriptive to act as a title. Only the title portion of the caption is to be included in the List of Figures. Punctuation can be used to help convey the message (colons can be particularly useful). Figure headings are placed below the figure. The heading begins along the left margin with the word "Figure," followed by the Arabic number, a period and one space. The first word in the caption begins with a capital, but no other words, unless they are proper nouns, are capitalized. The caption ends with a period. Avoid using bold and italics in figure captions; use the same font as is in your text.

Figure Sources

If the figure has been redrawn from the work of another author/illustrator, then the source is to be indicated in a parenthetical reference [e.g. (Jones 1997)] at the end of the caption. The reference also does not form part of the heading caption in the list of figures.

Illustration of Figures

Consider the appearance of a diagram, chart, graph or drawing you wish to include as a figure in your report. The type of information and the quality of the graphic are

important considerations for the writer. Therefore, font size and type should be similar to that of the report or essay. If you are using a smaller font size, make sure it is easily reproduced and read. Ordinarily, colour is not used in drawings, diagrams, graphs or charts, although with the advent of inexpensive colour printer, students are often choosing figures which contain colour. Check with your instructor before inserting colour. Photographs must be mounted permanently on the page, either by gluing them or using dry mounting tissue. Do not tape photographs to the page. Another method of attachment is to cut small slits for inserting the corners of the pictures.

Letters and symbols not on your key can be hand-lettered or stencilled. Parts of figures (A, B, etc.) must be clearly identified and the parts placed in sequence for ease of reader reference, with a caption placed below each part of the figure. If a figure, because of its length, is continued on a second (or more) page, the word "Figure," the figure number, a period, and the word "Continued" in parentheses, are to be placed in the figure caption portion of each page where the continuation occurs.

IN-TEXT LITERATURE CITATIONS

The author-year system of in-text citations is used (Prévost and Kyle 2001). There is no comma between the author and year. In-text citations, which denote sources, are parenthetical and are made right after the material has appeared in the essay or report. When citing information from large works (i.e. in excess of 50 pages), it is recommended that the appropriate page number(s) appear after the year of publication to indicate where the information was located in the text (e.g. Ross 1995: 247). Some journals require this practice for all citations.

A citation in parentheses made at the end of a sentence must have a period after it because the parenthetical reference is considered part of the sentence. In this case, omit the period at the end of the quotation or paraphrase that precedes the beginning of the parenthetical reference. See Appendix VIII (p. 60) for examples of correct usage of end punctuation.

Most of the technical reports you write while at university require that you refer to existing literature related to the subject being presented. Proper use of literature is therefore an integral part of your submissions. Citing the work of others is accepted academic practice, and is done to indicate that the literature used: 1) conveys background material about a subject; 2) indicates how other work is related to the topic; 3) presents a model or method used in the work being reported; 4) substantiates a point/opinion you are expressing; and (5) provides additional information about a point. As the writer, you use the work of others to justify information/work presented, interpret results or data presented, and support ideas in the text.

Referring to a Source

A source is referred to in one of two ways: either by quoting directly or indirectly. Direct quotations are verbatim (exactly as written/said) copying of another's work, and the words are enclosed in quotation marks. Quoting directly from another is sometimes unavoidable, but it is not encouraged, especially in scientific papers (e.g. lab reports). The preferred method of using a source is to summarize or paraphrase, in your own words, the author's ideas or findings. (Paraphrases are longer summaries of a work.) Paraphrasing is preferred over direct quotation because it indicates that you have interpreted the outside source correctly and therefore have completed worthwhile

research. As well, a paraphrase written in your own words makes for a seamless writing style that is more appealing to the reader.

Direct Quotations

Be careful when quoting directly to use only the material you need. Generally, avoid using quotations to end an essay. If you do use a quotation as part of a conclusion, comment on what the author has said to bring your essay to a close.

Setting off Direct Quotations from the Text

Quotation marks are used to enclose any direct quotation or each part of a direct quotation if the quotation itself is interrupted by text. Quotations of fewer than four lines, or any quotation used as part of a sentence, should be treated as part of the paragraph in which they occur, and are simply set off from the rest of the text by the quotation marks. A quotation used as part of a sentence, other than at the start, does not begin with a capital letter (although it might be capitalized in the original) unless it forms a complete statement. Place commas and periods within closing quotation marks, whether or not they were included in the original material. For example, Ross and Smith (2002) contend that “tenure reform, and the discarding of sustained yield as the core principle of forest policies, is key to achieving these new objectives of sustainability.”

Long quotations are set off from the text through single-spacing of the lines and indenting five spaces (1 cm) from both the left and right margins. Quotation marks are unnecessary; the indentations and single-spacing replace quotation marks. The Council of Biology editors describe excerpts and quotations:

Short passages taken from another text are usually efficiently presented as quotations with relevant punctuation in the line of the text quoting them; such quotations are sometimes called “run-in quotations”. [Note that CBE uses the British form of putting punctuation outside the quotation marks.] Long passages may be more effectively presented as excerpts distinguished from the text into which they are inserted by special typographical devices, which accounts for their often being called “block quotations” or “set-off quotations”.

Use of [sic]

Direct quotations must be made exactly, except where you have modified a capital letter beginning a partial quotation that is used as part of a sentence. If an error occurs in the original quotation (for example, in spelling, grammar or data), recognize the error by inserting [sic] after the error. The word “sic” means “thus” or “so” in Latin, and you use it to indicate to the reader that you recognize an error has occurred in the original.

Use of Ellipsis

If portions of a quotation less than one paragraph in length are to be omitted, this should be indicated by using ellipsis, the use of three periods with no spaces between (...). Ellipsis is used following a period to indicate the omission follows the end of a sentence. The omission of one or more paragraphs is indicated by a complete line of alternating spaces and periods.

Citing Direct Quotations

The source for a short quotation used as part of a sentence is normally indicated as a parenthetical reference in the sentence. The source of full sentence or a longer quotation is indicated either by introductory text or in parentheses after the quotation.

Using Paraphrase and Summary

Using the actual words and ideas of another without crediting the source constitutes plagiarism. When expressing an opinion, you should find an authoritative source to support it; otherwise, the reader might suspect you have plagiarized another's work. Learning to summarize or paraphrase well is vital to your academic writing so that you offer support for your ideas and indicate to the reader you are presenting thoughtful, researched material.

Parenthetical, in-text citations are used to denote material that you are using from another source. As with direct quotations, follow the author-year method. If using a parenthetical reference at the end of a sentence, follow it with a period after the reference. Resist the temptation to put a period before the parenthetical citation; you need it after to close the sentence. There is no comma between the author and year.

FOOTNOTES IN THE TEXT

Because footnotes are not to be used for literature citations, they are used sparingly, if at all, in Faculty reports and essays. You might use them for explanatory material that is not of sufficient length or importance to include in the text proper or as an appendix; however, in many cases, the explanatory material can be placed in parentheses in the text rather than in a footnote. When a footnote is required, it should be designated with a superscript Arabic numeral without parentheses, and placed immediately after the word or statement that is to be explained. The footnote itself occurs at the bottom of the page that contains the material to be footnoted. It is separated from the last line of text by a line that is double-spaced above the first line of the footnote itself. The footnote is single-spaced and its last line of text should conform

to the bottom margin width. A double space is to be left between different footnotes on the same page.

LITERATURE CITED

The Literature Cited section, located at the end of the text (before any appendices), contains only the sources you have cited within the text of your essay or report. It is not a bibliography, so omit any works you might have researched, but did not refer to in your submission. The purpose of a Literature Cited entry is to give readers the information they need to identify and retrieve the sources you have used to prepare your document. The credibility and accuracy of your sources are therefore vital to the overall integrity of your essay or report.

What to Include in a Literature Cited Entry

Each entry in a Literature Cited section must be complete, and you should memorize the parts of a citation in case you come across a source that does not fit exactly with any of the examples provided in Appendices IX (p. 62) or X (p. 69). The first line begins along the left margin, with subsequent lines of an entry indented one tab space (a “hanging indent”). Entries are always listed alphabetically by the authors’ last names—they are never numbered.

Each entry must contain information about the author and year the work was published, as well as the title and publication details needed for the retrieval of the specific text. Include the following items in any Literature Cited entry:

- Author's last name, separated with a comma from the author's initials, followed by a period and one space (i.e., for single author, Smith, P. and for multiple authors, Smith, P., G. Scott and G. Merkel.).
- Year of publication, followed by a period and one space (i.e., 2003.).
- For books: Complete title of the work, with significant words capitalized, not italicized or underlined, followed by a period and one space (i.e., Forest Ecology.).
- For other printed matter, including journal articles: Complete title of the work, with only the initial word and proper nouns capitalized, not italicized or underlined, followed by a period and one space (i.e., Tradable land-use rights for cumulative environmental effects management.).
- Publication information: name of publisher, name of journal or longer work (if source is a chapter), or title of website page; place of publication, journal volume and number; or internet address (i.e. for book, MacMillan Publishing Co., New York. and for journal, Canadian Public Policy 28(4):581-593.).
- Number of pages in the book, page references for article in a longer work, or date of retrieval for an internet source.

Personal communications are not listed in a Literature Cited section; instead, the reference is included in the text of the report or essay. As with other citations, include the name of the author, the date the communication occurred and information on the nature of the source; i.e. lecture notes, in literature, or as a personal (oral) communication. You might choose to introduce the name of the source in the sentence itself; for example "Luckai (in lecture Forestry1050, Nov. 28, 2000)," or you might include the whole citation after the information given, "[Barnes (pers. comm., May 7, 1999)]."

You can further highlight an individual's personal communications contributions in an Acknowledgements section.

There is such a variety of source material that it is best you learn and understand the purpose of a literature citation rather than try to memorize all the different examples. Refer to Appendices IX and X for examples and scan journals for other possible examples. If you are in doubt about what information to include, keep in mind that it is better to include more rather than less information. As well, while proofreading, check to make sure that names and dates of your in-text citations match what is in the literature cited.

APPENDICES

An appendix contains material that is not integral to the report (or thesis): tabular or graphical material, a very long quotation, original documents and similar evidence or raw material. You might also include supplementary information that is too long to include in the text of the report.

The appendix section is preceded by a divider page which has the word APPENDIX (if you only have one appendix) or APPENDICES (if you have more than one), centered 10.0 cm from the top of the new page. The divider page itself is counted, but not numbered (similar to a title or cover page).

If more than one type of material is to be placed in the section, each type should be given a new section designation and its own title. Each appendix should begin on a new page, with the appendix number (usually upper case Roman numerals—I, II, etc., or capital letters—A, B, etc.), centred 4.0 cm from the top of the page. The appendix designation should be the first line of text, followed by a double space, then the title, also

centred on a second line of text. The title of the appendix is also in uppercase letters. Leave 1.5 cm between the appendix title and the beginning of the appendix. You might find this process time-consuming, but the appearance is much improved over hand-lettered titles. Refer the reader to any appendix you have included in the text by the corresponding appendix designation.

STYLE EXPECTATIONS

The Faculty of Forestry and the Forest Environment requires that students write for different purposes and occasions. By the end of your program, you will be skilled in journal, essay and technical report writing. You will have submitted both informal and formal works, you will have written alone and with others, and you will have presented your findings verbally. The different assignments will have different format and style expectations and although standards of grammar, spelling and punctuation are consistent, wording and organization of the material conform to either essay or technical report writing styles.

GENERAL GUIDELINES FOR REPORTS

Reports (for example, lab, technical, recommendation) require that the writing style follow the conventions of scientific writing: they are objective and specific in content. To achieve these requirements, reports generally adhere to the following guidelines:

- When reporting your own findings, use the past tense, but when discussing the findings of others, write in the present tense.
- The Abstract, Materials and Methods and Results sections are written in the past tense; the Introduction and Discussion are in the present tense. General truths are also stated in the present tense, but specific conclusions that are not yet considered general truths are written in the past tense.
- Until the Discussion/Conclusion, the writing is descriptive; a writer's opinion or conjecture does not occur until the objective evaluation of the findings.

- Generally, the Methods section is written in the passive voice so that the writer can avoid using *I* or *we*. It is preferable to use the word *data* as a plural; you might find it easier to remember this if you substitute the word *findings* for *data*.
- Avoid using conversational, informal language, contractions (i.e. “it is” rather than “it’s”) or colloquialisms (slang) in formal writing unless the expression is a direct quotation from another author.

Finally, remember that your submissions are public documents: edit out what you do not think others would appreciate/understand, write for your audience, not yourself, and include only information that pertains to the subject of the report.

GENERAL GUIDELINES FOR ESSAYS

Although you have had experience in writing essays, many of you will find the level of analysis expected at university exceeds your experience. Therefore, it is important that you are able to not only describe your subject or source, but also analyze or interpret the material you are presenting. A scientific essay often starts with an opinion/thesis that is then proven or explained by looking at evidence. Most often, the evidence is taken from the work of others. Your ability to summarize the work of others and apply it to your central thesis is crucial to the readability and academic worth of any writing you submit. An essay that is without peer-reviewed, academic, referenced sources is not an academic piece of writing.

The following guidelines might be useful reminders:

- Think about and clearly articulate your thesis. What is the central idea of your essay? Avoid choosing a topic that is too large or too small for the length of the work.

- Make sure that you understand the requirements of the essay: due date, format, structure and acceptable topics.
- Before beginning to write, use a point form outline to organize your material in a hierarchical fashion: the thesis/central idea is supported by main points which are explained by supporting details.
- Keep references organized: use file cards or notes with complete citations of your sources clearly marked, then organize the material by point, topic, etc.
- Spend time as soon as you get the assignment to make a work plan and jot down notes; the more you do early on, the less you will have to do at 4:00 in the morning on the due date.
- Get an outside reader (two are better!) to proofread your work; others will pick up errors you miss.

WRITING CONCISELY

In all technical writing, conciseness is a virtue. However, if you lack confidence in your researching or writing ability, you might try to compensate by over explaining or repeating your points. This type of redundancy makes for tedious reading. As well, a disadvantage of composing on a computer is that your writing tends to become unnecessarily long-winded. Watch out for “filler” constructions, language that does not contribute to understanding the topic (for example, *in other words*, *at this point in time*, *basically*, *due to the fact that*, etc.). If you are prone to wordiness, see Appendix XI (p. 70) which gives sensible alternatives for rambling expressions. If you are prone to terseness (being too concise), have someone else read your work and comment on the thoroughness of your explanations.

ABBREVIATIONS AND ACRONYMS

Abbreviations and acronyms can improve the readability of a work, but overuse can frustrate the reader. Avoid using abbreviations and acronyms unnecessarily or if you are using the term only once; as well, avoid using similar terms in close proximity. No sentence should begin with abbreviations, symbols, acronyms or numerals; neither should they be used in headings.

Widely recognized abbreviations may be used in reports and essays. However, if you intend to use an abbreviated form throughout a work, first give the full term, followed by the abbreviation in parentheses. Then use the abbreviation throughout the text. If you are using units of measurement that are preceded by a number, you may use the abbreviated form at first usage. Note that there is no period following abbreviated metric units of measurement. Dimensional units not preceded by a number must be written in full; e.g., "... measured in litres per second."

Acronyms are words formed by the combination of initial letters or syllables in a series of words: for example, Writing Across the Curriculum (WAC), and the Ontario Ministry of Natural Resources (OMNR). Notice that most acronyms leave out the periods between letters. As with abbreviations, the full name should be given at first usage with the acronym following in parentheses.

INTERNATIONAL SYSTEM OF UNITS (SI)

The *Système Internationale d'Unités* (SI) is the form of the metric system advocated by the Canadian Standards Association (CSA). This is the official system of measurement in Canada and all other metric units are considered by the CSA to be

obsolete. As a point of interest, note that the Canadian spelling is *metre*, and although your spell checker will want to change it to *meter*, the *-re* ending is preferred.

Seven fundamental units exist in SI: metre (m), kilogram (kg), second (s), ampere (A), Kelvin (K), candela (cd) and mole (mol). All other units are derived from these. It is important to use the units (only the legitimate ones), the spelling of their names, and their symbols exactly as given.

Note that “metric” and “decimal” are not synonymous. “Decimal” relates to tenth or tens whereas “metric” refers to the measurement system based on the metre. Thus, half a litre is metric but not decimal; 0.5 quart is decimal but not metric; 0.5 L is decimal and metric. See Appendix XII (p. 72) for information on using SI units and decimals.

HYPHENATION AND DASHES

Hyphens are used as structural grammatical elements and also as a publishing convention. As a structural element, the hyphen (“en dash” or short dash) is used: 1) between words in any phrase that functions as a single adjective before a noun; for example, “... a 30-m-long, 10,000-kg prototype...;” 2) after the first part of a compound when the second part is to be inferred from its occurrence in a following compound in the same grammatical unit; for example, “We never used anything brighter than a 40- or 60-watt light bulb;” and 3) between the parts of spelled-out fractions and numbers from twenty-one to ninety-nine, as in “one-third of the seedlings.”

As a publishing convention, the hyphen is used to: 1) represent a missing part of a word; for example, “She could never spell beyond *Pseudo-* in *Pseudotsuga menziesii*;” (2) indicate a syllable break at the end of a line of text; 3) demonstrate a letter-by-letter spelling of a word, as in “The instructor spelled the word: m-e-t-r-e;” 4) separate a prefix

from the rest of the word when the prefix might cause confusion; for example, “semi-integrated, non-Canadian” and 5) indicate a time period between two inclusive dates, as in “from November 12-16, 1999;” or to indicate a range between two values: “Readings were from 0-500 Kohms.”

The long dash (“em dash”) is used as a substitute for the colon, semicolon or comma, designed to give more emphasis in the sentence; for example, “ a number of formatting styles are unique to the Faculty of Forestry and the Forest Environment—in-text citations, scientific nomenclature and headings.

NUMBERS

Write out all numbers that begin sentences. Usually, numbers less than ten are written out in full regardless of their position in the sentence, unless they are part of an expression of measurement, as in decimals and SI units. Spelled-out and non-spelled-out numbers are not mixed in the same phrase except to avoid confusion, as in “five 10-kg bags and fifteen 20-kg bags.” Approximate numbers should be expressed in words. Large numbers, such as those in the millions, should be written out, but the number of millions may be given in numerals (e.g., 20 million). Dollar amounts in different currencies should be designated if the origin of the currency is unclear and may change the meaning of the amount used; for example CAD\$20 for Canadian dollars; USD\$20 for United States currency, AUD\$20 for Australian dollars and EURO\$20 for European Union.

NUMBERED AND BULLETED LISTS

In consideration of the reader, a series of statements or points may be separated by numbers or bullets. If the material is in a single paragraph, the numbers are to be enclosed in a single parenthesis without a period (see the section on hyphenation, above, for an example).

When the enumeration is by long statements or in paragraphs, then each paragraph is to bear a number, not in parentheses, followed by a period. A similar format is to be followed when a series of short items is set off from the text by a numbered list or a series of bullets.

Whatever the case, remember that point-form lists and numbered items are not satisfactory substitutes for proper English sentences. Numbered and bulleted lists are more appropriately used in reports and are almost never used in essays. Even in reports they should be used sparingly.

SCIENTIFIC NOMENCLATURE

The scientific name and authority of a species must follow in parentheses the first mention of the common name. Thereafter, the common name may be used alone. This rule applies to all flora and fauna mentioned in a work, including genus names. If the first mention of a species is in a heading or a table caption, you can give the full scientific reference in a footnote.

Note that common names are not capitalized unless proper nouns are involved; for example, black spruce (*Picea mariana* (Mill.) BSP), but Norway spruce (*Picea abies* (L.) Karst.). The Latin words used in genus and species names are underlined or written in

italics. The genus name is capitalized, but the species name is not. Acceptable abbreviations can be found in an appropriate taxonomic text.

In some works, it is preferable to use scientific names only. Then, the authorities must be given at first mention, but need not be included thereafter. Generic names occurring more than once in a single paragraph may be abbreviated at the second and subsequent mentions within the paragraph to the initial capital letter, underlined or in italics. However, do not use abbreviations where confusion between different genera with the same initial letter could occur, as with *Pinus* and *Picea* being in the same paragraph.

EQUATIONS, CHEMICAL REACTIONS AND FORMULAE

All equations, chemical reactions and formulae, unless they are brief, simple and parenthetic in meaning, are to be typed on separate lines, not run into the text. However, the equation remains a part of the text for purposes of punctuation. Short equations are centred, longer ones are begun flush at the left margin and continued (if necessary) on subsequent lines, indented two spaces. Leave sufficient white space above and below the equation to set it off from the rest of the text. If equations or formulae are numbered for subsequent reference, enclose the numbers in parentheses on the right margin, separated enough from the end of the equation to avoid confusion. When referring to an equation, use the term "Equation" and the parenthetical number, e.g., "Equation (7)."

USE OF "E.G." AND "I.E."

Although often viewed as interchangeable, the terms "e.g." and "i.e." have distinct meanings. The former, "e.g." (*exempli gratia*), means "for example" and "i.e." (*id est*)

means “that is.” Use “e.g.” when you want to give a general example and “i.e.” when only a specific example will add meaning to your explanation.

THE UNDERGRADUATE THESIS AND FOURTH YEAR PROJECT

ABOUT THE THESIS

Completion of an undergraduate thesis is a requirement for graduation with a Bachelor of Science in Forestry. A thesis presents the results of original research on a particular subject that has been approved by the student's faculty advisor. The process of selection and approval of the thesis subject matter should commence well before the end of the winter term in third year. In most instances, material for the thesis is gathered in the summer between third and fourth years. If summer employers agree to supply data, students should ensure employers understand why and how the data will be used. Any person supplying data should be made aware that a thesis is a public document and the material will not be confidential. All data to be analyzed should be completely available by October of the academic year in which the thesis is to be prepared.

Tentative approval for a topic should be obtained before the end of third year. All topics are to have final approval and advisors (major advisor and second readers) selected by the first Friday in October of the academic year when the thesis is to be prepared. A title and complete plan for development, including sources, must be submitted by the third Friday in October (preferably sooner). The title and outline can then be fully discussed and, if acceptable, approved. The student's faculty advisor will set aside a period of time each week when (s)he will be available for consultation about the thesis. Ultimately, students are responsible for informing advisors of the status of the work.

A completed first draft, done to the advisor's expectations, is to be submitted on an agreed date. A revision process continues upon the advice of the faculty advisor. Students will verbally present their findings in a faculty seminar usually held the last week of classes in the term in which the thesis is due. The final draft, typed and bound, is to be submitted by the second Friday following the end of classes. As deadlines may vary from year to year, students should consult with their advisors as early as possible in the year.

The Faculty of Forestry and the Forest Environment requires three copies of the thesis, which must be signed by the major advisor and second reader. Three copies are to be presented to the thesis advisor for the student to be awarded marks for the thesis. Printing and distribution of thesis are the student's responsibility.

THESIS COVER

Every thesis will have a cover page. The required elements are: 1) the title, 2) Faculty of Forestry and the Forest Environment, Lakehead University, Thunder Bay Ontario and 3) the author's name (see Appendix XIII on p. 76). You may be creative and add some artwork.

THESIS TITLE PAGE

The following information must appear on an essay or report's title page:

- title, centred, in capital letters, in the upper half of the page;
- author's full name, centred, upper and lower case letters, just below title;
- the following statement, with information modified to suit the submission, positioned at the middle point of the page, e.g.,

An undergraduate thesis submitted in partial fulfillment
of the requirements for the degree of
(Honours) Bachelor of Environmental Studies (Forest Conservation)

or

An undergraduate thesis submitted in partial fulfillment
of the requirements for the degree of
Honours Bachelor of Science in Forestry

- the date of submission, centred, 8 cm from the bottom of the page.

Other information could include the course number, course title and instructor's name. An example of a complete undergraduate thesis title page appears in Appendix XIV (p. 77).

LIBRARY RIGHTS AND CAUTION TO THE READER

A "Library Rights Statement" is required for all theses. It indicates the thesis is available for study, but that restrictions regarding copying of the material apply. See Appendix XV (p. 78) for an example of a "Library Rights Statement."

The thesis advisor may also request that the student include "A Caution to the Reader," which absolves the university and thesis advisors or readers of any responsibility for the opinions expressed by the writer (see Appendix XVI on p. 79).

ABSTRACT

Follow the instructions for the writing of abstracts that begin on page 9; however, make sure your thesis abstract does not exceed one page in length. The distance from the top of the first line of the title to the bottom of the last line of the text must not exceed 16.5 cm. Submit one unbound copy of your thesis abstract with your presentation copies for publication in Forestry Abstracts.

CONTENTS

The Title Page, Major Advisor's Comments, Library Rights Statement, Reader Caution and Contents do not appear within the Contents.

FIGURES AND TABLES

See section in Undergraduate Essay for more information.

ACKNOWLEDGEMENTS

In this section the authors recognizes those who have helped them substantially with the completion of the thesis through provision of data, advice and/or constructive feedback. As well, any source of funding is stated.

INTRODUCTION OF THE THESIS

The thesis introduction orients the reader to the study topic. It starts by some general statements that become progressively more specific. The introduction should be interesting. If you bore the reader here, then you are unlikely to revive their interest in the literature review or in the materials and methods section. For the first paragraph or two, tradition permits prose that is less dry than the scientific norm.

The introduction is where the author introduces the importance of the research by stating the problem that needs studying. Establish the nature and scope of the problem as directly as possible. In many cases, the problem can be stated simply, for example, "A fundamental problem of forest growth and yield modeling is...." If you wish to open by setting the context for the problem, that is permissible, but do not ramble. Often, a single

paragraph of background information followed by a concise statement of the problem is all that is needed.

The introduction contains observations from the literature and from personal experiences that present the nature of the problem. In describing what others have done, your purpose is not to present a complete literature review. Instead, present the highlights of the work that is most directly pertinent to your own study. Save the details for the Literature Review chapter, which generally follows the Introduction.

The author also states how to study the problem. In describing your research methods in the Introduction, your purpose is not to divulge all of the details that are found in the later chapter on Methods and Materials. Instead, you should simply give the big picture—an overview—that is sufficient to give the reader a general sense of the material that follows. Many studies have a hypothesis statement that is the controlling idea of the research and helps the author focus on what work will be done. Other studies may not have a specific hypothesis but may be an exploratory study. In either case, the specifics of the how the author will study the question are laid out as objectives.

You may find it easier to write the Introduction after you have written well-edited drafts of the Literature Review, Methods and Materials, Results and Discussion chapters. It is hard to give an overview of these items before they have been written. You may also find it helpful to think of a progression from the title to the Abstract to the Introduction. The title gives the reader an extremely compact synopsis of the thesis, the Abstract expands on the title and the Introduction expands on the Abstract.

For additional reading on this topic, see Trelease (1958) and Day (1979). Also, examine the pages of the well-edited journals in your discipline to see how others have handled the problem of writing an Introduction.

Day, R.A. 1998. *How to Write and Publish a Scientific Paper*. 5th Edition. Oryx Press, Phoenix, Arizona. 296 pp.

Trelease, S.F. 1958. *How to Write Scientific and Technical Papers*. MIT Press, Cambridge, MA. 185 pp.

LITERATURE REVIEW

A literature review is an examination of a body of literature relevant to your research question. The researcher becomes aware of the latest knowledge about a field of endeavour and examines strengths and weaknesses of techniques used in conducting that particular research. The literature review organizes information and synthesizes the information into what is known and what is not known, possibly identifying controversy and finally proposing research questions. The review should be done to a large extent before starting experiments or surveys. It is essential to consult what the experts in your field have to say.

Students often ask how long it should be. There is no recommended length; topics that have been well researched have long literature reviews. A point to remember is not to omit relevant papers by people who are likely to be your second reader. The literature review helps the researcher focus and think critically about the chosen topic, and guides the author to take the most fruitful direction. See the following for further thoughts on writing a literature review:

Hart, C. 1998. *Doing a Literature Review: Releasing the Social Science Research Imagination*. Sage Publications, London, England. 230 pp. Although focussed on social science research, this is a good general text on literature reviews.

Taylor, D. 2001. *Writing a Literature Review in the Health Sciences and Social Work*. University of Toronto Health Sciences Writing Centre.
<http://www.utoronto.ca/hswriting/lit-review.htm>. Dec. 15, 2003.

Here are some suggestions to help with your literature review:

- Before going too far towards researching and writing your own literature review, study a few examples of successful literature reviews in the well-edited journals of your discipline. It is often helpful to see how others have tackled the problem you are about to engage.
- Be sure to report the results of others who have worked on a similar problem. For example, you may find that others have studied the same phenomenon but in a different species or they may have studied the same species but in a different geographic area.
- Consider working backwards as follows: 1) identify the major conclusions of your own work; 2) identify the experimental (or other data based) results you used to establish those conclusions; 3) identify the research methods you used to produce those critical results; and 4) identify the published work you must cite in order to document the research methods used and the lines of reasoning you followed to interpret your experimental results.

BINDING

Following examination and acceptance of an undergraduate thesis, the original manuscript and several printed copies must be bound. Both a cover page and a title page are required for theses.

THESIS GUIDELINES

Responsibility for Forestry 4020 is shared by: 1) the Faculty Council of the Faculty of Forestry and the Forest Environment, 2) the faculty supervisor and 3) the second reader. The Faculty Council is responsible for setting general objectives, regulations and

evaluation procedures for the course. This document outlines these responsibilities. There is, however, room within the Faculty's general policy for faculty supervisors and second readers to express their individual discretion. This being the case, individual faculty (supervisors and, if appropriate, second readers) are responsible to prepare and make available to the student written information concerning his/her specific course requirements and evaluation procedures, and to file a copy of this information with the Chairs of the Forest Management Department and Environmental Studies (Forest Conservation) depending in what program the student is registered in. The supervisor and the second reader should keep one another informed as to their individual requirements as well.

The objective of Forestry 4020 is to provide a vehicle for students to:

- increase their discipline knowledge of a subject area of special interest;
- develop learning skills associated with independent study;
- confront the problems associated with planning and managing a large project; and
- develop the organizational and communication skills associated with the preparation of a technical report (the thesis).

Forestry 4020 requires that:

- The undergraduate thesis is an original piece of work that may create new information or organize existing information in a new or otherwise unique manner.
- The thesis has a single author, although data may be shared by more than one student with the approval of all supervisors involved.
- The thesis project is under the direct supervision of a faculty member or adjunct professor. Second readers are usually other faculty or professionals in the field

(R.P.F., P.Eng., etc.). Check with the Chair if you have a question about supervisors or second readers.

- Students choose their own thesis topic of interest to them and their supervisor (within the limitations above); however, the supervisor must agree to the choice in both cases. In some cases a student may develop new interests or a thesis project does not materialize as expected. In these cases a student may change their thesis topic, supervisor and/or second reader with the approval of the supervisors involved and the Chair of their program. In these cases a revised Undergraduate Thesis Information Sheet must be submitted to the Chair. See Table 1 for a suggested schedule of submissions, deadlines and penalties for the written portions of the thesis.
- The thesis is presented in accordance with the formal specifications given in the Faculty of Forestry and the Forest Environment Technical Writing Manual.
- The final draft of the thesis is graded by both the thesis supervisor and the second reader. These two marks will be averaged to determine the final mark. If the supervisor and the second reader are far apart in their evaluations of the thesis, the Chair may seek the advice of a third reader. The Chair will usually be able to mediate such disputes to the satisfaction of all involved. If not, the student may request a reappraisal of their mark as outlined in the University Calendar. See Table 2 for an example of a final mark calculation.
- Individual faculty have the option of reducing a student's final mark if the student fails to meet a specified schedule of deadlines (suggested below). The application of penalty points is at the discretion of the supervisor with the following exception. The

Chair will determine the penalty associated with the first deadline (submission of the Thesis Information Sheet). Students should discuss this matter with their supervisor early in the thesis process to ensure that both parties are familiar with and aware of the potential effect of late submissions.

- Three bound copies of the finished thesis, signed by the student, the supervisor and the second reader, and a copy of the abstract, must be submitted to the Chair. The copies will be distributed to the Chancellor Paterson Library, to the supervisor and to the Faculty of Forestry and the Forest Environment. Additional copies, for the second reader for example, are the responsibility of the student.

A student's Forestry 4020 final mark will not be submitted to the Registrar's Office until the signed, bound theses are submitted. Students are therefore advised that failure to meet the mid-April deadline may prevent them from graduating at Spring Convocation.

Table 1. Suggested schedule of submissions, deadlines and penalties for the thesis.

	Submission	Deadline	Max. penalty points
1	Thesis Information Sheet to the Chair	End of September	5
2	Thesis Proposal to Supervisor*	Mid-October	5
3	First Draft to Supervisor	Beginning of March	5
4	Three Bound Copies to the Chair	Mid-April	5

*NOTE: Individual faculty may wish to follow a different marking scheme from points 2-4 in the first column above. If so, they are responsible to prepare and make available to the student written information concerning his/her course requirements and evaluation procedures, and to file a copy of this information with the Chair of the Forest

Management Department or Chair of Environmental Studies (Forest Conservation) depending in which program the student is registered.

Table 2. Example of final mark calculation.

Item	Max. Marks	Obtained Marks
Supervisor	50	40
Second Reader	50	42
Sub-total	100	82
Adjustments for Meeting Schedule:		
Submission of Thesis Info Sheet	-5	0 (on time)
Submission of Thesis Proposal	-5	-2 (late)
Submission of First Draft	-5	-3 (late, low quality)
Submission of Three Bound Copies	-5	0 (on time)
FINAL MARK (Adjusted Total)		77

FOREST CONSERVATION FOURTH-YEAR PROJECTS

Students completing their degrees in Environmental Studies (Forest Conservation) must either submit a thesis or a fourth-year project. As with the thesis, it is important that the student completing the senior project contact a potential advisor before the end of their third year. The nature of the project is individually arranged between a student and his/her advisor.

APPENDICES

APPENDIX I
EXAMPLE OF A REPORT TITLE PAGE

IMPACTS OF TIMBER HARVESTING ON WILDLIFE HABITAT

by

Courtenay Lavallée

An undergraduate report submitted
in partial fulfillment of the requirements for
the degree of Honours Bachelor of Science in Forestry

Forestry 3219, Fish & Wildlife Habitat
Prof. Brian McLaren

Faculty of Forestry and the Forest Environment
Lakehead University

January 15, 2007

APPENDIX II
EXAMPLE OF AN ABSTRACT

ii

ABSTRACT

Drennan, D.J. 1999. Forest engineering manual for assessing areas with terrain stability concerns in coastal British Columbia. 28 pp.

Keywords: cohesion, shear strength, shear stress, slope failure, slope movement, slope stability, surficial material, terrain stability assessment, texture.

Terrain stability assessments are an integral part of forest planning in British Columbia. The purpose of assessments is to identify areas of instability and make prescriptions to prevent damage to forest resources. The first part of this report is a review of information on factors that influence slope stability, types of slope movements common to coastal British Columbia, and the effects of forestry practices on slope stability. The second part is a manual that describes the factors influencing slope stability: soil properties, geology and geomorphology, bedrock, vegetation and hydrology. It also provides diagnostic keys to determine landslide hazard rating and type of slope movement. The final part discusses an actual terrain stability assessment report for a proposed harvest operation by MacMillan Bloedel on southwest Vancouver Island. The results of the assessment are compared with the procedure presented in the manual section. Comparisons between the manual diagnostic keys and the example report indicated results of the landslide hazard ratings were similar.

APPENDIX III
EXAMPLE OF CONTENTS

iii

CONTENTS

ABSTRACT	ii
TABLES	iii
FIGURES	iv
ACKNOWLEDGEMENTS	v
INTRODUCTION	1
METHODOLOGY	3
Regional Variables	5
Community Variables	6
Forest/Stand Variables	8
Individual Tree Variables	10
RESULTS	11
Program Inputs	11
Program Outputs	13
DISCUSSION AND CONCLUSION	16
LITERATURE CITED	20
APPENDIX I RATIONAL METHOD SURFACE COEFFICIENT	22
APPENDIX II SPECIES VALUE, LOCATION AND CONDITION VALUE EXPLANATIONS	23

APPENDIX IV
EXAMPLE OF LIST OF TABLES

iv

TABLES

Table	Page
1. Coefficients of determination with and without I/A included among the variables	9
2. Coefficients of determination for breast height growth regressions with 5 estimators	10
3. Best 5-X regression equations for breast height growth	12
4. Coefficients of determination for growth regressions with 5 and 6 estimators	12

APPENDIX V
EXAMPLE OF LIST OF FIGURES

v

FIGURES

Figure	Page
1. Infinite slope model	2
2. Different particle shapes	4
3. Basic types of slope configuration	7
4. Key for determining hazard rating of slopes with past activity	13
5. Key for determining hazard rating of slopes with fine textured material	14
6. Key for determining hazard rating of slopes with coarse textured material	171

APPENDIX VI
EXAMPLE OF A TABLE WITH TEXT

... no significant difference in number of tree per plot between irrigated (4 species/ plot) and non-irrigated (5 species/plot) areas (Table 1). Tree density (Table 1) in the non-irrigated area (531 stems/ha) was significantly different from the irrigated area (355 stems/ ha). The non-irrigated area had more aspen (*Populus sp.*) than the irrigated area.

Table 1. Mean^a overstory (≥ 11 cm in diameter) number of species per 0.04 ha plot, density, basal area, and stocking for tree, shrub, and total species in irrigated and non-irrigated areas (Larrick and Bowersox 1999).

Species group area	Number of species	Density	Basal area	Stocking
	Per plot	<i>Stems/ha</i>	<i>m²/ha</i>	<i>Percent</i>
Tree				
Irrigated	4 a	355 b	19 b	73 b
Non-irrigated	5 a	531 a	27 a	100 a
Shrub				
Irrigated	<1 a	6 a	<1 a	-
Non-irrigated	<1 a	5 a	<1 a	-
Total				
Irrigated	5 a	361 b	20 b	73 b
Non-irrigated	5 a	536 a	27 a	100 a

^a Means with the same letter are not significantly different ($\alpha = 0.05$).

The irrigated area had more ash (*Fraxinus sp.*) and mockernut hickory (*Carya tomentosa* (Lam. Ex Poir)) stems than the non-irrigated area, but the numbers of ash and hickory were low for both areas. The irrigated area (Table 2) had a lower proportion of ...

APPENDIX VII
EXAMPLE OF A FIGURE IN THE TEXT

The study results support the hypothesis that the height of Douglas-fir (*Pseudotsuga menziessi* (Mirb.)) exceeds the height of paper birch (*Betula papyrifera* Marsh.) at an earlier age at the coastal site than at the interior site. However, it does not mean that the paper birch will die out quickly once Douglas fir grows higher. In fact, a few paper birch trees survive for a relatively long period (40 years after the height curves crossover) in a Douglas-fir stand at the coastal site. The almost parallel height growth curves observed in this study (Figure 4a,b) reflect this phenomenon.

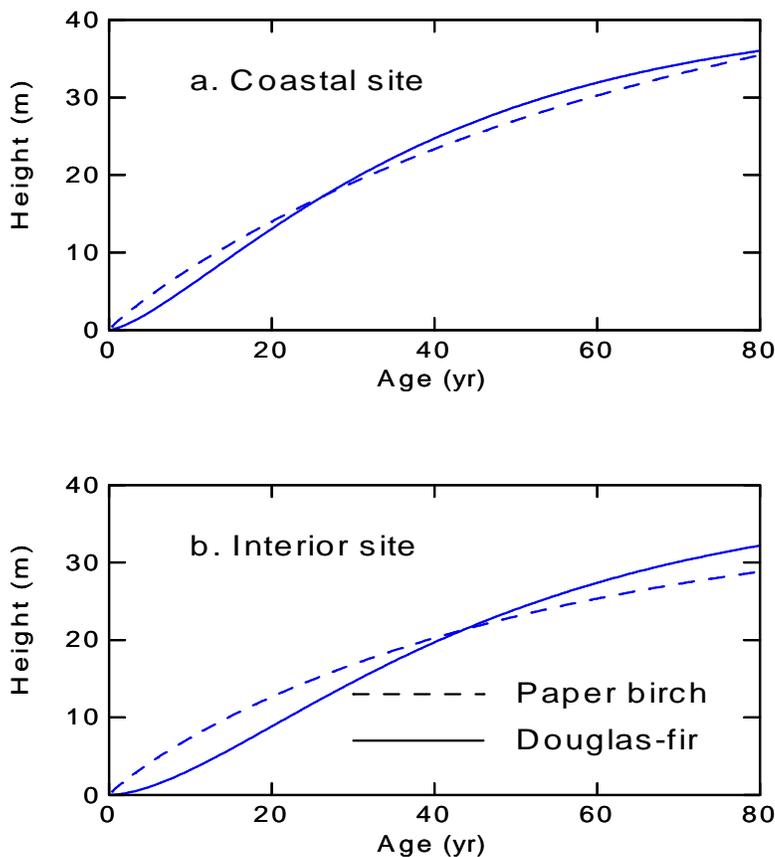


Figure. 4. Comparison of functional plots of paper birch and Douglas-fir height growth at the coastal and interior sites in British Columbia (Wang and Kimmins 2002).

APPENDIX VIII
STYLES FOR IN-TEXT CITATIONS AND QUOTATIONS

The following examples illustrate how to cite references in most reports and theses written in the Faculty of Forestry and the Forest Environment. Note that there is no comma between the author's name and the date.

1. *In its simplest form, the citation is placed at the end of a sentence:* ... that is a major cause of earthworm distribution (Reynolds 1977: 116). NOTE: The period to end the sentence goes after the in-text citation, not before.
2. *As the subject of a sentence:* Meyer (1994) analyzed the effects of fire on components of the site's soils.
3. *As the object of a preposition:* ... the character of these plots was given by Barnes (1998).
4. *Joint authors:* ... and in a second study (Carmean and Hahn 1983). Parker and Bohm (1979) have introduced ...
5. *Authors initials used with last name when two well-known authors are in the same field, or where two authors having the same surname are cited in work:* ... number of tree species (W.H. Meyer 1945). W.A. Meyer (1942) gave the number of ...
6. *One specific article and additional unspecified material:* Especially noteworthy is the work of Michaelsen, Stephenson, Gates and their followers (Reynolds and Reinecke 1976 and many others).
7. *More than one cited article by the same author in the same year:* ... against biomass per acre (Reynolds 1976c).
8. *Two separate articles by two different authors with similar information cited:* ... juvenile period is passed (Meyer 1945; Reynolds 1976a).
9. *Several articles:* Other presentations of general interest are by Gates (1972), Reynolds (1972, 1976a, 1976b) and Reynolds and Cook (1977). Similar presentations (Reynolds 1972, 1976a; Reynolds and Cook 1977) have shown that...
10. *A variation of the basic end-of-the-sentence form:* ... for each taxonomic character (for example, see Reynolds 1977 and Reynolds and Reinecke 1976).

11. *A series of articles in consecutive years, having identical titles, appearing in the same source, and always referred to together:* ... detailed studies in Europe (Heck 1922-25) have shown that ...
12. *Corporate author:* ... the Canadian stands (Canada Dominion Forest Service 1926).
13. *Corporate author as subject of a sentence:* For example, the Canadian Dominion Forest Service (1926) found that in fully stocked stands ...
14. *Author unknown:* Anonymous (1987) described ... or ... as it was described earlier (Anon. 1987). NOTE: Use "Anonymous." in the Literature Cited but "Anon." in the text, except when it begins a sentence.
15. *More than two authors:* Brown et al. (1977) reported ... NOTE: Use "et al." in the text but write out complete list of authors in the Literature Cited.
16. *Author(s) of a chapter within a book edited by another or a symposium article (see also example 10 in Appendix IX):* ... described by Prévost and Laing (1986) ... or Prévost and Laing (1986) discussed ...
17. *References in another work, original not read (see item 27 in Appendix IX):* Cite original author and date in text. In Lit Cited, include author who cited the work.
18. *Avoid inserting a prepositional phrase between the author and year:* Parker and Maze in Canada (1983, 1984) studied ... should read: Parker and Maze (1983,1984), in Canada, studied ...
19. *Direct quotations fewer than four lines are included within the sentence in the text:* As this manual states: "Quotations of fewer than four lines or any quotation used as part of a sentence should be treated as part of the paragraph in which they occur, and are simply set off from the rest of the text by the quotation marks." The source of the quote should be placed inside the punctuation for the sentence.
20. *Direct quotations of more than four lines:* Referred to as block quotations, these are set off through single spacing and indenting 1.27 cm from both the left and right margins. No quotation marks are used. Note that the source in a block quotation is placed outside the closing punctuation.

Forestry has generally developed only after a period of exploitation that has created actual or potential future timber shortages. The earliest stages of forestry usually involve the institution of regulations designed to meet certain objectives. Characteristically, these regulations are based on administrative, short-term economic or strategic dictates and reflect little or no knowledge of the ecological nature and variability of the forest. As a consequence, such early attempts at forestry rarely succeed in solving the problems that were their genesis. (Kimmins 1987)

APPENDIX IX
EXAMPLES OF LITERATURE CITATIONS

The following examples illustrate the mode—the Name-Year system—to be adopted in reports and theses in the Faculty of Forestry and the Forest Environment when listing literature cited in the text according to the author-date system. If the name of a publication which contains only one word, e.g. Ecology, Evolution, Megadrilogica, Nature, never abbreviate. In the following Literature Cited the abbreviations for journal names and for other sources follow the World List of Scientific Periodicals system for the most part. Don't risk wrongly abbreviating; if in doubt, write the journal title in full.

Citations are listed in alphabetical order and are not numbered. The first line begins at the left margin; subsequent lines of the entry are indented one tab. See Appendix X for a sample LITERATURE CITED section. Note also that brackets, (), are used to enclose English translations of the non-English works when translations are known. All non-English words must be completed with accents, umlauts, etc., as in the original except where approved journal-name abbreviation omit them.

GENERAL FORMAT FOR JOURNAL ARTICLES: Author(s). Year. Article title. Journal title volume number(issue number):inclusive page numbers.

GENERAL FORMAT FOR BOOKS: Author(s) [or editor(s)]. Year. Title. Publisher, place of publication. Number of pages.

GENERAL FORMAT FOR PARTS OF BOOKS: Author(s) of the part. Year. Title inclusive pages.*in* Author(s) [or editor(s)]. Title of the book. Publisher, place of publication. Number of pages.

GENERAL FORMAT FOR INTERNET CITATIONS: As above, with the addition of the URL or website address and date viewed. For journal articles retrieved from the internet, omit URL and instead put "on line" in brackets following inclusive page numbers.

1. *Single author, article:*

Smith, P. 1998. Aboriginal and treaty rights and Aboriginal participation: Essential elements of sustainable forest management. *Forestry Chronicle* 74(3):327-333.

Pulkki, R. 1984. A spatial database-heuristic programming system for aiding decision-making in long-distance transport of wood. *Seloste: Sijaintitietokanta – heuristinen ohjelmointijärjestelmä puutavaran kaukikuljetuksen päätöksenteossa. Acta For. Fenn.* 188:1-89.

2. *Single author, book:*

Manion, P.D. 1982. *Tree Disease Concepts*. Prentice-Hall, Inc., Englewood Cliffs, New Jersey. 399 pp.

NOTE: Initial word, significant words and proper nouns are capitalized in book titles, but only initial words and proper nouns are capitalized in other publications.

3. *Two or more publications by the same author, notice sequence by year:*

Farmer, R.E. Jr. 1963. Effect of light intensity on growth of *Populus tremuloides* cuttings under two temperature regimes. *Ecology* 44:409-411.

Farmer, R.E. Jr. 1964. Sex ratio and sex-related characteristics in eastern cottonwood. *Silvae Genet.* 13:116-118.

4. *Two or more works by an author published in the same year, small letters distinguish each publication; placed in the order cited in the text:*

Reynolds, J.W. 1976a. The distribution and ecology of the earthworms of Nova Scotia. *Megadrilogica* 2:1-7.

Reynolds, J.W. 1976b. Catalogue et clef d'identification des lombricides du Québec. *Nat. Can.* 103:21-27.

Reynolds, J.W. 1976c. Die Biogeografie van Niirde-Amerikaanse Erdwurms (*Oligochaeta*) Noorde van Meksiko. II. *Indikator* 8:6-20.

5. *Publication by one author and with co-authors (repeat name):*

Reynolds, J.W. 1978. The whole earthworm catalogue. *Horticulture* 56:41-48.

Reynolds, J.W. and A.J. Reinecke. 1976. A preliminary survey of the earthworms of the Kruger National Park, South Africa. *Wet. Bydraes, P.U. vir C.H.O. (B)*, No 89. 19 pp.

6. *Multiple authors:*

Grant, G.G., Y.H. Prévost, K.N. Slessor, G.G.S. King and R.J. West. 1987. Identification of the sex pheromone of the spruce coneworm, *Dioryctria reniculelloides* (*Lepidoptera: Pyralidae*). *Environ. Entomol.* 16:905-909.

Schnekenburger, F., K.M. Brown and J.E. Barker. 1985. Effects of nitrogen fertilization and low thinning on snow damage in jack pine. *For. Sci.* 31:52-56.

Yang, K.C. and G. Hazenberg. 1987. Geographical variation in wood properties of *Larix laricina* juvenile wood in northern Ontario. *Can. J. For. Res.* 17:648-653.

7. *Publication in press:*

Dickinson, T.A., P. Knowles and W.H. Parker. 1988. Data set congruence in northern Ontario tamarack (*Larix laricina*, *Pinaceae*) *Syst. Bot.* (in press).

8. *Publication by an institute:*

Reynolds, J.W. 1977. The earthworms (*Lumbricidae* and *Sparganophilidae*) of Ontario. *Life Sci. Misc. Publ., Roy. Ont. Mus., Toronto.* x + 141 pp.

NOTE: x = 10 pages of separately paged prefaces.

Reynolds, J.W. and D.G. Cook. 1977. *Nomenclatura oligochaetologica*, a catalogue of names, descriptions and type specimens of the *Oligochaeta*. University of New Brunswick. x + 217 pp.

9. *Thesis manuscript:*

Prévost, Y.H. 1986. The relationship between the development of cones of black spruce, *Picea mariana* (Mill.) B.S.P. and their insect fauna. Ph.D. dissertation, Univ. of Guelph. 96 pp.

Dunai, A. 1998. Factors predisposing urban trees to insect defoliations in Richmond Hill Ontario. B.Sc.F. thesis, Lakehead University, Thunder Bay. 68 pp.

10. *Article in a published symposium or a chapter in a book with an editor(s):*

Hayter, R. and J. Holmes. 2001. The Canadian forest industry: The impacts of globalization and technological change pp. 127-156 *in* Howlett, M. (ed.) *Canadian Forest Policy: Adapting to Change*. University of Toronto Press, Toronto, ON. 446 pp.

Turner, N. 2001. "Keeping it living": Applications and relevance of traditional plant management in British Columbia to sustainable harvesting of non-timber forest products pp. 66-77 *in* Davidson-Hunt, I.; L.C. Duchesne and J.C. Zasada (eds.) 2001. *Forest Communities in the Third Millennium: Linking Research, Business, and Policy toward a Sustainable Nontimber Forest Product Sector*; Proceedings of the meeting; Kenora, Ontario, Canada, October 1-4; 1999. Gen. Tech. Rep. NC-217. U.S. Dept. of Agric., For. Serv., N. Central Res. Stn., St. Paul, MN. 151 p.

NOTE: There is no period after page numbers or before *in*.

11. *Bulletin:*

Reynolds, J.W. 1972. The activity and distribution of earthworms in tulip poplar stands in the Great Smoky Mountains National Park, Sevier County, Tennessee. *Bull. Tall Timbers Res. Stn., No. 11*, pp. 41-54.

NOTE: If the article had been a bulletin all by itself: No. 11, 54 pp.

12. *Book review:*

Reynolds, J.W. 1973. Review of Gates, G.E. 1972. Burmese earthworms – An introduction to the systematics and biology of *Megadrile oligochaetes* with special references to southeast Asia. Syst. Zool. 22:197-199.

13. *Unpublished duplicated material:*

Van Slyke, A.L. 1967. Crown measures as indicators of tree growth in red spruce. Paper read at Mensuration Sessions, Joint CIF-SAF Annual Meeting. October 19, 1967, Ottawa. 18pp. (mimeographed).

14. *Unpublished manuscript:*

Carmean, W.H. and D.J. Lenthall. 1988. Height growth and site index curves for jack pine in north central Ontario. Unpublished manuscript.

15. *Abstract:*

Laing, J.E. and Y.H. Prévost. 1986. Seed and cone insects of black spruce. p.23 in Ontario Renewable Resources Seminar Abstracts Jan. 30-31 1986 22 pp. (abstract).

Parker, W.H. 1984. Flavanoid variation in Yukon populations of *Abies lasiocarpa*. Am. J. Bot. 71, part 2:182-183 (abstract).

16. *Publications in microfilm:*

Reynolds, J.W. 1973. The Lumbricidae (*Ammelida: Oligochaeta*) of Tennessee. Ph.D. dissertation, University of Tennessee, Knoxville. xii + 302 pp. (microfilm).

NOTE: This entry differs slightly from example 13 because the original or a xerox typed copy of the original document was not consulted.

17. *Corporate publications, author(s) known:*

Ontario Ministry of Natural Resources. 2001. Forest Management Guide for Natural Disturbance Pattern Emulation. Version 3.1. Ont. Min. Nat. Res., Queen's Printer for Ontario, Toronto. 40 pp.

Corporate publications, author(s) unknown:

Anonymous. 1957. Honey and beeswax. Stat. Rept. Serv. No. 388. 10 pp.

NOTE: Use n.d. (no date) if date cannot be determined.

18. *Atlas:*

Bartholomew, J. (ed.). 1957. The Times atlas of the world: mid-century edition. Vol 5. The American Times Publ. Co., Ltd., London. 57 pp. 120 plates.

NOTE: Enter under person or corporate body responsible, i.e., cartographer, editor, publisher, government bureau, society, or institution. If responsibility cannot be determined, enter under title.

19. *Map:*

Leppard, H. M. (ed.). 1961. Goode base map series. No. 202. North America. Dept. Geography, Univ. Chicago.

NOTE: Enter in the sequence of person(s) or corporate body stated in the title, cartographer, engraver, publisher, and copyright claimant. If responsibility cannot be determined, enter under title.

20. *Foreign language publication: in original language but with English abstract and/or summary:*

Reynolds, J.W. 1976. Un aperçu des vers de terre dans les forêts nord-américaines, leurs activités et leurs répartitions. *Megadrilogica* 2:1-11. (In French; English, French, German and Spanish summaries).

21. *Foreign language publication; no translation, summary or other-wise, or translator given:*

Reynolds, J.W. 1976. Die Biogeografie van Noorde-Amerikaanse Erdwurms (*Oligochaeta*) Noorde van Meksiko. II. *Indikator* 8:6-20 (in Afrikaans).

Foreign language publication; translation when English title not given:

Zuraiq, Q. 1948. Ma na an-Nakba [The meaning of disaster]. *Dar al-Ilm lil-Malayin*, Beirut. 88 pp. (in Arabic).

22. *Foreign language publication; English title given in original:*

Frederiks, G.N. 1926. Table for determination of the genera of the family Spiriferidae King. *Izv. Akad. Naul, USSR*. 20:393-423 (in Russian).

23. *Legislation or Acts of Parliament.*

Federal:

Combines Investigation Act, R.S.C. 1970, c. C-23, s.2.

NOTE: R.S.C.=Revised Statute of Canada.

Provincial:

Liquor Control Act, R.S.N.B. 1970, c. L-10, s. 13(1).

NOTE: R.S.N.B.=Revised Statute of New Brunswick.

24. *House of Commons Debates (Hansard):*

Crosbie, J.C. 1978. Inquiry into tax affairs of John C. Doyle. *House Commons Debates* 121(150): 6909.

25. *Examples of the various types of Canadian Forest Services, Natural Resources Canada publications:*

NOTE: The names of government departments change over time; your citation should use the name of the department at the time of publication.

i) *Leaflet:*

Wile, B.C. n.d. Balsam fir. *Can For. Serv. MFRC*. 12 pp.

ii) Unauthored, independent, map-like publications:

Anonymous. n.d. Common pests of ornamental hardwoods in Maritime Provinces. Can. For. Serv. MFRC.

iii) Information reports:

Groot, A. 2001. User's manual for "PC-Seed". Can. For. Serv. Great Lakes For. Cent. Nat. Resour. Can. Inf. Rep. GLC-X-4. 18 pp.

iv) Tree pest control leaflet:

Humble, L.M. and A.J. Stewart. 1994. Gypsy moth. Can. For. Serv. Pacific For. Cent. Nat. Resour. Can. Forest Pest Leaflet 75, co-published by the BC Ministry of Forests.

v) Internal report:

Renault, T.R. 1968. An illustrated key to arboreal spiders (Araneae) in the fir-spruce forests of New Brunswick. Can. For. Serv. MFRC Int. Rept. M- 39.41 pp.

vi) Local irregular publications:

Anonymous. 1978. The budworm's point of view. Pith to Periderm. Can. For. Serv. MFRC. 12:8-14.

Magasi, L. 1978. Forest insect and disease survey highlights (summer 1978). The Green Chain, pp. 15-17. (Can. For. Serv. MFRC).

vii) Co-operative reports:

Anonymous. 1978. Nashwaak Experimental Watershed Project, Annual Report 1976-77. Can For. Serv. MFRC. 23 pp.

viii) Abbreviations for laboratories of Environment Canada, Canadian Forestry Service: [Envi. Can. Can. For. Serv.] (before 1985); Forestry Canada [For. Can.] (after 1985); and Natural Resources Canada, Canadian Forest Service, [Nat. Resour. Can. Can. For. Serv.] (after 1993).

	Before 1985	after 1985	after 1993
Newfoundland and Labrador Region Reg.	NeFRC	NeFC	Nfld. Lab.
Maritimes Region	MFRC	MFC	Marit. Reg.
Quebec Region	LFRC	LFC	Que. Reg.
Petawawa National Forestry Institute	PNFI	PNFI	PNFI
Ontario Region	GLFRC	CLFC	Ont. Reg.
Forest Pest Management Institute	FPMI	FPMI	FPMI
Northwestern Region	NoFRC	NoFC	NW Reg.
Pacific and Yukon Region	PFRC	PFC	Pac. Yuk. Reg.

26. *Article not read:*

Duges, A. 1837. Nouvelles observations sur la zoologie et l'anatomie des Annelides abranches setigeres. Ann. Sci. Nat. 8:15-35. (Cited in Reynolds 1983b.)

There are other types of reference materials which would go into a reference section but which are, in the strict sense, not Literature Cited entries.

27. Television broadcast:

Reynolds, J. 1976. Interviewed by Peter Gzowski on "90 Minutes Live." CBC Television, Dec. 22, 1976.

28. Radio broadcast:

Prévost, Y.H. and Z Valdmanis. 2001. Interview by Gerald Graham on the "Voyage North Show." CBQ, Thunder Bay, Dec. 3, 2001.

29. Lecture:

Smith, P. 2000. Lecture in Forestry 1050. Lakehead University, Oct. 27, 2000.

30. Film or filmstrip:

Fueter, H. 1968. Waste: The penalty of affluence. Condor Film, on behalf of World Wildlife Fund. Colour, 18 minutes.

31. Newspaper article:

Prévost, Y.H. 2001. Urban forester benefits outweigh salary. The Chronicle Journal, Thunder Bay. Dec. 12, 2001, p. A6.

Canadian Press. 2003. Ban on spring bear hunt here to stay. Toronto Star, Toronto. Dec. 17, 2003. www.torontostar.com. Dec. 17, 2003.

32. Record or tape:

Ramsey, F. Jr. 1958. John Henry from Jazz, vol.1. Folkway Records, Toronto. FJ 2801. Side 1, cut 4.

33. Internet source: Author. Year. Title. Publisher. URL. Date viewed.

NOTE: Internet sources should be in the same format as the citations above, with the addition of the website address (URL) and date viewed. For on-line journals, omit the URL and simply note "(on line)" following the volume, issue, page number information. If there is no specific author cited for the source, use the corporate author format, citing the organization hosting the website. Dates are often unclear on websites; if the date is not clear at the top of the page, use the "last updated" date usually listed at the bottom of websites or n.d. (no date).

Canadian Forest Service. 2003. Guide to Tree Diseases of Ontario. Can. For. Serv. Great Lakes For. Cent. Nat. Resour. Can. http://www.glfc.cfs.nrcan.gc.ca/treedisease/index_e.html. Dec. 17, 2003.

Le Guerrier, C., D.J. Marceau, A. Bouchard and J. Brisson. 2003. A modelling approach to assess the long-term impact of beech bark disease in northern hardwood forest. Can. J. of For. Res. 33(12):2416-2425 (on line). Dec. 12, 2003.

APPENDIX X
EXAMPLE OF A LITERATURE CITED SECTION

LITERATURE CITED

- Assmann, E. 1970. The Principles of Forest Yield Study. Pergamon Press, New York. 371 pp.
- Gustafson, E.J., S.M. Lietz and J.L. Wright. 2003. Predicting the spatial distribution of aspen growth potential in the Upper Great Lakes Region. *Forest Science* 49(4):499-508 (on line). Dec. 15, 2003.
- Larsen, D.R. and J.A. Kershaw Jr. 1996. Influence of canopy structure assumptions on predictions from Beer's Law: A comparison of deterministic and stochastic simulations. *Agric. Meteorol.* 81:61-77.
- Ontario Ministry of Natural Resources. 2002. Status Summary of Ontario's Forest Management Guides (review dates and consolidation details for new guide series). <http://ontariosforests.mnr.gov.on.ca/>. Dec. 14, 2003.
- Smith, F.D. 1995a. Management oriented yield tables for loblolly pine in the Georgia Piedmont region. USDA Gen. Tech. Bull. NC-161. 63 pp.
- Smith, F.D. 1995b. Compatible systems for estimation of tree and stand volumes. *For. Chron.* 70(3):15-16.
- Smith, P., G. Scott and G. Merkel. 1995. Aboriginal Forest Land Management Guidelines: A Community Approach. National Aboriginal Forestry Association, Ottawa.
- Wagner, R.G., G.H. Mohammed and T.L. Noland. 1999. Critical period of interspecific competition for northern conifers associated with herbaceous vegetation. *Can. J. For. Res.* 29(7):890-897 (on line). Dec. 17, 2003.
- Wang, J.R. and J.P. Kimmins. 2002. Height growth and competitive relationship between paper birch and Douglas-fir in coast and interior of British Columbia. *For. Ecol. Manage.* 165:285-293.
- Xu, M. 1997. Growth efficiency of individual loblolly pine (*Pinus taeda* L.) as affected by crown morphology, stand characteristics and microenvironment. PhD. thesis, University of Georgia, Athens. 286 pp.

APPENDIX XI
AVOIDING WORDY CONSTRUCTIONS

Clearly written prose shows an economy of style achieved through careful editing of redundancies, repetitions and wordiness. Generally, editing involves the elimination of unnecessary words, phrases, sentences and ideas. More information on stylistic improvements can be found in any good handbook of English composition.

Adopted from editing guidelines in *The Journal of Wildlife Management*, the following list contains common wordy constructions and suggested substitutes:

Superfluous wording	Suggested substitute
the purpose of this study was to test the hypothesis	I (or we) hypothesized
in this study we assessed	we assessed
we demonstrated that there was a direct	we demonstrated direct
were responsible for	caused
played the role of	were
on the basis of evidence available to date	consequently
in order to provide a basis for comparing	to compare
in order to	to
as a result of	through, by
for the following reasons	because, since, as
the reason is because; due to the fact that	because
during the course of this experiment	during the experiment
during the process of	during
during periods when	when
for the duration of the study	during the study
the nature of	(omit completely)
a large (or small or limited) number of	many (or few)
conspicuous numbers of	many
a substantial quantity of	much
a majority	most
a single	one
an individual _____	a(n)
seedlings, irrespective of species	all seedlings
all of the species	all species
various lines of evidence	evidence
they do not themselves possess	they lack

were still present	persisted, survived
the analysis presented in this paper	our analysis
indicating the presence of	indicating
despite the presence of	despite
checked for the presence of	checked for
in the absence of	without
a series of observations	observations
may be the mechanism responsible for	may have caused
it is reasonable to assume that	with
in a single period of a few hours	in a few hours
occur in areas of North America	are (or occur, exist) in North
America	
in the vicinity	nearby
separated by a maximum distance of 10 m	3-10 m apart; a minimum
distance of	
the present-day population	the population
this particular point in time	now
their subsequent fate	their fate
whether or not	whether
summer (winter, etc.) months	summer (winter)
are not uncommon	may be
showed a tendency to	tended to
devastated with drought-induced desiccation	killed by drought

Another way to avoid unnecessary wordiness is to eliminate expletive constructions that tend to be vague and imprecise. An expletive construction uses the expression “there is/are” or “this is” (those, these are). Repeated expletive constructions tend to confuse the reader as the “this, these or there” used could refer to a number of previously-used nouns.

Although LP has been the most popular technique used in the development of forest management models (Davis *et al.* 1987), there are other techniques used. Jamnick (1990) suggests there are two other techniques from which forest management models could be derived, binary search and simulation.

could be changed to

Although LP has been the most popular technique used in the development of forest management models (Davis *et al.* 1987), other techniques can be used. Jamnick suggests two techniques from which forest management models could be derived, binary search and simulation.

APPENDIX XII
USING SI UNITS AND NUMERALS

FORM AND FORMAT IN THE USE OF SI UNITS

- a) When the names of SI units are written out in full, the initial letter of the name (with the exception of Celsius) is not capitalized, except at the beginning of a sentence.
- b) A derived unit formed by division has “per” between the units; e.g., kilometre per hour, not kilometre/hour.
- c) A symbol represents a unit name and is the same in all languages.
- d) The symbols do not change in the plural; e.g. 10 kilometres = 10 km
- e) The symbols are never followed by a period except at the end of a sentence.
- f) The symbol of a derived unit formed by division may be shown by using an oblique line (/) between the symbols in the numerator and those in the denominator (50 kg/m²) or by the use of symbols with negative exponents (50 kg.m⁻²); e.g., km/h, not kmph or k.p.h.
- g) A space must be left between the numerals and the first letter of the symbol; e.g., 320 lm, not 320lm for 320 lumens.
- h) Do not use symbols to begin a sentence. As with numbers, write out the full name.
- i) ° with °C but not with K; for example, 37°C = 310 k (approx.), not 37°C = 310°K.

FORM AND FORMAT WITH NUMERALS

- a) In text, if a numerical value is less than one, a zero should precede the decimal point. In tables, when several or all values in a column or columns are less than one,

only the first (topmost) value in the column needs to have a zero preceding the decimal point.

- b) Although some countries use a comma as a decimal marker, the practice in Britain and North America is to use the period as a decimal marker.
- c) To avoid confusion, use spaces instead of commas to divide a long row of digits into easily readable blocks of three, in both directions, from the decimal point: 3 244 453.246 07.
- d) A dot should not be used as the multiplication symbol in conjunction with numerals, although the dot is permitted with symbols.

USE OF PREFIXES

- a) Prefix symbols are printed in upright type without spacing between the prefix symbol and the unit symbol.
- b) Only one prefix symbol is applied at one time to a given unit; e.g., nanometre (nm), not millimicrometre (m μ m).
- c) In the case of the kilogram, the root name to which the prefix is applied is “gram” as only one prefix should be used; e.g., milligram (mg), not microkilogram (mkg).
- d) The prefix symbol is considered to be combined with the unit symbol that it immediately precedes, forming a new symbol. The new symbol can then be converted to a positive or negative power and can be combined with other symbols to form a compound symbol; e.g., $1 \text{ mm}^2/\text{s} = 1 (\text{mm})^2/\text{s} = (10^{-3}\text{m})^2/\text{s} = 10^{-6} \text{ m}^2 \text{ s}^{-1}$.
- e) It is recommended that only one prefix be used in forming decimal multiples or sub-multiples of a derived SI unit. This prefix should be attached to the unit in the

numerator. An exception to this occurs when the base unit, kilogram, appears in the denominator; e.g., m /m, not /km but J/kg (the exception).

- f) The choice of the appropriate multiple of an SI unit is governed by convenience, the multiple chosen for a particular application being the one that will lead to numerical values within a practical range. The use of prefixes representing 10 raised to a power that is a multiple of 3 is recommended. The multiple can usually be chosen so that the numerical values will be between 0.1 and 1 000; e.g., 3.94 mm for 0.003 94 m.

Prefixes Forming Decimal Multiples and Sub-multiples of SI Units

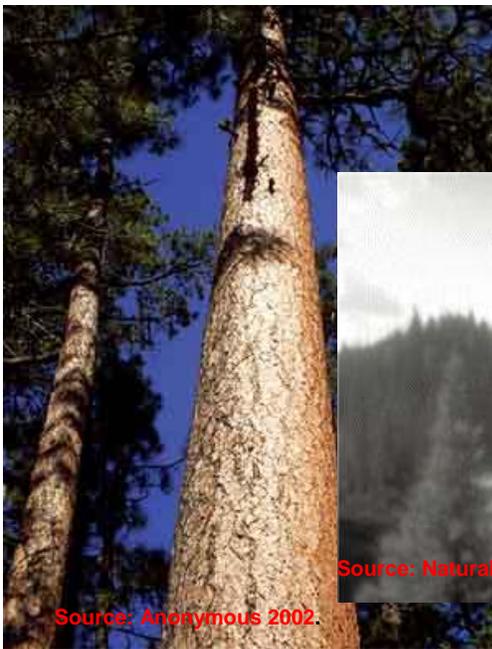
Multiplying Factor	Prefix	Symbol
1 000 000 000 000 000 000 = 10^{18}	Exa	E
1 000 000 000 000 000 = 10^{15}	Peta	P
1 000 000 000 000 = 10^{12}	Tera	T
1 000 000 000 = 10^9	Giga	G
1 000 000 = 10^6	Mega	M
1 000 = 10^3	kilo	k
100 = 10^2	hecto	h
10 = 10	deca	da
0.1 = 10^{-1}	deci	d
0.01 = 10^{-2}	centi	c
0.001 = 10^{-3}	milli	m
0.000 001 = 10^{-6}	micro	μ
0.000 000 001 = 10^{-9}	nano	n
0.000 000 000 001 = 10^{-12}	pico	p
0.000 000 000 000 001 = 10^{-15}	femto	f
0.000 000 000 000 000 001 = 10^{-18}	atto	a

APPENDIX XIII
EXAMPLE OF A THESIS COVER PAGE

INTEGRATION OF NON-TIMBER FOREST PRODUCT AND
TIMBER MANAGEMENT: THE NEED FOR ABORIGINAL
KNOWLEDGE AND PARTICIPATION

by

Sarah Allen



FACULTY OF FORESTRY AND THE FOREST ENVIRONMENT
LAKEHEAD UNIVERSITY
THUNDER BAY, ONTARIO

May 2003

APPENDIX XIV
EXAMPLE OF A THESIS TITLE PAGE

A VALIDATION OF THE STRATEGIC
FOREST MANAGEMENT MODEL

by

Taylor R. Chen

An Undergraduate Thesis Submitted in
Partial Fulfillment of the Requirements for the
Degree of Honours Bachelor of Science in Forestry

or

Honours Bachelor of Environmental Studies (Forest Conservation)

Faculty of Forestry and the Forest Environment

Lakehead University

May 2004

Major Advisor

Second Reader

APPENDIX XV
EXAMPLE OF A LIBRARY RIGHTS STATEMENT

ii

LIBRARY RIGHTS STATEMENT

In presenting this thesis in partial fulfillment of the requirements for the H.B.Sc.F. or H.B.E.S. degree at Lakehead University in Thunder Bay, I agree that the University will make it freely available for inspection.

This thesis is made available by my authority solely for the purpose of private study and research and may not be copied or reproduced in whole or in part (except as permitted by the Copyright Laws) without my written authority.

Signature: _____

Date _____

APPENDIX XVI
EXAMPLE OF A CAUTION TO THE READER

iii

A CAUTION TO THE READER

This H.B.Sc.F. **or H.B.E.S.** thesis has been through a semi-formal process of review and comment by at least two faculty members. It is made available for loan by the Faculty of Forestry and the Forest Environment for the purpose of advancing the practice of professional and scientific forestry.

The reader should be aware that opinions and conclusions expressed in this document are those of the student and do not necessarily reflect the opinions of either the thesis supervisor, the faculty or Lakehead University.

APPENDIX XVII
ORDER OF THESIS SECTIONS

- 1) Cover page
- 2) Title page
- 3) Library Rights Statement
- 4) A Caution to the Reader
- 5) Major Advisor Comments
- 6) Abstract
- 7) Contents
- 8) Tables
- 9) Figures
- 10) Acknowledgements
- 11) Introduction
- 12) Literature Review
- 13) Methods and Materials
- 14) Results
- 15) Discussion
- 16) Conclusion
- 17) Literature Cited
- 18) Appendices

CHECKLIST FOR SUBMISSION OF FORMAL REPORTS AND ESSAYS

- Submission requirements—due date, length, format, single or partnered writing—are understood and met.
- Topic chosen is appropriate for length and research requirements.
- Purpose of paper is clearly stated in the Introduction.
- Literature review is part of Introduction.
- Academic, peer-reviewed sources are included in research.
- When paraphrased or quoted directly, the work of others is credited.
- In-text references are cited, using the author/date method in parentheses with no comma between author and date.
- Tables and/or figures (including photos) taken from other sources have been credited.
- All tables or figures used are referred to and explained in the text of the paper.
- The results section begins with a written introduction, not a table or figure.
- All measurements are in SI Units; if an original measurement is not metric, the SI Unit will be provided.
- Scientific names and authorities follow the first use of a species' common name.
- Common names are not capitalized (e.g., white pine), unless they contain proper nouns (e.g., Canada goose).
- Acronyms or abbreviations are used only after the full term has been used the first time followed by the acronym in parenthesis.
- Document has been proofread carefully and typographical, spelling and punctuation errors have been corrected.
- Margins conform to guidelines: top, bottom & right margins: 2.5 cm; left margin: 4.0 cm.
- Font is a conventional size (12 pt.). Lakehead University has adopted Arial for communications, but Times New Roman is also used for papers.
- Headings, if used, follow in order (1st to 6th levels) and conform to Manual guidelines for positioning, capitalization and spacing from top margin and preceding and following text.
- Literature Cited section is organized alphabetically, by authors' last names.
- Contractions and conversational language are not used.
- Commonly misused words have been edited and corrected during proofreading process: *data* means *findings* and is plural; *species* is both the singular and plural form; *metre* is the preferred spelling; *it's* means *it is* and is not the possessive pronoun; *would of* is not synonymous with *would've*, use *would have*.
- Commonly misspelled words have been edited and corrected during proofreading process; e.g., affect/effect, it's/its, would of/would have; lead/led; their/they're/there, then/than; principle/principal, were/where.