Preface to the 2016 reprint

As soon as a book is published, someone finds an error—in this case, the editors and proofreaders who use the Style Guide to maintain a high level of consistency in English usage and grammar in the Forest Science Program’s series of scientific and technical publications. The opportunity finally presented itself to make a few corrections, add a few more examples, and delete a few archaic practices. No attempt was made, however, to update the names of organizations or titles of positions; this would require a more extensive rewrite, and soon the Style Guide would be outdated once again due to the ever evolving nature of many organizations. The content of the 2016 reprint will remain topical for much longer if the reader substitutes current names of organizations, roles, and responsibilities, and uses the Style Guide for matters of process and style.

I extend my thanks to the editors and proofreaders who identified concerns, participated in discussions, and provided reviews and comments to help correct and clarify the Style Guide 2016 reprint, in particular, Tracey D. Hooper, Steven Justin Smith, Susan Bannerman, and Rosalind Penty. Thanks, too, for the typesetting skills of Donna Lindenberg of Newport Bay Publishing.

I hope any differences the reader finds between this reprint and the 2008 edition will make the Style Guide more helpful and easier to use.

Preface to the 2008 edition

Any scientific and technical publishing program benefits greatly by adopting a set house style and providing its authors, editors, and production staff with clear guidance on how to meet the program’s publishing objectives.

The last edition of the Style Guide (Strongitharm 1995) has served well in providing this guidance over the past decade. However, an update was in order. The many technological advances that have occurred in recent years in electronic communication and publishing needed to be addressed (such as citing web-based references). Furthermore, the approval process for vetting documents submitted to the Forest Science Program had also evolved, aimed at ensuring that publications meet a high level of peer and technical review. The stages in this new process also needed to be clearly laid out in the guide to help authors plan and prepare their submissions. And, of course, myriad small changes and refinements were overdue—typical of the regular use-and-adapt process that leads to improvement of any tool.

We were not interested in making change for change’s sake, especially as the guide has been embraced and followed for so long as it is. Therefore, we have
maintained most of the original content while incorporating updates on topics and in certain sections as requested by guide users.

This new edition is organized into two parts.

**PART 1** describes the seven main steps in the Forest Science Program publication process, from selecting the appropriate publication vehicle, through writing and review, to design, production, printing, and distribution. Key players in the early steps are the author, his or her manager, and the Director of Research Branch, all of whom play critical roles in ensuring that every manuscript receives adequate review and approval before being accepted for publication in any Forest Science Program publication series or format. Part 1 also addresses such topics as writing for the web, complying with intellectual property requirements, and revising online documents.

**PART 2** is the Style Guide. It presents, in alphabetical order by topic (and supported with numerous examples), all matters of style pertaining to Forest Science Program publications. It also includes new information for authors on how to cite online materials and sources.

I hope that the writing and style conventions presented in this edition will answer most questions that authors, editors, typesetters, proofreaders, and designers involved with Forest Science Program publications are likely to have. No reference guide can anticipate every possible query, and grammatical usage evolves, style conventions change, and organizational and external influences continue to exert pressure on the manner in which scientific and technical publication occurs. Nevertheless, I trust that this update to Research Branch’s longstanding Style Guide will provide, for the next stretch of time, a common point of reference for all involved—one that continues to support and promote the high standards of quality associated with the work of the Forest Science Program.

Paul Nystedt
Art Director
2008

*Should you have any questions about the guide or suggestions for improvement, please direct them to Production Resources (For.Prodres@gov.bc.ca), the publishing unit for the Forest Science Program.*
Acknowledgements

Any manuscript submitted to the Forest Science Program’s peer- and technical-reviewed series of publications passes through the hands of numerous people, all of whom contribute to make the manuscript a more cogent and coherent publication. These are the same people who have helped in the revision of the Style Guide—namely, the authors, many of whom have contributed comments and concerns to be dealt with in this revised edition, as well as the editors and proofreaders, namely Susan Bannerman, Ros Penty, Jodie Krakowski, and Steven Justin Smith. In particular, I’d like to acknowledge the contributions of Heather Strongitharm who put together the 1995 Research Program Style Guide and Authors Manual, and Georgina Montgomery, who compiled and wrote the first two editions of the Style Guide for Research Publications (1983, 1985) and has also been the senior editor on this edition. Anna Gamble of Inform Design designed the Forest Science Program’s publication series and the original Style Guide cover, Donna Linden-berg of Newport Bay Publishing typeset the document, and Rick Scharf provided numerous reviews.
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PART 1: THE FOREST SCIENCE PROGRAM PUBLICATION PROCESS

The publication process in the Forest Science Program involves seven main steps, as shown below. This part of the Style Guide and Authors Manual details the tasks and responsibilities at each of the seven stages.

**STEP ONE** SELECTION OF APPROPRIATE PUBLICATION SERIES

**STEP TWO** GUIDELINES FOR WRITING

**STEP THREE** CONTENT REVIEW

**STEP FOUR** INCORPORATION OF COMMENTS AND SUBMISSION OF FS459 APPROVAL FORM

**STEP FIVE** EDITORIAL REVIEW

**STEP SIX** DESIGN AND PRODUCTION

**STEP SEVEN** PRINTING AND DISTRIBUTION
1 Forest Science Program Publications

The Forest Science Program in British Columbia’s Ministry of Forests and Range supports a vigorous, well-organized publishing arm that ensures the effective and timely reporting of the work carried out by the Ministry’s science and technical staff. Forest Science Program publications are one of the main ways we transfer our technical information to a broad range of audiences. These publications also provide a lasting record of Research Branch and Regional Forest Science team achievements.

Five series make up the family of publications:
- Special Report Series
- Research Report
- Land Management Handbook
- Technical Report
- Extension Note

Journals submissions (external publishing) are also encouraged and supported, as is the publication of miscellaneous brochures.

### 1.1 Description of the Five Main Series

- All five of the program’s publication series are relevant to forestry and range management interests and issues in the province. They vary, however, in their degree of technicality and in the communication objective they serve (the message and the audience). The specifications for each series are outlined below.
- By considering the target audience, type of information, and distribution details of each publication type, authors can select the series that will best suit the nature and objectives of the particular work they want to publish. Production Resources staff from the Technical Communications Section can help with selecting the most suitable publication series.
- Authors who are thinking of producing their own publications are encouraged to consult Production Resources before starting. Production staff can:
  - consult on timing issues;
  - advise on layout suggestions to portray specific types of information;
  - provide cost estimates;
  - supply manuscript formatting suggestions; and
  - answer editorial questions.
Special Report Series

**Purpose**
- represent the culmination of many years of research findings based on the major objectives of a program or major project;
- are appropriate for external reporting on significant findings and major information synthesis (e.g., Ecosystems of British Columbia);
- are expected to be in long-term demand.

**Audience**
- serve a broad audience, from resource managers to the informed general public;
- can also serve, as a good overview, an executive readership, as well as a technical audience of people not expert in the particular field;
- require peer and technical review (see Section 3.1, Peer and Technical Review) before submission to the production team.

**Production and print details**
- are published in a 21.5 × 28 cm (8.5 × 11”) format, bound with spine art;
- are produced with high production values such as designed cover art, the use of colour, graphics designed and produced specifically for the report, and a more complex format and layout of tables and text than the other publication series;
- have a unique identifier number (ISBN);
- have a print run based on the core distribution list, author distribution list, and predicted long-term requirements.

**Distribution**
- are distributed to a core list that includes industry, government, and university libraries across Canada and the United States, as well as to a distribution list provided by the author;
- are listed and sold on the Crown Publications Index, www.crownpub.bc.ca.
- are available in PDF (portable document format) on the Ministry’s website at www.for.gov.bc.ca/scripts/hfd/pubs/hfdcatalog/index.asp

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**Notes:**
- Information is provided in square brackets [...].
- Synonyms are expressed as: As a rule, only synonyms in cases of recent taxonomic or nomenclatural revision, species names and author citations follow Esslinger and Egan (1995).
- Common Names are given according to the terms listed in Appendix 1, in which distribution maps are provided for species judged to be rare or infrequent in the province.
- For example, while all species of genera they are supposed to circumscribe. Because, however, these growth forms are units of convenience, not biology, they do not always offer a perfect “result” Identifying Lichens” (page 10) prior to using the keys.
- Distinction with similar genera.
- The species accounts are more comprehensive than the genus accounts.
- The genus accounts include:
  - an introduction (in italic type,
  - diagnostic characters placed in bold italics,
  - notes on global status, distribution, and oversights doubtless remain. The reader is invited to bring these to the author’s attention for the benefit of future authors.
- The genus Cladonia incorporates all lichen genera known to occur in British Columbia in which a majority of species can be described as fruticose. In a few instances, fruticose genera are also included (in parentheses (...). See also “A Note on Terminology” for a discussion of fruticose vs. foliose vs. squamulose species belonging to essentially nonfruticose. For convenience, lichens can be arranged in several different growth forms, including crustose, squamulose, foliose, and fruticose. In a few instances, fruticose genera are also included (in parentheses (...).
Research Reports

Purpose
• the Forest Science Program’s formal research publication; present the results of experimental studies within the Forest Science Program or under its sponsorship;
• are appropriate for external types of scientific reporting such as:
  • scientist to scientist reporting
  • “classic” final research papers
  • case studies
  • methodologies
  • new techniques
  • data summaries
  • bibliographies
  • observational or descriptive information.

Audience
• are intended for the scientific community;
• require peer and technical review (see Section 3.1, Peer and Technical Review) before submission to the production team.

Production and print details
• are published in a 14 × 21.5 cm (5.5 × 8.5") format, laid out in single column, and saddle-stitched or perfect bound, and may have spine art, depending on the thickness (in terms of number of pages) of the document;
• are designed to accommodate complex graphics;
• have a unique identifier number (ISBN);
• have a print run based on the core distribution list, author distribution list, and predicted long-term requirements.

Distribution
• are distributed to a core list that includes industry, government, and university libraries across Canada and the United States, as well as to a distribution list provided by the author;
• are listed and sold through the Crown Publications Index;
• are available in PDF on the Ministry’s website.
Land Management Handbooks

**Purpose**
- provide descriptions, classifications, or interpretations of practical information and applications for use in forestry operations;
- are appropriate for external types of reporting such as:
  - ecosystem descriptions and classifications
  - interpretations
  - topic syntheses
  - management tools.

**Audience**
- are intended for resource managers and similar decision makers, providing them with practical information and procedures for on-site use;
- require peer and technical review (see Section 3.1, Peer and Technical Review) before submission to the production team.

**Production and print details**
- may be produced with either high or low production values (low production values means minimal formatting) and in either a desktop format (21.5 × 28 cm [8.5 × 11”]) or field guide format (14 × 19.5 cm [5 ½ × 7 ¾”]), depending on user and audience requirements;
- have, in the desktop version, a two-column format and may have cover art or include a topic indicator to identify their subject area (e.g., Biodiversity, Soil Conservation, Silvicultural Systems, Growth and Yield, Demonstration Forests);
- have a unique identifier number (ISBN);
- have a print run that is based on the core distribution list, author distribution list, and predicted long-term requirements.

**Distribution**
- are distributed to a core list that includes industry, government, and university libraries across Canada and the United States, as well as to a distribution list provided by the author;
- are listed and sold through the Crown Publications Index;
- are available in PDF on the Ministry’s website.
Purpose

Technical Reports produced with high production values are appropriate for reporting on practical information such as:

- consulting reports
- workbooks
- interim topic syntheses
- yield tables
- operational trials
- symposium or workshop proceedings.

Technical Reports are also appropriate for interim and in-process scientific research reporting such as:

- problem analyses
- working plans
- interim results
- final results for documentation purposes
- other scientific reporting.

Audience

- are intended for the scientific community, resource managers, or technicians;
- require a peer and technical review (see Section 3.1, Peer and Technical Review) before submission to the production team.

Production and print details

- are produced in a 21.5 × 28 cm (8.5 × 11”) format;
- are produced with either high production values (including cover art and complex or colour graphics) or low production values (minimal formatting);
- may include a topic indicator to identify their subject area (e.g., Biodiversity, Soil Conservation, Silvicultural Systems, Growth and Yield, Demonstration Forests);
- are numbered;
- have a print run based on the core distribution list, author distribution list, and predicted long-term requirements.

Distribution

- are listed and sold through the Crown Publications Index;
- are available in PDF on the Ministry’s website.
**Extension Notes**

**Purpose**
- alert scientists, resource managers, and others to current developments in the Forest Science Program and forest research literature in general; each issue is usually devoted to a single topic;
- are appropriate for external summary types of reporting such as:
  - tours and demonstration site descriptions
  - extension and demonstration updates
  - research project summaries

**Audience**
- are intended for scientists, resource managers, technicians, and others (e.g., special interest groups, field workers, equipment operators);
- require a technical review (see Section 3.1, Peer and Technical Review) before submission to the production team.

**Production and print details**
- are produced in bulletin form, 21.5 × 28 cm (8.5 × 11”) format, with an average length of four to eight pages;
- may be developed with a distinctive regional look;
- may have a topic indicator, placed in the scholar’s column, under the author’s block on the front page, to indicate subject area (e.g., for Biodiversity, Soil Conservation, Silvicultural Systems, Growth and Yield, or Demonstration Forests);
- are numbered;
- have a print run based on the core distribution list and author distribution list.

**Distribution**
- are listed on the Crown Publications Index;
- are available in PDF on the Ministry’s website.

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**Regional production of an Extension Note**
Production Resources staff are happy to provide Regions staff with whatever help they might request in producing an Extension Note, from editing and proofreading to typesetting specifications to sending a job to press.

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### Section 1.2

**1.2 Other Types of Publishing in the Forest Science Program**

Papers and articles for refereed journals, miscellaneous brochures, posters, and the Forest Science Program Annual Report may also be produced by the Forest Science Program.

**Journal submission**
- Authors in the Forest Science Program often submit articles to scientific journals. This type of publication is intended to communicate project results to other researchers in the field. Lead authors should have their papers reviewed internally before submitting them to a journal for publication.
• Production Resources staff can assist with copy editing and graphics preparation for journal articles. When requesting such services, authors are asked to forward the journal’s “Instructions to Authors” to Production Resources.
• All journal submissions should include an acknowledgement of the involvement or support from the Ministry of Forests and Range.

Brochure
• The Forest Science Program publishes a variety of brochures that are not part of any established series. These publications serve as stand-alone information summaries or how-to leaflets. They are not catalogued. Between 200 and 500 copies are usually printed (though more can be done to meet an author’s needs) and these are distributed according to their individual requirements.
• Each brochure is specially designed to suit the topic’s purpose and audience. Authors are encouraged to consult with Production Resources staff before beginning the planning and writing stages.

Poster
• The Forest Science Program can assist authors with creating posters for presentation at events such as workshops and symposiums.
• Posters are generally produced as a PowerPoint file or as a PDF, designed to be output on a plotter. They often have a very short lifespan, given that they are intended for a particular event.

Annual report
• The Forest Science Program Annual Report is a catalogued series created by the Research Branch. Its purpose is to inform decision makers, industry, resource managers, the public, scientists, and others about the accomplishments of the program.
• The annual report is produced to a high quality with a distinctive design and cover art. The print run is based on core distribution and a mailing list developed by the Research Branch. All annual reports have a PDF version on the Ministry’s website.

1.3 EP and Publication Approval Form (the FS459 Publication Approval Form)
• Every manuscript submitted for publication in a Forest Science Program series or in an external journal or other outside series must be accompanied through the submission and approval process by an FS459 Publication Approval Form. This form is available online at www.for.gov.bc.ca/ism/forms/lib/stubs/fs459info.htm
2 Guidelines for Writing

2.1 Using an Outline
- Before you start to write, make an outline. This will ensure that you cover the main topics in a logical, effective order. At a later stage, the outline will form the basis of the table of contents.
- Similar documents can serve as useful models to follow in organizing your report and help you envision some options for organizing the outline.
- Use the outline as your blueprint for writing, and revise it if necessary. Sometimes in the process of drafting, you will see opportunities to improve the way that you present your information. An outline is an aid to writing, not a structure cast in stone.

2.2 Writing the Document
- Make your technical writing clear and concise, and write with your intended audience in mind. If you were making an oral presentation on the mountain pine beetle, you would choose what to say and how to say it very differently depending on whether the audience was made up of forest pest entomologists or town residents at a public information session. Approach writing in the same way. Think like the readers, and anticipate what questions they are likely to have about the topic and what information they need to understand your point.
- Terminology in a particular field of study may seem precise to people who work within the discipline, but the terms and concepts may confuse and alienate readers. Define terms clearly at the outset and then abbreviate later if you wish to (but, again, only if doing so serves your readers). For example, instead of writing “a 2-11 plug,” write “a plug of 11 cm in depth and 2 cm in diameter” at first mention.
- Format, style, and spelling should be consistent throughout and should conform to the Forest Science Program house style. (Articles prepared for publication in an outside journal should conform to that journal’s style and format.)

2.3 Parts of a Typical Report
- Scientific and technical reports usually contain three major divisions:
  - the front matter (or preliminaries),
  - the text, and
  - the back matter (end matter or reference matter).
- In general, the front matter serves as a guide to the contents of the publication and the back matter is reference material. The text itself should contain all the information that a reader needs to understand the author’s argument.
- The standard components of each major division and the order in which they appear are shown below. Not every component is required in every publication.
Front matter
- Half title page
- Frontispiece
- Title page
- Copyright page
- Abstract
- Executive summary
- Preface
- Acknowledgements
- Table of contents (including appendices)
- List of tables and figures
- List of contributors

Body
- Introduction
- Materials and methods
- Results
- Discussion
- Conclusions

Back matter
- Appendices
- Glossary (including list of abbreviations)
- Bibliography (literature cited or references)
- Index

Front matter

Half title page
- A half title page contains only the main title and, in some cases, the series title. It does not include the subtitle and authors’ names. It may also occasionally include a graphic element, such as a program logo or other suitable illustration.
- Although high-profile publications such as the Special Report series may contain a half title page, most Forest Science Program publications do not.
- The half title page contains a blind folio (a page number that is counted but not actually shown).

Frontispiece
- A frontispiece is typically an illustration that appears on the page facing the title page. This page can also be left blank.
- Publications produced through a particular program may have a frontispiece made up of text rather than an illustration. This is sometimes referred to as an insert page. The insert page usually appears on the inside front cover. The text contains a brief description of the program and the funding for the project.
- The project leader (usually the senior author) is responsible for requesting a frontispiece when submitting the manuscript for publication.

Chapter 2
• When required, a message from the Minister or the Premier could be used as a frontispiece.

**Title page**
• The title page includes the full title of the report (including subtitle, if any), the authors' names, and the publisher's imprint (the logo for the B.C. Ministry of Forests and Range).
• All title pages are typeset and, like the half title page, contain a blind folio.

**Copyright page**
• The copyright page is prepared by Production Resources staff. It is always a verso (left-hand) page, backing the title page, and contains a blind folio.
• This page contains the copyright notice, the publishing history (year of first publication and year of subsequent editions), the publisher's address, and the authors' addresses and affiliations. See Appendix 1 for a sample copyright page.
• A bibliographic citation for reference purposes.
• The date of each edition appears in the copyright notice.
• The date in the copyright notice must be the actual year of publication (and the copyright date on the copyright page must correspond to the date on the title and cover pages).
• The Legislative Library supplies the ISBN number based on information provided by Production Resources staff. The ISBN is applied for after the final title has been decided on.
• As of October 2013, Library and Archives Canada (LAC) no longer acquires nor provides cataloguing-in-publication (CIP) services for provincial publications.

**Abstract**
• An abstract, like an executive summary, contains an abbreviated account of the contents of a publication. Its purpose is to help readers determine whether the information in the publication is useful to them. However, an abstract is distinctly different from an executive summary in its style and intended use.
• An abstract should be no more than about 200 words long, and be suitable for reprinting in a journal or a collection of abstracts. It should include information to help someone find the publication through an online search—information such as scientific and common names used in the text, keywords that represent the main topics covered in the document, and terms used in the document's title. Because an abstract may be published on its own, it must be self-contained and should not include bibliographic information, table or figure references, or experimental data.
• All scientific and technical publications in the Forest Science Program series should have an abstract.
• The abstract should be prepared after the report is finished.
• Some reports may contain both an abstract and an executive summary.
**Executive summary**

- An executive summary, like an abstract, contains an abbreviated account of the contents of a publication. Its purpose is to help readers determine whether the information in the publication is useful to them. However, an executive summary is distinctively different from an abstract in its style and intended use.
- An executive summary may vary from one to several pages in length. A good summary outlines briefly the purpose of the work, the key findings, the conclusions, and the recommendations (if any). If a report is relatively short (e.g., fewer than 10 pages in length), an executive summary is not necessary.
- The executive summary should be written after the report is finished.
- Some reports may contain both an abstract and an executive summary.

**Preface**

- A preface typically includes introductory comments and background information that sets the context of the document for the reader. It is written by the author (or authors) of the document. (A foreword, on the other hand, is a complimentary or explanatory note written by someone other than the author of the text. Forewords are rarely used in Forest Science Program publications.)

**Acknowledgements**

- For most publications, it is appropriate to acknowledge financial or technical assistance to a research project or assistance in preparing a report. It is always wise to confirm with the agency or individuals to be credited that they agree to being recognized for their contributions.
- Acknowledge the contributions of all illustrators, as well as giving credit for images and any excerpted material used in the text. Routine tabular or graphic work need not be acknowledged.

**Table of contents**

- A table of contents is a necessary tool in all but short documents (fewer than about six pages). It should present the exact headings and subheadings (first- and second-order headings) and beginning page number of each section of the publication. To avoid cluttering the table of contents, do not include parenthetic material or third-order headings unless it is absolutely necessary to do so for clarity.
- In a report consisting of papers or chapters written by different authors, include the name of each author in the table of contents, along with the title of each piece.
- If there are more than two appendices in the document, list them—under the heading “Appendices”—by number, title (but not including parenthetical parts of the title), and page number. Place this list before the lists of tables and figures in the table of contents.
- Unless otherwise limited by design, the table of contents should begin on a recto (right-hand) page.
Lists of tables and figures

- Treat lists of tables and figures the same as the list of appendices, and run them on from the table of contents page, listing the appendices first, if present, then the tables and then the figures.
- List each main caption (first sentence or phrase only; not additional sentences or parenthetical material that might be part of the full captions) exactly as it appears in the text, along with its text page number. (See Section 8.8, Figures and Section 8.19, Tables for more information on figure and table style.)

List of contributors

- In a publication with several authors (such as symposium proceedings), it is preferable to list all the contributors on a separate page and name only the editor or editors on the title page. The list of contributors may be headed “Participants,” “Contributors,” “Authors,” or whatever suits the particular publication.
- List the names of contributors alphabetically by last name, but do not reverse the order of the names (e.g., put Jane Swift, not Swift, Jane). Including the title and affiliation for each contributor is optional.

Body

Introduction

- Some introductions may be quite brief, presenting the problems and main objectives of the investigation, referring to related work and pertinent literature, describing methods and materials, and noting the scope and limitations of the work.
- Other introductions may be more detailed, setting the scene, context, or background for the subject matter (see below, “Other divisions”).

Materials and methods

- The materials and methods section describes the methods of problem solving, sampling, statistical analysis, and materials used.
- All descriptions of procedures, including procedures for analyzing data, must be sufficiently detailed to allow replication of the work.
- Subheads such as “Site Description,” “Field Methods,” or “Statistical Analysis” may be used to arrange the information in this section.

Results

- The results section summarizes the findings of the study. It includes only the data directly related to the study. Other supporting data may be included in the appendices if necessary.
- If the relevant data appear in the form of tables and figures, refer to them in the text, but avoid repeating information both in the text and in tabular or graphic form.

Discussion

- The discussion section examines the meaning of the study findings, shows relationships among the recorded facts, and notes any exceptions or lack
of correlation. Tables and figures can be useful to emphasize important points.

- The discussion section sometimes includes the author’s conclusions, but more often the conclusions have a separate heading (see next section below).

**Conclusions**

- The conclusions section comes at the end of the report body. It may contain both discussion and recommendations, but if the conclusions are detailed, they should appear under their own heading. In some reports this section is called “Recommendations.”
- Sentences should be clear and concise, and the points should be listed in order of importance. Summarize the significance of the work, its implications, and possible applications.

**Other divisions**

- Publications in the Special Report series and other very large publications may be divided into chapters.
- Each chapter normally begins on a new page.
- If the regular text material includes an introduction, the introduction may be the first chapter or the first part of the first chapter, or it may be a separate part of the text and come directly before chapter one, whichever suits the particular publication.
- For long, or complex, reports with numerous chapters, or sections, use a running footer that contains the chapter or section number.

**Back matter**

**Appendices**

- Appendices are not essential in every publication, but they have many uses. They may contain detailed, lengthy tables and associated reference materials (such as lists) that are not essential to the text but provide supportive information.
- Appendices should be numbered in the order they are mentioned in the text.
- Appendix 1 starts on a new page, usually recto. Subsequent appendices each begin on a new page, either recto or verso.
- Each appendix has a caption at the top of the page. Set the word “appendix” in uppercase at the top of the page, flush with the left margin, and follow it with the number and caption. Capitalize only the first word and all proper nouns. Do not use a period at the end of the caption unless there is more than one sentence.

**Glossary**

- A glossary is useful if the text contains many technical or scientific terms that require explanation. The glossary allows the reader to refer to a definition easily and quickly without having to search back through the text.
- To help you decide whether a glossary is necessary or not, consider:
• the needs of your audience (will you be using many terms that are new or unfamiliar?);
• the number of terms needing definition (if few, definitions might be better placed in footnotes or margins); and
• the length of the document (in a short document, definitions might be better placed in footnotes or margins).
• Each word in the glossary should appear in boldface the first time it occurs in the text.
• General guidelines for writing a glossary:
  • List words (or terms) in alphabetical order. Glossary styles vary, so it is important to be consistent in the approach you choose.
  • List words that begin with numbers (e.g., “20/20”) as though the number were written out (therefore, “20/20” would be listed after “trial” and before “2,4-D”).
  • Put all terms in lowercase, unless they include proper nouns (e.g., “Bräcke mounder”; “Douglas-fir”; “Rocky Mountain elk”).
  • For common acronyms or abbreviations, spell out the full term and parenthetically state the acronym or initialism. Then, where the spelled-out term is listed, provide the full definition.

  **FTE** See *full-time-equivalent.*

  **full-time-equivalent (FTE)** Describes a position that . . .

• Do not just cut and paste definitions from online dictionaries or glossaries into your customized glossary. Rewrite the definitions in your own words and, if necessary, have them reviewed by peers or subject matter experts. Alternatively, if you do wish to use particular definitions from existing print or online glossaries, obtain (as you would for any copyrighted material) permission to do so and cite the source in a footnote.

**Bibliography**

• The bibliographic section may be headed either “Literature Cited” (listing only the published sources actually cited in text) or “References” (listing both the published sources cited in text and any other relevant published sources the author consulted while preparing the report). (See Part 2, Section 8.17, References.)

• The bibliography includes references for all preceding text and back matter, including supportive material found in the appendices. (This is the reason it should follow the appendices and glossary.)

**Index**

• Publications in the Special Report and Land Management Handbook series typically have an index, but publications in the other series usually do not.

• See Section 5.4, Indexing, for information about preparing an index.
2.4 Choosing Titles, Headings, and Subheadings

**Titles**
- The title of the report should be concise, specific, and as short as possible.
- To aid cross-referencing, the title of a report should indicate clearly the nature of the report, the specific discipline, and the location of the study. Include keywords such as species name, geographic location, procedure, and activity.
- Avoid the use of abbreviations (except metric symbols), chemical formulae, proprietary names (instead of generic names), and jargon.

**Headings and subheadings**
- Chapter headings and subheadings should be informative and cover all the major concepts in the report. They should also indicate the relationship between sections of the text.
- Using more than three levels of headings can result in a complicated hierarchy that is hard for readers to follow. Complex nesting of headings can also cause formatting and layout problems during production. Thus, avoid the use of more than three heading levels as much as possible.
- Make sure the hierarchy of headings (first-order, second-order, and third-order (see Section 2.6, Guidelines for Manuscript Preparation) is clear and logical. Note that no heading is necessary above the introductory paragraphs to each new section or chapter.
- End punctuation is not required with a heading, unless the heading is intentionally worded as a sentence or posed as a question (in which case, the appropriate end punctuation is required).

2.5 Obtaining and Creating Print-ready or Web-ready Visuals

- Any visual that is not a table is usually referred to in the manuscript as a figure, whether it is a diagram, chart, graph, map, or photographic image. (Tables are technically a form of visual, but because they receive different treatment in the production process, they are dealt with separately in this style guide.)
- Select visuals that best suit the publication, but remember that the production costs of a publication are partly determined by the number, type, and complexity of its visuals. Therefore, because of the added expense involved, it is important to consider carefully whether a particular illustration will contribute significantly to the publication.
- Budget your use of colour in print publications, limiting it to where it is useful or necessary to impart meaning. Colour costs more to print than does black and white.
- Consult Production Resources staff for assistance and advice in selecting and pricing colour options for print publications.
- When you submit any art or other visuals electronically to Production Resources, the typesetter will check that the files can be manipulated for any necessary revision or modification. For this reason, supply a file from the software program that was used to create the visuals.
**Obtaining existing visuals**

- If you wish to use visuals (such as figures, tables, or images) from existing print or online work, or to create visuals that are based substantially on such existing work, you must obtain copyright permission first (see Section 2.8, Complying with Intellectual Property Requirements).

**Creating visuals**

- Graphics can be prepared in several ways. Authors may:
  - specify the data for their graphics and ask Production Resources to develop them;
  - produce draft copies and ask production staff to modify them;
  - contract a local graphics designer to develop them; or
  - submit electronic files of the graphics to be inserted into the publication.

**When requesting artwork**

- Whether the figures in your manuscript are original drawings, are adapted from another source, or come directly from another publication, they must clearly represent the concept you wish to illustrate. Make sure drawings are clear.
- If you choose an illustration from another publication to communicate your idea, photocopy the page and make whatever changes are necessary. Indicate the source (author, title, publisher, publication number, and date). If it is another Forest Science Program publication, it may be possible to obtain the original artwork. Keep in mind that if you plan to use work from outside the government, you must request permission to do so and credit the source.
- If your illustrations are to be hand-drawn, make a sketch of each piece of art. If you do not feel that the illustrator will be able to create an accurate drawing from your sketch, supplement it with written directions.
- Make your drawing approximately the size you would like to see it reproduced, or indicate in writing the size you have in mind. The size of a figure should be determined by its complexity and relative importance in a report.
- When selecting tones or patterns for visuals, consider how reduction or reproduction (usually in black and white) will affect the legibility of the figure.
- Put labels on each visual, making them clear and precise. Labels that are too long can make a visual difficult or confusing to read.
- Always submit your original drawings and keep a photocopy for your records. If you know approximately where the figures should appear in the body of the manuscript, type “[Figure 1]” (or whatever number it is) in the appropriate place. Circle or highlight the note so it stands out from the text, or make a marginal note (circled) on the page of the hard copy to indicate where each figure is to be placed.
Before they are published, all botanical illustrations will receive technical review.

**When submitting your own artwork**

- Generating your own graphics with computer software gives you greater control over the visuals in your manuscript, allows for higher quality graphics, and if properly prepared, can speed up the production process.
- Several computer software programs for producing graphics are now available. This variety can present unique challenges in the production process. If you intend to have Production Resources staff enhance your graphics, provide a well-labelled electronic file indicating the software program used.

**Photographs and digital images**

- Consider using your own photographs or those from other sources (such as government ministries, museums, and private agencies). Many individuals in the Ministry of Forests and Range also have their own photo collections that you may be able to access.
- Use only images whose quality is of a reproducible standard. Quality is defined by sharpness and resolution.
- Sharpness describes the clarity of detail an image shows.
- Resolution describes the amount of detail an image holds, often expressed in dots per inch (dpi). A higher resolution can provide clearer detail. Best results for Forest Science Program publications are achieved with colour images of 300 dpi and black-and-white images of 1200 dpi, at the size each image is to be used.
- Consult with Production Resources staff for assistance and advice in assessing the quality of the images selected.
- High-quality digital images and colour transparencies (slides) are used for colour reproduction in those publications whose colour images are the primary focus. Try to obtain the original colour transparency, because a duplicate will already have lost some clarity. If electronic images are available, make sure they are sharp and have a resolution of 300 dpi at the size they are to be used.
- If your images are included in the word processing file of your document, provide Production Resources with the original image as well.
- Photos are frequently cropped to fit layouts. You may be asked to indicate which parts of the photo are most important to the message of your document.
- If you are providing photographs as the source of images for your publication, do NOT make any marks on the face or the back of the photo prints. The slightest dent from a mark on the back of a print will be visible on its
surface, and therefore appear in all reproductions and scans. Instead, write the figure number on a small piece of paper and tape the paper to the back of the print.

- Rename your electronic image files to correspond with the figure numbers of your document, or provide an index identifying where each image goes. If you are using photos or slides, place each one in a separate envelope clearly marked with your name and phone number, the title and number of your publication, and the figure number.

### 2.6 Guidelines for Manuscript Preparation

- Authors must submit their manuscripts for publication review and approval with the FS459 Publication Approval Form (see Section 1.3) to the Research Branch. Once a manuscript goes through the approval process, is revised as necessary, and receives appropriate sign-off from managers and the Director, it is ready for submission to Production Resources. Should an author have any special instructions or requests, they should send those along as well.

#### Electronic file

- *Keep formatting to a minimum.* This means using only a single-column layout and a normal style sheet with regular, bold, and italic type. DO NOT use the word processing program's heading style sheets.

#### Cover and title pages

- Ensure that all necessary information is included on the cover and title pages, and is accurate. The lead author should check that the wording of the title is correct and that the names of authors are exactly as they are to appear in the final publication.
- It is recommended that authors be consistent in how they identify themselves in their publications (e.g., John David Smith, John D. Smith, J.D. Smith, or Jack D. Smith). Variations on a “publishing name” can be confusing for cataloguers, indexers, researchers, and general readers.

#### Footnotes

- Insert text footnotes using the footnote function in the word processing program. Note that table footnotes should be counted uniquely for each table to which they apply. (See Part 2, Section 8.17, References, for footnote style.)

#### Headings

- The following style of headings and subheadings is preferred in submitted manuscripts. See Figure 1. A different style may be applied in final layout, but clearly differentiating the levels in the draft manuscript ensures that the hierarchy is evident to reviewers and production staff.
• First-order headings: all in uppercase; set flush left and boldface.
• Second-order headings: capitalize the first letter of all words except articles, conjunctions, and prepositions; set flush left and boldface.
• Third-order heads: capitalize the first letter of the first word and of any proper nouns or adjectives; set flush left and bold.
• Fourth-order heads: same as third-order heads and all in boldface italics.
• Use two returns (line spaces) between first-order heads and the text and two returns at the end of a section, before a new head. Use only one return after all other heads.
• Line up text flush left beneath each heading or subheading.
• Figure 1 shows the preferred style of headings and subheadings for manuscripts. The same guidelines apply with unnumbered headings.

![Figure 1 Preferred style of headings and subheadings in the body of a report.](image)

### 4 RESULTS

Text begins here…

#### 4.1 Characterization of the Ecosystems

Text begins here…

##### 4.1.1 Description of the study plots

Text begins here…

*Vegetation and soils*

Text begins here…

**Pagination**

• Number all manuscript pages consecutively, from the title page and through the appendix material to the last page of references (in other words, do not number front matter or back matter separately). This simplifies the task of estimating the cost of production.

**Bibliographies**

• Set each entry with a hanging indent, as shown below. Double space between entries.
• Where the same author (or authors) has more than one entry, do not repeat the name (or names). Instead, type a line (using underscore character) equal to 10 character spaces regardless of how long or short the names are. (See Part 2, Section 8.17, References, for details and examples of citation styles.)


Table of contents

- Figure 2 shows a sample table of contents depicting the style used for Forest Science Program publications. In a manuscript, do not number the front matter separately.
- Do not put “Page” above the list of page numbers.
- List first-, second-, and third-order headings exactly as they appear in the text (except that parenthetic parts of a heading may be omitted); check for consistency in wording, spelling, hyphenation, and capitalization.
- If the table of contents extends to more than one page, do not repeat the head “Contents” on subsequent pages.

![CONTENTS](image)

**Figure 2** Preferred style of headings and subheadings in a manuscript’s table of contents.

- In a report that consists of papers or chapters by different authors, include the name of the author in the table of contents with the title of the chapter.

2 Site Preparation: Fire

*P.C. Bennett, R. Bloom, and D. Arneault* 13

3 Site Preparation: Chemical

*G. McNaughton* 26

2.7 Tips on Writing for the Web

- In general, the guidelines for writing presented throughout Part 2 apply equally well whether you are writing for print or for electronic media. All reporting requires a logical presentation, clearly expressed ideas, an easy-
to-follow hierarchy of headings, consistent style suited to the intended audience, use of informative graphics, and adherence to various standards of technical and scientific publishing.

- Nevertheless, writing information that is intended primarily for online access rather than print access involves some additional considerations. Studies show that most people reading web pages scan most of the time, looking for keywords and sentences. Information is best revised and re-designed specifically to suit the online environment.
- A PDF is the best way to make a print document available on the web. The PDF maintains the format and layout of the print document no matter what browser is used to view the file.
- Basic guidance in writing for the web includes the following pointers:
  - Put the main points of your document in a brief summary at the start so readers scanning will not miss them.
  - Write in a way that serves scanning. This means using:
    - one idea per paragraph;
    - explicit headings and subheadings;
    - much reduced word count than you would normally use for print media;
    - bulleted lists; and
    - highlighted keywords: typeface variations and colour are one form; hypertext links are another (but see the next two points).
  - Use links judiciously. They are a valuable means of supplementing your main information (e.g., by providing background and supporting detail), but they can also disrupt the flow or argument and be visually distracting if overused or if the link is broken.
  - Broken links frustrate readers and are time-consuming for a webmaster to repair. Links internal to the web document or website seldom break. Therefore, to ensure that links are up to date, use only those that connect to internal documents and sites. Use external links only if you or someone else plans to monitor them regularly for accessibility.

2.8 Complying with Intellectual Property Requirements

- Intellectual property is the concept that people can own their creativity and innovation in the same way that they can own physical property. The owner of intellectual property is entitled to control the ideas they have created and to be rewarded for their use.
- Copyright—protection of, among other things, published works—is one of the four main types of intellectual property (the other three are patents, trademarks, and designs of manufactured products).
- Copyright gives an author economic rights (the right to control use of the material, such as where and how it is published or copied) and moral rights (the right to be identified as the creator of the written material and to object to its distortion, misuse, or use in any other way that might discredit the author).
Who holds the copyright on government publications?

- The Province of British Columbia, rather than the author, holds the copyright to all publications produced by the Forest Science Program in the Ministry of Forests and Range. (This is in keeping with Canada’s Copyright Act, which allows copyright in work created by an employee to belong to the employer.) Furthermore, copyright ownership of materials prepared by freelance contractors and consultants under the direction of any federal or provincial government agency is also held by the agency and not the independent contractor.
- Employees and contractors of the Ministry of Forests and Range, as a condition of their employment or service contract, formally assign to the Province copyright of any materials they produce.
- The Ministry has the right to reprint publications as required.

Protecting print and web materials

- Print and web materials include, but are not limited to, reports, documents, data, charts, photographs, artwork, and software.
- No one may republish or copy Forest Science Program publications (or any government materials) without first obtaining written permission of the Director of Research Branch. See the Copyright Permission Request form at www.prov.gov.bc.ca/com/copy/req/
- To protect the copyright on web materials produced under the Forest Science Program, the following notice must, in keeping with government-wide policy, appear on all web pages:

  © 2007 Province of British Columbia
  All rights reserved
  This material is owned by the Government of British Columbia and protected by copyright law. It may not be reproduced or redistributed without the prior written permission of the Province of British Columbia.

Waiving moral rights

- In addition to assigning copyright to the Province, employees and contractors of the Ministry of Forests and Range are required, as a condition of their employment or service contract, to sign a waiver of moral rights to any material they produce.
- A signed waiver permits the Province to produce written material in a number of formats, and to revise these materials in subsequent editions. Signing a waiver of moral rights is standard practice where ownership of the work produced lies with the employer.

When is written permission required to use material copyrighted by others?

Permission to use a “substantial” part of another’s work

- You must obtain permission to use a “substantial” part of someone else’s written work or artwork, photographs, forms, tables, or graphs. “Substantial” is not legally defined as to number of words or percentage of text.
quoted. It refers to the significance of the selected material in the context of the whole source (but see below, concerning “fair dealing”).

**Fair dealing: ways to use material without violating copyright**

- Under the Copyright Act’s “fair dealing” provision, minor uses of previously published material are allowed—unless they could be interpreted as constituting a “substantial” part of the original work. For example, copyrighted work can be quoted from briefly, without the copyright holder’s permission, for purposes of research, review, study, scholarly referencing and citing, and news reporting. The author and source of the quoted materials must be identified. (Note: Fair dealing is different in several respects from “fair use,” which is the term for a similar provision under U.S. copyright law. Fair use is interpreted more loosely than fair dealing.)
- Short quotations can usually be cited without permission, but the source must be acknowledged. Permission is not required for quotations from government publications, but they must also be acknowledged as the source for the material used.

**Permission to use material from internet sources**

- Copyright restrictions also apply to internet sites, databases, software programs, and other electronic or digital texts. For example, if you wish to reproduce the onscreen display of software or the results of a database search, you are required under copyright law to obtain permission from the software publisher or the database owner.
-Permission is required from the original source, and complete bibliographic citations must be given for full-length copyrighted materials. Some internet sources give blanket permission for non-commercial reproduction of materials with appropriate credit. Always check the policies relating to the material you would like to quote.
- If you use information found on the internet, always cite the source. For example, for a chapter of a book found online, cite the publisher of the entire book.
- As is the case for print documents, short excerpts for review and comment are acceptable as long as the author and source are acknowledged.

**Who is responsible for obtaining permissions and how is it done?**

- If a publication is to contain previously published figures, graphs, photographs, illustrations, or long quotations:
  - the author is responsible for obtaining written permission from the copyright holder; or
  - for a publication with chapters written separately by several authors, each author is responsible for obtaining the permissions for any copyrighted material in their chapter.
- A permission request form similar to that shown in Appendix 2 should be used.
- Authors must also obtain permission to use personal correspondence or unpublished communications as support for their data. Send an email, or
a photocopy of the page with the personal communication reference, to
the person you wish to quote or paraphrase. Ask for acknowledgement
confirming that you may use the correspondence.

- To avoid delays in production, request all permissions as soon as possible
while you are completing your manuscript. Send copies of the signed
permissions to Production Resources when you submit your manuscript.
These will remain on file with Production Resources.

- If you borrow photographs from another source:
  - If you have permission to use a photo from another publication, add
    at the end of the caption, “Photo courtesy of [name of author, title of
    publication, year].” Attach a copy of the permission request form to
    the FS459 Publication Approval Form, and include a reference for the
    publication in the Literature Cited section.
  - If the photo was taken by someone other than a government employee
    and has not appeared in another publication, obtain written permission
    from the photographer to use it. Add at the end of the caption, “Photo
courtesy of [name of photographer].”

**How should credit be given?**

- Even if permission was not needed, you should acknowledge other
people’s work where it forms an important basis of your own report.
Credit lines may be shown as footnotes to the relevant material or inserted
during layout in a more appropriate location in the manuscript (consult
Production Resources). A standard form might be “Reprinted by permis-
sion, from [author, title, page(s), edition, copyright date].”

- Remember that acknowledgement does not take the place of obtaining
permission where it is required (see above).

### 2.9 Submitting the Manuscript

**Submission housekeeping**

- When submitting the manuscript electronically along with the FS459 Pub-
  lication Approval Form, ensure that the word processing document con-
tains all the necessary elements (such as tables, figures, and appendices)
that will allow the management team to do a full review of the proposed
publication.

- Note that all artwork does not have to be included with the electronic
review draft—especially if embedding images creates a file that becomes
difficult to transmit. If certain visuals are a critical aspect of the manu-
script content, then submit them in a reduced file size for separate review.
Alternatively, if some visuals are more for illustrative purposes, they can
be submitted later, once a manuscript moves closer to production
(Section 5.2, Editorial Review of Graphics).

- If figures form a part of the manuscript, submit these as an image of re-
duced file size or as separate high-resolution JPEG or TIFF files. Note where
you would like them to be positioned in the text and provide an appropri-
ate caption.
Assigning authorship

• Before you submit the manuscript, decide who will be credited as the author (or authors) of the report. If more than one author is involved, determine in which order the names should be listed on the title page.
• List only the persons who contributed significantly to the conception and design of the work, the data analysis, and the write-up. List them in order according to the importance of their contribution to the work, or in alphabetical order.
• Do not include those who provided technical work or support services such as artwork, production assistance, editing, typesetting, or photography. Use the acknowledgements to give recognition and credit for that work.
• When the contribution accounts for a major component of the publication—such as the highly detailed botanical illustrations in Land Management Handbooks—the title page may include the names of the illustrators or photographers.
• If two or more authors have made a joint contribution to the research and writing, the report has joint authorship. The authors decide by mutual consent the order in which their names will appear.
• When several authors have contributed to a publication, the name of the project leader, who is usually the senior author, appears first.
• Authors should be consistent in how they identify themselves in their publications (i.e., use one “publishing name” and not, for instance, Terry Chang at some times and T.F. Chang at others). One standard name simplifies cataloguing and the compiling of reference lists and ensures that authors are appropriately credited for their work.
• The preferred style for Forest Science Program publications is to have authors adopt a publishing name with a two-initial-plus-surname format (unless an author has only one first initial or always goes by three initials). Examples include: W.J. Smith, E. Alonso, D.A.E Spalding. However, authors who are already established with a different publishing name before publishing in the Forest Science Program (e.g., Wilberforce J. Smith, Eileen Alonso, David A.E. Spalding) should inform Production Resources staff. This will ensure that the preferred name form is maintained in the publication’s front matter and bibliographies.
3 Review Requirements for Forest Science Program Publications

To ensure that Forest Science Program publications are of high quality, each manuscript must be thoroughly reviewed before it will receive approval for publication, either in a program series or as a submission to a journal. The focus of each review process should be determined by the content (information) of the publication and its intended audience. These variables in turn should influence the selection of reviewers.

Five types of review are used in the Forest Science Program:

• peer and technical review
• management implications review
• review by a biometrician (required if the author is reporting on the results of research experiments or other work involving data collection and analysis)
• review by the Public Affairs Bureau (required only if a document is intended for the general public or has significant policy implications)
• client or stakeholder review (required if the material must meet the needs of the intended audience)

It is the author’s responsibility to select appropriate reviewers and to distribute the manuscript for review.

Likely reviewer candidates include scientists, technical specialists, managers, policy advisors, biometricians, and clients, stakeholders, or end-users. For each publication, a balance of internal and external reviewers should also be considered.

The peer and technical, management implications, and biometrics reviews may occur simultaneously. When this is the case, the author should inform all reviewers of the simultaneous reviews taking place.

3.1 Peer and Technical Review

Peer and technical review provides assurance that the content of a publication is scientifically sound, balanced, and impartial.

• All Forest Science Program publications must receive a high level of peer and technical review to demonstrate that the proposed publication adheres strictly to scientific standards and is technically accurate, and that the experimental design, data collection, and analysis were all appropriate and carefully executed.
• All manuscripts submitted for publication in a Forest Science Program series must be read by at least two, and preferably three, suitably qualified peer and technical reviewers.
• All manuscripts submitted for external publication in refereed journals or other outside series should be read by at least one internal peer and technical reviewer (though the author can choose to approach more reviewers). It is assumed that manuscripts sent to outside publications such as journals will receive additional, external review before being accepted.

3.2 Management Implications Review
• All manuscripts submitted for publication should consider the need to undergo a management implications review to demonstrate, to the satisfaction of the Director of the Research Branch, that the author has not:
  • expressed personal opinions or judgements about current forest management practices or policies, or
  • exceeded their advisory capacity by commenting on topics that are the responsibility of executive decision makers (e.g., the Chief Forester).
• This is not to say that authors cannot make recommendations based on their research. Rather, it means that where authors feel that new scientific or technical information could lead to operational or administrative changes, they should first work with their managers and possibly more senior decision makers to discuss the implications of this for existing policies, practices, and procedures. Incorporating such conclusions or recommendations into a preliminary report may be premature.
• If management or policy implications are especially significant, those conducting a management implications review may request that the authors, after making the recommended revisions, return the manuscript for a second review of this nature. As well, the authors may be asked to submit the manuscript to the Public Affairs Bureau for another review (see Section 3.4).

3.3 Biometrics Review
• A biometrics review is required for reports on projects such as research experiments that have involved extensive data collection and analysis.
• The biometrician should be asked to examine:
  • the experimental design, sampling scheme, analysis, and results to ensure that appropriate techniques have been applied;
  • conclusions, to determine how the results have been interpreted for management or policy purposes; and
  • the presentation format of any statistical analyses to ensure that all aspects are clear and understandable to the target audience.
• Authors should correct, or seek further advice from a biometrician on, statistical deficiencies before the manuscript continues through the approval process.
• A manuscript not passing a biometrics review will not be approved for publication.
3.4 Public Affairs Bureau Review

- A manuscript requires a communications review only if:
  - it is planned for distribution to the general public; or
  - it contains material with significant policy or resource management implications.
- Staff at the Public Affairs Bureau carry out this review, and should be given as much lead time as possible.
- Consult with your manager if you are unsure whether your proposed publication requires this type of review.

3.5 Client or Stakeholder Review

- A client review ensures that the material in the proposed publication is presented in a way that best serves the client.
- The author should invite one or more clients in the target audience to review the readability of the manuscript. Typical questions a client reviewer might be asked to answer include:
  - Do the results or recommendations serve the needs and interests of the client audience?
  - Is it clear how the new information is relevant to current practice, and what the potential significance might be?
  - Is the message clear?
  - Is the language at an appropriate level for the audience?
  - Do the organization, style, and format of the report make it easy to use and understand?
  - Do the figures, tables, and illustrations help make the text more understandable, or are they irrelevant, unclear, or distracting?
- Client reviews may also reveal management implications or show possible client reaction to proposed changes in procedures.
4 Revision Responsibilities, Sign-off, and Move to Production

4.1 Addressing Review Comments

- The author is responsible for revising the manuscript in response to all review comments. They must also document on the FS459 Publication Approval Form what revisions were made in general and, for those suggestions not incorporated into the document, explain why they were not.
- The author should ensure that any technical or management implications issues identified in the review process are resolved before the manuscript goes for final sign-off. If an issue cannot be resolved, it should be flagged for the attention of the Research Branch Director.

An approved and signed form confirms that the document:
- has undergone peer review and, as necessary, biometrics and management implications reviews;
- meets technical standards; and
- where addressing management implication issues, acknowledges the role of science as only one of several factors considered in management practices development.

4.2 Final Approval and Sign-off

- The author’s manager—whether a Branch Manager, a Regional Science Manager, or a Regional Forest Science Officer (or equivalent)—must verify that the manuscript has had all necessary reviews (see Chapter 3, Review Requirements for Forest Science Program Publications) and been revised accordingly. The manager then signs the FS459 Publication Approval Form and forwards it, with the manuscript, to the Research Branch Director. If the Director is satisfied that the author has addressed any concerns identified and produced a document of high standard, they will sign the form and forward it to Production Resources. Table 1 outlines the approval process and responsibilities for sign-off.
### Table 1: Approval process and responsibilities for external and Forest Science Program publications

<table>
<thead>
<tr>
<th>Responsibility for approving document for external publication</th>
<th>Responsibility for approving document for Forest Science Program (internal) publication</th>
</tr>
</thead>
</table>
| 1. Regional Science Manager, Forest Science Officer, or Branch (Headquarters) Manager:  
  - verifies that all required reviews were carried out and the author made revisions accordingly;  
  - signs the FS459 Publication Approval Form; and  
  - forwards it and the approval package to the Director of Research Branch. | 1. Regional Science Manager, Forest Science Officer, or Branch Manager:  
  - verifies that all required reviews were carried out and the author made revisions accordingly;  
  - signs the FS459 Publication Approval Form; and  
  - forwards it and the approval package to the Director of Research Branch. |
| 2. Director of Research Branch:  
  - signs the FS459 Publication Approval Form; and  
  - forwards it and the approval package to the author and the Knowledge Management Unit. | 2. Director of Research Branch:  
  - signs the FS459 Publication Approval Form; and  
  - forwards it and the approval package to the Production Resources and Knowledge Management units. |
| 3. The author sends the approved manuscript to the journal or other external publication. | 3. The Production Resources unit informs the author of approval and begins production, and the Knowledge Management unit files the review comments under the appropriate Experimental Project (E.P.) number. |

### 4.3 Submission of Manuscript to Forest Science Program

- Once the FS459 Publication Approval Form has been approved and signed off and the accompanying manuscript files are with Production Resources, the Production Resources staff will examine the manuscript for completeness and note any special or unusual requirements. Production Resources consults the project leader or senior author (also called the originator or the client), asks for any necessary clarification, and prepares a tentative production schedule. If necessary, the team will schedule a project launch meeting with the originator. The team gives the cost estimate to the Ministry contact (the person with spending authority for the project).
- Based on approved project estimates, Production Resources should be provided with the client's accounts coding, which allows the client's account to be debited directly.
5 Editing Process

It is standard practice for a copy edit to be carried out, but occasionally a manuscript may need a substantive edit, including some reorganization and possibly rewriting (see Table 2). The issue of a substantive edit will be discussed with the author before it takes place.

Manuscripts are scheduled for editing as they are received, but every effort is made to accommodate clients’ schedules and deadline requirements.

Most manuscripts are edited typically for clarity, consistency, grammar, spelling, and conformity to the Forest Science Program style (see Part 2 of this manual).

5.1 Types of Editing Used for Forest Science Program Publications

- The main types of editing used for Forest Science Program publications are:
  - copy editing,
  - stylistic editing,
  - substantive (or structural) editing, and
  - proofreading (carried out during the production stage; see Section 6.2, First Proofs).
- The scope of these various levels of edit is summarized in Table 2.
- The main job of the editor is to make the document easier to read and (for Program publications) to ensure that the Forest Science Program style is followed.
- An editor does not have to be an expert on the subject matter to edit a publication. Editors put themselves in the position of the reader, and this enables them to identify areas that are unclear. An editor will query the author about missing information, questions of fact, and unclear wording.
- Editing can be done electronically or on hard copy, depending on the author’s preference.
**Table 2: Main types of editing used in Forest Science Program publications**

<table>
<thead>
<tr>
<th>Type of editing</th>
<th>Tasks</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Copy (or English) editing</strong></td>
<td>• Checking for internal consistency of facts.</td>
</tr>
<tr>
<td>Note: Copy editing may vary from “light”—in which the editor corrects obvious errors in grammar, spelling, punctuation, and other mechanics of style, and checks the content for missing text or inconsistencies—to “medium” or “heavy.” Medium and heavy copy edits involve increasing levels of judgement and rewriting on the part of the editor, going beyond “tidying” text to suggesting ways in which the content can be improved to better meet reading levels, be more comprehensible, and generally serve as a more effective document for conveying information. All editing involves correcting, and ensuring consistency in, grammar, spelling, punctuation, and other mechanics of style.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Checking heading levels and styles.</td>
</tr>
<tr>
<td></td>
<td>• Checking placement of tables and figures in the text.</td>
</tr>
<tr>
<td></td>
<td>• Ensuring that references to tables and figures in the text are correct.</td>
</tr>
<tr>
<td></td>
<td>• Checking the completeness of footnotes and bibliographies.</td>
</tr>
<tr>
<td></td>
<td>• Providing or changing system of citations.</td>
</tr>
<tr>
<td></td>
<td>• Writing or editing captions and (or) credit lines.</td>
</tr>
<tr>
<td></td>
<td>• As appropriate, suggesting wording changes for the author’s consideration.</td>
</tr>
<tr>
<td><strong>Stylistic editing</strong></td>
<td>• Clarifying meaning.</td>
</tr>
<tr>
<td></td>
<td>• Eliminating jargon.</td>
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<tr>
<td></td>
<td>• Smoothing language and doing other non-mechanical line-by-line editing.</td>
</tr>
<tr>
<td></td>
<td>• Checking or correcting reading level.</td>
</tr>
<tr>
<td></td>
<td>• Creating or recasting tables and figures.</td>
</tr>
<tr>
<td></td>
<td>• As appropriate, suggesting wording changes for the author’s consideration.</td>
</tr>
<tr>
<td><strong>Substantive (or structural) editing</strong></td>
<td>• Clarifying and (or) reorganizing a manuscript’s content and structure.</td>
</tr>
<tr>
<td></td>
<td>• Suggesting changes or redrafting for the author’s consideration.</td>
</tr>
<tr>
<td><strong>Proofreading</strong></td>
<td>• Checking adherence of first proofs to mock-up or final approved version.</td>
</tr>
<tr>
<td>Note: Conducted during production; see Section 6.2, First Proofs.</td>
<td>• Checking accuracy of running heads, folios, and changes made to type in mock-up.</td>
</tr>
<tr>
<td></td>
<td>• Checking page breaks and location of tables, figures, and other elements.</td>
</tr>
<tr>
<td></td>
<td>• Inserting page numbers to table of contents and cross-references if necessary.</td>
</tr>
</tbody>
</table>

Adapted in part from the Editors’ Association of Canada (www.editors.ca).

**5.2 Editorial Review of Graphics**

- The number and type of graphics affect the estimate of production costs and schedule. For this reason, the production process begins with an examination of the entire manuscript, including the graphics. The typesetter checks that the electronic files of art can be manipulated and therefore edited or enhanced if necessary.
- The graphics are included with the rest of the manuscript when it is copy edited. The editor will not alter the data, but may suggest changes to the
format so that the presentation of the data remains consistent throughout the publication and conforms to Forest Science Program style. Editorial comments that are beyond the author’s ability to incorporate (e.g., assigning specific line weights or text sizes to figures, deciding specific placement of a map or graph legend, assigning a consistent pattern to graphs) can be dealt with during the typesetting stage.

5.3 Author Approval of Editorial Comments

- Once the manuscript has been edited, it goes back to the project leader or author, who reviews the edited copy, answers all editorial queries using Track Changes, and returns it to the production team. This is the final opportunity for authors to make significant changes to the manuscript. Significant changes beyond this point are associated with increased costs.
- To respond to edits done electronically, authors should accept or reject each change and save the document as a new file. Authors with questions or comments should contact the Production Resources unit to discuss the course of action. This may involve contacting the editor to clarify outstanding points.
- Answer all editorial queries and consider the editor’s suggestions carefully. If the copy editor has misunderstood a certain point or inadvertently changed the meaning of a passage, it is likely that readers will also have difficulty understanding what it means.
- Once the manuscript has been revised, production staff will then check the editing changes again and prepare a revised schedule if necessary.
- The production team uses the revised manuscript, the original edited manuscript, and any related material to examine flagged or highlighted areas, and goes over any unresolved questions with the author or project leader.
5.4 Indexing

- The Special Report Series and Land Management Handbooks typically have an index, but publications in the other series do not.
- The index is one of the last parts of the publication to be prepared. It is compiled after the rest of the manuscript has been typeset and page numbers have been finalized. However, the indexing process can begin during the editorial process, with the author or the editor tagging keywords and phrases that will become the main structure for the index.
- The indexing process usually takes place under tight time constraints. Therefore, if you are planning an index, inform the production team of this when you submit the manuscript so that the production schedule and cost estimate can accommodate it.
- Authors can elect to create their own index using indexing software, or Production Resources can arrange the services of a professional indexer.
- An index can vary in degree of detail. Generally, the shorter the document, the less complex and detailed the index should be. The three common levels are: keyword indexes; keyword and key concept indexes; and detailed indexes (rarely used).
- Indexes for Forest Science Program publications normally require only a main entry and a subentry. Sub-subentries are unnecessary in all but extremely complex and lengthy volumes.
6 Working with Production Resources Staff

6.1 Print-ready and Web-ready Design Matters

- For each project, the Production Resources team meets to discuss elements that will affect the design of the publication both in print and electronic forms. The team resolves all design considerations before typesetting and the preparation of computer graphics.
- When necessary, sample pages are produced.
- During the typesetting of the text material, computer graphics can be created or enhanced as necessary. Because the Forest Science Program uses many different computer software programs, authors should give production staff accurate information about the software program and file names they have used.

6.2 First Proofs

- When text and visuals are ready, the two elements are incorporated into one complete package called the first proofs. It includes all front matter, text and visuals, and all back matter except the index.
- Both the proofreader and the author receive copies of the first proofs—although, if a publication is quite short (e.g., 16 pages or less), the author may only get to see the final approval copy. In addition to checking for accuracy and typographical errors, it is important to check for missing text, figures that are out of place, captions that do not match figures, and so on. This is a key stage at the culmination of the writing, reviewing, editing, and production processes.
- Changes by the author at the proofreading stage are called alterations. They are not the same as corrections that are made to eliminate typesetting errors.
- All corrections to proofs should be marked in the margin, next to the lines of type that contain the errors, using standard proofreaders’ marks (see Appendix 3). Keep in mind that it is much easier for production staff to see proofreader’s marks on marked-up copy than to try to track errors from a written description.
- Material being posted online must receive the same scrutiny that the printed form of the document does.
- Proofreaders should follow the style that the author and editor have established, and should avoid making editorial suggestions unless absolutely necessary.
Reading Proofs

- Proofreading requires careful attention to detail. Slowly examine each word. If you let your eye jump from one group of words to another, you will miss many spelling errors.
- Keep queries to a minimum. If you query something, be specific. Circle the word or phrase and make a short, meaningful comment in the margin (i.e., "construction?" or "meaning?"). Use adhesive notes for longer queries.

- Corrected proofs must be returned by a specific (usually tight) deadline. Delays returning proofs may result in long and costly delays in the publishing process.

6.3 Typesetting

- Revising the typeset proof involves correcting typographical and other errors and making final adjustments to both text and figures.
- Making alterations to proofs can be expensive. If an author adds or deletes more than a line or two of text, the change may alter the length of the page, and this may mean adjusting layout and re-paginating to the end of the publication. Adding or deleting a footnote results in similar complications. For these reasons, authors should make every effort to avoid making changes once their manuscripts have been typeset.
- Occasionally a publication undergoes a second or even third set of revisions. Authors can usually avoid this by carefully checking the manuscript when it is first returned for approval after the copy edit. Extra sets of revisions will seriously jeopardize the printing schedule and incur additional expense.

6.4 Final Approval

- Production Resources staff vets any queries from the proofreader to the author, incorporates other changes (such as typographical or factual errors), and does a final check of the document against the latest “dead file” (the last version on which changes were made).
- The author then receives the final proof to review and sign off on, if everything is acceptable. The document is now ready for print and web electronic file production, after which it will go for printing and distribution, as well as to be posted on the Ministry’s website.
7 Printing and Distributing the Publication

- No manuscript is considered published until it has been distributed. Every publication is produced both in a print version (the “official” version) and as a web (PDF) version.

- Production Resources maintains a hard-copy version for two main reasons:
  - the original stands as proof of publication should the online version be altered; and
  - such “proof of publication” gives credibility to the citation.

- The posted web document serves as another form of distribution.

7.1 Printing Matters

- On average, about 200 copies of each publication are printed, but as few as 25 copies may be printed for some documents. The size of the print run depends on how extensively the publication will be distributed.

- Both paperstock and print quality are selected by Production Resources to reflect the nature of the series in which the publication is being released. Most Forest Science Program series publications are printed on standard house-stock paper, which is a high-quality, recycled paper made in British Columbia. Field guides, however, which are designed for use under inclement weather conditions in the field, are printed on waterproof paper.

- Production Resources receives printed and bound copies of the publication from the printer, does a random check of the copies, and approves them for distribution.

7.2 Distribution Matters

- The new publication is posted online and print copies are distributed to forestry-related institutes, lending libraries, bibliographers, indexers, and the author’s distribution list, as requested. (Section 1.1, Descriptions of the Five Main Series, contains distribution specifications for each Forest Science Program series.)

- Copies can also be purchased through Crown Publications, which offers a print-on-demand service.

7.3 Errata

- An errata sheet is a typeset list of errors, itemizing their location in the document and the corresponding correction. The sheet is printed and then inserted by hand, usually into the front of the document (see Figure 3). This process greatly increases production costs.

- An errata sheet should be used only in extreme cases when errors are discovered too late to be corrected in the normal way (i.e., during design and production [see Section 6, Working with Production Resources Staff] and before printing) and when these errors are serious enough to create misunderstandings.
An errata sheet should never be used to correct simple typographical errors (they can be corrected in a later printing), and it should not be used to make additions or revisions to the printed text (these should wait for the next edition).

Errata

Page 26: The caption for Figure 4 should read “Current distribution of Roosevelt elk in British Columbia.”

Page 82, Figure 7: “= upper critical temperature” and “= lower critical temperature” should read “U = upper critical temperature,” and “L = lower critical temperature,” respectively.

7.4 Reprints and Revised Editions

Revising print documents

- When the stock of the first run of the print version becomes low, a publication may be reprinted.
- There are two types of reprints (also often referred to as “impressions”):
  - new edition: a publication that is substantially changed from its previous edition (“substantially” is considered to mean that approximately 20% of the publication is new or revised material) or that is released in a new format or by a different publisher; and
  - reissue: a publication that is reprinted with minor changes only and perhaps with a new introduction or preface.
- A new edition represents major changes to a publication and is usually the result of advances in research, new theories, or new practices. The document must be freshly laid out; editing, layout, and proofreading are required, and new graphics and other visuals may be needed. Almost as much work goes into the preparation of a new edition as went into the original publication.
- Occasionally a new edition may be expanded to fill an information void. Ideally, however, the new edition should not be longer than the previous edition.
- While the term “revised” in a citation referring to a new edition is largely redundant, in some instances an author may choose to highlight who did the revision if that point is important for a reader to know.
- At the time consideration is given to reprinting a Forest Science Program publication, the author or project leader should discuss with Production Resources whether only a reprint (with minor errors corrected and other small changes made) is required or whether more extensive changes and updates make a new edition necessary.
• The first extensive revision to a publication is called the second edition. The second extensive revision is called the third edition, and so on. Simple reissues in between editions are merely noted as reprints: they do not constitute new editions.

Revising online documents

• All Forest Science Program publications posted online are PDFs. These files can be updated only when the print version is updated, as they are merely another instance of the hard copy. However, if factual information is incorrect, the web document will display the same errata notice as the hard-copy publication.
This part of the Forest Science Program Style Guide and Authors Manual presents authors with detailed guidance on applying the “house style”—that is, the style adopted by Research Branch to ensure that everything published under its name has a consistent look and standard.

All respected journals and publishing houses (as well as corporate bodies that do external or internal publishing of any kind) adopt a set of style guidelines. Doing this serves several important objectives:

- It helps authors by removing the guesswork from innumerable style-related decisions. (“Should that be ‘The center of twelve treatments’? or ‘The centre of 12 treatments’?”)
- It helps readers by giving them a polished product that lets them focus on the content and not be distracted, confused, or misled by widely varying styles.
- It helps the organization by establishing consistency in the style and quality of its publication series. This in turn helps build the organization’s reporting credibility, which then helps authors meet their publishing objectives and readers satisfy their learning objectives.
8  Style Guidelines by Topic

The contents of this section are arranged alphabetically under the following main headings:
8.1  Abbreviations and Symbols
8.2  Acronyms and Initialisms
8.3  Avoiding Bias
8.4  Biological Classifications
8.5  Capitalization
8.6  Compound Words
8.7  Disclaimers
8.8  Figures
8.9  Formulae and Equations
8.10  Grammar
8.11  Numbers and Measurements
8.12  Plurals
8.13  Possessives
8.14  Punctuation
8.15  Punctuation in Lists and Series
8.16  Quotations
8.17  References
8.18  Spelling
8.19  Tables
8.20  Type Style

8.1  Abbreviations and Symbols

In non-technical writing and any writing intended for a general audience, abbreviations should be kept to a minimum. They appear most frequently in tables, notes, bibliographies, and lists.

Abbreviations are more generally accepted in scientific and technical writing, where the following rules apply.
(Note: Two particular types of abbreviations known as acronyms and initialisms are discussed in Section 8.2.)

• An abbreviation for a unit of measure is acceptable in the text, but it must be preceded by a number.

  Each log measured 40 cm in diameter.

• If a proper name or title is long and used frequently in a particular text, spell it out in full the first time it is mentioned and follow it with its abbreviation in parentheses. After that, the abbreviation may be used alone.
(Note: While abbreviations are useful to adopt in writing, avoid overusing
them in any one section of text. Cumulatively, they can make reading and comprehension difficult. Instead, consider using shortened noun terms such as “the agency” or “the Act” in place of the full name or the abbreviated form.)

Forest Analysis and Inventory (FAI) staff have recently compiled data on the subject.

Avoid:

The plan was created by a VKC team in 2005. Agencies represented included the EAC, CRTU, and WCE.

- Spell out a symbol or number that begins a sentence. If this is not possible, rewrite the sentence.

Alpha particles are . . . not: $\alpha$ particles are . . .

In 1990 it was found that . . . not: 1990 was the year it was found that . . .

Chemical elements

- It is acceptable to use the standard abbreviations for chemical elements (see Appendix 4) in running text after they are first spelled out, as well as in tables and figures. Nevertheless, do not start a sentence with a chemical abbreviation.

Traces of nitrogen (N), boron (B), and magnesium (Mg) were detected. The presence of N and B was not unexpected, but Mg is not normally found in such samples. Magnesium can be . . .

Geographical terms

- Latitude, longitude: Put a space before the directional symbol but not between degrees, minutes, or seconds.

115°42′43″ W . . . not: 115°42′43″ W

- Do not abbreviate the name of a province, state, or territory unless it is preceded by the name of a city or town. The abbreviation requires a period.

More than 76% of British Columbia’s exports go to . . .

Similar studies were carried out in southern British Columbia. The plots are located 57 km west of Nakusp, B.C.

- The one exception: The only country name that may be abbreviated in text is United States, which may be abbreviated to U.S. when used as an adjective.

U.S. Forest Service

- When the name of an organization or government agency begins with British Columbia, spell out the name of the province the first time you use
it and abbreviate it after that. (Exception: If an organization's formal name uses BC without periods, follow that style.)

British Columbia Ministry of Forests and Range
B.C. Ministry of Forests and Range
British Columbia Assessment Authority
B.C. Assessment Authority
The program is operated by BC Parks.

- Do not abbreviate such words as County, Fort, Mount, Point, Port, or Saint when they are part of a proper name.
- Do not abbreviate geographical names such as names of continents, regions, mountains, oceans, lakes, or rivers, except on maps where space considerations may make it necessary.

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Africa</td>
<td>North Pole</td>
<td></td>
</tr>
<tr>
<td>Mount Robson</td>
<td>Atlantic Ocean</td>
<td></td>
</tr>
<tr>
<td>Lake Okanagan</td>
<td>Fraser River</td>
<td></td>
</tr>
</tbody>
</table>

- Tables 3 and 4 show abbreviations of the Canadian provinces and territories and the U.S. states, territories, and districts. Postal abbreviations should be used only with postal codes and ZIP codes in addresses. In all other cases, either spell out the name or abbreviate conventionally as noted in the guidelines above.

**Table 3** Abbreviations of Canadian provinces and territories

<table>
<thead>
<tr>
<th>Common abbreviation</th>
<th>Province or Territory</th>
<th>Postal abbreviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alta.</td>
<td>Alberta</td>
<td>AB</td>
</tr>
<tr>
<td>B.C.</td>
<td>British Columbia</td>
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</tr>
<tr>
<td>Man.</td>
<td>Manitoba</td>
<td>MB</td>
</tr>
<tr>
<td>N.B.</td>
<td>New Brunswick</td>
<td>NB</td>
</tr>
<tr>
<td>Nfld.</td>
<td>Newfoundland and Labrador</td>
<td>NL</td>
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<td>N.W.T.</td>
<td>Northwest Territories</td>
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<tr>
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<tr>
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<tr>
<td>Y.T.</td>
<td>Yukon Territory</td>
<td>YT</td>
</tr>
<tr>
<td>Abbreviation</td>
<td>State or Territory</td>
<td>Postal abbreviation</td>
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<tr>
<td>Ala.</td>
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<td>S. Dak.</td>
<td>South Dakota</td>
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*Continued*
### Periods in abbreviations

- The trend over the last few decades has been toward omitting periods from abbreviations in writing, particularly scientific and technical writing. Do not use periods in the following:
  - chemical symbols and mathematical abbreviations
    
    \[ \text{H}_2\text{O}, \log, \tan, \text{pH} \]
  - metric units and SI (International System of Units) symbols
  - mixed abbreviations that begin with an uppercase letter and end with either an uppercase or lowercase letter
    
    \[ \text{PhD}, \text{MSc} \]
  - points of the compass, except with street addresses
    
    winds SSW, **but**: Burnside Road W.
  - abbreviations consisting entirely of uppercase letters (except abbreviations for provinces, territories, and states, as in Tables 3 and 4).
    
    ADM, MP, GATT, FTE, FBM, **but**: B.C.
  - lowercase abbreviations of a singular or compound measurement term, unless omission could cause confusion by spelling another word
    
    cm, mol, wt, **but**: in., no.

### Tables and reference materials

- The standard abbreviations shown in Table 5 may be used in tables and references without definition, but they should be spelled out in text material. Define all other abbreviations in captions or in footnotes.
### Table 5  Abbreviations in tables and reference materials

<table>
<thead>
<tr>
<th>Term</th>
<th>Abbreviation</th>
<th>Term</th>
<th>Abbreviation</th>
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<tbody>
<tr>
<td>amount</td>
<td>amt</td>
<td>preparation</td>
<td>prepn</td>
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<tr>
<td>approximate</td>
<td>approx</td>
<td>second</td>
<td>s</td>
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<tr>
<td>average</td>
<td>avg</td>
<td>specific activity</td>
<td>sp act</td>
</tr>
<tr>
<td>concentration</td>
<td>concn</td>
<td>specific gravity</td>
<td>sp gr</td>
</tr>
<tr>
<td>diameter</td>
<td>diam</td>
<td>temperature</td>
<td>temp</td>
</tr>
<tr>
<td>experiment</td>
<td>expt</td>
<td>trace</td>
<td>tr</td>
</tr>
<tr>
<td>height</td>
<td>ht</td>
<td>versus</td>
<td>vs</td>
</tr>
<tr>
<td>hour</td>
<td>h</td>
<td>volume</td>
<td>vol</td>
</tr>
<tr>
<td>molecular weight</td>
<td>mol wt</td>
<td>week</td>
<td>wk</td>
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<tr>
<td>number</td>
<td>no.</td>
<td>year</td>
<td>yr</td>
</tr>
</tbody>
</table>

**Taxonomic names**

- Abbreviate generic names only if they are followed by a specific epithet and have been spelled out at first use in text. Do not abbreviate epithets.

  *Pinus monticola*

  *P. monticola*

- If a text contains two or more genus names that begin with the same letter, spell out each name repeatedly to avoid confusion.

  The study of *Picea sitchensis* and *Pinus sylvestris* . . .

  **not:** The study of *P. sitchensis* and *P. sylvestris* . . .

- Spell out scientific names in all titles and abstracts.

**Technical terms**

- Do not abbreviate technical or scientific terms unless they are part of an official name.

  North Road Laboratory **not:** North Road Lab **but:** Tree Ring Lab

### 8.2 Acronyms and Initialisms

- An *acronym* is a pronounceable word formed from the first letter or letters of a series of words (e.g., NATO, FORREX, AIDS).

- An *initialism* is formed from the first letter or letters of a series of words and is read letter by letter (e.g., RCMP, CBC).

- Do not use periods or letter spacing for either acronyms or initialisms. Use uppercase, unless the organization concerned prefers lowercase (e.g., StatsCan).

- Generally, acronyms may begin a sentence (because they are pronounced like a word), but initialisms may not unless they act as an adjective. Acronyms are not preceded by *the*, but initialisms are.

  FLNR staff responses were similar.

  The CBC has revised its programming schedule.

- Acronyms that have become a part of the language are treated as regular nouns and are written in lowercase.

  radar, laser, scuba
8.3 Avoiding Bias

- All publications of the Ministry of Forests and Range should be free of bias.
- Avoid broad generalizations or attacks on professional groups, associations, and industries.
- Use language that is free of bias based on gender. This means referring to women as full and equal members of the workforce. It also means not portraying either women or men solely in traditional roles.
- Avoid attributing particular characteristics to either men or women or depicting either.
- Whenever possible, avoid terms that have gender connotations (e.g., chairman, foreman). The following list suggests a few alternatives.

<table>
<thead>
<tr>
<th>Instead of:</th>
<th>Use:</th>
</tr>
</thead>
<tbody>
<tr>
<td>draftsman</td>
<td>draftsperson</td>
</tr>
<tr>
<td>foreman</td>
<td>supervisor, chief, head supervisor</td>
</tr>
<tr>
<td>man (verb)</td>
<td>operate, staff</td>
</tr>
<tr>
<td>man-hours (days)</td>
<td>worker-hours (days)</td>
</tr>
<tr>
<td>man-made</td>
<td>artificial, handmade, synthetic, human made</td>
</tr>
<tr>
<td>chairman</td>
<td>chair</td>
</tr>
</tbody>
</table>

- Avoid using “he,” “him,” or “his” in such sentences as “Each research scientist is expected to submit his leave form by the end of the week.” Instead, recast the sentence so that it is gender-neutral. The examples below are options that might suit the context.

All research scientists are expected to submit their [or “a”] leave form by the end of the week.

Each research scientist is expected to submit his or her leave form by the end of the week.

Leave forms are to be submitted by the end of the week.

8.4 Biological Classifications

Taxonomic names

- Set the scientific names of genera, subgenera, species, subspecies, and other subordinate taxa in italics.

  *Abies amabilis*

- Set the scientific names of higher taxa—including family, order, class, and phylum—in roman type.

  *Pinaceae*

- Always capitalize the names of genera and higher taxa.
- Above the rank of genus, all taxa names are plural and therefore require a plural verb form.

  *The Pinaceae are noted for . . .*

* Spell out a genus name the first time you use it in the text and abbreviate it thereafter, even if the species is different.

  *Pinus contorta and *P. ponderosa* are under study.*
• If you use two or more genus names beginning with the same letter in the text, do not abbreviate them.

   Neither *Populus tremuloides* nor *Pinus contorta* . . .

• Names of genera and higher ranked taxa can stand alone, but a species name must be preceded by a genus name. Only when it is used in a table devoted to a single genus can a specific epithet stand alone.

• A trinomial combination may be used, provided the epithet lowest in rank is indicated. (Note: The terms “var.,” “ssp.,” and “x” should not be italicized.)

   *Pinus contorta* var. *latifolia*

• If the name of the person (or persons) who proposed the specific or subspecific name is added, it may be abbreviated.

   *Alnus rubra* Bong.

• If a species has been reclassified, put the name of the original author in parentheses, followed by the name of the new author.

   *Pseudotsuga menziesii* (Mirb.) Franco

• If a species name has been changed but the species is still commonly known by its former name, the former name should appear in parentheses following the new name.

   *Koeleria cristata* (macrantha)

• When referring to a plant that may be known by more than one botanical name, footnote the nomenclature reference used and follow it consistently.

   In text: *Artemisia frigida* \(^1\) seems to be . . .

   Footnote: \(^1\) Nomenclature follows Taylor and MacBryde (1997) except where noted.

• See Appendix 5 for a list of the scientific and common names of native conifers in British Columbia.

*Vernacular, or common, names*

• Do not capitalize or italicize a generic name that is used as a vernacular name.

   rhododendron

   arbutus

• Exception: Capitalize the proper common names of birds (American Ornithologists’ Union 2005), unless the reference is to a general category.

   In general, hummingbirds are rare here. However, Rufous Hummingbirds have been sighted . . .

   Although the American Robin has been sighted, robins do not commonly . . .
• In general, names derived from proper nouns contain a capital letter.
  Queen's cup  Pacific giant salamander
  Indian-plum  black-eyed Susan
  tall Jacob's ladder  Engelmann spruce
  Alaskan mountain-heather  Rocky Mountain elk

• Hyphenate, or write as one word, compound names in which the second part
  of the name is not taxonomically correct.
  Douglas-fir
  western redcedar
  yellow-cedar

• Write as two words compound common names in which the second part
  is taxonomically correct.
  silver birch
  amabilis fir

• The trademark names of certain breeds are always capitalized.
  Peace rose
  Golden Bantam corn

• Do not capitalize the common names of animals unless the common
  name includes a proper noun.
  black bear  Townsend's chipmunk
  wolverine  Douglas' squirrel

• The Forest Science Program uses the following reference for all questions
  concerning the style and spelling of common plant names: The Vascu-
  lar Plants of British Columbia, Parts 1 to 4 (Douglas et al. [editors] 1989,
  1990, 1991, 1994). Where alternative names are given, use the first one
  mentioned. Note: At the time this reprint was published, these references
  provided the current standards for plant names. Ministry research ecolo-
  gists or other appropriate sources should be consulted to ensure these
  references have not been superseded by newer standards.

• The corresponding reference for vertebrates in British Columbia is The
  Vertebrates of British Columbia (British Columbia Ministry of Sustain-
  able Resource Management 2002). Note: At the time this reprint was
  published, this reference provided the current standards for vertebrate
  names. Ministry research ecologists or other appropriate sources should
  be consulted to ensure this reference has not been superseded by newer
  standards.

Soil names
• Capitalize all soil names—orders, great groups, and subgroups.
  Podzolic soils  A horizons
  Brown Chernozems  Ferro-Humic Podzol
  Orthic Regosol

Chapter 8
8.5 Capitalization

**Geographical terms**

- Capitalize the names of countries, regions, cities, and other specific and official geographical areas.
  
  Pacific Northwest  
  Fraser River  
  Lower Mainland  
  Central America  
  West Coast  
  the Okanagan Valley  
  the Interior (of British Columbia), the Southern Interior  

- Capitalize a generic term such as state, province, region, or city only when it refers to the corporate entity.
  
  The Province of British Columbia enacted new legislation.  
  The Province’s new law . . .  
  The commission travelled throughout the province to gather information.  

- Capitalize plurals of terms that are part of proper names.
  
  Lakes Erie and Michigan  
  Mounts Robson and Hollingsworth  
  North Thompson and Nicola Rivers  

- Do not capitalize points of the compass or words denoting direction and location unless they have taken on political or other connotations or are part of an administrative region.
  
  southern Vancouver Island  
  the northeast corner  
  western Canada **but:** the Far North  
  the West  
  the western hemisphere  

**Government and government bodies**

- Such words as government, province, ministry, and branch are terms of general classification. Capitalize them when they refer to the corporate entity or organized body. Otherwise, put all generic references into lowercase when they stand alone.
  
  The Parliament of Canada, Parliament  
  The Department of Transport, the Department  
  the Ministry of Forests and Range, the Ministry  
  a ministry may set its own policy . . .  

- Do not capitalize the plural forms of government, department, ministry, branch, and so on unless the full titles of the bodies concerned are given.
  
  All ministries received the guidelines, but the Ministry of Forests and Range was the first to implement them.  
  The Ministries of Health and Environment . . .  
• Capitalize Crown when it means the supreme governing authority. Capitalize both the legal title and the applied title of a federal department.
  
  the Department of Labour
  Labour Canada
  Crown land

*Initial words*

• Capitalize the first word of a direct quotation that is a complete sentence.
  
  The manager said, “We have accomplished all goals set at the beginning of the year.”

• Do not capitalize the first word of a quotation if it is a sentence fragment.
  
  The manager said that we have “come very close to accomplishing all goals set at the beginning of the year.”

*Titles of office or rank*

• Capitalize all military, civil, religious, and professional titles and titles of royalty when they precede the name.
  
  Director Joanne Beaumont  Professor Jackson
  Premier Gordon Campbell  Prince Charles

• Capitalize titles following, and placed in apposition to, a personal name, except those denoting professions.
  
  Hiroshi Yoshita, Director of Public Affairs
  Jane Smith, Minister of Justice
  **but:** Louise Akajanian, professor of physics

• Do not capitalize titles when they are in the plural form or when they are preceded by an indefinite article.
  
  the premiers of both provinces
  a member of parliament

• Capitalize a title when it refers to a specific person and is used as a substitute for the person’s name and as a short form of the full title.
  
  The memo came from the Director.

*Titles of publications*

• Capitalize the first word and all other words (except articles, conjunctions, and prepositions) when presenting a publication title in the running text of a document.

• Capitalize the first word following a colon in a publication title.
  
  The information was quoted from *Biometry: The Principles and Practice of Statistics in Biological Research.*

• Capitalize the first word and all other words (except articles, conjunctions, and prepositions) when presenting the titles of chapters, articles, and reports in the running text of a document.
• Note: Different rules apply to the capitalization of publication, chapter, article, and report titles in bibliographic references (see Section 8.17 for examples).

8.6 Compound Words

• A compound word is a combination of two or more words that have become unified through frequent use (e.g., clear-cut forest, now commonly clearcut forest). Some compound words are hyphenated (usually the first step in the evolution to becoming one word); others are “solid” – that is, one unified word.

  • daycare (n)
  • clearcut forest (adj)
  • homemade (adj)
  • second-hand (adj)

• Use hyphens with discretion to create new compounds. Hyphenate only when not doing so would make the meaning unclear. (For further information on hyphens and when to use them, see Section 8.14.)

• If you are unsure about whether a term requires hyphenation, first consult Appendix 6, which lists some preferred compound spellings specific to the B.C. Ministry of Forests and Range. If the term is not there, then use the Canadian Oxford Dictionary as a default reference for the spelling of acknowledged compound words. If the term is not shown there either, the following guidelines may help you decide how to handle the new term.

Hyphens in compounds

• Use a hyphen to create compound words in the following cases:
  • fractions used as modifiers—unless the numerator or denominator is already hyphenated—and fractions used as nouns
    - two-fifths water
    - two forty-fifths
    - They planted three-quarters of the field.
  
  • compound elements of technical units of measure
    - kilowatt-hour
    - candle-hour
  
  • adjective compounds with a numerical first element (and see Section 8.11 for use of numerals with units of measure)
    - 1-year-old tree but: 1 month’s layoff
    - two 4-week tests 3 day’s growth
    - 12-person team
    - 5-kg bag
    - 1 kilowatt-hour

• a succession of compound adjectives
  - 7-, 8-, and 11-cm measures
  - first- and second-hand information
• compound words with a single letter or figure preceding a noun
  y-axis  but: Grade A
  X-ray  Type II level
  T-junction

• nouns in a non-literal expression, when the first element is possessive
  bird's-eye
  crow's-nest

• colour combinations used as unit modifiers
  the blue-green grass but: pale green leaves
  the blue-tinged leaves but: bluish green leaves

• compound adjectives with the following prefixes, but only when they
  precede the noun they modify
  well-  high-
  late-  lesser-
  ill-  low-
  full-  first-
  good-  better-
  near-  early-
  little-  best-
  The well-fed cattle responded positively, but: The cattle that
  were well fed responded positively.

• with few exceptions, the prefixes ex-, self-, and quasi- in combination
  with nouns implying office or condition
  ex-president
  self-determined
  quasi-judicial

• if the last letter of a prefix is the same as the first letter of the word to be
  modified, or if three vowels in row could result
  co-operate (to avoid cooperate)
  co-ordinate (to avoid coordinate)
  re-enter (to avoid reenter)
  re-examine (to avoid reexamine)
  meta-analysis (to avoid metaanalysis)
  co-author (to avoid coauthor)

• if the word to be modified by a prefix begins with a capital letter or is a
  title
  ex-deputy  semi-Gothic
  pre-NATO
• if adding a prefix could change the meaning of a word or make it ambiguous
  
  coop, co-op
  co-produce (to avoid coproduce)
  re-analyze
  reformation, re-formation
  unionized, un-ionized
  resign, re-sign

8.7 Disclaimers

• All series have a disclaimer (and sometimes a “limitation of liability” statement).

• The wording of the disclaimer varies, according to the intent of each series and, where necessary, to address particular risks or concerns identified by management team reviewers. Consult Production Resources staff on the wording for a disclaimer for your document and on where the disclaimer should be placed. Sometimes publication-specific concerns are addressed in the foreword, preface, or introduction.

  Sample disclaimer from an Extension Note:
  
  The use of trade, firm, or corporation names in this publication is for the information and convenience of the reader. Such use does not constitute an official endorsement or approval by the Government of British Columbia of any product or service to the exclusion of others that may also be suitable. This Extension Note should be regarded as technical background only.

  Sample disclaimer from a Technical Report:
  
  The information presented in this Technical Report represents the interpretations, conclusions, and recommendations of the authors. Professionals analyzing landslide hazard and risk, and making recommendations about road planning, construction, maintenance, and deactivation, are responsible for selecting approaches and techniques that are suitable to their specific sites and to the particular elements that may be at risk. The authors, contributors, and reviewers who were involved in preparing this Technical Report are not liable for any misrepresentations, errors, or omissions. Under no circumstances will these parties be liable to any person or business entity for any direct, indirect, special, incidental, consequential, or other damages based on any use of the information in this report.

8.8 Figures

With few exceptions the following guidelines apply to all figures.

• Identify all drawings, illustrations, charts, and graphs with a figure number and caption. Refer to every figure by its number at least once in the text. Capitalize the word figure in the text when it is used with a specific number.
This trend is shown in Figure 14. What the figure does not show is that …

- Within practical and design limitations, place figures as soon as possible after the first mention of them in the text. Place them at the top or the bottom of the page.
- Try to avoid placing figures sideways—known as landscape—on a page. Opt for vertical as much as possible (see Figure 4). If you must create a landscape figure, orient it so that the right-hand edge of the figure is at the top of the page. Labels on the $y$-axis should be at the top of the axis, not along the side, to avoid type appearing upside down.
- Figures provided by the author may be reduced in production to fit the page.
- Be sure to verify all cross-references to visuals in the text.
- The notation for letters, signs, or symbols used in a figure must correspond exactly to those in the text. On graphs, capitalize only the first word and all proper nouns of each axis label, unless you use a lowercase abbreviation (e.g., pH, dbh).
- Figures do not have footnotes. Include any explanatory information in the caption or related text material.
- Capitalize only the first word and proper nouns in labels within figures.

![Figure 4](image.png)

**Figure 4** Sample figures showing (a) portrait and (b) landscape orientations.

**Numbering figures**

- Number figures consecutively throughout the text, using Arabic numerals. If there are more figures than text pages, the figures may be placed in numerical sequence as close as possible to the end of the related text.
- In a large collection of papers, such as proceedings, number figures consecutively by chapter, using a double numeration system if the chapters are numbered (e.g., Figure 3.1, Figure 3.2, etc. in Chapter 3).
- Number the figures in an appendix separately from text figures (e.g., Figure A1, Figure A2, etc. in Appendix 1). If there is more than one ap-
pendix, number the figures consecutively within each appendix (e.g., Figure A1.1, Figure A1.2, etc. in Appendix 1; Figure A2.1, Figure A2.2, etc. in Appendix 2).

**Figure captions**

- Every figure must have a number and a caption (title).
- Set the figure caption flush with the left-hand margin, below the figure.
- Put the word *figure* in full capitals, followed by its number and then the caption. Capitalize only the first word and all proper nouns in the caption.
- Put a period at the end of the caption.

  FIGURE 15. Live tree height structure.

  FIGURE 3. Height growth of lodgepole pine for trees growing on sites with coarse fragment–free silt loam soils (i.e., SC = 4) versus trees growing on soils with other particle size classes (i.e., SC = 1, 2, or 3) with humus depth surrounding the tree < 3 cm (includes microsites with displaced soil).

  - One or two brief sentences may be added for further detail, but keep them as concise as possible. Single space captions if they run over a line.
  - After the final period in the caption, cite the source of photos or maps, in italics, in parentheses.

    *(Photo: P. Griffiths)*
    *(Source: B.C. Ministry of Environment)*

**Figure labels**

- Capitalize only the first word and all proper nouns of Figure labels, including those describing the x- and y-axes on graphs.
- Figures 5 and 6 show two examples of the Figure style for Forest Science Program publications. Figure 5 shows the word-processing version of a figure, to which this section of the Style Guide applies, and Figure 6 shows the figure once it’s been typeset.
FIGURE 5. Example 1 of a figure showing word processing styles for Forest Science Program publications.

FIGURE 6 Example 2 of a figure showing typesetting styles for Forest Science Program publications.

8.9 Formulae and Equations

- Write mathematical equations in clearly read and grammatically correct sentences. For example:

  … as long as it accounted for < 1% cover). Proximity was recorded to the nearest decimetre. From these measurements, the Light Interception Index (LII) (DeLong 1991) was calculated as:

  \[ LII = \sum \frac{(C_i \cdot H_i)}{P_i} \]

  where \( i \) = each non-crop species that is > 5% cover and > 50% crop tree height, \( c \) = percent ground cover, \( H \) = average height (cm) of competing species, and \( P \) = proximity (dm) of competing species to crop tree.
• Number equations consecutively in Arabic numerals if they are part of a series or if you refer to them in the text. Enclose the number in parentheses flush with the right margin on the last line of the equation.

\[ L(p, q) = \prod_{i=1}^{n} \left[ (1-p)^{m_{i}} + p(1-q)^{m_{i}} \right]^{u_{i}} \times \left[ p^{y_i} \left( 1-q \right)^{m_i-y_i} \right]^{1-u_i} \]  (4)

where \( u_i \) is an indicator variable: \( u_i = 1 \) when \( y_i = 0 \) and \( u_i = 0 \) when \( y_i > 0 \).

• When referring to an equation by its number in text, however, do not use parentheses around the number.

As shown in Equation 4, the likelihood….

• Centre a displayed equation on a separate line immediately following the first reference to it in the text.

• Align two or more equations in a series by the equals signs, and indent or centre the group as a whole.

The values of \( p \) and \( q \) need not be constant, and can be influenced by covariates. In most exercises we are most interested in modelling \( p \), with \( q \) being a necessary nuisance. Covariates influence the log odds of \( p \) or \( q \) as:

\[ \log \left( \frac{p_{j}}{1-p_{j}} \right) = \alpha_{0} + \alpha_{1} x_{i1} + \cdots + \alpha_{k} x_{ki} \]  (5)

and

\[ \log \left( \frac{q_{j}}{1-q_{j}} \right) = \beta_{0} + \beta_{1} x_{i1} + \cdots + \beta_{l} x_{li} \]  where \( i = 1, 2, \ldots, n \)  (6)

• Place short equations that are not part of a series in the text rather than displaying them.

• Long equations may be broken before operational signs (such as =, +, −, or ×). The next line starts with the operational sign aligned with the equals sign:

\[
a_{i} = a_{i0} + a_{i1} \times \text{BWBS} + a_{i2} \times \text{ESSF} + a_{i3} \\
\times \text{ICH} + a_{i4} \times \text{IDF} + a_{i5} \times \text{MS} + a_{i6} \times \text{SBS} + a_{i7} \times \text{SBPS}, \text{for } i = 1, 2, 3, \text{and } 4
\]  (4)

• Parentheses, braces, brackets, integral signs, and summation signs should be the same height as the mathematical expressions they include.

• To ensure that the symbols and signs in your equations are clearly relayed to the typesetters (not all equation-generating programs convert reliably), provide directions to the typesetter as to the correct symbols required. It is helpful, for example, to show in the margin how complex equations should look, especially if they are multilevel or have underscores, overscores, square root signs, or complex subscripts.
8.10 Grammar

This section deals with some general points of grammar as they pertain to the writing of scientific and technical reports. For more detailed information, consult any of the many books and online resources available on the subject.

**Active versus passive voice**

At the time this reprint was published, the Ministry standard was to use the passive voice.

The experiment was conducted… **not**

We conducted the experiment…

Standards may have changed since then, but the same voice should be used consistently throughout the document.

**Agreement of pronoun and antecedent**

- Use a singular pronoun to refer to singular antecedents such as *person, man, woman, one, anyone, anybody, someone, somebody, either, neither, each, everyone, and everybody*.

  Neither of the two women has lost her position.
  Everyone must present his or her permit if asked to do so.

- Use a singular or a plural pronoun with a collective noun, according to the meaning.

  The committee voted to have its meetings on Mondays.
  The committee voted to have their travel allowances increased.

**Agreement of subject and verb**

- Subject and verb always agree in number regardless of:
  - intervening phrases
    - A collection of soil samples is now being analyzed.
  - parenthetical expressions introduced by: *with, together with, including, as well as, plus, like, no less than*
    - Sample 4, as well as the others, is waiting to be dried.
  - Use a singular verb form:
    - after *each, either, everyone, everybody, neither, nobody, and someone*
      - Either of the procedures is acceptable.
      - Nobody leaves until the boat is full.
    - with *none, when the word means no one or not one*
      - None of us is leaving.
    - with singular subjects joined by *either/or or neither/nor*
      - Either cedar or hemlock provides the best results.
• with nouns that are plural in form but singular in meaning
  The news is optimistic.
  Athletics is difficult for him, but mathematics is easy.

• following the pronoun it
  It was the Blacks who came.

• with the titles of books, journals, and reports
  *Trees of the Pacific Northwest* includes a chapter entitled “Trees of Vancouver Island.”

• with compound subjects qualified by each and every
  Each plot and subplot was . . .
  Every tree, shrub, and herb has . . .

• with one of, when one is the subject
  One of the seedlings was damaged.

• Use a plural verb form:
  • with a compound subject
    The Douglas-fir and the white spruce were selected.
  • with none, when the word means more than one
    None were so strong as those who underwent treatment.

• following a relative clause introduced by one of, when the relative is the subject
  He is one of the few scientists who have attempted the experiment.
  One of the seedlings that were damaged . . .

• When singular and plural subjects are joined by either/or, neither/nor, or not only/but also, the verb must agree with the nearest subject. For example:
  Neither the analysis nor the conclusions have been written.
  Neither the conclusions nor the analysis has been written.

• Use either the singular or the plural verb form:
  • with collective nouns, according to whether the group is considered as a unit or as individuals
    The committee is meeting now.
    The committee are unable to agree.
  • with all, any, and such, depending on the meaning
    Such is life.
    Such are the conditions of life.
    All were present at the assembly.
    All was forgiven.
• after measurements and sums of money, according to whether they are considered as a unit or as a set of individual units
  Ten miles is too far to walk.
  The miles seem endless.
  Five dollars is the asking price.
  The dollars were counted out on the table.

• when the subject is an arithmetic equation
  Three times three are (or is) nine.

• Treat the word data as a plural noun with a plural verb (its original usage, the plural of datum).
  Much data on infection rates have been collected over the past 10 years.
  The data are collected from three different populations.

Verb tense in scientific writing
• Use the present tense when quoting previously published material, which is considered to be part of the body of established scientific knowledge.
  According to the last survey done in the area (Arnold et al. 2007), only 34% of the stands are still affected.

• Use the past tense when reporting your results for the first time, because scientific data are not considered to be established knowledge until after they are published.
  Only 34% of the stands were still affected.

• When referring to published data that are later proved false, use the past tense to prevent readers from assuming that the findings are still valid.

• Most of the introduction and much of the discussion in the report should be in the present tense because these parts of the report emphasize previously established knowledge. However, use the past tense in these sections for cases of attribution or presentation.
  Early inoculation of the seedlings produces no significant growth advantage (Miller 2003; Bright 2007).
  but:
  Brady (2004) suggested that . . .
  The study area showed above-average productivity.

• Most of the abstract and the sections on materials and methods and results should be in the past tense. However, use the present tense in these sections for cases of attribution or presentation.
  Improved fertilization appeared to reduce . . .
  Twelve trees were selected for the application.
  but:
  The experimental design appears in Table 3.
  These results conform with those shown for other conifers (James 1999).
Which and that

- Use which to introduce a non-restrictive clause (i.e., information that is not essential to the sentence and is, in a sense, parenthetic). In general, place a comma before it.

  Cache Creek, which flows out of the Vaca Hills, is a favourite of river rafters.

- Use that to introduce a restrictive clause (i.e., information that is specific and necessary to the meaning of the sentence). Do not use a comma to separate it from the sentence.

  The creek that flows out of the Vaca Hills is a favourite of river rafters.

  not:

  The creek which flows out of the Vaca Hills is a favourite of river rafters.

- For other examples of punctuating restrictive and non-restrictive clauses (not only those introduced by which or that), see Section 8.14, Punctuation.

8.11 Numbers and Measurements

**Dates**

- Report dates by month, day, year. Abbreviate the month using the abbreviations in Appendix 7.

  Dec. 2, 2014

**Decimals**

- Use numerals for decimal fractions. Use an initial zero with a decimal fraction less than 1.00 if the quantity expressed could equal or exceed one.

  a factor of 0.74

  \( p < 0.5 \)

- Otherwise, if the quantity could never equal one (levels of significance, correlation coefficients, factor loadings), do not use an initial zero.

  \( \alpha = .05 \quad R = .10 \)

- The number of significant digits given in published results should be related to the accuracy of the results. Thus, 6, 6.0, 6.00, and 6.000 indicate different degrees of precision. Within a series, all numbers must be rounded consistently to two, three, four, or more digits. Observations of continuous variables are usually expressed with one estimated digit.

**International System of Units**

- Scientific reporting normally uses the International System of Units (Système international d’unités, or SI units). Numerals are used before all standard units of measurement, whether the unit is expressed as a word or symbol. There are seven base units in SI and two supplementary units (Table 6). However, other units have evolved to complete the metric system (Table 7). Table 8 lists the metric (SI) units and ratios, their symbols,
and uses for Canadian forestry. Table 9 shows metric (SI and derived) units and their imperial equivalents. Table 10 gives imperial units and their metric equivalents.

- Material from American sources may contain imperial measurements. Metric units should be added to, or substituted for, imperial ones. It may be necessary to clarify how accurate the measurements are. For example, must 100 yards have an exact equivalent or an approximate round number?

- Write out units of measurement if they are preceded by a written number, as at the beginning of a sentence. Otherwise, abbreviations are acceptable in technical material, but they must be preceded by a number.

  Fourteen kilometres from the camp . . .

  Marks were made at 1, 1.5, and 2.5 m along the tree.

- Abbreviated units of measurement, whether metric or imperial, are identical in both the singular and the plural.

  3 kg not: 3 kgs
  2.6 km not: 2.6 kms
  4 hr not: 4 hrs

- Although the letter l (ell) is the official SI symbol for litre, L is widely used to eliminate confusion with the number 1. Forest Science Program publications have adopted L.

- Only numbers between 0.1 and 1000 should be used to express the quantity of any SI unit.

  12 km not: 12.000 m
  3 mm³ not: 0.003 cm³
### Table 6  SI units and symbols

<table>
<thead>
<tr>
<th>Units</th>
<th>Quantity</th>
<th>Name</th>
<th>Symbol</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base</td>
<td>length</td>
<td>metre</td>
<td>m</td>
</tr>
<tr>
<td></td>
<td>mass</td>
<td>kilogram</td>
<td>kg</td>
</tr>
<tr>
<td></td>
<td>time</td>
<td>second</td>
<td>s</td>
</tr>
<tr>
<td></td>
<td>electric current</td>
<td>ampere</td>
<td>A</td>
</tr>
<tr>
<td></td>
<td>thermodynamic temperature</td>
<td>kelvin</td>
<td>K</td>
</tr>
<tr>
<td></td>
<td>amount of substance</td>
<td>mole</td>
<td>mol</td>
</tr>
<tr>
<td></td>
<td>luminous intensity</td>
<td>candela</td>
<td>cd</td>
</tr>
<tr>
<td>Supplementary</td>
<td>plane angle</td>
<td>radian</td>
<td>rad</td>
</tr>
<tr>
<td></td>
<td>solid angle</td>
<td>steradian</td>
<td>sr</td>
</tr>
</tbody>
</table>


### Table 7  Derived SI units

<table>
<thead>
<tr>
<th>Quantity</th>
<th>Name of unit</th>
<th>Symbol</th>
<th>Formula and definition of unit base or supplementary units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency</td>
<td>hertz</td>
<td>Hz</td>
<td>(cycle)/s = s⁻¹</td>
</tr>
<tr>
<td>Force</td>
<td>newton</td>
<td>N</td>
<td>m · kg · s⁻²</td>
</tr>
<tr>
<td>Pressure, stress</td>
<td>pascal</td>
<td>Pa</td>
<td>N/m² = m⁻¹ · kg · s⁻²</td>
</tr>
<tr>
<td>Energy, work, quantity of heat</td>
<td>joule</td>
<td>J</td>
<td>N · m = m² · kg · s⁻²</td>
</tr>
<tr>
<td>Power, radiant flux</td>
<td>watt</td>
<td>W</td>
<td>J/s = m² · kg · s⁻³</td>
</tr>
<tr>
<td>Quantity of electricity, electric charge</td>
<td>coulomb</td>
<td>C</td>
<td>s · A</td>
</tr>
<tr>
<td>Electric potential, potential difference, electromotive force</td>
<td>volt</td>
<td>V</td>
<td>W/A = m³ · kg · s⁻³ · A⁻¹</td>
</tr>
<tr>
<td>Capacitance</td>
<td>farad</td>
<td>F</td>
<td>C/V = m² · kg⁻¹ · s⁻¹ · A²</td>
</tr>
<tr>
<td>Electric resistance</td>
<td>ohm</td>
<td>W</td>
<td>V/A = m² · kg⁻¹ · s⁻³ · A⁻²</td>
</tr>
<tr>
<td>Conductance</td>
<td>siemens</td>
<td>S</td>
<td>A/V = m² · kg⁻¹ · s⁻¹ · A⁻²</td>
</tr>
<tr>
<td>Magnetic flux</td>
<td>weber</td>
<td>Wb</td>
<td>V · s = m² · kg · s⁻² · A⁻¹</td>
</tr>
<tr>
<td>Magnetic flux density</td>
<td>tesla</td>
<td>T</td>
<td>Wb/m² = kg · s⁻² · A⁻¹</td>
</tr>
<tr>
<td>Inductance</td>
<td>henry</td>
<td>H</td>
<td>Wb/A = m² · kg · s⁻² · A⁻²</td>
</tr>
<tr>
<td>Luminous flux</td>
<td>lumen</td>
<td>lm</td>
<td>cd · sr</td>
</tr>
<tr>
<td>Illuminance</td>
<td>lux</td>
<td>lx</td>
<td>lm/m² = m² · cd · sr</td>
</tr>
<tr>
<td>Activity (of a radionuclide)</td>
<td>becquerel</td>
<td>Bq</td>
<td>s⁻¹</td>
</tr>
<tr>
<td>Absorbed dose</td>
<td>gray</td>
<td>Gy</td>
<td>J/kg = m² · s⁻²</td>
</tr>
<tr>
<td>Temperature units:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Celsius temperature</td>
<td>°C</td>
<td></td>
<td>T°c = T_K - 273.15 K</td>
</tr>
<tr>
<td>Celsius temperature difference or interval</td>
<td>°C</td>
<td></td>
<td>1°C = 1 K</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Unit or ratio</th>
<th>Symbol</th>
<th>Measurement use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Centimetre</td>
<td>cm</td>
<td>Diameter of single trees</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Average diameter of trees in stands</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Diameter of logs, bolts, and poles</td>
</tr>
<tr>
<td>Cubic metre</td>
<td>m³</td>
<td>Volume of single trees, stands of trees, logs, wood products, and liquids</td>
</tr>
<tr>
<td>Cubic metre per</td>
<td>m³/ha</td>
<td>Volume of stands of trees per unit area</td>
</tr>
<tr>
<td>hectare</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cubic metre per</td>
<td>m³/(ha · yr)</td>
<td>Current, mean, and period annual increments (cai, mai, and pai) of</td>
</tr>
<tr>
<td>hectare per year</td>
<td></td>
<td>stands of trees per unit area</td>
</tr>
<tr>
<td>Gram</td>
<td>g</td>
<td>Mass (weight) of trees, branches, fertilizers, etc.</td>
</tr>
<tr>
<td>Hectare</td>
<td>ha</td>
<td>Area of land</td>
</tr>
<tr>
<td>Kilogram</td>
<td>kg</td>
<td>Mass (weight) of trees, branches, fertilizers, etc.</td>
</tr>
<tr>
<td>Kilometre</td>
<td>km</td>
<td>Distance</td>
</tr>
<tr>
<td>Litre</td>
<td>L</td>
<td>Volume of liquids</td>
</tr>
<tr>
<td>Metre</td>
<td>m</td>
<td>Height of single trees</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Average height of stands of trees</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Length of logs, bolts, poles, and lumber</td>
</tr>
<tr>
<td>Millimetre</td>
<td>mm</td>
<td>Length of panels</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Width and thickness of lumber and panels</td>
</tr>
<tr>
<td>Square centimetre</td>
<td>cm²</td>
<td>Area (instead of the square inch)</td>
</tr>
<tr>
<td>Square kilometre</td>
<td>km²</td>
<td>Area (instead of the square mile)</td>
</tr>
<tr>
<td>Square metre</td>
<td>m²</td>
<td>Area (instead of the square foot)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Basal area of single trees and stands of trees</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Quadrats (area of reproduction and other vegetation)</td>
</tr>
<tr>
<td>Square metre per</td>
<td>m²/ha</td>
<td>Basal area of stand of trees per unit area of land</td>
</tr>
<tr>
<td>hectare</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stacked cubic</td>
<td>m³</td>
<td>Volume of stacked wood</td>
</tr>
<tr>
<td>metre</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stacked cubic</td>
<td>m³/(stacked)/ha</td>
<td>Stacked volume of wood per unit area</td>
</tr>
<tr>
<td>metre per hectare</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tonne</td>
<td>t</td>
<td>Mass (weight) of wood, etc.</td>
</tr>
<tr>
<td>Tonne per hectare</td>
<td>t/ha</td>
<td>Mass (weight) of wood, etc. per unit area</td>
</tr>
</tbody>
</table>

*Although the hectare (ha) is not an SI unit, it is used with the International System of Units. One hectare = 10 000 square metres (m²).

*bRatios of this type may also be expressed as m³ · ha⁻¹.

*cThis ratio may be expressed as m³ · ha⁻¹/yr or m³ · ha⁻¹ · yr⁻¹ but not as m³/ha/yr.

*dAlthough the litre is not an SI unit and is not recommended for high-precision measurements, it is used with the International System of Units as a special name for the cubic decimetre (dm³). Its symbol is L or l (ell), but L is widely used to eliminate confusion with the number 1. Forest Science Program publications have adopted L. One litre = 0.001 cubic metre (m³) = 1 cubic decimetre (dm³).
Although the tonne (t) is not an SI unit, it is used with the International System of Units. It is not to be taken as the French interpretation of the short ton of 2000 pounds. One tonne = 1000 kilograms.
Adapted from: Bowen (1974)

### Table 9 Metric (SI and derived) units and their imperial equivalents

<table>
<thead>
<tr>
<th>SI units</th>
<th>Length</th>
<th>Imperial equivalents</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 cm</td>
<td>=</td>
<td>0.393701 in</td>
</tr>
<tr>
<td>1 km</td>
<td>=</td>
<td>0.621371 mi</td>
</tr>
<tr>
<td>1 m</td>
<td>=</td>
<td>0.0497097 chain (or 22 yd)</td>
</tr>
<tr>
<td>1 m</td>
<td>=</td>
<td>3.28084 ft</td>
</tr>
<tr>
<td>1 m</td>
<td>=</td>
<td>1.09361 yd</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Area</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1 cm²</td>
<td>=</td>
<td>0.155000 in²</td>
</tr>
<tr>
<td>1 ha</td>
<td>=</td>
<td>2.47105 acres</td>
</tr>
<tr>
<td>1 km²</td>
<td>=</td>
<td>0.386102 mi²</td>
</tr>
<tr>
<td>1 m²</td>
<td>=</td>
<td>0.247105 mil-acre</td>
</tr>
<tr>
<td>1 m²</td>
<td>=</td>
<td>10.7639 ft²</td>
</tr>
<tr>
<td>1 m²</td>
<td>=</td>
<td>1.19599 yd²</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Volume or capacity</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1 L</td>
<td>=</td>
<td>0.26172 U.S. gal</td>
</tr>
<tr>
<td>1 L</td>
<td>=</td>
<td>0.219969 imp gal</td>
</tr>
<tr>
<td>1 m³</td>
<td>=</td>
<td>35.3147 ft³</td>
</tr>
<tr>
<td>1 m³</td>
<td>=</td>
<td>1.30795 yd³</td>
</tr>
<tr>
<td>1 m³</td>
<td>=</td>
<td>0.353147 cunit (or 100 ft³ of solid wood)</td>
</tr>
<tr>
<td>1 m³ (stacked)</td>
<td>=</td>
<td>0.275896 cord (or 128 stacked ft³)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Mass or weight</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1 g</td>
<td>=</td>
<td>0.035274 oz</td>
</tr>
<tr>
<td>1 kg</td>
<td>=</td>
<td>2.20462 lb</td>
</tr>
<tr>
<td>1 t</td>
<td>=</td>
<td>1.10231 tons</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ratios</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1 kg/m³</td>
<td>=</td>
<td>0.062428 lb/ft</td>
</tr>
<tr>
<td>1 km/L</td>
<td>=</td>
<td>2.82481 mi/gal</td>
</tr>
<tr>
<td>1 m²/ha</td>
<td>=</td>
<td>4.35600 ft²/acre</td>
</tr>
<tr>
<td>1 m³/ha</td>
<td>=</td>
<td>14.2913 ft³/acre</td>
</tr>
<tr>
<td>1 m³</td>
<td>=</td>
<td>0.111651 cord/acre</td>
</tr>
<tr>
<td>1 t/ha</td>
<td>=</td>
<td>0.446090 ton (or 2000 lb)/acre</td>
</tr>
</tbody>
</table>

Adapted from: Bowen (1974); Canadian Standard Association (1979).
TABLE 10  *Imperial units and their metric (SI and derived) equivalents*

<table>
<thead>
<tr>
<th>Imperial units</th>
<th>Length</th>
<th>SI equivalents</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 chain</td>
<td>=</td>
<td>20.1168 m</td>
</tr>
<tr>
<td>1 ft</td>
<td>=</td>
<td>0.3048 m</td>
</tr>
<tr>
<td>1 in</td>
<td>=</td>
<td>2.54 cm</td>
</tr>
<tr>
<td>1 mi</td>
<td>=</td>
<td>1.60934 km</td>
</tr>
<tr>
<td>1 yd</td>
<td>=</td>
<td>0.9144 m</td>
</tr>
</tbody>
</table>

### Area

| 1 acre          | =               | 0.404686 ha      |
| 1 mil-acre      | =               | 4.04686 m²       |
| 1 ft²           | =               | 0.0929030 m²     |
| 1 in²           | =               | 6.4516 cm²       |
| 1 mi²           | =               | 2.58999 km²      |
| 1 yd²           | =               | 0.836127 m²      |

### Volume or capacity

| 1 cord (128 ft³) | =               | 3.62456 m³ (stacked) |
| 1 ft³           | =               | 0.028316 8 m³       |
| 1 yd³           | =               | 0.764555 m³         |
| 1 cunit         | =               | 2.83168 m³ (solid wood) |
| 1 imp gal       | =               | 4.54609 L           |
| 1 U.S. gal      | =               | 3.78541 L           |

### Mass or weight

| 1 oz            | =               | 28.3495 g         |
| 1 lb            | =               | 0.453592 kg       |
| 1 ton           | =               | 0.907185 t        |

### Ratios

| 1 cord/acre     | =               | 8.95647 m³(stacked)/ha |
| 1 ft³/acre      | =               | 0.0699725 m³/ha       |
| 1 mi/gal        | =               | 0.354006 km/L        |
| 1 lb/ft³        | =               | 16.0185 kg/m³        |
| 1 ft³/acre      | =               | 0.229568 m³/ha       |
| 1 ton (2000 lb)/acre | = | 2.24170 t/ha |

Adapted from: Bowen (1974); Canadian Standard Association (1979).

**Nomenclature, units, symbols, and abbreviations**

- Do not introduce new systems of nomenclature or new symbols unless it is unavoidable. All Forest Science Program technical publications use SI units and most journals require their use. Most journals also issue their own lists of abbreviations peculiar to their subject.
- Define all unlisted abbreviations in each paper the first time they are used.
- Do not repeat abbreviations in a series, or those used with a number to form a compound adjective.

*16–18°C* **not:** 16°C–18°C

*42–48 g* **not:** 42 g–48 g
from –25 to 35°C not: from –25°C to 35°C
between 30 and 60% not: between 30% and 60%
30 × 30 m not: 30 m × 30 m

• Do not separate abbreviations from their accompanying figures by intervening words.
  
  345 mi not: 345 hot and dusty mi
  A.D. 1066
  7:15 p.m.

• Use the slant line (also known as a solidus) to show rates in the text, but only if the units are expressed in abbreviated form.

  18 km/h
  3500 stems per hectare
  1.25 g fertilizer per seedling
  224 kg N/ha
  10 mol · m⁻² · h⁻¹ or: 10 mol/(m² · h) not: 10 mol/m²/h

**Pairs of numbers**

• Use “to” or “and” to join numbers in a range if they are preceded by the words *from* or *between*, respectively.

  From 1991 to 2004, only the small trees responded.
  The seedlings grew between 2.5 and 4 cm during the period.
  Temperatures ranged from 16 to 32°C.

• Otherwise, use an en dash to join numbers in a range (unless the numbers have been spelled out).

  A 5–10°C rise in temperature was recorded, and a 0.9–2.1 cm growth increase was observed.
  Of the two to four stands affected, only one was seriously damaged.

**Percentages**

• Express percentages in numerals whether you use “percent” or “%,” except at the beginning of a sentence. In scientific and statistical copy, use the symbol “%.” When spelled out, *percent* is one word.

**Punctuation in numbers**

• In scientific publications, use a nonbreaking space (rather than a comma) to separate sets of three digits in numbers with five or more digits to the left of the decimal point.

  8470.0 but: 84 701.0 and: 76 532 106.0

• There is no space between digits to the right of the decimal point.

  756.32106
• In a table containing both four- and five-digit numbers, the four-digit numbers must have a space in order to align.

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>26 536.0</td>
<td>7 200.0</td>
<td>36 105.0</td>
</tr>
</tbody>
</table>

**Statistics**

• In reporting statistical analysis, it is not necessary to include mathematical formulae and equations for standard statistical methods, but a statement of results should include the number of data \( n \), the arithmetic mean \( \bar{x} \), the standard deviation \( s \) or \( \text{SD} \), or the standard error of the mean \( s_x \). Standard statistical abbreviations and symbols are presented in Table 11.

• In reporting a standard deviation or a standard error, state its associated degrees of freedom, and in reporting any statistical value (such as a mean), state its standard error or confidence limits.

**TABLE 11 Standard statistical abbreviations and symbols**

<table>
<thead>
<tr>
<th>Population parameters</th>
<th>Sample statistics</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>( n, N )</td>
<td>Total number of individuals or variates</td>
<td></td>
</tr>
<tr>
<td>( \mu )</td>
<td>Mean of the population</td>
<td></td>
</tr>
<tr>
<td>( \bar{x} )</td>
<td>Arithmetic mean of sample</td>
<td></td>
</tr>
<tr>
<td>( \sigma )</td>
<td>Standard deviation of population</td>
<td></td>
</tr>
<tr>
<td>( s, \text{SD} )</td>
<td>Standard deviation of sample</td>
<td></td>
</tr>
<tr>
<td>( \sigma^2 )</td>
<td>Variance of population</td>
<td></td>
</tr>
<tr>
<td>( s^2 )</td>
<td>Sample variance</td>
<td></td>
</tr>
<tr>
<td>( s_x, \text{SE} )</td>
<td>Standard error of mean of sample</td>
<td></td>
</tr>
<tr>
<td>C.V.</td>
<td>Coefficient of variation</td>
<td></td>
</tr>
<tr>
<td>( t )</td>
<td>Statistical datum derived in Student’s t-test</td>
<td></td>
</tr>
<tr>
<td>( X^2 )</td>
<td>Statistical datum derived in chi-square test</td>
<td></td>
</tr>
<tr>
<td>( p, P )</td>
<td>Probability of wrongfully rejecting null hypothesis (level of significance)</td>
<td></td>
</tr>
<tr>
<td>( \beta )</td>
<td>Regression coefficient of population</td>
<td></td>
</tr>
<tr>
<td>( r )</td>
<td>Coefficient of correlation, sample</td>
<td></td>
</tr>
<tr>
<td>( R )</td>
<td>Coefficient of multiple correlation</td>
<td></td>
</tr>
<tr>
<td>( F )</td>
<td>Variance ratio</td>
<td></td>
</tr>
</tbody>
</table>


**Use of words or numerals**

• Use numerals to precede a standard unit of measure, whether the unit is expressed as a word (e.g., year, day), abbreviation (e.g., km, g, m²/ha), or symbol (e.g., %, $, >).

• Spell out numbers one to nine in the text except when they precede a unit of measure—in which case, numerals should always be used.

There are two species of hemlock and three of spruce in the region.
It rained for 3 days.
• Use numerals for numbers of 10 or more, except to start a sentence.
  Twenty-four study plots in 12 regions were examined.

• If the number cannot be spelled out (e.g., to indicate a year), restructure
  the sentence so that the number does not begin the sentence.

• Spell out numbers of less than 100 that precede a compound modifier
  containing a figure.

  two 3/4-inch boards
  forty-two 5-year-old trees

• Spell out approximations.
  Thousands of trees were destroyed.

• Do not use symbols or abbreviations when spelling amounts out in full.
  Two kilometres away, … not: Two km away, …

• For a large number that ends in several zeros, substitute a word for part of
  it, or use an appropriate prefix with a basic unit of measurement.

  1.6 million not: 1 600 000
  9 km not: 9000 m

• Use an initial zero with a decimal fraction unless the quantity could never
  equal one.

  a factor of 0.81 but: R = .10

8.12 Plurals

• To form the plural of most letters, numbers, and abbreviations without pe-
  riods, add s without an apostrophe. However, use an apostrophe to form
  the plural of lowercase letters used as nouns and capital letters that would
  be confusing if s alone were added.

  MAs and PhDs but: x’s and y’s
  CODs SOS’s

8.13 Possessives

• Most singular nouns form the possessive by adding ’s.

  the river’s edge
  nature’s bounty

• A noun, whether singular or plural, that does not end in a sibilant (s or z
  sound) forms the possessive by adding ’s.

  women’s programs
  Carmen’s dog

• Plurals ending in a sibilant take only the apostrophe (not ’s).

  teachers’ responsibilities
  in-laws’ visit

• For singular nouns ending in a sibilant, pronunciation determines the
  form. If it is natural to pronounce an extra s, add ’s. If another s would
  make pronunciation awkward, add only the apostrophe.
Ulysses’ travels
the boss’s desk

• It is the pronunciation and not the spelling that determines the possessive form; conscience ends in a sibilant, but Illinois does not, because the s is silent.

8.14 Punctuation

• Punctuation should help clarify writing and prevent misunderstanding of thought or expression.
• If a passage is difficult to punctuate, try rephrasing it.
• Sometimes splitting one long and convoluted sentence into two sentences will improve understanding.
• The punctuation guidelines suggested here refer mainly to running text. For special punctuation in footnotes, bibliographies, and so on, refer to the recommendations in related sections in this guide.

Colon

• The colon is most frequently used to introduce a statement, example, quotation, series, or list.
  The rule may be stated this way: Always . . .
  I quote from the report: “It is now time . . .
  Eastman’s study focussed on three issues: the amount of precipitation, the hours of daylight, and the average daily temperature.

  Some common shrubby associations are:
  • fens,
  • wet willow thickets,
  • riparian willow thickets, and . . .

• Terms such as the following or as follows require a colon if followed directly by one or more examples and if the introductory clause is incomplete without the example that follows it.
  The steps are as follows:
  • place the bulb in . . .

• If the introductory statement is complete and is followed by other complete sentences, a period may be used instead of a colon.
  An outline of the procedures follows. Note that the effect of temperature variations was eliminated.
  1. The compound was placed . . .

Comma

• The comma represents the smallest interruption in sentence structure. Although a number of rules govern its use, there are also many exceptions to those rules. Authors (often aided by editors) can use their judgement. If a sentence is clear and the meaning is not in doubt, the comma can
often be omitted. One of the simplest rules regarding the use of commas involves restrictive and non-restrictive elements (see also Section 8.10).

- A restrictive word, phrase, or clause adds a restrictive or defining element that is essential to the meaning of the sentence and that cannot be omitted without changing the main idea of the sentence. A restrictive element should not be set off with a comma.

  The creek that flows out of the Vaca Hills is a favourite of river rafters.

- A non-restrictive element provides additional information that does not affect the essential meaning of the sentence. It should be set off by commas.

  Cache Creek, which flows out of the Vaca Hills, is a favourite of river rafters.

- There are exceptions to the rule for punctuating restrictive and non-restrictive clauses. Whether restrictive or not, an introductory clause or phrase, especially a long one, may be followed by a comma. Each of the following examples could properly be punctuated either with or without commas.

  Before making a decision on the future of the program, it is important to consult the experts.
  In the course of the meeting a number of people raised objections.

- Note: It is the house style for Forest Science Program publications to use the serial (or series) comma. This means that in a list of three or more items, a comma should be used before and or or.

  Tree condition (dead standing, live, and windthrown) was also recorded.

**Hyphen and dashes**

- Forest Science Program publications use the following kinds of dashes, which differ in length and function.

  Hyphen -
  Minus sign –
  En dash – (equal to the space occupied by the letter n in a given font)
  Em dash — (equal to the space occupied by the letter m in a given font)

**Hyphen**

- Hyphens are most often used to join compound words (see Section 8.6) and show a break in a word at the end of a line.

- Note that some compound terms become, with usage, one word (e.g., toolbar, homemade), and that spellings—one word, two word, or hyphenated—can vary with publication house style. To determine whether a term should be hyphenated or not, first check the list of common spellings for Forest Science Program publications in Appendix 6 and the Canadian Oxford Dictionary. If you are still unsure, consult Production Resources staff or an editor directly.

  The long-term prediction is that the market will experience a 3% change.
• No hyphen is required between an -ly adverb and the word it is modifying.

A poorly growing plant suggests...
In the most seriously affected quadrant, …

**but:**
the slow-growing plant
the plant is slow growing
the worst-affected quadrant
The quadrant that is worst affected is …

**Minus sign**
• Symbol typefaces provide a minus sign: a line that is larger than a hyphen but shorter than an en dash.

**En dash**
• Use the en dash, with no space on either side of it, to:
  • replace “from” and “to” in a series of numbers or in references to dates or times
    2004–2006
    May–June 2007
    12:00–2:30
  **but:** -4 to -7 °C  **not:** -4 – -7 °C

  • indicate associations between descriptors
    east–west split
    time–space relationship

  • join the names of two or more places
    the riding of Kenora–Rainy River

  • instead of a hyphen in a compound adjective when one element consists of two words or a compound word (see also “Slant line” below)
    Victoria–Port Angeles ferry
    post–World War II period
    snow avalanche–prone valley
    individual-tree–based analysis

  • Note: If a hyphenated and dashed compound construction results in a term that is ambiguous or difficult to understand, consider rephrasing the term altogether. For example:
    **Instead of:** individual-tree–based analysis
    **Try:** analysis based on individual trees

**Em dash**
• The em dash is a more emphatic and less formal form of punctuation than a comma, colon, or semicolon. It is useful in scientific and technical writing, but should not be overused.

• The em dash has no space before or after it.
• Use an em dash to:
  • indicate an abrupt change in thought
    The manager—he was still annoyed by his subordinate's remarks—left his office early.
  • add emphasis or give further explanation by expanding a phrase
    Aside from being thick and often greasy, organic accumulations have a high water-holding capacity—a significant advantage on exposed sites.
  • enclose a list that interrupts the usual sentence structure
    The results for each year—42.6%, 28.3%, and 44.0%, respectively—were unexpected.

• Do not use more than one em dash or more than one pair of them in a sentence.

*Parentheses and square brackets*

• Use parentheses to:
  • enclose additional material that explains or comments on the main text
    Comparisons of successful attacks (full and strip) were…
    When bark beetle incidence (percent trees attacked) for each stand was regressed against …
    The baited trees were sampled for attack (by spruce beetle) …
    The smaller roots (< 4 cm diameter) were…
  • avoid confusion in meaning
    *Note the difference between:*
    Jane Smith (the new employee) and two administrators . . . [three people in total]
    *and:* Jane Smith, the new employee, and two administrators . . . [four people in total]
  • enclose numbers or letters in a list that runs into the text
    Each entry was judged for its (1) artistic merit, (2) originality, and (3) technical expertise.

• enclose reference material within the text
  Understorey types are interpretive units for forage and cover management, just as treatment units are interpretive units for timber management (Yung et al. 2006).
  Special habitats (Table 3) are, with one exception, non-forested communities of high value to deer or elk.
  The trees were baited with pheromone (frontalin; Pheromone SB Co., Burnaby, B.C.), starting in May …

• enclose an acronym or initialism when it is first provided in text
  Differences were analyzed by analysis of variance (ANOVA).
• Avoid placing parenthetical material within other parenthetical material. However, if doing so is unavoidable, use square brackets (discussed below) within parentheses or use a combination of parentheses and dashes. (Note: In mathematical usage, square brackets enclose parentheses.)

Paired t-test comparisons (of phloem thickness [see p. 44]) indicated that …

• Use square brackets to enclose editorial comments or to enclose correc-
tions in quoted material.

“The Ministry of Water, Land and Air Protection [now Ministry of Environment] is legally responsible for . . .”
… required all forest companies to make a submission.
[Important to remember is that this took place before the law was revised. Editor]

Period
• Use one space only after a period at the end of a sentence. Do not use a space after a period in an author’s initials or for those abbreviations where periods are needed.

A recent survey showed that only 3% of similar structures in the U.S. had failed (L.S. Conti, unpublished data). We believe …

• Place periods within quotation marks.

She replied, “This is one of the most important heritage buildings in the area.”

• When square brackets or parentheses enclose an independent sentence, place the period inside.

The decision took us by surprise. (We had continued to hope for a change.)

• When the enclosed material is part of an including sentence, place the period outside.

The climate diagram shows the monthly average temperature for the area (Figure 6).

• Omit a period at the end of a sentence if that sentence is included within another sentence.

Researchers had opportunity to observe the flock (it had landed near the estuary) three days later.
The response, “I have no opinion,” was unexpected.

Question mark
• Use a question mark at the end of a direct question, even if the sentence is declarative or imperative.

Surely not?
You’re not sick again?
Raining again?
• Use a question mark at the end of an interrogative element within a sentence.

  How can the two values be reconciled? That was the question posed at the meeting.
  Why? he wondered.

• When the question consists of a single word, such as why, who, how, or when, within a sentence, a question mark is not needed. The word may be italicized for greater effect.

  The question was not when, but why.
  They asked themselves why.

• Place the question mark inside quotation marks, parentheses, or brackets only if it is part of the quoted or parenthetical material.

  The child asked, "When will I be old enough?"
  Why did he look guilty when he said, "I know nothing of the sale"?

• Use one space after a question mark.

Semicolon

• Use a semicolon to make a complex list easier to read, particularly when there are internal commas.

  The three breakfast orders said it all about the trio: sausages, hash browns, and fried eggs; porridge and prune juice; and yogurt, organic strawberries, and herbal tea.
  Registered herbicides used for site preparation in the area include amitrol; amitrol and simazine; 2,4-D ester; and 2,4-D ester and 2,4-DP ester.

• See Section 8.15 for more information on using semicolons in itemized, vertical lists.

Slash (or solidus)

• Use a slash in place of a hyphen to join words or terms of equal importance or where and or or do not properly convey how the terms are related.

  The yes/no response allowed for little middle ground. [alternatives]
  on/off switch [alternatives]
  cost/benefit analysis [simultaneous analyses]
  student/teacher ratio [ratio]
  owner/manager [simultaneous roles]

• Use a solidus to show the relationship between two sets of hyphenated terms used together as an adjective.

  Studies on green-tagged/black-tagged response differences have concluded that . . .
  The Smithers–Terrace/Terrace–Prince George legs of the journey . . .
Different forms of lists and series require different forms of punctuation and enumeration.

Use a colon to introduce a list within a sentence.

The report examined activities in the three forest regions: Coast, Northern Interior, and Southern Interior. **but:** The report examined activities in Kamloops, Prince George, and Prince Rupert.

Use numerals to emphasize the number of items in a list (“the study had three objectives: …”) or a ranked order (“the five largest samples, in order of size, came from: …”). Otherwise, use a bullet to separate items in a vertical list. Avoid using lowercase letters (a., b., c., etc.) or Roman numerals (i., ii., iii., etc.) for enumeration, unless you have a list embedded with several sub-lists or otherwise need to use letters or Roman numerals for clarity.

Use conventional punctuation for listed items that complete a sentence.

The test indicated that:
- 55% responded positively,
- 34% had no response, and
- 11% responded negatively.

Omit punctuation after listed items if the list does not complete a sentence.

We collected several specimens for analysis:
- nodding wood-reed
- common timothy
- foxtail barley
- blue wildrye

For long enumerations, begin each item on a new line and use an indented numeral or bullet. Align each runover line with the first word after the numeral or bullet.

Set lists apart from text with an extra line space. Put a bullet or the number and a period before each item listed.

As much as possible, avoid the use of the word processing program’s automatic bulleted and numbering function for documents to be typeset. This function does not translate reliably into a typesetting program. Preferable is inserting numbers and spacing individually.

Their yield or frequency varies with age and depends on two things:
1. whether a major storm capable of initiating mass wasting has occurred since logging; and
2. if a major storm has occurred, when it occurred in the sequence of clearcut, root deterioration, and establishment of second growth.

To enumerate a list within a sentence, fully enclose numerals in parentheses (see the example below).

Do not use a colon before a list that is an object or a complement of the introductory statement (see the example below).
• Separate short elements in a list with a comma, and longer, more complex elements with a semicolon.

The first test showed (1) Chernozems, (2) Luvisols, and (3) Podzols. A second, closer examination produced a detailed classification: (1) Dark Gray, Black, and Dark Brown Chernozems; (2) Gray and Gray Brown Luvisols; and (3) Ferro-Humic Podzols.

• If each element is long (extending to five or more lines in length), consider making each one a paragraph. Note the alignment of the text in the example below.

The following conclusions are drawn from the ground confirmation of volumes.
1. The bulk of the differences between the volumes estimated from aerial photographs and from field measurements for all features should typically be between . . .

8.16 Quotations

• Canadian style is to use double quotation marks for quoted text and for words or terms used in a special way. Single quotation marks should be used only for quotations within quotations.

The Act states, “Only a ‘designated professional’ may be assigned to conduct that task.”
The Act refers to “a designated professional,” who is responsible for “approving and signing all submissions.”
The Act gives that responsibility to “a designated professional”: that is, someone approved by the Ministry to approve and sign all submissions.

• When using a direct quotation or a paraphrase, include the appropriate text reference (see Section 8.17, References) and the source page information.

• Run short quotations in with the text and enclose them in double quotation marks. Set longer quotations (generally five or more lines) off from the text by indenting and single-spacing them. Do not enclose them in quotation marks.

• Follow any misspellings or inaccuracies in an original quotation with sic set in italic type and enclosed in square brackets (i.e., [sic]).

• If you omit words or sentences from a quotation, indicate the omission with ellipses (spaced periods: . . .).

• Use square brackets to enclose words inserted in a quotation by the author or editor.

According to Reynolds et al. (2008), “the RGU [now renamed the Restoration Agency] offers the best means of bonsai transportation in the industry today.”

8.17 References

• References have two purposes: they acknowledge the work of others and they assist readers in locating these sources themselves. This is true whether the item being referenced is available in print, as an item on the internet, or in both forms.
**Published versus unpublished works**

- When citing any reference from a print or electronic source, it is important to distinguish between published and unpublished works.
- For **published material**, “publication” (print or electronic) presumes that the item:
  - has been distributed and is publicly available;
  - provides contact information, includes a citation, or has received a unique identifier number (ISBN);
  - has a clear publisher or sponsoring agency;
  - has undergone some level of peer, technical, or editorial review; and
  - is available in print or electronic form and is held in one or more libraries.
- Note: Only published materials should appear in a bibliography, which can be titled either “Literature Cited” or “References” (see page 15).
- **Unpublished material** (sometimes referred to as “grey literature”) includes material more likely to have been produced at the local or regional level for internal distribution only, or material that has not undergone the editorial and production procedures necessary to make it suitable for public distribution. Examples of unpublished material include contract reports, draft reports, internal government documents, manuscripts undergoing review, papers submitted to a journal but not yet officially accepted by it, memos, unpublished data, and personal communications (including emails; see below, “Examples of bibliographic entries for electronic material”).
- Unpublished documents and source materials should be cited in the text (in parentheses, for unpublished data or personal communications) or in footnotes (for longer citations [see “Footnotes,” below], including lengthier citations of unpublished data or personal communication).

  **in text:** (J.B. Chou, BC Hydro, unpubl. data, 1997, B.C.) or
  (L.D. Zada, MFLNRO, pers. comm., Dec. 8, 2000)

  **footnote:**
  1 J.B. Chou, unpubl. data presented at public forum, June 30, 1997, BC Hydro, Vancouver, B.C.

- Examples of the most common types of citations used in Forest Science Program publications are provided below.

**Footnotes**

- Use footnotes to add supportive documentary or explanatory information or to acknowledge unpublished material.
- Place footnotes on the page on which their reference appears and number them consecutively throughout the entire manuscript, except if the publication is: a collection of papers by different authors (in which case the footnotes should be noted consecutively within each paper); or a series of appendices. (See also Section 2.6, Guidelines for Manuscript Preparation.)
In text, put the superscript number directly beside the word (or last word in a phrase) to which the footnote refers. If there is end punctuation: for a period or a comma, set the superscript number outside; and for colons and semicolons, set the superscript number inside.

A beetle survey found that 12% of trees were attacked, but only 3% of those attacks were current.\(^2\)

A total of 32 stands were surveyed: 15 of these were in the Vernon area\(^1\); 7 were near Grand Forks\(^2\); and the remaining 10 were at sites throughout the southern Fraser Valley.\(^3\)

Tables have their own footnotes, which are listed under each table (see Section 8.19, Tables).

A footnoted reference must include all relevant information about the source, including the date the item was issued, submitted, presented, or obtained, and the specific page numbers, if relevant. Once a footnoted source has been fully identified, subsequent references to it may simply include the author's last name, the date previously cited, and page numbers (if applicable). For reference to the immediately preceding footnote only, put “Ibid.”


\(^3\) L. D’Angelo, B.S. Trew, and K. White. 2003. Ecosystem classification of the Coastal Western Hemlock Zone, Queen Charlotte Islands subzone (CWHwh), Prince Rupert Forest Region, British Columbia. B.C. Min. For., Smithers, B.C. Unpubl. manuscript.

\(^3\) Ibid., p. 21.

\(^4\) Rivard, 1999.


**In-text referencing**

Use the author-date system for citing references in the text. Cite the author’s last name and the year of publication. If the reference is undated, put a comma after the author’s name and use “n.d.” in place of the date.

Intensive studies have examined the biological relationships of the disease (Barr 2005).


The protected area is 12 million ha (Environment Canada, n.d.).
• Use no punctuation within the parentheses unless you refer to specific page numbers or sections or if you refer to more than one work by the same author.
  
  (Burton 2005)
  (Burton 2005, pp. 121–125)
  (Burton 2005, 2007)
  Burton (2005, p. 123)

• For three or more authors, use “et al.” following the first author’s name.
  
  (Burton et al. 2005)
  Burton et al. (2005)

• For documents with the same senior author but different multiple co-authors and the same publication date, include the second author’s name.
  

• If you refer simultaneously to several works by different authors, list the names chronologically by publication date, and separate each citation with a semicolon. (Note: If you refer to a series of works directly in text [not parenthetically], this rule need not apply if you wish to list the works in order of importance.
  
  (Burton 1999, 2007; Barr et al. 2004; Peters 2006)
The editors wish to acknowledge the work of Barr et al. (2004), Burton (1999, 2007), and Peters (2006).

• If you refer to more than one author with the same surname whose works were published in the same year, include the authors’ initials in the citations.
  
  (Burton, A.C. 2000; Burton, R. 2000)
  (Burton, D. et al. 2001; Burton, A.C. et al. 2001)
  but:
  (Burton and Barr 2002; Burton and Peters 2002)
even if two different Burtons are involved.

• If the same author(s) and year exist for more than one reference, use lowercase letters to distinguish the citations. If the references are undated, put a comma after the author’s name and use “n.d.” followed by lowercase letters to distinguish the citations.
  
  (Burton et al. 1999a, 1999b)
  Burton (1999a)
  (Environment Canada, n.d. a, b)

• If you use an organization, department, or committee as author, cite the name and abbreviate it only if it is well known.
  
  (B.C. Ministry of Forests and Range 2008)
• If one author cites the work of another author and the original reference is unavailable or available only in a foreign language, indicate both the original and the secondary source in the text. In the bibliography, include both articles.
  Michaux (1999, cited in Smith 2001)

• If you cannot identify the author of a paper, use the name of the sponsoring agency. There should be no reason to use “Anonymous” as the author.
  (Canadian Wildlife Federation 2006)

• If the reference is to a publication not yet published but accepted and scheduled to be, use “in press” after the name of the author (or authors).
  (Webber, in press)

• If the text refers to another paper included in the same collection or proceedings, use “this publication” in the citation.
  (Burton and Barr, this publication)

• All publications that are referenced in the text must also appear in the Literature Cited or References section of the publication.

• When a series of references to different sources includes—in addition to published reports—personal communications or unpublished reports and data, list the various citations in the following order: published work (books, reports, proceedings, etc.), unpublished reports, unpublished data, personal communications. Note that the citations for the unpublished works then need to be provided in footnotes.
  (... Humber 2002; Rivard and Pyper; A.K. Jones; L. D’Allo, pers. comm., Dec. 1997). Their results ...

**Bibliographies**

• Use one of the following headings to list published material at the end of the article or book.
  • Literature Cited: a reference list of all published works cited in the text, including those items forthcoming (that is, “in press”), those online, and those deposited in libraries as theses or dissertations.
  • References: a list of all published works cited in the text, as well as those consulted but not specifically referred to in the text.
  • Arrange all bibliographic entries alphabetically by authors’ surnames (letter-by-letter, rather than word-by-word), and chronologically by publication date (earliest to most recent) when an author has more than one publication cited (Letter-by-letter by title if multiple publications, same author in same year).

  Use letter-by-letter alphabetizing, for example:

**NOT word-by-word, for example:**

- In the ordering of entries, an author’s original work should precede their work as editor or compiler.
- Use a 10-character line, or underscore, in place of the author’s (or authors’) name when more than one work by the same author(s) is listed.

Derry, J. 1999.

- Alphabetize names beginning with Mac, Mc, or M’ letter by letter. (Note: This is a change to the past practice adopted for Forest Science Program publications, which previously followed the British practice of alphabetizing such names as if they all used Mac.)
- Alphabetize names beginning with Saint, Sainte, Saint-, Sainte-, or St. letter by letter. (Note: This is a change to the past practice adopted for Forest Science Program publications, which previously followed the British practice of alphabetizing such names as if they all used Saint.)
- Alphabetize and capitalize all other compound personal names (and those with particles such as de, di, van, De, Di, and Van) according to personal preferences of the individuals.

Macaffee
MacPherson
MacWilliam
McKay
M’Clintock
Oborne
O’Neill
Oppenheimer
Saint Jacques
St. Aubain
St. Laurent
van der Meer
Van Engel
van Engel

- Spell out names of government and corporate organizations in full if they are listed as author and spell out their acronyms or abbreviated forms.
included in parentheses. Spell out titles in full, and capitalize only the first word and all proper nouns.


Standard abbreviations for terms and journal titles in bibliographic entries

- Abbreviations are the convention in scientific and technical reference citations and should conform to the ISO 4 standard for abbreviating title words. (The ISSN International Centre is the registration authority for serial title abbreviations, and ensures that words are abbreviated in accordance with ISO 4. The centre publishes [for a fee] The List of Serial Title Word Abbreviations, which includes title word abbreviations in over 50 languages.)
- A list of the most common abbreviations used in citations for Forest Science Program publications is provided in Appendix 7. When citing little-known agencies, committees, or meetings, spell the proper names in full.
- See Appendix 8 for a list of the standard abbreviations of those journals commonly cited in Forest Science Program publications.
- The BIOSIS (BioSciences Information Service) guides to serial publications and databases in the sciences (published by Thomson Scientific, available at www.biosis.org) includes BIOSIS Serial Sources, a regularly updated listing of standardized abbreviations for more than 5000 current and 13,000 archived series titles. The Ministry of Forests and Range library subscribes to BIOSIS Serial Sources. If the abbreviation for a title is not shown in Appendix 8, consult the BIOSIS references in the library.
- Note that:
  - one-word journal titles should always be spelled out in full (e.g., Ecology, Genetics, Naturalist);
  - words such as of, and, and the should not be included in the abbreviated names; and
  - all abbreviations should be followed with a period.
- For documents intended for a lay audience (e.g., information brochures or pamphlets), it may be better not to abbreviate words in citations, if there is a chance readers will not understand what the abbreviations mean. Common abbreviations may be acceptable (e.g., Agric., Org., Tech., Univ.), but the needs of the primary reader should be considered before too much abbreviating is used.

Examples of bibliographic entries for print material

- A full range of citation style and elements is shown in the following examples.
- Note that number of pages is not a required part of the house style.
Journals and reports

- Article, one author:

- Article, more than three authors, accepted, publication date known:

- Article, accepted, publication date unknown:

- Article, corporate author:

- Article, no identifiable author but sponsoring agency known:

- Article, in foreign language, two sources:

- Article translated:

- Article in more than one part:
• Journal paginated by issue:

• Article, tables, and figures separate from text:

• Publication substantially revised from a previous edition:
  (Note: “Substantially” means that approximately 20% of the original content is new or revised material. There is no need to say “revised” in the citation, unless it is of importance to indicate who did the revision.)

• Publication reissued with only minor changes and where the original date of publication is of more importance than the latest date of publication:
  (Note: “Minor changes” include corrections of previous typographical errors.)

• Publication reissued with only minor changes and where the more recent date of publication is of more importance than the original date of publication (the original date may be added, but does not have to be):

• Publication as part of a series:

• Publication as a supplement:

Books
• One author:

- **More than one author:**
  

- **Editor, compiler, technical co-ordinator, or translator as author:**
  


- **Corporate author:**
  


- **Chapter in a book, editor given:**
  

- **Work of one author cited by another:**
  

**Procedures and abstracts (from meetings and conferences)**

- **Specific paper from proceedings, a meeting, or a conference:**
  


• Abstract from a meeting:

**Government publications**

• One author, federal department:


• More than one author, federal department:

• Federal department sponsor, no author given:

• Joint publication of two provincial ministries:

• References published in two series simultaneously:

• More than one author, provincial ministry:

• Provincial ministry sponsor, no author given:

• Specific section of a publication:
• Quarterly reports:

Legislation

Canadian Environmental Protection Act, 1999, S.C. 1999, c. 33, s. 165.


Posters


Theses


Maps


Examples of bibliographic entries for electronic material

• As for print documents, the main objective of citations for electronic documents is to provide readers with a sense of the nature of the material, its currency, and its location so they can, if they desire, retrieve it.

• In Forest Science Program publications, the style of referencing electronic sources (online documents available using the World Wide Web and FTP [file transfer protocol] servers) follows closely that of referencing print materials. The difference is the addition of all or some of the following, as appropriate:
  • a content designator (e.g., “monograph” or “abstract”);
  • a medium designator (e.g., “online”);  
  • pertinent publication information: name of the sponsoring body, publi-
cation date, revision date (if necessary), and access date by the author;
• for online materials, an address (e.g., URL [universal resource locator], FTP, or DOI [digital object identifier]); and
• additional information that might be useful to the reader, such as “Registration required for access” or “Also available in French.”

“(current as of Nov. 13, 2008)” or
“Click ‘Download Land and Resource Data’ at www.lrdw.ca/”

• Email communication and discussion lists (e.g., electronic forums, bulletin boards, and listservs) should all be treated as forms of personal communication. This means that any references to information received through these sources should be footnoted (as discussed above), not included in the bibliography with published information.
• Internet addresses that appear at the end of a sentence in running text are followed by a period. When citing electronic sources in bibliographies, end punctuation is required after the access information.

(Note: This is a change to the past practice adopted for Forest Science Program publications, which followed the conventional use of angle brackets to enclose internet addresses. The revised format allows electronic source citations to be more successfully rendered in various formats; e.g., HTML [hypertext markup language].)
• In Forest Science Program publications, when a URL begins with “http://www”, then “http://” is deleted.

**In text:**
For more information, go to www.for.gov.bc.ca/hre/ffip/.

**In a bibliography:**

• Ensure the URL takes the reader directly to the cited reference, not to an organization’s general website/homepage.
• An internet address (typically a URL) may be broken at the end of a line to avoid leaving long blank spaces. However, breaks should be made only:
  • after a double or single slash (// or /)
  • before a tilde (~), period, comma, hyphen, underline, question mark, number sign, or percent symbol; or
  • before or after an equals sign or ampersand (&).
• Never put a hyphen in a URL to indicate a line break.

**Online documents: journal articles and reports**
• Note: Although numerous bibliographic databases contain citations and abstracts of journal papers and books (or monographs), authors are encouraged to cite such scientific and technical materials in their original form (whether print or electronic)—not simply from the database.

Peterman, R.M. 2000. The importance of reporting statistical power: the forest decline and acidic deposition example. Ecology


- List the URL if the document occurs in both hard copy and electronic formats. If the electronic format was accessed on-line, state the date accessed parenthetically after the URL.

**Online journal articles that include a DOI**


**Online documents: books or parts of books**


**Online documents: undated**

Online proceedings from meetings and conferences


Professional site


Digital maps and GIS data sets


Computer Software


8.18 Spelling

- In Canada, the decision to use British or American spelling is largely a matter of personal preference. However, most publishers adopt a preferred style of spelling for the sake of consistency and expediency in production. The following guidelines for spelling are based on the style that various Canadian publishers and the majority of Forest Science Program clients use.
- Unless they receive specific instructions to the contrary, editors will edit to this style and proofreaders will proof to it. If authors follow the same style as well, the margin for error can be reduced even further.
• If you are intentionally using an alternative spelling, or if you have used highly technical words that may not be familiar to those preparing your manuscript for publication, please attach (in print or electronically) a short spelling list to the front page of your manuscript.

• In Forest Science Program publications, British spelling (typically following the Oxford Dictionary) usually takes precedence over American spelling (typically following Webster’s Dictionary). Common examples for Forest Science Program style are shown below.

• Note: Use the Canadian Oxford Dictionary as a default reference to check additional words.

• Appendix 6 contains a list of preferred spellings for words and phrases frequently used in Forest Science Program publications.

Preferred spellings for common words

Nouns ending in our/or, use our:

  behaviour
  colour
  endeavour
  honour
  odour
  vapour

Nouns ending in re/er, use re:

  centre
  fibre
  metre (SI unit, but meter for the device)
  theatre

Nouns ending in ce/se, use ce:

  defence
  licence
  offence
  practice

Verbs ending in se/ze use ze:

  analyze
  realize
  organize
  paralyze

Distinction between noun and verb forms:

  licence (noun); license (verb)
  practice (noun); practise (verb)

Double l versus single l in verb and noun forms:

  counsel, counselled, counselling
  enrol, enrolled, enrolling, enrolment
fulfil, fulfilled, fulfilling, fulfilment
install, installed, installing, instalment
instil, instilled, instilling
label, labelled, labelling
model, modelled, modelling
travel, travelled, travelling

Double consonant versus single consonant with various endings:

benefited
biased
budgeted
edited
equalled, equalling
focussed, focussing
gravelled
targeted
tranquillize
traveller
woollen, woolly

Miscellaneous:
acknowledgement
appendices
catalogue
enquire
grey
judgement
manoeuvre
plough (use “plough” or “plow” consistently, depending on audience)
program
mould
sulphur

• If quoted material in text is from a source that uses a different spelling from the guidelines above, do not change it in the interests of preserving consistency. Rather, just ensure that the spelling in the new text remains consistent. (Note that this guideline also applies to spelling variations where two-word terms might be variously spelled open, hyphenated, and closed.)

  The method devised by Barnes (2003), “closest neighbor random choice,” relies on neighbouring samples to be …

• Avoid the use of contractions in Forest Science Program publications.

  There has been a dramatic increase in …
  Applications will not be effective after …

  Not:
  There’s been a dramatic increase in …
  Applications won’t be effective after …
8.19 Tables  • A table is a mass of related data, usually presented in three or more columns. It has a title and number, and it stands alone: that is, it should not duplicate information in the text. In scientific and technical publications that contain many data, tables can be an effective visual aid. They can add clarity and present the same amount of information in a small space that might need several paragraphs of text.
  • When presenting three or four sets of repetitive data, use a table. (However, if the data show pronounced trends or create a noteworthy picture, a graph might be more effective than a table.)
  • A leader table, or tabulation, has only two to three short rows of data and is inserted directly into the text without heads, captions, or table numbers. A sentence explaining the tabulation and ending in a colon usually precedes the table.
  • Figure 7 shows examples of portrait and landscape orientation of tables.
  • Refer to every table by its number at least once in the text. Capitalize the word “Table” in the text only when you use it with a specific number.

  The difference in the concentration between the two samples was 35% (Table 6).
  As indicated in Tables 2 and 3 . . .
  The results presented in the table indicate . . .

  • Do not use the text to present information that is contained in a table. Summarize or interpret the data rather than simply repeating them.
  • All heads (spanner, row, and column) used in a table should be clear, and readers should be able to understand the data apart from the text.
  • Within practical and design limitations, place tables as soon as possible after the first mention of them in the text. Place them at the top or the bottom of the page.
  • Avoid the use of vertical lines to box data. Instead, use a horizontal line beneath a spanner head and above and below the entire table.

![Figure 7](image_url)  Sample tables showing (a) portrait and (b) landscape orientations.
• Align all column heads with the left edge of the space allotted to them (except spanner heads and cut-in heads, which should remain centred over their appropriate columns). Indent subheads and align them to the left margin. In a series of tables, make sure that the same item always appears with the same name or abbreviation.

**Numbering tables**

• Number all tables consecutively with Arabic numerals and refer to them by that number in the text.
• Number tables in the order in which they appear in the text. (They should appear in the same order in which you first refer to them.)
• Give each table a separate number, even if there are only a few tables in the publication. Tables intended for comparison should have separate numbers (e.g., Table 6 and Table 7, not Table 6a and Table 6b).
• In a large collection of papers, such as proceedings, number tables consecutively by chapter, using a double numeration system if the chapters are numbered (e.g., Table 3.1, Table 3.2, etc. in Chapter 3).
• Number the tables in an appendix separately from text tables (e.g., Table A1, Table A2, etc. in Appendix 1). If there is more than one appendix, number the tables consecutively within each appendix (e.g., Table A1.1, Table A1.2, etc. in Appendix 1; Table A2.1, Table A2.2, etc. in Appendix 2).

**Table captions**

• Every table must have a number and a caption (title).
• Set the table caption flush with the left-hand margin, above the table.
• Put the word *table* in full capitals, followed by its number, and then the caption.
• Capitalize only the first word and all proper nouns in the caption.
• Do *not* put a period at the end of the caption unless the caption contains more than one phrase/sentence (in which case, put a period at the end of each phrase/sentence).

| TABLE 2. Tree species composition in five study areas |

• One or two brief sentences may be added for further detail, but keep them as concise as possible. Single-space when captions run over a line.
• If you must reduce a table in size to make it fit a page, do not reduce the point size of the table caption.

**Column heads**

• A table must have at least two columns; usually it has three or more.
• In most cases, a table should be constructed so that like elements (i.e., the dependent variables) read down, not across.
Example of *correct* table construction:

<table>
<thead>
<tr>
<th></th>
<th>Height (cm)</th>
<th>dbh (cm)</th>
<th>Age (yr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fir</td>
<td>200</td>
<td>11</td>
<td>5</td>
</tr>
<tr>
<td>Cedar</td>
<td>150</td>
<td>9</td>
<td>3</td>
</tr>
<tr>
<td>Hemlock</td>
<td>100</td>
<td>6</td>
<td>4</td>
</tr>
</tbody>
</table>

Example of *incorrect* table construction:

<table>
<thead>
<tr>
<th></th>
<th>Fir</th>
<th>Cedar</th>
<th>Hemlock</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height (cm)</td>
<td>200</td>
<td>150</td>
<td>100</td>
</tr>
<tr>
<td>dbh (cm)</td>
<td>11</td>
<td>9</td>
<td>6</td>
</tr>
<tr>
<td>Age (yr)</td>
<td>5</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

- Each column should have a bolded head at the top and is centred or left-aligned to indicate clearly what the column is describing. Capitalize only the first word of the head and all proper nouns, unless the head consists only of a lowercase abbreviation (e.g., dbh). In general, put column heads in singular form (e.g., Sample number, **not**: Sample numbers).
- If a unit of measure is used as part of a column head, place the unit in parentheses on the line below the head. Abbreviations are acceptable and should be used consistently throughout the table (e.g., %, mm, $).
- If two or more columns constitute a recognizable category, put a spanner head above them. Place a horizontal rule between spanner and column heads to indicate the columns to which the spanner head applies (see Table 12).

**Table 12** Parts of a table. *Note that a table caption is not followed by a period unless it contains more than one sentence.

<table>
<thead>
<tr>
<th>Spanner head</th>
<th>Column head</th>
<th>Column head</th>
</tr>
</thead>
<tbody>
<tr>
<td>Row head</td>
<td>[Data column]</td>
<td>[Data column]</td>
</tr>
<tr>
<td>Row subhead; (indent line runovers)</td>
<td>xxxxxxxxxxxxxxxxxx</td>
<td>xxxxxxxxxxxxxxxxxx</td>
</tr>
<tr>
<td>Row head</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Row subhead; (indent line runovers)</td>
<td>xxxxxxxxxx</td>
<td>xxxx</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**Stubs**

- The left-hand column of a table is called the stub. All the other columns to the right are called data or field columns.
- The stub lists categories about which the data columns provide information. The stub may have its own head, but in many cases the information can stand alone.
- In a series of tables that compare the same item, the item should always have the same name or abbreviation.
- Do not use ditto marks in stubs, or punctuation such as colons and semicolons.

**Table body**

- The body of the table consists of the vertical columns (usually numbers) below the column heads and to the right of the stub.
- Do not mix different types of information in the same column. For example, time intervals, money, percentages, and information expressed in words should each have a separate column.
- Do not use ditto marks in data columns to indicate a repeated amount. Instead, restate the amount. Use an en dash (–) within a cell to indicate that data are unavailable. If information is not applicable to a certain cell, put “na” to show that. If a cell quantity is equal to zero, use “0.”
- For clarity and aesthetic reasons, ensure that table columns are aligned.
  - Align items in columns horizontally with the item in the stub that relates to it. Indent a runover one space and align on the last line of the stub item.
  - Align a column of figures vertically on the decimal point.
  - Dollar signs and percentage signs should appear only at the top of the column or as part of the column head.
- Do not use commas in column figures. Although metric style is to close up spaces in numbers between 1000 and 9999, this causes problems of alignment when larger numbers occur. In columns, numbers should be aligned on the decimal point, with a thin space after the third digit, as shown below.

  1 500.53
  1 928.26
  1 130 265.56
  1 162 800.00

- When words, not numbers, are being displayed, capitalize the first word and all proper nouns only. An exception can be made when the table data include words, abbreviations, or symbols that cannot be understood as capitals (e.g., ppm, log, pH). If a cell entry is a full sentence, put a period at the end of it.
Footnotes in tables

- Use footnotes in tables to explain data or to define abbreviations other than those commonly accepted.
- Footnotes to tables are independent of footnotes to text.
- Use superscript lowercase letters rather than numbers to indicate table footnotes, beginning with the letter “a” in each table. (If the letters might be mistaken for part of the data, place them one space apart from the data.) However, if your table includes lowercase letters as part of the data, use numerals instead of letters to avoid confusion.
- Letter footnoted information from left to right across the table and from top to bottom. Place the footnotes beneath the bottom line at the end of the table.
- All footnotes begin with a capital letter and end with a period, regardless of whether they are a full sentence, a phrase, or a single word.
- If the same abbreviations are repeated in more than one table, footnote the abbreviations in the first table only and in the following table(s) put “Abbreviations as in Table X” below the caption.

Continued tables

- If a table spills on to another page, put “TABLE X. (Continued)” at the top of the page. Repeat the column heads.
- Do not put a bottom line or footnotes on the table until it is complete. If a table continues for more than three pages, put “TABLE X. (Concluded)” at the top of the last page of the table.
- Note: These guidelines for continued tables apply also to figures and appendices that are continued.

Figures 8–11 show various examples of the Table style for Forest Science Program publications. Although these examples are from typeset documents, which have slightly different specifications than word-processed tables, they still illustrate the intent of the above guidelines.

| Table 9 Above- and below-ground biomass of lodgepole pine and white spruce, after two growing seasons, growing on coarse versus fine soils for sites with moderate aspen competition |
|---|---|---|---|---|
| Variable | Coarse (g) | Fine (g) | t | p |
| Pl above-ground biomass | 112.58 | 65.3 | –2.996 | 0.008 |
| Pl below-ground biomass | 33.40 | 21.62 | –2.667 | 0.016 |
| Sw above-ground biomass | 35.98 | 22.09 | 1.755 | 0.092 |
| Sw below-ground biomass | 28.22 | 15.53 | 2.840 | 0.011 |

Figure 8 Example of a table showing column alignment and other table styles for Forest Science Program publications.
Regression equations for describing the stem diameter (mm) after seven and 10 growing seasons and height (cm) after 10 growing seasons for lodgepole pine

<table>
<thead>
<tr>
<th>Independent variable (x)</th>
<th>Dependent variable (y)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Year 7 stem diameter (mm)</td>
</tr>
<tr>
<td></td>
<td>Regression coefficients (b_i)</td>
</tr>
<tr>
<td>Constant</td>
<td>64.85 (se 2.55)</td>
</tr>
<tr>
<td>HU</td>
<td>-0.56 (se 0.19)</td>
</tr>
<tr>
<td>FS</td>
<td>-3.67 (se 2.00)</td>
</tr>
<tr>
<td>SM</td>
<td>-6.48 (se 2.51)</td>
</tr>
<tr>
<td>ME</td>
<td>-4.12 (se 1.93)</td>
</tr>
<tr>
<td>EA</td>
<td>-</td>
</tr>
<tr>
<td>LN (LI)</td>
<td>-1.07 (se 0.37)</td>
</tr>
<tr>
<td>AC</td>
<td>-</td>
</tr>
<tr>
<td>LN (AC)</td>
<td>-1.47 (se 0.29)</td>
</tr>
<tr>
<td>ALD</td>
<td>8.71 (se 2.02)</td>
</tr>
<tr>
<td>AMD</td>
<td>-</td>
</tr>
</tbody>
</table>

Regression statistics

<table>
<thead>
<tr>
<th>F-ratio</th>
<th>Total adjusted $R^2$</th>
<th>SEE</th>
<th>Number of trees</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.87</td>
<td>0.30</td>
<td>9.92</td>
<td>221</td>
</tr>
<tr>
<td>22.93</td>
<td>0.33</td>
<td>13.69</td>
<td>227</td>
</tr>
<tr>
<td>12.35</td>
<td>0.24</td>
<td>76.82</td>
<td>222</td>
</tr>
</tbody>
</table>

See Table 6 for definitions of independent variables. All independent variables significant at $p < 0.07$.

Figure 9: Example of a complex table showing various head types, footnote style, and other table styles for Forest Science Program publications.
TABLE 8  Management guidelines for choosing forested sites for protection and active management of foraging habitat in the CWH to meet objectives of maintaining the short- and long-term abundance of forage plants, grouped by season of consumption

<table>
<thead>
<tr>
<th>Forage group</th>
<th>Protection of foraging habitat</th>
<th>Increase short- and long-term abundance of forage</th>
<th>Timber harvesting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foliage spring</td>
<td>• Prioritize protecting sites with higher soil nutrient and moisture content.</td>
<td>• Remove overstorey using low to medium intensities of variable retention.</td>
<td>• Remove overstorey using low to medium levels of variable retention.</td>
</tr>
<tr>
<td>Foliage fall</td>
<td>• Prioritize protecting higher-elevation sites.</td>
<td>• Delay canopy closure as long as possible and avoid vegetation management treatments.</td>
<td>• Delay canopy closure as long as possible and avoid vegetation management treatments.</td>
</tr>
<tr>
<td></td>
<td>• Prioritize protecting sites with higher soil nutrient and moisture content.</td>
<td>• Choose sites with higher soil nutrient and moisture content for harvesting.</td>
<td></td>
</tr>
<tr>
<td>Foliage summer</td>
<td>• Protect sites within all nutrient and moisture regimes.</td>
<td>• Choose sites at higher elevation for harvesting.</td>
<td></td>
</tr>
<tr>
<td>Fruit summer</td>
<td>• Protect sites at lower elevations (xm2, vm1 variants).</td>
<td>• Protect sites with higher soil nutrient and moisture content.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Protect sites at lower elevations (xm2, vm1 variants).</td>
<td>• Sites with all soil nutrient and moisture regimes at all elevations are suitable for harvesting.</td>
<td></td>
</tr>
<tr>
<td>Fruit spring</td>
<td>• Heterogeneous species ecologies or low abundance of forage plants in study area, manage for individual species following Table 2.</td>
<td>• Protect sites at lower elevations (xm2, vm1 variants).</td>
<td></td>
</tr>
<tr>
<td>Fruit fall</td>
<td>• Heterogeneous species ecologies or low abundance of forage plants in study area, manage for individual species following Table 2.</td>
<td>• Protect sites at lower elevations (xm2, vm1 variants).</td>
<td></td>
</tr>
</tbody>
</table>

a  Foliage forage groups include graminoids and *Equisetum* species. *Lysichiton americanum* is the only member of the forage group with roots or corms important and should thus be managed individually.

b  Only applicable when forage abundance is very low due to a dense tree overstorey.

FIGURE 10  Example of a table showing mainly text data.

**TABLE A1.1  Numerical descriptors used at different scales for the description of mule deer winter range habitat classes in the Cariboo-Chilcotin**

<table>
<thead>
<tr>
<th>Scale - Use</th>
<th>Numerical descriptors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regional - regional land use planning and mule deer strategy</td>
<td>• crown closure  • age class  • % Douglas-fir</td>
</tr>
<tr>
<td>Landscape - winter range mapping and management planning</td>
<td>• crown closure  • large tree density  • % Douglas-fir</td>
</tr>
<tr>
<td>Stand - field prescriptions</td>
<td>• total basal area  • basal area &gt;37.5 cm dbh  • % Douglas-fir basal area  • BDq or other curve</td>
</tr>
</tbody>
</table>

FIGURE 11  Example of an appendix table numbering.
8.20 Type Style  *Italic and boldface type*

- Use italic or boldface sparingly and with specific intent (e.g., to emphasize a word or item). Excessive use negates their ability to attract readers’ attention and makes the page look cluttered.

- You may need two different types of emphasis. For instance, you may want to use one type style (e.g., **boldface**) to indicate terms that are being defined and another style (e.g., *italic*) to indicate important ideas.

- Use *italics* for:
  - foreign words or phrases, but not foreign proper names (e.g., *café au lait*, Café *Tour Eiffel*);
  - the scientific names of genera and species (e.g., *Abies lasiocarpa*, *Phellinus weirii*);
  - for the name of Acts and legislation (e.g., *Forest and Range Practices Act*);
  - (sparingly) as a means of emphasizing particular words.
  - to indicate the spoken word in text;
  - in mathematics and statistics for single letters, letter groupings, and Greek letters that represent variables or statistical abbreviations, to distinguish them from measurement (e.g., *G* tests, *P* value);
  - the scholarly terms *sic* and *sensu lato* (but ibid., i.e., v., cf., ad hoc, a priori, e.g., et al., and in situ are **not** italicized); and
  - the titles of books, journals, and other published works referred to in the text (see Section 8.17, References).

- Use **boldface**:
  - as a design feature for headings and subheadings;
  - in headings of tables;
  - for new words and technical terms the first time you introduce them and that are to be defined in a glossary; and
  - (sparingly) as a means of emphasizing particular words, or to add additional emphasis to words that have been italicized.

- If type faces are lost while converting from one program to another, indicate special type styles on the hard copy, as follows.

  *Italics*: underscore with a straight line, *italics*.

  **Boldface**: underscore with a wavy line, **boldface**.

  **Boldface italic**: underscore with straight line and wavy line, **boldface italic**.

- Use quotation marks rather than italics for words or letters used in a non-standard way or with a particular purpose.

  the cultured “sponge”

  The data point was labelled “mixed,” which indicated . . .
• Commas, colons, and semicolons should be set in the style (boldface, italics, or roman) of the preceding type. The style of type for quotation marks, question marks, parentheses, and exclamation points should be determined by the meaning.

    **Point:** 1/12th of a pica

    The area includes stands of *Pseudotsuga menziesii, Thuja plicata,* and *Pinus contorta.*

    Western larch (*Larix occidentalis*) is common there.

    **Caution:** Do **not** pull the switch (marked SPD-3) before the green light (“READY”) comes on.

**Titles of publications**

• Italicize the titles of all books, pamphlets, proceedings, periodicals, and newspapers when they are part of the text.

• Put the titles of chapters, articles, and reports in quotation marks when they are part of the text.

    In *Beetle-Pathogen Interactions in Conifer Forests,* Goheen and Hansen (1993) address the matter in the chapter titled “Effects of Pathogens and Bark Beetles on Forests.”

**Use of small caps**

• It is house style in Forest Science Program publications to use “small caps” (as opposed to regular full capital letters) for several items, as listed below. Small caps can increase readability (e.g., when used amongst lowercase letters) and lend typographic distinctness to certain text elements. Periods are not used with small cap abbreviations.

• Authors need not concern themselves with knowing all the instances where small caps should be used. The lists below give examples, but are not exhaustive. Remember that (as noted in Part 1, Section 2.6, Guidelines for Manuscript Preparation), the less formatting and design authors do on their submitted manuscripts, the easier and more efficient it will be for typesetters to apply appropriate style attributes to the documents during production.
• When a Forest Science Program document goes to a typesetter during the production process, the following elements may be set in small caps:
  • *table*, *figure*, and *appendix* in caption and headings:

  **Table 6** Mean phloem thickness by crown symptom at the Ridgeland site

  • abbreviations, acronyms, and initialisms that occur in running text:

    10 000 BP
    400 BC
    FRDA
    SMFRA Project No. 12.4
    EP 34
    RPF
    moisture regime (MR)

  • biogeoclimatic ecosystem classification zones (*BEC*):

    ESSF
    CWH

  • The following elements will *not* be set in small caps:
    • biogeoclimatic ecosystem classification (*BEC*) subzones and variants:

      ICHvk
      SBSmc3

  • province, territory, and state abbreviations:

      Nanaimo, B.C.
      Yellowknife, N.T.
APPENDICES

Appendix 1  Sample copyright page

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___________________________________________________________
___________________________________________________________

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Yours sincerely,  _______________________________

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__________________________________________________________________________
__________________________________________________________________________

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Signature  Date

Acknowledgement will be made in the customary way. If you prefer a spe-
cific form of credit, please indicate it below.

__________________________________________________________________________
__________________________________________________________________________
### Appendix 3  Standard proofreaders’ marks

<table>
<thead>
<tr>
<th>Style of type</th>
<th>Notation</th>
<th>Description</th>
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<td>capital letter</td>
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<td>l.c.</td>
<td>SET IN capitals</td>
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<td>c. and l.c.</td>
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<td>Set in <strong>Set in boldface CAPITALS</strong></td>
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<tr>
<td>°</td>
<td>Inferior letter (or figure)</td>
<td>Set in <strong>Inferior letter (or figure)</strong></td>
</tr>
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</table>

<table>
<thead>
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<table>
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<td>Take out lead</td>
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<td>Close up; take out space</td>
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<td>Equalize / space between / words</td>
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<td></td>
</tr>
<tr>
<td>Run in or run on</td>
<td>No indentation</td>
<td></td>
</tr>
<tr>
<td>Insertion and deletion</td>
<td>Delete (take out)</td>
<td></td>
</tr>
<tr>
<td>Correct letter or word marked</td>
<td>Delete and close up</td>
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<td>Let it stand (all matter above dots)</td>
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</tbody>
</table>
Appendix 4 Chemical elements

Symbols for the chemical elements are used in the text as well as in equations, tables, and formulae. They are not followed by periods. The following is a list of the chemical elements and their symbols.

<table>
<thead>
<tr>
<th>Chemical element</th>
<th>Symbol</th>
<th>Chemical element</th>
<th>Symbol</th>
<th>Chemical element</th>
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<td>Pt</td>
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<td>Pu</td>
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<td>vanadium</td>
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<td>ytterbium</td>
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<td>germanium</td>
<td>Ge</td>
<td>promethium</td>
<td>Pm</td>
<td>yttrium</td>
<td>Y</td>
</tr>
<tr>
<td>gold</td>
<td>Au</td>
<td>protactinium</td>
<td>Pa</td>
<td>zinc</td>
<td>Zn</td>
</tr>
<tr>
<td>hafnium</td>
<td>Hf</td>
<td>radium</td>
<td>Ra</td>
<td>zirconium</td>
<td>Zr</td>
</tr>
</tbody>
</table>
Appendix 5  Native conifers of British Columbia: scientific and common names

*Abies amabilis*  
amabilis fir

*Abies grandis*  
grand fir

*Abies lasiocarpa*  
subalpine fir

*Chamaecyparis nootkatensis*  
yellow-cedar

*Juniperus communis*  
common juniper

*Juniperus horizontalis*  
creeping juniper

*Juniperus scopulorum*  
Rocky Mountain juniper

*Larix laricina*  
tamarack

*Larix lyallii*  
alpine larch

*Larix occidentalis*  
western larch

*Picea engelmannii*  
Engelmann spruce

*Picea glauca*  
white spruce

*Picea glauca x engelmannii*  
hybrid white spruce

*Picea mariana*  
black spruce

*Picea sitchensis*  
Sitka spruce

*Picea sitchensis x glauca (= P. x lutzii)*  
Roche spruce

*Pinus albicaulis*  
whitebark pine

*Pinus banksiana*  
jack pine

*Pinus contorta var. contorta*  
shore pine

*Pinus contorta var. latifolia*  
lodgepole pine

*Pinus flexilis*  
limber pine

*Pinus monticola*  
western white pine

*Pinus ponderosa*  
ponderosa pine/yellow pine

*Pseudotsuga menziesii*  
Douglas-fir

*Pseudotsuga menziesii var. glauca*  
interior Douglas-fir

*Pseudotsuga menziesii var. menziesii*  
coast Douglas-fir

*Taxus brevifolia*  
western yew

*Thuja plicata*  
western redcedar

*Tsuga heterophylla*  
western hemlock

*Tsuga mertensiana*  
mountain hemlock
Appendix 6  Spelling of words and phrases commonly used in Forest Science Program publications

A–B
above-ground (adj.)
addendum, addenda
agro-forestry
allowable annual cut (AAC)
aluminum (metal)
a.m., p.m. (lowercase and periods)
appendix, appendices
a priori (not a priori)
axe (not ax), axing
azimuth
bacillus, bacilli
backlog
bacterium, bacteria
bareroot seedlings
Basal Area Factor
baseflow
bed form
bedload
below-ground (adj.)
best management practices
bilateral
Biltmore stick
biogeoclimatic ecosystem classification (BEC)
black out (v.)
blackout (n. and adj.)
black-tailed deer
blow down (v.)
blowdown (n.)
blue-listed species
breaklines
broadcast burn(ing)
broadleaf
broad-leaved
brush blade scarification
budbreak (n.)
bud burst (n.)
b buildup

C–D
bureau, bureaus
burnout (n.)
bylaw
bypass
byproduct
Cariboo (region of British Columbia)
cave-in (n.)
centimetre
chainsawing
clearcut (n., adj., v.)
clearcutting
coarse fragment free
coarse-textured soils
coarse-textured leaf
codominant
coexist
co-host
cold-hardiness
colour, but: coloration
co-operate, co-operative
co-ordinate, co-ordination
co-owner
co-pilot
co-worker
cross-ditch
cross-drain culvert
crown land
cut-and-fill
cut bank (n.)
cutblock (n.)
cutover (n. or adj.)
cut over (v.)
cut period (n.)
cutslopes
database
data set
datum, data
dbh (diameter at breast height)
de- (prefix), deactivate, debar, decompress, de-emphasize, de-escalate, defrost, de-ice, de-ink, deodorize
debris flows
debris-torrented streams
decision-making process
decision support tools
declineation (magnetic)
defoliator
dependent (n.)
dependent (adj.)
dependence
dib (diameter inside bark)
die-back (tip die-back)
die back (v.)
disc trencher
discing
ditchline
downwelling
dry-belt stands

E–F
e.g., (“for example”; use in parentheses only)
email
endhaul
equilibrium, equilibria
erratum, errata
et al.
even-aged
Fahrenheit
fall (season vs fall (v.) a tree)
falldown
fall out (v.)
fallout (n.)
fall-seeded species
favourable slope (or grade)
fellerbuncher
fieldwork
fill bank (n.)
fill-in planting
fillslopes

firebreak
fireguard
fish-bearing waters
fisheries-sensitive zone
fisheries stream class A
Fish–Forestry Interaction Program
fixed area plot sampling method
flare up (v.)
flare-up (n.)
floodplain
flowpath
focus, focusses, focussed, focussing
follow up (v.)
follow-up (n., adj.)
formula, formulae (or formulas, but be consistent)
forest land (two words)
free-growing
freeze-up
frost-free
fuelbreak
fuel management
fuelwood
full bench
fungus, fungi

G–H

gaff (spar)
gaffe (faux pas)
gases
genotype
genus, genera
girdling
grapple yarder
green-up
gray (soil classification)
grey (colour)
grey-attack trees
ground cover
ground-truthing
groundwater
-growing degree-day
-growing-season (adj.)

1 Four words and their derivatives begin with a silent h: heir, honest, honour, and hour. They must be preceded by an (an hour, etc.). All others are preceded by a (a herb, a historical site, a hospital, etc.)
hack and squirt treatment
hardpan
hardwoods
head scarp
heartwood
height-age model
height/diameter curve
helix, helixes (helices in some technical reports, but be consistent)
highgrading
highlead system
hillslope
hydro-seeding
humus
hypsometer

I–L
i.e., (“that is”: use in parentheses only)
in situ (not in situ)
incremental silviculture
increment borer, increment core
index, indexes, indices
infrared
insloping
instream
interdependence
Interior, the
internet
interpretative (not interpretive)
inter-tree distance
keynote
kickback (n.)
kick back (v.)
kilometre (km sing. and pl., metric symbol, no period)
Kootenay East, West, River
lacuna, lacunae
land base
landform
land use patterns
larva, larvae
latewood
leaf-out (v.)
least-cost distances
lens, lenses
licence (n.)
license (v.)
licensee
lineage (ancestry)
lineage (number of lines)
litter fall
litter layer
littoral zone
lock out (v.)
lockout (n.)
logjam
long distance
long-distance phone call
long-range forecast

M–O
macroslope
magazine (capitalize only when part of actual title)
MAI (mean annual increment)
mainstream
marine-sensitive zone
masl (metres above sea level)
matrix, matrixes, matrices
meltwater
merchantable timber, merchantable volume
mesoslope
microclimate
micro-environment
microsite
mid seral (n)
mid-seral (adj.)
mid slope (n)
mid-slope (adj.)
mil rate
mixedwood
mountain pine beetle
mould
natural regeneration
near-stream
net down
net present value (NPV)
non-forest land
non-timber resources
NSR (not satisfactorily restocked)
nucleus, nuclei
occur, occurred, occurrence, occurring
odour, but: odorous
off-centre
off-channel
off-season
offshore
off-white
old growth (n.)
old-growth (adj.)
Omineca (region of British Columbia)
onetime
on-line
on-site
on to (not onto)
operational cruise
out-compete
outsloping
ovendry (adj.)
oven-dry (v.)
overmature
overstorey, overstoreys
overtop, overtopping, overtopped
overwinter
P–R
Pacific Northwest
page 2, pages 1–3; p. 2, pp. 1–3
panel, panelist, panelling
paralyze
parenthesis, parentheses
peatland
peat-moss
percent, percentage
per hectare factor
periodic annual increment (PAI)
periodic harvests (or cut)
phenotype
phosphorus
photoperiod
photo point
phylum, phyla
plateau, plateaus
plough, plow (but be consistent)
plus trees (not plus-trees)
p.m., a.m. (lowercase and periods)
policy-makers
pollen-cone buds
post-graduate
post harvesting (n.)
post-harvesting (adj.)
practice (n. or adj.)
practise (v.)
prearrange
preburn levels
pre-commercial thinning
predetermined
pre-fertilization
pre-harvest
program
provenance
pulp mill (n. or adj.)
pusherover logging
quickflow
radius, radii
rainfall
rainforest (n.)
rainforest (adj.)
rainshadow
rainsplash erosion
rainstorm
rangelands
re- (as prefix) re-admit, re-analyze, re-assess,
recur, re-examine, re-enter, re-issue, re-sample,
re-survey
reamer
red-attack trees
red-listed species
refertilization
reforestation
regeneration delay
regrade
regrowth
remeasure
repel, repellent
reorganize
right-of-way, rights-of-way
riprap
road fill (n.)
road-fill (adj.)
rockfalls
rotation age
roundwood
rpm (revolutions per minute)
run-of-river
runoff
runout zone

S–T
sanitation cutting
sapflow
sapwood
sawlogs
sawmill
scaling
scarification
screeing
second growth (n.)
second-growth (adj.)
seed bank
seedbed
seed-cone buds
seedfall
seeding-in (n. and v.)
seedlots
seed orchard
semi-, semi-annual, semicircle, semifinal,
semis, semi-transparent, semi-weekly
set up (v.)
setup (n.)
sheta tolerance
shade-tolerant (n. and adj.)
shelterwood
shutdown
sidecasting
side-scarp
sizeable (not sizable)
slashburn
snow-sensitive area
snowfall
snowmelt
snowpack
snowpress
softwood
springwood
steepland logging
stocktype
stormflows

stormwater
streambank
streambed
stumpage
stump wood
Sub-Boreal Spruce zone
sub-canopy
subgrade
summerwood
sunscald
taproot
throughfall
tie up (v.)
tie-up (n.)
timeframe
top-kill (n.)
treeline
tree-shearer
turnout (n.)

U–Z
underperformance
understorey, understoreys
under way (not underway)
uneven-aged
upslope
viewshed
volume table
V-plough, V-plow (but be consistent)
washout
water bar
water bodies
watercourse
watershed
water table
the web (in reference to the World Wide Web);
web page, website, webmaster
weedy species (not weeds)
wet-belt stands
wildfire
windfirmness
wildling
windrow (material left on road shoulders)
windthrow (blowdown)
woodlot
# Appendix 7  Common abbreviations of words used in bibliographic entries

This list is compiled mainly from ISO 4 standards. It also includes examples of organization names and types of publications commonly used in Forest Science Program publications (e.g., Environ. Can., U.S. Dep. Agric., Work. Pap.). Words that should not be abbreviated are shown by “n.a.”

| A | Abstracts = Abstr.  
|   | Advancement = Adv.  
|   | Advance(s) = Adv.  
|   | Agricultural = Agric.  
|   | American = Am.  
|   | Analysis = Anal.  
|   | Analytical = Anal.  
|   | Animal(s) = Anim.  
|   | Annals = Ann.  
|   | Annual = Annu.  
|   | Applications = Appl.  
|   | Applied = Appl.  
|   | April = Apr.  
|   | Archaeology = Archaeolog.  
|   | Archives = Arch.  
|   | Asian = n.a.  
|   | Assessment = Assess.  
|   | Association = Assoc.  
|   | August = Aug.  
|   | Australia = Aust.  
| B | Biochemical = Biochem.  
|   | Biological = Biol.  
|   | Biology = Biol.  
|   | Biosphere = Biosph.  
|   | Botany = Bot.  
|   | Branch = Br.  
|   | Briefing(s) = Brief.  
|   | British = Br.  
| Bulletin = Bull.  
| C | Canada = Can.  
|   | Canadian = Can.  
|   | Cellular = Cell.  
|   | Centre = Cent.  
|   | Chemical = Chem.  
|   | Chemistry = Chem.  
|   | Chromatography = Chromatogr.  
|   | Chronicle(s) = Chron.  
|   | Climate = Clim.  
|   | Climatology = Climatol.  
|   | Commission = n.a.  
|   | Communication = Comm.  
|   | Computing = Comput.  
|   | Conference = Conf.  
|   | Conservation = Conserv.  
|   | Continuing = Contin.  
|   | Contamination = Contam.  
|   | Contemporary = Contemp.  
|   | Contribution(s) = Contrib.  
|   | Control = n.a.  
|   | Council = Counc.  
|   | Current = Curr.  
|   | Cycle = n.a.  
| D | Data = n.a.  
|   | December = Dec.  
|   | Department = Dep.  
|   | Development(s) = Dev.  
|   | Developmental = Dev.  
|   | Discussions = Discuss.  
|   | District = Distr.  

118
Division = Div.

**E**
East = n.a.
Eastern = East.
Ecological = Ecol.
Ecology = Ecol.
Economics = Econ.
Ecosystem = Ecosys.
Edition = ed.
Editor = Ed.
Education(al) = Educ.
Engineering = Eng.
Entomology = Entomol.
Environment(al) = Environ.
European = Eur.
Evaluation = Eval.
Evidence = Evid.
Evolution(ary) = Evol.
Experiment(al) = Exp.
Expert = n.a.
Extension Note = Exten. Note

**F**
Facilities = Facil.
Faculty = Fac.
February = Feb.
Federal = Fed.
Federation = Fed.
Fertilization = Fert.
Financing = Financ.
Forest = For.
Forestry = For.
Forum = n.a.
Foundation = Found.
French = Fr.
Function = Funct.
Fundamental = Fundam.
Future = n.a.

**G**
Gazette = Gaz.
General = Gen.
Genetics = Genet.
Geographical = Geog.
Geology = Geol.
Geoscience = Geosci.
Growth = n.a.
Guide = n.a.
Guideline = Guidel.

**H**
Handbook = Handb.
Hazardous = Hazard.
Health = n.a.
History = Hist.
Horticultural = Hortic.
Hydrology = Hydrol.

**I**
Industrial = Ind.
Information = Inf.
Initiative = Initiat.
Inorganic = Inorg.
Inquiry = Inq.
Insect = n.a.
Institute = Inst.
Intensive = n.a.
Interdisciplinary = Interdiscip.
Interior = n.a.
Internal = Intern.
International = Int.
Internet = n.a.
Invertebrate = Invert.
Investigation(s) = Investig.
Investigational = Investig.
Island = Isl.

**J**
January = Jan.
Journal = J.
July = n.a.
June = n.a.

**L**
Laboratory = Lab.
Legislation = Legis.
Limnology = Limnol.
M
Management = Manag.
Manual = Man.
Mapping = Mapp.
March = Mar.
May = n.a.
Measurement = Meas.
Mechanics = Mech.
Meeting = Meet.
Meteorology = Meteorol.
Methods = n.a.
Microbiology = Microbiol.
Ministry = Min.
Miscellaneous Publication = Misc. Publ.
Molecular = Mol.
Monitoring = Monit.
Monograph = Monogr.
Movement = Mov.
Multiple = Mult.

N
National = Natl.
Natural = Nat.
Natural Resources Canada = Nat. Resources Can.
Nature = Nat.
Network = Netw.
New = n.a.
New Zealand = N.Z.
News = n.a.
Newsletter = Newsl.
North = n.a.
North America = N. Am.
Northern = North.
Northwest = N.W.
Notes = n.a.
November = Nov.

O
Occasional = Occas.
October = Oct.
Office = Off.
Official = Off.
Ontario Ministry of Natural Resources = Ont.
Min. Nat. Resourc.
Operational = Oper.
Operations = Ops.
Organic = Org.

Organization = Organ.
Ornithology = Ornithol.

P
Pacific = Pac.
Pacific Northwest Forest and Range Experiment Station = Pac. N.W. For. Range Exp. Stn.
Paper(s) = Pap.
Perspectives = Perspect.
Pest = n.a.
Physical = Phys.
Planning = Plan.
Plant = n.a.
Policy = n.a.
Pollution = Pollut.
Population = Popul.
Practice = Pract.
Proceedings = Proc.
Processes = Process.
Profession(al) = Prof.
Program(s) = n.a.
Project = Proj.
Protection = Prot.
Protocol(s) = Protoc.
Publication = Publ.
Publication Number = Publ. No.

Q
Qualitative = Qual.
Quality = Qual.
Quarterly = Q.

R
Regeneration = Regen.
Region(al) = Reg.
Regulation(s) = Regul.
Report(s) = Rep.
Reproduction = Reprod.
Research(er) = Res.
Review(s) = Rev.
Risk = n.a.

S
Science(s) = Sci.
Seminar(s) = Semin.
September = Sept.
Series = Ser.
Service(s) = Serv.
Silviculture = Silv.
Society = Soc.
South = n.a.
Southeast = S.E.
Southern = South.
Special = Spec.
Standard(s) = Stand.
State(s) = n.a.
Station = Stn.
Statistical = Stat.
Statistics = Stat.
Strategies = Strateg.
Structure(al) = Struct.
Studies = Stud.
Study = n.a.
Supplement = Suppl.
Survey = Surv.
Symposium = Symp.
System(s) = Syst.
Systematic = Syst.

**T**
Technical = Tech.
Technique = Tech.
Technology = Technol.
Theoretical = Theor.
Topics = Top.
Training = Train.
Transactions = Trans.
Transportation = Transport.
Treatment = Treat.
Trends = n.a.

**U**
United States = U.S.
University = Univ.
University of Alberta = Univ. Alberta.
University of British Columbia = Univ. British Columbia
University of Northern British Columbia = Univ. North. British Columbia
University of Victoria = Univ. Victoria
Unpublished = Unpubl.
Update = n.a.

**W**
Washington = Wash.
Water = n.a.
Weight = n.a.
West = n.a.
Western = West.
Wilderness = n.a.
Wildlife = Wildl.
Workshop = n.a.
World = n.a.

**Z**
Zoology = Zool.
Appendix 8  Standard abbreviations of journal titles in bibliographic citations

The list below is compiled mainly from BIOSIS Serial Sources, a regularly updated listing of standardized abbreviations for more than 5000 current and 13 000 archived series titles. This list includes publications commonly cited in Forest Science Program publications. For journal titles not shown here, check the list of abbreviations in Appendix 7, which may enable you to figure out the correct journal abbreviation from the terms in that list. Otherwise, consult BIOSIS Serial Sources in the Ministry Library.

Biometrics  Biometrics
BioScience  BioScience
Ecological Applications  Ecol. Appl.
Ecological Monographs  Ecol. Monogr.
Ecology  Ecology
Forest Science  For. Sci.
Forestry  Forestry
Forestry Chronicle  For. Chron.
Plant Physiology  Plant Physiol.
Silvae Genetica  Silvae Genet.
Glossary

**alteration**  A change from manuscript copy made at the proofreading stage. This is not the same as a correction, which is made to eliminate a typesetting error. Alterations at this stage substantially increase production costs.

**artwork**  (1) Visual material intended for reproduction; (2) camera-ready artwork. Final copy intended for reproduction.

**bad break**  In page markup, any of a variety of unsightly or misleading series of type, such as a paragraph ending of only one word at the top of a page (called a widow), a subhead on the last line of a page, beginning a page with a hyphenated word, and so on.

**baseline**  In type, a line that connects the bottoms of capital letters. Portions of type falling below this line are descenders.

**binding**  (1) The covering for the pages of a book. (2) The process for attaching the covering.

**bleed**  An illustration that continues off the edge of the page (with no margin).

**blind entry**  In an index, an entry composed of a head and a See reference.

**blind folio**  A page number counted but not actually printed in the makeup of a book (such as copyright and other display pages, or blank pages).

**blueline**  Also called blue, or blueprint. A proof prepared by the printer that is made by exposing sensitized paper to the negative and assembled to show what the finished product will look like.

**body type**  The type used for the text of publications (as distinguished from display type).

**bold(face)**  A type with very thick strokes; a thickened version of another typeface.

**bullet**  See centred dot.

**caps and s.c.**  Capitals and small capitals.

**caps**  Capitals, uppercase letters.

**caption**  Wording set below a figure or above a table that gives a brief description of it.

**caret**  Insertion mark.

**centred dot**  Used as an ornament and familiarly called a bullet. A lighter-weight centred dot is used in mathematical equations as a multiplication sign.

**chapter opening**  The beginning or first page of a chapter.
copy  Raw material such as manuscript, figures, etc.

copy edit  Editing of manuscript text and visuals for grammar, spelling, clarity, and conformity to established publishing standards.

copyfitting  The process of estimating the amount of space required to print copy in the desired type size.

coverstock  Paper, usually thicker than book paper, used for the cover of publications.

crop  Cut down or mask an illustration.

cut-in head  A head that cuts across the statistical columns of a table and applies to all the tabular matter lying below it.

deked head  In tables, a decked head is used if a column requires more than one level of head below it.

descender  The part of a letter that extends below the x-height (height of the letter x).

display type  Type that is larger than body type and treated in a special way to give it emphasis (bolding, etc.). Display type is used for title pages, chapter openings, subheads, etc.

DOI  Digital object identifier. A persistent identifier given to digital objects on the internet.

dots per inch  A measure of the resolution of a printer (i.e., dot printing density).

dpi  See dots per inch.

duotone  A two-colour halftone reproduction taken from a black and white photograph.

ellipses  A row of spaced periods ( . . . ) used to indicate words or sentences that have been omitted. Also used in tables of contents to align heads with their page numbers.

em  In printing, a unit of measurement equal to the point size of the type being used (a 10-point em is 10 points wide). An em dash is a dash the length of an em space. (An en is half of an em).

en  See em.

figure  Any visual (graph, illustration, photographic reproduction, map, chart, etc.) that is printed with the text. It should be referred to in the text and given a figure number for easy reference.

flush  Lines of type set flush left are aligned vertically along the left margin. Right-hand margins can be either flush right or ragged right.

folio  A page number. A folio counted but not printed (as in the title page) is a blind folio.

font  A complete assortment of a given size of type, including capitals and lowercase, small caps, punctuation marks, accents, and so on.
format  The size, shape, style, and design of a printed piece.

frontispiece  In traditional publishing practice, an illustration placed on page ii. Research publications may occasionally contain a frontispiece made up of text giving a brief description of a program and its funding.

hairline  Any very fine line. Used with spanner heads in tables.

halftones  A photomechanical process that converts continuous tone illustrations or photographic images into a dot formation for reproduction by printing.

hanging indents  The first line of a paragraph is set flush left and the following lines are indented, as for bibliographies, glossaries, etc.

hard copy  Typed or printed manuscript copy, as compared to copy recorded on computer disks.

italic type  A cursive form of type, less cursive than script.

landscape  A page designed to be read when the book is turned 90°. Wide tables and figures are often printed sideways as compared to the normal portrait orientation.

leader table  A simple table with only two or three rows of data and directly inserted into the text without headers, caption, or table number. A sentence explaining the leader table and ending in a colon usually precedes the table.

leading  The distance between lines. It is measured in points (12 pts. = 1 pica; 6 picas = 2.54 cm) from the baseline of one line to the baseline of the next.

leaf  Two pages that back on to one another (e.g., pages 132–133 of this book).

masthead  A statement of names, terms, policy, and so on. In newspapers the masthead is usually at the head of the editorial page. In magazines and newsletters it is usually at the foot of the editorial page or table of contents. It is sometimes called the flag.

overlay  In artwork, a transparent sheet that covers camera-ready copy and on which colour breaks or other instructions to the printer are indicated.

page  A page of a proof or a finished book (e.g., page 133 of this book).

page proofs  The typeset proof with all figures and tables in place and ready for proofreading.

PDF  See portable document format.

perfect bound  Also called adhesive bound. Binding that uses glue along the spine to attach a wrap-around cover.

pica  A unit used for measuring typographic material (12 points = 1 pica; 6 picas = 2.54 cm).
**pixels per inch (ppi)**  A measurement of the resolution of electronic images.

**point**  The printer’s basic unit of type measurement (72 points = 2.54 cm).

**portable document format (PDF)**  A file format that provides a means of making a print document available on the web.

**portrait**  The normal orientation of a page. See also *landscape*.

**print-ready copy (or web-ready)**  Material ready for reproduction or posting online.

**print run**  The number of copies printed.

**proofreading**  Detailed checking of typeset copy against the edited manuscript before printing.

**ragged**  Text with an uneven (unjustified) margin.

**recto**  A right-hand page, always with an odd page number.

**resolution**  Describes the amount of detail an image holds, often expressed in dots per inch (dpi) or pixels per inch (ppi).

**roman type**  The ordinary type style, as distinguished from bold or italic.

**run in**  To merge a paragraph with the one before.

**running head**  The book or chapter title or a main head that sometimes appears at the top of the page in the top margin. It is sometimes accompanied by the folio. Running heads do not appear on display pages or chapter openings.

**runover**  (1) In flush and hang material, all lines after the first line of a particular entry; (2) the continuation of a head on a second line.

**saddle stitched**  A binding method in which folded pages are stapled on the binding edge.

**self cover**  A cover for a pamphlet or other small publication made of the same paper as the text. Many Forest Science Program field guide inserts have self covers.

**sharpness**  Describes the degree of colour and contour contrast an image shows.

**show through**  When what has been printed on one side shows through onto the reverse. Considered undesirable in printing.

**side stitching**  A binding method in which trimmed pages are laid on top of one another and stapled on the left side. This type of binding will not open flat.

**signature**  Folded sheets of printed pages consisting of 4, 8, 12, 16, or 32 pages.

**small caps**  Capital letters *smaller* than the REGULAR caps of a font. Usually equal to the x-height of the font.
**solidus**  The diagonal stroke (slant line) that is often used to show rates, when units are expressed in abbreviated or symbolic form (i.e., km/h).

**spanner head**  In a table, a heading that spans two or more columns, and refers to all material below. See *deemed head*.

**spine**  Also called backbone. The back of a bound book connecting the two covers.

**stet**  Proofreader or editor’s mark meaning “let it stand.” It is used to restore a deletion and tell the typesetter to ignore it.

**stock**  Also called *paperstock* and *coverstock*. Paper to be used for printing.

**straight copy**  Material that can be set with no special programming (i.e., no tables, Greek symbols, mathematical equations, accents, etc.).

**stub**  The left-hand column of heads in a table.

**style**  Rules of uniformity regarding punctuation, capitalization, word division, spelling, and so on. House style is the set of rules adopted by a particular publishing house.

**substantive edit**  An in-depth edit of a manuscript, usually involving rewriting and reorganizing the material as well as copy editing for grammar, spelling, etc.

**table**  A visual element used to express a mass of related data, and usually expressed in three or more columns.

**technical review**  A review for scientific accuracy, undertaken by the author’s peers before a manuscript is submitted for publication. Sometimes called a *technical edit*.

**trim size**  The dimensions of a page after trimming.

**typeface**  A named type design, such as Helvetica or Times Roman, produced as a complete font.

**typesetting**  (Computerized typesetting) Text rendered in digital form is recorded on tape or disks and run through a computer, where line endings, hyphenation, justification, type font and size, and other typographical decisions are carried out. The resulting record is used to create camera-ready copy.

**verso**  A left-hand page, always with an even page number.

**widow**  In page markup, a paragraph ending consisting of one word at the top of a page.
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Pinus contorta

Rhizoplaca

\[ m \cdot (\sqrt{B + 1} \pm \sqrt{B}) \]