Dedication

To Shoshanna Green, wife and fellow word geek, for partnership in all things editorial and in the more important things that make life worth living and books worth writing.

Photo credits: Radiotelescope and journals by the author; microscopist by Miguel Malo (http://miguelmalo.com/).
## Table of contents

**Acknowledgments** ................................................................. x  

**Chapter 1. Read me first**...................................................... 1  
  Why you should trust my advice .............................................. 1  
  Purpose of the book .............................................................. 2  
  What I will *not* do in this book ............................................. 3  
  Why publish in journals? .......................................................... 4  
  Starting out right .................................................................. 5  
  Talk to me! .............................................................................. 6  
  Key points to learn .................................................................. 7  

**Chapter 2. A few words about ethics** ................................. 9  
  Ethics for its own sake .......................................................... 10  
  How you perform your research ........................................... 10  
  Analyzing your data .............................................................. 13  
  Consequences of errors ......................................................... 14  
  How others will use your results .......................................... 16  
  Ethics for journal peer reviewers .......................................... 17  
  Deciding on the criteria for authorship ................................ 18  
  Additional ethical considerations .......................................... 19  
  Gender-neutral language ....................................................... 21  
  Key points to learn ............................................................... 22  

**Chapter 3. Choosing a journal** ......................................... 23  
  Criteria for choosing a journal .............................................. 23  
  Open-access journals ............................................................ 27  
  Rejection by a journal ........................................................... 28  
  Key points to learn ............................................................... 31  

**Chapter 4. Start with a strong outline** ............................... 33  
  Describe the basics ............................................................... 35  
  Fill in the details ................................................................. 36  
  Review and revise the outline .............................................. 38  
  Revise your outline one last time ....................................... 39  
  Use the outline to guide you through the writing process ....... 40  
  Key points to learn ............................................................... 41
Chapter 5. Using your word processor efficiently .......... 43
  Templates ................................................................................. 44
  View (display) modes ............................................................ 45
  Page and line numbers .......................................................... 47
  Creating tables .......................................................................... 48
  Basic text formatting .............................................................. 50
  Language, spelling, and grammar settings ............................. 52
  Onscreen editing and reviewer comments ............................. 53
  Key points to learn ................................................................... 54

Chapter 6. Structure and format of a journal manuscript .55
  Structure of the following chapters ....................................... 57
  Key points to learn .................................................................. 58

Chapter 7. The first pages: the title, author information, Abstract, and keywords .............. 59
  Titles ....................................................................................... 59
  Author information ............................................................... 62
  Abstract ................................................................................ 66
  Keywords (search terms) ........................................................ 69
  Key points to learn .................................................................. 71

Chapter 8. Introduction ................................................................. 73
  Sequence of information ....................................................... 73
  Literature review ..................................................................... 76
  Definitions of terms ................................................................ 80
  Key points to learn .................................................................. 83

Chapter 9. Methods and materials ............................................... 85
  Sequence ................................................................................ 86
  Experimental conditions ....................................................... 87
  Materials ................................................................................ 91
  Data sources .......................................................................... 92
  Methods and the associated literature review ........................ 94
  Abbreviations, initialisms, and acronyms ............................... 96
  Equations .............................................................................. 100
<table>
<thead>
<tr>
<th>Chapter 10. Results</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Edit your data rigorously</td>
<td>112</td>
</tr>
<tr>
<td>Sequence</td>
<td>115</td>
</tr>
<tr>
<td>Deciding which results to present</td>
<td>116</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chapter 11. Discussion and conclusions</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sequence and literature review</td>
<td>127</td>
</tr>
<tr>
<td>Additional details</td>
<td>130</td>
</tr>
<tr>
<td>When the Results and Discussion are combined</td>
<td>132</td>
</tr>
<tr>
<td>Conclusions</td>
<td>133</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chapter 12. Acknowledgments and conflicts of interest</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Key points to learn</td>
<td>140</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chapter 13. References and citations</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Citation systems</td>
<td>141</td>
</tr>
<tr>
<td>Author-date citations</td>
<td>142</td>
</tr>
<tr>
<td>Numbered citations</td>
<td>143</td>
</tr>
<tr>
<td>Citing online resources</td>
<td>144</td>
</tr>
<tr>
<td>Two important cautions about citations</td>
<td>145</td>
</tr>
<tr>
<td>When and where to cite papers</td>
<td>146</td>
</tr>
<tr>
<td>Citation etiquette</td>
<td>147</td>
</tr>
<tr>
<td>Problematic citations</td>
<td>148</td>
</tr>
<tr>
<td>Non-English papers</td>
<td>152</td>
</tr>
<tr>
<td>Formats and details in the References section</td>
<td>154</td>
</tr>
<tr>
<td>Checking citations</td>
<td>157</td>
</tr>
<tr>
<td>Key points to learn</td>
<td>163</td>
</tr>
</tbody>
</table>
Chapter 14. Experimental design and statistics .......... 165
Experimental design.................................................................166
Choice of variables .................................................................167
Choice of methods.................................................................167
Error-proofing your research .................................................169
Choosing a standard of comparison ......................................173
Eliminating bias ....................................................................174
Replicate your results .............................................................176
Test your design to confirm that it produces data
you can analyze ....................................................................178
Design your study to provide publishable results .................179
Obtain a reality check ............................................................180
Statistics..................................................................................181
A few words about significance ..............................................181
Reporting significance levels ..................................................184
Use the right test statistic .........................................................185
Key points to learn ..................................................................189

Chapter 15. Numbers, variables, and equations ............ 191
Precision...................................................................................191
Significant figures ...................................................................192
Rounding..................................................................................194
Identifying sources of data ......................................................197
Words versus numerals for numbers ......................................200
Presenting very large and very small numbers ......................201
Spacing between numbers and units of measurement ...........203
Numerical terminology ............................................................205
Variables and parameters .........................................................206
Naming variables ....................................................................208
Equations ................................................................................210
Key points to learn ..................................................................213

Chapter 16. Figures ................................................................. 215
A few words about terminology ..............................................217
Integrating figures with the text .............................................219
A caution about axis scales ......................................................222
Data validation ........................................................................227
| Types of graph | 228 |
| Frequency distributions | 229 |
| Line graphs versus bar graphs | 231 |
| Multivariate relationships | 237 |
| Area-based images, including pie charts | 242 |
| “Maps”: spatially explicit information | 245 |
| Flowcharts and hierarchies | 248 |
| Standard conventions for graphs | 250 |
| Why follow the standard conventions? | 258 |
| Illustrations and photographs | 259 |
| Key points to learn | 263 |

### Chapter 17. Tables

- Components of a table | 266
- Integrating tables with the text | 268
- Logic and structure of a table | 270
- Formatting | 274
- Key points to learn | 278

### Chapter 18. Online supplemental material

- Cautions | 282
- General principles | 284
- Types of online supplemental material | 285
  - Methods and software | 286
  - Databases and spreadsheets | 287
  - Color and large images | 288
  - Animations and videos | 289
  - Sound | 290
  - “Control panels” and status displays | 290
  - Interactivity | 290
  - Hyperlinks and social media | 291
  - Future possibilities | 292
- Key points to learn | 292

### Chapter 19. English difficulties

- Unusual characteristics of English | 295
- Adjectives and adverbs | 295
Articles ................................................................. 296
Capitalization and capital letters ............................. 297
Lists ........................................................................ 298
Metaphors and similes ............................................. 298
Noun-related problems .......................................... 299
Positive versus negative phrasings ......................... 299
Possessive forms ...................................................... 300
Punctuation ............................................................... 300
Species and taxon names ....................................... 302
Symbols: inserting them and using them correctly ... 303
Variables and parameters ....................................... 304
Verb-related problems ........................................... 304
Word choice ............................................................ 305
Key points to learn .................................................. 316

Chapter 20. Writing style ................................... 317
Verbs and verb tenses ............................................. 318
Providing context .................................................... 321
Active versus passive voice ................................... 322
Write concisely ....................................................... 325
Clarity ..................................................................... 327
“Jargon” and technical terminology ....................... 329
Quoting others .................................................... 331
Key points to learn .................................................. 335

Chapter 21. Preparing for peer review ................. 337
Learn and follow the journal’s format ...................... 337
Eliminate problems before peer review .................. 339
Practice writing and reviewing .............................. 341
Prepare a strong submission letter ....................... 342
Selection of reviewers ........................................... 345
Preparing your tables and figures for review .......... 347
Text size and line thickness .................................. 351
Multi-part figures ................................................... 354
Symbols and patterns ............................................ 355
Color .................................................................... 357
Key points to learn .................................................. 359
Chapter 22. The review process ........................................ 361
  Characteristics of reviewers ............................................. 361
  The review process ......................................................... 362
  Results of the review ...................................................... 363
  Responding to review comments ..................................... 366
  Communicating your responses ....................................... 370
  Key points to learn ......................................................... 373

Chapter 23. Acceptance and publication .......................... 375
  Copyediting and proofreading ......................................... 376
  Copyright and permissions ............................................. 379
  Key points to learn ......................................................... 381

Chapter 24. Conclusions ............................................. 383

Useful software ................................................................ 385
  Data analysis and visualization ...................................... 385
  Graphics ......................................................................... 385
  Math and statistics ........................................................ 385
  Miscellaneous .............................................................. 386
  Reference management software ................................. 386

Bibliography ................................................................... 387

About the author .......................................................... 391

Index ........................................................................... 393
Acknowledgments

This book, not to mention a career of more than 25 years as an editor, would have been impossible without a great deal of support and mentoring. I owe the career I love and the skills necessary to do this job well to the following people:

Doctors Terry Blake and Steve Grossnickle, University of Toronto Faculty of Forestry, for teaching the foundations of lab and field research. Connie Plexman, for teaching the art of scientific editing and (patiently) helping me turn a passion for words into a career. Doctors Roy Sutton and John Scarratt of the Great Lakes Forestry Centre, Canadian Forest Service, for their dedication to the craft of science writing, and for their patience while I learned to help them with this craft.

I’ve worked with hundreds of scientists over the years, each of whom enriched me with their knowledge, their love of science, and their willingness to trust me with their work. Each taught me about more than science: I’ve learned how they see the world. My colleagues and friends from many cultures around the world have provided an even more profound education in how people from different cultures see the world, and I’m deeply grateful for their insights.

My many editorial colleagues from the copyediting-l discussion group (http://www.copyediting-l.info/) gave me a forum in which I learned to express my opinions carefully, after ensuring that I knew what I was talking about, and provided a valuable reality check and well-deserved corrections when I drifted too far off course.

Dr. Richard Weisburd (PhD, oceanography), Egawa Language and Scientific Services (http://www.elsl.co.jp/jp/) gave me the courage to seek a career as a freelance science editor and access to the rich world of Japanese scientists. Dr. Joseph Nader (PhD, statistics) also taught me much about data analysis during the years we worked together. Rick and Joseph also provided a crucial reality check for the chapters on experimental design and numbers. I’m particularly grateful to Matthew Stevens, Diplomate Editor in the Life Sciences (the highest distinction awarded by the Board of Editors in the Life Sciences), for introducing me to Rick, for decades of sharing his profound knowledge of editing, and for helping me edit better than might otherwise have been the case. Matt also had the patience to work through an early draft of this book and make it stronger book than it might otherwise have been. Karen Lofstrom provided eagle-eyed proofreading. Needless to say, the remaining errors (added after their reviews) are my sole responsibility.