

*Journal of Wildlife Management, Wildlife Society Bulletin, and
Wildlife Monographs*

Author Guidelines

January 2018

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SHORT GUIDELINES

These Guidelines apply to submissions to *Journal of Wildlife Management* (JWM, The Journal), *Wildlife Society Bulletin* (WSB, The Bulletin), and *Wildlife Monographs* (Monographs), which are published by The Wildlife Society (TWS, The Society). These 3 journals have similar styles but cover different subject matters. Therefore, authors should review subject matter guidelines to select the appropriate outlet (see [Subject Matter Differences](#)) before submission ([Appendix A](#)).

Our journals strive to strike a balance between ease of submission for authors and consistency of content and formatting for editors and reviewers. Therefore, we provide an abbreviated version of our guidelines in the following template. See [Wildlife Monographs subject matter](#) for additional requirements for monographs. Following a paper's acceptance, journal staff will ensure that stylistic requirements not outlined in the template are met. If you have specific questions, you can refer to the table of contents, which appears after the template, to navigate to topics on subject matter, journal policy, format, or style. If you have questions related to the preparation of your work, send us an email (*Journal of Wildlife Management and Wildlife Monographs* editorial office: jwm@wildlife.org, or *Wildlife Society Bulletin* editorial office: wsb@wildlife.org) and we will be happy to assist.

BEGINNING OF TEMPLATE

1 17 Oct 2017 (TWS journals accept .doc or .docx files only)

2 Jane S. Doe

3 Wildlife University

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5 Wetland City, MD 20814

6 (555) 555-5555

7 janesdoe@wildlife.org

8

9 RH: Doe and Smith • Bear Dispersal (Doe et al. if >2 authors; running head <45 characters)

10 **Natal Dispersal of Black Bears in a Fragmented Landscape** (limit to 10 words)

11 JANE S. DOE,¹ *Wildlife University, 1293 Bighorn Avenue, Wetland City, MD 20814, USA*

12 TERRY L. SMITH,² *Smith and Associates Wildlife Consulting, 1717 Woodpecker Drive,*

13 *Burrowsville, MD 20814, USA*

14 **ABSTRACT** Begin abstract text here. Limit to 1 paragraph not exceeding 1 line/page of

15 manuscript text (3% of length of text), including Literature Cited. Use Times New Roman font

16 and double space text.

17 **KEY WORDS** black bear, Brownian bridge, corridor, Florida, natal dispersal, prospecting,

18 telemetry, *Ursus americanus*. (alphabetical order)

¹ *Email:* correspondingauthor@institution.edu (easily added using Insert Footnote in byline)

² *Current affiliation: Department of Wildlife Ecology and Conservation, University of Florida, PO Box 110430, Gainesville, FL 32611-0430, USA*

19 Begin the introduction text immediately after key words with no heading. This section should
20 introduce the problem, review the relevant literature related to the topic, highlight gaps in our
21 understanding of the topic, indicate who will benefit from the data, and end with a clear
22 statement of objectives and hypotheses (if applicable). A synthetic introduction is especially
23 important for *Monographs*. Do not summarize methods or results in the introduction section. Use
24 chronological order followed by alphabetical order for citations in a series (Wolf and Kendrick
25 1986, Jones 2002, Merrill et al. 2002).

26 **STUDY AREA**

27 Begin left-justified text here. Include (as relevant to the study) location, climate, elevation, land
28 use, seasons, animal community composition, topography, and major vegetation. Use past tense
29 for study area descriptions (e.g., average annual precipitation was 46 cm, vegetation was
30 primarily grass). Exceptions include geological formations that have been present for centuries
31 (e.g., mountains).

32 **METHODS**

33 Methods should be brief and include dates, sampling schemes, duration, research or experimental
34 design, and data analyses. Use active voice throughout the manuscript. Include in the methods
35 your specific model selection criteria (e.g., $\Delta AIC < 2$, $\sum w_i > 0.9$) or significance threshold (α
36 value). Methods must be described in adequate detail for a reader to duplicate them if initiating a
37 new study, but authors can cite previously published methods without explanation. Include
38 animal-welfare or human subjects protocols in the methods section (not in acknowledgments),

39 including protocol numbers parenthetically following the relevant statement. Avoid using
40 acronyms for species names or variables measured (e.g., use “canopy” rather than
41 “CAN_COV”).

42 **Second-Level Heading**

43 Capitalize all important words in second-level headings. Reduce or eliminate the need for
44 subheadings by writing clearly and logically. Avoid writing sections that consist of only 1
45 paragraph.

46 *Third-level heading.*—If third-level headings are necessary, indent and punctuate as
47 shown (period and em dash) and capitalize only the first word.

48 **RESULTS**

49 Journals of The Wildlife Society require that authors describe the **magnitude of the biological**
50 **effect** in addition to the results of statistical analyses. This requirement can often be met with
51 figures showing relationships, examples in the text (e.g., predicted distance was 5 km for males
52 and 15 km for females), or odds ratios. Present results in past tense (e.g., body mass loss
53 occurred during winter). Reserve comments on interpretation of results for the discussion.

54 **DISCUSSION**

55 The discussion should address the predictions and hypotheses tested without repeating the
56 results. It should begin with a statement of how the study did or did not support the hypotheses
57 and then follow up with an explanation as to why or why not using the author’s data and
58 previously published works to support conclusions. Limitations of the work should also be

59 mentioned in the discussion. Reasonable speculation and new hypotheses to be tested may be
60 included in this section.

61 **MANAGEMENT IMPLICATIONS**

62 The management implications section should be short (usually 1 paragraph) and direct but
63 explain issues important to management and conservation that are derived directly from or
64 addressed in your results. Do not offer recommendations that are beyond the scope of your study.
65 Address specific management opportunities or problems in this section. From the Field,
66 Emerging Issues, and Tools and Technology articles in *WSB* should not have a management
67 implications section.

68 **ACKNOWLEDGMENTS**

69 This section should be brief and include initials (rather than first names) of individuals thanked.
70 Also list funding and data sources.

71 **LITERATURE CITED**

72 Burnham, K. P., and D. R. Anderson. 1998. Model selection and inference: a practical
73 information-theoretic approach. Springer-Verlag, New York, New York, USA. (book;
74 note space between author initials for all entries)

75 Mosby, H. S. 1967. Population dynamics. Pages 113–136 in O. H. Hewitt, editor. The wild
76 turkey and its management. The Wildlife Society, Washington, D.C., USA. (book chapter)

77 Pulliam, H. R. 1988. Sources, sinks, and population regulation. *American Naturalist* 132:52–61.
78 (journal article)

79 Stout, S. L., and R. Lawrence. 1996. Deer in Allegheny Plateau forests: learning the lessons of
80 scale. Pages 92–98 *in* Proceedings of the 1995 Foresters Convention. Society of
81 American Foresters, 28 October–1 November 1995, Portland, Maine, USA. (proceedings)

82 Tacha, T. C. 1981. Behavior and taxonomy of sandhill cranes from mid-continental North
83 America. Dissertation, Oklahoma State University, Stillwater, USA. (use Thesis to denote
84 Master of Science or Master of Arts)

85 U.S. Fish and Wildlife Service [USFWS]. 1999. Endangered species database.
86 <<http://www.fws.gov/endangered/>>. Accessed 7 Oct 1999. (website)

87 (If you are unsure of the format, include as much information as possible so we can help)

88 *Associate Editor:*

89

90 Figure Captions (Begin figure captions on a new page. Please note that figure files must be
91 submitted in a separate document and may not be included in the text file.)

92 Figure 1. Table headings and figure captions must allow the figure to be self-explanatory,
93 describing the variables displayed, species studied, and the date(s) and location(s) at which the
94 data presented were gathered. Define acronyms in tables and figures even if they have already
95 been defined in the text.

96

97 Figure 2. Take special care to format figures according to these guidelines because the content
98 editor will not alter these files. Only capitalize the first word and proper nouns on axes labels and
99 legends (e.g., Daily nest survival, Black bear, Study area). Please double check figures to assure
100 that the minimum height for letters, numbers, and other characters will be ≥ 1.5 mm tall after
101 reduction for printing (to 85 mm in width for most figures and 180 mm in width for large
102 figures) and resolution is >200 dots/inch (dpi) at final printing size.

103

104 Table 1. When possible, minimize the use of abbreviations, especially with long lists of variables
 105 (e.g., use tree density rather than TR_DEN). Do not forget to define abbreviations and terms in
 106 each table title or as footnotes (e.g., AIC_c , K , ANOVA). Table titles should describe the variables
 107 displayed, species studied, and the date(s) and location(s) at which the data presented were
 108 gathered.

109 **Use the Table function in Word (not an embedded picture) immediately following the table title.**

Site ^a	Animal group			
	Avian		Mammalian	
	Insectivorous	Carnivorous	Insectivorous	Carnivorous
Xeric	5	3	2	5
Mesic	7	5	1	3
Hydric	8	7	5	8

110 ^aFor footnotes, use lower-case, Roman letters.

111 *Use asterisks for probability levels.

112

113

114 **Summary for online Table of Contents:** At the end of your document, include 2 sentences
 115 summarizing the major conclusions and management implications for your study. The summary
 116 should not include data; they are designed to supplement the title and attract readers to your
 117 article.

118

119 **APPENDIX A. TITLE OF THE APPENDIX**

120 The appendix will appear at the end of the typeset article. Do not include online only supporting
121 information in the main document file (see section on [Supporting Information](#)). Included in this
122 appendix are references that may be helpful to authors.

123 Andersen, D. E. 2015. Reporting animal care and use authorization in manuscripts published in
124 journals of The Wildlife Society. *Journal of Wildlife Management* 79:869–871.

125 Plotnik, A. 1982. *The elements of editing, a modern guide for editors and journalists*. MacMillan,
126 New York, New York, USA.

127 Strunk, W. Jr, and E. B. White. 2000. *The elements of style*. Fourth edition. Pearson Education,
128 Upper Saddle River, New Jersey, USA.

129 **SUPPORTING INFORMATION**

130 Additional supporting information may be found in the online version of this article at the
131 publisher’s website. **Please add a brief description of materials here (only include this section for**
132 **WSB articles).**

133 **END OF TEMPLATE**
134

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SUBJECT MATTER DIFFERENCES AMONG JOURNALS

The Society publishes manuscripts containing information from original research that contributes to the scientific foundations of wildlife management. The Society defines wildlife as invertebrates, fish, amphibians, reptiles, birds, and mammals that are not domesticated; however, we discourage submission of manuscripts focused on fish species to avoid overlap with journals of The American Fisheries Society.

In general, *JWM* focuses on wildlife relationships that can lead to management and conservation recommendations, *WSB* covers evaluations of management actions, and *Wildlife Monographs* is an outlet for exhaustive studies on a single topic in wildlife science, management, or conservation. See below for a detailed description of acceptable subject matter for each journal. As a general rule, TWS is flexible on submission lengths. However, authors should concentrate on succinct and clear writing to improve readability. *Journal* and *Bulletin* articles are typically <50 double-spaced pages including tables and figures. *Monographs* are typically >80 submitted pages.

JOURNAL OF WILDLIFE MANAGEMENT SUBJECT MATTER

Suitable topics include the results and interpretations of investigations into the biology and ecology of wildlife that can be used for management. The link to management of wildlife resources must be clear and concise. Manuscripts in *JWM* also address theoretical and conceptual

aspects of wildlife management, including development of new approaches to quantitative analyses, modeling of wildlife populations and habitats, and other topics germane to advancing the science of wildlife management. Submissions to *JWM* fall into 8 main types: Research Article, Note, Commentary, Review, Letter to the Editor, Invited Paper, Special Section, and Book Review.

215 | *RESEARCH ARTICLES AND NOTES*

216 | Research Articles and Notes focus on aspects of wildlife that can assist management and
217 | conservation by providing life-history data, modeling, new analytical and quantitative
218 | approaches, theory, and new approaches to understand human dimensions. Notes are shorter than
219 | articles and may present new findings based on limited sample sizes or scale. Examples of
220 | subjects include investigations into the biology and ecology of wildlife with direct management
221 | implications (e.g., life histories, demography, population ecology, movement, habitat relations),
222 | new analytical and quantitative methodological approaches related to wildlife science (e.g.,
223 | statistical, quantitative), human dimensions related to theory and research (e.g., new approaches
224 | to understand human dimension surveys), and economics related to theory and research.

225 | *COMMENTARY*

Commentaries are essays that question values, priorities, precepts, and philosophical foundations under which wildlife management operates. These manuscripts can uncover dogma, false assumptions, and misguided policy, or stimulate thought and innovation. Commentaries are in

response to an issue, movement, policy, or program that could affect wildlife or its habitat, and subject area can be broad. The manuscript must be well documented and prepared professionally.

226 | *REVIEW*

Review articles are an opportunity to provide an in-depth overview of a particular topic. A variety of topics are amenable to reviews including but not limited to analytical approaches, study design, effects of a management practice, effects of a disturbance, and the like. Review articles need not conform to typical format headings and can be flexible to accommodate the topic.

227 | *LETTER TO THE EDITOR*

Letters to the Editor (i.e., Letters) are short contributions that address issues relevant to *JWM*. Appropriate topics include comments on recently published manuscripts (and author responses to the comments) or on topics or methods relevant to *JWM* or wildlife management. Letters should be short (~10 typed pages) and consist of a short title, author name and address, text, and Literature Cited if necessary. Letters are selected by the Editor-in-Chief (EIC) and are not typically subject to peer-review, but they may be assigned to an Associate Editor for review or a recommendation. Letters are not subject to page charges.

228 | *INVITED PAPER*

The EIC has the option to solicit Invited Papers that review and synthesize important topics that

pertain to the scientific foundations of wildlife management. Invited Papers must include a Management Implications section, are not necessarily subject to peer-review, and are not subject to page charges.

229 | *SPECIAL SECTION*

Special Sections are an opportunity to present a series of papers focused on a topic that is timely, relevant, and of interest to the readers of *JWM*. Typically, these sections consist of 4–8 papers that provide an in-depth presentation of a particular topic. Submit a brief prospectus outlining the topic and proposed paper titles and authors to the EIC for consideration. All manuscripts submitted as part of a Special Section will undergo the same review process as regular journal articles and must meet journal standards (and page charges will apply).

230 | *BOOK REVIEW*

Book Reviews provide a brief synopsis and commentary on a book relevant to some aspect of the field of wildlife science and management. Before submitting a Book Review, please contact the *JWM* Book Review Editor. Book Reviews are not subject to page charges.

***WILDLIFE SOCIETY BULLETIN* SUBJECT MATTER**

The *Wildlife Society Bulletin* (*WSB*) is a journal for wildlife practitioners that effectively integrates cutting-edge science with management and conservation applications. Important policy and human-dimension issues, particularly those that focus on the integration of science,

policy, and regulations, are also included. The *WSB* includes articles on contemporary wildlife management and conservation, education, administration, law enforcement, human dimensions, and review articles on the philosophy and history of wildlife management and conservation.

Submissions to *WSB* fall into 8 main categories: Original Article, Emerging Issues, Tools and Technology, In My Opinion, From the Field, Letter to the Editor, Special Section, and Invited Articles.

231 | *ORIGINAL ARTICLE*

232 | Original Articles are the traditional wildlife science manuscripts published in the *WSB*. These are
233 | typically field studies and structured with Introduction, Study Area, Methods, Results,
234 | Discussion, and, as appropriate, Management Implications sections. Original Article papers
235 | published in the *WSB* bring forward examples of integrating wildlife science and management.
236 | Data in Original Articles should cover multiple years/seasons of collection and be suitable for
237 | inference beyond the study site.

238 | *EMERGING ISSUES*

Submissions in the Emerging Issues category address new ways of approaching management actions or propose new conceptual models for understanding the implications of management. Articles in Emerging Issues can include significant pilot studies, single year/season studies, or resource-limited studies that highlight potential issues in wildlife science, conservation, and

management. Emerging Issues papers do not have Management Implications sections.

239 | *TOOLS AND TECHNOLOGY*

240 | Tools and Technology papers are typically brief and describe new techniques and technology or
241 | modifications of well-known techniques that may be of use to managers. Tools and Technology
242 | papers do not have Management Implications sections.

243 | *IN MY OPINION*

244 | In My Opinion articles combine original data with strong opinion regarding inferences from
245 | those data. The In My Opinion section allows authors the license to include strong opinions and
246 | perhaps even value-laden statements that are not usually found in traditional scientific papers.
247 | We believe that this adds value to the *Bulletin* and makes for interesting discussion among
248 | wildlife professionals.

249 | *FROM THE FIELD*

250 | While in the field collecting data or conducting data analyses, you may have a serendipitous
251 | flash of insight about something that is directly or tangentially relates to the project at hand.
252 | There might be a smattering of data that hint at a new research direction, or perhaps some
253 | outlying values that are actually real and not a function of entering wrong numbers in a
254 | spreadsheet. From The Field papers cover situations where you might not have enough data for
255 | an Original Article but do have enough information to support and share some new insight.

256 Another aspect of From the Field articles is the introspection by veteran managers and
257 conservationists by sharing insights gained over the course of their careers. We vigorously
258 encourage such submissions.

259 *LETTER TO THE EDITOR*

260 Letters are short contributions that address issues relevant to *WSB*. Appropriate topics include
261 comments on recently published manuscripts, frequently with responses from the original
262 authors, or on topics or methods relevant to *WSB* or wildlife management. Letters should be
263 short (~1,000 words) and consist of a short title, author name and address, text, and Literature
264 Cited if necessary. Letters are selected by the EIC and are not typically subject to peer-review,
265 but they may be assigned to an Associate Editor for review or a recommendation.

266 *SPECIAL SECTION*

267 Special Sections consist of articles with a common topic or theme and add value to the *WSB*.
268 Often, but not always, Special Sections are offshoots of sessions held during The Wildlife
269 Society's annual meeting. Persons interested in coordinating a Special Section should contact the
270 editor with a brief synopsis of the proposed topic along with a list of proposed papers and
271 corresponding authors. Do not proceed without agreement by the editor.

272 *INVITED ARTICLES*

273 Invited Articles represent an invitation by the editor for experts on a particular topic or issue
274 related to applied wildlife science to publish a review or synthesis article that represents the
275 state-of-the-art knowledge and understanding of the topic or issue. The purpose is to provide
276 wildlife professionals with a foundational article on contemporary techniques that can be used
277 for conservation planning, research initiation, and development of management strategies. Page
278 charges are waived for Invited Articles.

WILDLIFE MONOGRAPHS SUBJECT MATTER

279 A submission to *WM* should be a learned, detailed, thoroughly documented treatise containing
280 original research that exhaustively covers a single topic on specific problems and issues in
281 wildlife science, management, or conservation. A monograph should be comprehensive and
282 synthetic, and typically based on work occurring at large spatial or temporal scales. Review
283 articles are not appropriate for submission. *Wildlife Monographs* may be presented in chapter
284 format or as a multiple-authored document with responsibilities for various parts of the work or
285 authorship of sections identified in a statement at the end of the text (above acknowledgments).

286 In addition to the format requirements in the template at the beginning of this document,
287 *Monographs* should include the following elements (see a recent *Monograph* for an example):

- 288 1. After the English abstract and key words, present identical abstracts in Spanish and French.
289 If the author wishes, a fourth abstract in another language can be added. Do not use
290 computerized translation software to produce the Spanish and French abstracts because

291 they produce inaccurate conversions. Consult an expert fluent in English and the target
292 language to create the abstract. This requirement can be completed after acceptance.

293 2. Following the abstracts, provide a table of contents under the heading “Contents” in bold
294 font center justified. The table of contents of the *Monograph* should be listed at the
295 beginning of the Introduction. Every first-, second-, and third-level heading should be
296 listed in the table of contents exactly as they appear in the text. For appendices, simply list
297 “Appendices” (i.e., do not list the title of appendices). A solid line spanning the width of
298 the page should separate the table of contents from the text below.

TWS JOURNAL POLICIES

PREVIOUS PUBLICATION

If any portion of the manuscript has been published or reported elsewhere, explain all similarities between information in the manuscript and the other publication in your cover letter, and furnish a citation of such publications or manuscripts.

For all TWS journals, a paper is considered published and will not be sent out for review if it:

1. Appears in a serial publication abstracted by *Biological Abstracts* or a similar reference volume.
2. Appears in a book (including conference proceedings) printed in >500 copies and widely distributed to libraries.
3. Has been published as part of a numbered series by an agency.

4. Is part of symposium proceedings. The Society will consider symposium proceedings on a case-by-case basis. Contact the specific journal for approval before submitting your manuscript.

A manuscript is not considered published if it:

1. Is part of a thesis or dissertation, although these should be cited in the manuscript.
2. Is a brief abstract of a talk delivered at a professional meeting or symposium.
3. Is an unpublished report required by sponsors and not distributed as part of a numbered series or in other means that could result in accession by libraries.

SECURING APPROPRIATE APPROVAL(S)

Scientists must ensure their research activities are conducted such that the welfare of the studied animals (e.g., attaching radio-transmitters, marking animals) or the rights of humans (e.g., sending a survey) are considered. Consequently, all peer-reviewed manuscripts submitted for publication should demonstrate that these concerns have been addressed as required by their institution, organization, or funding agency. Include documentation of approval in the Methods section at the end of the text describing the applicable methods.

ANIMAL CARE AND USE

The appropriate documentation that proper animal care and use was applied when using live vertebrate animals for research and applicable protocol numbers should be included in Methods.

Examples include an Institutional Animal Care and Use Protocol number (as designated by most U.S. universities), the number of the permit or license issued to hold animals (such as with private breeders), or a statement that procedures were part of a study plan approved by the agency. Authors may also refer to taxon-specific guidelines for the use of wild vertebrates to ensure animals are being treated ethically and humanely. These requirements apply to manuscript reporting results of studies that directly involve vertebrate animals, including observational studies. Manuscripts reporting summaries or analyses of data derived from studies of vertebrate animals conducted by others are expected to include authorial assertion that the original data collection followed protocols and guidelines related to use of vertebrate animals in effect at the time the data were collected.

HUMAN SUBJECTS

Appropriate documentation that proper approval was obtained to perform research involving humans (primarily surveys) should be provided. Examples include a Human Subjects Protocol or an Institutional Review Board number as designated by most United States universities or surveys conducted by federal scientists have gone through the federal review process.

COPYRIGHT

If a manuscript that is not considered public domain is accepted for publication, authors or their employers must transfer copyright to TWS. If the manuscript is authored by a United States

government employee as part of his or her official duties, the manuscript cannot be copyrighted. Such work is called a “Work of the U.S. Government” and is in the public domain. However, if the manuscript was not part of the employee’s official duties, it may be copyrighted. If the manuscript was jointly written by government and nongovernment employees, the authors understand that they are delegating the right of copyright to the government employee, who must sign the copyright agreement. Manuscript submission implies entrusting copyright (or equivalent trust in public-domain work) to the editors until the manuscript is rejected, withdrawn, or accepted for publication. If the manuscript is accepted, TWS retains the copyright.

EMBARGO POLICY

The Wildlife Society reserves the right to halt consideration or publication of a manuscript if the Embargo Policy is broken. The Embargo Policy follows:

- No news coverage of the manuscript may appear anywhere before the article has been published online via Wiley Online Library Early View. Embargoed information is not to be made public in any format including print, television, radio, or via internet before the embargo date. For information on online publication dates, please contact journal staff.
- Please do not participate in news conferences until after online publication.
- Authors with manuscripts in production may speak with the press about their work. However, authors should not give interviews on the work until the week before online publication, and then only if the journalist agrees to abide by the embargo.

- Authors are welcome to present results of their upcoming manuscripts at professional meetings to colleagues.
- Comments to press reporters attending your scheduled session at a professional meeting should be limited to clarifying the specifics of your presentation. In such situations, we ask that you do not expand beyond the content of your talk or give copies of the manuscript, data, overheads, or slides to reporters.
- We will consider articles previously available as preprints on non-commercial servers such as ArXiv, bioRxiv, psyArXiv, SocArXiv, and engrXiv. Authors may also post the submitted version of their manuscript to non-commercial servers at any time. If the manuscript is accepted, authors are requested to update any pre-publication versions with a link to the final published article.

PAGE CHARGES

Page charges are mandatory and submitting authors are required to acknowledge that they accept responsibility for these fees should the manuscript be accepted for publication. All manuscripts are subject to page charges except Letters to the Editor, Invited Papers, and Book Reviews. The following page charges and publication fees apply to manuscripts that go into production after 1 January 2018. None of the journals charge additional fees for color figures.

Journal of Wildlife Management

If any author is a member of The Wildlife Society:

- \$90 per published page for the first 8 pages
- \$150 for every page thereafter

If none of the authors is a member of The Wildlife Society:

- \$150 per page

Authors may choose to publish under the open-access option; the fee for open access is \$3,000 in lieu of page charges.

Wildlife Society Bulletin

If any author is a member of The Wildlife Society:

- \$50 per published page for the first 10 pages
- \$80 for every page thereafter

If none of the authors is a member of The Wildlife Society:

- \$80 per page for the first 10 pages
- \$130 for every page thereafter

Authors may choose to publish under the open-access option; the fee for open access is \$3,000 in lieu of page charges.

Wildlife Monographs

- \$7,500 flat publication fee (up to 52 printed pages).

Authors may choose to publish under the open-access option; the fee for open access is \$2,500 in addition to the publication fee.

For estimates of page charges, please consider that one printed page equals approximately 2.5 typed pages. Page charges will be billed at the time of publication. Visit [The Wildlife Society](#) website for membership information and rates.

DATA-SHARING POLICY

Journals of TWS encourage authors to share their data and offer artifacts supporting their results in manuscripts by archiving them in an appropriate public repository. Authors should include in the methods a data accessibility statement, including a link to the repository they have used if applicable so the statement can be published alongside their paper.

FORMAT

A manuscript must adhere to TWS guidelines before it will be approved and sent out for review (see [Short Guidelines](#) for template).

FORMATTING GUIDELINES

Upload the following files:

1. Cover letter
2. Text file arranged as follows: manuscript text, Literature Cited, figure captions (not figures), and tables. Society journals will accept only .doc or .docx files for the main document.

3. Figure(s) compiled into one file or submitted in individual files. Label and mount figure parts (e.g., Fig 3A, Fig 3B) together into one figure as they are meant to appear in print. We accept figure files in only the following formats: .tif, .jpg, pdf, .doc, docx, .eps, .xls, and .ppt.

General guidelines

1. Double space all text except for the contact information at the top of the first page. Be sure to double space all other sections, including long quotations within text, literature citations, table footnotes, table titles, table bodies, and figure captions.
2. Do not justify the right margin.
3. Use Times New Roman font, 12-point type throughout the manuscript, including title, headings, and tables.
4. Do not use italic or boldface type for emphasis in text, tables, or figures.
5. Maintain margins of 2.5 cm (i.e., 1 inch) on all sides of the page.

TITLE PAGE: RUNNING HEAD, TITLE, AND AUTHORS

The following guidelines apply to all text files. Single-space the following information in the upper left corner: date (update with each revision) and the corresponding author's name, address, telephone, and e-mail. Thereafter, double-space all text including authors' addresses, manuscript title, figure legends, and tables. If the corresponding author's email address changes following

submission of the manuscript, update the user profile on the ScholarOne website, and notify the editorial staff.

Type the running head (RH) on the first line following the correspondent's address. The RH is limited to 45 characters (including spaces). Left-justify the RH and capitalize each important word (e.g., *Implanting Transmitters in Snakes*). The RH is preceded by a dot (or raised period) and the last name(s) of ≤ 2 authors. For ≥ 3 authors, use the name of the first author followed by "et al." (e.g., Foster et al.). For example:

RH: Chamberlain et al. • *Implanting Transmitters in Snakes*

The title follows the RH and is left-justified in bold font with important words capitalized as in the RH. The title identifies manuscript content and may not include abbreviations or acronyms. Titles should not exceed 10 words unless doing so forces awkward construction. Do not use scientific names in the title except for organisms that have easy to confuse common names, or lack them altogether.

Authors' names are left-justified in upper-case letters. Each name is followed by the author's affiliation in italic letters. The affiliation is usually where the author was employed during the study. Indent the second and subsequent lines of an author's address using the hanging indent function. Only use a single address or affiliation for each author. In each address, use available United States Postal Service (USPS) abbreviations, zip codes, and the country (abbreviate USA, but spell out all others). Write out words like Street, Avenue, and Boulevard, but abbreviate directions (e.g., N and NW). Include the address after each author, even if

multiple authors have the same address. Footnotes (not footers) should be used to note the corresponding author's email address, to reference the present address of an author when it differs from the byline address, and to indicate a deceased author. Each footnote for authors starts with a numerical superscript.

ABSTRACT

Begin with the word **ABSTRACT** (left-justified) in upper-case bold font. The abstract text begins after a regular letter space on the same line and is 1 paragraph not exceeding 1 line/page of manuscript text (3% of length of text), including Literature Cited. Research Note abstracts cannot exceed 1 line/2 pages, including Literature Cited. The abstract includes:

- 1) Research question or hypotheses tested. Identify the problem or hypothesis and explain why it is important. Indicate new data, concepts, or interpretations directly or indirectly used to manage wildlife.
- 2) Pertinent methods. State methods used to achieve the results summarized (keep the methods brief unless a new, greatly improved method is reported). Include the study period and location.
- 3) Results. Emphasize the most important results, whether or not they agree with your hypotheses.

- 4) Interpretation of results and their value. Explain how, when, where, and by whom data or interpretations can be applied to wildlife problems or contribute to knowledge of wildlife science.

KEY WORDS

Key words follow the abstract. The phrase **KEY WORDS** (left-justified, upper-case bold font) is followed by a regular space and ≤10 key words in alphabetical order, ending with a period. Do not include Akaike's Information Criteria (AIC) in the Key Words. Include essential words from the title and others that identify: 1) common and scientific names of principal organisms in the manuscript; 2) the geographic area, usually the state, province, or equivalent, or region if its name is well known; 3) phenomena and entities studied (e.g., behavior, populations, habitat, nutrition, density estimation, reproduction); 4) methods (only if the manuscript describes a new or improved method); and 5) other words not covered above but useful for indexing. For example:

KEY WORDS author, format, guidelines, instructions, manuscript, policy, style.

TEXT PAGES

Using the Header function, insert page numbers and author names (Smith and Jones; Smith et al.; Smith) on all pages following the title page. Number each line of the text continuously (i.e., do not restart numbering on each page).

HEADINGS

Reduce or eliminate the need for subheadings by writing clearly and logically. Avoid writing sections that consist of only one paragraph. Examples of the 3 heading types follow.

STUDY AREA

First-level heading: upper-case lettering, bold type, and flush left. Text follows flush left on the succeeding line.

Burrow Availability Hypothesis

Second-level heading: bold type, flush left, with important words capitalized. Text follows flush left on the succeeding line.

Assessment of available natural burrows.— Third-level heading: indented, italicized, and followed by a period and em dash (—). Text follows directly after the heading on the same line.

MAJOR SECTIONS OF MANUSCRIPT

The introduction to the manuscript does not include a heading. Articles include the following first-level headings: **ABSTRACT, KEY WORDS, STUDY AREA, METHODS, RESULTS, DISCUSSION, MANAGEMENT IMPLICATIONS** (From the Field, Tools and Technology, and Emerging Issues articles in *WSB* do not include this section), **ACKNOWLEDGMENTS**, and **LITERATURE CITED**. It is not permissible to combine Study Area and Methods or Results and Discussion. Merging these sections leads to superfluous wording, unnecessary

discussion, and confusion. Most articles will include all major sections, but some sections may not be appropriate for all articles.

The introduction (no heading) starts below the **KEY WORDS** and contains a concise synthesis of literature specific to the manuscript's main topic. The end of the introduction should state clearly and concisely the objectives of the study, predictions, and the hypotheses tested. Do not summarize methods or results in the Introduction section.

Use past tense for **STUDY AREA** descriptions (e.g., average annual precipitation was 46 cm, vegetation was primarily grass). Exceptions include geological formations that have been present for centuries (e.g., mountains). **METHODS** should be brief and include dates, sampling schemes, duration, research or experimental design, and data analyses. Cite previously published methods without explanation. Identify new or modified methods and explain them in detail. Methods must be described in adequate detail for a reader to duplicate them if initiating a new study. Include thresholds for significance (e.g., $\alpha = 0.05$) or specific model selection criteria (e.g., $\Delta AIC < 2$, $\sum w_i > 0.9$) if applicable. Include approval of animal-welfare and human subjects protocols in the Methods section (not in Acknowledgments). Include protocol numbers parenthetically following the relevant statement.

Present **RESULTS** in a clear, simple, concise, and organized fashion. Avoid overlapping text with information in tables and figures, but highlight the most important results in the text; do not explain analyses that should have been described in the Methods section. Always try to describe the value and magnitude of the biological effect rather than focusing on the results of

statistical analyses. That is, terms such as “fewer” or “smaller” tell us little, and stating that something was “statistically different ($P < 0.01$)” without providing the actual difference conveys little meaning to the reader. For example, stating, “A ($\bar{x} = 43 \pm 3$ ha) was 25% larger than B ($P < 0.001$)” conveys more information than simply stating, “A was significantly larger than B.” Present Results in past tense (e.g., body mass loss occurred during winter). Reserve comments on interpretation of results for the Discussion.

The **DISCUSSION** provides an opportunity for interpreting data and making literature comparisons. Begin the Discussion by synthesizing your results with regard to your objectives and then relate your work to other literature and research. Systematic discussion of every aspect of research leads to unnecessarily long manuscripts; be concise and relate your findings directly to your overall project goal, objectives, and hypotheses as appropriate. Reasonable speculation and new hypotheses to be tested may be included in the Discussion. Do not repeat results in this section, and comment on only the most important results.

The **MANAGEMENT IMPLICATIONS** section should be short (usually about 1 paragraph) and direct but explain issues important to management and conservation that are derived directly from or addressed in your results. Do not restate material from the Results or Discussion sections, and do not make recommendations that are beyond the scope of your study. Address specific management opportunities or problems in this section. From the Field, Emerging Issues, and Tools and Technology articles in *WSB* should not have a Management Implications section.

The **ACKNOWLEDGMENTS** (note preferred spelling) section appears immediately before Literature Cited. This section should be brief and include 2 initials (when appropriate) and the last name of individuals cited (without affiliations). Acknowledgments should be straightforward without ornate and qualifying adjectives or personal remarks, and those funding the study should be included at the end. Begin with disclaimers (if any) and end with funding thanks. For example: “Portions of this manuscript have been extracted from Ratti and Ratti (1988) and Gill and Healy (1980) with permission of The Wildlife Society. This is Contribution 836, University of Idaho Forest, Wildlife, and Range Experiment Station. We thank G. A. Baldassarre, M. S. Boyce, C. E. Braun, H. E. Hodgdon, and R. L. Lee for review comments and contributions to this manuscript. G. C. White assisted with revision of the mathematics and statistics subsection. L. M. Smith was supported by the Caesar Kleberg Foundation for Wildlife Conservation.”

LITERATURE CITED

Also see: [Citing Literature in Text](#)

Type the Literature Cited immediately following the Acknowledgments, and do not insert a page break (see [Appendix B](#) for specific examples). Double-space Literature Cited and use hanging indents for second and subsequent lines of a citation. Spell out all words in the Literature Cited (i.e., do not use abbreviations or acronyms). However, the following 3 exceptions are allowed in author and publisher locations: 1) Washington, D.C., 2) U.S. (e.g., U.S. Forest Service), and 3)

USA. Spell out all author names for each citation instead of using dashes for authors in multiple citations.

In the Literature Cited, alphabetize by authors' surname(s), regardless of the number of multiple authors for the same publication. Within alphabetical order, the sequence is chronological (see Appendix B "[Multiple Citations for the Same First Author](#)" for an example).

Use title-case (not small caps) for all names in Literature Cited, and place a comma between all names, even if there are only 2 (e.g., Schmidt, B. R., and J. Pellet). Use 2 initials (where appropriate) with one space between each initial. Only reverse the name order of the first author (e.g., Thogmartin, W. E., J. R. Sauer, and M. G. Knutson). For serial publications, show the issue number only if the pages of each issue are numbered separately. As in the text, spell out ordinal numbers (e.g., Third edition). Do not include words such as Publishing, Inc., or Company. Use the word Thesis to denote Master of Science (M.S.) or Master of Arts (M.A.), and use the word Dissertation for Doctor of Philosophy (Ph.D.). Do not write the total page number of books at the end of the citation. Only include the software in literature cited if you are referencing the software manual. Otherwise, simply cite the product in text following the examples in [Citing Literature in Text](#) section below. For foreign language publications, note the language of publication at the end of the citation in brackets (e.g., [In Spanish.]).

At the end of the Literature Cited section type "*Associate Editor:*" (the name of the Associate Editor will be filled in later).

On a new page following the Literature Cited, compile figure captions (not figures) and tables. Submit figures as a separate file(s). Submit only essential tables and figures. Do not submit tables if the information overlaps with information presented in the text, can be easily printed in the text with less journal space, or presents the same data in another table and a figure. Number tables and figures independently. Reference tables and figures parenthetically (Table 4, Fig. 3) and avoid statements such as, “The results are shown in Tables 1–4.”

Tables and figures must stand alone (i.e., be self-explanatory) and avoid reference to the text or other tables and figures. Accordingly, define relevant abbreviations and acronyms in each table and figure (except items that appear in [Appendix C](#)). When possible, minimize the use of abbreviations, especially with long lists of variables. The space saved is not worth the tedium for the reader trying to understand the table. Table and figure titles must include the species or subject of the data studied and when and where (region or state and country) the data were collected. In rare cases, titles or footnotes of tables and figures may be cross-referenced to avoid repeating long footnotes or the same data; however, this violates the self-explanatory rule and should be avoided. If a table includes a list of species, order species taxonomically and not alphabetically.

FIGURES

Begin figure captions on a new page immediately following the Literature Cited. Figure captions tend to be longer than table titles because figures are not footnoted. The caption may be several

sentences and include brief suggestions for interpreting the figure content. Like table titles, figure captions must allow the figure to be self-explanatory (do not include abbreviations without defining them in the caption), describing the variables displayed and where and when data were collected. Do not include statistical results in the caption. Label and mount figure parts (e.g., Fig. 3A, Fig. 3B) together into one figure as they are meant to appear in print.

Upload figures files separately (do not include them in the main document) and use the following guidelines to assure image quality is adequate for printing. Pictures must have sharp focus in the most important parts of the image, have high tonal contrast, and have a reference scale if size is important. Letters, scales, or pointers can be drawn on the prints, but they must be of professional quality. Sets of 2–4 related pictures can be handled as one figure if prints are the same width and will fit in a space 85 mm × <180 mm when reduced for printing, but please mount them together prior to submitting the figure. All image files must have a resolution of >200 dots per inch (dpi) at final printing size.

Consider whether a drawing can be printed column width (85 mm) or is so detailed that it must be printed page width (180 mm). The difference depends mainly on size of characters and lengths of legends drawn on the figure. If page width is necessary, consider omitting some detail and look for ways to shorten legends. Column-width figures are preferred. Ensure that all characters are ≥ 1.5 mm tall after reduction for printing. Hand-drawn lines and lettering and typewriter characters are not acceptable.

Only capitalize the first word and proper nouns on axis labels and keys. Lettering within figures follows the same guidelines as manuscript text. Use italic letters only where they are essential to the meaning, as in mathematical terms and most metric units (see [Mathematics and Statistics](#) section and [Appendix C](#)). Identify arbitrary symbols in a figure key within the figure or in a note that is part of the caption.

TABLES

Do not prepare tables for small data sets, those containing many blank spaces, zeros, repetitions of the same number, or those with few or no significant data. Put such data or a summary of them in the text.

Construct tables for column-width (≤ 8.5 cm) printing. If the table will not fit in one column width, construct it for page-width printing (≤ 18 cm). Some extra-wide tables can be printed vertically, but such tables usually waste space. Extra-long and extra-wide tables require persuasive justification.

Table titles may differ, but we recommend this sequence: 1) name of the characteristic that was measured (e.g., mass, age, density), 2) measurement unit or units in parentheses (e.g., cm, no./ha, M:100 F, or %), 3) name of organism or other entity measured (e.g., of Canada geese), and 4) location(s) and date(s). Each part of the sequence can include >1 item (e.g., Carcass and liver fat [%] and adrenal and kidney weight [mg] of white-tailed deer in Ohio and Michigan, USA, in 1975). Do not include statistics or statements of results (e.g., *P*-values) in the title. Do

not use abbreviations in table title (e.g., AIC), except within parentheses after defining the abbreviation. However, use standard abbreviations and symbols ([Appendix C](#)) in the table body and in footnotes.

The lines printed in tables are called rules, and they should be used according to the following standards (see [Short Guidelines](#) for an example table):

1. None drawn vertically within the table.
2. Each table contains at least 3 rules – below the title, below the column headings, and at the bottom. Insert each as one continuous line. Do not use bold or extra-thick rules.
3. Use rules that straddle subheadings within the column heading.
4. None to show summation; use “Total” or equivalent in the row-heading.
5. Do not use rules to join the means in multiple-range tests. Use Roman upper-case letters instead of rules (e.g., 12.3A^a, 16.2A, and 19.5B) where the superscript “a” references a footnote (e.g., ^aMeans with the same letters are not different [$P > 0.10$]). Upper-case letters may be used in a similar fashion to reference the relationship of data among columns.

Type main headings flush left, and indent their subheadings. For column- and row-headings, only capitalize the first word and proper nouns (e.g., No. times detected in NV), and do not use bold font. In the data field, do not use dashes (often misused to mean no information) or zeros unless the item was measured, and 0, 0.0, or 0.00 correctly reports the precision (measurement). Similarly, respect digit significance in all numbers, particularly percentages. Do

not use percentages where n is <26 , except for 1 or 2 samples among several others where n is >25 . Where the number of significant digits varies among data in a column, show each datum at its precision level (i.e., do not exaggerate precision). For P values only use 3 digits past the decimal, and do not list $P = 0.000$; the correct form is $P \leq 0.001$. Do not use naked decimal points in the data field (e.g., use 0.057 instead of .057).

For footnote superscripts use asterisks only for probability levels and lower-case Roman (not italic) letters for other footnotes. Place letters alphabetically in the following sequence: in the title, then left-to-right, and then down. The most common errors in tables are the use of undefined abbreviations (e.g., AIC_c , K), single spacing, and incomplete titles.

APPENDICES

Appendices are different than online supporting information; they are essential to the manuscript and are typeset with the text. Include appendices in the text file after all figure captions and tables (see [Short Guidelines](#) template). Use first-level headings for Appendix titles. Appendices are printed at the end of the article and are used to add understanding to the manuscript without disrupting the flow of the text.

SUPPORTING INFORMATION

Supporting Information is made available online only and is manuscript information that adds depth to the manuscript but is not essential to readers' understanding of the manuscript (e.g.,

spreadsheets, detailed equations, video or audio files, code, in-depth tables and figures). All supporting information will be reviewed by the editors and content edited by journal staff. However, the publisher does not copyedit, typeset, or format supporting information; thus, the material must be ready for publication when the manuscript is submitted for review. Upload supporting information in Scholar One in a separate file and choose “Supporting Information for review and online publication only” from the “file type” drop-down menu. The file that you upload will be the exact file that readers will be able to download so use a file type that will be accessible to readers.

Reference the supporting information parenthetically in your manuscript. For example, “We created a project-cost worksheet to assist other researchers planning monitoring projects (Table S1, available online in Supporting Information).” After the location online has been established, simply refer to the table without the additional text. For *WSB* manuscripts, add a first-level heading after the Associate Editor line (following literature cited) titled **SUPPORTING MATERIAL**. Under this heading, include the text “Additional supporting material may be found in the online version of this article at the publisher’s web-site.” Follow this statement with a brief description of supporting material. For *JWM* manuscripts, authors do not need to include a **SUPPORTING MATERIAL** section because it will be added during typesetting.

Because supporting information is published separately from the manuscript, it needs to stand alone. List all references cited in the supporting information at the end of the file.

References that only appear in the supporting information should not be listed in the Literature Cited section of the manuscript. Arrange the file as follows:

Supporting Information

Date

Citation for your manuscript (e.g., Smith, L., and M. Jones. 2016. Southern ground hornbill nest survival. *Journal of Wildlife Management*)

Begin supporting information text here (table, equations, photo).

Literature Cited

STYLE AND USAGE

Manuscripts with publishable data may be rejected because of poor writing style (e.g., long and complex sentences, superfluous words, unnecessary information, and poor organization). Most editors are patient with this problem and are willing to offer helpful suggestions. However, reviewers may be less tolerant of poor writing, which may result in negative reviews. Use a direct and concise writing style and minimize repetition among sections of your manuscript. Avoid using 1-sentence paragraphs. Many common problems may be avoided by use of a carefully prepared outline to guide manuscript writing. Many problems can be corrected by having your manuscript critically reviewed by colleagues before submission for publication.

The most common error in manuscripts is use of passive voice. Use first person and active voice throughout the manuscript to avoid superfluous or unclear wording. For example, instead of writing “false absences were estimated” write, “we estimated false absences.”

NUMBERS AND UNIT NAMES

Use digits for numbers (e.g., 7 and 45) unless the number is the first word of a sentence or is used as a pronoun (e.g., We conclude one would benefit from...), in which case the number is spelled out. Use numerals for 0 and 1 only when they are connected to a unit of measure, when they are used as an assigned or calculated value, or when they are part of a series or closely linked with numbers other than 0 and 1 (e.g., 0 of 4 subspecies; 2 applications instead of 1 ...). Otherwise, spell out zero and one (e.g., zero-based budgeting, on the one hand, one doctor). Indicate units after each item unless it is a range with an en dash (e.g., elevations ranged 3,000 m to 5,000 m or elevations ranged 3,000–5,000 m) and use standard abbreviations for measurement units that follow a number (e.g., 75% and 30 kg) unless the number is indefinite (thousands of hectares). Avoid using introductory phrases (e.g., a total of ...). Spell out ordinal numbers (e.g., first, second) in text and Literature Cited, but use digits for cases such as 3-fold and 2-way. Convert fractions (e.g., 1/4, one-third) to decimals or percentages except where they misrepresent precision. Avoid presenting more than 3 digits past the decimal.

Hyphenate number-unit phrases used as adjectives (e.g., 3-m² plots and 3-yr-old M) but not those used as predicate adjectives (e.g., plots were 3 m², M were 3 yr old). Insert commas in numbers $\geq 1,000$ (except for pages in books, clock time, or year dates). Do not insert a comma or hyphen between consecutive, separate numbers in a phrase (28 3-m² plots). Do not use naked decimals (i.e., use 0.05, not .05). When identifying items by number, use lowercase for names

(e.g., plot 1, site 5, day 3). Use a slash (/) instead of “per” when describing rates or densities (e.g., 5 elk/km², 10 surveys/day).

TIME AND DATES

Use the 24-hour system: 0001 hours through 2400 hours (midnight). Date sequence is day month year, without punctuation (e.g., 4 March 2000). Do not use an apostrophe for plural dates (e.g., 1970s). Spell out months except in parentheses, table bodies, and figures, in which 3-letter abbreviations are used with no period (e.g., 31 Mar 1947).

MATHEMATICS AND STATISTICS

Use italic font for Roman letters used as symbols for quantities (e.g., *n*, *X*, *F*, *t*, *Z*, *P*, and \bar{x} ; [Appendix C](#)). Report degrees of freedom used in a statistical test as subscripts to the relevant test statistic (e.g., $t_2 = 1.45$). Insert symbols from the symbol directory in your word processing program as opposed to creating the symbol with keyboard functions (e.g., chi-square should appear as χ^2 [found in the symbol directory], as opposed to X^2). Use the minus sign from the symbols menu (–) to indicate minus and negative values instead of using the keyboard hyphen. Use times (×) to indicate multiplication or dimensions instead of using an asterisk (*) or a lowercase x. These mathematical symbols may also be copied and pasted from this document.

Insert a space on both sides of symbols used as conjunctions (e.g., $P > 0.05$) but close the space when symbols are used as adjectives (e.g., >20 observations). Where possible, report exact probabilities ($P = 0.057$, not $P > 0.05$). A subscript precedes a superscript (X_i^3) unless the

subscript includes >3 characters. Break long equations for column-width printing (85 mm) if they appear in the main body of the manuscript; long equations and matrices can be printed page-width (180 mm) in appendices.

Avoid redundant use of the word “significantly” (e.g., write “the means differed [$P = 0.016$]” instead of “the means differed significantly [$P = 0.016$]”). Report results of statistical tests or central tendency as in the following examples: ($t_1 = 2.47, P = 0.013$), ($F_{3, 12} = 33.10, P = 0.01$), ($\chi^2_{10} = 22.1, P = 0.029$), or ($\bar{x} = 7.8, SE = 3.21, n = 46$). Present P -values <0.001 as $P \leq 0.001$. Type the names of statistical programs or analytical methods (that are not acronyms) in capital letters (e.g., PROC LIFEREG, POPGEN, Program MARK).

EQUATIONS

Equations require precise internal spacing and formatting and are correctly constructed using Equation Editor (not saved as an embedded picture). This can be completed in most versions of Word by choosing insert-object and then selecting Microsoft Equation from the menu or using the Equation tool (insert-equation). Simple mathematical expressions, such as symbols with simple subscripts or superscripts and Greek letters can be typed as text, using the symbol directory. However, be sure that the font and font size are the same wherever the symbol is used, and inconsistencies can arise when text symbols are mixed with symbols generated with an Equation Editor. For example, the Greek letter phi can be represented by both φ and ϕ , which leads to confusion when both appear in the manuscript but are to imply the same symbol.

Mathematical symbols for estimators are typically given hats (carets, e.g., $\hat{\mu}$) and require the use of Equation Editor, as does proper construction of the symbol for an estimated mean (\bar{x}). For in-line equations using division, use / instead of stacking above and below a horizontal line, and all symbols in text need to be pulled from the symbols function or Unicode. Use $\{ \{ () \}$ in mathematical sentences. Statistical terms that are not to be italics (e.g., ln, E, exp, max, min, lim, SD, SE, CV, and df) can appear in equation boxes as text without italics by changing the style to text while editing the equation box.

ABBREVIATIONS AND ACRONYMS

The use of numerous abbreviations and acronyms can detract from the flow of a paper. This is particularly the case when used for variables, agencies, and organizations. Use of abbreviations and acronyms should be done judiciously. Some abbreviations and acronyms are well established and may be used in the text without definition: metric units, DNA, and certain measurement units ([Appendix C](#)). Define all other abbreviations or acronyms the first time you use them in the abstract and text (e.g., geographic information system [GIS], analysis of variance [ANOVA], Akaike's Information Criterion [AIC]). Reestablish acronyms in the text that were first established in the abstract. Do not start sentences with acronyms, and do not use an apostrophe with plural acronyms (e.g., ANOVAs). Abbreviate state names in parentheses except when they appear in the title of an academic institution or agency.

PUNCTUATION

Use a comma after the next-to-last item in a series of >2 items (e.g., red, black, and blue). Do not use a comma to separate a compound sentence before the conjunction unless the sentence will be confusing otherwise (e.g., “Use an infrared scope at night and use a regular scope during the day,” not “Use an infrared scope at night, and use a regular scope during the day.”). Write clearly enough so that you do not need to put quotation marks around words or phrases unless they are direct quotations. Follow these 3 rules to avoid common hyphenation errors: 1) a phrase containing a participle or an adjective is hyphenated as a compound when it precedes the word modified, and it is written without a hyphen when it follows the word modified (e.g., “a small-mammal study” and “a study of small mammals” are both correct but have a different meaning than “a small mammal study”); 2) a modifier containing a number is usually hyphenated (e.g., 2-km study area, a 6-yr-old mammal); and 3) a 2-word modifier containing an adverb ending in -ly is not hyphenated (e.g., a carefully preserved specimen, spatially explicit model).

Avoid ambiguous use of nouns as modifiers (e.g., wolf researchers, women hunters). Use prepositions to avoid using nouns as adverbs (e.g., nesting by birds, not bird nesting; hunting with dogs, not dog hunting) and to avoid noun strings exceeding 3 words (e.g., radio-telemetry locations of dens in fall, not fall den radio-telemetry locations).

Closing quotation marks are always placed after periods and commas, but they may be placed either before or after other punctuation. Brackets must appear in pairs, but the sequence varies. Use ([]) in ordinary sentences, use {[()]} in mathematical sentences, and use (()) only in

special cases such as chemical names. Brackets are used to enclose something not in the original work being quoted (e.g., insertion into a quotation or a translated title).

Do not use a slash (/) to indicate “and” or “or” or to express a range; use only to indicate “divided by” or “per.” Use trademarks (i.e.,™, ®) at the first mention of a product name, where appropriate, and not thereafter (if introduced in the abstract, re-establish the information in the text).

ENUMERATING SERIES OF ITEMS

A colon must precede a series of numbered items unless the list is preceded by a verb or preposition. For presentation of a simple series, place numbers followed by a closing parenthesis only (see example in [Key Words](#) section) and separate phrases with commas or semicolons.

When enumerating lengthy or complexly punctuated series, place the numbers at the left margin, with periods but no parentheses, and indent run-on lines (see [Measurement Units](#) section).

COMMON AND SCIENTIFIC NAMES

Do not capitalize common names of species except words that are proper names (e.g., Canada goose [*Branta canadensis*], Swainson’s hawk [*Buteo swainsoni*], and white-tailed deer [*Odocoileus virginianus*]). Scientific names follow the first mention of a common name, except in the title. If a scientific name is established in the abstract, re-establish it in the text. Place scientific names following common names in parentheses and italic font with the first letter of

the genus name capitalized and the species name in lower-case letters. Abbreviate genus names with the first letter when they are repeated within a few paragraphs, provided the meaning is clear and cannot be confused with another genus mentioned in the manuscript with the same first letter; for example, “we studied snow geese (*Chen caerulescens*) and Ross’ geese (*C. rossii*).”

Do not use subspecies names unless essential, and omit taxonomic author names. Use “sp.” (singular; not italicized) or “spp.” (plural) to indicate that the identity of species within a genus was unknown. For example, “The field was bordered by willow (*Salix* sp.) and we trapped several species of mice (*Peromyscus* spp.).” Use the most widely accepted nomenclature for all species mentioned in your manuscript (e.g., American Ornithological Society Check-list [checklist.aou.org]). Omit scientific names of domesticated animals or cultivated plants unless a plant is endemic or widely escaped from cultivation or is a variety that is not described adequately by its common name.

MEASUREMENT UNITS

Use Systeme Internationale d’Unites (SI) units and symbols ([Appendix C](#)). Place a space between numbers and units or symbols (e.g., 10 m, 80° C). Do not use hyphens between numbers and units unless you are using a number-unit phrase to modify a noun (e.g., correct usage: 12-mm mesh, 3-yr study, 12 mm in diameter, and 2 mm wide; see section on [Punctuation](#)). Use English units (or, rarely, another type of scientific unit) in parentheses following a converted metric unit only in cases that may misrepresent the statistical precision of the original

measurement or the correct interpretation of the results. However, these non-SI units are permitted:

1. Area: hectare (ha) in lieu of 10^4 m^2 ;
2. Energy: calorie (cal) in lieu of Joule (J);
3. Temperature: Celsius (C) in lieu of Kelvin (K);
4. Time: minute (min), hour (hr), day, in lieu of seconds (sec);
5. Volume: liter (L) in lieu of dm^3 .

CITING LITERATURE IN TEXT

In most cases reference citations parenthetically at the end of a sentence; e.g., “Mallard brood survival was higher in the wettest years (Rotella 1992).” Cite published literature by author and year; e.g., Jones (1980), Jones and White (1981). Use “et al.” for publications with ≥ 3 authors; e.g., (Jones et al. 1982). Do not separate the author and date by a comma but use a comma to separate a series of citations. Use chronological order for citations in a series; e.g., (Jones 1980, Hanson 1986). If citations in a series have >1 reference for the same author(s) in the same year, designate the years alphabetically (in italics) and separate citations with semicolons; e.g., (Peek et al. 1968*a, b*; Hanson 1981; White 1985, 1986). If citations have >1 reference for the same author in different years, designate the years chronologically after the author’s name (e.g., Andrews 2001, 2005; Chamberlain 2002; Foster 2006). For citations in a series with the same year, use alphabetical order within chronological order; e.g., (Brown 1991, Monda 1991, Rotella

1991, Allen 1995). Do not give >5 citations in the text to reference a specific issue or scientific finding. For a quotation or paraphrase, cite author, year, colon, and page number(s) (e.g., Krebs 1989:216).

Cite documents that are cataloged in major libraries, including theses and dissertations, as published literature. Published literature includes symposia proceedings and United States Government reports that have been widely distributed. Cite all other documents as unpublished data in the text only.

CITING UNPUBLISHED SOURCES IN TEXT

If references are not easily available or are not widely distributed, cite them in the text only.

Unpublished sources include reports that are not published or widely distributed, manuscripts that have not yet been accepted for publication, and personal communications and observations.

Avoid overusing unpublished information because these citations are not as credible as published literature and will make your text cumbersome. Cite unpublished references in the text as follows:

1. Personal communications: (J. G. Jones, National Park Service, personal communication);
2. Unpublished report: (D. F. Timm and E. J. Jones, North Carolina State University, unpublished report);
3. Unpublished data (including manuscripts in review): (D. F. Brown, Arizona Game and Fish Department, unpublished data).

Always include the affiliation in the first citation, even if citing unpublished data or personal observation of one of the authors, but do not repeat the affiliation in subsequent references (e.g., J. G. Jones, personal communication). Do not list >2 authors for an unpublished source.

A manuscript accepted for publication is cited as a published manuscript in the text using the anticipated publication year. In the Literature Cited section, show the year after the name(s) of the author(s) and “in press” after the volume number. Do not cite manuscripts that are in review; use the unpublished style listed above. Refer to detailed instructions for Literature Cited style ([Appendix B](#)).

CITING EQUIPMENT AND STATISTICAL SOFTWARE

For field equipment, note the manufacturer name and location parenthetically the first time you mention the equipment in the text (e.g., Interface, Missoula, MT, USA). Inclusion of information for purchasing equipment or software is inappropriate and not permitted.

Only include software in Literature Cited if you are referencing the software manual or another publication describing the function of the program (e.g., “...Program MARK (White and Burnham 1999)”), otherwise simply cite the software within the text. In-text citations should include the manufacturer information (manufacturer, city, state [if applicable], and country of manufacture) immediately following the first use of the statistical product name (e.g., SAS Institute, Inc., Cary, NC, USA; Environmental Systems Research Institute, Inc., Redlands, CA, USA). For in-text citations of statistical software packages freely available online, note the

software name, website, and website access date parenthetically the first time you mention the software in the text (e.g., R Version 3.2.3, www.r-project.org, accessed 6 Jan 2016).

SUBMISSIONS

Reviewers and editors judge each manuscript on data originality, concepts, interpretations, accuracy, conciseness, clarity, appropriate subject matter, and contribution to existing literature. Prior publication or concurrent submission to other reviewed journals precludes review or publication in Society journals (see additional information in the [Previous Publication](#) section). Fisheries manuscripts are discouraged unless information is part of an account that mainly concerns animals other than fish.

The Society journals accept only manuscripts submitted electronically via Scholar One Manuscripts (S1M). You can register for an account (which will give you a homepage in S1M), log in to an existing account, submit a manuscript for review, and track the progress of your manuscript at <http://mc.manuscriptcentral.com/jwm/> for *JWM* and *Monographs* or <https://mc.manuscriptcentral.com/wsb> for *WSB*. Before submitting a manuscript, see instructions on how to use S1M ([Appendix A](#)).

COVER LETTER

Each publication is managed by an Editor-in-Chief (EIC). Direct cover letters to the EIC and provide information that bears on ethical and copyright considerations and other information that might facilitate review and editing. Current EIC information can be found on the journal's

webpage (*JWM*: [http://onlinelibrary.wiley.com/journal/10.1002/\(ISSN\)1937-2817](http://onlinelibrary.wiley.com/journal/10.1002/(ISSN)1937-2817), *WSB*: [http://onlinelibrary.wiley.com/journal/10.1002/\(ISSN\)1938-5463a](http://onlinelibrary.wiley.com/journal/10.1002/(ISSN)1938-5463a), *Monographs*: [http://onlinelibrary.wiley.com/journal/10.1002/\(ISSN\)1938-5455](http://onlinelibrary.wiley.com/journal/10.1002/(ISSN)1938-5455)). Cover letters must indicate that your manuscript is submitted for exclusive consideration by the journal. The statement ensures that data and findings have not been published previously or submitted elsewhere for simultaneous consideration.

305 REVIEW PROCESS

Upon receipt, editorial staff examines a manuscript for proper style, format, and appropriate subject matter. If style and format are seriously flawed, the manuscript likely will be returned for revision before being sent to reviewers. If subject matter is obviously inappropriate, the EIC will return the manuscript to the author with an explanatory letter.

The editorial staff or EIC selects an Associate Editor (AE) who handles the initial review process. The manuscript is assigned to ≥ 2 reviewers. The staff considers expertise, affiliation, geographic location, date of last review, and performance on previous reviews when selecting reviewers. Reviewers' comments are sent to the AE, who may work with the authors before making 1 of 3 recommendations to the EIC: 1) publish without revision (extremely rare), 2) return to author for revision (ranging from minor to major), or 3) rejection.

Several revisions may be necessary before the AE recommends acceptance to the EIC. Typically, manuscripts returned to authors for revision must be resubmitted as a revision in SIM within the time stated in the decision letter (usually 3 or 6 months). Revisions submitted past the

deadline without an approved extension will need to be resubmitted as a new manuscript. Final acceptance or rejection of manuscripts is decided by the EIC. Typically, the EIC follows the AE's recommendation, but this is not guaranteed.

306 | *APPEAL AND RESUBMISSION*

Authors may email the EIC to question the reasons for rejection or to request a reconsideration of a previously rejected submission. Reconsideration of a rejected manuscript requires a convincing rebuttal letter from the author(s). Author(s) should not revise and resubmit a rejected manuscript without first writing a letter requesting reconsideration, which saves time for the EIC and the author(s).

ACCEPTED MANUSCRIPTS

Accepted manuscripts go through 2 stages before publication: 1) final edit by journal staff and the EIC for content-related issues and general formatting and 2) copyediting and typesetting by the publisher's production staff. Authors are contacted during both stages. Authors will receive a content edited version of their manuscript within approximately 1 month after acceptance.

Authors will have 1 week to upload their final version of the manuscript based on changes directed by the content editor and the EIC. Manuscripts will not be assigned to an issue until the final version has been received. All correspondence is conducted via email, so authors should

make sure their email address within the S1M database is current at all times (Note: *JWM* and *WSB* maintain separate databases).

PAGE PROOFS

The final production stages of the TWS publications are handled by Wiley-Blackwell Publishing (Hoboken, NJ). Page proofs of each manuscript are created by Wiley-Blackwell and sent to each corresponding author. During the page proof stage, press deadlines are fast approaching and author corrections to page proofs are urgently needed, preferably within 48 hours of receipt. Authors must clearly communicate their recommended changes, mark proofs clearly, or describe changes in detail. Make only essential changes to page proofs. Journal staff will also review the proofs for corrections.

307 **ACKNOWLEDGMENTS**

These guidelines are a modification of the previous directions for authors prepared by numerous editors and editorial staffs. We appreciate all who have contributed to the development and improvement of the guidelines.

APPENDIX A. ONLINE MANUSCRIPT SUBMITTAL

Before submitting manuscripts, please review these guidelines and ensure that your manuscript is formatted accordingly. Manuscripts that seriously deviate from the requested format will be returned to authors, which could result in unnecessary delays. Submit manuscripts on either the *JWM* and *Wildlife Monographs* ScholarOne Manuscripts (S1M) website (<http://mc.manuscriptcentral.com/jwm>) or the *WSB* S1M website (<https://mc.manuscriptcentral.com/wsb>).

LOGGING IN TO YOUR SCHOLARONE ACCOUNT

To create a new S1M account or find out if you already have an account, go to the S1M website, click ‘Register here,’ and provide the requested information. Please note that you do not have to be an author to have an account. If you forget your login name or password, enter your email address into the ‘Password help’ link on the S1M main page, enter the requested information, and S1M will email you your login name and a temporary password. If you do not receive the email within a few hours, please contact the editorial office.

A set of menu options is available from the main navigation menu at the top of the screen. On the login screen enter your username (often your email address) and password and click on the ‘**Log In**’ icon.

SUBMIT A NEW MANUSCRIPT

To submit a new manuscript, enter your author center, click Start New Submission and follow the step-by-step instructions provided in S1M.

APPENDIX B. LITERATURE CITED

A list of example citations follows.

BOOKS: GENERAL FORMAT

309 *Note:* If the state appears in the publisher or agency name, do not repeat it after the city.

310 Kleinbaum, D. G., L. L. Kupper, A. Nizam, and K. E. Muller. 2008. Applied regression analysis
311 and other multivariable methods. Fourth edition. Duxbury, Belmont, California, USA.

Miller, K. V., and L. Marchinton. 1995. Quality whitetails: the why and how of quality deer
management. Stackpole, Mechanicsburg, Pennsylvania, USA.

BOOKS: MORE THAN ONE PUBLISHER

Gutiérrez, R. J., A. B. Franklin, and W. S. LaHaye. 1995. Spotted owl (*Strix occidentalis*).

Account 179 in A. Poole and F. Gill, editors. The birds of North America. The Academy
of Natural Sciences, Philadelphia, Pennsylvania, and The American Ornithologists'
Union, Washington, D.C., USA.

Sowls, L. K. 1955. Prairie ducks: a study of their behavior, ecology, and management. Stackpole,
Harrisburg, Pennsylvania, and Wildlife Management Institute, Washington, D.C., USA.

BOOKS: MORE THAN ONE VOLUME

Palmer, R. S. 1976. Handbook of North American birds. Volume 2. Yale University Press, New Haven, Connecticut, USA.

BOOKS: EDITOR AS AUTHOR

Temple, S. A., editor. 1978. Endangered birds: management techniques for preserving threatened species. University of Wisconsin Press, Madison, USA.

BOOKS: REPRINT

Leopold, A. 1933. Game management. 1946, Reprint. Charles Scribner's Sons, New York, New York, USA.

BOOKS: CHAPTER

Zeleny, L. 1978. Nesting box programs for bluebirds and other passerines. Pages 55–60 in S. A. Temple, editor. Endangered birds: management techniques for preserving threatened species. University of Wisconsin Press, Madison, USA.

COURT CASES

Cite complete title and year of case in text only.

FOREIGN LANGUAGE PUBLICATIONS

Angulo, E. 2003. Factores que afectan a la distribución y abundancia del conejo en Andalucía. Dissertation, Complutense University, Madrid, Spain. [In Spanish.]

GOVERNMENT PUBLICATIONS

Lull, H. W. 1968. A forest atlas of the Northeast. U.S. Forest Service, Northeast Forest and Experiment Station, Upper Darby, Pennsylvania, USA.

GOVERNMENT PUBLICATIONS: PART OF A NUMBERED SERIES

Anderson, D. R. 1975. Population ecology of the mallard: V. Temporal and geographic estimates of survival, recovery, and harvest rates. U.S. Fish and Wildlife Service Resource Publication 125, Washington, D.C., USA.

GOVERNMENT PUBLICATIONS: AGENCY AS AUTHOR

National Research Council. 1977. Nutrient requirements of poultry. Seventh edition. National Academy of Science, Washington, D.C., USA.

Note: Cite in text as National Research Council (1977) or parenthetically as (National Research Council 1977).

JOURNALS: GENERAL FORMAT

Note: Issue numbers are included only if the pages of each issue are numbered separately.

Bélisle, M., and A. Desrochers. 2002. Gap-crossing decisions by forest birds: an empirical basis for parameterizing spatially-explicit, individual-based models. *Landscape Ecology* 17:219–231.

Cox, W. A., F. R. Thompson III, B. Root, and J. Faaborg. 2012. Declining brown-headed cowbird (*Molothrus ater*) populations are associated with landscape-specific reductions in brood parasitism and increases in songbird productivity. *PLoS ONE* 7(10):e47591.

Miller, M. R. 1986. Molt chronology of northern pintails in California. *Journal of Wildlife Management* 50:57–64.

JOURNALS IN PRESS: YEAR AND VOLUME KNOWN

Polasik, J. S., M. A. Murphy, T. Abbott, and K. Vincent. 2016. Factors limiting early life stage survival and growth during endangered Wyoming toad reintroductions. *Journal of Wildlife Management* 80:in press. doi:10.1002/jwmg.1031

JOURNALS IN PRESS: YEAR AND VOLUME UNKNOWN

Note: Manuscripts in review may not be included in the Literature Cited.

Giudice, J. H., and J. T. Ratti. In press. Biodiversity of wetland ecosystems: review of status and knowledge gaps. *Bioscience*.

MULTIPLE CITATIONS FOR THE SAME FIRST AUTHOR

Note: List in alphabetical order by second author (then third, fourth, ...), then chronological for identical authorship. Order *a* and *b* as they appear in the literature cited not the order they appear in text.

Peek, J. M. 1970. A review of wildlife management. Prentice-Hall, Englewood Cliffs, New Jersey, USA.

Peek, J. M., and A. L. Lovaas. 1968. Differential distribution of elk by sex and age on the Gallatin winter range, Montana. *Journal of Wildlife Management* 32:553–557.

Peek, J. M., A. L. Lovaas, and R. A. Rouse. 1968*a*. Population changes within the Gallatin elk herd, 1932–1965. *Journal of Wildlife Management* 31:304–316.

Peek, J. M., and R. A. Rouse. 1966. Preliminary report on population changes within the Gallatin elk herd. *Wildlife Science* 82:1298–1316.

Peek, J. M., R. A. Rouse, and R. L. Smith. 1968*b*. Elk survival in a fragmented landscape. *Journal of Wildlife Management* 31:1–5.

NEWSPAPER, NEWSLETTER, AND MAGAZINE ARTICLES

Associated Press. 1997. Feathers could fly over dove hunting. *Columbus Dispatch*. 28 December 1997; section E:15.

Eisler, P. 1996. Voters to get a shot at hunting laws. *USA Today*. 25 April 1996; section A:4.

Hogan, M. 1997. Political season as important as hunting season. *Safari Times* 9(8):18.

Jones-Jolma, D. 1993. The fight to reform trapping in Arizona. *Animals' Agenda*. March–April:20–24.

Note: Citing from newspapers, newsletters, and magazines is discouraged and is only acceptable in certain rare circumstance (e.g., in manuscripts dealing with public perceptions).

SOFTWARE PACKAGES

SAS Institute. 2001. Version 8.02 user manual. SAS Institute, Cary, North Carolina, USA.

Note: For statistical software packages, include the software in Literature Cited only if you are referencing the software manual. If you are only referencing the software program, please see [Citing Equipment and Statistical Software](#).

SYMPOSIA AND PROCEEDINGS: COMPLETE VOLUME

DeGraaff, R. M., technical coordinator. 1978. Proceedings of workshop on management of southern forests for nongame birds. U.S. Forest Service General Technical Report SE-14, Washington, D.C., USA.

SYMPOSIA AND PROCEEDINGS: INDIVIDUAL ARTICLE

Dickson, J. G. 1978. Forest bird communities of the bottomland hardwoods. Pages 66–73 in Proceedings of workshop on management of southern forests for nongame birds. R. M. DeGraaf, technical coordinator. U.S. Forest Service General Technical Report SE-14, Washington, D.C., USA.

SYMPOSIA AND PROCEEDINGS: PART OF A NUMBERED SERIES

Palmer, T. K. 1976. Pest bird control in cattle feedlots: the integrated system approach. Proceedings of Vertebrate Pest Conference 7:17–21.

SYMPOSIA AND PROCEEDINGS: COMPLETE VOLUME (NOT PART OF A NUMBERED SERIES)

McAninch, J. B. 1995. Urban deer: a manageable resource? Proceedings of the symposium of the 55th Midwest Fish and Wildlife Conference. North Central Section of The Wildlife Society, 12–14 December 1993, St. Louis, Missouri, USA.

SYMPOSIA AND PROCEEDINGS: INDIVIDUAL ARTICLE (NOT PART OF A NUMBERED SERIES)

Stout, S. L., and R. Lawrence. 1996. Deer in Allegheny Plateau forests: learning the lessons of scale. Pages 92–98 in Proceedings of the 1995 Foresters Convention. Society of American Foresters, 28 October–1 November 1995, Portland, Maine, USA.

THESES AND DISSERTATIONS

Breitwisch, R. J. 1977. The ecology and behavior of the red-bellied woodpecker, *Centurus carolinus* (Linnaeus; Aves: Picidae), in south Florida. Thesis, University of Miami, Coral Gables, Florida, USA.

Tacha, T. C. 1981. Behavior and taxonomy of sandhill cranes from mid-continental North America. Dissertation, Oklahoma State University, Stillwater, USA.

WEB CITATIONS

Council of Biology Editors [CBE]. 1999. CBE homepage. <<http://www.councilscienceeditors.org>>. Accessed 7 Oct 1999.

National Oceanic and Atmospheric Administration [NOAA]. 2005. National Weather Service internet services team. Monthly precipitation for Reno, Nevada. <http://www.wrh.noaa.gov/rev/hydrology/monthly_precip.php>. Accessed 23 Aug 2005.

APPENDIX C. ABBREVIATIONS FOR TABLES, FIGURES, AND PARENTHETIC EXPRESSIONS

Abbreviate the following terms when used within parentheses, table bodies, and figures (not table titles and figure captions unless used parenthetically) unless they would introduce unclear presentation. Abbreviate all standard measurement units (indicated with an asterisk) in the text when they appear after a number, but do not abbreviate other listed terms in regular text. Do not define terms listed in this table; however, all additional abbreviations must be defined the first time they appear in the text.

Term	Abbreviation or symbol	Term	Abbreviation or symbol
Approximately	~	Meter	m*
Calorie	cal*	Minimum	min.
Celsius	C*	Minute	min
Chi-square	χ^2	Month names	Jan, Feb, etc.
Confidence interval	CI	More than, greater than	>*
Confidence limit	CL	Multiple correlation	R^2
Correlation, simple	r	Parts per billion	ppb*
Determination, multiple	R^2	Parts per million	ppm*
Determination, simple	r^2	Percent	%*
Degrees of freedom	df	Population size	N
Diameter, breast height	dbh	Probability ^a	P
Directions	N, S, NE, SW, etc.	Sample size	n
Equation(s)	eq(s)	Sample mean (of x)	\bar{x}
Fewer than, less than	<*	Second	sec
F ratio	F	Spearman rank correlation	r_s
Gram	g*	Standard deviation(s)	SD
Hectare	ha*	Standard error(s)	SE
Hour(s)	hr	Student's t	t
Joule	J*	Temperature	temp

Kilocalorie	kcal*	Variation	CV
Lethal concentration, 50%	LC ₅₀	Versus	vs.
Lethal dose, median	LD ₅₀	Volt	V*
Liter	L*	Volume: liquid, book	vol, Vol.
Logarithm, base <i>e</i>	ln or log _e	Year(s)	yr
Logarithm, base 10	log ₁₀	Z-statistic	Z
Maximum	max.		

^a Use *P* to indicate a specific probability value (e.g., $P < 0.001$) but not in more broad definitions in column-headings or axis labels (e.g., We calculated the probability that a juvenile survives first month).

