ABSTRACT  These guidelines present Journal of Wildlife Management (JWM) policies and procedures for submitting, reviewing, and editing manuscripts. In 2007 peer-reviewed Wildlife Society Bulletin (WSB) articles were combined with JWM articles to form the new JWM. These guidelines address that transition and update the Guidelines of Block et al. 2007. Appendices are included for assistance in on-line submittal (Appendix A), literature cited (Appendix B), and required abbreviations (Appendix C).

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

Please note that the format of manuscripts submitted for review differs from the printed format of published manuscripts. As of January 2007, Journal of Wildlife Management (JWM) and the Wildlife Society Bulletin (WSB) merged to create the new JWM. Submit peer-reviewed manuscripts to JWM, and submit peer-edited articles and obituaries to The Wildlife Professional,
which is received as a The Wildlife Society (TWS) member benefit. *The Wildlife Professional*


Publishing a professional paper proceeds most smoothly if authors understand the policy, procedures, format, and style of the outlet to which they are submitting a manuscript. These instructions supersede all previous guidelines. Papers that clearly deviate from this format and style may be returned for correction before review. We hope these guidelines will make that unnecessary.

These Guidelines apply to all *JWM* submissions. For authors with experience and knowledge of previous *JWM* or *WSB* guidelines, it may be helpful to identify and review substantial changes. Fundamental changes include: 1) a submission section that outlines the electronic submission process, 2) an equation box section that specifies acceptable in-text equation box use, 3) detailed instructions about online references, and 4) unified formatting for Literature Cited. Please review this document for many additional, minor changes.

**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 refereed journals precludes review or publication in *JWM* (see additional information in the Previous Publication section below). Fisheries manuscripts are discouraged unless information is part of an account that mainly concerns terrestrial vertebrates.
The *JWM* only accepts manuscripts submitted electronically via AllenTrack (AT). You can register for an account (which will give you a homepage in AT), log in to an existing account, submit a manuscript for review, and track the progress of your manuscript at http://jwm.allentrack.net/. Before submitting a manuscript, see instructions on how to use AT (Appendix A).

**Cover Letter**

Each publication is managed by an Editor-in-Chief (EIC). Direct cover letters to the Editor-in-Chief (EIC) and provide information that bears on ethical and copyright considerations (Council of Biology Editors [CBE] Style Manual Committee 1994:599–600) and other information that might facilitate review and editing. Cover letters must indicate that your manuscript is submitted for exclusive consideration by *JWM*. Without the exclusive consideration statement, the EIC will not initiate review. The statement ensures that data and findings have not been published previously or submitted elsewhere for simultaneous consideration.

**Previous Publication**

Guidelines for previous publication are flexible in certain instances, such as technical analyses of findings published previously for lay audiences. Kendall (1981) elaborated on the seriousness of dual publication, and *JWM* subscribes to these standards. If any portion of the manuscript has been published or reported elsewhere, explain all similarities between information in the manuscript and the other publication, and furnish a citation of such publications or manuscripts.

A paper is considered published 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
Has been published as part of a numbered series by an agency.

Is a symposium proceeding. The JWM will consider symposium proceedings on a case-by-case basis. Contact the EIC for approval before submitting your symposia proceeding.

A paper is not considered published if it:

1. Is a thesis or dissertation, but these need to be cited in the manuscript (see Citing Literature in Text below).

2. Is a brief abstract of a talk given at a meeting.

3. Is an unpublished report required by sponsors and not distributed as part of a numbered series or in other ways that might result in accession by libraries.

Page Charges

Page charges are mandatory and the submitting author is required to acknowledge that she or he accepts responsibility for page charges should the manuscript be accepted for publication. All manuscripts are subject to page charges except Letters to the Editor and Book Reviews. Color plate fees will be invoiced prior to production of page proofs.

If any author is a member of The Wildlife Society, page charges are as follows:

$90 for the first 8 pages
$150 for every page thereafter
$650 per color plate

If none of the authors is a member of The Wildlife Society, page charges are as follows:

$150 per page
$650 per color plate

**Copyright**

If a manuscript not in the public domain is accepted for publication, authors or their employers must transfer copyright to TWS. If the article is single authored by a U.S. government employee as part of his/her official duties, it is understood that the article is not copyrightable. It is called a “Work of the U.S. Government” and is in the public domain. However, if the article was not part of the employee’s official duties, it may be copyrighted. If the article was jointly written by government and nongovernment employees, the authors understand that they are delegating the right of copyright to the nongovernment employee, who must sign the copyright agreement. Manuscript submission implies entrusting copyright (or equivalent trust in public-domain work) to the Editor until the manuscript is rejected, withdrawn, or accepted for publication. If accepted, TWS retains copyright. Copyright forms are available at: http://joomla.wildlife.org/index.php?option=com_content&task=view&id=43&Itemid=70.

**Freedom of Information Act**

The Freedom of Information Act (FOIA), Title 5 of the United States Code, section 552, generally provides that any person has the right to request access to federal agency records or information. All agencies of the U.S. Government are required to disclose records upon receiving a written request, except those records that are protected from disclosure. If TWS or JWM receives a FOIA request for information for any part of a manuscript that is under review at JWM, the manuscript will be immediately rejected so the review process is not compromised. Authors will not have the opportunity to resubmit the manuscript. The JWM encourages authors to closely adhere to our Embargo Policy when discussing their paper before publication.
The Wildlife Society and Journal of Wildlife Management reserve the right to halt the consideration or publication of a paper if the Embargo Policy is broken. The JWM Embargo Policy follows:

- No news coverage of the paper can appear anywhere before 12:01 am (midnight) on the issue mailing date. 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 issue mail dates, please contact JWM staff (jwm@wildlife.org).

- Please do not participate in news conferences until after 1:00 p.m. Eastern U.S. Time the day before publication.

- Authors with papers in production may speak with the press about their work. However, authors should not give interviews on the work until the week before publication, and then only if the journalist agrees to abide by the JWM embargo.

- Authors are welcome to present the results of their upcoming papers 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 paper, data, overheads, or slides to reporters.

SUBJECT MATTER

The JWM publishes manuscripts containing information from original research that contributes
to the scientific foundations of wildlife management. 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. The *JWM* papers 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 that are germane to advancing the science of wildlife management.

Methods and techniques papers are suitable for *JWM* only if they address new research methods and techniques that pertain to wildlife management and science. We accept submissions to the following sections:

1. **Management and Conservation.** These papers describe the effects of specific practices or policies on populations of animals or plants. Examples include 1) effects of agriculture, livestock, forest, or range management practices; 2) effects of practices directed toward wildlife or its habitat, such as supplemental feeding, food plots or food plantings, cover plantings, prescribed burning, brush or tree-canopy reduction, soil disturbance, and habitats created by humans; 3) methods of reducing damage caused by wildlife, including translocation, aversive conditioning, population reduction, chemical application, scare device installation, and related practices; 4) tests of harvest regulations or procedures or effects of harvest management on populations; and 5) effects of private or governmental policy on wildlife.

2. **Human Dimensions of Wildlife Management.** These articles discuss sociology, values, attitudes, perceptions, and psychology of natural resource stakeholders and managers. Examples include: 1) contributions on political or legal issues, 2) special topics in wildlife management, 3) environmental impacts, 4) refinement of state or federal natural
resource programs or policies, 5) administration of wildlife programs or agencies, 6) regional or national surveys of wildlife management programs or policies, 7) social movements affecting wildlife management, and 8) economics of wildlife management. These articles also address the principles, logic, and ethics under which wildlife managers and the profession operate. These articles may also address education of natural resource stakeholders, hunter education, university curricula, and related topics.

3. **Techniques and Technology.** These manuscripts report a significant evaluation of, or improvement upon, techniques used frequently in management (e.g., counting or surveying populations to determine effects of management; sexing, aging, capturing, and handling wildlife). We also welcome manuscripts that describe computer software that has application to wildlife management and research.

4. **Student Voices.** These articles discuss issues of particular relevance to students within the natural resources field or are award-winning or otherwise outstanding student-authored essays. These articles are designed to provide students with opportunities to express themselves in a prominent outlet used by professionals in their field.

5. **Commentaries and Remarks.** These articles are essays that question values, priorities, precepts, and philosophical foundations under which wildlife management operates. These articles 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 impact wildlife or its habitat, and subject area can be broad. The manuscript must be well documented and prepared professionally. The purpose of this feature is to get important information in print in a timely fashion. The EIC appoints an Associate Editor for these articles.
6. **Letter to the Editor.** The EIC has the option to solicit invited papers that review and synthesize important topics that pertain to the scientific foundations of wildlife management. However, we encourage anyone to contact the EIC with potential topics and author(s). Invited Papers must include a management implications section, are not necessarily subject to peer review, and are not subject to page charges.

7. **Book Reviews.** Book reviews provide a brief synopsis and commentary on a book relevant to some aspect of the natural resources field.

**Replication of Treatments**

Hurlbert (1984) pointed out that field researchers have frequently misused inferential statistics because treatments were not replicated. However, because of the nature of field research, true replication sometimes will not be feasible. Guthery (1987) presented guidelines for authors and reviewers of manuscripts based on unreplicated treatments.

**FORMAT AND STYLE**

Manuscripts must adhere to *JWM* guidelines before they will be approved and sent out for review.

**Manuscript Types**

The *JWM* and *Wildlife Monographs* consider manuscripts of varying lengths. The page numbers noted below include Literature Cited, tables, and figures. All text must be double-spaced in Times New Roman font. Select from the following submission options based on the length of your manuscript:

1. ≤20 pages: *JWM* Research Note. Notes provide an outlet for publication of information that is relevant and important, but that is lacking in spatial or temporal replication. Notes are not designed to serve as an outlet for publication of research that lacks
appropriate scope or is better suited for regional or other outlets. Notes may be submitted to the following sections: Management and Conservation, Human Dimensions of Wildlife Management, Techniques and Technology, and Student Voices.


3. 51–79 pages: *JWM* Article or Wildlife Monograph. The *JWM* EIC will decide on the appropriate submission venue for these manuscripts on a case-by-case basis.

4. >80 pages: Wildlife Monograph.

**Page Format**

Upload files in the following order:

1. Cover letter

2. Text arranged as follows: manuscript text, Literature Cited, figure captions (not figures), and tables.

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 a single figure as they are meant to appear in print. Failing to do so may result in additional charges during typesetting.

Allen Track converts all submitted files to PDF files for initial evaluation and review. To ensure accurate conversion of manuscripts, we only accept text and table files in the following formats: Word, html, and rtf. We only accept figure files in the following formats: .tif, .jpg, .pdf, .eps, .xls, and .ppt.. Do not submit files in Word Perfect, including equations that were not created
within the standard Word template. We cannot accept .docx files. We recommend creating equations using older versions of Word. Equations formatted in .docx cannot be automatically converted to .doc equations.

**General guidelines:**

1. Double space all text, including title, authors’ addresses, text, long quotations within text, literature citations, table footnotes, table titles, table bodies, and figure titles.

2. Do not break (hyphenate) words on the right margin.

3. Do not justify the right margin.

4. Use Times New Roman font, 12-point type throughout the manuscript, including title and headings.

5. Italicize words or symbols, such as scientific names and mathematical symbols that should appear italicized in print.

6. Do not use italic or boldface type for emphasis.

7. Maintain margins of 2.5 cm (1 inch) on all sides of the page.

**Title Page: Running Head, Title, and Authors**

The following guidelines apply to all text files. On page 1 single-space the following information in the upper left corner: date (update with each revision) and the corresponding author’s name, address, telephone, fax, and e-mail (as in this document). Thereafter, double-space all text including authors’ addresses, the title of the paper, figure legends, and tables. If the corresponding author’s email address changes following submission of the manuscript, update the user profile on the AT 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. 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 \( \leq 2 \) authors. For \( \geq 3 \) authors, use the name of the first author followed by “et al.” (e.g., Foster et al.). For example:

**RH:** Chamberlain et al. JWM Manuscript Guidelines

The title follows the RH and is left-justified in bold font, sentence-case letters, with important words capitalized as in the RH. The title identifies manuscript content and may not include abbreviations, acronyms, or punctuation. Titles should not exceed 10 words unless doing so forces awkward construction. Do not use scientific names in the title except for organisms that do not have, or are easily confused by, common names. Do not use numbers in titles or the RH.

Authors’ names are left-justified in all capital letters. Each name is followed by the author’s affiliation in sentence-case, 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 5 spaces using the hanging indent function. In each address, use available United States Postal Service (USPS) abbreviations, zip codes, and the country (abbreviate “USA,” but spell out all others). See the following websites for USPS abbreviations: http://www.usps.com/ncsc/lookups/abbreviations.html#states and http://canadaonline.about.com/library/bl/blpabb.htm. Write out words like Street, Avenue, and Boulevard, but abbreviate directions (e.g., N. and N.W.). For multiple authors with the same address, repeat the address after each author’s name.

**Footnotes**

Insert footnotes using the footnote function. Footnotes may only be used to note an 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 starts with a numerical superscript. Incorporate endorsement disclaimers and pesticide warnings in the text. For information on table footnotes, see the Tables section.

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

1) Problem studied or hypothesis 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 in the Results (keep the methods brief unless a new, greatly improved method is reported).

3) Results. Emphasize the most important results, positive or negative.

4) Utility of results. 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, typed in bold font) is followed by a regular space and ≤10 key words in alphabetical order, ending with a period. Include some 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, radiotelemetry, 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. After key words, right justify the Journal name and place holders for publication information in bold font.

For example:

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

The Journal of Wildlife Management: 00(0): 000–000, 200X
Using the Header function, insert page numbers and author name(s) (e.g., Smith, Smith and Jones, Smith et al.) on all pages following the title page. These notations help keep the manuscript sections together during reviewing, editing, and typesetting. Number each line of the text continuously (i.e., do not restart numbering on each page).

**Headings**

Examples of the 3 heading types follow:

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

   STUDY AREA

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

   **Burrow Availability Hypothesis**

3. Third-level heading: indented 5 spaces, italicized, and followed by a period and em dash. Text follows directly after the heading on the same line. For example:

   Assessment of available natural burrows.— Begin paragraph text here.

Under a first-level heading, use only third-level headings if the subsections are short (≤2 paragraphs). Avoid repeating exact wording of the heading in the text following second- and third-level headings. Use first-level heading for appendix titles.

**Major Sections of Manuscript**

The introduction (no heading) starts below the publication name and contains a concise synthesis of literature specific to the manuscript’s main topic. In the latter part of this section, state the objectives of the study and the hypotheses tested.

Articles must include the following first-level headings: Abstract, Introduction (no
heading required), Study Area, Methods, Results, Discussion, Management Implications, Acknowledgments, and Literature Cited. Notes must include the following headings: 1) first-level headings: Abstract, Introduction (no heading required), Study Area, Methods, Results, Discussion, and Literature Cited; 2) second-level headings: Management Implications and Acknowledgments. No additional subheadings are allowed. 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.

Use past tense for Study Area descriptions (e.g., average annual precipitation was 46 cm, habitat 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. Write the Methods in the active voice (i.e., write “We recorded age, sex, and mass...” and “We analyzed data using logistic regression,” rather than “Age, sex and mass were recorded” or “Logistic regression was used”; see Style and Usage section below). Cite previously published methods without explanation. Identify new or modified methods and explain them in detail. Include animal-welfare 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; do not explain analyses that should have been described in the Methods section. Always try to describe the magnitude of the biological effect in addition to 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 giving the actual difference conveys little meaning to the reader. For example, stating that “\( A \) was 25% larger than \( B \) \( P < 0.001 \)” conveys more information than simply stating that “\( A \) 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.

The Acknowledgments (note preferred spelling) section appears immediately before Literature Cited. This section should be brief and include initials (rather than first names) of individuals cited. Acknowledgments should be straightforward without ornate and qualifying adjectives or personal remarks. For example: “We thank G. A. Baldassarre, M. Boyce, C. E. Braun, H. E. Hodgdon, R. L. Lee, and M. Kirsch for review comments and contributions to this manuscript. G. C. White assisted with revision of the mathematics and statistics subsection. 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. L. M. Smith was supported by the Caesar Kleberg Foundation for Wildlife Conservation.”

**Literature Cited**

Refer to detailed instructions on how to format citations (Appendix B). Maintain double-spacing
and use hanging indents (rather than blank lines) to differentiate between citations. Present citations within the manuscript in chronologic order and then alphabetic order. Spell out all author names in sentence case lettering instead of using dashes. Present citations within the Literature Cited section in alphabetic order and then chronologic order. At the end of the Literature Cited section type “Associate Editor:” (the name of the Associate Editor will be filled in later).

**Figure Legends and Tables**

On a new page following the Literature Cited, compile figure captions (not figures) and tables. Submit figures as a separate file(s). Label and mount figure parts (e.g., Fig 3A, Fig 3B) together into a single figure as they are meant to appear in print. Failing to do so may result in additional charges during typesetting. Note that although AT provides spaces to enter figure and table captions, these captions do not carry over to the merged file; they are for on-line reviewing only.

**Appendices**

Include appendices in the text file after all tables and figure captions. Use first-level headings for Appendix titles.

**STYLE AND USAGE**

Manuscripts with publishable data may be rejected because of poor writing style (e.g., long and complex sentences, superfluous words [Table 1], 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. We urge authors to review chapters 3 and 4 in the “CBE Style Manual” (CBE Style Manual Committee 1994) and “Writing with Precision, Clarity, and Economy” (Mack 1986). Use a direct and concise writing style and minimize repetition among different 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. Other helpful suggestions are presented by Strunk and White (1979), Day (1983), and Batzli (1986). 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.” Review the list of commonly misused words before preparing your manuscript (Table 2).

Do not hyphenate words at the right margin, and do not right-justify text. Set margins at 2.5 cm (1 inch) on all sides. Do not violate margin boundaries to begin a new paragraph or to place the Literature Cited at the top of a new page (i.e., do not leave >2.5 cm of space at the bottom of a page except to prevent a widow heading). Do not underline, italicize, or boldface words in the text to indicate emphasis. Type scientific names in italic font and type Latin phrases in plain type (e.g., post hoc, a priori).

**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., at least one escaped), in which case the number is spelled out. Indicate units after each item (e.g., elevations ranged 3,000 m to 5,000 m) and use symbols or abbreviations (e.g., % and kg) for measurement units that follow a number unless the number is indefinite (thousands of hectares), is a “0” (zero) or “1” (one) standing alone, or is the first word in a sentence. In such cases spell out the number and unit name or recast the sentence. 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
(1/4, 1/3, etc.) to decimals except where they misrepresent precision.

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 ≥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).

**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). Do not underline or italicize numbers, Greek letters (e.g., chi-square, \(\chi^2\)), names of trigonometric and transcendental functions, or certain statistical terms (e.g., ln, E, exp, max, min, lim, SD, SE, CV, and df). Report degrees of freedom used in a statistical test as subscripts to the relevant test statistic. Use bold font for items that should be set in boldface type. Insert symbols from your word processing program’s symbol directory as opposed to creating the symbol with keyboard functions (e.g., chi-square should appear as \(\chi^2\) [found in the symbol directory], as opposed to \(X^2\) [created with keyboard functions]). Use the minus sign from the symbols menu (\(-\)) to indicate minus and negative values instead of using the keyboard hyphen. Use times (\(\times\)) to indicate multiplication or dimensions instead of using an asterisk (*) or a lowercase x.

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. Follow Swanson (1974) or the CBE Style Manual Committee
(1994:206–218) for general guidance, and follow MacInnes (1978) for advice on presentation of
statistics. Type the names of statistical programs or analytical methods (that are not acronyms)
in capital letters (e.g., PROC LIFEREG, POPGEN, Program MARK). See instructions on how
to cite statistical software packages (Appendix B). We urge authors to read Tacha et al. (1982)
and Wang (1986) for reviews of common statistical errors. Consider statistical power when
judging results (JWM 59:196–198).

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: \( (t_1 = 2.47, P = 0.013) \), \( (F_{3,12} = 33.10, P =
0.01) \), \( (\chi_{10}^2 = 22.1, P = 0.029) \), or \( (\bar{x} = 7.8, SE = 3.21, n = 46) \). Note that the appropriate degrees
of freedom are subscripted with the test statistic. Present \( P \)-values less than 0.001 as \( P \leq 0.001 \).

Equations

Equations require precise internal spacing and formatting, and are most easily correctly
constructed with MathType software. Simple mathematical expressions, such as symbols with
simple subscripts or superscripts and Greek letters can be typed as text, using the symbol
directory. However, care must be taken to 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 MathType. For example, the Greek letter phi can be represented by both
\( \varphi \) and \( \phi \), 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 the software, as does proper construction of the symbol for an estimated mean (\(\bar{x}\)). Submit complex equations as display equations in equation boxes: 1) characters that have hats, tildes, or other expressions that would not translate well into straight text; 2) sums, products, and similar statements; and 3) brackets around matrices and complex expressions. 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. 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 following abbreviations may be used in the text without definition: metric units, DNA, USPS abbreviations, and certain measurement units (see 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], Global Positioning System [GPS], 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).

### 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. Do not hyphenate prefixes, suffixes, or combining forms unless
necessary to avoid confusion. 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., 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).

However, excessive use of compound modifiers before nouns makes for difficult reading and tends to obscure the subject. Avoid ambiguous use of nouns as modifiers (e.g., wolf researchers, woman 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., radiotelemetry locations of dens in fall, not fall den radiotelemetry locations).

Closing quotation marks are always placed after periods and commas, but they may be placed either before or after other punctuation (CBE Style Manual Committee 1994:177–181). 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 [CBE Style Manual Committee 1994:58–59]).

Do not use a slash (/) to indicate "and" or "or" or to express a range; use only to indicate "divided by" or "per." Avoid using words in ways other than their standard meanings; use quotation marks to imply a special meaning sparingly. 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). Provide manufacturer information (manufacturer, city, and state or country of manufacture) immediately following the first use of a product name. Do
not include manufacturer information or location for GIS and GPS.

**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 below).

**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; e.g., 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 where disagreement occurs. As general references for birds, use the most current edition of The American Ornithologists’ Union Check-list (e.g., 1997) and periodic supplements published in *Auk*. For mammals, use Whitaker (1996). There is no single reference for plants in North America; cite the most widely accepted regional flora reference (e.g., in northwestern states,
Hitchcock and Cronquist [1973]). 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 (see 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 diam, and 2 mm wide; see section on Style and Usage). Use English units (or, rarely, another type of scientific unit) in parentheses following a converted metric unit only in cases that may misrepresent: 1) the statistical precision of the original measurement or 2) the correct interpretation of the results. However, these non-SI units are permitted:

1. Area: hectare (ha) in lieu of 10⁴ m²;
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, etc. in lieu of seconds (sec);
5. Volume: liter (L) in lieu of dm³.


**Securing Appropriate Approval(s)**

It is increasingly important that scientists ensure their research activities are conducted such that the welfare of the animals they are studying (e.g., installing radiotransmitters) or the rights of human subjects (e.g., sending them a survey) is considered. Consequently, it is important that all peer-reviewed manuscripts submitted for publication demonstrate that these concerns have been
addressed. Include documentation in the Methods section.

*Animal care.*—Appropriate documentation that proper animal care and use was applied when using live vertebrate animals for research must be provided. Acceptable means of documentation 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 the equivalent. This policy covers all vertebrate animals, including mammals, birds, reptiles, amphibians, and fish.

*Human subjects.*—Appropriate documentation that proper approval was obtained to perform research involving human subjects (primarily surveys) must be provided. Acceptable means of documentation include a Human Subjects Protocol number (as designated by most U.S. universities) or the equivalent.

**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., (Jones 1980a, b; Hanson 1981; White 1985, 1986). 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., “We used Neyman allocation to minimize variance (Krebs 1989:216).” Use the same style for a book
or other lengthy publication unless the reference is to the entire publication; e.g., Odum (1971:223).

Cite documents that are cataloged in major libraries, including theses and dissertations, as published literature. This includes symposia proceedings and United States Government reports that have been widely distributed. However, cite such references as unpublished if they are not easily available. 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. This includes 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. 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, Alaska Department of Fish and Game, unpublished report) or (E. J. Jones, North Carolina State University, unpublished report);

Abbreviate state names in parentheses except when they appear in the title of an academic institution or agency. 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).

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). Do not include manufacturer
information or location for GIS and GPS. For statistical software, only include the software in
LITERATURE CITED if you are referencing the software manual. Otherwise simply include
manufacturer information (manufacturer, city, and state or country of manufacture) immediately
following the first use of the statistical product name. Include website access information in
citations if the program is only available online.

**TABLES AND FIGURES**

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.
Do not combine multiple tables or figures on one page. In the text, limit reference of tabular data
to highlights of the most important information. Reference tables and figures parenthetically
(Table 1, Fig. 3) and avoid statements such as, “The results are shown in Tables 1–4.” Prepare
line drawings only for data that cannot be presented as clearly in a table. For general guidance

Tables and figures should be able to stand alone (i.e., be self-explanatory) and avoid
reference to the text. Accordingly, define relevant abbreviations and acronyms in each table and
figure (except items that appear in Appendix C). Table and figure titles must include the species
or subject of the data studied and when and where (region/state and country) the data were
collected. Do not include statistics (e.g. \( P \)-values) or other statements of results in the titles. 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. Combine figure legends on a separate page and include them with manuscript text (following Literature Cited). Include tables at the end of the text (following the figure captions or Literature Cited). Submit figures in AT separately from your text file. You may include all of your figures in one file or submit each figure file separately.

**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. Day (1983) presents a practical discussion of tables.

For data that must be shown in a table, items that provide the most important comparisons usually read vertically, not horizontally. Construct tables for column-width no wider than 85 mm (~3.5 inches) printing. If the table will not fit in one column width, construct it for page-width printing not wider than 18 cm (~7.25 inches). Some extra-wide tables can be printed vertically (e.g., *JWM* 50:192, 51:461), but such tables usually waste space. Extra-long and extra-wide tables require persuasive justification.

Table titles may vary, 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. Please note that even though AT provides boxes to insert table captions and figure legends, captions and legends must also be included at the end of the manuscript text file.

Avoid beginning the title with superfluous words (e.g., The…, Summary of…, and
Comparisons between…) and words that can be presented parenthetically as symbols or abbreviations (e.g., %). Symbols such as $n$ and % in the title seldom need repetition in table headings. Do not use abbreviations in table title, except within parentheses. However, use standard abbreviations and symbols (Appendix C) in the table body and in footnotes (Table 4).

The lines printed in tables are called rules, and they should be used according to the following standards:

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 a single, continuous line. Do not use bold or extra-thick rules.

3. Use rules that straddle subheadings within the column heading (e.g., JWM 50:48).

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, 16.2A, and 19.5B) where the superscript “a” references a footnote (e.g., “a” Means with the same letters are not different ($P > 0.10$); JWM 50:22). Upper-case letters may be used in a similar fashion to reference the relationship of data among columns (e.g., JWM 50:371).

6. Use straddle rules in column headings to join related columns and reduce wordage (e.g., JWM 50:31). Label columns to avoid unnecessary print in the data field. For example, instead of “$\bar{x} \pm SE$,” label $\bar{x}$ and SE separately so that ± need not be printed. Similarly, label sample size columns “n” instead of using numbers in parentheses in the data field. Keep column- and row-heading words out of the data field. Type main headings flush left, and indent their subheadings (e.g., JWM 50:86). For column- and row-headings, only capitalize the first word and proper nouns (e.g., No. of 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 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. Make certain that each footnote character in the title and table matches an explanation in a footnote that is indented below the table. Left-justify run-on lines of footnotes. Use footnotes to reduce cluttering the title and table with details. The most common errors in tables are single spacing, incomplete titles, naked decimal points, and ambiguous or unnecessary characters in the data field.

**Figures**

Most figures are either line (or computer) drawings or pictures (picture is used to distinguish scene or object photographs from photos of drawings). If possible, photographic prints should not exceed 20 × 25 cm. Do not submit color figures unless you are able to pay for printing ($650/color plate in Aug 2007). For additional guidance, consult Allen (1977), the CBE Style Manual Committee (1994:693–699), and Day (1983).

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 should allow the figure to be self-explanatory, describing the variables displayed and where and when data were collected. Do not include statistical results in the caption. Type the label of each figure (e.g., Figure 1, Figure 2) on the page containing that
Pictures.—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 × <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. Allen Press does not retouch or resize photos, so submit only print-quality images.

Line drawings.—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 (e.g., JWM 50:145).

Before revising the first sketch, determine the minimum height for letters, numbers, and other characters, which must be ≥1.5 mm tall after reduction for printing. Determine width in millimeters for the revised sketch. To determine the minimum height (mm) for characters, multiply the width by 0.0224 for column-width printing or 0.0109 for page-width printing. If in doubt as to printed width, use the column-width multiplier. The product is the minimum height in millimeters. Use at least the next larger character height available. Hand-drawn lines and lettering and typewriter characters are not acceptable. We recommend professionally prepared line drawings.

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 above and Appendix C). Identify arbitrary symbols by legend within the figure.
(preferred) or, for those normally available to the printer (e.g., CBE Style Manual Committee

**FORMAT FOR COVER ART SUBMISSIONS**

Submit cover art only after your manuscript has been accepted for publication. If you have a
photo that you would like us to consider, please email your photo as an attachment to
jwm@wildlife.org. We prefer EPS or tif files, and jpg files must be the highest resolution
(minimum of 300 dpi). Submissions must be pre-sized to 8 1/2 × 8 1/2 or larger. If your photo is
selected for cover art, you will need to complete a signed release form.

**REVIEW PROCESS**

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

The Editorial staff or EIC selects an AE who handles the initial review process. The
manuscript is assigned to ≥2 reviewers. All reviews are submitted electronically via AT.

Reviewers’ comments are sent to the AE, who usually takes 1 of 3 actions after assessing the
manuscript and review comments: 1) the manuscript is forwarded to the EIC with a
recommendation to publish without revision (extremely rare), 2) the manuscript is returned to the
author with review comments and suggestions for revision (ranging from minor to major), or 3)
the manuscript is rejected.

Several revisions may be necessary before the AE recommends rejection or acceptance to
the EIC. Typically, manuscripts returned to authors for revision must be resubmitted as a
revision on AT within 6 months or the manuscript will be rejected, requiring resubmission as a
new paper. However, the EIC may require revisions in less time, depending on circumstances
surrounding the paper. Final acceptance or rejection of manuscripts is decided by the EIC.
Typically, the EIC follows the AE’s recommendation but this is not guaranteed.

**Peer-Refereed Manuscripts**

The Editorial staff assigns peer-refereed manuscripts that have been approved for review to 2 qualified referees. The staff considers expertise, affiliation, geographic location, date of last review, and performance on previous reviews when selecting referees.

Referees are emailed and asked to complete their review within 3 weeks. Referees have immediate access to the manuscript once they accept the assignment. Reminder notices are sent on a regular basis until the review has been received. Despite these measures, it is sometimes necessary to replace delinquent referees. It may take >2 months before the AE receives a complete set of reviews.

Occasionally, the EIC or AE judges that a referee’s comments reveal biases, lack objectivity or detail, are illogical, or otherwise lack merit. In such cases the EIC or AE may request an additional review from an additional referee, or ask for a manuscript revision despite negative comments from 1 or 2 referees. A second opinion from referees who recommended rejection also may be requested, particularly on manuscripts that are considered further following major revisions.

Manuscripts returned to authors for revision must be revised and returned to the AE within a reasonable deadline set by the AE or the manuscript will be withdrawn from the review process, requiring resubmission of the manuscript for further consideration. Once a completed revision is returned, the revised manuscript is reviewed again by the AE (and sometimes sent out for additional peer review) and either rejected or forwarded to the EIC with a recommendation to accept the manuscript for publication. The revision process often requires several iterations
before the AE makes a final decision.

**Acceptance and Rejection Policies**

Final acceptance of manuscripts is decided by the EIC. The EIC bears final responsibility for the value and quality of materials that appear in *JWM* and makes decisions accordingly. These decisions may differ from referees' comments seen by authors and recommendations made by referees, including the AE. In rare instances, the EIC's decision to accept or reject a manuscript will not agree with the recommendation made by an AE.

In rendering a decision, the EIC evaluates the manuscript and comments of the review team. The following are some of the problems that typically result in rejection: 1) flaws in design or logic that make the results invalid, biased, or questionable; 2) failure to contribute new knowledge; 3) trivial subject matter; 4) previous publication of the same or closely related material; 5) subject matter of local rather than regional, national, or international interest; and 6) poor organization and presentation.

The author of a rejected manuscript may feel that referees’ comments support publication and that the editorial decision was wrong. The author should realize that the AE receives 2 sets of comments from each referee, one open and one confidential. The confidential evaluation may reveal weaknesses not mentioned in comments seen by the author. One referee may have discovered weaknesses missed by the other referees. Both confidential and open comments factor into the recommendation made to the EIC by the AE. Further, the EIC may identify problems missed by both referees and the AE.

**Appeal and resubmission.**—The author may question the reasons for rejection by writing the EIC, stating his or her case, and asking for reconsideration. Reconsideration of a rejected
A manuscript requires a convincing rebuttal letter from the author(s). Authors should not revise and resubmit the manuscript without first writing a letter requesting reconsideration, which saves time for the EIC and the author.

Accepted manuscripts.—Once a manuscript is accepted, it enters the queue for publication and usually is printed in the next available issue. Accepted manuscripts go through 2 stages before publication: 1) final edit by JWM staff for content-related issues and general formatting and 2) copyediting and typesetting by the production staff. Authors are contacted during both stages. All correspondence is conducted via email, so authors should make sure the email address on their homepage is current at all times. Authors will be given a reasonable amount of time to respond. Delays in submitting revisions may result in the manuscript being carried over to a future issue or even rejected.

Page proofs.—The final production stages of the TWS publications are handled by Allen Press (Lawrence, KS). Page proofs of each paper are created by Allen Press 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 their receipt. Corrections should be e-mailed, faxed, phoned in, or sent by overnight or 2-day delivery, depending on how complicated they are. It is important that authors clearly communicate their recommended changes, mark proofs clearly, or describe changes in detail. Make only essential changes to page proofs. Authors are allowed 5 minor changes to page proofs free of charge, and authors will be charged $5 per additional change. After the issue goes to print, authors will receive a bill for changes made to page proofs.

ACKNOWLEDGMENTS

These guidelines have been compiled from previous versions of Journal of Wildlife Management
and *Wildlife Society Bulletin* guidelines and were compiled by the cooperative efforts of J. Wallace, R. Britton, T. Estabrook, and C. Johnson. We gratefully acknowledge the work of those previous authors that made this effort easier. We also thank our authors, reviewers, AEs, and EICs, past, present, and future.

**LITERATURE CITED**

Allen, A. 1977. Steps toward better illustrations. Allen Press, Lawrence, Kansas, USA.


Swanson, E. 1974. Mathematics into type: copy editing and proofreading mathematics for editorial assistants and authors. American Mathematics Society, Providence, Rhode Island, USA.


Note: Many citations that were used in the guidelines text as examples do not appear in the Literature Cited section above.

Immediately below the Literature Cited section type the following in italics:

Associate Editor:
Table 1. Common expressions with superfluous words

<table>
<thead>
<tr>
<th>Superfluous wording</th>
<th>Suggested substitute</th>
</tr>
</thead>
<tbody>
<tr>
<td>the purpose of this study was to test the</td>
<td>I (or we) hypothesized</td>
</tr>
<tr>
<td>hypothesis</td>
<td></td>
</tr>
<tr>
<td>in this study we assessed</td>
<td>we assessed</td>
</tr>
<tr>
<td>we demonstrated that there was a direct</td>
<td>we demonstrated direct</td>
</tr>
<tr>
<td>were responsible for</td>
<td>caused</td>
</tr>
<tr>
<td>played the role of</td>
<td>were</td>
</tr>
<tr>
<td>on the basis of evidence available to date</td>
<td>consequently</td>
</tr>
<tr>
<td>in order to provide a basis for comparing</td>
<td>to compare</td>
</tr>
<tr>
<td>as a result of</td>
<td>through, by</td>
</tr>
<tr>
<td>for the following reasons</td>
<td>because</td>
</tr>
<tr>
<td>during the course of this experiment</td>
<td>during the experiment</td>
</tr>
<tr>
<td>during the process of</td>
<td>during</td>
</tr>
<tr>
<td>during periods when</td>
<td>when</td>
</tr>
<tr>
<td>for the duration of the study</td>
<td>during the study</td>
</tr>
<tr>
<td>the nature of</td>
<td>(omit by rearrangement)</td>
</tr>
<tr>
<td>a large (or small or limited) number of</td>
<td>many (or few)</td>
</tr>
<tr>
<td>conspicuous numbers of</td>
<td>many</td>
</tr>
<tr>
<td>substantial quantities</td>
<td>much</td>
</tr>
<tr>
<td>a majority</td>
<td>most</td>
</tr>
</tbody>
</table>
Table 1. Continued.

<table>
<thead>
<tr>
<th>Superfluous wording</th>
<th>Suggested substitute</th>
</tr>
</thead>
<tbody>
<tr>
<td>seedlings, irrespective of species</td>
<td>all seedlings</td>
</tr>
<tr>
<td>all of the species</td>
<td>all species</td>
</tr>
<tr>
<td>various lines of evidence</td>
<td>evidence</td>
</tr>
<tr>
<td>they do not themselves possess</td>
<td>they lack</td>
</tr>
<tr>
<td>were still present</td>
<td>persisted, survived</td>
</tr>
<tr>
<td>the analysis presented in this paper</td>
<td>our analysis</td>
</tr>
<tr>
<td>indicating the presence of</td>
<td>indicating</td>
</tr>
<tr>
<td>despite the presence of</td>
<td>despite</td>
</tr>
<tr>
<td>checked for the presence of</td>
<td>checked for</td>
</tr>
<tr>
<td>in the absence of</td>
<td>without</td>
</tr>
<tr>
<td>a series of observations</td>
<td>observations</td>
</tr>
<tr>
<td>may be the mechanism responsible for</td>
<td>may have caused</td>
</tr>
<tr>
<td>it is reasonable to assume that where light is not limiting</td>
<td>with light not limiting</td>
</tr>
<tr>
<td>in a single period of a few hours</td>
<td>in a few hours</td>
</tr>
<tr>
<td>occur in areas of North America</td>
<td>are in North America</td>
</tr>
<tr>
<td>adjacent transects were separated by at least 20 m</td>
<td>( \geq 20 ) m apart</td>
</tr>
<tr>
<td>in the vicinity</td>
<td>nearby</td>
</tr>
</tbody>
</table>
separated by a maximum distance of 10 m and a minimum distance of 3 m 3–10 m apart

Table 1. Continued.

<table>
<thead>
<tr>
<th>Superfluous wording</th>
<th>Suggested substitute</th>
</tr>
</thead>
<tbody>
<tr>
<td>the present-day population</td>
<td>the population</td>
</tr>
<tr>
<td>their subsequent fate</td>
<td>their fate</td>
</tr>
<tr>
<td>whether or not</td>
<td>whether</td>
</tr>
<tr>
<td>summer months</td>
<td>summer</td>
</tr>
<tr>
<td>are not uncommon</td>
<td>may be</td>
</tr>
<tr>
<td>due to the fact that</td>
<td>(omit by rearrangement)</td>
</tr>
<tr>
<td>showed a tendency toward higher survival</td>
<td>had higher survival</td>
</tr>
<tr>
<td>devastated with drought-induced desiccation</td>
<td>killed by drought</td>
</tr>
</tbody>
</table>

\(^a\)Mack (1986:33). Reprinted with permission from the Ecological Society of America.
Table 2. Commonly misused words.

<table>
<thead>
<tr>
<th>Word and proper usage</th>
</tr>
</thead>
<tbody>
<tr>
<td>accuracy (see precision): extent of correctness of a measurement or statement.</td>
</tr>
<tr>
<td>affect (see effect): verb, to cause a change or an effect; to influence.</td>
</tr>
<tr>
<td>among (see between): use in comparing &gt;2 things.</td>
</tr>
<tr>
<td>between (see among): use in comparing only 2 things.</td>
</tr>
<tr>
<td>cf.: compare</td>
</tr>
<tr>
<td>circadian: approx 24 hr.</td>
</tr>
<tr>
<td>continual: going on in time with no, or with brief, interruption.</td>
</tr>
<tr>
<td>continuous: going on in time or space without interruption.</td>
</tr>
<tr>
<td>diurnal: recurring every 24 hr; occurring in daylight hr.</td>
</tr>
<tr>
<td>effect (see affect): usually a noun, the result of an action; as an adverb (rare), to bring about or cause to exist, or to perform.</td>
</tr>
<tr>
<td>e.g. (see i.e.): for example.</td>
</tr>
<tr>
<td>enable (see permit): to supply with means, knowledge, or opportunity; to make possible.</td>
</tr>
<tr>
<td>ensure (see insure): to make certain or guarantee.</td>
</tr>
<tr>
<td>farther: more distant in space, time, or relationship.</td>
</tr>
<tr>
<td>further: going beyond what exists, to move forward.</td>
</tr>
<tr>
<td>i.e. (see e.g.): that is.</td>
</tr>
<tr>
<td>incidence (see prevalence): no. of cases developing per unit of population per unit of time.</td>
</tr>
<tr>
<td>insure (see ensure): to assure against loss.</td>
</tr>
<tr>
<td>livetrap: verb.</td>
</tr>
<tr>
<td>live trap: noun.</td>
</tr>
</tbody>
</table>
Table 2 continued.

<table>
<thead>
<tr>
<th>Word and proper usage</th>
</tr>
</thead>
</table>

logistic: symbolic logic.

logistics: operational details of a project or activity.

mass (see weight): proper international use for measures of mass.

ovendry: adjective.

oven-dry: verb.

percent: adjective, adverb, or noun. Spell out only when the value is spelled out or when used as an adjective. Use “%” with numerals.

percentage: noun, part of a whole expressed in hundredths; often misused as an adjective, e.g., percent error, not percentage error.

permit (see enable): to allow, to give formal consent.

precision (see accuracy): degree of refinement with which a measurement is made or stated; e.g.,

the no. 3.43 shows more precision than 3.4, but is not necessarily more accurate.

prevalence (see incidence): no. of cases existing per unit of population at a given time.

sensu: as understood or defined by; used in taxonomic reference.

since: from some past time until present; not a synonym for “because” or “as.”

presently: in the future, not synonymous with “at present” or “currently.”

that (see which): pronoun introducing a restrictive clause (seldom immediately preceded by a comma).

usage: firmly established and generally accepted practice or procedure.

utilization, utilize: avoid by using “use” instead.

various: of different kinds.
varying: changing or causing to change. Do not use for different.

very: a vague qualitative term; avoid in scientific writing.

weight (see mass): should seldom be used.

viz: namely.

which (see that): pronoun introducing a nonrestrictive clause (often preceded by a comma or
preposition [for, in, or of which]); the word most often misused in JWM manuscripts.

while: during the time that. Use for time relationships but not as synonym for “whereas,”
“although,” and “similarly,” which do not imply time.

Table 3. Format and style guidelines for tables accompanying manuscripts submitted to *Journal of Wildlife Management*.

<table>
<thead>
<tr>
<th>Item</th>
<th>Style rule</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abbreviations</td>
<td>Use standard abbreviations.</td>
</tr>
<tr>
<td>Capitalization</td>
<td>Capitalize only the first letter for a column heading or phrase within a table.</td>
</tr>
<tr>
<td>Column heads</td>
<td>Required for each column. Do not submit tables with unlabeled columns.</td>
</tr>
<tr>
<td>Footnotes&lt;sup&gt;a&lt;/sup&gt;</td>
<td>Use alphabetical superscripts, except for footnotes specifying probability levels.</td>
</tr>
<tr>
<td>Spacing</td>
<td>Double-space throughout, including title and footnotes.</td>
</tr>
</tbody>
</table>

<sup>a</sup> Indent the first line of a footnote 2 spaces. The remaining lines are flush with the left margin and double spaced. See *Tables* section above for sequence of footnotes.
Table 4. Example of correct format of tables accompanying manuscripts submitted to *Journal of Wildlife Management*.

<table>
<thead>
<tr>
<th>Animal group</th>
<th>Avian</th>
<th>Mammalian</th>
</tr>
</thead>
<tbody>
<tr>
<td>Site</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Insectivorous</td>
<td>Carnivorous</td>
</tr>
<tr>
<td>Xeric</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>Mesic</td>
<td>7</td>
<td>5</td>
</tr>
<tr>
<td>Hydric</td>
<td>12</td>
<td>7</td>
</tr>
</tbody>
</table>

*For footnotes, use lower-case, Roman letters. Indent the first line of the footnotes 2 spaces, and left-justify all run-on lines. Use asterisks for probability levels.*

**APPENDIX A. ON-LINE MANUSCRIPT SUBMITTAL**

We outline the basic steps of the online submission process in this Appendix. Before submitting manuscripts, please review the *Journal of Wildlife Management Manuscript 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.

Logging in to Your AllenTrack Account

To create a new AT account or find out if you already have an account, go to the above-noted website, click “new authors should register for an account,” 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, click the “forgot my password” link on the AT mainpage, enter the requested information, and AT will email you your login name and a temporary password. If you do not receive the email from AT within a few hours, please contact the editorial office at jwm@wildlife.org.

Your AllenTrack Homepage

Having successfully logged in to AT, you will be taken to your *JWM* homepage. There, under “Author Tasks,” you will see the following options: “Author instructions,” “Submit presubmission inquiry,” and “Submit manuscript.” There also is a “General Tasks” heading with the options “Modify profile/password” and “logout.” You can use this “General Tasks” link to update your profile (e.g., change your contact information, add or delete key words) and to modify your password. We encourage you to log in to your homepage to access all AT tasks (e.g., submitting a manuscript or review, checking the status of your manuscript). The links embedded in emails you receive from *JWM* are task-specific and, once that task has been completed, the links will no longer work. If you are reviewing a manuscript for the publication, there will also be links on your homepage for that task.

Submitting your Manuscript

You will be taken through a series of 4 screens as you submit your manuscript:

1. The first screen is a form asking for author, title, abstract, and file quantities. You will be asked to enter corresponding author information first and contributing author information later. Do not enter the corresponding author information again as a contributing author.
Recognizing that the corresponding author is not always the first author, you will be asked to select an order for each author entered. You will also be asked to provide email addresses for your co-authors. You will not be able to proceed without this information, so if a co-author does not have an email address, or if it is unavailable, make one up (e.g., unknown@unknown.com). On the first screen, you will be asked to enter the title, running head, and abstract. Reviewers do not see the submittal form, so you must include title, running head, and abstract in the manuscript as well. At the end of the first screen you will be asked to identify how many files will be uploaded (cover letter, article file, color figure[s], black and white figure[s], tables, data sets, supplemental material, author pictures or supplemental pictures). You may “save and continue,” “save and exit,” or “cancel” at any time.

2. The second screen provides you with browser buttons to upload your file(s). The JWM accepts manuscripts in Word (.doc) only. We cannot accept .docx files. We recommend creating equations using older versions of Word. Equations formatted in .docx cannot be automatically converted to .doc equations. Tables must be submitted as part of the manuscript text file. Keep table headings with the table. Include tables immediately after Literature Cited. Figures must be uploaded as separate files. Include figure titles at the end of the manuscript text file following Literature Cited and tables. Multiple figures may be uploaded as individual files, but keep each figure on its own page. Label and mount figure parts (e.g., Fig 3A, Fig 3B) together into a single figure as they are meant to appear in print. Failing to do so may result in additional charges during typesetting. The boxes that are provided in AT for table headings and figure captions are not transferred to the reviewer PDF files, so you must keep this information in the manuscript. Once you have uploaded all files, click “submit” to submit the manuscript files. If you have
multiple article files, you will be asked to order them so that a merged PDF file can be created for the reviewers.

3. The third screen is a completion screen that will provide you with a manuscript number for your submission (e.g., 2005-821). Please use this manuscript number in all correspondence. During this stage, all files will be converted to PDF format, which takes up to 30 minutes. If the conversion takes >30 minutes, please contact the editorial office. Some common reasons that files do not convert properly include large files (i.e., Geographic Information System [GIS]-related images), incompatible file formats (we only accept .doc, .tif, .jpg, .pdf, .eps, .xls, and .ppt.), and embedded links. You can leave AT while the files convert and return to your manuscript at a later time. However, you do need to review and approve the converted PDF files before they are forwarded to the editorial office.

4. The final screen allows you to verify that your manuscript was uploaded and converted correctly. You can make corrections at this stage (e.g., replace, delete, or rename a file). Once you approve the converted files, your manuscript is sent to the editorial office. The JWM editorial office will send you an email confirming that your submission has been received. If you do not receive an email within 2 days of submission, please contact the editorial office.

If you are asked to revise your manuscript, the corresponding email will contain a link to your manuscript in AT. Again, you can reach the manuscript by logging on as described above. You will not be required to re-enter the manuscript metadata. Instead, when ready, REPLACE and ADD files as necessary. Files that have not been edited and are to remain with the current manuscript version may be left as is (e.g., figure files). DELETE any files that are no longer part of the current version. Allen Track saves a copy of the original submittal, and carrying old files
forward may create confusion. Upload a cover letter with your revision that details how you responded to Associate Editor, EIC, and reviewer comments.

**APPENDIX B. LITERATURE CITED**

Type the Literature Cited immediately following the text, not necessarily on a new page. 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). 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. Alphabetize by authors’ surname(s), regardless of the number of multiple authors for the same publication. Within alphabetical order the sequence is chronological (e.g., Benton 1980, Benton 1991, Benton and Madison 1979). Spell out all author names instead of using dashes.

Use sentence-case letters 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. For foreign language publications, note the language of publication at the end of the citation in brackets (e.g., [In Spanish.]).

To document a file available for viewing and downloading via the World Wide Web, provide the following information: author's or organization’s name (if known), date of
publication or last revision, title of document, title of complete work (if relevant), URL, and date
of access. Please review the following examples.

**Book: General Format**

species. University of Michigan, Ann Arbor, USA.

management. Stackpole, Mechanicsburg, Pennsylvania, USA.

*Note:* Do not write the total page number of books at the end of citations.

**Book: More Than 1 Edition**

New York, USA.

**Book: More Than 1 Publisher**

Stackpole, Harrisburg, Pennsylvania, and Wildlife Management Institute, Washington,
D.C., USA.

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.

**Book: More Than 1 Volume**

New Haven, Connecticut, USA.

**Book: Editor as Author**

threatened species. University of Wisconsin Press, Madison, USA.

Note: If the state (or province) appears in the publisher or agency name, it need not be repeated after the city.

**Book: Reprint**

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

**Book: Chapter**


**Foreign Language Publication**

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

**Government Publication**


**Government Publication: Part of a Numbered Series**


**Government Publication: Agency as Author**


Note: Cite in text as National Research Council (1977) or parenthetically as (National Research
Council 1977). For additional examples, see the Literature Cited section of this manuscript.

**Journals: General Format**


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

**Journals in Press: Year and Volume Known**


**Journals in Press: Year and Volume Unknown**


**Multiple Citations of the Same Author(s)**


Note: fictitious citation used for example only.

**Software Package**


*Note:* For statistical software, only include the software in Literature Cited if you are referencing the software manual.

**Symposia and Proceedings: Complete Volume**


**Symposia and Proceedings: Individual Article**


**Symposia and Proceedings: Part of a Numbered Series**


**Symposia and Proceedings: Complete Volume (not part of a numbered series)**


*Note:* Include dates and location with these citations.

**Symposia and Proceedings: Individual Article (not part of a numbered series)**

Note: Include dates and location with these citations.

Theses or Dissertations


Web Citation: Professional Site


Web Citation: Article in an Electronic Journal (ejournal)


Web Citation: Government Publication


Newspaper, Newsletter, and Magazine Articles

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


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

Court Cases

Cite complete title and year of case in text only.
APPENDIX C. REQUIRED ABBREVIATIONS FOR TABLES, FIGURES, AND PARENTHETIC EXPRESSIONS

Abbreviate the following terms in parentheses, tables, and figures, but do not abbreviate these 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. No additional metric abbreviations (identified with an asterisk) are allowed.

<table>
<thead>
<tr>
<th>Term</th>
<th>Abbreviation or symbol</th>
<th>Term</th>
<th>Abbreviation or symbol</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adult</td>
<td>Ad</td>
<td>Logarithm, base $e$</td>
<td>ln or log$_e$</td>
</tr>
<tr>
<td>Amount</td>
<td>Amt</td>
<td>Logarithm, base 10</td>
<td>log$_{10}$</td>
</tr>
<tr>
<td>Approximately</td>
<td>approx.</td>
<td>Male</td>
<td>M</td>
</tr>
<tr>
<td>Calorie</td>
<td>cal*</td>
<td>Maximum</td>
<td>max.</td>
</tr>
<tr>
<td>Celsius</td>
<td>C*</td>
<td>Meter$^a$</td>
<td>m$^*$</td>
</tr>
<tr>
<td>Chi-square</td>
<td>$\chi^2$</td>
<td>Metric Ton</td>
<td>t</td>
</tr>
<tr>
<td>Coefficient</td>
<td>coeff.</td>
<td>Minimum</td>
<td>min.</td>
</tr>
<tr>
<td>Confidence interval</td>
<td>CI, $a \leq \bar{x} \leq a$</td>
<td>Minute</td>
<td>min</td>
</tr>
<tr>
<td>Confidence limits</td>
<td>CL, $x \pm a$</td>
<td>Month names</td>
<td>Jan, Feb, etc.</td>
</tr>
<tr>
<td>correlation, simple</td>
<td>$R$</td>
<td>More than/Greater than</td>
<td>$\ast$</td>
</tr>
<tr>
<td>Determination, multiple</td>
<td>$R^2$</td>
<td>Multiple correlation</td>
<td>$R^2$</td>
</tr>
<tr>
<td>Determination, simple</td>
<td>$r^2$</td>
<td>Number (of items)</td>
<td>no.</td>
</tr>
<tr>
<td>Degrees of freedom</td>
<td>Df</td>
<td>Observed</td>
<td>obs.</td>
</tr>
<tr>
<td>Diameter</td>
<td>diam</td>
<td>Parts per billion</td>
<td>ppb$^*$</td>
</tr>
<tr>
<td>Term</td>
<td>Abbreviation</td>
<td>Description</td>
<td>Unit</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>--------------</td>
<td>------------------------------------</td>
<td>---------------</td>
</tr>
<tr>
<td>Diameter, breast height</td>
<td>dbh</td>
<td>Parts per million</td>
<td>ppm*</td>
</tr>
<tr>
<td>Directions</td>
<td>N, S, E, W, NE, NW, etc.</td>
<td>Percent</td>
<td>%*</td>
</tr>
<tr>
<td>Equation(s)</td>
<td>eq(s)</td>
<td>Population size</td>
<td>N</td>
</tr>
<tr>
<td>Expected</td>
<td>E</td>
<td>Probability</td>
<td>P</td>
</tr>
<tr>
<td>Female</td>
<td>F</td>
<td>Sample size</td>
<td>n</td>
</tr>
<tr>
<td>F ratio</td>
<td>F</td>
<td>Sample mean (of x)</td>
<td>(\bar{x})</td>
</tr>
<tr>
<td>Gram</td>
<td>g*</td>
<td>Spearman rank correlation</td>
<td>(r_s)</td>
</tr>
<tr>
<td>Gravity</td>
<td>G</td>
<td>Standard deviation (s)</td>
<td>SD</td>
</tr>
<tr>
<td>Hectare</td>
<td>ha*</td>
<td>Standard error (s)</td>
<td>SE</td>
</tr>
<tr>
<td>Height</td>
<td>ht</td>
<td>Student’s t</td>
<td>t</td>
</tr>
<tr>
<td>Hotelling’s (T^2)</td>
<td>(T^2)</td>
<td>Temperature</td>
<td>temp</td>
</tr>
<tr>
<td>Hour(s)</td>
<td>hr</td>
<td>Trace</td>
<td>tr</td>
</tr>
<tr>
<td>Joule</td>
<td>J*</td>
<td>Variation</td>
<td>CV</td>
</tr>
<tr>
<td>Juvenile</td>
<td>juv</td>
<td>Versus</td>
<td>vs.</td>
</tr>
<tr>
<td>Kilocalorie</td>
<td>kcal*</td>
<td>Volt</td>
<td>V*</td>
</tr>
<tr>
<td>Lethal concentration, 50%</td>
<td>LC(_{50})</td>
<td>Volume: liquid, book</td>
<td>vol, Vol.</td>
</tr>
<tr>
<td>Lethal dose, median</td>
<td>LD(_{50})</td>
<td>Weight</td>
<td>wt</td>
</tr>
<tr>
<td>Less than</td>
<td>&lt;*&gt;</td>
<td>Wilcoxon test</td>
<td>(T)</td>
</tr>
<tr>
<td>Limit</td>
<td>lim</td>
<td>Year(s)</td>
<td>yr</td>
</tr>
<tr>
<td>Liter</td>
<td>L*</td>
<td>Z-statistic</td>
<td>(Z^*)</td>
</tr>
</tbody>
</table>

\(^a\)All standard meter-based measurement units must be abbreviated in text when they appear
after a number (e.g., mm, cm, km, etc.)

\(^b\) 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., Probability that a juv survives first yr]).

\(^c\) Define in a footnote (e.g., tr = <1%).