

Updated Manuscript Submission Guidelines for *The Prairie Naturalist*

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ABSTRACT These guidelines present updated policies and procedures for submitting scientific manuscripts for consideration for publication in *The Prairie Naturalist* (PNAT). These guidelines incorporate substantial changes that have occurred following a change in Editorial staff during January 2009, and update the online “Suggestions for Contributors” guidelines provided on the PNAT website (<http://www.sdstate.edu/nrm/organizations/gpnss/tpn/index.cfm>); these instructions supersede all previous guidelines. Tables and appendices are included for common word expressions with superfluous wording (Table 1), examples of correct format and style guidelines for tables accompanying manuscripts (Table 2, Appendix A), guidance in properly preparing Research notes (Appendix B) and citing literature (Appendix C), and mandatory abbreviations for tables, figures and parenthetical expressions (Appendix D).

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

Publishing a scientific paper proceeds most smoothly if authors understand the policy, procedures, format, and style of the outlet to which they are submitting a manuscript (Chamberlain and Johnson 2007). Most scientific journals have unique styles, but subtle differences may not be readily detectable. Publishing directions for authors are usually entitled “guide for authors,” “instructions to authors,” or in the case of PNAT, “suggestions for contributors.” These guides are specific directions created to provide consistency in journal publications (Brown and Jenks 2012). If a specific instruction is unclear, an examination of papers in a recent issue will usually provide clarification, although format changes frequently occur with changes in journal editorship (Brown and Jenks 2012).

The typical organization and common elements of scientific papers found in PNAT are discussed in the following sections. These guidelines apply to all PNAT submissions and consequently supersede all previous journal guidelines. It is imperative that authors pay close attention to instruction details. **A poorly written, disorganized paper or one that does not follow publishing instructions may be returned to authors for corrections before review or alternatively, without further consideration for publication.**

MANUSCRIPT SUBMISSIONS

The Prairie Naturalist publishes manuscripts containing information from original research that contributes to the scientific foundations of the natural history and environment of the Great Plains region, including geology, plants, birds, mammals, fish, and invertebrates. Studies on grassland habitats in areas outside of the Great Plains region also will be considered for publication. *The Prairie Naturalist* only accepts manuscripts submitted electronically; authors should submit manuscripts as an email attachment directly to the Editor. Journal reviewers and editors evaluate each submitted

manuscript relative to data originality, ecological concepts, interpretations, scientific accuracy, conciseness, clarity, appropriate subject matter, and contribution to existing literature (Chamberlain and Johnson 2007). However, manuscripts must be based on information that has not previously been published or was concurrently submitted for publication in other peer-reviewed journals. The seriousness of dual publication has previously been noted (Kendall 1981) and PNAT subscribes to these standards; dual publication of scientific information precludes review or publication in PNAT. However and in certain instances, guidelines for previous publication are flexible. Examples include technical analyses of findings published for lay audiences, data presented at scientific meetings, final reports required by funding agencies, or theses and dissertations (although theses and dissertations still need to be cited in the manuscript; see Citing Literature in text below).

Cover Letter

Submitted manuscripts are managed by the PNAT Editor. Direct cover letters to the Editor, and provide information that describes ethical and copyright considerations (Council of Biology Editors [CBE] Style Manual Committee 1994:599–600) and other relevant information that may facilitate review and editing. It is imperative that cover letters indicate that manuscripts are submitted for exclusive consideration by PNAT; without the exclusive consideration statement, the Editor will not initiate the peer-review process. This statement ensures that scientific data and pertinent results have not been published previously or submitted elsewhere.

Page Charges and Reprints

Page charges are mandatory and the corresponding author is required to acknowledge that he or she accepts responsibil-

Table 1. Common expressions with superfluous words

Superfluous wording ^a	Suggested substitute
the purpose of this study was to test the hypothesis	I (or we) hypothesized
in this study we assessed	we assessed
we demonstrated that there was a direct	we demonstrated direct
were responsible for	caused
played the role of	were
on the basis of evidence available to date	consequently
in order to provide a basis for comparing	to compare
as a result of	through, by
for the following reasons	because
during the course of this experiment	during the experiment
during the process of	during
during periods when	when
for the duration of the study	during the study
the nature of	(eliminate by rearrangement)
a large (or small or limited) number of	many (or few)
conspicuous numbers of	many
substantial quantities	much
a majority	most
a single	one
an individual taxon	a taxon
seedlings, irrespective of species	all seedlings
all of the species	all species
various lines of evidence	evidence
they do not themselves possess	they lack
were still present	persisted, survived
the analysis presented in this paper	our analysis
indicating the presence of	indicating
despite the presence of	despite
checked for the presence of	checked for
in the absence of	without
a series of observations	observations
may be the mechanism responsible for	may have caused
it is reasonable to assume that where light is not limiting	with light not limiting
in a single period to a few hours	in a few hours
occur in areas of North America	are in North America
adjacent transects were separated by at least 20 m	≥20 m apart
in the vicinity	nearby
separated by a maximum distance of 10 m and a minimum distance of 3 m	3–10 m apart
the present-day population	the population
their subsequent fate	their fate
whether or not	whether
summer months	summer
are not uncommon	may be
due to the fact that	(eliminate by rearrangement)
showed a tendency toward higher survival	had higher survival
devastated with drought-induced desiccation	killed by drought

^aMack (1986:33). Reprinted with permission from the Ecological Society of America.

Table 2. Format and style guidelines for tables accompanying manuscripts submitted to *The Prairie Naturalist*.

Item ^a	Style rule
Abbreviations	Use standard abbreviations
Capitalization	Capitalize only the first letter for a column heading or phrase within a table.
Column headings	Required for each column. Do not submit tables with unlabeled columns.
Footnotes ^b	Use alphabetical superscripts, except for footnotes specifying probability levels.
Spacing	Double-space throughout, including titles and footnotes

^aChamberlain and Johnson (2007:43). Reprinted with permission from the Journal of Wildlife Management; ^bIndent the first line of a footnote 2 spaces. The remaining lines are flush with the left margin and double spaced.

ity for page charges if the manuscript is deemed acceptable for publication following the peer-review process. Authors should note that *PNAT* also prints color images; color figures cost \$650/each and must be paid in full before a paper is scheduled for publication. In addition to publishing in print form, *PNAT* now publishes all manuscripts, notes, and book reviews in an Open Access format on our website (<http://www.sdstate.edu/nrm/organizations/gpnss/tpn/index.cfm>). There is no additional fee for Open Access publishing of articles.

Paper reprints can be ordered at the time page proofs are sent to authors. The cost of ordering a set of 100 paper reprints is based on manuscript length: 1–4 pages = \$40, 5–8 pages = \$75, 9–12 pages = \$100, 13 + pages = \$125. Upon request, a free PDF reprint will be emailed to the corresponding author. *The Prairie Naturalist* accepts page charge payments in the form of checks, money orders, government purchase orders, or credit cards.

Copyright

If manuscripts not in the public domain are accepted for publication, authors or their employers must transfer copyright to *PNAT*. Manuscripts published by federal government employees are in the public domain (Chamberlain and Johnson 2007). Submission of manuscripts implies entrusting copyright (or equivalent trust in

public-domain work) to the Editor until manuscripts are either withdrawn from the peer-review process or a decision regarding acceptance or rejection is made. For manuscripts deemed acceptable for publication, *PNAT* retains copyright privileges. Copyright forms will be sent at the time page proofs are sent to corresponding authors. Due to rapidly approaching press deadlines, copyright forms and author corrected page proofs should be returned to the Assistant Editor via email (prairie.naturalist@sdstate.edu), fax (605-688-4515), or sent by mail ≤3-day delivery (South Dakota State University, Department of Natural Resource Management, Northern Plain Biostress Laboratory, Room 138, Brookings, South Dakota, USA; Attention: *PNAT* Assistant Editor) within 72 hours of their receipt.

FORMAT AND STYLE

All manuscripts must adhere strictly to *PNAT* guidelines before they will be approved, assigned to an Associate Editor, and subsequently sent out for peer-review. All manuscripts must be formatted as Microsoft Word documents; no other format will be accepted. The Journal standard for style is the CBE style manual (Scientific Style and Format: The CBE Manual for Authors, Editors, and Publishers. 6th Edition. Council of Biology Editors, Cambridge University Press).

Types of Manuscripts

The Prairie Naturalist considers manuscripts of varying lengths. The page numbers noted below include literature cited, tables, and figures. Authors should select from the following submission options based on total page length of their manuscripts:

1. ≤14 pages: *PNAT* Research Note. Notes provide a publication outlet for unreplicated (spatially or temporally) scientific investigations. However, Research notes are not intended to serve as an outlet for research that lacks appropriate scope. Research notes do not typically contain tables or figures, however, short tables and figures of relative importance to the manuscript may be included. Research notes do not have Abstract, Key Words, Study Area, Methods, Results, Discussion, or Acknowledgments headings. Additionally, author names and affiliations should be italicized, appear at the end of the note (and not in the beginning as in Research articles), and are preceded by a “period” and “em dash.” Authors should refer to Appendix A for additional information regarding proper formatting of Research Notes. All other style rules for Research articles apply to Research notes.
2. 15–50 pages: *PNAT* Research Article. Articles provide a publication outlet for replicated study designs that provide meaningful information pertaining to sound scientific theories and hypotheses. Articles contain sections with appropriate headings, including Abstract, Key Words, Study Area, Methods, Results, Discussion, Acknowledgments, and Literature Cited. Authors should refer to Appendix B for additional information regarding

proper formatting of Research Articles.

3. >51 pages: *PNAT* Article or Monograph. The *PNAT* Editor-in-Chief will decide on the appropriate submission venue for these manuscripts on a case-by-case basis.

Page Format General Guidelines

The following general page formatting guidelines apply to all text files:

1. Manuscripts should be prepared in 8.5 × 11-inch format, single-sided, and double-spaced throughout; including title, authors' addresses, text, long quotations within text, literature citations, table footnotes, table titles, table bodies, and figure captions.
2. Do not hyphenate words on the right margin.
3. Do not justify the right margin.
4. Maintain margins of 2.5 cm (1 inch) on all sides of the page.
5. Italicize words or symbols, such as scientific names and mathematical symbols intended to appear italicized in print.
6. Use Times New Roman font, 12-point type throughout the manuscript, including the title and headings.

Title Page: Running Head, Title, and Authors

On page 1, single-space the following information in the upper left corner: date (should be updated with each revision) and the corresponding author's name, address, telephone and fax numbers, and email (Appendix A). Double-space all text thereafter, including authors' addresses, the manuscript title, figure captions, and tables. Should the corresponding author's email address change at any time following the submission of the manuscript, it is their responsibility to notify the editorial staff (Editor, Associate Editor, Assistant Editor) of such changes.

For all Research Articles, a suggested running head (RH) should be typed on the first line following the corresponding author's address. The RH should be limited to ≤6 words,

left-justified, and each important word capitalized (e.g., "PNAT Manuscript Submission Guidelines"). The RH should be preceded by a dot (or raised period) and either the last name(s) of ≤2 authors or in the case of ≥3 authors, the name of the first author followed by "et al.," (e.g., Unsworth et al. • Elk Sightability Validation). For Research Notes, a suggested running head should be included on all pages of the manuscript, including the title page. The RH should include the word "NOTES" in capital letters and left justified (e.g., NOTES). The RH should not be italicized. For Research Notes, the title is left-justified and capitalized and immediately following the title is an em dash, followed by the start of the body of the text (Appendix B).

For Research Articles, the manuscript title follows the RH and is centered in bold font, sentence-case letters, with important words capitalized as in the RH. The title should

identify manuscript content, shall not exceed 10 words unless doing so forces awkward construction, and may not include abbreviations, acronyms, or punctuation. Further, use of scientific names in the title should be avoided except for organisms that do not have common names, or whose scientific names are easily confused with common names. Authors also should avoid the use of numbers in both the title and RH.

For Research Articles, authors' names are centered in all capital letters. Author affiliations follow and are centered and given in sentence-case letters. The affiliation is usually where the author was employed during the study. 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 Avenue, Boulevard, and Street, but abbreviate directions (e.g., N. and S.W.). For multiple addresses, note which address is associated with each corresponding author by including the author's initials in parentheses at the end of the address. For Research Notes, authors' names and affiliations appear at the end of the text body (Appendix B).

Footnotes

Footnotes should be inserted using the footnote function. If an author's present address is different from the byline address, it should be noted only by using a footnote. Additionally, footnotes may only be used to note an author's email address, and to indicate a deceased author. Start each footnote with a numerical superscript.

Abstract

Authors should begin this section with the word **ABSTRACT** (left-justified) in bold font. Abstract text begins after a single letter space on the same line and is a single paragraph not exceeding 3% of the length of the manuscript, including Literature Cited. The abstract includes a statement of the principal objectives or hypotheses tested during the study, a brief description of pertinent methods, a summary of main results (emphasizing the most important results) and conclusions, and utility of results explaining how, when, where, and by whom data or interpretations can be applied to address the importance of the results within the context of the scientific community. The abstract should include only research findings derived directly from the study.

Key Words

Key words follow the abstract. Authors should type the phrase **KEY WORDS** in bold font and left-justified followed by a single regular space and list ≤8 words in alphabetical order ending with a period. Words from the title should be included as well as others that identify common and scientific names of principal organisms in the manuscript, the geographic area of study (typically states, provinces, or well known regions), well known phenomena and concepts stud-

ied (e.g., carbon sequestration, competition, mortality, nutrient cycling, population estimation, primary succession, radiotelemetry, reproduction, survival, zooplankton) and other potentially useful words not previously mentioned for indexing (e.g., **KEY WORDS** author, format, instructions, manuscript, policy, style, submission guidelines).

Text Pages

Page numbers and the RH (e.g., Unsworth et al. • Elk Sightability Validation) should be inserted in the upper right margin on all pages following the title page using the Header function in Microsoft Word. These notations facilitate manuscript continuity during review, editing, and typesetting. Authors should number each line of the text continuously (e.g., do not renumber each page) using the Line Numbers function (Layout tab) in the Page Setup options.

Manuscript Headings

Manuscripts should be prepared using 3 heading types; first-level headings, second-level headings, and third-level headings. First-level headings are capitalized, bold type, and left-justified. Text follows on the succeeding line and is indented 5 spaces. Second-level headings are bold type, left-justified with sentence-case lettering (e.g., important words capitalized). Text follows on the succeeding line and is indented 5 spaces. Third-level headings are italicized, indented 5 spaces, and followed by a period and em dash. Text follows directly after the subheading on the same line. For instance, *Seasonal Home Range Analyses*.—Begin paragraph text here. Third-level headings should only be used for short (≤ 2 paragraphs) subsections. Authors should use first-level headings for appendix titles.

Major Manuscript Sections

Research articles must include the following first-level headings: Abstract, Key Words, Study Area, Methods, Results, Discussion, Management Implications, Acknowledgments, and Literature Cited. Combining Study Area and Methods or Results and Discussion sections are not permitted in Research articles. Research notes do not include the first-level headings Abstract, Key Words, Study Area, Methods, Results, Discussion, Management Implications, or Acknowledgments. Research notes include only a Literature Cited first-level heading. Second- and third-level subheadings are not permitted in Research notes.

The **Introduction** (no heading and indented 5 spaces) starts two lines below the Key Words and should contain a concise synthesis of current and historical literature specific to the manuscript's main topic (e.g., setting the stage). This section should serve to justify why the research was necessary and subsequently conducted. The initial paragraphs should

provide a clear, referenced, logical progression to the primary objectives of the research project. The latter part of this section should clearly and succinctly state the study objectives and the hypotheses tested, which concludes this section.

Use past tense for **Study Area** descriptions (e.g., average annual snowfall was 101 cm, rangelands were characterized by mid-season grasses and limited stands of ponderosa pine). Exceptions include geological formations that have been present for centuries or millennia (e.g., mountain ranges). **Methods** should be concise and include study duration, sampling protocols, dates, research or experimental design, and data analyses. Methods should be written in active voice (e.g., write “We radiocollared adult female deer...” and “We compared AIC values to select the most parsimonious model” rather than “Adult female deer were radiocollared” or “AIC values were compared to select the most parsimonious model”; see Style and Usage section below). Authors should cite previously published methods with minimal explanation and explain new or modified methods in detail. Animal-welfare protocols should be included at the end of the Methods section rather than in the Acknowledgments section; protocol (e.g., IACUC) numbers should be included parenthetically following the statement.

Present **Results** in a clear, concise, and organized manner. Avoid redundancy by presenting information in tables and figures in the text and do not explain analyses that are more appropriately described in the Method section. Authors should describe the magnitude and direction of biological effects as well as test statistics. For instance, reporting that “parameter X was 50% smaller than parameter Y ($P < 0.015$)” conveys more biologically meaningful information than stating that “parameter X was significantly smaller than parameter Y.” Avoid overusing the terms “significant” and “significantly” when statistical differences can be deduced from test statistics (e.g., P -values); such reporting commonly results in unnecessary length and redundancy when stating results. Authors should avoid the urge to discuss or interpret results as this activity unnecessarily increases the length of this section and commonly results in redundancy or a “re-discussion” of results in the Discussion section of the paper (Brown and Jenks 2012). Results should follow the order of testing of hypotheses and design set forth in the Materials and Methods section. Organization should be arranged for impact, with results listed from most to least significant (Brown and Jenks 2012). Additionally, results should be presented in past tense (e.g., mean spring migration occurred on 14 April).

The **Discussion** should follow the logical order of presentation of results from the previous section while highlighting the most important or significant findings of the study. This section provides an opportunity for interpreting data and making literature comparisons. Begin the Discussion by synthesizing results with regard to study objectives and then relate relevant findings to previously published literature and research. Authors should provide synthesis of results with available literature and should avoid simply restating results.

Systematic discussion of every aspect of the study leads to unnecessarily long manuscripts. Authors should be concise and relate their findings directly to their study objectives and hypotheses. Do not repeat results in this section and discuss only the most relevant and important results. Reasonable speculation and new hypotheses or scientific questions that are logical extensions of findings and conclusions may be included in the Discussion.

The **Management Implications** section should be short (generally about 1 paragraph), direct, and explain important management and conservation issues that are derived directly from your results (Chamberlain and Johnson 2007). Authors should avoid restating information from the Results or Discussion sections, making recommendations beyond the scope of their study, or citing previously published literature in this section. Specific management recommendations should be addressed in this section.

The **Acknowledgments** (please note our preferred spelling) section appears immediately before the Literature Cited. This section should be brief and include initials (rather than first names) of individuals cited (Chamberlain and Johnson 2007). For example, "Funding was provided by Federal Aid in Wildlife Restoration administered by South Dakota Department of Game, Fish and Parks, Study No. 75103, the National Park Service administered through the South Dakota Cooperative Fish and Wildlife Research Unit at South Dakota State University, the Pope and Young Club, Safari Club International, and South Dakota State University. We thank R. G. Barden, J. M. Chronert, J. E. Ellingson, L. L. Flack, R. N. Pelky, S. A. Rauch, J. L. Wilkens, and T. J. Zimmerman for their assistance during our study. We also thank South Dakota Civil Air Patrol for their assistance and the landowners that allowed access to their property throughout our study."

Literature Cited

Authors should type the Literature Cited immediately following the text without inserting a page break (Block et al. 2011). Authors should refer to Appendix B for detailed instructions on how to format citations. Additionally, authors should maintain double-spacing and use hanging indents (rather than white space) to delineate new citations. Within the manuscript body, citations should be presented in chronological order and then alphabetical order. All author names should be spelled out in case lettering rather than using dashes. Present citations in alphabetic order rather than in chronological order. 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; use 2 initials (where appropriate) with two spaces between each initial (Block et al. 2011). Only reverse the name order for the first author (e.g., Smith, J. D., A. B. Johnson, and C. D. Carter). For serial publications, issue numbers should only be included when each issue is numbered separately and as in the text, spell out ordinal numbers (Block et al. 2011). Avoid including Publishing, Inc., or

Company and use the word Thesis to denote Master of Science (M.S.) or Master of Arts (M.A.). Similarly, use the word Dissertation for Doctor of Philosophy (Ph.D.) and do not include the total page number of books at the end of the citation (Block et al. 2011). Authors should type "Associate Editor" at the end of the Literature Cited section. The name of the Associate Editor will be filled in by the Editor at a later date.

Figure Legends and Tables

On a new (separate) page following the Literature Cited, figure captions should be compiled. Figures can be submitted either as separate files or embedded in the manuscript following the figure captions page. Table and figure titles must include the species or subject of the data collected and when and where (region or state and country) the data were collected (Block et al. 2011). Please note that we only accept figures in the following formats: .doc, .tif, .jpeg, .pdf, .eps, .xls, and .ppt. Labeling and mounting figure parts (e.g., Figure 1a, Figure 1b) together into a single figure as it is intended to appear in print is necessary; failure to do so may result in a delay in the publication of a manuscript.

Appendices

Authors should include appendices in the text file after all tables, figure captions, and figures. First-level headings should be used for Appendix titles.

STYLE AND USAGE

The Editor may return a poorly written (e.g., long and complex sentences, superfluous words [Appendix C]), disorganized manuscript or one that does not follow publishing instruction to authors without review, despite the paper potentially containing publishable data. While most journal editors are willing to offer helpful suggestions to authors, reviewers may be less patient or tolerant of poor writing style, subsequently resulting in unfavorable reviews. Thus, the *PNAT* editorial staff recommends that authors review chapters 3 and 4 in the "CBE Style Manual (CBE Style Manual Committee 1994) and "Writing with Precision, Clarity, and Economy" (Mack 1986). Authors are encouraged to write directly and concisely while minimizing repetition among manuscript sections or use of 1-sentence paragraphs. Authors are strongly encouraged to subject their manuscripts to "friendly" critical review by colleagues prior to submission for publication; many common problems are corrected during this part of the peer-review process. Additional problems can be avoided by following previously prepared outlines that serve to guide authors through manuscript writing. Authors should refer to Strunk and White (1979), Day (1983), and Batzli (1986) for other helpful writing suggestions. A common error in manuscript writing style is use of passive voice. Use of first person and active voice throughout

the manuscript is recommended to minimize repetitive or unclear wording. For instance, instead of writing “deer home ranges were estimated” authors should write “we estimated deer home ranges.” Review of commonly misused words (Appendix C) before manuscript preparation is encouraged.

Authors should avoid using hanging hyphens at the right margin and right-justified text. Page margins should be set at 2.5 cm (1 inch) on all sides of the page. Additionally, avoid violating margin boundaries simply to begin a new paragraph or to place the Literature Cited at the top of a new page. Avoid underlining, italicizing, or boldface words in the text to indicate emphasis and type scientific names in italic font and Latin phrases in plain text (e.g., *ad hoc*, *a posteriori*).

Abbreviations and Acronyms

All abbreviations or acronyms must be defined the first time they are used in the abstract and text (e.g., Geographic Information System [GIS], Global Positioning System [GPS]). Acronyms that were first defined in the abstract should subsequently be redefined in the text. Sentences starting with acronyms should be avoided and do not use an apostrophe with plural acronyms (e.g., MANOVAs, PCAs). Exceptions include the following list of abbreviations, which may be used in the text without definition: metric units, DNA, USPS abbreviations, and various measurement units (see Appendix C). Do not abbreviate journal titles in the Literature Cited section. Do not abbreviate book titles (including conference proceedings published as a book), names of publishers, or university names when citing theses or dissertations. Units of measure, when used with a number, are abbreviated but no period is used. Longer time periods are not considered measurements and are not abbreviated (e.g., 2.7 mm, 3 g, 18 km, but three months, six weeks, two years). Do not abbreviate the words “river,” “county,” following the name, or units of measure that follow a spelled-out number at the beginning of a sentence (e.g., Ten milligrams is a lethal dose). Additionally, descriptive modifiers that are used in the text (e.g., the study area was located 17 km northeast [not NE] of Buffalo) are not abbreviated nor are names of states, provinces, and book publishers (in Literature Cited).

Citing Equipment and Statistical Software

For all field equipment, authors should include the manufacturer name and location parenthetically at the first mention (of the equipment) in the text. However, manufacturer information and location should not be included for GIS and GPS. Statistical software should only be included in the Literature Cited if authors are referencing the software operations manual. Otherwise, manufacturer information (manufacturer, city, state and country of manufacturer) should be included immediately following the first mention of the statistical software (product) name. In cases where the programs are only

available online, authors should include website access information in literature citations (see Appendix B).

Citing Literature in Text

With few exceptions, citations should be referenced parenthetically at the end of a sentence; e.g., Dispersal is defined as the movement of an animal from its natal range to its first or subsequent breeding range, or where it would have bred had it survived and found a mate (Shields 1987). Literature should be cited by author and year; e.g., Burnham (1980), Burnham and Anderson (1998). Use “et al.” for publications with ≥ 3 authors; e.g., Burnham et al. (2000). Commas should only be used to separate a series of citations, and not to separate an author and publication date. Citations in a series should be cited chronologically (e.g., Martinka 1967, West 1970, Beale and Smith 1973, Barrett 1982). Contributing authors should not list >5 citations in the text body to reference a particular ecological issue or scientific finding. If citations in a series have >1 reference for the same author(s) in the same year, then years should be designated alphabetically (in italics) and separated with semicolons; e.g., (Bowyer 1990*a*, 1990*b*, Jones 1995, Smith 1996, 1997). Multiple within-year citations should be alphabetized within chronological order; e.g., Anderson 1998, Johnson 1998, Jones 1998, Smith 1998, White 1998. All widely distributed articles catalogued in major libraries, including theses, dissertations, symposia proceedings, and United States Government documents, should be cited as published literature. However, such references should be cited as unpublished literature if they are not easily accessible or available. All other documents should be cited as unpublished data in the body of the text.

Citing Unpublished Sources in Text

References that are not easily accessible, available, or locally distributed should be cited only in the body of the text. This includes unpublished reports, manuscripts that have not yet been accepted for publication, and personal communications or observations. Unpublished materials are not as credible as published literature so should not be overused. Unpublished information should be cited in the text body as follows: Personal communications; e.g., (H. C. Frost, National Park Service, personal communication), Unpublished data (including manuscripts in review); e.g., (R. J. Guenzel, Wyoming Game and Fish Department, unpublished data), Unpublished report; e.g., (G. D. DelGiudice, Minnesota Department of Natural Resources, unpublished report). Affiliations should be included in the first citation, even when citing unpublished data or personal communication of an author. Inclusion of affiliation should be avoided in subsequent citation references (e.g., H. C. Frost, personal communication). Manuscripts accepted for publication are cited as a published manuscript in the text using the anticipated year of publica-

tion. Subsequent citation of such manuscripts in the Literature Cited section should show the year of publication after author(s) name(s) and “in press” following the journal volume number. Manuscripts that are in review should not be cited as “in press;” authors should cite such manuscripts using the unpublished style mentioned previously.

Common and Scientific Names (Nomenclature)

If a species has a universally accepted common name, use both the scientific and common names at first mention of the species, both in the abstract and in the text body. Place scientific names following common names in parentheses and italic font with the first letter of the genus name capitalized and the species name spelled out in lower-case letters (Chamberlain and Johnson 2007). Thereafter, use only the common name. Authors should provide literature citations for all common nomenclature reported (e.g., *Artemisia tridentata* [big sagebrush]; Larson and Johnson 1999). If a species has no universally accepted common name, refer to it by scientific name. In cases where only the scientific name is used, authors should provide additional information on what the organism is for the benefit of readers who may be unfamiliar with that taxon. Do not capitalize common names, except for proper names or adjectives that are part of the name (e.g., Cooper’s hawk). After the first use of the scientific name, abbreviate the Genus name by using the first initial (e.g., *A. americana*). However, when two genera with the same first initial have been included within a few paragraphs, spell out genus names to avoid confusion, and always spell out genus names when beginning a sentence. Italicize genus and species names but not higher taxa. Use of scientific names in manuscript titles should be avoided, except when there is no accepted common name. Do not use subspecies names unless essential, and omit taxonomic author names. Use “sp.” (singular; not italicized) or “spp.” (plural; not italicized) to indicate that the identity of a species within a genus was unknown. For instance, “Riparian corridors were bordered by willow (*Salix* sp.) and we captured several species of mice (*Peromyscus* spp.)” Where disagreement occurs, use the most widely accepted nomenclature. Omit scientific names of domesticated animals or cultivated plants unless a plant is endemic or is not adequately described by its common name.

Mathematics and Statistics

Roman letters used as symbols for quantities (e.g., n , \bar{x} , P , F , t , Z , X ; Appendix C) are displayed using italic font. Underlining or italicizing numbers, Greek letters (e.g., chi-square, χ^2), or various statistical terms (e.g., E, exp, lim, ln, log, SD, SE, CV, df) are not permitted. Degrees of freedom should be reported as subscripts to associated test statistics. Symbols from your word processing program’s symbol directory should be used to create symbols rather than creating them

using keyboard functions (e.g., χ^2 rather than X^2 , minus sign [–] from symbol menu rather than keyboard hyphen; times [×] to indicate multiplication instead of using lowercase “x” or asterisk [*]). Authors should use bold font for characters that should be set in boldface type, insert spaces on both sides of symbols used as conjunctions (e.g., $P > 0.012$), and close spaces when symbols are used as adjectives (e.g., >25 radio-telemetry locations). Subscripts should precede superscripts (X_1^2) unless subscripts include >3 characters. Whenever possible, report exact probabilities ($P = 0.028$, not $P < 0.05$) and for general guidance, follow Swanson (1974) or the CBE Style Manual Committee (1994:206–218). For advice on presenting mathematics or statistics, follow MacInnes (1978). Additionally, authors are encouraged to refer to Tacha et al. (1982) and Wang (1986) for information regarding other common statistical errors. Statistical programs or analytical methods should be typed in capital letters (e.g., PROC NONLIN, Program MARK). Authors should avoid redundant use of “significantly” (e.g., “Direct and post-release mortality rates were higher ($P = 0.020$) in pronghorn than white-tailed deer”). Statistical tests or measures of central tendency should be reported as in the following examples: ($\chi^2_1 \geq 5.40$, $P \leq 0.020$), ($F_{1,294} = 125.28$, $P \leq 0.001$), or ($\bar{x} = 4.36$ km, SE = 0.32, $n = 88$). Again, authors should note degrees of freedom are subscripted with associated test statistics. Similarly, P -values less than 0.001 should be displayed as $P \leq 0.001$.

Units of Measure

Whenever possible, authors should use Systeme Internationale d’Unites (SI) units and symbols (refer to Appendix C). Place a space between numbers and units or symbols (e.g., 100 km, 50° C) and do not use hyphens between numbers and units unless using a number-unit phrase to modify a noun (e.g., 5-yr study, 100 cm in diam, 30 mm wide). Use English units in parentheses following converted metric units only in cases where precision of original measurements or accurate interpretation of results may be misrepresented or otherwise compromised. However, the following non-SI units are permitted: hectare (ha), calorie (cal), Celcius (C), minute (min), hour (hr), seconds (sec), and liter (L).

Numbers and Unit Names

Use of the metric system is preferred, unless original measurements were nonmetric, in which case units should not be converted because precision may be misrepresented. In general, spell out numerals one through nine and use numerals for 10 and above. Spell out numerals and any associated units of measure to begin a sentence and except in key words, use numerals for all ordinals (e.g., 1st, 6th, 15th). Spell out ordinals that appear before a numeral (e.g., first 10 pronghorn) and in Literature Cited, but use digits for cases such as 5-fold and 1-way. Fractions should be converted to decimals except in

cases where precision is misrepresented. Numerals also are spelled out when used as a pronoun (e.g., at least twelve deer initiated migratory movements between summer and winter home ranges), or in a nonspecific sense (e.g., “an example or two of interference competition include...” or “on the one hand”). Units of measure should be indicated following each item (e.g., mean winter temperatures ranged from -10 to 10° C) and use symbols or abbreviations (km and %) for measurement units that follow numbers unless numbers are indefinite (hundreds of km), is “0” (zero) or “1” (one) standing alone.

Insert commas in numbers $\geq 1,000$ except when reporting book pages, clock time, or calendar year dates. Do not insert commas or hyphens between consecutive, independent numbers in a phrase (e.g., 30 1-yr-old males). Always use a leading zero when reporting decimals (e.g., use 0.001, not .001) and use lowercase when identifying items by name (e.g., study site 1, year 2, individual 3). Use numerals for expressing a decimal quantity (e.g., 0.5 kg, 3.7 km) and when expressing a range of numbers (e.g., litter sizes average 5 to 7 young). When using the word “from” to express a range, the word “to” also should be used (e.g., distance varied from 5 to 16 km). In a series where some parts contain numerals greater than 10 and some parts contain numerals less than 10 (e.g., one through nine), use numerals for the entire series (e.g., species composition consisted of 5 common grackles, 8 blue jays, 10 black-capped chickadees, and 15 white-breasted nuthatches). Large numerals or decimals should be avoided at the beginning of sentences.

Hyphens and Compound Words

In general, compound words used as adjectives should be hyphenated (e.g., 300-km² study area and 4-yr-old female) but not those used as predicate adjectives (e.g., study sites were 300 km², females were 3 years old). Compounds consisting solely of verbs are hyphenated. A sentence containing a participle or an adjective is hyphenated when it precedes the word it modifies (e.g., fine-grained soils, well-known ecological concept) but is not hyphenated when it follows the word it modifies (e.g., the ecological concept is well known). Hyphens should be retained if words that follow are capitalized, is an all-caps abbreviation, or is a numeral. Do not add spaces between the following prefixes and word for the following: ante, bi co, contra, counter, de extra, infra, intra, micro, mid, neo, non, over, pre, post, pro, pseudo, re, semi, sub, super, supra, trans, tri, ultra, un, under. Double vowels or triple consonants with these prefixes are not permitted; hyphenate these cases. A two-word modifier containing an adverb ending in *-ly* is not hyphenated (e.g., a carefully preserved specimen). Compound modifiers containing numerals are hyphenated (e.g., a two-thirds majority, a 100-ha pasture). Compounds derived from two or more nouns are written open with no hyphen.

Punctuation

Commas should be used after the next-to-last item in a series of >2 items (e.g., forested, wetland, and grassland habitats). However, commas should not be used to separate compound sentences before the conjunction (e.g., “We conducted nocturnal searches of white-tailed deer neonates using spotlights and diurnal searches of likely fawning habitats on foot,” not “We conducted nocturnal searches of white-tailed deer neonates using spotlights, and diurnal searches of likely fawning habitats on foot.”). Authors should not hyphenate prefixes, suffixes, or combining forms unless doing so is necessary to avoid confusion. Closed quotation marks are always placed after periods and commas, but may be placed prior to or after other punctuation (CBE Style Manual Committee 1994:177–181). Brackets should always appear in pairs and slashes (/) should not be used to indicate “and” or “or” or to express a range of numerical values; use only to indicate “per” or “divided by.” Ambiguous use of nouns as modifiers (e.g., ungulate researchers, male hunters) should be avoided. Authors should use trademarks (e.g., ®, ™, ©) at first mention of product names and not thereafter (re-establish information in text body if first introduced in abstract). Additionally, manufacturer information (see Citing Equipment and Statistical Software section above) should be provided following the first mention of a product name.

Securing Appropriate Approvals

It is important that researchers and managers ensure their research activities are conducted in a manner that considers both the welfare of the animals they are studying (e.g., equipping with radiocollars, implanting vaginal implant transmitters) or the rights of human subjects (e.g., participation in surveys). Consequently, it is imperative that all peer-reviewed manuscripts submitted for publication in *PNAT* address these concerns. Relevant documentation should be provided in the Methods section. Specifically, information indicating that proper animal care and use was applied during study of live vertebrate animals for research must be provided. Institutional Animal Care and Use Approval numbers (as designated by most U.S. colleges and universities), permit or license numbers issued to hold animals, or an equivalent number all provide acceptable means of documentation. All vertebrate animals, including mammals, birds, fish, reptiles, and amphibians are covered by this policy. Additionally, appropriate documentation that proper approval was obtained to perform research involving human subjects (primarily surveys) must be provided. Human Subject Protocol numbers (as required and designated by most federal agencies and U.S. colleges and universities) is an acceptable form of documentation.

Times and Dates

Use the 24-hour system (e.g., 0001 hr through 2400 hr) and report dates as day, month, and year without punctuation (e.g., 16 April 2009). Spell out months in full except in parentheses, table bodies, and figures, in which 3-letter abbreviations are permitted and are used with no period (e.g., 16 Apr 2009). Do not use apostrophes for plural dates (e.g., 1990s).

TABLES AND FIGURES

Authors are encouraged to record information in tabular form but must avoid incorporation of data of little relevance to readers. Both tables and figures must be referenced in the text. Illustrations that do not relate significantly to the text will be deleted. Tables and figures should be imported into the document (if in Word format) or saved as an image file (please recall that we only accept .doc, .tif, .jpg, .eps, .xls, and .ppt formats). Further, tables, table legends and figure legends should be double spaced. Lettering must be large enough for readability after the figure is reduced to fit the printed page. Scale should be indicated. No part of the figure should be typewritten. Figure captions (e.g., Figure 1. Mean seasonal home range size for adult female pronghorns (*Antilocapra americana*) in Harding and Fall River counties, South Dakota, February 2002–August 2005. Harding County 95 and 50% summer and winter home range estimates were calculated using radio telemetry data obtained from 39 and 35 individual pronghorns, respectively. Similarly, Fall River County 95 and 50% summer and winter home range estimates were calculated from telemetry data obtained from 28 and 27 individual pronghorns, respectively) and table captions (e.g., Table 1. Seasonal movements by Rocky-mountain elk in western Colorado, 1998–2001) are written as titles, not as complete sentences. Avoid adding other information here; to the greatest extent possible, all information should be in the table or footnotes to the table, or included in figures.

Tables and figures should stand alone (e.g., self-explanatory) and avoid reference to text. With the exception of those items included in Table 1, authors should define relevant abbreviations and acronyms in each table and figure. All table and figure captions should include the species being studied as well as when and where (study area location) empirical data were collected. Authors should avoid using test-statistics in table and figure captions. Tables should be presented immediately following the end of the Literature Cited on a new page; each table should be placed on a separate page. Combine and list all figure captions, double-spaced on a separate page immediately following the Tables rather than on the figures themselves. Figure files should be included immediately following the list of figure captions. Figure files can be submitted either as a single file that includes all of the figures or as separate figure files.

Tables

Tables should only be prepared for data sets with a large amount of significant data. In contrast, do not prepare tables for investigations with limited data sets, those with numerous zeros or empty (blank) spaces, or repetitions of the same number; such data should be presented in the text body (Chamberlain and Johnson 2007). Tabular data are typically read vertically, not horizontally. Though table titles vary between journals, the following sequence is recommended: 1) name of biological characteristic or experimental unit(s) measured, 2) measurement unit(s) in parentheses, 3) common name of organism measured, and 4) study location and date (Chamberlain and Johnson 2007). Test statistics or statements of results (χ^2 or P -values) are not permitted in table titles. Further, avoid table titles that begin with superfluous words (e.g., The..., A comparison between..., A summary of....) and words that should be abbreviated or presented as symbols or parenthetically (Chamberlain and Johnson 2007).

Lines appearing in tables are referred to as rules. Table rules should be used according to the following guidelines: 1) Do not draw any rules vertically within a table, 2) Include at least 3 rules in each table—below the title, below the column headings, and at the bottom of the table; rules are inserted as single, continuous lines and do not appear bold or extra-thick, 3) Use rules that straddle subheadings within column headings, 4) Do not use rules to show summation; use “Total” in row headings, and 5) Use straddle rules in column headings to join related columns and reduce word use; label columns to avoid unnecessary print in data fields (Chamberlain and Johnson 2007). Avoid using column and row headings in data fields and type main headings flush left with subheadings indented. Do not use bold font for column and row headings, but capitalize first word and proper pronouns. Avoid using dashes in data fields to depict no information; data fields for which no information was collected should contain blank cells. Authors should refer to Tables 1–2 and Appendix A for examples of properly formatted tables accompanying manuscripts submitted to *The Prairie Naturalist*. Additionally, authors should pay particular attention to consistent use of significant digits in all numbers reported, particularly when reporting percentages (Chamberlain and Johnson 2007). For cases where significant variation between significant digits exists within a data column, present the precision level for each datum. Authors should report P -values out to 3 digits past the decimal. Do not report $P = 0.000$; the correct format is $P \leq 0.001$; naked decimals in data fields are not permitted (e.g., report 0.001, not .001). For footnote superscripts use asterisks for probability levels and lower-case, non-italicized Roman letters for additional footnotes. Lettered footnotes should first be placed in the title, then left-to-right, and then down. It is the author’s responsibility that all footnotes used in the title and within the table corresponds accordingly with the indented explanation immediately below the table. Foot-

notes requiring more than one sentence are left-justified and footnotes should be used to reduce unnecessary detail in the title and within the table body (Chamberlain and Johnson 2007). Please note that the most common errors in tables are single spacing, incomplete titles, naked decimal points, and unnecessary characters in data fields (Chamberlain and Johnson 2007).

Figures

Features of good figures include: 1) dark, clear lettering, 2) clear, distinct lines and sharp focus in the most important parts of the image, 3) study area location clearly depicted, 4) easily distinguishable symbols, 5) high tonal contrast, and 6) clearly depicted reference scale if size is important. Most figures are either line (e.g., computer) drawings or pictures. Figure captions should begin on a new page immediately following the Literature Cited. If possible, figures should not exceed 15 × 23 cm; reducing figures to these approximate dimensions will ensure that lettering remains readable during the final production stage of *PNAT* publications. It is acceptable for Figure captions to be longer than table titles; captions may include several sentences with recommendations for interpreting figure content. Figure captions should stand alone and enable figures to be self-explanatory, clearly describing variables and when and where empirical data were collected. Figure captions do not include statistical results and figure labels (e.g., Figure 1, Figure 2, Figure 3) should be typed on the page containing the figure. Figure lettering should follow the same guidelines as manuscript text. Only capitalize the first word and proper nouns on axis labels and figure legends or keys. Italic letters should only be used where they are essential to the meaning (e.g., such as reporting mathematics and statistics). For additional guidance regarding preparation of figures, authors are encouraged to refer to Allen (1977), Day (1983), and the CBE Style Manual Committee (1994).

ACKNOWLEDGMENTS

These guidelines have been assembled from previous versions of *The Prairie Naturalist* and the *Journal of Wildlife Management* guidelines. We respectfully acknowledge the efforts of previous authors who simplified this effort. We also thank past, present, and future reviewers, Assistant Editors, Associate Editors, Editors, and the Great Plains Natural Science Society Presidents for their commitment to *The Prairie Naturalist*. Current serving Associate Editors provided helpful comments on a previous draft of these guidelines.

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Note: Citations used in guideline text as examples are not included in the Literature Cited section above.

Immediately following the Literature Cited section authors should type the following in italics:

Associate Editor:

APPENDIX C. LITERATURE CITED

Type the Literature Cited immediately following the text, not necessarily beginning on a new page. Double-space Literature Cited and use hanging indents for second and subsequent lines of citations. Spell out all words in the Literature Cited (e.g., do not use abbreviations), with the following three exceptions: 1) Washington, D.C., 2) U.S. (e.g., U.S. Fish and Wildlife Service), and 3) USA. All references cited in the text should be listed alphabetically by first author's last name at the end of the manuscript, under the heading Literature Cited. Each entry for an article must include name(s) of author(s), year of publication, title of article, name of journal, its volume, and page numbers of the article. The first author is listed last name first, then initials. Second and other authors are listed with initials first. Spell out "and." If there are two authors, separate them with a comma. If there are more than two authors, use commas after each name, including the next-to-last. When two or more papers by the same author(s) are listed, spell out the author's name(s) in each entry; do not substitute with a line or dashes. When citing more than one paper by the same author(s), the sequence should be ordered chronologically.

Sentence-case letters should be used for all names in Literature Cited. Two author initials should be used (where appropriate) with one space between each initial. Reverse the name order only for the first author (e.g., Smith, A. B.); author initials should be listed first for subsequent authors (e.g., D. R. Anderson, K. P. Burnham). When citing more than one paper, put them in chronological order from oldest to youngest. If two or more papers by the same author(s) were published in the same year, distinguish them, both in the text and in Literature Cited, by letters placed after the year (Fannes 1983*a*, 1983*b*).

In the title of a cited article or book, only the first word and proper nouns and adjectives are capitalized. Titles are not underlined or italicized. However, scientific names in a title are italicized. Journal titles are not abbreviated. If the citation is for a book, follow the title with a period, the name of the publisher (spelled out), and the city, state, and country of publication, if not USA. For a book that is a second edition or subsequent edition, follow the title with a comma, then "second edition" or edition number as appropriate.

In citing a thesis or dissertation, follow its title with: Dissertation or Thesis, as appropriate, name of university (spelled out), and city. Include the state, province, or country unless it is part of the name of the university. In citing a chapter or article in a book, the page numbers of the article are given, but not the number of pages in the book. Name(s) of editor(s), publisher, city, state, and country (if not USA) also are included. The second and subsequent lines of citations should be indented ("hanging indent"). Please review the following examples for proper sequence and punctuation.

Book: General Format

Stearns, S. C. 1972. The evolution of life histories. Oxford University Press, Oxford, England. McCullough, D. R. 1979. The George Reserve deer herd: population ecology of a K-selected species. University of Michigan, Ann Arbor, USA.
Hosmer, D. W., and S. Lemeshow. 2000. Applied Logistic Regression, second edition. John Wiley and Sons Incorporated Publication, New York, New York, USA.

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Rongstad, O. J., and R. A. McCabe. 1984. Capture techniques. Pages 655–676 in L. K. Halls, editor. White-tailed deer ecology and management. Stackpole Books, Harrisburg, Pennsylvania, USA.
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Note: Include issue numbers only if pages of each issue are numbered separately.

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Jacques, C. N., J. A. Jenks, C. S. DePerno, J. D. Sievers, T. W. Grovenburg, T. J. Brinkman, C. C. Swanson, and B. A. Stillings. 2009. Evaluating ungulate mortality associated with helicopter net gun captures in the Northern Great Plains. *Journal of Wildlife Management* 74: In Press.

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

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APPENDIX D. MANDATORY ABBREVIATIONS FOR TABLES, FIGURES, AND PARENTHETICAL EXPRESSIONS

Abbreviate the following terms in parentheses, tables, and figures only. Do not abbreviate these terms in regular text and do not define terms listed in this table. However, all additional abbreviations must be defined when first used in the text. Additional metric abbreviations (identified with an asterisk) are not permitted.

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

^aChamberlain and Johnson (2007:55–56). Reprinted with permission from the Journal of Wildlife Management; ^bAll standard meter-based measurement units must be abbreviated in text when they appear after a number (e.g., mm, cm, km, etc.); ^cUse P to indicate a specific probability value (e.g., $P < 0.001$), but not more broad definitions in column-headings or axis labels (e.g., Probability that a juv survives first yr); ^dDefine in a footnote (e.g., tr=<1%.)