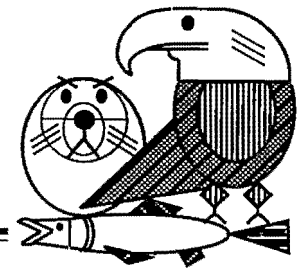
a.r. 17.62

Exxon Valdez Oil Spill Trustee Council
Restoration Office
645 G Street, Suite 401, Anchorage, Alaska 99501-3451
Phone: (907) 278-8012 Fax: (907) 276-7178



MEMORANDUM

TO: Agency Liaisons

FROM: Molly McCammon, Director of Operations

DATE: October 20, 1994

SUBJ: Guidance Procedures for Final Reports

As a result of the most recent round of reviews, a final draft of the *Procedures for the Preparation & Distribution of Final Reports* has been prepared (copy enclosed). A listing and brief discussion of specific issues that were raised during the most recent review and how they were addressed is provided as an attachment to this memo.

As noted previously, it is recognized that a number of final reports have been developed without the benefit of these most recent guidance procedures. You will find, however, that the enclosed procedures for formatting are largely consistent with prior guidance issued by the Restoration Work Force. The most significant additional guidance beyond what was previously provided involves: (1) preparation of standardized cover pages, title pages, brief study histories, abstracts and the identification of key words to ensure consistency and proper cataloging of final reports; and (2) specific guidance regarding the reproduction and distribution of final reports. It is also recognized that, in some cases, it may not be possible to alter reports that have already been prepared and that, in some cases, there may be a need for additional support for production costs. I will work with each agency liaison to address these concerns on a case-by-case basis.

Unless there are further changes you feel need to be made, this version of the *Procedures* will be distributed at the beginning of November. Please let Eric Myers (278-8012) know how many copies of the guidance packet your agency will need.

enclosures

Issues raised during the most recent review of the draft *Procedures for the Preparation & Distribution of Final Reports* were addressed as follows:

- **Identification of NRDA reports vs. Restoration Project reports (project numbers):** NRDA projects are distinguished by alpha-numeric project numbers (e.g., MM6 for "Marine Mammal 6" or B8 for "Bird 8"). Restoration Projects are identified by a five-digit identification number (e.g., 93110, 94007).

- **Abstract and Executive Summary:** Both an Abstract as well as an Executive Summary are called for in the guidance packet. It was suggested by some that just an Abstract should suffice. However, the Abstract and the Executive Summary serve different purposes. The Abstract is primarily for cataloging purposes and to provide a sufficient amount of information to allow readers to determine whether they wish to read the entire report. The Executive Summary, by contrast, is intended to provide a summary that consolidates the principle points of the report in one place and allows the reader to digest the significance of the report without having to read it in full. The Executive Summary should be written so that it can be read independently of the report. More guidance regarding the content of an Abstract and an Executive Summary has been provided.

- **Report Cover Page and Title Page:** The design of the Cover Page and Title Page have been made consistent with one another.

- **Consolidated Example:** To clarify what is intended, a consolidated example of the first few pages of a hypothetical final report has been prepared as an attachment.

- **Electronic Copy of Final Report:** The request to provide a DOS electronic copy in Word Perfect of the report has been dropped. Concerns about this request included: (1) imposing a single software requirement was unrealistic given that certain report elements will be produced using other software types (for tables, graphics, etc.); and (2) an electronic copy, if distributed to the public, could potentially be manipulated inappropriately. OSPIC regarded availability of an electronic copy of reports as of limited utility (perhaps for word searching, but that can be addressed through key words).

- **Acknowledgments:** A new subsection in the "Report Format" was added to include Acknowledgments.

- **Key Words:** More explicit guidance has been provided regarding key words.

- **Reproduction of Reports/Submission to OSPIC:** The responsibility to provide thirty-six copies (4 camera-ready copies plus an additional 32 copies) of the final report to OSPIC remains with the report author (i.e., responsible agency). If there are specific reports for which it is not possible for an agency to prepare the copies required, please discuss those reports with me on a case-by-case basis.

- **Camera-ready Copy Specifications:** A camera-ready copy is an unbound copy of the report as it will appear in its final form, except that it must be *single sided* printing with blank pages inserted as appropriate.

- **Font/Proportional Spacing:** As previously, the guidance packet includes direction to use the font Times (12 point); if Times is not available, some other sarif font should be used (e.g., Palatino, Bookman or New Century Schoolbook).

- **Suggested Report Citation:** Attachment 1 now includes an example of a recommended report citation.

- **Reference to Journal Publications in Study History:** Additional guidance regarding the Study History was provided including direction to include references, as appropriate, to published journal articles about the investigations being reported.

PROCEDURES

for the

PREPARATION & DISTRIBUTION

of

FINAL REPORTS

Exxon Valdez Oil Spill Trustee Council
Anchorage Restoration Office
645 G Street — Suite 401
Anchorage, Alaska 99501
(907) 278-8012

October 1994

The purpose of these *Procedures for the Preparation and Distribution of Final Reports* is to provide guidance regarding the preparation, reproduction and distribution of final reports prepared for the *Exxon Valdez* Oil Spill Trustee Council. These procedures update and consolidate earlier guidance provided by the Restoration Team[1] and should be read together with the report writing guidelines provided by the *Journal of Wildlife Management*.[2] (Appendix A.) To the extent that there are any inconsistencies between the procedures identified in these *Procedures for the Preparation and Distribution of Final Reports* and that provided by Ratti, J. and L. Ratti (1988), the procedures in this guidance packet should be followed.

Unless otherwise indicated, it is expected that each project funded by the Trustee Council will produce a final report (or series of reports) subject to final approval by the Chief Scientist through the Trustee Council's peer review process. For purposes of identification, Natural Resource Damage Assessment (NRDA) projects are distinguished by alpha-numeric project numbers (e.g., MM6 for "Marine Mammal Study 6" or B08 for "Bird Study 8"). Restoration Projects are identified by a five-digit project number (e.g., 93110, 94007, 95191).

Nature of Final Reports: A final report for a project should be a comprehensive report addressing all data collected over the course of the entire study. The final report should address the original objectives of the study and any changes in the objectives. Final NRDA reports should be viewed as both the *first* and *last* word on the subject for the purpose of damage assessment under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA).

1. **Final Report Preparation**: The lead agency prepares a final report that meets the following standards. These standards will ensure the proper cataloging of final reports and ability to access them.

    A. **Report Cover:** The report cover should include identification of the report as either a (1) NRDA final report, or (2) Restoration Project final report;[3] provide the report title; include the project/study identification number; identify the author(s) with appropriate affiliations; and include the date (month/year) of publication. Use quality cover stock.

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[1] See "Additional Guidance for Preparation of Damage Assessment Final Reports," memo from J. Strand and K. Oakley to P. Bergmann and B. Morris (June 2, 1992).

[2] Ratti, J. and L. Ratti. 1988. Manuscript guidelines for the Journal of Wildlife Management, Journal of Wildlife Management 52 (1, Supplement), The Wildlife Society. Another useful reference regarding the preparation of scientific papers is Day, R.H. 1988. How to write and publish a scientific paper. 3rd Ed. Oryx Press, Phoenix.

[3] Include on the Cover Page and the Title Page the following uniform titles. For NRDA reports: *Exxon Valdez* Oil Spill State/Federal Natural Resource Damage Assessment Final Report. For Restoration Project final reports: *Exxon Valdez* Oil Spill Restoration Project Final Report.

The color of the report cover should be as close as possible to the color of goldenrod as provided in the example. (Attachment 1.)

B. **Title Page:** The Title Page of the report should include the same information as the Cover Page. (Attachment 1.)

C. **Study History/Abstract/Key Words/Citation:** Following the Title Page, each report should include a single page that has: (1) a brief study history; (2) an abstract; (3) key words; and (4) a recommended citation for the final report. (Attachment 1.)

- **Study History**: Final reports should include a brief study history including reference to all prior study numbers; changes in the title of the project or report over time; work plans of which that study was a part; titles of study plans or draft reports which contributed to the final report; and citation of journal publications that have preceded publication of the final report.

- **Abstract**: An abstract, with a maximum length of 200 words,[4] should enable the reader to quickly identify the basic content of the report, determine its relevance to their interests and thus decide whether to read the document in its entirety. Do not use abbreviations or acronyms in the abstract.

- **Key Words**: A short list of key words (6 to 12 in alphabetical order) should be provided. Include some words from the title and others that identify: (1) common and scientific names of principal organisms, if any; (2) geographic area or region (if the region is well known); (3) phenomena and entities studied (e.g., behavior, reproduction, etc.); (4) methods (only if the report describes a new or improved method); and (5) other -- that is, words not covered above but useful for indexing.

- **Citation:** A recommended citation for the final report should be provided.

D. **Report Format**: Authors should follow the format set out below in preparing final reports after they are accepted by the Chief Scientist. Reports should meet normal scientific standards of completeness and detail that would permit an independent scientific reader to evaluate the reliability and validity of the methods, data and analyses.

- Cover Page (as described above).

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[4] A limit of 200 words is needed so that the report can be processed through the National Technical Information Service.

- Title Page (as described above).

- Study History/Abstract/Key Words/Citation (as described above).

- Table of Contents, Lists of Tables, Figures and Appendices.

- Executive Summary

  The purpose of the executive summary is to consolidate the principle points of the report in one place. It must provide information in enough detail to reflect the report's content and concisely enough to allow the reader to digest the significance of the report without having to read it in full. The executive summary is a concise statement of the purpose, scope, methods, results and conclusions of the report. The executive summary should be organized according to the sections of the report it summarizes with headings which mirror those used in the Table of Contents (i.e., Introduction, Objectives, Methods, Results, Discussion, Conclusions, etc.).

  The Executive Summary should be written so that it can stand independently of the report (i.e., it must not refer to figures, tables or references contained elsewhere and all acronyms, uncommon symbols, and abbreviations should be spelled out). Although the length of the Executive Summary will vary with individual reports, it should not exceed four single-spaced pages.

- Introduction

  The introduction should present first, with all possible clarity, the nature and scope of the problem investigated, including reference to the oil spill injured resource(s) and/or service(s) being addressed and the general area in which field activities were conducted. The introduction should review the pertinent literature and state the method of investigation. It should also briefly state the principal results. Do not keep the reader in suspense; let the reader follow development of the evidence.

- Objectives

  These should be the same as the objectives identified in the damage assessment plan or the detailed project description. If the objectives have changed, describe what has changed and why.

- Methods

  Provide a clear description of the methods used and the study area. To the extent the methodology differs from that described in the damage assessment plan or the detailed project description, explain the reason for the deviation.

- Results

  This should be an objective and clear presentation of the data that have been collected. In the case of damage assessment studies, investigators should make the presentation in a manner that will make clear to the reader:

  — evidence of injury found; and
  — evidence that the injury found was caused by the *Exxon Valdez* oil spill.

- Discussion

  The discussion should interpret the study results and explore the meaning and significance of the findings. The relevance to restoration should also be discussed here. Where there are unanswered questions, these should be brought out. Where appropriate, the relevant findings from other *Exxon Valdez* spill studies and literature should be cited.

- Conclusions

  This should be a brief, clear statement of conclusions that are apparent from the discussions; this should include conclusions related to restoration. Where there are **major** unanswered questions, these should be identified.

- Acknowledgements

- Literature Cited

2. **Word Perfect Conventions:**[5] To help produce reports with a consistent format, it is requested that reports be prepared in Word Perfect (5.1 or 6.0).

   - Use Format (shift, F8) to set up standard settings:

     Line

     Line spacing - single for final report
     Hyphenation - off (i.e., do not hyphenate at right margin)
     Justification - left (i.e., do not right-justify margins)
     Margins - 1 inch at top, bottom
     1 inch left, right
     Tabs - 0", every 0.5"

[5] These conventions were previously issued by the Restoration Team.

Widow Protection - On

Page
Page numbering - yes, bottom center
Header - not in final report

Document
Font - Times 12 point [6]

- Use Word Perfect's Table of Contents feature to create the Table of Contents, List of Figures and List of Tables.

- Prevent page breaks from separating headings from the following text. Do not use hard page breaks for this purpose.

- Use italics (rather than underlining) for Latin names and for *T/V Exxon Valdez.* If your printer does not print italics, then use underlining.

- Regularly use the spell check feature to catch typographical errors. Always do a complete spell check.

- Use the space bar, tab key and indent (F4) feature appropriately.

  — Use spaces only to separate words and sentences.

  — Use tabs to place characters at set locations across the page, such as when placing a list in the text.

  — Use indents when you want the text to wrap around at a tab point to the right of the left margin. Only use a hard return at the end of the text being indented.

- To make a hanging indent for use in the Literature Cited section, start each citation with indent, shift-tab. Only use a hard return at the end of the complete citation. Example:

  Byrd, G. V., D. Gibson, and D. L. Johnson. 1974. The birds of Adak Island, Alaska. Condor 76:288-300

[6] If Times is not available, some other sarif font should be used (e.g., Palatino, Bookman or New Century Schoolbook).

3. **Other Conventions:**[7] Use good-quality white paper 8.5 x 11" (215 x 280mm) or metric size A4. Reports prepared on dot matrix printers are not acceptable. Remove from the pages of the final report all reference(s) to "draft," "interim," or "draft final." When referring to the tanker vessel *Exxon Valdez* as a ship, use *T/V Exxon Valdez*. [Example: The *T/V Exxon Valdez* ran aground on Bligh Reef.] When referring to the oil spill that occurred because the *T/V Exxon Valdez* ran aground, use *Exxon Valdez* oil spill. After the first mention of the *Exxon Valdez* oil spill in your report, refer to it simply as the spill. Do not use acronyms such as EVOS.

   Use the terms "damages" and "injury" as defined by CERCLA regulations (see 43 CFR-11.14).

   > "Damages" means the amount of money sought by the natural resource trustee as compensation for injury, destruction or loss of natural resources.
   >
   > "Injury" means a measurable adverse change, either long or short-term, in the chemical or physical quality or the viability of a natural resource resulting either directly or indirectly from exposure to a discharge of oil. Injury encompasses the phrases "destruction" and "loss."
   >
   > > "Destruction" means the total and irreversible loss of a natural resource.
   > >
   > > "Loss" means a measurable adverse reduction of a chemical or physical quality or viability of a natural resource.

   Avoid reference to interim reports. If it is necessary to cite to information presented in an interim report by another investigator, contact the investigator to determine if the information will be presented in a final report. Cite to final reports whenever possible.

4. **Final Report Review Process as to Form**: Upon acceptance of the final report by the Chief Scientist (including the study history, abstract and key words), the lead agency/principle investigator will be notified and a copy of the letter of approval will be sent to the Oil Spill Public Information Center (OSPIC).

   — Within 30 days of the date on which the Chief Scientist accepts the final report, the lead agency will submit one camera-ready copy of the final report to OSPIC at 465 G Street, Suite 100, Anchorage, Alaska 99501 (attention: OSPIC Director - Final Report).

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[7] These conventions were previously issued by the Restoration Team. See "Additional Guidance for Preparation of Damage Assessment Final Reports," memo from J. Strand and K. Oakley to P. Bergmann and B. Morris (June 2, 1992).

— Written notification of its receipt will be sent immediately by OSPIC to the PI/Author/Project Leader and the lead agency's liaison.

— Within 15 days of receipt of the final report, OSPIC will review it for compliance with the report format standards and notify the PI/Author/Project Leader and the lead agency's liaison in writing of its findings.

5. **Report Reproduction/Submission to OSPIC**: Within 60 days of the date of the letter from OSPIC regarding its review as to form, the lead agency will modify the final report (if necessary) and provide to OSPIC the requisite number of copies. Reproduction standards are presented below:

   — **Pages**: The body of the report should be printed in two-sided format. This standard will reduce the space needed to store reports.

   — **Number of Copies**: The lead agency will provide to OSPIC thirty-six copies of the final report (32 bound copies and 4 camera-ready copies). A camera-ready copy is an unbound copy of the report as it will appear in its final format, except that it has single-sided printing with blank pages inserted as appropriate. Bound copies are for libraries; camera-ready copies are for duplication upon request.

   — **Binding**: The 32 bound copies submitted to OSPIC should be bound using PERFECT binding.

6. **Distribution**: OSPIC will distribute copies of reports as shown in Attachment 2.

7. **Future Project Proposals**: The schedules and budgets of future project proposals should reflect the time and funding necessary to reproduce 36 copies (32 bound copies and 4 camera-ready copies) of the final report that meet the report format standards.

8. **Publication of Project Results Supported by the Trustee Council**: To preserve the opportunity for investigators to publish results in the peer-reviewed literature, the final reports will *not* be formally published as a series. The reports will be simply reports to a sponsoring agency. Investigators working on projects sponsored by the Trustee Council that are the subject of a journal article or other submission for publication should include the following statement with all such submissions:

   > "The research described in this paper was supported by the *Exxon Valdez* Oil Spill Trustee Council. However, the findings and conclusions presented by the author(s) are their own and do not necessarily reflect the views or position of the Trustee Council."

Investigators who do not plan to submit results to peer-reviewed journals but who would like their results to be more widely reported may have other opportunities to publish their results. The Trustee Council may sponsor future *Exxon Valdez* oil spill symposiums and submitted papers may be published in symposium proceedings.

Attachment 1	Example: Cover Page/Title Page/Study History/Abstract/Key Words/Citation
Attachment 2	Distribution List for Final Reports
Appendix A	Ratti, J. and L. Ratti. 1988. Manuscript guidelines for the Journal of Wildlife Management, 52 (1 Suppl.), The Wildlife Society.

Attachment 1

Example:

Cover Page/Title Page/Study History/Abstract/Key Words/Citation

Note: The following example of a final report Cover Page, Title Page, Study History, Abstract, Key Words and Citation has been prepared on the basis of a completely hypothetical project as a guide to help with formatting and design of final reports. This example is based on a hypothetical Restoration Project final report and is identified accordingly. Natural Resource Damage Assessment (NRDA) final reports, as distinguished from Restoration Project final reports, should be identified as such (see "Final Report Preparation" discussion on page 1 of the *Procedures for the Preparation and Distribution of Final Reports*).

Exxon Valdez Oil Spill
Restoration Project Final Report

Investigation of the Breeding Success of Marbled Murrelets Injured by the *Exxon Valdez* Oil Spill

Restoration Project 95103
Final Report

Gretchen Smith
Mark Hansen
Nancy Johnson

U. S. Fish and Wildlife Service
1011 East Tudor Road
Anchorage, Alaska 99503

February 1995

Exxon Valdez Oil Spill
Restoration Project Final Report

Investigation of the Breeding Success of Marbled Murrelets Injured by the *Exxon Valdez* Oil Spill

Restoration Project 95103
Final Report

Gretchen Smith
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Nancy Johnson

U. S. Fish and Wildlife Service
1011 East Tudor Road
Anchorage, Alaska 99503

February 1995

Investigation of the Breeding Success of Marbled Murrelets Injured by the *Exxon Valdez* Oil Spill

Restoration Project 95103
Final Report

Study History: Restoration Project 95103 was initiated as part of a detailed study plan in 1991 under Bird Study 13 (Injury Assessment of Hydrocarbon Uptake by Seabirds in Prince William Sound). The project effort continued under Restoration Project 93042. A draft report was issued in 1993 by Smith, G., under the title Investigation of *Exxon Valdez* Oil Spill Injury on the Breeding Success of Marbled Murrelets. The project effort was continued under Restoration Project 94103 (Productivity of Marbled Murrelets in Prince William Sound) and 95103 (Breeding Success of Marbled Murrelets). A journal article regarding the project was published in 1994 (Smith, G. 1994. Breeding success of marbled murrelets injured by the *Exxon Valdez* oil spill, *Journal of Seabird Ornithologists* 9(4);23-31).

Abstract: We studied reproduction of marbled murrelets (*Brachyramphus marmoratus*) breeding in Prince William Sound, Alaska, following the 1989 *Exxon Valdez* oil spill. We tracked 30 radio-collared adults to their nests. Seventy-five percent nested on branches in coniferous trees and 25% nested on the ground on snow-free rocky slopes above 1,000 m. Nests were initiated in May and chicks hatched in June and fledged in July. On average, 0.25 chicks fledged per nest. Most nest failures were due to predation by bald eagles (*Haliaeetus leucocephalus*) on adult murrelets flying between foraging areas and their nests. Adults foraged in waters within 5 km of their nests and delivered primarily sand lance (*Ammodytes hexapterus*) to their chicks. Following fledging, adults quickly left the breeding area while juveniles stayed within a 10 km radius of their nest until late September. Reproductive biology of murrelets in Prince William Sound was similar to that of British Columbia murrelets. Because of a lack of pre-spill data, specific effects of the oil spill on murrelet reproduction could not be determined.

Key Words: *Brachyramphus marmoratus*, breeding, *Exxon Valdez*, marbled murrelet, Prince William Sound, reproduction.

Citation: Smith, G., M. Hansen, and N. Johnson. 1995. Investigation of the breeding success of marbled murrelets injured by the *Exxon Valdez* oil spill, *Exxon Valdez* Oil Spill Restoration Project Final Report (Restoration Project 95103), U.S. Fish and Wildlife Service, Anchorage, Alaska.

Attachment 2

DISTRIBUTION LIST FOR FINAL REPORTS

The Oil Spill Public Information Center (OSPIC) will distribute copies of final reports to:

- Alaska State Library (18 bound copies) - for distribution to the libraries in the state repository system.
- Oil Spill Public Information Center (5 bound copies and 1 camera-ready copy) - for the Administrative Record, OSPIC Reference Collection, Circulating Collection, and Interlibrary Loan.
- National Technical Information Service (1 camera-ready copy) - for reproduction upon request.
- Preston, Gates & Ellis (2 bound copies) - for litigation discovery purposes.
- Cordova Public Library (1 bound copy)
- Valdez Consortium Library (1 bound copy)
- Alaska Dept. of Environmental Conservation Library (1 bound copy)
- ADF&G Habitat Division Library (1 bound copy)
- Auke Bay Fisheries Lab Marine Fisheries Service Library (1 bound copy)
- U.S. Fish and Wildlife Service Library (1 bound copy)
- University of Washington Library (1 bound copy)
- TimeFrame (1 camera-ready copy) - for reproduction upon request.
- Clay's Printing (1 camera-ready copy) - for reproduction upon request.

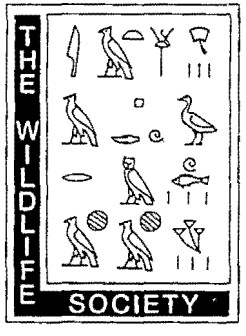
The Alaska State Library will distribute its copies to the following libraries:

Alaska Historical Library
E.E. Rasmuson Library (University of Alaska Fairbanks)
University of Alaska Anchorage Consortium Library
Library of Congress
Z.J. Loussac Library
Fairbanks North Star Borough Library
Alaska Resources Library
Washington State Library
Ketchikan Public Library
Sheldon Jackson Library
Northwest Community College Learning Resources Center
A. Holmes Johnson Library (Kodiak)
Kenai Community Library
Kuskokwim Consortium Library (Bethel)
National Library of Canada (Ottawa)
Center for Research Libraries (Chicago)
University of Alaska, Southeast (Juneau)

Appendix A

Ratti, J. and L. Ratti, 1988. Manuscript guidelines for the Journal of Wildlife Management, Journal of Wildlife Management, 52 (1 Suppl.) The Wildlife Society, Bethesda, Maryland

MANUSCRIPT GUIDELINES FOR THE JOURNAL OF WILDLIFE MANAGEMENT



By
John T. Ratti and Leslie W. Ratti

1988. J. Wildl. Manage. 52(1, Suppl.). 34 pp.
The Wildlife Society, Inc., Bethesda, MD

1 January 1988

John T. Ratti
Department of Fish & Wildlife Resources
University of Idaho
Moscow, ID 83843
208-885-6434

RH: JWM Manuscript Guidelines ' Ratti and Ratti

MANUSCRIPT GUIDELINES FOR THE JOURNAL OF WILDLIFE MANAGEMENT

JOHN T. RATTI, Department of Fish and Wildlife Resources, University of Idaho, Moscow, ID 83843

LESLIE W. RATTI,[1] The Wildlife Society, c/o Department of Fish and Wildlife Resources, University of Idaho, Moscow, ID 83843

Abstract: This publication provides guidelines for preparing manuscripts submitted to The Journal of Wildlife Management (JWM) for publication consideration. Authors should submit manuscripts in the format and style presented in these guidelines. Proper preparation increases the probability and speed of acceptance.

J. WILDL. MANAGE. 00(0):000-000

Key words: author, format, guidelines, instructions, manuscript, The Journal of Wildlife Management.

These guidelines update Gill and Healy (1980) and those on the back cover of some issues of JWM. This update was prepared to make the guidelines more available to authors by publication in JWM, to include basic format changes, and to provide additional examples. Authors should review a recent issue of JWM but should understand that there are differences between articles in final printed form and correct format of submitted manuscripts (e.g., key words, placement of tables and figures, and line spacing). Check the most recent JWM issues for instructions that may supersede these guidelines and the name and address of the current editor in chief. Papers

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[1]Present address: ThoroGold Farm, 2457 W. Twin Road, Moscow, ID 83843.

that obviously deviate from JWM format and style may be returned for correction before review.

Special thanks go to S. L. Beasom for major contributions to this manuscript. We received helpful review comments from B. B. Ackerman, C. E. Braun, D. E. Capen, J. D. Gill, F. S. Guthery, G. B. Healy, H. E. Hodgdon, R. L. Kirkpatrick, F. L. Knopf, P. R. Krausman, N. A. Lawrence, K. R. Rautenstrauch, and P. E. White. Portions of this manuscript have been extracted from Gill and Healy (1980) with permission of The Wildlife Society. This is Contribution 293, University of Idaho Forest, Wildlife, and Range Experiment Station.

POLICY

Referees and editors judge each submitted manuscript on data originality, ideas, interpretations, accuracy, conciseness, clarity, appropriate subject matter, and contribution to existing literature. Prior publication or concurrent submission to other refereed journals precludes publication in JWM (see additional information in section on Transmittal Letter and Submission). The JWM, Wildlife Society Bulletin, and Wildlife Monographs have identical quality standards. Fisheries papers are discouraged unless information is part of an account that mainly concerns terrestrial vertebrates.

PAGE CHARGES AND COPYRIGHTS

Current policies and charges are explained in the acknowledgment sent to authors when manuscripts are accepted for publication. Page charges may change annually; in 1987 they were $50/page for the first 10 pages plus $95 for each succeeding page. Authors pay for alterations to page proofs (in 1987, $2/reset line) except for typesetting and editorial errors. If a manuscript not in the public domain is accepted for publication, authors or their employers must transfer copyright interest to The Wildlife Society. Publications authored by federal government employees are in the public

domain. Manuscript submission implies entrusting a clear copyright (or equivalent trust in public domain work) to the editor in chief until the manuscript is either rejected, withdrawn, or accepted for publication. If accepted, The Wildlife Society retains the copyright.

COPY

Use good-quality white paper, 215 x 280 mm (8.5 x 11 inches) or metric size A4. Do not hyphenate words at the right margin. If your manuscript is typed with a computer word processor, do not right-justify the text. Manuscripts produced on poor-quality dot matrix printers are not acceptable.

Margins should be 3 cm (1 3/16 inches) on all sides. Do not violate margin boundaries to begin a new paragraph or the Literature Cited section at the top of a new page; i.e., do not leave >3 cm of space at the bottom of a page. Type the senior author's last name (upper left) and page numbers (upper right) on pages 2 through the Literature Cited and on tables and figure title pages, but not on the first page, figures, or illustrations. Underline words in the text only to indicate italics for scientific names or emphasis (rarely). Keep the original copy and submit 4 good-quality photographic copies. Submit a transmittal letter (see below) with your manuscript.

RUNNING HEAD, TITLE, AND AUTHORS

Page 1 of the manuscript should begin with the date (update with each revision), corresponding author's name, address, and telephone number, single-spaced in the upper left corner. Thereafter, all text is double-spaced, including tables.

The running head (RH) is the first line following the correspondent's address. The RH is limited to 45 characters, left-justified, and typed in upper- and lower-case letters followed by a dot (or raised period) and the last name(s) of 1 or 2 authors. For ≥3 authors use the name of the first author followed by "et al." Single underline the author's name(s). The RH is

used in final printed form as an abbreviated title at the top of each page following the title page.

The title follows the RH, is also left-justified in all upper-case letters, should not include abbreviations, and should not exceed 10 words unless doing so forces awkward construction. In such cases, use ≤13 words. The title identifies manuscript content. Do not use scientific names in the title except for organisms that do not have, or are easily confused by, common names. Use digits for numbers.

Author's names are left-justified in upper-case letters followed by affiliation and address in upper- and lower-case letters (usually where the author was employed during the study). The second and third lines of the author's address are indented 5 spaces. Use available postal codes (Appendix A) in each address. 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. See recent issues of JWM for by-line examples.

FOOTNOTES

Footnotes in the text usually are restricted to the bottom of the first page to reference the present address of an author when it differs from the by-line address. Footnotes also may be used to indicate a deceased author. The footnote appears immediately below a left-justified solid line of 10 characters, is indented 5 spaces, and starts with a numerical superscript; subsequent lines are left-justified. The origin of the footnote is the corresponding numerical superscript following the author's name. Endorsement disclaimers and pesticide warnings should be incorporated in the text. For table footnotes, see the Tables section.

ABSTRACT

Begin with the word "Abstract" underlined, left-justified, and followed by a colon. The Abstract text begins after the colon on the same line, and

should be a single paragraph not exceeding 1 line/page of text, including Literature Cited. The Abstract should include:

Problem Studied or Hypothesis Tested.--What was it and why is it important? Indicate new data, ideas, or interpretations used directly or indirectly to manage wildlife.

Results.--Emphasize the most important results, positive or negative, but keep the methods brief unless a new or much-improved method is reported.

Utility of Results.--Explain how, where, when, and by whom data or interpretations can be applied to wildlife problems or contribute to knowledge of wildlife science.

On the line following the Abstract, type "J. WILDL. MANAGE. 00(0):000-000" on the right half of the page (see page 1 of this manuscript).

KEY WORDS

Key words follow the abstract. The phrase "Key Words" is underlined, followed by a colon and 6-12 words in alphabetical order. Include some words from the title and others that identify (1) common and scientific names of principal organisms, if any; (2) 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, radio telemetry, habitat, nutrition, browse, density estimation, or reproduction); (4) methods--only if the manuscript describes a new or improved method; and (5) other--words not covered above but useful for indexing. Type a solid line from the left to the right margin beneath the key words; begin the text 2 spaces below this line.

HEADINGS AND MAJOR SECTIONS

Headings

Three levels of headings may be used and examples of each appear in this manuscript. First-level headings are in upper-case letters, are left-justified, and may be in bold face type. Second-level headings also are

left-justified but only the first letter of each word (except articles and prepositions) is upper-case. Third-level headings also have the first letter of each word upper-case, but are indented 5 spaces, underlined, and followed by a period and 2 hyphens. Although short papers (<4 pages) may not require any headings, most require at least first-level headings. Under a first-level heading, use only third-level headings if the subsections are short (≤2 paragraphs). With second- and third-level headings avoid repeating the exact wording of the heading in the first sentence. Do not leave headings standing alone on the last line of a page (i.e., as a "widow line").

Major Sections

The introduction (no heading) follows the line below Key Words and is a concise review of literature specifically related to the manuscript's main topic. The latter part of this section specifies objectives or hypotheses tested. The last paragraph is reserved for acknowledgments (no heading), which should be brief and include both initials (where appropriate) of individuals cited. Agency or affiliation names should not be abbreviated in this section.

Most JWM manuscripts have 7 major sections: introduction, Study Area, Methods, Results, Discussion, Management Implications, and Literature Cited. Some authors combine Study Area and Methods, and Results and Discussion. Combining Results and Discussion sections is not recommended. Merging these sections so that results can be interpreted when first presented often leads to superfluous wording, unnecessary discussion, and confusion.

Most study area descriptions should be presented in past tense; e.g., average annual precipitation was 46 cm (CBE Style Man. Comm. 1983:38-39). Methods should be brief and include dates, sampling periods, research or experimental design, and sampling and data analyses methods. Previously published methods should be cited without explanation. New or modified methods should be identified as such and explained in detail.

Present Results in a clear, simple, concise, and organized fashion. Avoid overlapping text with information in tables and figures; resist explaining analyses that should be presented in the Methods. In most cases results should be presented in the past tense. Reserve interpretation comments for the Discussion.

The Discussion provides an opportunity for interpreting data and making literature comparisons. Reasonable speculation and new hypotheses to be tested may be included in the Discussion. Do not repeat results and comment only on the most important results. Systematic discussion of every aspect the research leads to unnecessarily long manuscripts.

The Management Implications section should be short and direct, but is important to conservation issues. This section may be speculative, but should address specific management opportunities or problems wherever possible.

STYLE AND USAGE

Many manuscripts with publishable data are rejected because of poor writing style (i.e., 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, referees tend to be less tolerant of poor writing, and this problem may lead to unnecessarily negative reviews. Authors are urged to review Chapters 3 and 4 in the "CBE Style Manual" (CBE Style Man. Comm. 1983) and "Writing with Precision, Clarity, and Economy" by Mack (1986). Manuscripts should be direct and concise. Using a carefully prepared outline to guide manuscript writing will remedy many common problems. Other helpful suggestions are presented by Strunk and White (1979), Day (1983), and Batzli (1986). Use the first person and active voice whenever appropriate. Review the list of commonly misused words (Table 2) before preparing your manuscript.

Numbers and Unit Names.--Use digits for numbers (e.g., 7 and 45) unless

the number is the first word of a sentence, where it is spelled out. 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) 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 such as "A total of ... ." Spell out numbers used as pronouns (i.e., one) or adverbs and ordinal numbers (e.g., first and second). However, use digits for cases such as 3-fold and 2-way. Use fractions (1/4, 1/3, etc.) only where conversion to decimals misrepresents precision.

Hyphenate number-unit phrases used as adjectives (e.g., 3-m^2 plots and 3-year-old males), but not those used as predicate adjectives (e.g., plots were 3 m^2). Insert commas in numbers $\geq$1,000 (except for pages in books, clock time, or year dates). Do not insert a comma or hyphen between consecutive, separate numbers in a phrase (28 3-m^2 plots). Never use naked decimals; i.e., use 0.05, not .05.

Time and Dates.--Use the 24-hour system: 0001 through 2400 hours (midnight). Date sequence is day month year, without punctuation. Use an apostrophe for plural dates (e.g., 1970's). Spell out months except in parentheses, tables, and figures, in which 3-letter abbreviations are used with no period (e.g., 31 Mar 1947; Appendix B).

Mathematics and Statistics.--Underlining symbols (Appendix B) instructs the typesetter to use italic type. Underline Roman letters used as symbols for quantities (e.g., n, $\bar{X}$, F, t, Z, P, and X). Do not underline numbers, Greek letters, names of trigonometric and transcendental functions, or certain statistical terms (e.g., ln, e, exp, max., min., lim, SD, SE, CV, and df). Draw a wavy underline or annotate items that should be set in boldface type.

Insert a space on both sides of symbols used as conjunctions (e.g., $P > 0.05$), but close the space when 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 (67 mm) if they appear in the main body of the manuscript; long equations and matrices can be printed page-width (138 mm) in appendixes. Swanson (1974) or the CBE Style Manual Committee (1983:28-30, 150-153) should be followed for general guidance and MacInnes (1978) for advice on presentation of statistics. Authors are urged to read Tacha et al. (1982) and Wang (1986) for reviews of common statistical errors.

Abbreviations.--Metric units, their appropriate prefixes, and abbreviations identified by an asterisk in Appendix B may be used in the text. All other abbreviations used in the text must be defined the first time used. Do not start sentences with acronyms. All abbreviations in Appendixes A, B, and C may be used within parentheses.

Punctuation.--Use a comma after the next-to-last item in a series of $\geq$3 items (e.g., red, black, and blue). Do not hyphenate prefixes, suffixes, or combining forms unless necessary to avoid confusion. Closing quotation marks are always placed after periods and commas, but may be placed either before or after other punctuation (CBE Style Man. Comm. 1983:137).

Fences must appear in pairs, but the sequence varies. Use ([]) in ordinary sentences, use ([()]) in mathematical sentences, and use (()) o 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 Man. Comm. 1983:134]).

Enumerating Series of Items.--When enumerating series a colon must precede the numbered items unless preceded by a verb or preposition. In simple series place numbers within parentheses (see example in Key Words section). 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 example in Tables section).

COMMON AND SCIENTIFIC NAMES

Do not capitalize common names of species except words that are proper names (e.g., Canada goose [Branta canadensis], Swainson's hawk [Buteo swainsoni], white-tailed deer [Odocoileus virginianus]). Scientific names should follow the first mention of a common name, except in the title. If a scientific name is given in the abstract, do not repeat it in the text or tables. Scientific names following common names are underlined (not italics) in parentheses with the first letter of the genus upper-case 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 authors names. Use "sp." to indicate species unknown (spp. for plural); e.g., the field was bordered by willow (Salix sp.). Use the most widely accepted nomenclature where disagreement occurs. As general references use The American Ornithologists' Union (1983) for birds and Honacki et al. (1982) for mammals. For plants there is no single reference for North America; we recommend citing 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. Use English units only in parentheses following a converted, metric-unit quantity that may misrepresent the precision of a nominal, trade dimension. However, these

non-SI units are permitted:

area -- hectare (ha) in lieu of 10^4 m^2;

energy -- calorie (cal) in lieu of Joule (J);

temperature -- Celsius (C, without degree symbol) in lieu of Kelvin (K);

time -- minute (min), hour (hr), day, etc. in lieu of seconds (sec);

volume -- liter (L) in lieu of dm^3.

The CBE Style Manual Committee (1983:147-153) provided definitions of SI units and prefixes and listed 9 references. The American Society of Testing Materials (1979) included many conversion factors.

CITING LITERATURE IN TEXT

Published literature is cited by author and year; e.g., Jones (1980), Jones and White (1981). With ≥3 authors use "et al."; 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 and put these in chronological order; 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 (underlined) 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 1977, Clark 1977, Reese 1977, Allen 1980). For a quotation or paraphrase, cite author, year, colon, and page number(s). Use the same style for a book or other lengthy publication unless the reference is to the entire publicat e.g., Odum (1971:223) or Steel and Torrie (1980:316-321). Avoid referencing common knowledge, particularly conventional tests of probability.

Cite documents that are cataloged in major libraries, including theses and dissertations, as published literature. This includes symposia proceedings and U.S. Government reports that have been widely distributed. However, cite such references as unpublished information if they are not easily available. Cite unpublished information in the following forms:

(J. G. Jones, Natl. Park Serv., pers. commun.), (D. F. Brown, Ariz. Game and Fish Dep., unpubl. data), (D. E. Timm, Annu. Waterfowl Rep., Alas. Dep. Fish and Game, Juneau, 1977).

A manuscript accepted for publication is cited as a published manuscript in the text using the anticipated publication year. In the Literature Cited, show the year after the name(s) of the author(s) and "In Press" after the volume number (see below).

LITERATURE CITED STYLE

Type the Literature Cited double-spaced immediately following the text, not necessarily on a new page. Alphabetize by author's surname(s), regardless of the number of multiple authors for the same publication. Within the alphabetical order the sequence is chronological. Use upper- and lower-case letters (typing all capital letters complicates editing names such as DeGraaf and van Druff). Use 2 initials (where appropriate) with 1 space between. For multiple citations with the same author(s), use a 5-spaced line to replace the author's name(s) after the first citation. See Appendixes A and C for word abbreviations commonly used in JWM literature citations. Do not abbreviate 1-word journal names (e.g., Ecology). For serial publications, show the issue number only if the pages of each issue are numbered separately. Omit unnecessary words, but do not remove a conjunction if the meaning may be changed (e.g., Game and Fish vs. Game Fish). As in the text, spell out ordinal numbers (e.g., Third ed.). Please review the following examples.

Book -- More Than 1 Edition

Smith, R. L. 1974. Ecology and field biology. Second ed. Harper & Row Publ., New York, N.Y. 850pp.

Book -- More than 1 Volume

Palmer, R. S. 1976. Handbook of North American birds. Vol. 2. Yale Univ. Press, New Haven, Conn. 521pp.

Book -- Editor As Author

Temple, S. A., editor. 1978. Endangered birds: management techniques for preserving threatened species. Univ. Wisconsin Press, Madison. 466pp.

Chapter Within Book

Zeleny, L. 1978. Nesting box programs for bluebirds and other passerines. Pages 55-60 in S. A. Temple, ed. Endangered birds: management techniques for preserving threatened species. Univ. Wisconsin Press, Madison.

Note: Total page numbers are not given in this case.

Theses (M.S. and Ph.D.)

Tacha, T. C. 1981. Behavior and taxonomy of sandhill cranes from mid-continental North America. Ph.D. Thesis, Oklahoma State Univ., Stillwater. 110pp.

Note: Include state or province name if it is not in institution title.

Journals -- General Format

Miller, M. R. 1986. Molt chronology of northern pintails in California. J. Wildl. Manage. 50:57-64.

Journals In Press -- Year and Volume Known

Rotella, J. J., and J. T. Ratti. 1986. Test of a critical density index assumption: a case study with gray partridge. J. Wildl. Manage. 50:In Press.

Journals In Press -- Year and Volume Unknown

Hohman, W. L., and B. L. Cypher. In Press. Age-class determination of ring-necked ducks. J. Wildl. Manage.

Symposia and Proceedings -- Complete Volume

DeGraaf, R. M., technical coordinator. 1978. Proc. workshop management of southern forests for nongame birds. U.S. For. Serv. Gen. Tech. Rep. SE-14. 176pp.

Note: Abbreviate words like Proceedings (Proc.), Symposium (Symp.), and

Transactions (Trans.) when they are the first word in the title; otherwise spell out.

Symposia and Proceedings -- Individual Article

Dickson, J. G. 1978. Forest bird communities of the bottomland hardwoods. Pages 66-73 in R. M. DeGraaf, tech. coord. Proc. workshop management of southern forests for nongame birds. U.S. For. Serv. Gen. Tech. Rep. SE-14.

Note: total page numbers are not given in this case.

Symposia and Proceedings -- Part of a Numbered Series

Palmer, T. K. 1976. Pest bird control in cattle feedlots: the integrated system approach. Proc. Vertebr. Pest Conf. 7:17-21.

Multiple Citations of the Same Author(s)

Peek, J. M. 1963. Appraisal of a moose range in southwestern Montana. J. Range Manage. 16:227-231.

_____. 1986. A review of wildlife management. Prentice-Hall, Englewood Cliffs, N.J. 486pp.

_____, and A. L. Lovaas. 1968. Differential distribution of elk by sex and age on the Gallatin winter range, Montana. J. Wildl. Manage. 32:553-557.

_____, _____, and R. A. Rouse. 1967. Population changes within the Gallatin elk herd, 1932-1965. J. Wildl. Manage. 31:304-316.

_____, and R. A. Rouse. 1966. Preliminary report on population changes within the Gallatin elk herd. Wildl. Sci. 82:1298-1316. (Fictitious citation used for example only.)

Government Publication

Lull, H. W. 1968. A forest atlas of the Northeast. U.S. For. Serv., Northeast For. Exp. Stn., Upper Darby, Pa. 46pp.

Government Publication -- Part of a Numbered Series

Anderson, D. R. 1975. Population ecology of the mallard: V. Temporal and geographic estimates of survival, recovery, and harvest rates. U.S. Fish and Wildl. Serv. Resour. Publ. 125. 110pp.

Government Publication -- Agency as Author

National Research Council. 1977. Nutrient requirements of poultry. Seventh ed. Natl. Acad. Sci., Washington, D.C. 62pp.

Note: Cite in text as National Research Council (1977) or (Natl. Res. Counc. 1977).

TABLES AND FIGURES

Submit only essential tables and figures. Often tables overlap with presentation in the text, or the information can be easily printed in the text with less journal space. Do not present the same data in a table and a figure. Number tables and figures independently. In the text limit reference of tabular data to highlights of the most important information. In most cases reference tables and figures parenthetically. 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 see CBE Style Manual Committee (1983:67-85).

Tables and figures should be self-explanatory; avoid reference to the text, and be sure the title includes the species or subject of the data and where and when the data were collected. In rare cases, titles or footnotes of tables and figures may be cross-referenced to avoid repeating long footnotes or the same data. However, this violates the "self-explanatory" rule and should be avoided. When a table or figure is first mentioned in text, indicate in the margin "Table " or "Fig. ," and the corresponding number (see this manuscript for examples).

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 (67 cm) printing. If the table will not fit in 1 column width, construct it for page-width printing not wider than 23 cm (9 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., weight, age, and 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) place and date. 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, 1975)."

Avoid beginning the title with "puff" 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 B) in the table body and in footnotes.

The lines printed in tables are called "rules," and JWM standards are

1. None drawn vertically within the table.
2. Three rules across the entire table: below the title, below the column headings, and at the bottom. Type each as a single, continuous line.
3. Use rules that straddle subheadings within the column heading (e.g., JWM 50:48).
4. None to show summation if "Total" or equivalent is in the row heading.
5. For results of multiple-range tests use rules to join the means if only 1 rule/row of means is needed. Break the line between sets of means that differ (e.g., JWM 50:371). If ≥2 rules are needed, use Roman upper-case letters instead of rules (e.g., 12.3A[a], 16.2A, and 19.5B) where the superscript "a" references a footnote such as "[a]Means with the same letters are not different ($P > 0.10$)" (e.g., JWM 50:22). Upper-case letters may be used in a similar fashion to reference the relationships of data among columns (e.g., JWM 50:371).

In column headings use straddle rules liberally 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," $\bar{x}$ and SE separately so that $\pm$ 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). 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. 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 footnote superscripts use asterisks for probability levels and lower-case Roman (not italic) letters for other footnotes. Use this sequence for placing letters alphabetically: in the title, then left-to-right, and then down. Make certain that each footnote character in the title and table matches an explanation that is indented below the table. Left justify run-on lines of footnotes. Use footnotes liberally 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 drawings or pictures ("picture" is used to distinguish scene or object photographs from photos of drawings). If possible, photographic prints should not exceed 20 x 25 cm. Submit 3 prints of a picture; for drawings submit either 3 prints or 1 print and 2 photographic copies. Retain original drawings to guard against loss or damage. Consult Allen (1977), the CBE Style Manual Committee (1983:67-80), and Day (1983) for additional guidance.

Type figure captions on a separate page. On the back of each figure lightly print (in soft pencil) the senior author's name, figure number, and "Top." Figure titles tend to be longer than table titles because figures are not footnoted. The title may be several sentences and include items such as regression equations, exceptions, and brief suggestions for interpreting the relationships shown.

Pictures.--Few pictures are accepted. They must have sharp focus in the most important parts of the image, have high tonal contrast, a reference scale if size is important, a glossy finish, and must be unmounted. 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 1 figure if prints are the same width and will fit in a space 67 x <170 mm when reduced for printing. Label prints A, B, C, D or use "Top," etc., for reference in the figure title. Cropping improves composition of most pictures, but do not put crop marks on prints. Instead, put them on xerographic copies or sketches. Do not submit color prints unless you are able to pay for printing at $1,800/plate (as of 1987).

Line Drawings.--Consider whether a drawing can be printed column width (67 mm) or is so detailed that it must be printed page width (138 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 of the

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. Decide on a width for the revised sketch and measure it in millimeters. 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. Plan to least the next larger character height available. Hand-drawn lines and lettering and typewriter characters are not acceptable. We recommend professionally prepared line drawings with type-set lettering. Lettering from most personal computer-generated graphics software and printers is not acceptable.

Use lower-case or italic letters only where they are essential to the meaning, as in mathematical terms and most metric units (see subsection on Math. and Stat. and Appendix B). Otherwise use all upper-case letters, which are more legible when reduced. Identify arbitrary symbols by legend within the figure (preferred) or, for those normally available to the printer (e.g., CBE Style Man. Comm. [1983:72]), in the figure title.

TRANSMITTAL LETTER AND SUBMISSION

Check the most recent issue of JWM for the name and address of the editor in chief. Send the manuscript with a transmittal letter that indicates you are submitting exclusively to JWM and that no part of the manuscript has been published or is being considered for publication elsewhere. If any portion of the manuscript has been published or reported elsewhere, furnish 4 copies of each report or publication. If the manuscript relates to but does not duplicate other publications or manuscripts by the same authors, send 4 copies of each to assist reviewers and editors in assessing the submitted

manuscript.

Theses (M.S. and Ph.D) do not constitute prior publication and need not be mentioned in the letter, but they should be cited in the manuscript. Similarly, brief abstracts of talks given at meetings do not constitute prior publication. Generally, unpublished reports that were required by sponsors and that were not distributed as part of a numbered series (or in other ways that might result in accession by libraries) do not constitute prior publication. Most symposia proceedings are considered publications. However, editors may decide these case by case. Provide information that bears on ethical and copyright considerations (CBE Style Man. Comm. 1983:1-6, 87-92) and any other information that might facilitate review and editing.

REVIEW PROCESS

Manuscripts are submitted to the editor in chief who selects a minimum of 2 reviewers from JWM files and personal knowledge. The JWM has a board of associate editors, each with specialized knowledge of subject areas. The manuscript is mailed to the reviewers and an appropriate associate editor. Reviewers are instructed to return their comments to the associate editor, who usually takes 1 of 3 actions after assessing the manuscript and review comments: (1) the manuscript is forwarded to the editor in chief with a recommendation to publish without revision (extremely rare), (2) the manuscript is returned to the author(s) with review comments and suggestions for revision, or (3) the manuscript is rejected and the file is returned to the editor in chief.

A third reviewer may be selected if a manuscript is controversial or if reviewers differ widely in their opinions. Several revisions may be necessary before the associate editor decides to reject or recommend acceptance. Final acceptance of manuscripts is decided by the editor in chief. The editor in chief may review manuscripts that have been rejected by an associate editor if a request is accompanied by a convincing rebuttal

letter.

The time span between submission and final decision to accept or reject averages 6 months, but varies from 1 to 20 months depending on the number of revisions required and the time manuscripts are held by reviewers and authors. Manuscripts seldom are delayed in either editorial office more than 2-3 weeks during the review process. After acceptance, manuscripts usually are printed within 6-8 months.

LITERATURE CITED

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(Immediately below the Literature Cited section type the following:)

Received _____.

Accepted _____.

Table 1. Common expressions with superfluous words.

Superfluous wording	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 a 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	(omit 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

Table 1. Continued.

Superfluous wording	Suggested substitute
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 of 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	adjacent transects were $\geq$ 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 current population, the population
their subsequent fate	their fate
whether or not	whether

Table 1. Common expressions with superfluous words.

Superfluous wording	Suggested substitute
summer months	summer
are not uncommon	may be
due to the fact that	(omit by rearrangement)
showed a tendency toward higher survival	had higher survival
devastated with drought-induced desiccation	killed by drought

[a]Mack (1986:33). Reprinted with permission from the Ecol. Soc. Am.

Table 2. Words that commonly need correction in The Journal of Wildlife Management manuscripts.[a]

Word and proper usage
accuracy (see precision): extent of correctness of a measurement or statement.
affect (see effect): verb, to cause a change or an effect; to influence.
among (see between): use in comparing >2 things.
between (see among): use in comparing only 2 things.
cf.: compare
circadian: approximately 24 hours.
continual: going on in time with no, or with brief, interruption.
continuous: going on in time or space without interruption.
diurnal: recurring every 24 hours; occurring in daylight hours.
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.
e.g. (see i.e.): for example.
enable (see permit): to render able, make possible.
ensure (see insure): to make certain or guarantee.
farther: more distant in space, time, or relationship.
further: going beyond what exits, to move forward.
i.e. (see e.g.): that is.
incidence (see prevalence): number of cases developing per unit of population per unit of time.
insure (see ensure): to assure against loss.
livetrap: verb.

Table 2. Continued.

Word and proper usage
live trap: noun.
logistic: symbolic logic.
logistics: details of an operation.
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 number 3.43 shows more precision than 3.4, but is not necessarily more accurate.
prevalence (see incidence): number of cases existing per unit of population at a given time.
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.

Table 2. Continued.

Word and proper usage
very: a vague qualitative term; avoid in scientific writing.
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.

[a]Adapted in part from CBE Style Man. Comm. (1983:269-278). Also see Day (1983:140-142).

Appendix A. Abbreviations for United States and Canadian political units. Use American National Standards Institute (ANSI) abbreviations in parentheses, table and figure bodies, footnotes, and the Literature Cited. Use U.S. Postal Service (USPS) abbreviations only in addresses with postal code numbers. A blank means do not abbreviate.

Unit	ANSI	USPS	Unit	ANSI	USPS
U.S. and territories			U.S. and territories (continued)		
Alabama	Ala.	AL	Oklahoma	Okla.	OK
Alaska	Alas.	AK	Oregon	Oreg.	OR
American Samoa	Am. Samoa	AS	Pennsylvania	Pa.	PA
Arizona	Ariz.	AZ	Puerto Rico	P.R.	PR
Arkansas	Ark.	AR	Rhode Island	R.I.	RI
California	Calif.	CA	South Carolina	S.C.	SC
Canal Zone		CZ	South Dakota	S.D.	SD
Colorado	Colo.	CO	Tennessee	Tenn.	TN
Connecticut	Conn.	CT	Texas	Tex.	TX
Delaware	Del.	DE	Trust Territory	Trust Territ.	TT
District of Columbia	D.C.	DC	Utah	Ut.	UT
Florida	Fla.	FL	Vermont	Vt.	VT
Georgia	Ga.	GA	Virginia	Va.	VA
Guam		GU	Virgin Islands	V.I.	VI
Hawaii	Haw.	HI	Washington	Wash.	WA
Idaho	Id.	ID	West Virginia	W.Va.	WV
Illinois	Ill.	IL	Wisconsin	Wis.	WI
Indiana	Ind.	IN	Wyoming	Wyo.	WY
Iowa	Ia.	IA	Canadian provinces and territories		
Kansas	Kans.	KS	Alberta	Alta.	AB
Kentucky	Ky.	KY	British Columbia	B.C.	BC
Louisiana	La.	LA	Manitoba	Manit.	MB
Maine	Me.	ME	New Brunswick	N.B.	NB
Maryland	Md.	MD	Newfoundland	Newf.	NF
Massachusetts	Mass.	MA	Northwest Territories	Northwest Territ.	NT
Michigan	Mich.	MI	Nova Scotia	N.S.	NS
Minnesota	Minn.	MN	Ontario	Ont.	ON
Mississippi	Miss.	MS	Prince Edward Island	Prince Edward Isl.	PE
Missouri	Mo.	MO	Quebec	Que.	PQ
Montana	Mont.	MT	Saskatchewan	Sask.	SK
Nebraska	Nebr.	NE	Yukon Territory	Yukon Territ.	YT
Nevada	Nev.	NV	Other		
New Hampshire	N.H.	NH	United States	U.S.	
New Jersey	N.J.	NJ	New Zealand	N.Z.	
New Mexico	N.M.	NM	United Kingdom	U.K.	
New York	N.Y.	NY			
North Carolina	N.C.	NC			
North Dakota	N.D.	ND			
Ohio	Oh.	OH			

Appendix B. Abbreviations commonly used in *The Journal of Wildlife Management* tables, figures, and parenthetic expressions. Only those metric units and their appropriate prefixes (CBE Style Man. Comm. 1983:150) identified with an asterisk may be abbreviated in the text. A blank means do not abbreviate.

Term	Abbreviation or symbol	Term	Abbreviation or symbol
Adult	ad	Liter	*L
Amount	amt	Logarithm, base e	*ln or log$_e$
Approximately	approx	Logarithm, base 10	*log$_{10}$
Average	$\bar{x}$	Male	M
Calorie	*cal	Maximum, minimum	max., min.
Celsius	*C	Meter	*m
Chi-squared	χ^2	Metric Ton	t
Coefficient	coeff	Minute	min
Coefficient of		Month	
correlation, simple	r	Month names	Jan, Feb, etc.
multiple	R	More than	*>
determination, simple	r^2	Number (of items)	No.
multiple	R^2	Observed	obs
variation	CV	Outside diameter	o.d.
Confidence interval	CI, $a < \bar{x} \leq a$	Parts per billion	*ppb
Confidence limits	CL, $\bar{x} \pm a$	Parts per million	*ppm
Day		Percent	*%
Degrees of freedom	df	Population size	N
Diameter	diam	Probability	P
Diameter, breast height	dbh	Range	
Equation(s)	eq(s)	Sample size	n
Expected	exp	Second	sec
Experiment	exp.	Spearman rank correlation	r_s
Female	F	Square	sq
F ratio	F	Standard deviation (s)	SD
Gram	*g	Standard error ($s_{\bar{x}}$)	SE
Gravity	g	Student's t	t
Hectare	*ha	Temperature	temp
Height	ht	Trace[a]	tr
Hotelling's T^2	T^2	Versus	vs.
Hour(s)	hr	Volt	*V
Inside diameter	i.d.	Volume	vol
Joule	*J	Watt	*W
Juvenile	juv	Week	
Kilocalorie	*kcal	Weight	wt
Lethal concentration, 50%	LC_{50}	Wilcoxon test	T
Lethal dose, median	LD_{50}	Year	yr
Less than	*<	Z-statistic	Z
Limit	lim		

[a] Define in a footnote (e.g., tr = <1%).

Appendix C. Word or phrase abbreviation* for titles of publications and parenthetic expressions. An * indicates a frequently misabbreviated word; a blank means do not abbreviate.

Word/root or phrase	Abbreviation	Word/root or phrase	Abbreviation
Abstract-	Abstr.	Communications	Commun.
Academ-	Acad.	Company[ies]	Co.
Acta		Compar-	Comp.
Administr-	Adm.	Completion	
Advanc-	Adv.	Comptes Rendus	C.R.
Aeronautic-	Aeronaut.	Comput-	Comput.
Affair-	Aff.	Confer-	Conf.
Afri-	Afr.	Congres-	Congr.
Agency		Conserva-*	Conserv.
Agricult-*	Agric.	Contamina-	Contam.
Agronom-	Agron.	Catalogue	Cat.
Ameri-*	Am.	Contrib-	Contrib.
Anali[y]-	Anal.	Coopera-	Coop.
Anals	An.	Coordinator	Coord.
Anatomical	Anat.	Council-	Counc.
Animal-	Anim.	Corporation	Corp.
Annal-	Ann.	Cultur-	Cult.
Annu-*	Annu.	Current	Curr.
Antarcti-	Antarct.	Depart-*	Dep.
Appli-	Appl.	Develop-	Dev.
Archaeology	Archaeol.	Disease-	Dis.
Archiv-	Arch.	Disserta-	Diss.
Arctic	Arct.	District	Dist.
Assistance	Assist.	Divis-	Div.
Associ-	Assoc.	Doctor of Philosophy	Ph.D.
Atlanti-	Atl.	East*	
Atmos-	Atmos.	Eastern*	East.
Atomi-	At.	Ecolog-	Ecol.
Australi-	Aust.	Econom-	Econ.
Avian		Edic[t][z]-	Ed.
Bac[k]teriolog-	Bac[k]teriol.	Education(al)	Educ.
Behavio(u)r-	Behav.	Electric[q]-	Electr.
Beobacht-	Beob.	Endocrinolog-	Endocrinol.
Bibliogra-	Bibliogr.	Energy	
Biennial	Bienn.	Engineer-	Eng.
Biochem-	Biochem.	Engl-	Engl.
Biolo-	Biol.	Entomolog-	Entomol.
Biometri-	Biom.	Environment-*	Environ.
Board		Europ-	Eur.
Botan-	Bot.	Evol-	Evol.
Branch		Experiment-	Exp.
Breeder		Fauna	
British*	Br.	Federa-	Fed.
Bulet-	Bul.	Fenni-	Fenn.
Bullet-	Bull.	Fertility	Fertil.
Bureau-	Bur.	Fertiliz-	Fert.
Canad-	Can.	Field-Naturalist	Field-Nat.
Center-	Cent.	Finni-	Finn.
Central	Cent.	Fishery[ies]	Fish.
Chapter*	Chap.	Forest-	For.
Chemic-	Chem.	Foundation-	Found.
Chimie	Chim.	Franc-	Fr.
Chronicle	Chron.	French	Fr.
Circula-	Circ.	Gazette	Gaz.
Clini-	Clin.	Genera-	Gen.
College[i]-	Coll.	Genet-	Genet.
Commerc-	Commer.	Geogra-	Geogr.
Commission-	Comm.	Geolog-	Geol.
Committee	Comm.	German-	Ger.
Commonwealth	Commonw.		
Commonw. Sci. and Ind. Res. Organ.	C.S.I.R.O.		

Appendix C. Continued.

Word/root or phrase	Abbreviation	Word/root or phrase	Abbreviation
Gesellschaft	Ges.	National Aeronautics and Space Administration	Natl. Aeronaut. and Space Adm.
Go(u)vernment-	Gov.		
Handb-	Handb.	National Oceanic and Atmospheric Administration	Natl. Oceanic and Atmos. Adm.
Helmintholog-	Helminthol.		
Heredi-	Hered.	Nature [al-][el-]	Nat.
Herpetolog-	Herpetol.	Newsletter	Newsl.
Histo(i)r-	Hist.	Nomenclat-	Nomencl.
Human	Hum.	North*	
Hygien-	Hyg.	Northeast*	
Ichthyolog-	Ichthyol.	Northeastern*	Northeast.
Immunolog-	Immunol.	Northern*	North.
Infecti-	Infect.	Northwest*	
Information	Inf.	Northwestern*	Northwest.
Inland		Norwegian	Norw.
Instit-	Inst.	Note(s)	
Interi-	Inter.	Nuclear-	Nucl.
Internal	Intern.	Nutri-	Nutr.
Internat[z]-*	Int.	Occasion-	Occas.
Investiga-	Invest.	Offi-	Off.
Japa[o]n-	Jap.	Organic[q]	Org.
Journal	J.	Organis[z]a-	Organ.
Laborato-	Lab.	Ornit(h)olog-	Ornit(h)ol.
Leaflet-	Leafl.	Outdoor-	
Libra-	Libr.	Pacific	Pac.
Linn-	Linn.	Pamf[ph]let-	Pam.
Livestock	Livest.	Paper-	Pap.
Magas[z]i-	Mag.	Parasitolog-	Parasitol.
Mammalia-	Mamm.	Patholog-	Pathol.
Mammalog-*	Mammal.	Performance	Perf.
Management*	Manage.	Pesticide-	Pestic.
Manua[e]l	Man.	Perspectives	Perspect.
Manufacturing	Mfg.	Pharmacolog-	Pharmacol.
Marin-	Mar.	Philosoph-	Philos.
Master of Science	M.S.	Physica-	Phys.
Mathemat-	Math.	Physiolog-	Physiol.
Medi[e]ca[h][i]-	Med.	Pittman-Robertson*	
Meeting	Meet.	Polish	Pol.
Memoir-	Mem.	Pollution	Pollut.
Memorand-	Memo.	Poultry	Poult.
Memorial	Mem.	Press	
Metaboli-	Metab.	Printer	
Meteorolog-	Meteorol.	Proceedings	Proc.
Method(s)		Professional	Prof.
Mex-	Mex.	Program	
Microbiolog-	Microbiol.	Progres-	Prog.
Midland	Midl.	Project-	Proj.
Midwestern	Midwest.	Protection	Prot.
Migratory	Migr.	Provincial	Prov.
Mimeograph-*	Mimeogr.	Psycholog-	Psychol.
Minist-	Minist.	Public	
Miscel-	Misc.	Publica-	Publ.
Monitoring	Monit.	Publishing Company	Publ. Co.
Monogra-*	Monogr.	Quantit-	Quant.
Month-	Mon.	Quarterly*	Q.
Morf[ph]olog-	Morf[ph]ol.	Radiati-	Radiat.
Mountain	Mt.	Radio	
Muse-	Mus.	Range	
National-*	Natl.	Raptor	
National Academy of Science	Natl. Acad. Sci.	Record-	Rec.
National Research Council	Natl. Res. Counc.	Region-	Reg.
		Regulation	Regul.

Appendix C. Continued.

Word/root or phrase	Abbreviation	Word/root or phrase	Abbreviation
Report-	Rep.	Symposium	Symp.
Reproduction	Reprod.	Systematic	Syst.
Research-	Res.	Technical	Tech.
Resource-*	Resour.	Technology	Technol.
Restoration	Restor.	Telemetry	Telem.
Revi[u]-	Rev.	Therap-	Ther.
Royal-	R.	Toxicology	Toxicol.
Russi[k]-	Russ.	Transactions	Trans.
Sanitar[t]-	Sanit.	Transportation	Transp.
Scien-	Sci.	Vertebrat-	Vertebr.
Secti-	Sect.	Veterinari-[y]	Vet.
Seminar	Semin.	Volum-	Vol.
Serie-	Ser.	Volunteer	
Ser(i)olog-	Ser(i)ol.	West*	
Servi-*	Serv.	Western*	West.
Society	Soc.	Wildfowl	
Southeastern	Southeast.	Wild Life	
Special	Spec.	Wildlife	Wildl.
Station*	Stn.	Workshop	
Statistical	Stat.	Yearbook-	Yearb.
Study(ies)	Stud.	Yearly	Yrly.
Supplement	Suppl.	Zeitschrift-	Z.
Survey	Surv.	Zoolog-	Zool.

[a] No 3-letter and practically no 4-letter words are abbreviated. Words or roots followed by a hyphen encompass >1 word derived from the same root. Letters in brackets can substitute for the letter preceding the bracket(s).
[b] Abbreviate "Naturaliste Canadien" as "Nat. Can. (Que.)" and "Nature Canada" as "Nat. Can. (Ottawa)."

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