

The Canadian Field-Naturalist – Instructions for Authors

20 September 2019

Aim and Scope

The Canadian Field-Naturalist (CFN; ISSN: 0008-3550), a journal of field biology and ecology, is the official publication of the non-profit Ottawa Field-Naturalists' Club (OFNC). It addresses two primary OFNC objectives:

- To promote the appreciation, preservation, and conservation of Canada's natural heritage;
- To encourage investigation, publish the results of research in all fields of natural history, and diffuse the information as widely as possible.

The Canadian Field-Naturalist and its precursors have published continuously since 1879, making it one of the longest-running field biology journals in North America. It publishes peer-reviewed scientific papers about natural history research relevant to Canada in diverse fields, including general biology, behaviour, ecology, conservation, and taxonomy. Relevance to Canada usually means the studied species inhabits Canada, even if the research itself occurred outside Canada; for example, United States-based research on a species whose range extends into Canada, or research in Asia on a species introduced into Canada, would be considered relevant. We emphasize field-based, observational research studies and publish research on all taxa, including fossils. Checklists will be considered for publication if they cover areas or taxa that are poorly known and include information helpful to biogeography and taxonomy. Reports of new distribution records vary in their significance but are generally considered more important when substantial new information is included. We encourage manuscript submissions from professional and amateur naturalists.

Manuscript Types

1. **Articles.** Articles report original research. There are no lower- or upper-boundary restrictions on the number of pages or references for articles, but articles may have to be shortened prior to acceptance. Articles are sent to the Editor-in-Chief, assigned to Associate Editors, and are peer-reviewed.
2. **Notes.** Notes are short manuscripts typically reporting unique natural history observations. New information presented in a Note must be placed within the appropriate scientific context. Notes are sent to the Editor-in-Chief, assigned to Associate Editors, and are peer-reviewed.
3. **Thematic Collections.** These are compilations of previously published contributions to both *The Canadian Field-Naturalist* and the OFNC's regional publication, *Trail & Landscape*, on a central theme. Ideas for potential Thematic Collections should be directed to the Editor-in-Chief. They are not peer-reviewed but are edited by the Assistant Editor and Editor-in-Chief.

4. **Tributes.** Tributes are descriptions of recently-deceased exemplary naturalists who contributed to our understanding of Canadian nature and/or were significant contributors to the function and mandate of the OFNC. Please inquire with the Editor-in-Chief before writing a Tribute. Tributes are not peer-reviewed.
5. **Book Reviews.** We publish reviews of books of interest to naturalists in Canada. Each issue includes a list of new book titles received by our Book Review Editor with notation on books available for review, although we are open to suggestions of other titles for review. All book reviews and inquiries related to book reviews should be sent to the Book Review Editor (see **Contact Information**). Book reviews are edited but are not considered peer-reviewed.
6. **Editorials, News and Comment.** These include commentary, short news items, appreciations, recognitions, or reports of interest to readers. They are not peer-reviewed and are normally written and reviewed by the Assistant Editor and the Editor-in-Chief or invited by the editorial staff. News item suggestions should be directed to the Editor-in-Chief. Commentary may be similar to articles in format or it may be just a series of paragraphs.
7. **Club Reports.** Minutes of the OFNC Annual Business Meeting and Club Reports are published annually. These items are contributed by OFNC personnel.

Legal Issues, Ethical Conduct

The research reported must be original. Manuscripts cannot have been published, or be under consideration for publication, in part or in entirety in any other publication media including journals, newsletters, and books. If any part of the manuscript has appeared in other media (magazine, website, manuscript report, etc.) then that material should be submitted along with the manuscript so that the editors can decide whether publication in CFN is warranted. Articles included in an academic thesis are not considered prior publication.

All co-authors must have read and approved the submitted version of the manuscript. If institutional or contract approval for the publication of data is required, authors must obtain it prior to manuscript submission. Authors are expected to have complied with all pertinent legislation regarding the study, disturbance, or collection of animals, plants, or minerals. Animal care should comply with relevant institutions' guidelines, many of which follow the Canadian Council on Animal Care (http://www.ccac.ca/en/_standards/guidelines), and be considered ethical by peers. The cover letter must indicate compliance with the preceding points, when appropriate.

Please also see the **CFN Ethics Statement** for expectations of the publisher, editors, reviewers, and authors at <http://www.canadianfieldnaturalist.ca/public/journals/1/CFNEthicsStatement.pdf>.

How to Submit a Manuscript

All manuscripts intended for publication—except Book Reviews—should be submitted through the online submission system at the CFN website: <http://www.canadianfieldnaturalist.ca/index.php/cfn/user>. Click the "New Submission" link on the right side of the webpage and follow the prompts. Authors must register for a CFN account at <http://www.canadianfieldnaturalist.ca/index.php/cfn/user/register> in order to submit a manuscript. Please contact the Journal Manager (see **Contact Information**) if you have any questions or issues

with the online submission process. In only rare, exceptional circumstances will submissions other than online be considered and, in these cases, authors must contact the Editor-in-Chief prior to submission.

Please e-mail book reviews to the Book Review Editor (see **Contact Information**).

Cover letter

Please include a cover letter with your submission including the following:

1. A brief explanation of the significance and novelty of your study in plain terms and why it would be of interest to CFN's readers (maximum 250 words).
2. Confirmation that the submitted manuscript has not been published elsewhere and is not under consideration for publication elsewhere.
3. Statement of whether the copyright is held by the author, institution, or the crown.
4. Confirmation that the research was conducted in adherence to all pertinent legislation and institutional guidelines regarding the study, disturbance, or collection of animals, plants, or minerals.
5. Confirmation that each individual that made a substantial contribution (see *Authorship* below) to the manuscript has been included as a co-author, and has approved the submitted version of the manuscript.
6. The names, affiliations, e-mail addresses, and relevant expertise of at least three experts you feel could evaluate your manuscript without bias or conflicts of interest. You may also identify non-preferred reviewers; justification is required.
7. Confirmation that you either have funds available to support publication of your article, or are requesting a waiver of publication charges. Justification of need is required in the latter case (see **Author Charges and Reprints**, below, for additional details).

Authorships

In general, an individual who makes substantial contribution to at least one of the following points should be included as a co-author:

- project design
- taxonomic identification of specimens
- analysis and interpretation of the data
- contribution to the manuscript content, by drafting and/or revising significant parts of the manuscript

Ask yourself: could I have had a strong paper without person "X". If the answer is "yes", acknowledge them. If "no", include them as a co-author.

Cover photographs

We welcome the submission of potential cover photos. Please submit potential cover photos to the Editor-in-Chief via e-mail. Cover photos should be in colour and high resolution.

Reviewing Policy

Manuscripts submitted as articles or notes to *The Canadian Field-Naturalist* are normally sent for evaluation to an Associate Editor, who solicits reviews from at least two qualified referees. Based on the reviewers' comments and their own evaluation of the manuscript, the Associate Editor makes a recommendation on publication to the Editor-in-Chief. The Editor-in-Chief makes the final decision on whether a manuscript is acceptable for publication. As with any scientific journal, extensive revisions may be requested by editors in an effort to improve the clarity, accuracy, style, and overall quality of manuscripts.

Author Charges and Reprints

As a non-profit journal run largely by volunteers devoted to natural history, the OFNC makes every effort to keep publication costs as low as possible. Accordingly, we require payment from authors of \$110 per printed page. There is an additional charge of \$900 per article if colour figures are desired in the print version. All online content is reproduced in full colour, for which there is no additional charge. Under special circumstances, page charges can be waived for authors without grants or institutional support (e.g., amateurs, students, independent researchers). These waivers are supported by a generous bequest left by naturalist Thomas H. Manning (1911–1998) to The Ottawa Field-Naturalists' Club. To learn more about Thomas Manning and his research, refer to CFN 118: 618–625 (<https://doi.org/10.22621/cfn.v118i4.70>). Authors must request a page charge waiver when submitting their manuscript and when they return their proofs and re-print order form after manuscript acceptance. Manuscripts of authors requesting waivers will not be treated any differently than other manuscripts during the editorial process. Approval of page charge waiver requests is at the discretion of the Editor-in-Chief.

Reprints can be ordered after acceptance for publication, with authors covering the cost of printing and mailing. Corresponding authors are emailed PDF files of their published contributions at no charge. As per the copyright agreement between authors and CFN, authors are permitted to:

- post the final published PDF of their article immediately upon publication on a personal or employer website;
- submit the final published PDF of their article to an employer online archive, a funding agency's designated repository and other online archives (we comply with open access policies of major funding agencies);
- distribute the final published PDF of their article to colleagues and others, in any manner, including through social media;
- use and distribute their article for teaching purposes;
- include their published article in a thesis;
- reproduce portions of their published article (e.g., figures) in other publications, so long as the original publication is fully cited.

However, they are not permitted to distribute their article commercially, and may not re-publish their published articles in their entirety, without the permission of the Ottawa Field-Naturalists' Club.

Authors and their institutions are encouraged to maintain personal and institutional subscriptions, respectively, to *The Canadian Field-Naturalist* or membership in The Ottawa Field-Naturalists' Club to further support the

mandate and reach of the journal. Manuscripts of non-subscribers or non-members will not be treated any differently than other manuscripts.

Open Access

Authors can publish their articles as open access, for an additional charge of \$500.00 per article. These papers will be published under a Creative Commons Attribution 4.0 International (CC BY 4.0) licence:

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Free Access

Most CFN content published within the last year requires a subscription to access on the journal website but becomes freely accessible (i.e., no paywall) on the journal website one year after publication. The Cover, Table of Contents, News and Comment, Book Reviews/ New Titles, Open Access papers, Thematic Collections, and Abstracts are freely accessible online. All papers published in CFN are archived in the Biodiversity Heritage Library (<http://www.biodiversitylibrary.org/>) six years after publication.

Contact Information

CFN website: <http://www.canadianfieldnaturalist.ca/index.php/cfn/about>

Ottawa Field-Naturalists' Club (our publisher) website: www.ofnc.ca

Editor-in-Chief: Dr. Dwayne Lepitzki, editor@canadianfieldnaturalist.ca

Assistant Editor: Dr. Amanda Martin, canadianfieldnaturalistae@gmail.com

Book Review Editor: Dr. Barry Cottam, b.cottam@rogers.com

Online Journal Manager: Dr. Bill Halliday, info@canadianfieldnaturalist.ca

Subscription Manager: Eleanor Zurbrigg, subscriptions@canadianfieldnaturalist.ca

Author Charges Manager: Ken Young, ac@canadianfieldnaturalist.ca

Manuscript Guidelines and Format

Manuscripts that do not conform to the journal style may be returned to authors without review. Authors should follow the formatting instructions detailed below, and consult a recent issue of CFN to understand current journal format.

Font, page format, file type

All text should be double-spaced (including text, literature cited, tables, and figure captions), with 12-point Times New Roman font. Page margins should be 2.5 cm wide. Periods at the end of sentences should be followed by a single space. Pages should be numbered sequentially, and lines should be numbered continuously. The file should be saved in Microsoft Word Document file format (.doc or .docx).

Language

Manuscripts can be submitted in English or French. Authors are encouraged (but not required) to include abstracts and key words in both languages. CFN uses Canadian spelling of the English language; a contemporary reference for formal Canadian spelling is the *Canadian Oxford Dictionary*. Separate all items in lists that include three or more items with commas (e.g., mammals, amphibians, or reptiles). Manuscripts that do not meet linguistic standards may be returned without review.

Modern convention suggests that mixing passive and active voice improves readability and is acceptable.

Nomenclature

Scientific names are required for all taxa mentioned in a manuscript. They should be up-to-date and reflect the current state of taxonomic knowledge. Common names (when available) should also be included, because they can help improve understanding by the broad and diverse readership of CFN.

Common and scientific names should both be given the first time a species is mentioned in the title, abstract, and main text. When a common name and scientific name appear in sequence, the common name should be given first, followed by the scientific name in brackets: e.g., American Black Bear (*Ursus americanus*). Initial letters of species common names should be capitalized, whether in singular or plural form (e.g., American Black Bear or American Black Bears), but not animal or plant groups (e.g., bears, willows) or short forms of the common name (e.g., black bear). For hyphenated common names, words following the hyphen are not capitalized (e.g., Double-crested Cormorant). Scientific names should be given in full at first use (e.g., *Ursus americanus*). Thereafter, only spell out the genus name when starting a sentence, or for clarity as required; elsewhere, abbreviate the genus (e.g., *U. americanus*). Throughout the text, scientific names should generally be used rather than common names, which need be stated only upon first mention of the species. However, common names may be used throughout a paper for focal species (i.e., study species), as long as common names tend to be standardized for the species group. In general, common names are standardized only for mammals, birds, reptiles, amphibians, and select invertebrate taxa. Exceptions to this generalized naming guideline can be made, based on the authors' and reviewers' taxonomic expertise.

Authorities' names (e.g., "Kuhl" in *Castor canadensis* Kuhl) should be included only in the following cases: (a) inclusion of authorities is standard practice for the taxonomic group, i.e., insects and plants, or (b) the manuscript

is a taxonomic treatment (e.g., description of a newly identified Canadian species). Linnaeus can be abbreviated as “L.”, but all other authorities must be spelled out. Authorities and common names based on VASCAN (see below) should be provided for all vascular plants mentioned in a submission. Taxonomic treatments of animals should include the year the species was named (e.g., *Enodia anhedon* A. Clark, 1936). See Appendix I for a list of nomenclature resources.

Do not italicize sp., spp., subsp., or var. (e.g., *Ursus* spp.).

The terms *sensu lato* (*s.l.*), *sensu stricto* (*s.str.*) are acceptable in taxonomic papers; however, authors should include in text the reason(s) for use of either term.

When using the multiplication sign in hybrid nomenclature, the multiplication sign should be closer to the epithet than to the preceding generic name, e.g., *Isoetes* × *dodgei*, not *Isoetes* × *dodgei*.

Vouchers, location information, genetic sequences

Voucher specimens of invertebrates and other flora and fauna for which range extensions are being proposed, must generally be deposited in publicly accessible collections. High quality photographs that permit positive identification are an acceptable alternative when securing a voucher is impossible or undesirable; these should be included with papers (in main text or as supplementary files) and/or made available in an appropriate public repository so that they may be accessed by others, now and in the future. Confirmation of identification by species’ experts should be sought. All voucher material must be cited in the text or in a table, including description of the locality where the material was collected, latitude and longitude, date of collections, collector(s) and collections numbers when available, the name and location of the repository, and the specimens’ catalog numbers. All genetic sequences must be submitted to GenBank and GenBank accession numbers must be cited in the text or a table.

Recommended format for botanical vouchers:

Canada, Nova Scotia, Inverness Co., 46.927°N, 60.669°W, alpine summit, plateau barren, 18 July 2013, C.S. Blaney, D.M. Mazerolle, and S.P. Basquill 8330 (ACAD, DAO, NBM, NSPM).

Abbreviations and acronyms

Minimize the use of non-standard abbreviations or acronyms that readers must memorize to follow your paper. Do not begin a sentence with an abbreviation. All abbreviations must be defined at first usage with the abbreviation in parentheses e.g., analysis of variance (ANOVA), analysis of covariance (ANCOVA).

Standard abbreviations include:

- *et al.* (in italics)
- etc.
- i.e. (include a comma as in i.e.,)
- e.g. (include a comma as in e.g.,)
- ~ (for approximately)
- SI units of measurement (e.g., mg, km, m)

- units of time (e.g., s, min, h)
- statistical symbols defined in the *Variables* section below

Country, province, territory and state names are not considered standard abbreviations with the exception of USA for United States of America; if abbreviated in the text, these must be defined at first use.

Units of measurement

Units of measurement should follow standard metric SI units. Insert a space between numbers and the unit of measurement (e.g., 8 g, 24 mL). Use mg/L, km/h, etc., not mg L⁻¹, km h⁻¹ throughout text, tables, and figures.

Numerals

Numbers less than 10 should generally be written in word form. Use a single space for numbers $\geq 10\,000$ (e.g., 10 247, not 10,247). Precede decimal fractions by a zero (e.g., 0.40, not .40). Use the same number of decimal places for means and SE or SD (e.g., 38.9 ± 1.2 , not 38.9 ± 1.23); usually only one or two decimal places are necessary. Round percentages to whole numbers and use % instead of percent (e.g., 90%, not 90 percent), except where this impedes interpretation of results. Use ~ before numbers instead of approximately (e.g., ~90%, not approximately 90%).

Variables

Set off mathematical operators by single spaces when used with numbers or variable symbols (e.g., 47.8 ± 3.96 mm, $P > 0.05$). When these symbols are used as modifiers rather than operators, do not set off with a space (e.g., a +5.6 difference, length of >8 cm).

Define all variables used in an equation and provide a high resolution version using the equation editor in Word. With the exception of Greek letters, italicize all single-letter variables in equations. Do not italicize variables with more than one letter. Put spaces around operators such as = , + , \pm , etc.

Standard symbols and abbreviation where no explanations are required (note use of capitals, italics, and normal fonts) include:

- n (sample size)
- P (statistical probability)
- df (degrees of freedom)
- χ^2_a (chi-square with a degrees of freedom)
- t_a (for the test statistic from paired or two sample t -test with a degrees of freedom)
- F_{ST} (genetic variance contained in a subpopulation relative to the total genetic variance)
- CI (confidence interval)
- SE (standard error)
- SD (standard deviation)
- $F_{a,b}$ (as the test statistic from an F-ratio with a,b = numerator and denominator degrees of freedom)
- U (from the test statistic from a Mann-Whitney U -test)
- r (simple correlation coefficient; Pearson r)

- r_s (Spearman rank-order correlation coefficient)
- r^2 (for the coefficient of determination)
- G (as the test statistic from a G -test)
- W (Wilcoxon sign-rank test)
- AIC (Akaike Information Criterion)
- AICc (for small-sample size Akaike Information Criterion)
- QAICc (for quasi Akaike Information Criterion)
- BIC (Bayesian Information Criterion)
- DIC (Deviance Information Criterion)
- K (number of parameters in AIC analyses)
- w (Akaike weights)
- N (abundance or population size)
- p (detection probability)
- no. (number)
- β (slope coefficient)

Latitude and longitude

Decimal degrees including direction (i.e., N and W) is the preferred format for geographic coordinates, e.g., 45.2653°N, 76.8451°W (not 45.2653, -76.8451). A minimum of three decimal places should be provided, corresponding to ~100 m accuracy, unless security concerns determine that level of accuracy to be inadvisable. Greater accuracy (four or five decimal places) would be expected for some locations. However, other formats are accepted (such as degrees, minutes, seconds), providing the style is kept consistent throughout the manuscript.

Date and Time

All dates should be given in the DD Month YYYY format (e.g., 10 June 1999). Abbreviate seconds, minutes, hours, month, and year as s, m, h, mo, yr.

Hyphens, en, and em-dashes

Hyphens join two or more words or parts of words together, to avoid ambiguity (e.g., four-sided; well-established, up-to-date).

En-dashes (–) are used for ranges and spans (e.g., 1–7 June, 130(3): 212–227, 300–550 m, Figures. 2–4).

Em-dashes (—) are used to indicate a pause in a sentence. They should be used sparingly.

Organization of Articles

Articles should be arranged in the following order: Title page, Abstract, Key words, Introduction, Methods, Results, Discussion, Author Contributions (except for single-author contributions), Acknowledgements, Literature Cited, Tables, Figure captions, and Supplementary Material. Smaller, lower resolution figures can be embedded in the manuscript immediately above each corresponding figure caption for the review process.

Higher resolution figures submitted as separate files are required upon acceptance. A “Study Area” section can be included between the Introduction and Methods sections if appropriate. Main headings should be bolded, 16-point font, with capitalization as indicated above. Second-level headings should be placed on a separate line, italicized in 12-point font, with only the first letter of the first word and proper names capitalized. Third-level headings should be indented and placed at the start of paragraph, italicized in 12-point font, with only the first letter of the first word and proper names capitalized, and followed immediately with a colon. Detailed requirements for each section (if necessary) are given below.

Title page

Include a running title (maximum of 35 characters), the full title, and list of authors. Spell out full first names of all author(s), initialize any middle name(s). For each author, provide affiliation including address (home address is fine for unaffiliated authors); consult a recent issue of CFN for current journal formatting of addresses. Each author’s name should be flagged with a superscripted number that corresponds to their affiliation and contact information. Indicate which author is the corresponding author with an asterisk, and provide an e-mail address. Include a “Current address” for authors who have moved since the study occurred, each flagged with a superscripted number.

Abstract

The second page of the manuscript should include the abstract (maximum of 250 words) and a list of up to ten key words; these may be single words or short terms up to three to four words long (e.g., forest understorey; new distribution record). See the following for tips on how to choose effective keywords:

<https://methodsblog.wordpress.com/2015/12/18/seo/>.

Methods

Provide sufficient detail so that readers can understand how the research or study was conducted. Cite statistical software and analysis programs, e.g., R version 3.0.1 (R Development Core Team 2013). Provide full citations in the Literature Cited section for computer software cited. If you list a product, supply the name and location of the manufacturer. Give equipment model numbers, e.g., SM2 and SM2+ Song Meters (Wildlife Acoustics Inc., Maynard, Maryland, USA).

Describe statistical tests and procedures. End the statistics section with a statement to the effect that the values reported in the Results section are means (or medians or modes) \pm SE (or other measure of variance), if applicable. Then in the Results section simply present the values. Indicate the alpha levels of statistical tests if using *P*-values to determine significance.

Results

Descriptive statistics

For continuous variables, report three metrics: (1) a measure of central tendency (mean, median, or mode), (2) an estimate of variance (standard deviation, standard error, 95% confidence interval, or interquartile range), and (3) the number of observations (*n*) (e.g., 7.7 \pm 2.3 m, *n* = 42). For frequencies, report the frequency and number of observations (e.g., 0.76 [or 76%], *n* = 56).

Statistical tests

Report the statistical test that was applied (e.g., 2-sample *t*-test, analysis of covariance).

If using frequentist inference statistics (i.e., *P*-values to determine significance of statistical tests): Report the test statistic (e.g., *t*, *U*, *F*, *r*), degrees of freedom, and the probability value (*P*), e.g., “Road density significantly predicted small mammal abundance ($F_{1,20} = 42.64$, $P < 0.001$)”.

If using model selection: Report (at minimum) the metric used to rank models (e.g., AIC, BIC), number of model parameters (*K*), and a measure of relative support for the model (e.g., the model weight *w* or Δ AIC, e.g., AIC = 438.8, *K* = 3, *w* = 0.32).

If using model-averaging: Report (at minimum) the model-averaged parameter estimate and confidence interval (usually 95%)

If using Bayesian statistics: Report (at minimum) the mean (or median) posterior parameter estimate and credible interval (usually the 95% credible interval).

When comparing groups, report the relative difference, effect size, or odds ratio that quantifies the magnitude of the difference. For example, “Mean body length of species A (10.0 ± 0.1 cm, $n = 25$) was 25% shorter than that of B (12.5 ± 0.2 cm, $n = 37$; two-sample *t*-test: $t_{60} = 57.7$, $P = 0.043$)”.

In all cases, if the above values are given in a table, do not repeat this information in text; refer the reader to the relevant table.

Author Contributions

Contributions of all co-authors to the published research should be described, according to the CRediT taxonomy ([Contributor Roles Taxonomy](#); see Appendix II). Use the following format and only include Roles that are relevant:

Writing – Original Draft: B.C. and T.S.; Writing – Review & Editing: B.C., D.L., and T.S.; Conceptualization: T.S.; Investigation: B.C., D.L., and T.S.; Methodology: B.C.; Formal Analysis: B.C. and D.L.; Funding Acquisition: T.S.

See also **Brand A., L. Allen, H. Altman, M. Hlava, and J. Scott.** 2015. Beyond authorship: attribution, contribution, collaboration, and credit. *Learned Publishing* 28: 151–155. <https://doi.org/10.1087/20150211>

Acknowledgements

Acknowledgements should list authors’ funding sources and thank people who contributed significantly to the study (also see *Authorships*). Acknowledgements should also include acknowledgment of any people cited in personal communications in text (see Personal communications in the *Citation format* section, below) and for providing unpublished data. Authors are asked to include the person’s full name and affiliation, e.g., “John

Smith, University of Kansas, provided information on the timing of Snapping Turtle nest depredation”. Provide details about all research permits and permissions required and obtained for the research being reported.

Citation format and Literature Cited

The accuracy (including DOIs, URLs, and reconciliation between the text and Literature Cited) of the Literature Cited is an Author’s responsibility.

Citation format

Below are example citations in CFN style. When more than one document is cited, sort them chronologically, oldest first, and then alphabetically within the same year, separated by semi-colons with no comma between the author and year of publication. When a citation is not parenthetical, use author names (date) format, e.g., “Our results agree with the predictions of MacKinnon and Kennedy (2009)”.

- **Single author:** “... fishers in Maine (Coulter 1966).”
- **Two authors:** “... been observed (MacKinnon and Kennedy 2009)”
- **Three or more authors:** “... diet composition (Arthur *et al.* 1989).” Note that “*et al.*” is italicized.
- **Multiple documents cited:** “... birds and tardigrades are very different (Tufts 1961; Nelson *et al.* 2009).”
- **Multiple documents cited by the same author:** “...have been suggested (Smith *et al.* 1991, 1992, 1998).”
- **Multiple documents cited by the same first author and date:** “.....noted by Giles *et al.* (1994a,b).”
- **Personal Communications:** Cite informal observations by colleagues as “pers. comm.”, preceded by initial(s) for the given name(s) and full surname, and date of pers. comm. with no commas, e.g., (J.T. Smith pers. comm. day month year). Do not separate multiple initials with spaces. Only cite personal communications when absolutely necessary.
- **Unpublished data or observations:** Use initials followed by periods when referencing unpublished data (abbreviated as unpubl. data) or personal observations (abbreviated as pers. obs.) held by the authors of the paper (e.g., K.E.S. and M.T.O. pers. obs.). Use initial(s) for the given name(s) and spell out the surname for other sources of unpublished data (e.g., R. Fowler unpubl. data). Do not separate multiple initials with spaces.
- **Papers in press:** “In press” means the cited paper has been accepted unconditionally for publication. Substitute “*in press*” for the year of publication in the text (e.g., Smith *in press*).
- **Documents with no publication date:** If no publication date is available (e.g., for web-based resources), substitute n.d. for the date (e.g., eBird n.d.).
- **Secondary or indirect citations:** Citing secondary sources that have not been read is strongly discouraged but sometimes finding the original source is challenging. In these instances, cite the secondary source as (Smith 2015, as cited in John 2017). Only John (2017) has to appear in the Literature Cited.

Literature Cited format

Published references should be listed under the heading 'Literature Cited' (see above for citation of unpublished materials). All references should have hanging indents. Format of the following examples should be followed carefully; see also recent issues of CFN.

- **Journal articles:**

Only the first author's surname precedes his/her initials; for all other authors the initials are given before the surname. Bold the authors' surnames and initials, the period after the last author's surname, and if more than one author, the "and" that precedes the final author. Only capitalize the first letter of the first word of the article title, and proper names; match the capitalization of common names as stated in the article's title. Spacing conventions are as follows: do not use spaces between an author's initials; no spaces between volume number and colon; add a space between the colon and page numbers; and no space between page numbers and the en-dash. Issue numbers for journal articles should only be included if each issue within a volume starts at pg. 1. Include the DOI if the source has one (see below) and note that the DOI does not end with a period.

If only the online early version of the paper is available when the CFN manuscript is published, cite the online version including the year it appeared online and other available metadata (e.g., DOI) and identify the citation as being online. If a later, print version is available, cite the print version.

If the article has been published in French, use "et" instead of "and" in the list of authors and reproduce the rest of the citation in the language in which it was published. Consider providing an English translation for titles of articles published in languages other than French and English.

Arthur, S.M., W.B. Krohn, and J.R. Gilbert. 1989. Habitat use and diet of fishers. *Journal of Wildlife Management* 53: 680–688. <https://doi.org/10.2307/3809197>

MacKinnon, C.M., and A.C. Kennedy. 2009. Canada Lynx, *Lynx canadensis*, use of the Chignecto Isthmus and the possibility of gene flow between populations in New Brunswick and Nova Scotia. *Canadian Field-Naturalist* 122: 166–168. <https://doi.org/10.22621/cfn.v122i2.577>

- **Papers *in press*:** substitute *in press* for the year in above formats, including volume, if known, and add DOI, if it has one.

- **Dissertation or Thesis:**

Only capitalize the first letter of the first word of the article title, and proper names. The degree should be listed as Ph.D. thesis or M.Sc. thesis, followed by a comma before the university name, city, state/province (if applicable), and country. Note the punctuation following the degree abbreviations. If the thesis is available digitally in an online repository, include the relevant identifier if available (i.e., DOI, other URL).

Coulter, M.W. 1966. Ecology and management of fishers in Maine. Ph.D. thesis, Syracuse University, Syracuse, New York, USA.

- **Chapter in a book or paper in a proceedings:**

Use title case (i.e., capitalize all major words) for book titles. Only capitalize the first letter of the first word of the chapter title, and proper names. Include the page range, and editor name, the publisher, city, state/province (if applicable), and country. Note which words are in italics. Include the DOI if it has one. Use “Washington, DC, USA” if that is the location of the publisher.

Aresco, M.J. 2003. Highway mortality of turtles and other herpetofauna at Lake Jackson, Florida, USA, and the efficacy of a temporary fence/culvert system to reduce roadkills. Pages 433–449 *in* Proceedings of the 2003 International Conference on Ecology and Transportation. *Edited by* C.L. Irwin, P. Garrett, and K.P. McDermott. Center for Transportation and the Environment, North Carolina State University, Raleigh, North Carolina, USA.

Abraham, K.F., and C.J. Keddy. 2005. The Hudson Bay Lowland. Pages 118–148 *in* The World’s Largest Wetlands: Ecology and Conservation. *Edited by* L.H. Fraser, and P.A. Keddy. Cambridge University Press, Cambridge, United Kingdom.

- **Book:**

For book titles, use title case (i.e., capitalize all major words). Include the edition or version number, when appropriate. Include the publisher, city, state/province (if applicable), and country. Use “Washington, DC, USA” if that is the location of the publisher. If citing an edited book, use editor names in place of author names. Include the DOI if it has one.

Cochran, W.G. 1977. Sampling Techniques. Third Edition. John Wiley and Sons, New York, New York, USA.

Tufts, R.W. 1961. The Birds of Nova Scotia. Nova Scotia Museum, Rolph-Clark-Stone, Maritimes Limited, Halifax, Nova Scotia, Canada.

Aiken, S.G., and S.J. Darbyshire. 1990. Fescue Grasses of Canada. Research Branch, Agriculture Canada, Ottawa, Ontario, Canada. <https://doi.org/10.5962/bhl.title.59072>

- **Web-based resources:**

Citation of an online database or web page should include the website address and date accessed using the format ‘day month year’ with the website’s URL being active i.e., clicking on it takes the user to the specific website. For source titles, only capitalize the first letter of the first word of the title, and proper names. If the URL is very long (i.e., runs onto more than one line in the Word document), convert the long string into a tiny URL using <https://tinyurl.com/>. Note the URL citation ends with a period. Provide the URL that takes the reader directly to the website that contains the referenced material as opposed to a general website. For example, provide the species, location, and dates for species and location specific records in eBird instead of citing ebird.org.

Environment Canada. 2008. National climate data and information archive, Environment Canada. Accessed 5 November 2008. <http://www.climate.weatheroffice.gc.ca>.

- **Other reports or papers:**

Published reports or papers only available online (or difficult to obtain in hardcopy) should be cited as a web-based resource (i.e., with date access and URL). If available in hardcopy (or both online and in hard copy), include the author names, year published, publisher, city, province/state, and country.

Friends of Fish Creek Provincial Park Society. 2009. Water quality monitoring report 2009. Accessed 20 March 2011. <http://wsow.brbc.ab.ca/reports/FishCreekStudy2.pdf>.

Stevens, V. 1995. Wildlife diversity in British Columbia: distribution and habitat use of amphibians, reptiles, birds, and mammals in Biogeoclimatic Zones. Working Paper 04. B.C. Ministry of Forest Research Program, and Ministry of Environment, Lands, and Parks' Habitat Protection Branch, Victoria, British Columbia, Canada.

Order of Literature Cited entries

Sort citations in alphabetical order by the first author's last name. For other citation orders, please see below.

- **Two or more documents by the same author:**

Cochran, W.G. 1977....

Cochran, W.G. 1989....

- **When an author appears both as a sole author and, in another citation, as the first author of a group, list the one-author entries first:**

Geist, J. 2010....

Geist, J., and K. Auerswald. 2007....

- **References that have the same first author and different second and/or third authors are arranged alphabetically by the last name of the second author, or the last name of the third if the first and second authors are the same:**

Hastie, L.C., S.L. Cooksley, F. Scougall, M.R. Young, P.J. Boon, and M.J. Gaywood. 2004....

Hastie, L.C., E.C. Tarr, B. al-Mousawi, and M.R. Young. 2010....

- **Two or more works by the same author in the same year:**

If you are using more than one reference by the same author (or the same group of authors listed in the same order) published in the same year, assign letters in the order the references appear in the text and organize them in the reference list based on the letters e.g., "Consaul *et al.* (2008a).

Consaul, L.L., L.J. Gillespie, and M.J. Waterway. 2008a. A new species of alkali grass (*Puccinellia*, Poaceae) from the western North American Arctic. *Novon* 18: 16–20.

Consaul, L.L., L.J. Gillespie, and M.J. Waterway. 2008b. Systematics of North American arctic diploid *Puccinellia* (Poaceae): morphology, DNA content, and AFLP markers. *Systematic Botany* 33: 251–261.

DOIs, JSTOR, and URLs for CFN articles archived in the Biodiversity Heritage Library

The DOI is a global system that provides a persistent link for digital content to a location on the Internet. This system requires that all references cited within a manuscript also are identified with a DOI. Authors are responsible for finding and including DOIs, when available, for all references cited in their manuscript.

Most journal papers now have DOIs, and increasingly books and book chapters are being assigned DOIs. DOIs for many older books are available from the Biodiversity Heritage Library (e.g., <https://doi.org/10.5962/bhl.title.727>).

There are several ways for Authors to locate DOIs:

- When you export citation data from a publisher webpage or reference database (e.g., Web of Science) into a reference manager (e.g., Endnote), DOIs are part of the exported meta-data.
- DOIs could be on the article page on a publisher's website, or on a third-party website (e.g., JSTOR, BioOne).
- The DOI might be on the article PDF. Many older papers (published before the DOI system was in place or adopted by a journal) have been assigned DOIs retroactively. These will not be listed on the PDF, but will be listed on the landing page for each article.
- Use the lookup tools for DOI provided by CrossRef:
 - <http://www.crossref.org/guestquery/>
 - <http://www.crossref.org/SimpleTextQuery>

Once the DOI is located for each reference, some reformatting may be required before it is included in your CFN manuscript. If the DOI is not in URL format, it must be modified so that it is. If the located DOI is one of the earlier URL formats, prefaced by <http://dx.doi.org/> or <http://doi.org/>, the URL must be updated to follow the current guidelines.

List DOIs in the following format: <https://doi.org/10.1629/22161>, at the end of each reference, with the underlined numbers being the DOI for the specific article/book (but don't add the underline). Note there is no period at the end of a DOI.

Be sure you cite the DOI for the article, not the DOI for a particular journal issue or book (if you are citing a book chapter).

CFN will assign a DOI for your article. The format will be:

<https://doi.org/10.22621/cfn.vxxxix.xxxx> with the xxxx being assigned corresponding to volume, issue, and OJS manuscript number. Please add this string of text, to the end of the CFN article citation just after the list of authors.

Stable JSTOR URLs are not DOIs and do not have to be included in the reference.

All papers published in CFN are archived in the Biodiversity Heritage Library (<https://www.biodiversitylibrary.org/bibliography/39970#/summary>) six years after initial publication. Provide the URL for the first page of the article and date of access for all papers published in CFN prior to volume 117(2) (2003); DOIs for all papers from this issue onwards are available on the journal website. To locate the URL: go to <https://www.biodiversitylibrary.org/bibliography/39970#/summary> and select the volume of the cited article from the list provided on that webpage. Scroll down to the first page of the article and use the stated “URL for Current Page”.

Phillip, P.B. 1925. Notes on summer birds of the Magdalen Islands. *Canadian Field-Naturalist* 39: 75–78. Accessed 21 June 2018. <https://biodiversitylibrary.org/page/28091812>.

DOIs and URLs hyperlinks both in the text and the Literature Cited should be active i.e., clicking on them takes the user directly to the website.

Tables

Tables should be on separate pages. Number tables sequentially, based on the order they appear in text. In text the word “Table” should be written in full, followed by its number (e.g., Table 1). Table (and Figure) citations can appear within the same set of parentheses with literature citations but should be separated from literature citations with a semicolon: “... (Table 1 and Figure 1; MacKinnon and Kennedy 2009)”. If you are referring to a particular table or figure in a reference, clarify by stating “(Table 1 in MacKinnon and Kennedy 2009)”. For table captions, the word “Table” should be in small-caps (e.g., TABLE 1) followed by a period, and the caption should be in sentence case (only the first word of the title and proper nouns start with a capital letter). Table headings also are sentence case. The table itself should immediately follow the table caption.

Formatting Tables

- Tables should be in Word format, i.e., created and formatted as Microsoft Word tables (choose “insert” in the “Table” menu).
- Each item of data should be in a different cell.
- Table title and footnotes are NOT in cells.
- There are no extra rows or columns.
- In general, place all text flush left in each cell and all numerical data flush right in each cell.
- Column heads spanning multiple columns should be set up using Word’s Merge Cell function. Use indentation to set off secondary (or tertiary) entries within a column.

- Use a top double border and bottom single border around table heading cells and a bottom double border at the table bottom; elsewhere, there should be no borders.
- Footnotes: If there is only one footnote, use an asterisk (*). If there are two footnotes, use an asterisk first, then use (†). Order footnotes (*, †, ‡, §, ||, ¶) from left to right and from top to bottom. Footnote text should end with a period.
- Very large tables are acceptable, but may be set vertically and/or span several pages in the final PDF.
- Coloured fonts generally will not appear in the published, paper version (but also see **Author Charges and Reprints**); use bold, different size fonts, or italic for emphasis.
- No multi-part tables, e.g., make Table 1A and Table 1B into Tables 1 and 2, or combine into one table.

For example:

TABLE 3. Probability of capture by reproductive form and carapace length of Rusty Crayfish, *Orconectes rusticus*, associated with three stream sampling methods in 11 Ontario creeks: electrofishing, hand capture, and seining.

	Capture probability (mean [range])		
	Electrofishing	Hand capture	Seining
Reproductive form			
Form I male*	0.34 (0.26–0.54)	0.36 (0.33–0.39)	0.26†
Form II male*	0.46 (0.25–0.66)	0.36 (0.10–0.38)	0.20 (0.02–0.39)
Female	0.16 (0.06–0.28)	0.43 (0.14–0.57)	0.34 (0.32–0.35)
Carapace length			
< 10.5 mm	0.42 (0.38–0.45)	0.53†	n/a
10.5–20.4 mm	0.10 (0.01–0.19)	0.45 (0.19–0.62)	0.02†
20.5–30 mm	0.45 (0.27–0.62)	0.32 (0.09–0.44)	0.42 (0.29–0.54)
> 30 mm	0.33 (0.10–0.49)	0.70 (0.68–0.71)	0.62†

*Form I male = sexually active, form II male = sexually inactive.

†Single sample.

Figure Captions and Figures

Number figures sequentially, based on the order they appear in text. In text the word “Figure” should be written in full, followed by its number (e.g., Figure 1). For figure captions, the word “Figure” should be in small-caps (e.g., FIGURE 1) followed by a period, and the caption should be in sentence case (only the first word of the title and

proper nouns start with a capital letter) without a hanging indent. Figure headings are also sentence case. If figures include photographic material, include the photo credit(s) at the end of the caption, e.g., Female pseudoscorpion, *Wyochernes asiaticus* (Chernetidae), showing a brood sac. Body length is approximately 2 mm. Photo: Crystal Ernst. If there are multiple photos use “Photos:”. If there are multiple photo credits for a single figure, list sequentially, e.g., Photos of a Cougar (*Puma concolor*) taken near Pefferlaw, Ontario, in January 2013. Photo: a. Mike Wahrer. Photo b: Al Dixon.

It is the responsibility of authors to ensure their figures are formatted properly. If they are not, authors will be asked to modify the figures, which will delay publication. Please follow the instructions below carefully.

Formatting Figures

- Ensure that text and line thickness on figures are clearly legible at the printed journal size. Maximum publication size for single- and two-column figures are 6.77 cm (2.67 inches) and 13.97 cm (5.50 inches) wide, respectively. Maximum height for both single- and double-column figures is 13.97 cm (8.13 inches). Full page figures are rarely appropriate.
- Minimum pixels-per-inch (ppi) or dots-per-inch (dpi) is 300 (see ***File Format***, below, for additional figure formatting instructions).
- Label all axes using sentence case (only the first word is capitalized and proper nouns).
- Do not enclose graphs in boxes.
- Include units of measurements in the label (not with the measure values): e.g., Body size (g), Basal area (m²/ha).
- Include a key in the figure itself or describe shading, colour, or shapes in figure legend.
- If units along the x-axis are long, orient them at 45 or fewer degrees.
- All numbers along an axis must have the same number of significant digits, e.g., 0.0, 1.0, 2.5, 2.0 (not 0, 1, 2.5, 2).
- Avoid the use of bold formatting and heavy lines.
- Use Arial or Helvetica font. Do not mix fonts.
- Font should not be smaller than 8 point nor generally larger than 12 point at print size and at the appropriate scale for the figure.
- Match typeface and type size among figures. On a graph, the font size of axis labels, units of measure and the legend should be similar.
- Microscopic images should be accompanied by a scale bar.

Additional instructions for multi-part figures:

For multi-part figures, each part should be labelled alphabetically, from top to bottom, then from left to right. Use small letters for figure parts in both the figure body and in the figure caption: a, b, c, etc. without brackets. Citations in text can either reference the figure as a whole (e.g., Figure 1) or in part (e.g., Figure 1a).

Formatting Maps

Not every article requires a map. There is no need for a map that just illustrates the location of a study area. Ideally, a map should make clear the spatial relationship of the data. For example, a paper on a range extension should show how far the species' range has been extended from the previous known limit.

- Use Arial or Helvetica font. Do not mix fonts.
- Ensure that all text on the map is clearly legible when the map is printed at journal size. For a map printed in portrait orientation this is no more than 14 cm wide. When in doubt, increase the font size.
- Include a north indicator, using a north arrow and/or by labelling Longitude ($^{\circ}$ W) and Latitude ($^{\circ}$ N) on the map.
- Include a scale bar. Units can either be spelled out in full (e.g., kilometre) or abbreviated (e.g., km). Not that CFN used the “re” spelling of kilometre. A ratio scale (e.g., 1:50 000) is not recommended as the scale will change depending upon the published size of the map.
- An inset map showing the region where the study area is located may be used, and a legend for the inset can be included if warranted.
- Use strong contrast, e.g. a white background with black lines. Avoid using a uniform grey background, but shading is appropriate for certain areas (e.g., lakes) or to indicate affected areas. There is an extra charge for colour maps (see *Use of colour in figures* and **Author Charges and Reprints**).
- Note that CFN does not accept maps that use oblique imagery.

The use of Google maps or imagery is permissible but note that Google requires attribution of their map providers. See: <https://www.google.ca/permissions/geoguidelines/attr-guide.html>.

Typical CFN format is: Source: Bag Harbour, Moresby Island, 52°20'43.78"N, 131°22'11.77"W. Google Earth Pro 7.3.1.4507. Imagery date: 6 September 2016. Data provider: DigitalGlobe 2018. Accessed: 1 March 2017.

File Format

Please submit figure files and maps in JPEG, PDF, TIFF, PNG, BMP, or EPS format. EPS format is recommended for vector images only (i.e., composed of points, lines, and text) and for figures that combine both raster and vector elements (e.g., a graph plus insert picture of the study species). Please note the inserted picture must be high resolution..

JPEG, TIFF, PNG, and BMP images must be at least 300 ppi/dpi at the desired dimensions. If figures are submitted in EPS format, text must be converted to curves (in Illustrator, this is done through the “create outlines” command). See also Appendix III.

Use of colour in figures

Figures may be submitted either in black and white or colour. Colour figures will be automatically included in the online version of final articles, but figures are often printed in black and white in printed CFN issues unless authors agree to pay the costs of colour printing (see **Author Charges and Reprints**). Remember that readers often print online articles in black and white, so even colour figures online should be interpretable if printed in grayscale. If colour is used on maps or graphs, do not use red and green or light blue and light green or other

light, pastel colours simultaneously as some readers cannot distinguish these colours (see the following link for tips for designing scientific figures for colour blind readers: <http://www.somersault1824.com/tips-for-designing-scientific-figures-for-color-blind-readers/>). If colour is used, for example, to distinguish bars in a bar graph, also use contrasting patterns for the bars so that if the electronic version is printed in grayscale, the bars are still distinguishable.

Save black and white images as ‘bitmaps’ (1-bit mode) for monochrome, and in ‘greyscale’ (8-bit mode) for black-and-white photos. Figures containing colour should be in 8-bit RGB (millions of colours).

Supplementary Material

Tables, figures, audio files, video files, and data files that compliment Articles but are not essential to their message can be included as online only supplementary material. Authors are encouraged to provide their raw datasets as Supplementary Material. All supplementary material should be referenced in text, numbered sequentially in the order they appear. Each supplement should be identified according to its category and number, preceded by an “S” (e.g., Table S1, Figure S2). List all supplementary material under the final manuscript heading “Supplementary Material”. These materials should be submitted during initial manuscript submission. Alternatively, authors may archive raw datasets in an open online archive and refer to them in the text. Online archives such as Dryad (<https://datadryad.org/>), Mendeley Data (<https://data.mendeley.com/>), and FigShare (<https://figshare.com/>) provide a DOI for the dataset. In these cases, provide this DOI in text.

If possible, all supplemental files should be smaller than 10 MB in size because of the difficulties that some users will experience in loading or downloading files of a larger size. Very large files should be compressed (e.g., LZW compression of TIFFs, etc.). Videos should be posted to Vimeo, or similar video archive and only the URL should be given in the text. Please consult our Journal Manager (see **Contact Information**) with any questions about specific formats.

Appendix 1. Useful resources for nomenclature.

All species' groups

- Wild Species Canada. 2005, 2010, 2015. Wild Species: The General Status of Species in Canada. <http://www.wildspecies.ca> (Only for common names of species; updated every 5 years.)

Plants, algae, and fungi

- International Plant Names Index (<http://www.ipni.org/>)
- International Code of Nomenclature for algae, fungi, and plants (Melbourne Code 2012) <http://www.iapt-taxon.org/nomen/main.php>
- VASCAN Brouillet, L., F. Coursol, M. Favreau, M. Anions, P. Bélisle, and P. Desmet. 2010+ VASCAN, the Database of Vascular Plants of Canada. <http://data.canadensys.net/vascan/search>
- Brodo, I.M., S.D. Sharnoff, and S. Sharnoff. 2001. Lichens of North America. Yale University Press, New Haven, Connecticut, USA.
- Brodo, I.M. 2016. Keys to the Lichens of North America. Yale University Press, New Haven, Connecticut, USA. Online authority for Lichens: <https://www.ndsu.edu/pubweb/~esslinge/chcklst/chcklst7.htm>.
- Anderson, L.E. 1990. A checklist of Sphagnum in North America north of Mexico. Bryologist 93: 500-501.
- Anderson, L.E., H.A. Crum, and W.R. Buck. 1990. List of mosses of North America north of Mexico. Bryologist 93: 448-499.
- Evansia, Published by the American Bryological and Lichenological Society, Inc. Parts 1-11, Volume 6-11.

Invertebrates

- **Butterflies, Canada and USA:** North American Butterfly Association Checklist of North American Butterflies Occurring North of Mexico (<http://www.naba.org/pubs/enames2.html>) and/or Layberry, R. A., P.W. Hall, and J.D. Lafontaine. 1998. The Butterflies of Canada. University of Toronto Press Incorporated, Toronto, Ontario and/or Pelham, J.P. 2008. A Catalogue of the Butterflies of the United States and Canada. Journal of Research on the Lepidoptera 40: 1-658.
- **Odonates:** Synonymic List of New World Odonata <http://odonatacentral.org/index.php/PageAction.get/name/TaxonomicNotes> and/or Checklist of North American Odonata <http://odonatacentral.org/index.php/PageAction.get/name/HomePage> and/or Catling, P.M., R.A. Cannings, and P. Brunelle. 2005. An Annotated Checklist of the Odonata of Canada. Bulletin of American Odonatology 9(1): 1-20.
- **Tiger beetles:** Pearson, D.L., C.B. Knisley, and C.J. Kazilek. 2006. A Field Guide to the Tiger Beetles of the United States and Canada. Oxford University Press.
- **Molluscs:** Turgeon, D.D., J.F. Quinn, A.E. Bogan, E.V. Coan, F.G. Hochberg, W.G. Lyons, P.M. Mikkelsen, R.J. Neves, C.F.E. Roper, G. Rosenberg, B. Roth, A. Scheltema, F.G. Thompson, M. Vecchione, and J.D. Williams. 1998. Common and Scientific Names of Aquatic Invertebrates from the United States and Canada: mollusks. Second edition. American Fisheries Society Special Publication

No. 26 (includes freshwater, marine and terrestrial molluscs) and/or Clarke, A.H. 1981. The Freshwater Molluscs of Canada. National Museum of Natural Sciences, National Museums of Canada.

Amphibians and Reptiles

- **North America:** Society for the Study of Amphibians and Reptiles (SSAR) North American Species Names Database (<https://ssarherps.org/cndb/>) and/or Crother, B.I. 2012. Scientific and standard English names of amphibians and reptiles of North America north of Mexico, with comments regarding confidence in our understanding. 7th Edition. SSAR Herpetological Circulars No. 39:1-92.

Birds

- **North America and Middle America:** *American Ornithologists' Union Checklist of North American Birds* and its supplements (<http://checklist.aou.org/taxa/>)
- **South America:** *AOU South American Classification Committee Checklist for South American Birds* (<http://www.museum.lsu.edu/~Remsen/SACCCountryLists.html>)
- **Outside the Americas:** *Avibase Clements Checklist* (<http://avibase.bsceoc.org/checklist.jsp?lang=EN>).

Mammals

- **Marine:** Perrin, W.F., B. Würsig, and J.G.M. Thewissen (editors). 2009. *Encyclopedia of Marine Mammals*. Academic Press, San Diego, California
- **Terrestrial:** Wilson, D.E., and D.M. Reeder (editors). 2005. *Mammal Species of the World. A Taxonomic and Geographic Reference*. Third edition. Johns Hopkins University Press, Baltimore, Maryland
- **Marine and Terrestrial of North America:** Bradley, R.D., L.K. Ammerman, R.J. Baker, L.C. Bradley, J.A. Cook, R.C. Dowler, C. Jones, D.J. Schmidly, F.B. Stangl Jr., R.A. Van den Bussche, and B. Wursig. 2014. Revised checklist of North American mammals north of Mexico. *Museum of Texas Tech University, Occasional Papers 327*: 1-28. Available at <http://www.nsrl.ttu.edu/publications/opapers/ops/OP327.pdf>

Fishes

- **Freshwater and Marine:** Page, L.M., H. Espinosa-Pérez, L.T. Findley, C.R. Gilbert, R.N. Lea, N.E. Mandrak, R.L. Mayden, and J.S. Nelson. 2013. *Common and scientific names of fishes from the United States, Canada, and Mexico*. Seventh edition. American Fisheries Society, Special Publication 34.

Appendix II. Author Contributions

Description of contributions of co-authors according to the CRediT taxonomy ([Contributor Roles Taxonomy](#)).

Role	Role Definition
Conceptualization	Ideas; formulation or evolution of overarching research goals and aims.
Data Curation	Management activities to annotate (produce metadata), scrub data and maintain research data (including software code, where it is necessary for interpreting the data itself) for initial use and later reuse.
Formal Analysis	Application of statistical, mathematical, computational, or other formal techniques to analyze or synthesize study data.
Funding Acquisition	Acquisition of the financial support for the project leading to this publication.
Investigation	Conducting a research and investigation process, specifically performing the experiments, or data/evidence collection.
Methodology	Development or design of methodology; creation of models
Project Administration	Management and coordination responsibility for the research activity planning and execution.
Resources	Provision of study materials, reagents, materials, patients, laboratory samples, animals, instrumentation, computing resources, or other analysis tools.
Software	Programming, software development; designing computer programs; implementation of the computer code and supporting algorithms; testing of existing code components.
Supervision	Oversight and leadership responsibility for the research activity planning and execution, including mentorship external to the core team.
Validation	Verification, whether as a part of the activity or separate, of the overall replication/reproducibility of

	results/experiments and other research outputs.
Visualization	Preparation, creation and/or presentation of the published work, specifically visualization/data presentation.
Writing – Original Draft Preparation	Creation and/or presentation of the published work, specifically writing the initial draft (including substantive translation).
Writing – Review & Editing	Preparation, creation and/or presentation of the published work by those from the original research group, specifically critical review, commentary or revision – including pre- or post-publication stages.

Appendix III. Creating JPEG, TIFF, PNG, BMP, or PDF files

If your original figures are not in one of the other accepted formats (JPEG, TIFF, PNG, BMP, or EPS), high-quality images can often be made by saving them as PDF.

Creating PDF from Microsoft Office

Microsoft Office products are not ideal for creating or editing graphics files. However, if you have used an Office format you can "save as" or "Export" to a PDF file. Office versions for Windows older than Office 2007 do not have this function, Office 2007 requires a Microsoft "add-on"—available from Microsoft's website—all newer versions have this capability built in. All versions of Mac OS X have native "Print-to-PDF" capability.

Save PowerPoint files in PDF format. To add artwork to your PowerPoint slides, use Insert > Picture > From File. Do not add by copying from another application and pasting into PowerPoint, as the result will be a low-resolution image. While Excel may be used to generate charts, graphs, or histograms from cell data, or to make tables, it should **not** be used to create or adjust figures, as it does not handle figures of dedicated graphics applications. Save Excel files in PDF format.

Creating PDF from other Windows Applications

Adobe Creative Suite or Creative Cloud apps can save directly to PDF formats, and Windows 10 users have native PDF printing enabled by default. Older versions of Windows will need a third-party add-on for Windows to create PDF files. *CutePDF* and *doPDF* are two free utilities that allow PDF creation from any application on all versions of Windows from Windows XP up to Windows 8.

Digital cameras are capable of creating high-quality original electronic images. We recommend using a good quality camera with a resolution of greater than 3 megapixels, and ideally greater than 5 megapixels. Please save the image as a JPEG, TIFF, PNG, or BMP at the highest quality setting, and avoid RAW format.

Graphic Software

Many options exist to create and revise figures. In addition to commercial applications such as Adobe Photoshop and Adobe Illustrator, some programs are available without cost e.g., GIMP (for TIFF; <http://www.gimp.org>) or Inkscape (for EPS; <http://www.inkscape.org>). For viewing PostScript files like EPS we recommend GhostView and GhostScript (<http://www.cs.wisc.edu/~ghost/>).