

# *American Journal of Botany*

## Instructions for Authors

[Scope and Aims of the Journal](#) || [Review Procedure and Policy](#) || [General Instructions and Requirements](#) || [Article Types](#) ||

[Manuscript Preparation](#) || [Cover/Response Letter](#) || [Author Agreement Form](#) ||

[Manuscript Content](#) || [Title Page](#) || [Footnote Page](#) || [Abstract Page](#) || [Text](#) || [Literature Cited](#) ||  
|| [Tables](#) || [Appendices](#) || [Figure Legends](#) || [Figures/Illustrations](#) ||  
|| [Online Supplemental Materials](#) || [Abbreviations, Units, and Symbols](#) ||

[Copyright and Color Agreement](#) || [Contact the Editorial Office](#)

For ***AJB* Primer Notes & Protocols in the Plant Sciences Instructions for Authors**,  
go to [http://www.botany.org/ajb/PNP\\_Online\\_instructions.html](http://www.botany.org/ajb/PNP_Online_instructions.html).

### Scope and Aims of the Journal

The *American Journal of Botany* (*AJB*) publishes peer-reviewed, innovative, significant research of interest to a wide audience of plant scientists in all areas of plant biology (structure, function, development, diversity, genetics, evolution, systematics), all levels of organization (molecular to ecosystem), and all plant groups and allied organisms (cyanobacteria, algae, fungi, and lichens). *AJB* requires authors to frame their research questions and discuss their results in terms of major questions of plant biology. In general, papers that are too narrowly focused, purely descriptive, natural history, broad surveys, or that contain only preliminary data will not be considered.

As of December 2009, *AJB* also includes *AJB* Primer Notes & Protocols in the Plant Sciences, an online-only section for papers intended to promote rapid dissemination of protocols used in genetic analyses of plants. Subjects appropriate for this section include: (1) *marker notes* providing primer sequences for microsatellite or other markers in particular taxa, and (2) *protocol notes* describing new methods for isolating, visualizing, or scoring genetic markers. For complete instructions for this section, see [http://www.botany.org/ajb/PNP\\_Online\\_instructions.html](http://www.botany.org/ajb/PNP_Online_instructions.html).

## Review Procedure and Policy

Manuscripts are reviewed by scholars with expertise in the research area. Reviewers, Associate Editors, and the Editor-in-Chief evaluate manuscripts for innovations in, significant contributions to, and noteworthy advances in the theoretical or conceptual bases of the subdisciplines of plant biology, and/or novel insights of general relevance to fundamental questions of biology (see [http://www.botany.org/ajb/AJB\\_Reviewer\\_Instructions.pdf](http://www.botany.org/ajb/AJB_Reviewer_Instructions.pdf) for details on the content of reviews).

Manuscripts may be returned without review if the English needs significant improvement. Typically, authors have two opportunities to produce an acceptable manuscript: the original submission and one revision in which to address the criticisms and concerns of the reviewers and Associate Editors.

Correspondence and notifications regarding manuscripts will be through e-mail. All reviewer comments and author revisions are handled electronically using Editorial Manager (<http://ajb.edmgr.com>). Copyediting queries and page proofs (or e-galleys) are also provided electronically.

Final acceptance of a manuscript is contingent upon strict compliance with Journal requirements. Manuscripts other than Special Invited Papers are generally published in the order of receipt, within subject areas, of the final, accepted version or of the corrected proof. With the Journal's online **AJB Advance Access** feature, articles that have undergone complete peer review and copyediting, as well as full review by the authors, will be posted as soon as possible.

The Journal editors expect authors to follow the ethics guidelines of the Botanical Society of America (BSA) ([www.botany.org/governance/ethics.php](http://www.botany.org/governance/ethics.php)).

- **Copyrighted material**—If copyrighted material is reproduced in the manuscript, full attribution must be provided in the text; proof of permission must be sent to the Editorial Office. It is the responsibility of the authors, not the BSA or the editors or reviewers, to ensure that proper attribution is given to material previously published elsewhere. If suspicion is raised about the originality of the material (unattributed to source), the Editorial Office may check the manuscript for plagiarism.
- **Conflict of interest**—Authors are responsible for recognizing and disclosing any duality of interest that could be perceived to bias their work, acknowledging all financial support and any other personal connections. All funding sources, including the research funder and grant number, must be given in the acknowledgements section.

**Data**—When using unpublished data owned or created by a researcher who is not the author or a co-author, a formal statement from the owner of the data must be sent to the Editorial Office acknowledging the use of the data and granting formal permission.

**Nomenclature**—*AJB* requires that nomenclature for all extant and extinct species conform to the current International Code of Botanical Nomenclature. Taxonomic authorities are given at first mention in the text (not in the manuscript title).

Use conventions adopted by the scientific community for genetic symbols and nomenclature.

**Genetic Analyses**—*AJB* requires that supporting genetic information, such as DNA, RNA, or protein sequences, be submitted to an appropriate data bank, such as GenBank/EMBL. Alignments used to produce phylogenies must be submitted to TreeBase or to *AJB* to be published as an online supplement with the paper.

The data matrices must be in an editable format (i.e., text files) for reanalysis by anyone interested. Phylogenetic analyses will generally only be considered if the phylogeny is used to test explicit evolutionary and/or ecological hypotheses or morphological associations—essentially a significant discussion of the impact and/or use of the phylogeny.

**Vouchers**—At the time of submission, *AJB* requires supporting genetic and voucher specimen information be provided (see Appendices section under “Manuscript Content”). In discussions of morphological character states, access to the data must be provided.

## General Instructions and Requirements

Before submitting manuscripts, please review all instructions and refer to recent issues of *AJB*.

To take advantage of the free-page-charge policy, at least one author must be a member of the BSA when the manuscript is submitted for review as well as during the year of publication (except for Special Invited Papers). Authors who are not members of the BSA may also submit manuscripts for consideration: a mandatory page charge of \$150 per printed (or equivalent PDF) page is assessed. Page charges must be paid prior to a manuscript going into production, based on the estimated number of printed (or PDF) pages.

*AJB* requires that at least one colleague whose first language is English critically read and edit the manuscript before submission. Manuscripts may be returned without review if the English needs significant improvement.

## Open Access

Starting in January 2010 *AJB* authors have the **option** to make their accepted paper freely available online immediately upon publication. The fee for Open Access is \$1500

(discounted to \$500 if the author's institution subscribes to the Journal). Contact the Editorial Office at [ajb@botany.org](mailto:ajb@botany.org) for more information.

### **Submission process**

Submit your manuscript via the online submission and review system, Editorial Manager, at <http://ajb.edmgr.com>. First-time users need to register for an account at this URL using their active e-mail addresses. The same Username and Password created on Editorial Manager are used to log in as an author or as a reviewer. [If there are any difficulties in the login or submission process, contact the Editorial Office at [ajb@botany.org](mailto:ajb@botany.org) for assistance.]

Each BSA member is entitled to a set number of free pages per year dependent upon length of membership: 12 pages for members of 1–4 years, 16 for members of 5–9 years, and 20 for members longer than 10 years. If more than one author is a member, up to 14 free pages may be used per paper. **Each printed page in excess of the free pages is assessed a mandatory page charge of \$135 per page.** Authors are asked to pay voluntary publication costs if they have funds.

There is a mandatory charge for more than five changes made on proofs resulting from mistakes made by the author(s). Author(s) who require a figure replacement in the e-galleys stage, unless the error was caused by the *AJB* editorial staff or the compositor, will be charged \$25 for each figure replacement or correction.

Authors are encouraged to submit figures in color when doing so enhances the presentation of the scientific information. Due to the cost of printing color, however, the editor may recommend using black and white if the information is just as clear when presented this way.

### **Article Types**

In addition to Research Papers, *AJB* publishes the following:

**Special Invited Papers**—These are mostly reviews of limited scope on timely subjects written for a general, albeit well-informed, audience. Special Invited Papers are typically solicited by the Editor-in-Chief, the Special Papers Editor, or an Associate Editor. Discuss ideas for unsolicited Special Papers with the Editor-in-Chief or the Special Papers Editor. Manuscripts are subject to the usual review process. Benefits for Special Invited Papers include rapid publication, no page charges, and free membership in the BSA for one year. In the introduction, succinctly explain why your paper is of interest to the general biological community.

**Brief Communications**—These are short papers (2–5 printed pages) reporting significant new findings that do not warrant standard full-length treatment with the usual

main headings, or that provide scholarly commentaries, corrections, criticisms, or alternative interpretations of results presented in published papers. “Opinion” papers that are unsupported by new data or reanalysis of published data are unacceptable. Brief Communications are subject to normal review. Publication will be expedited. Membership requirements and page charges are not waived.

**AJB Primer Notes & Protocols in the Plant Sciences**—Papers in this online-only section are focused on protocols used in genetic analyses of plants. Subjects appropriate for this section include: (1) *marker notes* providing primer sequences for microsatellite or other markers in particular taxa, and (2) *protocol notes* describing new methods for isolating, visualizing, or scoring genetic markers. Papers for this section must follow the template and specialized instructions at [http://www.botany.org/ajb/PNP\\_Online\\_instructions.html](http://www.botany.org/ajb/PNP_Online_instructions.html).

**Invited Commentary**—All invited commentaries are paired with a forthcoming paper, usually on the suggestion of an Associate Editor or the Editor-in-Chief. These 3- to 5-page articles discuss the contributions and significance of the research paper relative to accepted or emerging paradigms in the subject. Membership requirements and page charges are waived.

**Book Reviews**—All book reviews are by invitation, and publication is expedited. Direct communication and manuscripts to the Book Review Editor. Membership requirements and page charges are waived. An alternative outlet for book reviews is the *Plant Science Bulletin*. [Contact the editor at [psb@botany.org](mailto:psb@botany.org).]

### Manuscript Preparation

A cover letter, an author agreement form, a manuscript file, and separate files for figures should be uploaded at <http://ajb.edmgr.com>. The manuscript file includes in the following order: Title Page, Footnote Page, Abstract Page, Text, Literature Cited, Appendices, Figure Legends, and Tables.

For manuscript files, MS Word (.doc) format is preferred, but Rich Text Format (.rtf) files are acceptable for review as well.

The Editorial Manager online submission system automatically inserts line numbers to facilitate review comments, so line numbers are not required in the manuscript file.

Double-space and left justify the margin of the entire manuscript, including Literature Cited, Appendices, Figure Legends, and Tables, using continuous pagination.

Leave at least a 2.5-cm margin on all sides. Place a header with last name(s) of author(s) and page number in upper right corner.

Number figures and tables in the order discussed in the text.

### **Cover/Response Letter**

Include a cover letter that describes the questions addressed or hypotheses tested, the major contribution of your paper to your discipline, and how this contribution is of interest to a broad audience. List any papers on related topics by any of the authors that have been published within the past year or that are in review or in press. For a revision, include a letter detailing your response to all the review comments.

### **Author Agreement Form**

Upon initial submission of a manuscript, the corresponding author must fill out an author agreement form and either upload an electronic version at the online submission site or mail or fax a hard copy to the Editorial Office in St. Louis, Missouri (American Journal of Botany, P.O. Box 299, St. Louis, MO 63166-0299, USA; 1-314-577-9515). The author agreement form is available online at [http://www.botany.org/ajb/AJB\\_Author\\_Agreement\\_Form.doc](http://www.botany.org/ajb/AJB_Author_Agreement_Form.doc); on the Editorial Manager website at the “Attach Files” screen; and from the Editorial Office.

## **Manuscript Content**

### **1. Title Page**

Place a running head 2.5 cm (1 in) below the top of the page with the surname of the FIRST author (followed, as appropriate, with the surname of a sole co-author, or with et al. if there are three or more authors) and a short title.

The manuscript title for research papers should be specific and informative, conveying the key findings of the research in an active voice. Center boldfaced title written with sentence-style capitalization, followed by superscript 1 (for footnote 1, to appear on footnote page). In most cases, Latin binomials in a title should be followed by the name of the family in parentheses.

Below the title, list authors: each author’s first name, middle initial, surname. On the next line, give affiliation and unabbreviated address. If authors have different affiliations and addresses, add a superscript number after each author’s name to indicate the footnoted address. Include another footnote superscript number to indicate the author for correspondence.

### **2. Footnotes**

Include the following footnote:

<sup>1</sup>Manuscript received \_\_\_\_\_; revision accepted \_\_\_\_\_.

Place brief acknowledgments, if desired, as a separate paragraph, using the following style: “The author(s) thank(s)...”. For brevity, do not use first names. Include grant acknowledgments here.

Other footnotes (e.g., e-mail for correspondence) are permitted: match footnote numbers with those on the title page.

### 3. Abstract

Beginning January 2010, the *AJB* will require structured abstracts for manuscript submission. The abstract is 250 words or less, written in the following structured format:

- *Premise of the study* (why the work was done, what major questions of plant biology are addressed, and why it's important to the broad *AJB* readership)
- *Methods*
- *Key Results*
- *Conclusions* (what major points should the reader take from this article)

Note that the first 100 words will be used in an RSS feed and thus should capture the interest of the general botanical community as well as the specialists and include the most important contribution of this paper. Avoid references; if essential, cite parenthetically with journal name, volume number, pages, and year.

Provide a list of 3–10 “**Key words**” that will be used for the volume index. Capitalize proper nouns, place in alphabetical order, and separate by semicolons.

### 4. Text

In the first paragraph of the introduction, include the theoretical or conceptual basis for your work in a context accessible to the diverse botanical readership that *AJB* attracts. Include a summary of conclusions and a take-home message for the generally informed reader in the DISCUSSION.

Center main headings and capitalize all letters: MATERIALS AND METHODS, RESULTS, and DISCUSSION.

Indent subheadings at the start of a paragraph; capitalize only the first word and proper nouns and adjectives.

*Second-level headings*—(boldface italic followed by an em dash)

*Third-level headings*—(italic followed by an em dash)

In MATERIALS AND METHODS add name, city, spelled-out state (if in USA), and country of manufacturers/suppliers after brand names.

If statistical analyses are used, include statistical values in the RESULTS either in the text or within tables. Include the statistic value, degrees of freedom, and p-value for each result reported (e.g., for a *t*-test report " $t = 32.41$ ,  $df = 1$ ,  $P = 0.03$ "; for an ANOVA report " $F_{5, 23} = 26.45$ ,  $P < 0.001$ " [note two *df* -values as subscripts with *F*]). Use *P* for significance, *p* for probability.

Common Latin words (e.g., *in vivo*, *sensu lato*) are not italicized.

Footnotes are not used in the text.

## 5. Literature Cited

Verify all entries against original sources. Double check that all references in the manuscript text are in the Literature Cited and vice-versa and that they agree in spelling and year.

**Literature citations in text**—Cite references in chronological order (oldest first); within a given year, order them alphabetically (e.g., Jones and Gil, 1999, 2006; Ashton et al., 2007; Brown, 2007; Jackson, 2005, 2008).

Single author: Jones (2008) or (Jones, 2008). Two authors: Jones and Gil (2008) or (Jones and Gil, 2008). More than two authors: Jones et al. (2008) or (Jones et al., 2008).

Manuscripts accepted for publication but not yet published: Jones (in press) or (Jones, in press). Include “In press” citations in LITERATURE CITED (shown later).

Unpublished data and manuscripts (e.g., submitted, in prep.) and personal communication: (F. Jones, Institution, unpublished data [or unpublished manuscript or personal observation]). These are not included in LITERATURE CITED.

**References listed in LITERATURE CITED**—List citations in alphabetical order by author. Single-author titles precede multi-authored titles by the same senior author, regardless of date.

List works by the same author(s) chronologically, beginning with earliest date of publication. Spell out all author(s) names. Use “a”, “b” (determined alphabetically) for works with the same author(s) and year citation.

For multi-authored works, list the first seven authors and then “et al.”— unless there are only eight authors and then list all eight.

Type author names in citations in upper and lower case or in large and small caps, *not* in all caps. For formatting examples (note spacing, capitalization, italics, etc.), go to [http://www.botany.org/ajb/ajb\\_Lit\\_Cited\\_Instructions.pdf](http://www.botany.org/ajb/ajb_Lit_Cited_Instructions.pdf).

## 6. Tables – include in manuscript file and place immediately after Literature Cited

Tables need to be formatted using the Table feature in Word or in a spreadsheet such as Excel.

Number tables with Arabic numerals followed by a period. Capitalize first word of title; all others, except proper nouns, are lowercase; spell out names of genera and abbreviations on first mention; place period at end. Include study organism (species or group) and geographic location in each caption when appropriate. Place explanatory notes and define all abbreviations below the table after the heading “Note:” or “Notes:”. Place footnotes after the Notes.

Every column must have an appropriately placed heading (esp. the first at left—the stub head), with appropriate subheadings. In the body of the table, capitalize the first word of each entry (and proper nouns); do not use vertical lines between columns; indicate footnotes by lowercase superscript letters.

If the use of color in a table is essential, please contact the Editorial Office at [ajb@botany.org](mailto:ajb@botany.org).

### **7. Appendices – include in manuscript file and place immediately after the tables**

If voucher and gene accession information support the study, list these in Appendix 1, which will be published in the print and online versions. Provide an appendix title, and a sentence-style row of headings for the data. For each taxon sampled, include specimen voucher information and/or gene accession numbers, separated by commas. To save space, the taxa can be run together in a paragraph. See a current issue or <http://www.amjbot.org/cgi/content/full/93/4/607> for an example.

Additional appendices may be included. *AJB* encourages online-only publication of extensive appendices, as well as other supplemental materials that support the article but are best presented electronically (see “Online Supplemental Materials” below).

### **8. Figure Legends – include in manuscript file and place immediately after the Appendices (or after the tables if there are no appendices)**

Each figure legend must be complete and informative so that reference to the text is not necessary to understand the content of the figure. Abbreviations should be defined unless they are standard convention. Place legends as separate paragraphs following the appendices. For figures with multiple lettered panels, a general title for the figure should be followed by a description of each panel (e.g., “Fig. 5. Relationship between... (A) All fruits. (B) Fruits <0.5 mm.”). When applicable, include study organism (species or group) or geographic location, and define scale bar (e.g., Bar = 0.1  $\mu$ m). For micrographs, include pertinent information such as magnification and type of section, stain, optics, or special techniques. Any nonlinear adjustment to photographs must be detailed.

Define all symbols and abbreviations either in a key within the figure or in the legend; if defined in an earlier legend, the appropriate figure or table may be cited.

Place figure abbreviations in alphabetical order and format as follows: c, cell; n, nucleus.

### **9. Figures/Illustrations - upload as separate files (do not include in the manuscript file)**

For details and illustrated examples, see [http://www.botany.org/ajb/AJB\\_Digital\\_Art\\_Guidelines.pdf](http://www.botany.org/ajb/AJB_Digital_Art_Guidelines.pdf). A figure checklist is also available at [http://www.botany.org/ajb/AJB\\_Figure\\_Checklist.pdf](http://www.botany.org/ajb/AJB_Figure_Checklist.pdf).

TIFF or EPS formats are preferred for color and black and white photographs, drawings, and graphs.

Prepare figures at the final size desired: 1 column (8.9 cm [3.5 in]), 1.5 column (12.7-15.3 cm [5-6 in]), or 2 columns (18.4 cm [7.25 in]) wide and less than the length of the page (23 cm [9 in]).

Low-resolution files may be initially uploaded/submitted for the review process. Once your manuscript has been tentatively accepted, printer-quality (high-resolution) figures are required. See “Tips for Large Files” below.

### **Figure Manipulations**

Certain types of electronic manipulations of micrographs and other digital images may not be ethically acceptable. Images that will be compared with each other must be acquired and processed under the same conditions. Manipulations such as background subtraction or white-balancing should be explained in the Materials and Methods section. Note that a selected area within an image may not be altered or enhanced; the entire image must be treated the same. Linear adjustments to contrast, brightness, or color must be applied to an entire image or plate equally (or explained). Detail nonlinear adjustments in the legend. Always keep original raw data files for documentation upon request.

### **Resolution for Final Figures**

Line art (black lines and text, including phylogenetic trees): 1000-1200 dpi.

Halftone/grayscale (images with shades of gray, such as black and white photographs): a minimum of 300 dpi.

Color: a minimum of 300 dpi. Use RGB mode (not Indexed Color Mode). [Note: Do not send color files if images are to be printed in black and white.]

Combination art (grayscale image with type): 600-900 dpi.

Grayscale images should have the whitest area of the image set at a 2% highlight value, while the blackest area of the image should be set to a 98% shadow value.

Include the screen and printer font files for any text that has been added to the figure. Use PC or Mac versions of Adobe Postscript fonts. To avoid font problems, convert all type to curves or paths.

Check figure quality online using Digital Expert at <http://dx.sheridan.com/onl/rgb/>.

### **Format and Style**

Use consistent style, font, and font size (between 6 and 10 pt.) for all figures. Use of standard fonts (Times New Roman, Helvetica) gives better results.

For figures with multiple elements (photos, drawings, or graphs), group elements in a rectangle or square and label the top left corner of each element with a capital letter (e.g., A, B). Keep elements close together for best use of space. Photographs in a composite plate should each be numbered and separated by a thin line or blank space.

Label axes; include Standard International (SI) Units of measure in parentheses; capitalize only the first letter of the first word (e.g., “Stem growth (%)”). Axis label should be c. 0.2 cm from units on axis, but no more than 0.5 cm; x- and y-axis labels should be equidistant from axes.

Use abbreviations consistently in the text and figures.

For magnified illustrations, provide a scale bar defined in either the figure itself or at the end of the legend.

### **Cover image and caption**

You are invited to submit one or more color photographs (or artificially colorized photomicrographs) to be considered for a cover illustration. The image must be at least 300 ppi and in portrait format slightly larger than 21.6 cm wide × 28 cm high (8.5 x 11 in). Submit the file(s) online with your original submission or revised manuscript. Also include a brief caption that describes the image, scientific name and authority of any organism, photographic technique, image manipulation, and the major result of the research. For micrographs, include pertinent information such as magnification and type of section, stain, optics, or special techniques.

The legend should do more than just describe the image itself: it should "tell a story" by explaining why the image is important to entice the reader to search for the full article. See <http://www.amjbot.org/content/vol95/issue4/cover.shtml> for an example.

### **Tips for Large Files**

Files >5 MB may be slow (or impossible) to upload on most servers. When saving graphics, LZW compression (Save As/Option) may be used to reduce file size. You may also try converting black and white images to grayscale in conjunction with LZW compression. You may also compress such files (e.g., using Stuffit or WinZip) or save them as a PDF (using Acrobat Distiller). Alternatively, the Editorial Office may direct you to upload the files to an FTP site or send them via e-mail through <http://www.YouSendIt.com>.

### **Online Supplemental Materials**

Authors may wish to augment their manuscripts with online supplemental materials (e.g., large data sets, three-dimensional reconstructions, simulations, real-time movies, color photographs). Upload these appendices as separate files with the initial manuscript submission. Include a header on each file using this format: Smith et al.—American Journal of Botany 97(#): ###-###. 2010. – Data Supplement S1 – Page 1”. Name online supplements Appendix S1, Appendix S2, etc, in the order in which they appear in the text, regardless of whether they are tables, figures, text, other media, or a combination thereof. In the manuscript, after the mention of an online appendix, include the following: “(see Supplemental Data with the online version of this article)”.

Note that if authors wish to submit long DNA sequence appendices as supplemental material, they should select the "DNA sequences (online-only supplemental)" option on

Editorial Manager. This ensures that lengthy appendices are not built into the reviewers' PDF, but are still accessible to the reviewers.

### **Abbreviations, Units, and Symbols**

See a recent Table of Contents page for commonly used abbreviations.

Do not begin a sentence, heading, or title with an abbreviation.

Abbreviate figure as “Fig.” or “Figs.”

Use the following abbreviations with numerals without spelling out at first use: h, min, s, yr, mo, wk, d, cm, mm, DNA, cpDNA, RNA, dNTP. Designate temperature as in 30°C (use the degree sign, not zero or the letter o).

Numbers: write out one through nine unless a measurement, a designator, or in a range (e.g., four petals, 3 mm, 6 yr, 5–11 species, day 2). Use % instead of percent with numerals; 1000 instead of 1,000; 10 000 instead of 10,000; 0.13 instead of .13.

Use Standard International (SI) units throughout the text, figures, and tables. Use the word mass (kg, g, mg) correctly; weight is reported in newtons (N). Use either a solidus for one unit in the denominator (e.g., kg/m<sup>2</sup>) or a negative exponent with multiplier dot (e.g., kg•m<sup>-2</sup>•d<sup>-1</sup>) for two or more units in the denominator. Use L for liter (mL for milliliter).

Include a space before and after all operation signs (e.g., =, +) with equations and definitions; use an en dash (width of two hyphens) for minus sign.

### **Copyright and Color Agreement Forms**

Once your manuscript has been accepted for publication, return signed copyright forms for the article, and any color plates, to the Editorial Office in St. Louis, Missouri. All authors must sign off on the copyright form or contact the Editorial Office to confirm their participation in the work.

**Copyright Assignment** - <http://www.botany.org/ajb/AJBcopyright.pdf>

**Color agreement form** - [http://www.botany.org/ajb/AJBcolor\\_agr.pdf](http://www.botany.org/ajb/AJBcolor_agr.pdf)

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