



Publishing: FLORIDA ENTOMOLOGIST

(An International Journal for the Americas)

First on the Internet: http://www.fcla.edu/FlaEnt/

(Print ISSN: 0015-4040; Online ISSN: 1938-5102)

OFFICERS FOR 2019-2021 (Meeting for 2020 cancelled due to Covid-19)

| Past President Heather McAusland President-Elect Gregg Nuessl Vice-President Scott Croxton Secretary Vivek Kuma Treasurer Teresa DuChend | riesident Jawwad Quiesii |
|--|----------------------------------|
| Vice-President Scott Croxton Secretary Vivek Kuma | Past President Heather McAusland |
| Secretary Vivek Kuma | President-Elect |
| • | Vice-President Scott Croxton |
| Treasurer Teresa DuChene | Secretary Vivek Kuma |
| | Treasurer Teresa DuChene |

Members of the Executive Committee include Officers above;

Co-Editors; Members at Large: Carey Minteer, Daniel Carillo; Student Members: Christopher Bibbs, Iris Smith Editors of the Florida Entomologist: James Cilek, Kirsten Pelz-Stelinski, Gadi Reddy, Jawwad Qureshi, Richard Mankin

PUBLICATION COMMITTEE

| ames E. Cilek, Navy Entomology Center of Excellence, Jacksonville, FL | Zachary Lahey , Dept. of Evolution, Ecology, and Organismal Biology, Museum of Biological Diversity, Ohio State University, Columbus, OH Deputy Editor |
|---|---|
| Kirsten Pelz-Stelinski, Citrus REC, UF/IFAS, Lake Alfred, FL | Pamela J. Howell, Williston, FL |
| Editor, Pathology, Biocontrol, Disease Transmission, Molecular Biology | Gregory A. Evans, USDA, Beltsville, MD Translator (Spanish) |
| V. P. Reddy, USDA, ARS, Southern Insect Management Research Unit, oneville, MS Co-Editor, Pest Management, Ecology & Behavior, Biocontrol | Richard Mankin, USDA/ARS, CMAVE, Gainesville, FL Web Master |
| . Howard Frank, UF/IFAS, Gainesville, FL Deputy Editor | Teresa DuChene, Lutz, FL Business Manager |

ASSOCIATE EDITORS

Agricultural, Extension, & Regulatory Entomology

 $Norman\ C.\ Leppla-Entomol.\ \&\ Nematol.\ Dept.,\ UF/IFAS,\ Gainesville,\ FL$

Arachnology

Daniel Carrillo—Tropical REC, UF/IFAS, Homestead, FL

Chemical Ecology, Physiology, Biochemistry

Sentgottayan Senthil-Nathan—Manonmaniam Sundaranar University, Alwarkurichi, Tamil-Nadu, India (Toxicology)

Ecology, Behavior, Pest Management

Oscar Liburd—Entomol. & Nematol. Dept., UF/IFAS, Gainesville, FL Lukasz L. Stelinski—Citrus REC, UF/IFAS, Lake Alfred, FL

Molecular Biology, Insect Physiology

Steven Valles—Ctr. for Med., Agric., & Vet. Entomol., USDA/ARS, Gainesville, FL

Medical Entomology, Insect Ecology and Behavior, Insect Management Richard Mankin—Ctr. for Med., Agric., & Vet. Entomol., USDA/ARS, Gainesville, FL

FLORIDA ENTOMOLOGIST (ISSN 0015-4040; Online ISSN: 1938-5102) is published quarterly—Mar, Jun, Sep, and Dec—by the Florida Entomological Society, 16125 E. Lake Burrell Dr., Lutz, FL 33548. Subscription price to non-members is US\$70 per year in advance, US\$20 per copy; institutional rate is US\$70 per year. Full membership in the Society is US\$60 in the USA, Canada, and Mexico, and US\$40 elsewhere. Student membership is US\$30 in the USA, Canada, and Mexico, and US\$25 elsewhere. Members outside the USA, Canada, and Mexico will not receive a printed FLORIDA ENTOMOLOGIST due to mailing cost. Periodical Postage paid at Lutz, FL, and at additional mailing offices. POSTMASTER: Send address changes to FLORIDA ENTOMOLOGIST, P.O. Box 1007, Lutz, FL 33548-1731; phone (813) 903-9234; E-mail: flaentsoc@gmail.com. USPS number is 572840.

Information regarding membership and subscriptions can be found online from our website at www.flaentsoc.org. Additional questions should be addressed to: Business Manager, P.O. Box 1007, Lutz, FL 33548; phone (813) 903-9234; E-mail: flaentsoc@gmail.com. Manuscripts from all disciplines of entomology will be considered, with no geographical restrictions regarding publication, though priority for publication will be given to manuscripts that reflect the fauna of the western hemisphere, or are of great interest to entomologists in this region. Please consult Instructions to Authors at the back.

This issue printed December 28, 2020

COVER: A *Eumaeus atala* female oviposits on the new leaves of a *Zamia integrifolia* cycad at the Montgomery Botanical Center. Photo credit: Stella Cuestas, Montgomery Botanical Center, Coral Gables, Florida, USA.

INSTRUCTIONS TO AUTHORS

- Articles published in Florida Entomologist reflect all aspects of basic and applied entomological science. There are no geographical restrictions regarding publication, although priority will be given to manuscripts that reflect the fauna of the western hemisphere, or are of great interest to entomologists in this region.
- PUBLICATION FEES: As a rough estimate, 3 to 4 manuscript pages (including pages with tables and figures) generally make 1 printed page. Beginning in January 2017, page charges per printed page are US\$110 for members of the Florida Entomological Society and US\$160 for non-members (plus sales tax for Florida residents); this fee includes unrestricted electronic Web access via the journal's website and BioOne. Reprints may be ordered directly from the printer. Added costs for color display of figures may apply. Publication fees are due upon provision of the electronic page proofs, and you will receive an invoice from the printer. The printer will begin final processing for publication upon receipt of the publication fees. Credit card payments are preferred.
- SUBMISSION: Upload an original manuscript as an electronic version in Microsoft Word at this site: http://journals.fcla.edu/flaent. Once you create a username and password, it is an easy 5-step process to complete the submission. Make sure you select the check box to register as an author, so that you will be able to access the manuscript submission forms.
- BEFORE YOU SUBMIT A MANUSCRIPT: Please review the formatting guidelines and templates posted here: http://www.flaentsoc.org/auinstr. shtml. You also should consult the FlaEnt_Checklist_of_Common_Mistakes_July2016 to assure that your manuscript was prepared properly.
- FORMAT: Microsoft Word document; letter paper size (8.5 by 11 inches) with 1 inch margins; 12 pt font size throughout; all text left aligned with double-line spacing (except title page).
- TITLE PAGE: All text left aligned, 12 pt font size, single-line spacing. Include information in the following order: 1) running head (max. 80 characters or spaces, sentence case); 2) membership status: member (name and member ID) or non-member; 3) billing contact: name, E-mail address, and any information (address, reference numbers, etc.) that you need included on the invoice; 4) title of the study (include order and family of key organisms but omit authority for scientific names); 5) authors' names, 6) list authors' affiliations (including each author's E-mail address) with numbered footnotes; 7) indicate corresponding author with an asterisk.
- ABSTRACT: Submit an abstract in English and resumen in Spanish, or resumo in Portuguese. The editor will obtain a translation if the author cannot. Include complete scientific name with systematic authority, order, and family of all arthropods.
- KEY WORDS: List 4 to 6 key words below the abstract. **Do not repeat words that appear in the title**. List Palabras Clave (or Palavras Chave) below Resumen (or Resumo).
- TEXT: Follow a general format of introduction (no heading), **Materials and Methods**, **Results**, **Discussion**, **Acknowledgments**, **References Cited**. Use metric measurements; express quantities as Arabic numerals except as the first word of a sentence or to avoid ambiguity. Below the text, place each of the following on a separate page: each table, list of figure captions, each figure (inserted as a low-resolution copy).
- SCIENTIFIC NOTES: Short contributions with a maximum text length of 1,500 words. Only 2 figures or tables or one of each are allowed. Format: title page and text in logical scientific order without any headings (place acknowledgments in the last paragraph), followed (with headings) by Summary, Key Words, Sumario, Palabras Clave, and References Cited.
- TAXONOMIC MANUSCRIPTS must have an introduction. Taxonomic keys should use one of the following formats: If the key is **short** (8 couplets or fewer), use the style of Abrantes & Duarte (2013) FE 96: 1392–1400 (see page 1399). Note how each part of each couplet is indicated, for example as 1.— and 1'.—. The symbols should be em dashes (not hyphens, not en dashes). If the key is **long** (9 couplets or more), use the style of Stoetzel & Miller (2001) FE 84: 83–98 (see pages 96–97) and Porter & Pesquero (2001) FE 84: 691–699 (see pages 696–698). Pictorial keys as in Stoetzel & Miller (2001; see pages 85, 88–90, 92–94) are encouraged. Descriptions of new taxa should contain information that will distinguish them from related taxa including appropriate amendment of existing keys. Formal descriptions of taxa may be telegraphic; use of gender symbols is acceptable except for headings. Abbreviate collection dates with Roman numerals for months and Arabic numerals for days and years: 30-IV-2015.
- CITATIONS IN TEXT: Use the name—date format: Jones (1986); (Jones 1986); Jones & Smith (1986); (Jones & Smith 1986); Jones (in press); (Jones AF, Dept. Zoology, Ohio State University, personal communication). Use "et al." (not italicized) for 3 or more authors. Provide evidence of acceptance for works "in press," otherwise cite as "unpublished" or "personal communication." Provide written permission from personal communicants.
- ACKNOWLEDGMENTS: Place disclaimers, journal series numbers, funding sources, address changes other than correspondent, etc., here.
- REFERENCES CITED: Include all source material cited in the manuscript. Provide all information that would allow retrieval of the material. List each reference on its own line with a hanging indent (0.5 inches). Put initials of each author after the surname (family name). Do not use punctuation except for a comma to separate different names. Example: "Jones BJ, Smith CA. 2008." Use sentence case for titles of journal articles, book chapters, reports, theses, and online resources. Capitalize major words in book titles. **Spell out journal names.**
- TABLES AND FIGURES: Reference all tables and figures with Arabic numerals in the order in which they appear in the text. **Tables must be created** with the Insert Table function. Table footnotes are written below the table and indicated with superscript lowercase letters. All captions for figures are listed together on a separate page. All illustrations must be complete and final. Make a composite figure plate if numerous line drawings, graphs, or photographs can be combined. Ideal figure widths at 100% view are 3.54 inches for single-column, and 7.25 inches for two-column images. The maximum depth is 9.00 inches. Ideal figure resolution is 300 to 600 dpi. If you prefer a certain figure width (1 column or 2 columns) in the final article, indicate it after the figure caption. **Submit all figures (or figure plates) separately as high-resolution .tiff or .tif files** (file size approx. 1–5 MB, but NOT larger than 15 MB).
- ELECTRONIC REPRINTS: Internet publication of all articles via the journal's website and BioOne is included in the page charges. Persons with access to the Web can read or make e-reprints (equivalent to high-quality photocopies) at any time and without charge.
- COLOR DISPLAY OF FIGURES: Three options are available: 1) black & white in both the printed and the online version of the journal, no added cost; 2) black & white printed and color online, added cost US\$60 per figure (or figure plate); 3) color in both the printed and the online version, added cost US\$260 per figure (or figure plate).
- INFOLINKS: For US\$45, a hyperlink will be inserted in the online table of contents that accesses the author's article (see http://www.flaentsoc.org/infolink.shtm<u>l</u>). This infolink allows electronic posting of supplemental material and color images at low cost.
- ASSISTANCE TO PREPARE MANUSCRIPTS: Authors who need editing assistance to prepare manuscripts for publication in Florida Entomologist should hire a professional scientific editing service. You can search the internet by using "scientific editing service" as key words to locate a service.