



Cover

Source: The Auk, 135(4)

Published By: American Ornithological Society

URL: <https://doi.org/10.1642/AUK-2018.135.4.cover>

BioOne Complete (complete.BioOne.org) is a full-text database of 200 subscribed and open-access titles in the biological, ecological, and environmental sciences published by nonprofit societies, associations, museums, institutions, and presses.

Your use of this PDF, the BioOne Complete website, and all posted and associated content indicates your acceptance of BioOne's Terms of Use, available at www.bioone.org/terms-of-use.

BioOne sees sustainable scholarly publishing as an inherently collaborative enterprise connecting authors, nonprofit publishers, academic institutions, research libraries, and research funders in the common goal of maximizing access to

Journal Mission and Scope

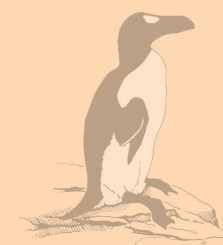
The Auk: Ornithological Advances is an international, peer-reviewed journal that publishes original research and scholarship advancing the fundamental scientific knowledge of bird species and broad biological concepts (e.g., ecology, evolution, behavior, physiology, genetics) through studies of bird species. Articles often introduce or employ innovative empirical and theoretical approaches and analyses.

Topics covered in the journal include:

- Evolutionary history and paleontology
- Systematics and nomenclature
- Behavioral ecology
- Foraging strategies and tactics
- Population biology and ecology
- Molecular ecology
- Community and landscape ecology
- Migration and orientation
- Spacing patterns and habitat use
- Genetics and genomics
- Epigenetics, and evolutionary development
- Physiology and biochemistry
- Morphology and anatomy
- Integrative and cross-disciplinary studies
- Theoretical and methodological advances
- Thematic reviews and opinion pieces

Journals of the American Ornithological Society

The American Ornithological Society publishes two peer-reviewed, international journals of ornithology. *The Auk: Ornithological Advances* focuses on basic ornithological science. *The Condor: Ornithological Applications* focuses on applied ornithological study. The redefined, separate missions of the journals in 2014 created an opportunity for them to work together to publish the best science in basic and applied ornithology and to build on their long histories as top journals in the field of avian biology.



The Auk Ornithological Advances

Volume 135 Number 4 October 2018



Editor-in-Chief: T. Scott Sillett

The Auk: Ornithological Advances

Volume 135, Number 4, Pages 821–1197

October 2018



AMERICAN ORNITHOLOGICAL SOCIETY

T. Scott Sillett
Smithsonian Institution, silletts@si.edu

EDITORS Kimberly Bostwick, ksbostwick@icloud.com
James S. Sedinger, *University of Nevada Reno*, jsedinger@cabnr.unr.edu
Wendy L. Reed, *University of Minnesota Duluth*, wreed@d.umn.edu

Journals Director: Kathleen E. Erickson, AOSpubs@AmericanOrnithology.org
Managing Editor: Mark C. Penrose, AOSpubs@AmericanOrnithology.org
Copyeditors: Richard Earles, Scott W. Gillihan, Thalia Sachtleben
Translators: Lucio R. Malizia, Karl S. Mokross, Hélène Senechal

ASSOCIATE EDITORS

Zachary Aidala, *Bloomfield College*
Lauryn Benedict, *University of Northern Colorado*
Melissa Bowlin, *University of Michigan-Dearborn*
Luke K. Butler, *The College of New Jersey*
Bruce Byers, *University of Massachusetts Amherst*
C. Daniel Cadena, *Universidad de los Andes*
R. Terry Chesser, *Smithsonian Institution*
Christopher J. Clark, *University of California Riverside*
Emily B. Cohen, *Smithsonian Migratory Bird Center*
James Dale, *Massey University*
Donald Dearborn, *Bates College*
Mark E. Deutschlander, *Hobart and William Smith Colleges*
Jack Dumbacher, *California Academy of Sciences*
Jeanne M. Fair, *Los Alamos National Laboratory*
Megan D. Gall, *Vassar College*
Ismael Galván, *Doñana Biological Station - CSIC*
Jennifer Gee, *James San Jacinto Mountains Reserve*
Sharon Gill, *Western Michigan University*
D. Caldwell Hahn, *USGS Patuxent Wildlife Research Center*
Thomas P. Hahn, *University of California Davis*
Douglas H. Johnson, *USGS Northern Prairie Wildlife Research Center*
Gustavo Kattan, *Pontificia Universidad Javeriana - Cali*
David Koons, *Utah State University*
David Lahti, *Queens College, The City University of New York*
Adam Z. Lendvai, *Virginia Tech*
Catherine Lindell, *Michigan State University*
Bernard Lohr, *University of Maryland, Baltimore County*
Kathleen S. Lynch, *Hofstra University*
Elizabeth A. MacDougall-Shackleton, *Western University-Canada*
Rafael Maia, *Columbia University*
Gerald Mayr, *Senckenberg Research Institute Frankfurt*
Cristina Yumi Miyaki, *Universidade de São Paulo*
Bill Monahan, *USDA Forest Service*
Troy G. Murphy, *Trinity University*
Paul M. Nolan, *The Citadel (Military College of South Carolina)*
Juan Francisco Ornelas, *Instituto de Ecología, AC (INECOL)*
Raul Ortiz-Pulido, *Universidad Autónoma del Estado de Hidalgo*
Sara Oyler-McCance, *USGS Fort Collins Science Center*
Juan L. Parra, *Universidad de Antioquia*
Stephen Pruett-Jones, *University of Chicago*
Christina Riehl, *Harvard University*
James W. Rivers, *Oregon State University*
Kristen C. Ruegg, *University of California Santa Cruz*
Rebecca J. Safran, *University of Colorado Boulder*
Frederick H. Sheldon, *Louisiana State University*
Dave Shutler, *Acadia University*
Jill Soha, *Duke University*
Garth M. Spellman, *Denver Museum of Nature & Science*
Benjamin N. Taft, *University of Wisconsin-Parkside*
Sabrina S. Taylor, *Louisiana State University*
Daniel B. Thomas, *Massey University*
Christopher M. Tonra, *The Ohio State University*
Roxana Torres, *Universidad Nacional Autónoma de México*
Andrea K. Townsend, *Hamilton College*
Eric Walters, *Old Dominion University*
Michael P. Ward, *University of Illinois at Urbana-Champaign*
Jason D. Weckstein, *Drexel University*
Mitch Weegman, *University of Missouri*
Karen L. Wiebe, *University of Saskatchewan*
L. LaReesa Wolfenbarger, *University of Nebraska at Omaha*

Book Review Editor: Jay Mager, *Ohio Northern University*, j-mager@onu.edu
In Memoriam Editor: Ted Anderson, *McKendree University*, ted020@centurytel.net

On the Cover: The Bahia Tapaculo (*Eleoscytalopus psychopompus*) in the Atlantic rainforest, Michellin Reserve, Ituberá, Bahia, Brazil, December 2011. In this issue, Moraes et al. (pp. 1009–1019) suggest that the Bahia Tapaculo is vocally and morphologically distinct from the White-breasted Tapaculo (*E. indigoticus*). Photo by Andrew Whittaker/Birding Brazil Tours

Journal Information: *The Auk: Ornithological Advances* publishes original research and scholarship advancing the fundamental scientific knowledge of bird species and broad biological concepts (e.g., ecology, evolution, behavior, physiology, genetics) through studies of bird species. Appropriate topics include documentation, analysis, and interpretation of laboratory and field studies; theoretical or methodological developments; and reviews of information or ideas. Authors are encouraged to write papers from the perspective of general concepts and theories and to consider the relevance of their findings to taxa in addition to birds. Contributions are welcomed from around the world but must be written in English. *The Auk* was published from 1884 to 2016 by the American Ornithologists' Union (AOU), and as of 2016 is published by the American Ornithological Society (a merger of the AOU and the Cooper Ornithological Society). *The Auk* became *The Auk: Ornithological Advances* in 2014. *The articles in this journal reflect the research and opinions of the individual authors. As such, the articles do not necessarily reflect the opinions of the editors or any official policy of the American Ornithological Society.*

Submit manuscripts online at www.editorialmanager.com/auk. **Author instructions** are at <http://americanornithologypubs.org/page/instructions>.

Copying and permissions notice: To obtain rights and permission to reprint papers, figures, tables, etc., or parts thereof, previously published in *The Auk* and *The Auk: Ornithological Advances*, contact the Publications Office at AOSpubs@AmericanOrnithology.org.

Abstracting and Indexing: Articles appearing in *The Auk: Ornithological Advances* are abstracted and indexed in the databases listed online at www.AmericanOrnithologyPubs.org.

The Auk: Ornithological Advances is published weekly online (ISSN 1938-4254) by the American Ornithological Society, 1400 S Lake Shore Drive, Chicago, IL 60605. Print copies (ISSN 0004-8030) are available from Sheridan Press at <http://aos.sheridan.com>

OFFICERS AND EDITORS

President: Kathy Martin, *Department of Forest and Conservation Sciences, University of British Columbia*, 2424 Main Mall, Vancouver, BC, V6T 1Z4 Canada, kathy.martin@ubc.ca

President-Elect: Thomas W. Sherry, *Department of Ecology & Evolutionary Biology, Tulane University*, 6055 General Meyer Avenue, New Orleans, LA 70131, tsherry@tulane.edu

Secretary: Andrew W. Jones, *Department of Ornithology, Cleveland Museum of Natural History*, 1 Wade Oval Drive, University Circle, Cleveland, OH 44106, ajones@cmnh.org

Treasurer: Rebecca T. Kimball, *Department of Biology, University of Florida*, 528 Bartram Hall, Gainesville, FL 32611, rkimball@ufl.edu

Editor-in-Chief of *The Auk: Ornithological Advances*: T. Scott Sillett, *Migratory Bird Center, Smithsonian Conservation Biology Institute, Smithsonian Institution*, P.O. Box 37012, MRC 5503, Washington, D.C. 20013, silletts@si.edu

Editor-in-Chief of *The Condor: Ornithological Applications*: Philip C Stouffer, *School of Renewable Natural Resources, Louisiana State University, Baton Rouge, LA 70803, pstouffer@lsu.edu*

Editor-in-Chief of *Studies in Avian Biology*: Kathryn P. Huyvaert, *Warner College of Natural Resources, Colorado State University*, 400 University Avenue, Fort Collins, CO 80523, kate.huyvaert@colostate.edu

Executive Director: Melinda Pruett-Jones, 1400 S. Lake Shore Drive, Chicago, IL 60605, mpruettjones@americanornithology.org

ELECTIVE COUNCILORS

2019: Melissa S. Bowlin, Renee A. Duckworth, Scott V. Edwards, Nathaniel T. Wheelwright
2020: Anna D. Chalfoun, Abby N. Powell, Andrea K. Townsend, Michael S. Webster
2021: Peter O. Dunn, Sharon A. Gill, Sara R. Morris, Christopher C. Witt

MEMBERSHIP

Any person interested in avian biology may become a member of the American Ornithological Society. Regular membership costs \$90 per year; Early Professional membership is \$55; Emeritus/retired and student memberships are \$32. Membership is \$32 for persons in all countries except the United States, Canada, Israel, Japan, Australia, New Zealand, and the following Western European countries: Iceland, Norway, Sweden, Finland, Denmark, Germany, The Netherlands, Belgium, Luxembourg, France, the United Kingdom, Ireland, Switzerland, Austria, Italy, Spain, and Portugal. All members receive free access to the online version of *The Auk: Ornithological Advances* and *The Condor: Ornithological Applications* and Birds of North America Online (www.birdsna.org). A life membership is \$2880, paid in one sum or four annual installments of \$720. To JOIN, RENEW, or UPDATE your membership, visit the AOS website membership page to link to the membership portal. To report changes of address or to request assistance, contact: osnamembers@gmail.com, (312) 883-4670.

**SUPPORT
THE AOS**

AOS is grateful to receive contributions of any amount. Donations help support AOS's programs to advance ornithology as a profession and promote ornithologists at every career stage. Contributions may be sent to: AOS, 1400 S. Lake Shore Drive, Chicago, IL, 60605; or, can be made online through AOS's website, Americanornithology.org. Gifts to the AOS are tax-deductible to the full extent permitted by law.

INSTITUTIONAL SUBSCRIPTIONS

Institutional subscriptions are handled by the American Ornithological Society, 1400 South Lake Shore Drive, Chicago, IL 60605, 312-665-7571, 312-883-4114 FAX, cruiz@americanornithology.org. \$400 for an annual online subscription to *The Condor: Ornithological Applications*, \$400 for an annual online subscription to *The Auk: Ornithological Advances* and \$700 for both *The Condor: Ornithological Applications* and *The Auk: Ornithological Advances*.

PRINT ISSUES

To order 2018 print single issues or print annual subscriptions, go to: <http://aos.sheridan.com>. To order print issues for journals issued prior to 2018, email a request to OSNAmembers@gmail.com, providing the journal name and issue requested.