BioOne COMPLETE

Cover

Source: The Auk, 131(4)

Published By: American Ornithological Society

URL: https://doi.org/10.1642/auk.2014.131.4.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 Pownloaded From: point access to the search libraries, and research funders in the common goal of maximizing access to

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

Joint Publishing Venture

The American Ornithologists' Union and the Cooper Ornithological Society have redefined and are jointly publishing their peer-reviewed, international journals of ornithology beginning in 2014. The Auk has become The Auk: Ornithological Advances and focuses on basic ornithological science. The Condor has become The Condor: Ornithological Applications and focuses on applied ornithological study. The redefined missions create an opportunity for the journals 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 and The Condor: Ornithological Applications are managed by the Central Ornithology Publication Office (COPO), the joint publication management office of the American Ornithologists' Union and the Cooper Ornithological Society.

The Auk: Ornithological Advances

Volume Num Pages 45

882

October 201



www.aou.org

The Auk Ornithological Advances

Volume 131 Number 4 October 2014

Editor-in-Chief: Mark E. Hauber

INTERNATIONAL JOURNAL OF THE AMERICAN ORNITHOLOGISTS' UNION



EDITOR-IN-CHIEF	Mark E. Hauber Hunter College and the Graduate Center, The City University of New York, mark.hauber@hunter.cuny.edu
EDITORS	Kimberly Bostwick, ksbostwick@icloud.com James S. Sedinger, University of Nevada Reno, jsedinger@cabnr.unr.edu

Managing Editor: Kathleen E. Erickson, aoucospubs@gmail.com, (415) 435-1604, Fax: (707) 559-5030 Assistant Managing Editor: Mark C. Penrose, aoucospubs@gmail.com Copyeditors: Richard Earles, Janice Faaborg, Scott W. Gillihan, Thalia Sachtleben Abstract Translators: Carlos Daniel Cadena Ordoñez, Jessica Eberhard, Lucio R. Malizia, Karl S. Mokross, César Sánchez, Hélène Senechal Central Ornithology Publication Office Coordinator: Bonnie S. Bowen, bonnie.bowen@gmail.com

ASSOCIATE EDITORS

ASSOCIATE EDITORS			
Lauryn Benedict, University of Northern Colorado	Catherine Lindell, Michigan State University		
Camille Bonneaud, University of Exeter	Bernard Lohr, University of Maryland, Baltimore County		
Melissa Bowlin, University of Michigan-Dearborn	Elizabeth A. MacDougall-Shackleton, Western University-Canada		
Luke K. Butler, The College of New Jersey	Gerald Mayr, Senckenberg Research Institute Frankfurt		
Bruce Byers, University of Massachusetts Amherst	Bill Monahan, National Park Service Inventory & Monitoring Program		
C. Daniel Cadena, Universidad de los Andes	Troy G. Murphy, Trinity University		
Phillip Cassey, The University of Adelaide	Paul M. Nolan, The Citadel (Military College of South Carolina)		
Christopher J. Clark, University of California Riverside	Raul Ortiz-Pulido, Universidad Autónoma del Estado de Hidalgo		
Robert L. Curry, Villanova University	Sara Oyler-McCance, USGS Fort Collins Science Center		
Donald Dearborn, Bates College	Juan L. Parra, Universidad de Antioquia		
Mark E. Deutschlander, Hobart and William Smith Colleges	Wendy L. Reed, North Dakota State University		
Stephen J. Dinsmore, Iowa State University	Christina Riehl, Harvard University		
Jack Dumbacher, California Academy of Sciences	James W. Rivers, Oregon State University		
Jennifer Gee, James San Jacinto Mountains Reserve	Rebecca J. Safran, University of Colorado Boulder		
Sharon Gill, Western Michigan University	Anna W. Santure, The University of Auckland		
Tomáš Grim, Palacký University	Terry Shaffer, USGS Northern Prairie Wildlife Research Center		
D. Caldwell Hahn, USGS Patuxent Wildlife Research Center	Frederick H. Sheldon, Louisiana State University		
Thomas P. Hahn, University of California Davis	Dave Shutler, Acadia University		
Stefanie Ismar, GEOMAR Helmholtz Center for Ocean Research Kiel	Jill Soha, Duke University		
Douglas H. Johnson, USGS Northern Prairie Wildlife Research Center	Benjamin N. Taft, University of Wisconsin-Parkside		
Jason Jones, Tetra Tech EBA	Andrea K. Townsend, University of California Davis		
Jeff Kelly, University of Oklahoma	Elaina Tuttle, Indiana State University		
David Koons, Utah State University	Rachel Vallender, Canadian Wildlife Service		
David Lahti, Queens College, City University of New York	Eric Walters, Old Dominion University		
Adam Z. Lendvai, Virginia Tech	L. LaReesa Wolfenbarger, University of Nebraska at Omaha		

Book Review Editor: R. Todd Engstrom, Florida State University, engstrom@bio.fsu.edu, 13093 Henry Beadel Dr., Tallahassee, FL 32312 In Memoriam Editor: Edward Burtt, Ohio Wesleyan University, ehburtt@owu.edu

On the Cover: Breeding Cape Gannets (Morus capensis) attend to their solitary chicks, while mates are foraging at sea. Foragers may reduce feeding trips by 50% when using conspecifics as cues to orientate themselves toward a patch of food (see Thiebault et al. pp. 595-609). Photo credit: Ralf Mullers

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 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 Ornithologists' Union.

Submit manuscripts online at www.editorialmanager.com/auk. Author instructions are at www.aoucospubs.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 Central Ornithology Publication Office (COPO) at aoucospubs@gmail.com.

Abstracting and Indexing: Articles appearing in The Auk: Ornithological Advances are abstracted and indexed in the databases listed online at www.aoucospubs.org/page/mission.



The Auk: Ornithological Advances (ISSN 0004-8038, e-ISSN 1938-4254) is published online weekly by the American Ornithologists' Union at www.aoucospubs.org and is printed quarterly. Periodicals postage paid at Waco, TX, and at additional mailing offices. POSTMASTER: Send address changes to The Auk: Ornithological Advances, OSNA Business Office, 5400 Bosque Blvd., Suite 680, Waco, TX 76710; business@osnabirds.org. Printed quarterly by Allen Press on Forest Stewardship Council* certified paper.

The Auk: Ornithological Advances, Volume 131, Number 4, October 2014. ©2014 American Ornithologists' Union. All rights reserved.



AND EDITORS

President-Elect: Steven R. Beissinger, Division of Ecosystem Science, University of California-Berkeley, 130 Mulford Hall #3114, Berkeley, CA 94720, beis@berkeley.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

mark.hauber@hunter.cuny.edu

Editor of Ornithological Monographs: Michael L. Morrison, Wildlife and Fisheries Sciences, Texas A&M University, 210 Nagle Hall, MS 2258, College Station, TX 77843, mlmorrison@ag.tamu.edu

aouexec@aou.org

aoubusinessmanager@gmail.com

ELECTIVE	2015: Daniel R. Ardia, Maria 2016: David N. Bonter, Kevin 2017: Colleen M. Handel, Jan
LIVING PAST PRESIDENTS	Susan M. Haig (2012–2014), J (2006–2008), James A. Kushlar Frank B. Gill (1998–2000), Ri (1984–1986), Wesley E. Lany

MEMBERSHIP Persons interested in birds are invited to join the American Ornithologists' Union. Regular membership costs \$75 per year; student memberships are \$28. Membership is \$28 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 access to the online version of The Auk: Ornithological Advances and the bimonthly Ornithological Newsletter. Quarterly print versions of The Auk: Ornithological Advances can be ordered by members for \$30/year. A life membership is \$2,600, paid in one sum or four annual installments of \$650. Individuals may join, renew memberships, and report changes of address through the Ornithological Societies of North America (OSNA): www.osnabirds.org; business@osnabirds.org; 5400 Bosque Blvd., Suite 680, Waco, TX 76710. Gifts of any amount for the Endowment Fund are welcome and should be sent to AOU, c/o Schneider Group, 5400 Bosque Blvd., Suite 680, Waco, TX 76710. Gifts to the AOU are tax-deductible to the extent permitted by law.

INSTITUTIONAL The Ornithological Societies of North America (OSNA) handles institutional subscriptions: (254) 399-9636, SUBSCRIPTIONS business@osnabirds.org. See www.osnabirds.org for single-issue and subscription orders, claims information, and mail dates. Domestic claims for nonreceipt of issues should be made within 90 days of the mail date; overseas claims within 180 days.

The American Ornithologists' Union

THE COUNCIL FOR 2014-2015

OFFICERS President: Scott M. Lanyon, Department of Ecology, Evolution, and Behavior, University of Minnesota, 1987 Upper Buford Circle, St. Paul, MN 55108, Layno001@umn.edu

> Treasurer: James R. Herkert, Illinois Department of Natural Resources, One Natural Resources Way, Springfield, IL 62702, james.herkert@illinois.gov

Editor-in-Chief of The Auk: Ornithological Advances: Mark E. Hauber, Department of Psychology, Hunter College, City University of New York, 628C Hunter North, 695 Park Avenue, New York, NY 10021,

Executive Director: Melinda Pruett-Jones, The Field Museum, 1400 S. Lake Shore Drive, Chicago, IL 60605,

Business Manager: Scott W. Gillihan, 5405 Villa View Drive, Farmington, NM 87402,

Del Coro Arizmendi, Rebecca T. Kimball, Jorge L. Perez-Eman n J. Burns, Deborah M. Finch, Patricia J. Heglund mes W. Rivers, Rebecca J. Safran, David W. Winkler

John Faaborg (2010–2012), Edward H. Burtt, Jr. (2008–2010), Erica H. Dunn an (2004–2006), Fred Cooke (2002–2004), John W. Fitzpatrick (2000–2002), ichard C. Banks (1994–1996), Brina Kessel (1992–1994), Frances C. James yon (1976–1978)