# FLORIDA SCIENTIST

Editor: James D. Austin, PhD
Department of Wildlife Ecology and Conservation
Institute of Food and Agricultural Sciences
University of Florida
Gainesville, FL 32611
email: fl.sci.editor@gmail.com

Co-Editor: Mary Vallianatos, MSc, MPA
University of Florida
PO Box 100014
Gainesville, FL 32610

Editors Emeriti: Professor Dean Martin and Mrs. Barbara Martin
Chemistry Department, University of South Florida

Business Manager: Richard L. Turner
Department of Biological Sciences, Florida Institute of Technology,
150 West University Boulevard, Melbourne, Florida 32901-6975
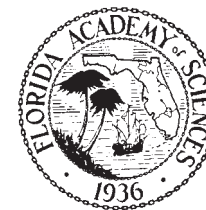Phone: (321) 674-8196, e-mail: rturner@fit.edu

http://www.floridaacademyofsciences.org

# Florida Scientist

## EDITORIAL

## FEATURED PAPER

## RESEARCH ARTICLES

## INSTRUCTION TO AUTHORS

This information is available at the web site: http://www.floridaacademyofsciences.org (select "Florida Scientist").
To join the Florida Academy of Sciences visit the Academy web site indicated above.

### FLORIDA ACADEMY OF SCIENCES
### SPONSORS
HDR Engineering, Inc., Tampa

### INSTITUTIONAL MEMBERS FOR 2015

Membership applications, subscriptions, renewals, and changes of address should be addressed to Florida Academy of Sciences, Orlando Science Center, 777 East Princeton St., Orlando, FL 32803. Phone: (407) 514-2079

Send purchase orders, payments for reprints and publication charges, orders for back issues and other journal business matters to the Business Manager, Dr. Richard L. Turner, Department of Biological Sciences, FIT, 150 W. University Blvd., Melbourne, FL 32901-6975 [(321) 674-8196; e-mail rturner@fit.edu].

*Florida Scientist* is included in the following Abstracting and Indexing sources (active, electronic)

Ageline
Agricola (Agricultural OnLine Access)
Animal Behavior Abstracts
Aquatic Sciences & Fisheries Abstracts
Biodiversity Heritage Library (full text prior to vol. 69, 2006)
Biological Abstracts
Biology Digest
BIOSIS Previews
C S A Sustainability Science Abstracts (Cambridge Scientific Abstracts)
Chemical Abstracts
EBSCO host (full text since vol. 69, 2006)
Ecology Abstracts (Bethesda)
Entomology Abstracts
Environmental Engineering Abstracts (Online Edition)
Environmental Sciences and Pollution Management
FISHLIT (Grahamstown, South Africa)
GeoRef
JSTOR (full text since vol. 1, 1936)
Oceanic Abstracts
Pollution Abstracts
ProQuest (full text since vol. 69, 2006)
Referativnyi Zhurnal
Speleological Abstracts
Water Resources Abstracts (Online, Bethesda)
Wildlife Review Abstracts
Zoological Record