

# New Books in Birding

## The Petrels

Their Ecology and Breeding Systems

John Warham

This well-illustrated general introduction to the Petrels forms an accessible and invaluable reference to both the scientific and lay ornithologist.

March 1991, 448 pp., \$59.95/ISBN: 0-12-735420-4

## A Complete Checklist of the Birds of the World

SECONDEDITION

Richard Howard and Alick Moore

### Key Features

- The most up-to-date list of the world's birds
- Covers their distribution using traditional taxonomy
- The only single-volume reference to include subspecies
- Lists approximately 9,200 species and their subspecies
- Thoroughly revised and updated

May 1991, 656 pp., \$49.50/ISBN: 0-12-356910-9

## The Magpies

The Ecology and Behaviour of Black-Billed and Yellow-Billed Magpies

T.R. Birkhead

**The Magpies** covers all aspects of their lives, including their marital relationships, food hoarding behavior, longevity and survival, nesting behavior, breeding success, and their controversial relationship with man. Coverage of both United States species is included.

May 1991, 272 pp., \$39.95/Order Code: 784667

## Birds of the Strait of Gibraltar

Clive Finlayson

The Strait of Gibraltar is famous as a major point of passage for Palaearctic birds migrating between their European breeding grounds and their winter quarters in Africa. Clive Finlayson, a native of the Rock and a trained ornithologist, presents a fascinating account of the region and its resident and transitory bird life.

December 1991, c. 488 pp., \$52.00 (tentative)

Order Code: 784666

## The Status of Seabirds in Britain and Ireland

Clare S. Lloyd, Mark Tasker, and  
Kenneth E. Partridge

This book presents the most up-to-date information available on these seabird populations, their numbers and distribution, and their changing fortunes in recent years. This book will interest all who study seabirds and conservations, as well as professionals and amateurs who explore coastal habitats.

May 1991, 384 pp., \$41.00/Order Code: 784661

## The Herons of Europe

Claire Voisin

### Key Features

- Full coverage of all European Heron species
- General chapters on basic Heron biology
- Four color plates showing all species
- Numerous line drawings, diagrams, and maps

December 1991, c. 320 pp., \$35.00 (tentative)

Order Code: 784663

## The Ruff

Johan van Rhijn

*Illustrated by*  
Ian Willis

In this book, the author explores the complex and intricate breeding behavior of the Ruff and provides a means for exploring the wider variety of wader breeding systems. Specialists and birdwatchers alike will have much to learn from the insights provided.

May 1991, 224 pp., \$39.95/Order Code: 784662

*Please write for a free brochure of all  
Academic Press and T & AD Poyser titles.*

*Order from your local bookseller or directly from*



**ACADEMIC PRESS**

*Harcourt Brace Jovanovich, Publishers*

Book Marketing Department #08101

1250 Sixth Avenue, San Diego, CA 92101

CALL TOLL FREE **1-800-321-5068**

FAX: **1-800-235-0256**

Quote this reference number for *free postage and handling*  
on your prepaid order = **08101**

Prices subject to change without notice. ©1991 by Academic Press, Inc.  
All Rights Reserved. KR/SS—08101.

*ORNITHOLOGICAL MONOGRAPHS NOS. 45 & 46*

**DESCRIPTIONS OF THIRTY-TWO NEW SPECIES OF  
BIRDS FROM THE HAWAIIAN ISLANDS:**

**PART I. NON-PASSERIFORMES**

by

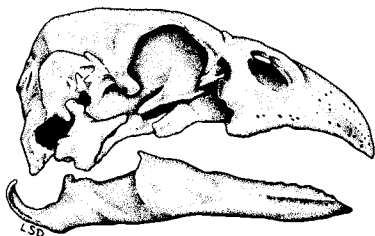
**Storrs L. Olson and Helen F. James**

**PART II. PASSERIFORMES**

by

**Helen F. James and Storrs L. Olson**

**These monographs**, based on 15 years of fieldwork, document one of the most unexpected ornithological discoveries of the century, the existence of dozens of strange birds that were extirpated through human agency in the 1500 years prior to the first scientific exploration of the Hawaiian archipelago. These new birds, which were part of the modern but now highly disturbed ecosystems, are known from thousands of bones recovered in sand dunes, sinkholes, lava tubes, a crater



lake, and archeological midden deposits on five of the main islands. The total number of prehistorically extinct species approximately doubles the size of the historically known avifauna. Part I briefly recounts the collecting sites and provides formal scientific descriptions for 3 new genera non-passerines. These include a petrel, a flightless ibis, 2 new genera and 3 species of ponderous flightless ducks (*moa-nalos*) that may have been the

ecological counterparts of tortoises, a goose related to the Nene, 5 species of flightless rails, a peculiarly adapted harrier, and a new genus with 4 new species of long-legged bird-eating owls. Part II continues with the descriptions of 2 new species of large crows, and 4 new genera and 14 new species of Hawaiian finches (*Drepanidini*), including a disproportionate number of finch-billed species, several icterid-like gapers, and an enigmatic new genus with no recognized modern analog. Discussions focus on patterns of colonization and extinction of Hawaiian birds.

1991, Part I 88pp.; Part II 88pp.

Paperback-bound together, not available separately: \$25.00 (22.50 to AOU Members)

MasterCard and VISA accepted

**Order from: Max C. Thompson, Assistant to Treasurer, American Ornithologists' Union, Department of Biology, Southwestern College, 100 College Street, Winfield Kansas 67156**

# Introducing...

## Bird Conservation International

*Published for the International Council for Bird Preservation by Cambridge University Press*

**A major new journal of international conservation**

**Bird Conservation International** is a new quarterly journal focusing on the major conservation issues affecting birds – especially globally threatened species – and their habitats. Founded by the International Council for Bird Preservation, the journal provides a stimulating, international and up-to-date coverage of bird conservation topics critically important in today's world.

### Why you should read **Bird Conservation International**

With original papers and reviews, **Bird Conservation International** will keep you informed about endangered bird species, habitat destruction, wildlife trade and recent scientific research findings. In addition much of the journal's published material has its origins in ICBP's *Red Data Research Programme* (used by governments and environmental decision makers world-wide) and its *Conservation Programme of Field Projects*.

### Essential reading for anyone interested in:

- species conservation
- preservation of habitats
- environmental issues
- ornithology



### Subscription

**Bird Conservation International** is published quarterly in April, June, September and December Volume 1 in 1991, ISSN 0959-2709 £55 for institutions; £25 for individuals; £20 for members of the World Bird Club; airmail £12 per year extra.

#### Invitation to subscribe

AUK

Please enter my subscription to **Bird Conservation International**, Volume 1, 1991, ISSN 0959-2709

- £55 for institutions;  £25 for individuals;  
 £20 for members of the World Bird Club

Name \_\_\_\_\_

Address \_\_\_\_\_  
\_\_\_\_\_

Postcode \_\_\_\_\_

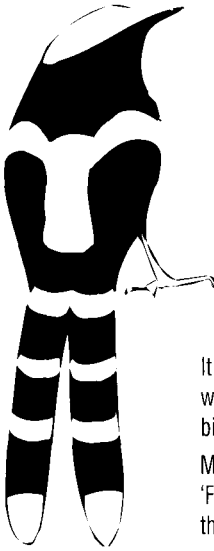
- I enclose a Cheque (payable to Cambridge University Press and drawn against a UK bank)  
 Please send me an invoice

Send to: Journals Marketing Department,  
Cambridge University Press, FREEPOST\* The  
Edinburgh Building, Cambridge, CB2 1BR, UK  
\*No stamp necessary if posted in UK

*In US & Canada write to: Cambridge  
University Press 20*

*West 40th Street, New  
York, NY 10011-4211,  
USA.*

 **Cambridge  
Journals**



# Oriental Bird Club

The Club's region of interest embraces the entire Indian Subcontinent, South East Asia, the Philippines, Taiwan and much of Indonesia and China.

It is open to all ornithologists throughout the world who share an interest in the region's birds and their conservation.

Members receive two Bulletins and a journal 'Forktail' annually, keeping them in touch with the latest developments in Oriental ornithology.

JOIN TODAY

Membership costs \$15 per annum.

For further details or to join (enclose your fee), write to OBC, c/o Dr R. Kennedy, Cincinnati Museum of Natural History, 1720 Gilbert Avenue, Cincinnati, Ohio 45202, USA

## COMPUTER SOFTWARE FOR ORNITHOLOGISTS

**BirdBase 2** has been described in an Auk (v. 108, p. 456) review as "a sophisticated database management program specifically tailored for anyone who works with lists of birds.....remarkably fast.....a great program." With all the AOU-ABA birds of North America and Hawaii, this IBM-compatible software sells for US\$59.95 plus US\$3.00 shipping. With every bird in Dr. James Clements' Birds of the World (4th Ed.) also included, it costs US\$99.95 plus US\$5.00 shipping.

**BirdLexi** contains an MS-DOS ASCII file listing alphabetically every word in the scientific species, genus, family, and order names of Clements' nearly 9700 birds, a second file with words from his common names not in spelling checkers, and a third with words from AOU-ABA bird names not in the other files. Any of these can be used to add their words to most IBM or Macintosh word processor spelling checkers. The price is US\$49.95 plus US\$3.00 shipping.

MasterCard, Visa, US dollar checks, and major organization purchase orders are accepted. Double shipping charges for overseas orders. Add 8% tax for CA orders. Specify the size of an IBM compatible's drive A or, for a Macintosh, of the drive that is IBM compatible.

**SANTA BARBARA SOFTWARE PRODUCTS, INC.**

1400 Dover Road; Santa Barbara CA 93103 USA; Phone/Fax 805 963 4886

## NEW WORLD PARROTS IN CRISIS

**Solutions from Conservation Biology**

*Edited by Steven R. Beissinger  
and Noel F. R. Snyder*

*New World Parrots in Crisis* covers the biology of one of the most threatened groups of birds in the world as well as a range of possible conservation solutions. The essays explore such topics as the role of economics in parrot conservation, ecotourism and parrot ranching as options for sustaining wild populations, captive breeding and reintroduction as alternatives for saving endangered species, and legal regulation of the international trade in parrots.

Nov. 9 b&w illus. 256 pp.

Cloth: 1-56098-110-5 \$35.00

Paper: 1-56098-136-9 \$16.95

## CRANE MUSIC

**A Natural History of  
American Cranes**

*Paul A. Johnsgard*

A lyrically written natural history of the two North American crane species, *Crane Music* follows the sandhill and the whooper through a yearly cycle, detailing in nontechnical terms their migratory journeys and formations, natural habitats, call patterns, and exuberant dancing. Johnsgard also presents a worldwide overview of the other 13 species of cranes roaming the earth.

23 b&w illus. 160 pp. Cloth: 1-56098-051-6

\$19.95

## A GUIDE TO BIRDS OF NEPAL

**Second Edition**

*Carol and Tim Inskipp*

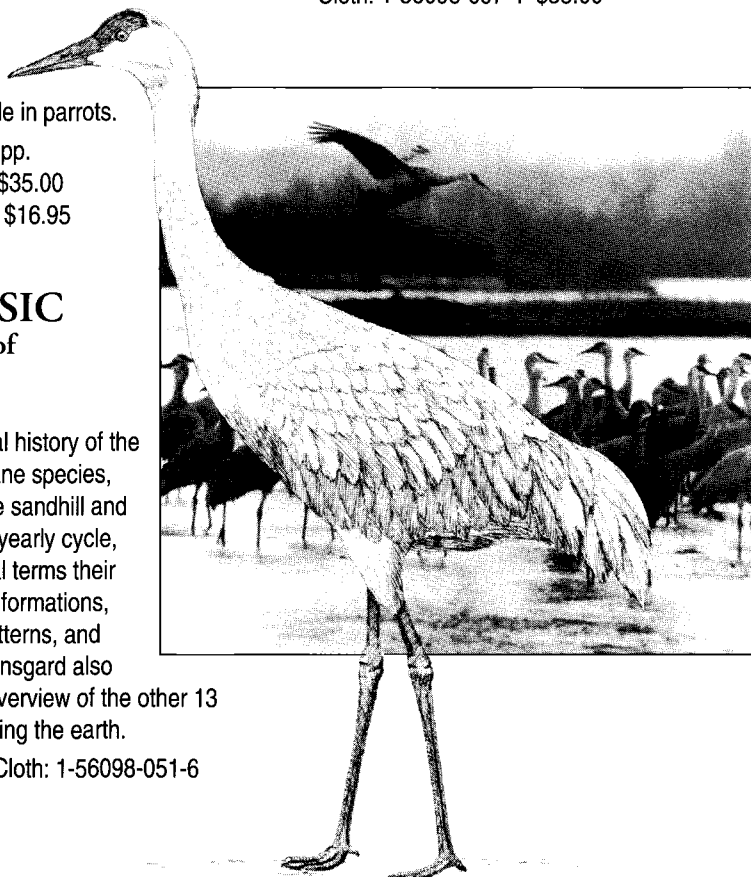
**Praise for the first edition:**

"One of the best books written on Asian birds."—Bruce M. Beehler, National Museum of Natural History

"The source for information about distribution and status of Nepalese birds."—Ben King, American Museum of Natural History

8 color illus., 676 distribution maps 352 pp.

Cloth: 1-56098-097-4 \$55.00



# SMITHSONIAN INSTITUTION PRESS



Dept. 900 • Blue Ridge Summit, PA 17294-0900

800/782-4612 • 717/794-2148

**Lovebirds, Cockatiels, Budgerigars:**

**BEHAVIOR & EVOLUTION**

by J. Lee Kavanau, UCLA

- ▶▶...highly informative volume...actually several books under one cover...[the author has] enormous experience with the raising of these birds.....presenting a great deal of interesting information, much of it new. Prof. Ernst Mayr, Harvard Univ.
- ▶▶...unique, exhaustive laboratory studies of..behavior....insightful and remarkably comprehensive scenario of..origin & evolution of birds &..roots of their behaviors....must reading for all interested in avian behavior & reproduction....wealth of information & concepts that will be of interest to all evolutionists. Prof. E. C. Olson, UCLA
- ▶▶...enormous amount of information...very important contribution to..study of behavior of parrot birds, about which so little is known... Prof. K. Immelmann, Univ. Bielefeld
- ▶▶...monumental in..scope...much fascinating reading...many intriguing subjects....enormous project.....excellent reference for..experimental behavior or evolutionary science....looking forward to..in-depth study &..to apply [the author's] concepts to...aviculture and avian veterinary medicine. G. J. Harrison, DVM, Bird World, Nov., 1987
- ▶▶...offers an interesting synthesis of avian evolution, in general, tying together [the author's] views on evolutionary sequences involved in thermoregulation, insulation, egg care, care of young, mode of feeding, and degree of arboreality. Auk, July, 1988
- ▶▶...scope..is impressive.....information conveyed..is almost overwhelming.....comprehensive discussions on..behavior, morphology, physiology, ecology, biogeography, and evolution of all birds.....extremely detailed discussion of the avian brain.....fascinating ideas on the evolution of bird reproductive behavior.....should provide much fuel for thought & some debate among students of avian evolution.....detailed descriptions of captive bird breeding and experimentation provide numerous ideas for..research on captive birds..... a must for anyone seriously interested in avian evolution... Wilson Bull., Sept., 1989

March, 1987, xxvi + 1,001 pp., 7 indices, 1,455 refs., \$49.95

Prepay ck. or m/o. Add \$4 p/h (\$6 outside U.S.) + \$3.25 s/t in Calif.

Science Software Sys., Monogrs., Box 241710, Los Angeles, CA 90024

**POSTDOCTORAL FELLOWSHIP  
AT THE  
AMERICAN MUSEUM OF NATURAL HISTORY**

The Frank M. Chapman Memorial Fund Committee welcomes applications for the Postdoctoral Fellowship Program in the areas of evolutionary and systematic ornithology. The Fellowship is usually for one year, but applicants may apply for two years, with a review of performance after the first year.

Deadline for applications is 15 January.

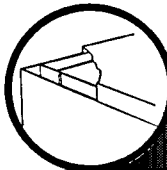
For application form and brochure, please write to:

Frank M. Chapman Memorial Fund

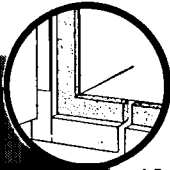
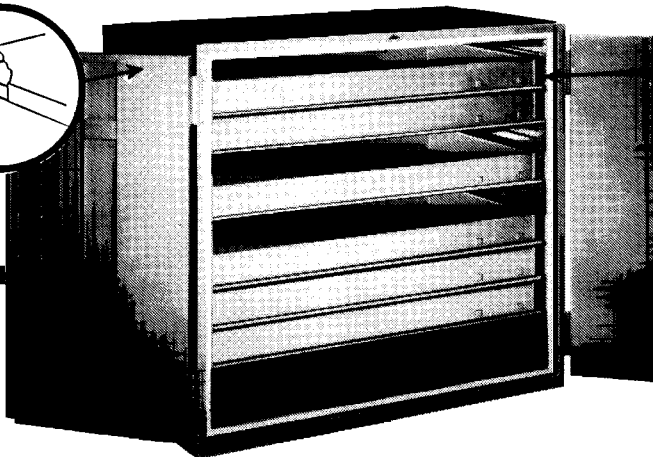
Department of Ornithology / American Museum of Natural History  
Central Park West at 79th Street New York, New York 10024-5192, U.S.A.

How many years would it take to replace your collection?  
**Safe-guard your valuable specimens**  
**PERMANENT SPECIMEN PRESERVATION**

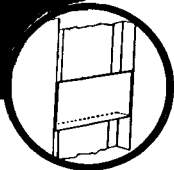
with *Lane* **ZOOLOGY AND ORNITHOLOGY**  
**SPECIMEN CABINETS**



**Double Wall Construction**



**Pest-Proof and Air Tight Seal**



**Fumigant Compartment**

- Double Wall Construction
- Pest-Proof and Air Tight Seal
- Double Panel Door
  - Lift-Off Safe Type Hinge
  - Fumigant Compartment
    - 3-Point Locking Mechanism
    - Front and Back Air Tight Seals
    - Specimen Trays of Aluminum and Masonite. Lightweight, sturdy and easy to handle.

**Skin Case #201 (illustrated)**  
 Holds large trays for larger specimens.

**Skin Case # 202 (not illustrated)**  
 Divided for half-size trays for smaller specimens.

FOR ILLUSTRATED BROCHURE, WRITE

*Lane*  
**SCIENCE EQUIPMENT CORP.**

225 WEST 34th Street New York, NY 10122  
 (212) 563-0663 FAX: (212) 465-9440

Lane Science Equipment Corp. Dept. D  
 225 W. 34th St., New York, N.Y. 10122  
 Please send complete details on Lane Zoology and Ornithology Specimen Cabinets to:

Name \_\_\_\_\_ Title \_\_\_\_\_  
 Institution \_\_\_\_\_  
 Address \_\_\_\_\_  
 City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

# The Auk

A Quarterly Journal of Ornithology

EDITOR

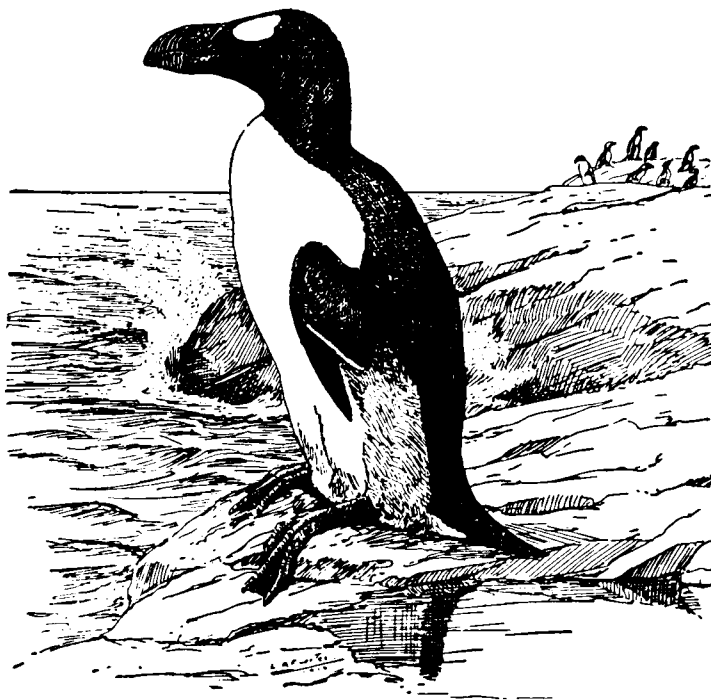
ALAN H. BRUSH

COPY EDITOR

GAIL W. HUNTER

ASSOCIATE EDITORS

JOHN L. TRAPP AND BRUCE M. BEEHLER



VOLUME 108

PUBLISHED BY

THE AMERICAN ORNITHOLOGISTS' UNION

1991



# CONTENTS OF VOLUME 108

## NUMBER 1

STEREOSCOPIC VIEWS OF THREE-DIMENSIONAL, RECTANGULAR FLIGHT PATHS IN DESCENDING AFRICAN WHITE-BACKED VULTURES ( <i>GYPUS AFRICANUS</i> ). <i>Vance A. Tucker</i> .....	1
BOTH HIGH- AND LOW-RANKING WHITE-THROATED SPARROWS FIND NOVEL LOCATIONS OF FOOD. <i>R. Haven Wiley</i> .....	8
A COMPARATIVE STUDY OF COWBIRD PARASITISM IN YELLOW-HEADED BLACKBIRDS AND RED-WINGED BLACKBIRDS. <i>Catherine P. Ortega and Alexander Cruz</i> .....	16
THE EFFECTS OF EXPERIENCE AND AGE ON THE BREEDING PERFORMANCE OF WESTERN GULLS. <i>Peter Pyle, Larry B. Spear, William J. Sydeman, and David G. Ainley</i> .....	25
ENERGETICS OF GROWTH AND MATURATION IN SYMPATRIC PASSERINES THAT FLEDGE AT DIFFERENT AGES. <i>Patrick J. Mock, Marina Khubesian, and Dee M. Larcheveque</i> .....	34
SONG CATEGORIES AND THEIR FUNCTIONS IN THE FIELD SPARROW ( <i>SPIZELLA PUSILLA</i> ). <i>Douglas A. Nelson and Lisa J. Croner</i> .....	42
HISTOLOGICAL BASIS OF AGE-RELATED CHANGES IN IRIS COLOR IN THE AFRICAN PIED STARLING ( <i>SPREO BICOLOR</i> ). <i>Neville Sweijd and Adrian J. F. K. Craig</i> .....	53
MATE SWITCHING IN MULTIBROODED HOUSE WRENS. <i>Nancy E. Drilling and Charles F. Thompson</i> .....	60
FIELD AND LABORATORY METABOLISM AND THERMOREGULATION IN DOVEKIES ( <i>ALLE ALLE</i> ). <i>Geir Wing Gabrielsen, Jan R. E. Taylor, Marek Konarzewski, and Fridtjof Mehlum</i> .....	71
THE EFFECTS OF TANNINS AND LIPIDS ON DIGESTION OF ACORNS BY ACORN WOODPECKERS. <i>Walter D. Koenig</i> .....	79
SALT TOLERANCE IN AMERICAN BLACK DUCKS, MALLARDS, AND THEIR F1-HYBRIDS. <i>Gregory G. Barnes and Thomas D. Nudds</i> .....	89
SEASONAL PATTERNS OF REPRODUCTION IN HEATHLAND HONEYEATERS ARE NOT RESPONSES TO CHANGING NECTAR AVAILABILITY. <i>Doug P. Armstrong and Graham H. Pyke</i> .....	99
THE EFFECT OF MOLTING ON THE GLIDING PERFORMANCE OF A HARRIS' HAWK ( <i>PARABUTEO UNICINCTUS</i> ). <i>Vance A. Tucker</i> .....	108
VARIATION IN RESOURCE ABUNDANCE AFFECTS CAPTURE RATES OF BIRDS IN THREE LOWLAND HABITATS IN COSTA RICA. <i>John G. Blake and Bette A. Loiselle</i> .....	114
DIET AND POSTNATAL ENERGETICS IN CONVERGENT TAXA OF PLANKTON-FEEDING SEABIRDS. <i>Daniel D. Roby</i> .....	131
SEXUAL SELECTION AND PARASITES IN WOOD-WARBLERS. <i>Patrick J. Weatherhead, Gordon F. Bennett, and Dave Shutler</i> .....	147
OLDER MALES HAVE BIGGER KNOBS: CORRELATES OF ORNAMENTATION IN TWO SPECIES OF CURASSOW. <i>Richard Buchholz</i> .....	153
IN MEMORIAM: ROBERT M. MENGEL. <i>Harrison B. Tordoff</i> .....	161
IN MEMORIAM: KONRAD LORENZ. <i>Peter Marler</i> .....	164
SHORT COMMUNICATIONS	
Sequential Polyandry in the Common Redpoll ( <i>Carduelis flammea</i> ). <i>Gilles Seutin, Peter T. Boag, Bradley N. White, and Laurene M. Ratcliffe</i> .....	166
The Enigma of Multiple Nest Building by Male Marsh Wrens. <i>Karen J. Metz</i> .....	170
Facultative Helping by Pygmy Nuthatches. <i>William J. Sydeman</i> .....	173
Odor Detection Thresholds in Tree Swallows and Cedar Waxwings. <i>Larry Clark</i> .....	177
Feeding Time and Brood-rearing Capacity in the Common Treecreeper ( <i>Certhia familiaris</i> ). <i>Markku Kuitunen and Jukka Suhonen</i> .....	180
Diet of Murres Caught Incidentally during Winter in Northern Japan. <i>Haruo Ogi and Kouzi Shiomi</i> .....	184
The Type Locality of <i>Fringilla savanna</i> Wilson. <i>Kenneth C. Parkes and Robin K. Panza</i> .....	185
How Great Tits Use Song-Note and Whole-Song Features to Categorize their Songs. <i>Daniel M. Weary</i> .....	187
Identification of Nest Predators by Photography, Dummy Eggs, and Adhesive Tape. <i>Richard E. Major</i> .....	190
The Adaptive Value of Thick-shelled Eggs for Brown-headed Cowbirds. <i>Patrick J. Weatherhead</i> .....	196
EDITORIAL. The Conservation Crisis. <i>Terry Root and Peter Stacey</i> .....	199
COMMENTARIES	
The Conservation Crisis. The Red-cockaded Woodpecker: On the Road to Oblivion? <i>AOU Committee for the Conservation of the Red-cockaded Woodpecker</i> .....	200
The Taxonomic Status of the Small Genovesa Ground-Finch in the Galápagos. <i>Dolph Schluter, Laurene M. Ratcliffe, and Peter R. Grant</i> .....	201
Response to Schluter, Ratcliffe, and Grant. <i>Joseph Vagoogyi and Maria W. Vagoogyi</i> .....	204
The Use of Flow Cytometry for Rapid Identification of Sex in Birds. <i>Terrence R. Tiersch, Ronald L. Mumme, Robert W. Chandler, and Dean Nakamura</i> .....	206
On Forming an Ornithological Council. <i>Richard C. Banks</i> .....	208
The Interspecific Relationship Between Egg Size and Clutch Size in Wildfowl. <i>T. M. Blackburn</i> .....	209
Response to T. M. Blackburn. <i>Frank C. Rohwer</i> .....	211

WILLIAM BREWSTER MEMORIAL AWARD, 1990. <i>Fred Cooke</i> .....	214
BOOK REVIEWS. <i>Edited by Bruce M. Beehler</i> .....	216
100 YEARS AGO IN <i>THE AUK</i> .....	70
NOTES AND NEWS .....	113

## NUMBER 2

NANNOPSITTACA DACHILLEAE, A NEW SPECIES OF PARROTLET FROM EASTERN PERU. <i>John P. O'Neill, Charles A. Munn, and Irma Franke J.</i> .....	225
ECOGEOGRAPHIC VARIATION IN THE AMERICAN ROBIN ( <i>TURDUS MIGRATORIUS</i> ). <i>John W. Aldrich and Frances C. James</i> .....	230
FOOD OF JUVENILE COMMON EIDERS ( <i>SOMATERIA MOLLISSIMA</i> ) IN AREAS OF HIGH AND LOW SALINITY. <i>K. G. Kenneth Nyström, Olof Pehrsson, and Dag Broman</i> .....	250
A MINIATURE ACTIVITY RECORDER FOR PLUNGE-DIVING SEABIRDS. <i>David J. Anderson, Paul R. Sievert, John Andrews-Labenski, and Robert E. Ricklefs</i> .....	257
DISPERSION PATTERNS AND HABITAT ASSOCIATIONS OF RUFOUS-SIDED TOWHEES, COMMON YELLOW-THROATS, AND PRAIRIE WARBLERS IN THE SOUTHEASTERN MASSACHUSETTS PINE BARRENS. <i>David C. Morimoto and Fred E. Wasserman</i> .....	264
CLUTCH SIZE AND REPRODUCTIVE SUCCESS OF HOUSE WRENS REARING NATURAL AND MANIPULATED BROODS. <i>Kathryn D. Robinson and John T. Rotenberry</i> .....	277
GREEN WOODHOOPES ( <i>PHOENICULUS PURPUREUS</i> ) AND OBLIGATE CAVITY ROOSTING PROVIDE A TEST OF THE THERMOREGULATORY INSUFFICIENCY HYPOTHESIS. <i>Joseph B. Williams, Morné A. du Plessis, and W. Roy Siegfried</i> .....	285
INFLUENCE OF SITE FIDELITY ON MATE SWITCHING IN URBAN-BREEDING MERLINS ( <i>FALCO COLUMBARIUS</i> ). <i>Ian G. Warkentin, Paul C. James, and Lynn W. Oliphant</i> .....	294
FORAGING ECOLOGY OF NUTTALL'S WOODPECKER. <i>William M. Block</i> .....	303
INTERSPECIFIC ALLOZYME DIFFERENTIATION AMONG NORTH ATLANTIC WHITE-HEADED LARID GULLS. <i>Richard R. Snell</i> .....	319
VARIABLY PLUMAGED ICELANDIC HERRING GULLS REFLECT FOUNDERS NOT HYBRIDS. <i>Richard R. Snell</i> .....	329
WINTER WEATHER, SPRING AND SUMMER DENSITY, AND SUBSEQUENT BREEDING SUCCESS OF EURASIAN KESTRELS, COMMON BUZZARDS, AND NORTHERN GOSHAWKS. <i>Renate Kostrzewa and Achim Kostrzewa</i> .....	342
REJECTION BEHAVIOR BY COMMON CUCKOO HOSTS TOWARDS ARTIFICIAL BROOD PARASITE EGGS. <i>Arne Moksnes, Eivind Røskoft, and Anders T. Braa</i> .....	348
FOOD PATCHES AND THE SPACING OF INDIVIDUAL FORAGERS. <i>Scott M. Pearson</i> .....	355
GROWTH AND BROOD REDUCTION OF MID-ATLANTIC COAST OSPREYS. <i>Robert J. Steidl and Curtice R. Griffin</i> .....	363
FEMALE CONDITION AND DELAYED BENEFITS TO MALES THAT PROVIDE PARENTAL CARE: A REMOVAL STUDY. <i>Licia Wolf, Ellen D. Ketterson, and Val Nolan Jr.</i> .....	371
SEQUESTERED PARALYTIC SHELLFISH POISONING TOXINS MEDIATE GLAUCOUS-WINGED GULL PREDATION ON BIVALVE PREY. <i>Rikk G. Kvitek</i> .....	381
SEXUAL DIFFERENCES IN PARENTAL EFFORT DURING THE NESTLING PERIOD IN TREE SWALLOWS ( <i>TACHYCINETA BICOLOR</i> ). <i>Michael P. Lombardo</i> .....	393
NEST-SITE SELECTION AND NESTING SUCCESS OF CAVITY-NESTING BIRDS IN HIGH ELEVATION FOREST DRAINAGES. <i>Pingjun Li and Thomas E. Martin</i> .....	405
SIGNS OF TROUBLE IN THE LARGEST REMAINING POPULATION OF RED-COCKADED WOODPECKERS. <i>Frances C. James</i> .....	419
IN MEMORIAM: FREDERICK NATHAN HAMERSTROM. <i>John T. Emlen</i> .....	424
SHORT COMMUNICATIONS	
Dipper Nestlings Fed by a Gray Wagtail. <i>Sonja I. Yoerg and John O'Halloran</i> .....	427
Mate Attraction by Autumnal Song in the Northern Mockingbird ( <i>Mimus polyglottos</i> ). <i>Cheryl A. Logan and Laura E. Hyatt</i> .....	429
Measurement Error of External and Skeletal Variables in Birds and Its Effect on Principal Components. <i>S. C. Loughheed, T. W. Arnold, and R. C. Bailey</i> .....	432
Marine Protein Contributions to the Diet of Northern Saw-whet Owls on the Queen Charlotte Islands: a Stable-Isotope Approach. <i>Keith A. Hobson and Spencer G. Sealy</i> .....	437
COMMENTARIES	
Confusions of Mass and Size. <i>Theunis Piersma and Nick C. Davidson</i> .....	441
On the Use of Tape Recorders in Avifaunal Surveys. <i>Theodore A. Parker III</i> .....	443
BOOK REVIEWS. <i>Edited by Bruce M. Beehler</i> .....	445
100 YEARS AGO IN <i>THE AUK</i> .....	362
NOTES AND NEWS .....	318, 370
ERRATUM .....	284

## NUMBER 3

A NEW SPECIES OF RAIL FROM THE SOLOMON ISLANDS AND CONVERGENT EVOLUTION OF INSULAR FLIGHTLESSNESS. <i>Jared Diamond</i> .....	461
A PHYLOGENETIC ANALYSIS AND CLASSIFICATION OF RECENT DABBING DUCKS (TRIBE ANATINI) BASED ON COMPARATIVE MORPHOLOGY. <i>Bradley C. Livezey</i> .....	471
A COMPARISON OF TWO NONINVASIVE TECHNIQUES TO MEASURE TOTAL BODY LIPID IN LIVE BIRDS. <i>Daniel D. Roby</i> .....	509
AN EXPERIMENTAL TEST OF THE BROOD-REDUCTION HYPOTHESIS IN EUROPEAN STARLINGS. <i>Philip C. Stouffer and Harry W. Power</i> .....	519
EGG COMPOSITION OF AMERICAN COOTS IN RELATION TO HABITAT, YEAR, LAYING DATE, CLUTCH SIZE, AND SUPPLEMENTAL FEEDING. <i>Todd W. Arnold, Ray T. Alisauskas, and C. Davison Ankney</i> .....	532
EFFECTS OF HATCHING ORDER, SIBLING ASYMMETRIES, AND NEST SITE ON SURVIVAL ANALYSIS OF JACKASS PENGUIN CHICKS. <i>Philip J. Seddon and Yolanda van Heezik</i> .....	548
FAT RESERVES OF AN OPPORTUNIST AND OF A SPECIALIST SPECIES IN THE NEGEV DESERT. <i>Yehoshua Shkedy and Uriel N. Safriel</i> .....	556
ANATOMICAL ADAPTATION OF THE GUT TO DIET IN RED-WINGED BLACKBIRDS ( <i>AGELAIUS PHOENICEUS</i> ). <i>Kristin E. Brugger</i> .....	562
DUCKLING MORTALITY IN BARROW'S GOLDENEYE AND BUFFLEHEAD BROODS. <i>Jean-Pierre L. Savard, G. E. John Smith, and J. N. M. Smith</i> .....	568
MITOCHONDRIAL DNA VARIATION AND THE PHYLOGENY OF <i>ZONOTRICHIA</i> . <i>Robert M. Zink, Donna L. Dittmann, and William L. Rootes</i> .....	578
AFFINITIES OF THE HAWAIIAN GOOSE BASED ON TWO TYPES OF MITOCHONDRIAL DNA DATA. <i>Thomas W. Quinn, Gerald F. Shields, and Allan C. Wilson</i> .....	585
NONINVASIVE DETERMINATION OF EMBRYONIC HEART RATE DURING HATCHING IN THE BROWN NODDY ( <i>ANOUS STOLIDUS</i> ). <i>Hiroshi Tazawa, Osamu Kuroda, and G. Causey Whitrow</i> .....	594
ALLOZYME VARIATION AMONG BREEDING POPULATIONS OF RED-WINGED BLACKBIRDS: THE CALIFORNIA CONUNDRUM. <i>Thomas A. Gavin, Ronald A. Howard, and Bernie May</i> .....	602
WINTER MICROCLIMATE OF BALD EAGLE ROOSTS ON THE NORTHERN CHESAPEAKE BAY. <i>David A. Buehler, Timothy J. Mersmann, James D. Fraser, and Janis K. D. Seegar</i> .....	612
PLASMA LUTEINIZING HORMONE, STEROID HORMONES, BEHAVIORAL ROLE, AND NEST STAGE IN COOPERATIVELY BREEDING HARRIS' HAWKS ( <i>PARABUTEO UNICINCTUS</i> ). <i>Nora A. Mays, Carol Masters Vleck, and James Dawson</i> .....	619
HORMONAL CORRELATES OF PARENTAL AND HELPING BEHAVIOR IN COOPERATIVELY BREEDING HARRIS' HAWKS ( <i>PARABUTEO UNICINCTUS</i> ). <i>Carol Masters Vleck, Nora A. Mays, James W. Dawson, and Arthur R. Goldsmith</i> .....	638
DOMINANCE HIERARCHIES AND HELPER CONTRIBUTIONS IN HARRIS' HAWKS. <i>James W. Dawson and R. William Mannan</i> .....	649
THE ROLE OF TERRITORIALITY IN THE SOCIAL ORGANIZATION OF HARRIS' HAWKS. <i>James W. Dawson and R. William Mannan</i> .....	661
BREEDING SEASONALITY AND REPRODUCTIVE SUCCESS OF WHITE-FRONTED BEE-EATERS IN KENYA. <i>Peter H. Wrege and Stephen T. Emlen</i> .....	673
GENETIC EVIDENCE FOR PHILOPATRY IN A COLONIALY NESTING SEABIRD, THE FAIRY PRION ( <i>PACHYPTILA TURTUR</i> ). <i>J. R. Ovenden, A. Wust-Saucy, R. Bywater, N. Brothers, and R. W. G. White</i> .....	688
PTILOCHRONOLOGY: A CRITICAL EVALUATION OF ASSUMPTIONS AND UTILITY. <i>Mary E. Murphy and James R. King</i> .....	695
IN MEMORIAM: OSCAR T. OWRE. <i>James A. Kushlan</i> .....	705
IN MEMORIAM: ROBERT DANIEL ETCHÉCOPAR. <i>Christian Jouanin</i> .....	706
IN MEMORIAM: DAVID FINLEY BALPH. <i>Allen W. Stokes</i> .....	707
IN MEMORIAM: NOËL MAYAUD. <i>Christian Jouanin</i> .....	707
IN MEMORIAM: AUGUSTO RUSCHI. <i>Albert E. Conway</i> .....	708
<b>SHORT COMMUNICATIONS</b>	
The Volume of Stomach Oils Increases during Prefledging Weight Loss in Leach's Storm-Petrel ( <i>Oceanodroma leucorhoa</i> ) Chicks. <i>Allen R. Place, Paul Sievert, and Ronald G. Butler</i> .....	709
Thermal Relations of Nestling Red-winged Blackbirds in Southeastern Michigan. <i>John M. Olson</i> .....	711
Nutritional and Energetic Implications for Raptors Consuming Starving Prey. <i>Rebecca L. Taylor, Stanley A. Temple, and David M. Bird</i> .....	716
Short-term and Long-term Consequences of Predator Avoidance by Tree Swallows ( <i>Tachycineta bicolor</i> ). <i>Nathaniel T. Wheelwright and F. Blinn Dorsey</i> .....	719
Habitat Occupancy by Bachman's Sparrow in the Francis Marion National Forest before and after Hurricane Hugo. <i>John B. Dunning Jr. and Bryan D. Watts</i> .....	723
A Deficient Diet Narrows Growth Bars on Induced Feathers. <i>Thomas C. Grubb Jr.</i> .....	725
Predicting Clutch Size of the House Wren with the Murray-Nolan Equation. <i>E. Dale Kennedy</i> .....	728
The Taxonomic Status of <i>Myrmeciza stictothorax</i> (Todd). <i>Thomas S. Schulenberg and Douglas F. Stotz</i> .....	731

COMMENTARY

The Conservation Crisis: A Proposed New Federal Agency for Research on the Environment. *Peter B. Stacey and Terry L. Root* ..... 734

BOOK REVIEWS. *Edited by Bruce M. Beehler* ..... 736

THIRTY-EIGHTH SUPPLEMENT TO THE AMERICAN ORNITHOLOGISTS' UNION CHECK-LIST OF NORTH AMERICAN BIRDS ..... 750

100 YEARS AGO IN *THE AUK* ..... 508

NOTES AND NEWS ..... 611

NUMBER 4

MORPHOLOGIC AND GENETIC VARIATION AMONG BREEDING COLONIES OF THE ATLANTIC PUFFIN (*FRATERCULA ARCTICA*). *Sharon M. Moen* ..... 755

SPATIAL RELATIONSHIPS BETWEEN NESTING COLONIES AND FORAGING AREAS OF GREAT BLUE HERONS. *James P. Gibbs* ..... 764

MITOCHONDRIAL DNA VARIATION AMONG PHALAROPES AND ALLIES. *Donna L. Dittmann and Robert M. Zink* ..... 771

THE INFLUENCE OF FOOD ON REPRODUCTIVE STRATEGIES IN A MONOGAMOUS KINGFISHER (*CHLOROCERYLE AMAZONA*). *William James Davis and Douglas J. Graham* ..... 780

BROADSCALE DENSITY AND AGGREGATION OF PELAGIC BIRDS FROM A CIRCUMNAVIGATIONAL SURVEY OF THE ANTARCTIC OCEAN. *Richard R. Veit and George L. Hunt Jr.* ..... 790

OBSERVATIONS OF MULTISPECIES SEABIRD FLOCKS AROUND SOUTH GEORGIA. *Nancy M. Harrison, Michael J. Whitehouse, Dennis Heinemann, Peter A. Prince, George L. Hunt Jr., and Richard R. Veit* ..... 801

SOCIAL RECOGNITION AND RESPONSE TO SONG IN COOPERATIVE RED-WINGED FAIRY-WRENS. *R. B. Payne, L. L. Payne, I. Rowley, and E. M. Russell* ..... 811

PATTERNS AND SIGNIFICANCE OF GEOGRAPHICAL VARIATION IN THE BLUE TIT (*PARUS CAERULEUS*). *Jean-Louis Martin* ..... 820

RELATION OF WITHIN-POPULATION PHENOTYPIC VARIATION WITH SEX, SEASON, AND GEOGRAPHY IN THE BLUE TIT. *Jean-Louis Martin and Jay Pitocchelli* ..... 833

PATTERNS IN THE PROVISIONING AND GROWTH OF NESTLING RHINOCEROS AUKLETS. *D. F. Bertram, G. W. Kaiser, and R. C. Ydenberg* ..... 842

ESTIMATING WINTER SPECIES RICHNESS WITH UNLIMITED-DISTANCE POINT COUNTS. *Kevin J. Gutzwiller* ..... 853

EXTRAORDINARY CLUTCH SIZE AND HATCHING ASYNCHRONY OF A NEOTROPICAL PARROT. *Steven R. Beissinger and James R. Waltman* ..... 863

FEMALE-LIKE PLUMAGE OF SUBADULT MALE AMERICAN REDSTARTS DOES NOT REDUCE AGGRESSION FROM OTHER MALES. *Elizabeth Procter-Gray* ..... 872

ECOMORPHOLOGY OF THE NORTH AMERICAN RUBY-CROWNED (*REGULUS CALENDULA*) AND GOLDEN-CROWNED (*R. SATRAPA*) KINGLETS. *Allen Keast and Sari Saunders* ..... 880

FEATHER REGROWTH IN FEMALE EUROPEAN STARLINGS REARING BROODS OF DIFFERENT SIZES. *Douglas W. White, E. Dale Kennedy, and Philip C. Stouffer* ..... 889

MOVEMENT AND LEK VISITATION BY FEMALE GREATER PRAIRIE-CHICKENS IN RELATION TO PREDICTIONS OF BRADBURY'S FEMALE PREFERENCE HYPOTHESIS OF LEK EVOLUTION. *Michael A. Schroeder* ..... 896

NESTING NEAR A COMMON TERN COLONY INCREASES AND DECREASES SPOTTED SANDPIPER NEST PREDATION. *Julie A. R. Alberico, J. Michael Reed, and Lewis W. Oring* ..... 904

NEST-SITE SELECTION AND NESTING SUCCESS OF WHITE-TAILED TROPICBIRDS (*PHAETHON LEPTURUS*) AT CAYO LUÍS PEÑA, PUERTO RICO. *Fred Charles Schaffner* ..... 911

EFFECTS OF SUBSTRATE ON THE DISTRIBUTION OF MAGELLANIC PENGUIN (*SPHENISCUS MAGELLANICUS*) BURROWS. *David L. Stokes and P. Dee Boersma* ..... 923

ACTIVITY PATTERNS OF NEARCTIC DABBLING DUCKS WINTERING IN YUCATAN, MEXICO. *John D. Thompson and Guy A. Baldassarre* ..... 934

MEASURING ANNUAL REPRODUCTIVE SUCCESS, WITH COMMENTS ON THE EVOLUTION OF REPRODUCTIVE BEHAVIOR. *Bertram G. Murray Jr.* ..... 942

IN MEMORIAM: FRANCES MOREY UHLER. *George Jonkel* ..... 953

IN MEMORIAM: KAI CURRY-LINDAHL. *Gustav A. Swanson* ..... 953

IN MEMORIAM: JOSEPH ARCHIBALD HAGAR. *Kathleen S. Anderson* ..... 954

SHORT COMMUNICATIONS

Fingerprinting Birds' DNA with a Synthetic Polynucleotide Probe (TG)<sub>n</sub>. *Hans Ellegren* ..... 956

A Single Plucked Feather as a Source of DNA for Bird Genetic Studies. *Pierre Taberlet and Jean Bouvet* ..... 959

Nitrogen Isotope Ratios Identify Deserted Seabird Colonies. *Hiroshi Mizutani, Yuko Kabaya, P. J. Moors, T. W. Speir, and Graeme L. Lyon* ..... 960

On the Validity of *Bubo virginianus occidentalis* Stone. *Robert W. Dickerman* ..... 964

Egg-laying Times of American Robins. <i>Patrick J. Weatherhead, Robert D. Montgomerie, and Susan B. McRae</i> .....	965
Comments on the Sample Sizes Used to Test the Effect of Experimental Brood Enlargement on Adult Survival. <i>Jeff Graves</i> .....	967
Courtship of Ducklings by Adult Male Chiloe Wigeon ( <i>Anas sibilatrix</i> ). <i>Gwen Brewer</i> .....	969
An Interspecific Relationship Between Egg Size and Clutch Size in Birds. <i>Tim M. Blackburn</i> .....	973
Use of the Relative Frequency of Notes by Veeries in Song Recognition and Production. <i>Daniel M. Weary, Ronald G. Wiseman, Robert E. Lemon, Tina Chin, and Johanne Mongrain</i> .....	977
<b>COMMENTARY</b>	
The Conservation Crisis: International Trade in Live Exotic Birds Creates a Vast Movement That Must Be Halted. <i>Bird Trade Subcommittee of the AOU Conservation Committee</i> .....	982
<b>BOOK REVIEWS.</b> <i>Edited by Bruce M. Beehler</i> .....	985
<b>100 YEARS AGO IN THE AUK</b> .....	800
<b>NOTES AND NEWS</b> .....	810
<b>INDEX TO VOLUME 108.</b> <i>Compiled by K. Elizabeth K. Pacala</i> .....	1009

## SUPPLEMENTS

PROCEEDINGS OF THE ONE HUNDRED AND EIGHTH STATED MEETING.....	1AA-31AA
BYLAWS OF THE AMERICAN ORNITHOLOGISTS' UNION.....	1-7
RECENT ORNITHOLOGICAL LITERATURE .....	1A-63A, 1B-41B, 1C-46C, 1D-69D

### DATES OF ISSUES OF "THE AUK"

VOL. 108, NO. 1—13 FEBRUARY 1991

VOL. 108, NO. 2—30 APRIL 1991

VOL. 108, NO. 3—15 AUGUST 1991

VOL. 108, NO. 4—13 NOVEMBER 1991

# THE AUK

A Quarterly Journal of Ornithology

PUBLISHED BY THE AMERICAN ORNITHOLOGISTS' UNION

*Editor:* ALAN H. BRUSH, Department of Physiology and Neurobiology, University of Connecticut, Storrs, Connecticut 06269.

*Editor* (beginning 1 September 1991): Gary D. Schnell, Department of Zoology, Sutton Hall, 625 Elm Avenue, University of Oklahoma, Norman, Oklahoma 73019-0345.

*Copy Editor:* GAIL W. HUNTER

*Associate Editors:* JOHN L. TRAPP (Recent Ornithological Literature) AND BRUCE M. BEEHLER (Book Reviews)

*THE AUK* welcomes original reports on the biology of birds. Appropriate topics include the documentation, analysis, and interpretation of laboratory and field studies, theoretical or methodological developments, and reviews of information or ideas. Contributions written in English are encouraged from throughout the world.

## SUGGESTIONS TO CONTRIBUTORS

*Manuscript preparation.*—Submit the original and two clear copies of the text, tables, and all other text materials along with a letter of transmittal (Auk 105: 803), and three copies of all illustrations (retain original figures). Double-space all written material (including tables and figure legends) on one side of 8½ × 11 inch (21.5 × 28 cm) good quality bond paper, with at least 1 inch (2.5 cm) margins. Number pages through the Literature Cited. Do not right justify. Type tables separately from the text; type figure legends consecutively on one sheet. Mail figures flat and on text-sized sheets with your name and figure number penciled on the back. Do not use boldface, italics, or reduced type. Signify italics by underlining.

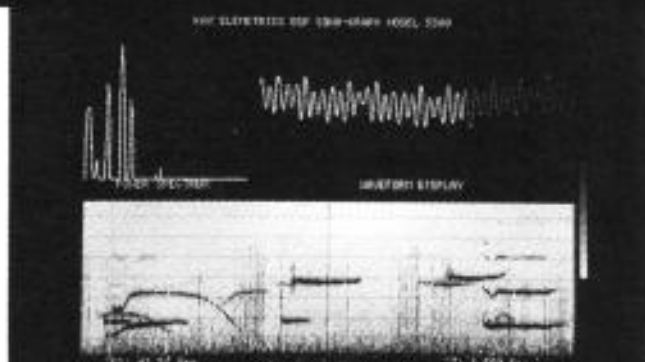
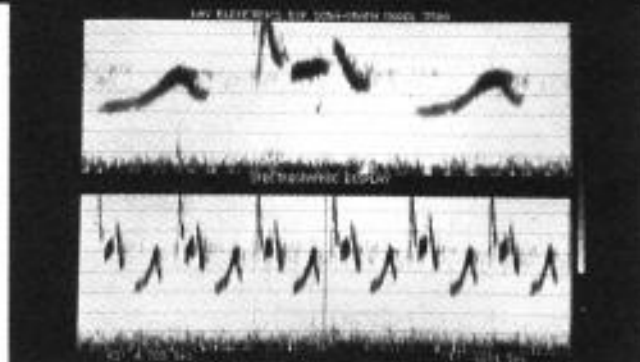
*Manuscript style.*—The style of manuscripts should conform to general usage in recent issues. The title page contains the full title (avoid colons or questions, please) and author's name and address at the time of research. The present address, if different, is given in a footnote. The cover page includes the name and mailing address of the individual to whom proof is to be sent, and a shortened version of the title (<36 characters).

An Abstract (<5% of the paper length) that summarizes important premises, recapitulates your findings, and gives your conclusions precedes each regular article. In articles, text citations should include author and year (e.g. Darwin 1858, Wolter and Hunter 1968, Mayr et al. 1989); multiple citations on the same topic are arranged chronologically. Quotations and citations from longer works require page numbers (Matthew 1976: 193). Acknowledgments follow the text and precede the Literature Cited. Abbreviations of titles of serial publications are found in "Serial Sources for the BIOSIS Data Base." Scientific and English names of birds are given at first mention, and they follow the AOU "Check-list of North American Birds" and supplements unless departures are explained and defined. All measurements are in SI metric units. In general, abbreviations of statistical terms and mensural units conform to the latest Council of Biological Editors' "CBE Style Manual." Use the 24-hour clock (0800 and 2035) and continental dating (29 September 1934).

*Tables and figures.*—Tables and figures must not duplicate material in either the text or each other. Each table requires a short but complete heading and no vertical rules. Illustrations must allow reduction to one-column (16 pica) width or, if necessary, 26-pica (11 cm) width—without reduction in clarity or readability. Style and size among figures should be uniform. Typewritten lettering is not acceptable on figures. Computer-generated figures of good contrast and sharpness on bond paper are encouraged. Drawings should be prepared with undiluted india ink. Photographs should be glossy prints of the highest possible quality, and approximately the same size as they will appear in print. Letters, arrows, and symbols on photographs are best applied by pressure-sensitive materials. Color figures will be considered both as figure plates and for the frontispiece.

**Copies of a more detailed set of instructions (Auk 105: 231) are available from the Editor.**

# Bioacousticians



## Your workstation is here.

The DSP Sona-Graph™, model 5500 is a signal analysis workstation designed for the acquisition, processing and display of time-varying biological signals. The 5500 acquires, analyzes and displays signals in real-time with a continuous scrolling display, combining the features of a real-time spectrograph, a high-speed dual channel FFT and a computer-based data acquisition system.

It's a "wish list" workstation for the bioacoustician. The 5500 includes digital anti-aliasing filters, 16 bit A/D and 1.5 Mbytes of ROM storage for signal processing programs. Designed with you in mind, the 5500 provides up to 8 Mbytes of signal storage (one or two signals), on-screen cursors, extensive editing, high fidelity playback and computer interface capabilities.

- ✓ Two channel simultaneous display
- ✓ Real-time to 32 kHz
- ✓ Continuous thermal printing
- ✓ On-screen noise reduction feature
- ✓ High resolution color / grey scale display
- ✓ High fidelity playback and editing

To find out more about using the DSP Sona-Graph in your work, call **Robert McClurkin** at **800-289-5297** or write to the address listed below.



# KAY

Kay Elemetrics Corp.  
12 Maple Avenue  
Pine Brook, NJ 07058  
Tel: 201/227-2000  
TWX: 710/734-4347  
FAX: 201/227-7760

DSP Sona-Graph™ and Sonogram® are trademarks of Kay Elemetrics Corp.