

BIOLOGY OF THE  
EARED GREBE AND  
WILSON'S PHALAROPE  
IN THE NONBREEDING SEASON:  
A STUDY OF ADAPTATIONS  
TO SALINE LAKES

JOSEPH R. JEHL, JR.



**Studies in Avian Biology No. 12**

A PUBLICATION OF THE COOPER ORNITHOLOGICAL SOCIETY

# BIOLOGY OF THE EARED GREBE AND WILSON'S PHALAROPE IN THE NONBREEDING SEASON: A STUDY OF ADAPTATIONS TO SALINE LAKES

Joseph R. Jehl, Jr.

Sea World Research Institute  
Hubbs Marine Research Center  
1700 South Shores Road  
San Diego, California  
U.S.A. 92109

**Studies in Avian Biology No. 12**

A PUBLICATION OF THE COOPER ORNITHOLOGICAL SOCIETY

**Cover Photograph:** Eared Grebes (*Podiceps nigricollis*) at Mono Lake,  
California, October, 1985. Photograph by J. R. Jehl, Jr.

**REDLANDS INSTITUTE**

Edited by  
FRANK A. PITELKA  
at the  
Museum of Vertebrate Zoology  
University of California  
Berkeley, CA 94720

EDITORIAL ADVISORS FOR SAB 12

Ralph W. Schreiber  
David W. Winkler  
Jared Verner

*Studies in Avian Biology* is a series of works too long for *The Condor*, published at irregular intervals by the Cooper Ornithological Society. Manuscripts for consideration should be submitted to the current editor, Joseph R. Jehl, Jr., Sea World Research Institute, 1700 South Shores Road, San Diego, CA 92109. Style and format should follow those of previous issues.

Price: \$14.00 including postage and handling. All orders cash in advance; make checks payable to Cooper Ornithological Society. Send orders to James R. Northern, Assistant Treasurer, Cooper Ornithological Society, Department of Biology, University of California, Los Angeles, CA 90024.

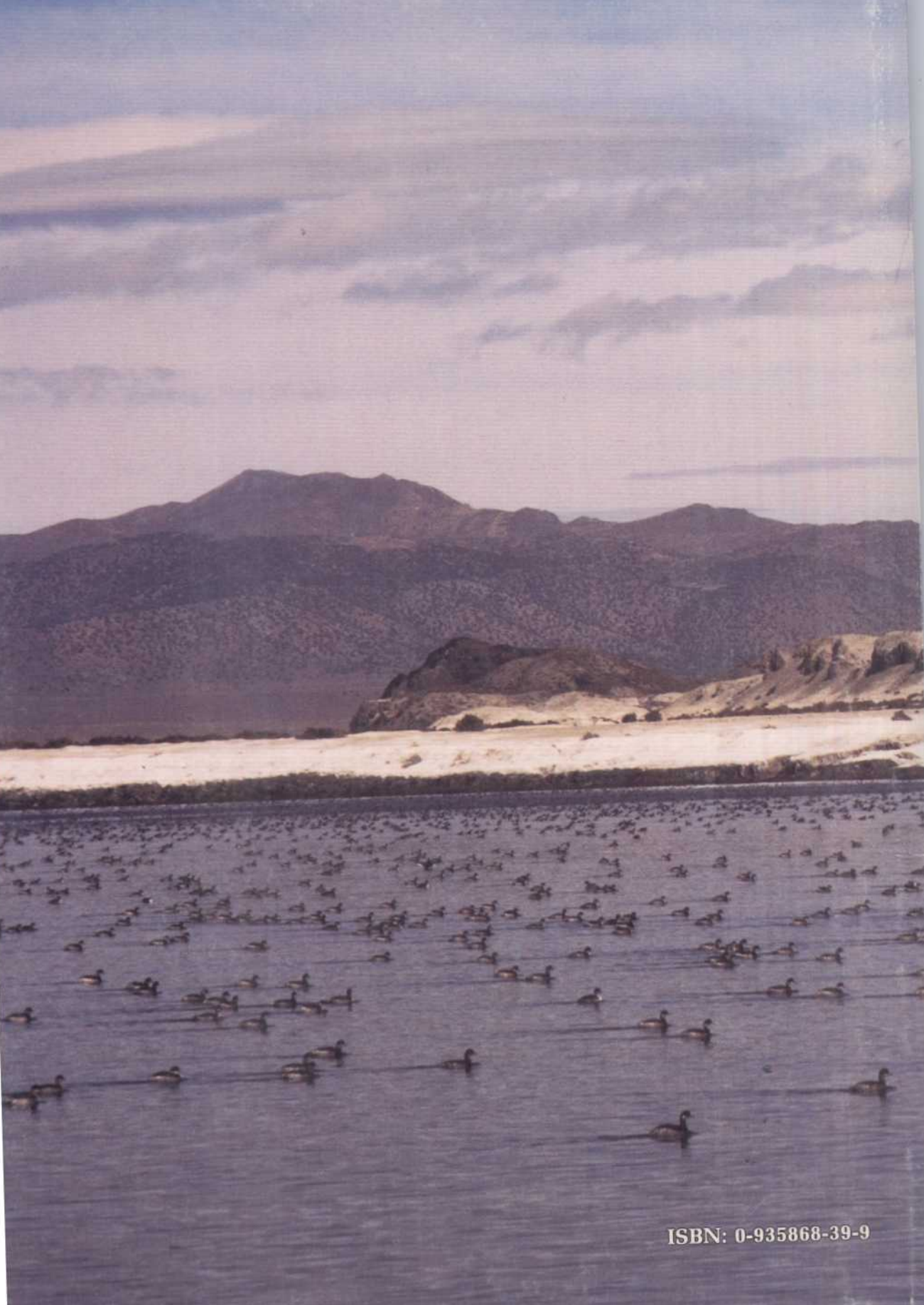
ISBN: 0-935868-39-9  
Library of Congress Catalog Card Number 88-062658  
Printed at Allen Press, Inc., Lawrence, Kansas 66044  
Issued 7 October 1988

Copyright by Cooper Ornithological Society, 1988

## CONTENTS

<b>Abstract</b> .....	1
<b>Introduction</b> .....	5
<b>Eared Grebe</b> .....	5
<sup>»</sup> <b>Methods</b> .....	6
<b>The Annual Cycle at Mono Lake</b> .....	8
Chronology .....	8
Composition of the population .....	9
Size of the Mono Lake flock .....	11
Annual variation .....	11
<b>Behavior</b> .....	12
Distribution .....	12
Daily movements .....	14
Water use .....	14
Interactions .....	16
<b>Food and Foraging</b> .....	18
Food .....	18
Foraging behavior .....	19
The ingestion of feathers .....	20
<b>Energetics</b> .....	22
<b>Mass</b> .....	24
<b>Molt</b> .....	25
<b>Flightlessness</b> .....	25
<b>Mortality</b> .....	28
Seasonal pattern .....	28
Sources and extent of mortality .....	29
<b>Migration</b> .....	30
Departure from Mono Lake .....	30
Other staging areas .....	31
Winter range .....	32
Migration routes .....	33
<b>Wilson's Phalarope</b> .....	34
<b>Methods</b> .....	35
<b>The Annual Cycle at Mono Lake</b> .....	36
Chronology .....	36
Composition of the population .....	36
Size of the Mono Lake flock .....	36
Annual variation .....	38
<b>Behavior</b> .....	38
Distribution and daily movements .....	38
Hyperphagia .....	39
Roosts .....	39
Use of fresh water .....	40
Interactions .....	41
<b>Food and Foraging</b> .....	41
Food .....	41
Foraging behavior .....	43

Mass .....	43
Sampling .....	46
Molt .....	46
Mortality .....	46
Migration .....	46
Departure from Mono Lake .....	46
Concentration points .....	46
The number of Wilson's Phalaropes .....	52
Migration routes: a synthesis .....	52
Flight range .....	53
<b>The Use of Saline Lakes</b> .....	53
<b>Epilogue</b> .....	57
<b>Acknowledgments</b> .....	58
<b>Literature Cited</b> .....	58
<b>Appendices</b> .....	64
I. Eared Grebe populations at Mono Lake, California, 1981-1987 .....	64
II. Mortality patterns of Eared Grebes at Mono Lake, California, 1982-1984, based on beached-bird surveys .....	67
III. Size and age composition of Wilson's Phalarope populations at Mono Lake, California, Lake Abert, Oregon, and Great Salt Lake, Utah, 1980-1987 .....	68
IV. Status of Wilson's Phalaropes in fall and winter migration in Middle and South America .....	71
V. The fall migration of Wilson's Phalaropes: evidence from museum collections .....	72



ISBN: 0-935868-39-9