

# Rare and Endangered Biota of Florida

**VOLUME V. BIRDS**



Edited by  
James A. Rodgers, Jr.,  
Herbert W. Kale II,  
and Henry T. Smith

**RAY E. ASHTON, JR., SERIES EDITOR**

*Rare and  
Endangered  
Biota of Florida*

VOLUME V. BIRDS

EDITED BY

JAMES A. RODGERS, JR.,

HERBERT W. KALE II,

& HENRY T. SMITH

*Co-Chairs, Special Committee on Birds*

*Florida Committee on Rare and Endangered*

*Plants and Animals*

UNIVERSITY PRESS OF FLORIDA

Gainesville, Tallahassee, Tampa, Boca Raton,  
Pensacola, Orlando, Miami, Jacksonville

This volume was made possible in part by a grant from Save the Manatee Club

Copyright 1996 by the Board of Regents of the State of Florida

All rights reserved

Printed in the U.S.A. on acid-free paper.

01 00 99 98 97 96 6 5 4 3 2 1

Library of Congress Cataloging-in-Publication Data  
(Revised for vol. 4)

Rare and endangered biota of Florida

Includes bibliographical references and indexes.

Contents: v. 1. Mammals / edited by Stephen R. Humphrey—v. 2. Fishes /  
edited by Carter R. Gilbert—[etc.]—v. 5. Birds / edited by James A. Rodgers,  
Jr., Herbert W. Kale II, & Henry T. Smith

1. Rare animals—Florida. 2. Endangered species—  
Florida. 3. Rare plants—Florida. 4. Endangered plants—  
Florida. I. Ashton, Ray E.

QL84.22.F6R37 1992 591.52'9'09759 91-36368

ISBN 0-8130-1127-2 (v. 1: alk. paper)

ISBN 0-8130-1128-0 (v. 1: pbk: alk. paper)

The University Press of Florida is the scholarly publishing agency of the State  
University System of Florida comprised of Florida A&M University, Florida  
Atlantic University, Florida International University, Florida State University,  
University of Central Florida, University of Florida, University of North  
Florida, University of South Florida, University of West Florida.

Orders for books published by all member presses should be addressed to  
University Press of Florida, 15 NW 15th St., Gainesville, FL 32611.



Kirtland's Warbler, *Dendroica kirtlandii*. (Photo by Paul W. Sykes, Jr.)

Since 1971, the population has been monitored during a ten-day period in mid-June of each year at all known and potential breeding sites. From 1971 through 1989, the singing male count averaged 206 birds and ranged from 167 to 242 (Weinrich 1991). It is generally assumed that the sex ratio is about equal, but recent findings suggest more males than females (Bocetti 1994; Sykes and Kepler, unpubl. data). The population began to increase in 1990 with 265 singing males (Weinrich 1991); this trend continued with 633 males in 1994 and 766 in 1995 (Weinrich 1994, pers. comm.). This increase in the population is believed to be the direct result of the Mack Lake wildfire that occurred in May 1980.

**DISTRIBUTION AND HISTORY OF DISTRIBUTION:** The Kirtland's Warbler currently breeds in 12 counties of upper (2) and lower (10) Michigan and winters throughout the Bahama Archipelago (Mayfield 1960; Walkinshaw 1983; Sykes 1989; J. Weinrich 1994, pers. comm.). Migration of this species is poorly known (Mayfield 1960; Clench 1973; Walkinshaw 1983). In Florida, the species is an extremely rare irregular transient during 12 April–1 May (Palm Beach County, 3 reports; Alachua County, 2; Duval County, 1) and 9 September–26 November (Dade County, 2 reports, and 1 sighting each for Escambia, Collier, Martin, Palm Beach, St. Lucie, St. Johns, and Wakulla Coun-

**CAUSES OF THREATS:** In addition to problems with habitat and Brown-headed Cowbirds, there are local demands to eliminate controlled burning and clearcutting and increasing pressure for recreational use of the breeding areas when Kirtland's Warblers are still present (i.e., off-road vehicle use, blueberry picking, hiking, firewood gathering, training and conditioning of dogs for hunting, and early fall rabbit hunting starting in mid-September before all warblers have migrated south). More permanent homes and weekend vacation cabins are being built, bringing with them free-roaming house cats. There is pressure to replace jack pine with more economically valuable tree species, develop oil and natural gas, and build new utility corridors (i.e., power lines, oil pipe lines, and roads). Potential funding shortfalls for Kirtland's Warbler management are always a concern.

**RESPONSES TO HABITAT MODIFICATION:** The Kirtland's Warbler occupies only the early stages of seral succession in jack pine stands, so modification by fire, clearcutting with natural regeneration, or planting to re-establish this condition are essential to continued survival. On the Bahama wintering grounds, the natural shrubby structure of many of the native upland plant communities, slash-and-burn agriculture with subsequent abandonment after several years and regrowth, provide abundant habitat for the warbler (Sykes and Clench, in prep.).

**DEMOGRAPHIC CHARACTERISTICS:** Kirtland's Warblers breed in their second year and tend to nest in loose colonies with territories 4.1–8.5 ha in size (Mayfield 1960; Walkinshaw 1983). Most males are monogamous, but a few are polygynous (Mayfield 1960; Walkinshaw 1983; Probst and Hayes 1987; Bocetti 1995). Two broods may be raised per year. The nest, an open cup composed mostly of dried plant material (Southern 1961), is built by the female. The nest is placed on the ground, well concealed under low vegetation, and often near or under a jack pine or northern pin oak. The eggs are light colored with small brownish spots. They are laid in early morning, one a day until the 3–5 egg clutch is completed, and incubated by the female. The incubation period is 13–16 days. Eggs are laid from late May to mid-July. The nestling period is generally nine days; both parents feed the young. Both parents continue to feed the fledglings up to 44 days after they leave the nest (Mayfield 1960; Walkinshaw 1983).

For 208 nests, the hatching success was 82% ( $n = 171$  nests) and fledging success was 68% ( $n = 142$  nests) (Walkinshaw 1983). The fledging rate per pair is 3.3 per year with cowbird control and 0.8 without cowbird control (Mayfield 1960; Walkinshaw 1983). Annual survival rates for adults returning to the breeding grounds in the spring are quite good (Kepler, Sykes, Probst, Bocetti, and Bart, unpubl. data). Life expectancy of males surviving their first

- Byulich, J., M. E. DeCapita, G. W. Irvine, R. E. Radtke, N. I. Johnson, W. R. Jones, H. Mayfield, and W. J. Mahalak. 1985. Kirtland's Warbler recovery plan. U.S. Fish & Wildl. Serv., Twin Cities, Minnesota. 78 pp.
- Clench, M. H. 1973. The fall migration route of Kirtland's Warbler. *Wilson Bull.* 85:417-428.
- Cory, C. B. 1898. Kirtland's Warbler in Florida. *Auk* 15:331.
- DeCapita, M. E. 1991. Control of Brown-headed Cowbirds on Kirtland's Warbler nesting areas in northern Michigan. Unpubl. Rept., U.S. Fish & Wildl. Serv., East Lansing, Michigan. 9 pp.
- Edscorn, J. B. 1979. Florida region. *Aud. Field Notes* 33:169-171
- Ellis, J. B. 1915. Migratory notes taken fall 1915 by J. B. Ellis, Chokoloskee, Florida. *Oologist* 32:207,209.
- Howell, J. C. 1932. Florida bird life. Florida Dept. Game and Fresh Water Fish, Tallahassee, Florida. 579 pp.
- Kelly, S. T., and M. E. DeCapita. 1982. Cowbird control and its effect on Kirtland's Warbler reproductive success. *Wilson Bull.* 94:363-365.
- Kepler, C. B., G. W. Irvine, M. E. DeCapita, and J. Weinrich. 1996. The conservation and management of the Kirtland's Warbler, *Dendroica kirtlandii*. Bird Conservation International 6.
- Langridge, H. P., and G. Hunter. 1984. Kirtland's Warbler sighting in Palm Beach County, Florida. *Fla. Field Nat.* 12:9-10.
- Mason, C. R. 1960. Heretofore unpublished records of the Kirtland's Warbler. *Florida Nat.* 33:226.
- Mayfield, H. F. 1953. A census of the Kirtland's Warbler. *Auk* 70:17-20.
- Mayfield, H. F. 1960. The Kirtland's Warbler. *Bull.* 40, Cranbrook Inst. Sci., Bloomfield Hills, Michigan. 242 pp.
- Mayfield, H. F. 1961. Cowbird parasitism and the population of the Kirtland's Warbler. *Evolution* 15:174-179.
- Mayfield, H. F. 1962. 1961 Decennial census of the Kirtland's Warbler. *Auk* 79:173-182.
- Mayfield, H. F. 1963. Establishment of preserves for the Kirtland's Warbler in the state and national forests of Michigan. *Wilson Bull.* 75:216-220.
- Mayfield, H. F. 1972a. Third decennial census of the Kirtland's Warbler. *Auk* 89:263-268.
- Mayfield, H. F. 1972b. Winter habitat of Kirtland's Warbler. *Wilson Bull.* 84:347-349.
- Mayfield, H. F. 1977. Brown-headed Cowbird: agent of extermination? *Amer. Birds* 31:107-113.
- Mayfield, H. F. 1978. Brood parasitism—reducing interactions between Kirtland's Warbler and Brown-headed Cowbirds. Pp. 85-91 in *Endangered birds—management techniques for preserving threatened species* (S. A. Temple, ed.). Univ. Wisconsin Press, Madison, Wisconsin. 466 pp.

- McClanahan, R. C. 1935. Fifty years after. *Florida Nat.* (8)53-59.
- Probst, J. R. 1986. A review of factors limiting the Kirtland's Warbler on its breeding grounds. *Amer. Midl. Nat.* 116:87-100.
- Probst, J. R. 1988. Kirtland's Warbler breeding biology and habitat management. Pp. 28-35 in *Integrating forest management for wildlife and fish* (J. W. Hoekstra and J. Capp, comp.). U.S. Depr. Agric. Gen. Tech. Rept. NC-122.
- Probst, J. R., and J. P. Hayes. 1987. Pairing success of Kirtland's Warblers in marginal versus suitable habitat. *Auk* 104:234-241.
- Radabaugh, B. E. 1974. Kirtland's Warbler and its Bahama wintering grounds. *Wilson Bull.* 86:374-383.
- Radtke, R., and J. Byelich. 1963. Kirtland's Warbler management. *Wilson Bull.* 75:208-215.
- Robertson, W. B., Jr., and G. E. Woolfenden. 1992. Florida bird species: an annotated list. *Fla. Ornith. Soc. Spec. Publ.* no. 6.
- Schroder, H. H. 1923. Notes from Fort Pierce, Florida. *Bird Lore* 25:122-123.
- Shake, W. F., and J. P. Mattsson. 1975. Three years of cowbird control: an effort to save the Kirtland's Warbler. *Jack-Pine Warbler* 53:48-53.
- Simard, A. J., D. A. Haines, R. W. Blank, and J. S. Frost. 1983. The Mack Lake fire. U.S. Dept. Agric. Tech. Rept. NC-83.
- Smith, E. 1979. Analysis of Kirtland's Warbler breeding habitat in Ogemaw and Roscommon Counties, Michigan. M.S. thesis, Michigan State University. East Lansing, Michigan. 36 pp.
- Southern, W. E. 1961. A botanical analysis of Kirtland's Warbler nests. *Wilson Bull.* 73:148-154.
- Sprunt, A., Jr. 1954. Florida bird life. Coward-McCann, Inc., New York, New York. 527 pp.
- Sprunt, A., Jr. 1963. Addendum to Florida bird life. Privately published. 24 pp.
- Stevenson, H. M. 1959. Florida region. *Aud. Field Notes* 13:21-25.
- Stevenson, H. M. 1962. Florida region. *Aud. Field Notes* 16:21-25.
- Sykes, P. W., Jr. 1989. Kirtland's Warblers on their winter grounds in the Bahama Archipelago—a preliminary report. P. 28 in *At the crossroads—extinction or survival?* (K. R. Ennis, ed.). Proc. Kirtland's Warbler Symp., U.S. Forest Serv., Cadillac, Michigan. 97 pp.
- Sykes, P. W., Jr., and D. J. Munson. 1989. Late record of Kirtland's Warbler on the breeding grounds. *Jack-Pine Warbler* 67:101.
- Sykes, P. W., Jr., C. B. Kepler, D. A. Jett, and M. E. DeCapita. 1989. Kirtland's Warblers on the nesting grounds during the post-breeding period. *Wilson Bull.* 101:545-558.

- Walkmshaw, L. H. 1983. Kirtland's Warbler: the natural history of an endangered species. Bull. 58, Cranbrook Inst. Sci., Bloomfield Hills, Michigan. 207 pp.
- Wallace, R. 1971. Interesting sightings at St. Marks Wildlife Refuge and elsewhere. Florida Nat. 44:63.
- Weinrich, J. 1988. Status of the Kirtland's Warbler, 1987. Jack-Pine Warbler 66:154-158.
- Weinrich, J. 1989. Status of the Kirtland's Warbler, 1988. Jack-Pine Warbler 67:69-72.
- Weinrich, J. 1990a. Status of the Kirtland's Warbler, 1989. Michigan Dept. Nat. Res., Wildl. Div. Rept. no. 3116. 10 pp.
- Weinrich, J. 1990b. Status of the Kirtland's Warbler, 1990. Michigan Dept. Nat. Res., Wildl. Div. Rept. no. 3133. 10 pp.
- Weinrich, J. 1991. Status of the Kirtland's Warbler, 1991. Michigan Dept. Nat. Res., Wildl. Div. Rept. no. 3150. 10 pp.
- Weinrich, J. 1994. The Kirtland's Warbler in 1994. Michigan Dept. Nat. Res., Wildl. Div. Rept. no. 3222. 13 pp.
- Zou, X., C. Theiss, and B. V. Barnes. 1992. Pattern of Kirtland's Warbler occurrence in relation to landscape structure in its summer habitat northern lower Michigan. Landscape Ecol. 6:221-231.

PREPARED BY: Paul W. Sykes, Jr., National Biological Service, Athens Research Station, Warnell School of Forest Resources, University of Georgia, Athens, GA 30602-2152.