

**Biological Services Program**

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FWS/OBS-80/01.21  
March 1980

**Selected Vertebrate Endangered Species  
Of the Seacoast of the United States-  
KIRTLAND'S WARBLER**



Fish and Wildlife Service

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**U.S. Department of the Interior**

## PREFACE

The purpose of this series of species accounts is to provide resource managers and the public with information about Federally listed endangered and/or threatened vertebrate species that occur along, or within 100 kilometers of, the seacoast of the United States. Information about life history, distribution, requirements and conservation of the subject species is included (range maps and other distributional data are not necessarily equivalent to critical habitat as defined in the Endangered Species Act of 1973, as amended).

This series of accounts is intended to complement the computerized Sensitive Wildlife Information System (SWIS), developed by the U.S. Army Corps of Engineers in coordination with the Offices of Endangered Species and Biological Services of the Fish and Wildlife Service. A 3-ring binder is used for this series to facilitate additions and deletions as new accounts are prepared or as the status of species is changed.

Suggestions or questions regarding SWIS should be directed to:

Office of Endangered Species  
U.S. Fish and Wildlife Service  
Interior Building  
Washington, D.C. 20240

Suggestions or questions regarding this report should be directed to:

Information Transfer Specialist  
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NASA-Slidell Computer Complex  
1010 Gause Blvd.  
Slidell, Louisiana 70458

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SELECTED VERTEBRATE ENDANGERED SPECIES  
OF THE SEACOAST OF THE UNITED STATES  
**KIRTLAND'S WARBLER**

A Cooperative Effort  
by the  
National Fish and Wildlife Laboratory,  
the Office of Endangered Species  
and the  
National Coastal Ecosystems Team  
Office of Biological Services

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Performed for  
Coastal Ecosystems Project  
Office of Biological Services  
Fish and Wildlife Service  
U.S. Department of the Interior



CREDIT: MICHIGAN DEPT. OF NATURAL RESOURCES

**KIRTLAND'S WARBLER**

*Dendroica kirtlandii* (Baird)

KINGDOM ..... Animalia  
 CLASS ..... Aves  
 ORDER ..... Passeriformes  
 FAMILY ..... Parulidae  
 OTHER COMMON NAMES ..... Jack pine warbler

DATE  
 Entered into SWIS ..... To be determined  
 Updates ..... 24 Oct 1977, 10 Jan. 1978

LEGAL STATUS  
 Federal Endangered (32 FR 4001, 11 Mar 1967; 35 FR 18320, 2 Dec 1970).  
 States Endangered: Florida, Georgia, Michigan, North Carolina, South Carolina.

REASONS FOR CURRENT STATUS  
 Small population size, restricted geographic

distribution, and extremely narrow habitat requirements are the major causes of this species' precarious position. Prevention of fire and other forest management practices have eliminated much suitable breeding habitat. Nest parasitism by the brown-headed cowbird (*Molothrus ater*) has also contributed to past population declines. A possible, but as yet unknown, factor may be operating against Kirtland's warbler on the wintering grounds in the Bahama Islands (KWRT 1976).

PRIORITY INDEX  
 Not assigned.

DESCRIPTION  
 The adult male has upper parts of bluish slate gray, streaked with black, a black mask and white eye ring, underparts dull yellow, sides streaked with black, and fuscous wings without bars. The adult female has upper parts bluish gray with fuscous streaks, underparts of pale yellow, and fuscous speckling on the breast. It is large for a warbler—14 to 15 cm long, with a short, stout bill.

Color illustrations appear in Mayfield (1960) and the various field guides.

## RANGE

Kirtland's warbler breeds in the northern Lower Peninsula of Michigan and winters in the Bahama Islands (Mayfield 1960). Strays have recently (1977, 1978) been observed near Petawawa, Ontario, Kazabazua, Quebec, and Black River Falls, Wisconsin (Ryel 1978b). Lane (1975) observed a male and female near Veracruz, Mexico in 1974. The strays are not believed to be evidence of additional populations (H. Mayfield, pers. comm.).

## RANGE MAP

The known distribution of the Kirtland's warbler is depicted on the following map (KWRT 1976).

## STATES/COUNTIES

### Breeding

Michigan Alcona\*, Alpena\*, Clare\*, Crawford, Iosco, Kalkaska, Montmorency\*, Ogemaw, Oscoda, Otsego\*, Presque Isle\*, Roscommon, Wexford.

\*historical breeding localities in which the warbler has not been recorded since the 1972 breeding survey (Ryel 1978a).

## HABITAT

This warbler has very specific breeding habitat requirements, including stands of jack pine (*Pinus banksiana*) 2 to 6 m high (8 to 21 years old) interspersed with many small openings, minimal ground cover, and little or no hardwoods. The stands are usually on Grayling sands which drain very rapidly. Jack pine stands supporting breeding Kirtland's warblers are usually 30 ha or more in area. Historically, fire maintained the habitat by killing mature jack pines and opening up the forest for natural regeneration. The warbler then used these immature stands until they became too old.

The preferred wintering habitat on the Bahama Islands is not known, but Radabaugh (1974)

suggests use of low, broad-leaved scrub, the prevailing form of vegetation.

## FOOD AND FORAGING BEHAVIOR

A variety of insects are taken from the ground, air, or pine foliage. Kirtland's warblers often hover at the ends of branches as they pluck insects out of the pine needle clusters. They also eat berries.

## SHELTER REQUIREMENTS

Not known.

## NESTING OR BEDDING

The ground nest is built of sedges and grasses, rounded in shape with an inside diameter of 50 to 60 mm. Although a cover is not built, the placement of the nest under a grass tussock provides a canopy and often a tunnel entrance.

## RITUAL REQUIREMENTS

Males call from perches or from the ground.

## OTHER CRITICAL ENVIRONMENTAL REQUIREMENTS

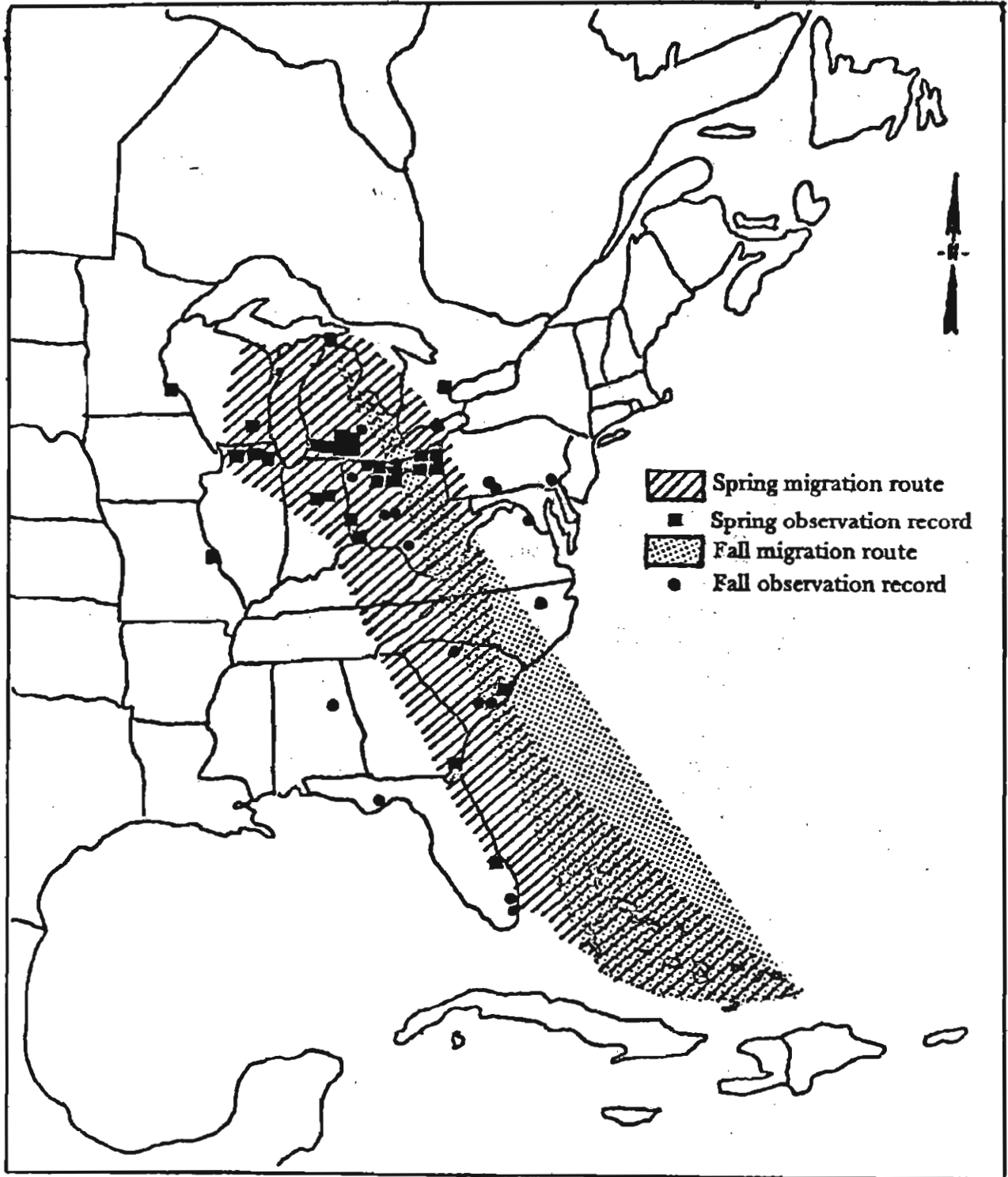
A breeding pair requires about 12 ha of young jack pine habitat for their territory (KWRT 1976).

## POPULATION NUMBERS AND TRENDS

In 1951, there were an estimated 432 singing males; in 1961, 502; and in 1971, 201. In the 7 years since then (1972-78), there have been 200, 216, 167, 179, 200, 218, and 196 singing males counted on the breeding ground (Mayfield 1975, Ryel 1978b). In 1974 and 1978, there were unexplained declines in singing males (Ryel 1978b). Mayfield (1953) stated that females and males are about equal in numbers; thus, the 1978 total for the species could be estimated at 400 individuals.

## REPRODUCTION

They generally lay five eggs, which hatch in mid-June. Prior to cowbird control, nesting success averaged 1.4 fledglings per pair. After the cowbirds were trapped, the success rate rose to 4 fledglings per pair.



Known distribution of the Kirtland's warbler.

## MANAGEMENT AND CONSERVATION

The State of Michigan in 1957 set aside three tracts of 1,040 ha each (Mayfield 1963, Radtke and Byelich 1963). Two were planted with open stands of jack pine, and all have attracted Kirtland's warblers (KWRT 1976).

The Kirtland's Warbler Management Area, established by the U.S. Forest Service in 1961, consists of some 1,620 ha of jack pine forest which is being managed for the warblers. Management activities on these refuges have included selective cutting, burning, and replanting to achieve the desired habitat type. The warblers have nested successfully in each of these areas (KWRT 1976).

An intensive program to eliminate nest parasitism by the brown-headed cowbird was begun in 1972 and has proven immensely successful.

The Kirtland's Warbler Recovery Team drafted a Recovery Plan (1976) whose primary objective is to reestablish a wild population throughout the former range at a minimum level of 1,000 pairs. Five steps are necessary to reach the primary objective:

1. Maintain and develop suitable nesting habitat throughout the former range
2. Protect the species on its wintering grounds and along the migration route
3. Reduce key factors adversely affecting reproduction and survival
4. Monitor breeding populations to evaluate responses to management practices and environmental changes
5. Reintroduce the species into the Upper Peninsula of Michigan or in other States to establish independent, self-sufficient populations.

## AUTHORITIES

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## PREPARER'S COMMENTS

None.

## LITERATURE CITED/SELECTED REFERENCES

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