



IN REPLY REFER TO:

United States Department of the Interior

FISH AND WILDLIFE SERVICE
East Lansing Field Office (ES)
2651 Coolidge Road, Suite 101
East Lansing, Michigan 48823-6316

December 9, 2003

Mr. Gerald W. Winegrad, Vice President for Policy
American Bird Conservancy
1834 Jefferson Place, NW
Washington, DC 20036

Subject: Kirtland's warbler status and migration

Dear Mr. Winegrad:

This responds to your November 23, 2003 electronic mail request for information about the Kirtland's warbler. Your questions are included here in italics, followed by a response.

The bird is still listed as endangered under the ESA, is it not?

The Kirtland's warbler is a Federally-listed endangered species.

How many total birds do you estimate to be in its population?

The 2003 census of singing males resulted in a count of 1,202. Data suggests a 1:1 sex ratio, so the spring adult population would be estimated at 2,404. Each pair of adults produces an estimated 3.5 young per year. Data suggests about 65% survivorship of young and 95% survivorship of adults during the breeding season, so the immediate post-breeding, pre-migration total population in August of 2003 would be estimated at 2,284 adults plus 2,734 young, or 5,018 birds.

How many females approximately?

The Kirtland's warbler population appears to have a roughly equal sex ratio, so the 2003 pre-breeding adult population would have had about 1,202 females, and the post-breeding August population would have had about 2,509 females.

Are female birds any more critical to recovery than males?

A portion of the nesting Kirtland's warbler population is known to engage in polygyny, with some males mating with 2 females. The proportion of males engaging in polygyny is approximately 15%, and about 17% of the males are unmated. Therefore the effective population size of males is 83% of 1202, and the effective population size of females is

100% of 1202. Depending on the degree of polygyny, females could be considered somewhat more important to population dynamics. On the other hand, both male and female members of a pair have parental care duties, and thus appear to be necessary for successful nesting.

Please confirm that nearly all Kirtland's Warblers breed in the upper peninsula of Michigan in the spring-summer of each year and migrate to the Bahamas for the winter, flying from Michigan to the Bahamas in the late summer/early fall each year and returning in the late winter/early spring.

The Kirtland's warbler nests primarily in the northern Lower Peninsula of Michigan. Only a few birds have annually nested in the Upper Peninsula since 1994. Kirtland's warblers do in fact migrate to the Bahamas in late summer/early fall, and return to Michigan in the spring.

Can you advise what states and with any specificity what parts of states the birds pass over each year on their twice annual migrations? Do they pass over Mt. Pleasant, SC (just east of Charleston, SC) each year on their way to the Bahamas? Are their recorded sightings of these birds at ground or low tree level during these migrations and in what states and cities? Would the birds' migratory path take it over the Mt. Pleasant/Charleston, SC area each September? Do they migrate in flocks of other Kirtland's Warblers?

The migration route of Kirtland's warblers is reasonably well documented with sightings and specimens gathered over more than a century. We are not aware of a recent publication that gathers and interprets Kirtland's migration records, especially records gathered since 1986, but a 1960 book, by Harold Mayfield¹ discusses records prior to that year. Fall sightings are documented along the southeastern U.S. coastline from North Carolina to Florida. Mayfield's book, in a section on page 39 headed "Fall Migration", provides a brief list of fall migration records. One record is listed as "Mt. Pleasant, South Carolina, October 29, 1903 (specimen by A.T. Wayne, 1911:116)". Mayfield also includes, as Figure 4 on page 40, a map of the eastern U.S. with marks indicating the location of some fall records. The marks depict a nearly straight line from Michigan to the South Carolina coast. This line extends directly to the Bahamas. Spring migration is also discussed by Mayfield. Spring migration, presented as Figure 5 in Mayfield, does not appear as focused as fall migration, with records scattered across a broadening area to the north. Nevertheless, a spring record is indicated for coastal South Carolina. Enclosed are photocopies of the relevant pages from Mayfield's 1960 book. Also enclosed are a cover page, pages 30 – 33 and Map 2, Fall Migration Records of Kirtland's Warbler, from Stone (1986)².

¹ Mayfield, Harold. 1960. The Kirtland's Warbler. Bulletin 40. Cranbrook Institute of Science. Bloomfield Hills, Michigan. 242 pp.

² Stone, Amy E. 1986. Migration and Wintering Records of Kirtland's Warbler: An Annotated Bibliography. Final Report, for Unit Cooperative Agreement 14-16-0009-1540, RWO#9. Georgia Cooperative Fish & Wildlife Research Unit, University of Georgia, Athens. 52pp.

The importance of the South Carolina coastal area to Kirtland's warbler during migration is reasonably well known. Unfortunately, the supporting records are found within many publications covering a long time period, as indicated by the enclosed pages, as well as Huber³ (1982) and Walkinshaw⁴ (1983). Huber (1982) lists 7 sources for North Carolina records, 24 for South Carolina, 6 for Georgia, and 13 for Florida. Not all of these are coastal records. South Carolina locations mentioned in the Huber citations include Columbia, Eastover, Mt. Pleasant, Aiken, Christ Church Parish, Gaffney, Chester, and St. Helena Island. A cursory look at the enclosed citations in Huber (1982) and Stone (1986), along with the simple fact that a direct line between the northern Michigan nesting area and the Bahamas passes over South Carolina, suggests the South Carolina coast is particularly important to Kirtland's warbler migration.

I do not know what altitude Kirtland's warblers fly at during migration. The references mentioned above are for sightings and specimens, so these were, of course, obtained at or near ground level. As far as can be determined, Kirtland's warblers do not migrate in flocks of other Kirtland's. However, it appears that many species of passerine migrants engage in mass migration movements when conditions for such movement become generally favorable.

Do Kirtland's Warblers fly at very low altitudes and even at or near ground level in low cloud ceiling weather conditions?

I can not address this question definitively. Generally, weather conditions have a strong effect on when and where bird migrations take place. Kirtland's likely are affected by these conditions in the same way as other passerine migrants.

How much money has been spent on the bird's recovery and how much in FY 2003? What measures are ongoing to prevent its extinction--Jack pine management, cowbird control, limiting access to breeding areas?

The effort to recover the Kirtland's warbler has been in progress for decades, and even precedes the federal Endangered Species Act of 1973. It is not possible here to accurately account for the amount spent, but certainly, millions of dollars have been spent. The recovery program involves at least 2 federal and 2 state agencies and consists of annual habitat management, cowbird control, nesting area access restrictions, and agency-led public tours to view the bird. Annual gross costs are estimated from \$600,000 - \$1,000,000. Some costs for land management are recovered via commercial timber receipts, so the net annual cost is less. The largest annual cost is for management of 2,000 - 2,400 acres of habitat, which consists of commercial timber sale and harvest of 50 year old jack pine stands, followed by site preparation, concluded by seeding or planting of jack pine. Managed habitat is part of a natural jack pine ecosystem and benefits many other species in addition to Kirtland's warbler.

³ Huber, Kristina Ruth. 1982. The Kirtland's Warbler (*Dendroica kirtlandii*) An annotated bibliography 1852-1980. University of Michigan Museum of Zoology. Ann Arbor. 99 pp.

⁴ Walkinshaw, Lawrence H. 1983. Kirtland's warbler, The history of an endangered species. Bulletin 58. Cranbrook Institute of Science. Bloomfield Hills, Michigan. 207 pp.

How many folks visited breeding areas under your program in 2003 to view the bird and from how many states and countries?

Public Kirtland's warbler tours are provided annually from May 15 to July 4 by both the U.S. Fish and Wildlife Service and the U. S. Forest Service, at Grayling and Mio, Michigan, respectively. The 2003 FWS tours were attended by 685 people from 39 states, Washington, D.C. and 5 foreign countries. The USFS tours were attended by 413 people from 28 states and Canada.

Thank you for your interest in the Kirtland's warbler and our recovery program. Please feel free to contact me (517-351-6274, mike_decapita@fws.gov) if I may be of further assistance.

Sincerely,



Michael E. DeCapita
Branch Chief, Endangered Species

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