

The Distribution of the Kirtland Warbler (*Dendroica kirtlandii*)

Josselyn Van Tyne

Museum of Zoology, University of Michigan, Ann Arbor

The Kirtland Warbler, a rare "Wood Warbler" (Family Parulidae) of eastern North America, was discovered 99 years ago. The type specimen was collected by Charles Pease on May 13, 1851, near Cleveland, Ohio. His father-in-law, Jared P. Kirtland, the leading naturalist of the Mississippi Valley, gave the specimen for description to his friend and mentor, Spencer F. Baird of the Smithsonian Institution (Baird, 1852).

Breeding ground

The breeding ground of the Kirtland Warbler was discovered by the Michigan naturalist N. A. Wood in 1903. The first nests were found in Crawford and Oscoda counties, central Michigan, but additional field work finally pushed the boundaries of the known breeding range east to Lake Huron, south to Ogemaw and Clare counties, west to Wexford and Kalkaska counties, and north to the edge of Presque Isle County. The breeding range now measures about 100 miles (160 km) by 60 miles (96 km).

On Fig. 1 a heavy line has been drawn around all known breeding records of 1903 to 1949, and within this area is plotted the major distribution of cover types. The Kirtland Warbler is found nesting only in the area of well-drained sandy soils which support pine forests (shown on the map by dots). It uses, in fact, only a small fraction of that area, nesting (on the ground) exclusively in rather dense stands of young jack pine (*Pinus banksiana*) that appear following the forest fires which so often sweep these pine plains and which actually favor the jack pine as a cover type. W. D. Sterrett (1920: 5) writes that "land composed of poor, medium-to-coarse sands or land which is impoverished by fire and on which Norway or white pine does not readily spring up and thrive is the kind on which pure or nearly pure stands of jack pine constitute one of the principal forest types

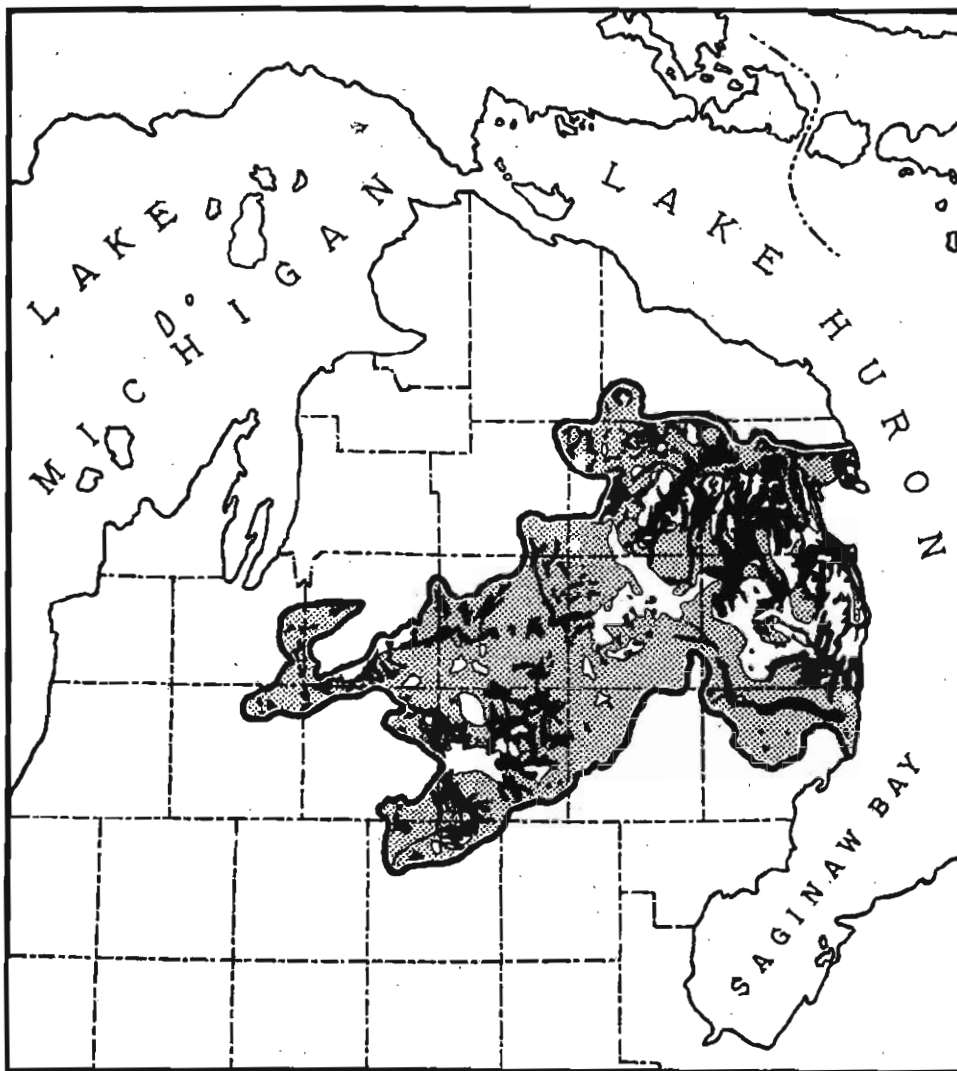


Fig. 1. Breeding range of the Kirtland Warbler. All of the known breeding records, 1903 to 1949, are inclosed within the heavy black line; within that area is plotted the major distribution of the three cover types: pine forest (dotted), hardwood forest (white), swampland (black). Cover distribution based on A. D. Perejda's map, "Original Forests of Michigan" (Wayne University Press, 1946).

of the North. Even on this land, if for a number of years fires are excluded, soil and humus conditions improve and jack pine gradually gives way to the longer-lived and more persistent Norway pine, or in some cases to spruce."

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The status of the Kirtland Warbler on its wintering ground has greatly changed since the nineteenth century, when collectors found it "fairly numerous" or "not uncommon" there. The last specimens from the Bahamas are apparently those taken by Maynard in 1913 (and possibly 1915¹).

Others have worked extensively in the Bahamas since 1900 without finding the Kirtland Warbler. W. W. Worthington, working for Carnegie Museum, collected throughout most of the Bahamas for four months during the Kirtland Warbler wintering season in 1908 without finding the species. James Bond (letter) has studied birds on most of the major islands, spending at least 100 field days, and has seen but one Kirtland Warbler (mentioned above). In 1949 Harold Mayfield and I spent 59 man-days on New Providence and Eleuthera in January and February but failed to find the Kirtland Warbler although the study of that species was a major objective of our trip.

It should be noted, however, that during the winter season when birds cannot be found by listening for their songs, a rather large number of shy and brush-inhabiting birds, such as the Kirtland, could be distributed throughout the scattered Bahama Islands (which extend for 630 miles—1 008 km— across the ocean) without being discovered by field investigators.

Spring migration

After spending about seven months of the year in the Bahamas, the Kirtland Warbler starts its long migration—a distance of at least 1 375 miles (2 100 km)—to Michigan. The majority of our records are spring records, but the number is still far too small, especially from the southern states, to enable us to describe the migration adequately. The conjecture has been made that the Great Abaco and Little Abaco records (March 21 and 25, respectively) represent transients and that therefore the winter range of the species does not include these northern islands, but there seems little basis for such an inference. The earliest indisputable migration record in the United States is April 12 (Cumberland Island on the coast of Georgia), and the other dates for southern states range from April 27 to May 5. To the north, in Ohio and Indiana, the dates range from May 1 to 28; in southern Michigan from May 6 to 30. According to Verne Dockham of Oscoda County, the Kirtlands arrive in the breeding area May 8 to 15.

There is not space to enumerate here the many migration records for

¹ The presumed 1915 specimen, now in the collection of Stephen S. Gregory, Jr., does not have the collector's original label; a copied label had been substituted before the specimen came into Mr. Gregory's possession. I have not yet been able to determine whether Maynard was in the Bahamas in 1915.

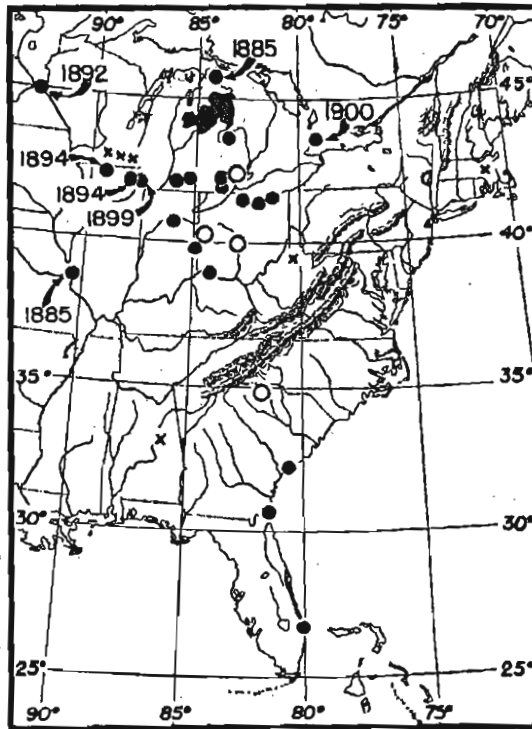


Fig. 3. Spring migration of the Kirtland Warbler. Solid black dots indicate one or more specimen records; open circles represent accepted sight records; crosses represent published reports open to doubt. The dated records, occurring from 1885 to 1900, are those of birds which seem to have been en route to some nesting ground other than that now known (Fig. 1).

Ohio, Indiana, and southern Michigan, but all of the localities are plotted on Fig. 3. Most of the spring migration records are in the direct line between the Bahamas and Michigan, but certain others (accompanied by dates on Fig. 3) are obviously far outside of any probable migration route between those two regions. It is noteworthy that these records occurred during the period (1885 to 1900) that yielded the greatest number of records on the wintering ground. The conclusion seems inescapable that the nesting ground of the Kirtland Warbler in that period was more extensive (with, consequently, a larger total population) and included areas to the north and west of the present breeding ground.

Fall migration

As indicated in Fig. 4, there is little data available on the southward migration. Observers are, as a rule, much less active in fall, and the Kirt-

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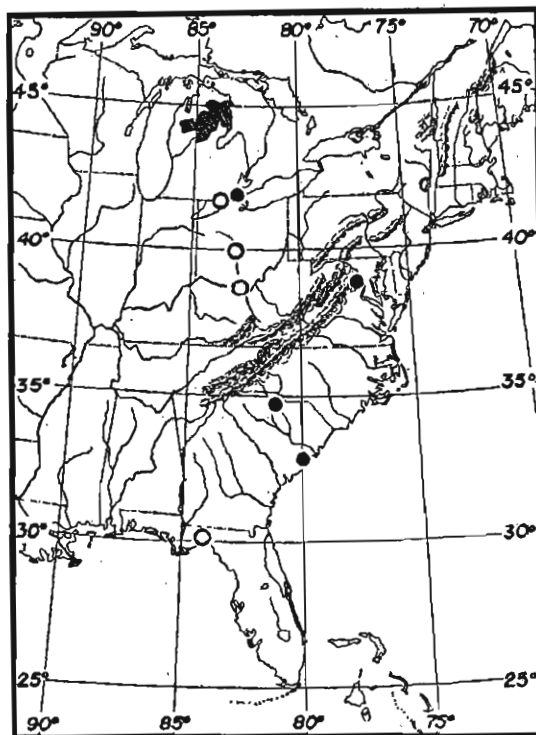


Fig. 4. Fall migration of the Kirtland Warbler. Solid black dots represent specimen records; open circles represent accepted sight records. (For his painstaking care in the preparation of this and the preceding maps, I am greatly indebted to William L. Brudon.)

land Warblers are silent then and do not attract attention. (It is surprising how many of the published spring migration records include the statement that attention was first drawn to the bird by its loud song.)

There are still no fall records for the Kirtland Warbler in Michigan south of the breeding range. Beginning at Point Pelee, Ontario, where W. E. Saunders took an immature male (Royal Ontario Museum of Zoology collection) on October 2, 1915 (an apparently unpublished record), the map shows what seems to be a rather narrow migration route along a direct line toward the Bahamas and probably crossing the southern Appalachian Mountains instead of going around their southern tip. The only other unpublished record shown in Fig. 4 is that for East Goose Creek, Florida, where Ludlow Griscom and John T. Nichols saw a Kirtland Warbler on September 9, 1919 (Griscom, letter of May 15, 1950). The northeastern Virginia record (Smith and Palmer, 1888: 148—a Kirtland collected Sep-

