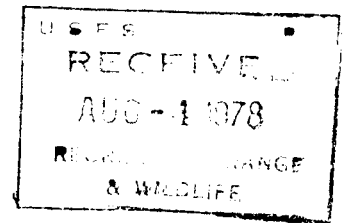


MICHIGAN DEPARTMENT OF NATURAL RESOURCES  
Surveys and Statistical Services Report No. 167  
July 1978



KIRTLAND'S WARBLER STATUS, JUNE 1978\*

by L. A. Ryel

The world's first complete census of a songbird species was the June, 1951 count of Kirtland's warblers (*Dendroica kirtlandii*) carried out by a group of eager workers under the direction of Harold Mayfield (1953). June 1978 marked the tenth such survey and in some respects the most remarkable of the series. Since the first, other counts were carried out in 1961 and from 1971 to 1978. Details on various surveys can be found in reports by Mayfield (1953, 1962, 1972, 1973a, 1973b, 1975), Ryel (1976a, 1976b), and Cargoyne and Ryel (1978). The 1978 survey was the fourth under the auspices of the Kirtland's Warbler Recovery Team, an offspring of the Federal Endangered Species Act. They have delegated overall coordination of the population surveys to the Office of Surveys and Statistical Services. Survey data are used by the Recovery Team and others to evaluate responses to management practices and environmental changes.

METHODS

There are two phases to the population monitoring program: (1) year-round inventorying of potential breeding habitat, and (2) counting singing males during a short period in June. Phase 1 is done incidentally to other field work, mostly by DNR and U. S. Forest Service personnel from mid-August until mid-May. From mid-May to the end of July, the normal breeding season for the species, those areas which appear to be the most suitable habitat are spot-checked for actual presence of singing males. Areas known to have Kirtland's warblers present are essentially "off limits" between May 1 and August 15, except for the actual census in mid-June (June 8 to 17 in 1978). Since some males have been observed to shift locations during the summer, perhaps looking for mates, a short ten-day census period is employed to avoid duplication.

Censuses are conducted according to established procedures by authorized personnel only. Basically, the census consists of counting males. Since adult male Kirtland's warblers "defend" their territories by loud and persistent singing, they can be rather easily tallied by systematically traversing their habitat at appropriate times. Details on census methods can be found in Mayfield (1960) and Ryel (1976a).

Until recently it was generally agreed that the breeding range was restricted to the jack-pine plains of northern Lower Michigan, and census efforts were concentrated there. However, in 1977, a University of Toronto search team, headed by Dr. Paul Aird, found a single, unmated male in a jack-pine area near Petawawa, Ontario. Because of this discovery, which

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\*A contribution of Federal Aid in Fisheries and Wildlife Restoration, Michigan Project FW-3-R.

brought to mind previous reports of birds here in 1916 and 1939 (Harrington 1939), the Recovery Team felt it was important to also examine suitable habitat in other parts of the Great Lakes area. Hence, in 1978, workers in both Wisconsin and Canada volunteered to spot-check likely looking areas; and in Michigan, efforts were expanded to include neighboring counties in the northern Lower Peninsula as well as parts of the Upper Peninsula.

### RESULTS

During the census period, twenty-five fewer singing males were located in the traditional areas of northern Lower Michigan, 193 in 1978 compared to 218 in 1977 (Table 1). The bulk of this drop was in Ogemaw County which had 22 less males. Since 1975, birds have been located in six counties each year. "Lonesome George" failed to return to the Boon site and no birds were found in Wexford County for the first time since 1972. U.S. Forest Service workers, however, discovered a new colony with two males near Silver Creek in Iosco County. Iosco County had been without Kirtland's warblers for the past six years. Stepped up searching in other Michigan counties failed to locate any other new warbler areas.

More successful, however, were cooperators in Canada and Wisconsin. Dr. Aird's team again located the lone male near Petawawa, as well as another male in the Gatineau Valley of Quebec, some 60 miles to the east of the Petawawa bird. This is the first confirmed record of a Kirtland's warbler in Quebec. More surprising was the fact that this male, apparently unmated, had been banded as a nestling by Dr. Larry Walkinshaw four years ago in the Lovell's Management Area of Crawford County.

In Wisconsin, Department of Natural Resources' teams led by Nancy Flighman, turned up two males near Black River Falls. One of these had been banded by Dr. Walkinshaw as a nestling six years ago in the Military Area, Crawford County. Careful searching indicated no females were present here either.

In the month following the census, three males were observed in Crawford County in two spots where none were found during the census period. One was adjacent to the Fletcher colony while two birds were found in a new area on the artillery range. The discoverer, Raymond Perez, is of the opinion these are probably additional birds which were missed on the census, however, they have not been included in the "official" census results or in the material that follows.

Forty-three percent of the Michigan males were inside of the four designated management areas, three state and one federal (Mayfield 1963). Three-fourths of the males were found on state-owned land, one-fifth on federal land, and the remaining eight birds on private land (Table 2).

From the very beginning, ornithologists have referred to Kirtland's warbler as being found in "colonies" (Wood 1904), however, as Mayfield (1960) notes, these are not really the usual sort of nesting bird colonies. Workers on the species continue to use this terminology for lack of a better alternative. Suroyone and Rye (1970) proposed a more formal definition of a Kirtland's warbler colony based on audio considerations. Singing

males are considered to be in the same colony if, and only if, when observed, they are no more than 1,034 m from at least one other singing male. This provides a basis for more formal studies of the spatial distribution of the species. Data for three years are now available (Table 3). In general, the majority of colonies are small, but paradoxically most of the birds occur in a few large colonies. For example, in 1978, of a total of 17 colonies, five had three or less males, six ranged between four and eight, and six had sixteen or over. The latter six colonies, however, had 150 males or 78 percent of the total. Compared to 1976 and 1977, the number of colonies (17), mean colony size (11.4), and the median colony size (5), were all intermediate. Much of the drop in number of colonies from 25 in 1976 to 15 in 1977 was due to the filling in of habitat between colonies. A reversal of this process was noted in 1978. A further measure of this is revealed by the large decline in occupied sections (square miles) from 1977 (42) to 1978 (34). The 1978 pattern is more nearly like that of the years 1971 to 1975 (Table 1).

The 1978 census operation in Michigan involved a record 43 individuals from the Michigan Department of Natural Resources, U.S. Forest Service and U.S. Fish and Wildlife Service, as well as a number of private citizens. Without their enthusiastic help, the survey could not have been conducted. About 42 percent of the 1978 group also took part in 1977. A list of these cooperators is given below. Details on the Wisconsin and Canadian operations will be given elsewhere.

Austin, S.	Hill, B.	Pavlovich, D.
Black, C.	Hines, L.	Perez, R.
Bull, Jr.	Irvine, G.	Prince, H.
Burck, D.	Janson, V.	Probst, J.
Burgoyne, G.	Kerschenheiter, G.	Ryel, L.
Carlson, T.	Lea, D.	Shellenger, J.
Cooley, M.	Lerg, J.	Smith, E.
Cuthbert, N.	Ludlow, J.	Smock, D.
DeCapita, M.	Mang, M.	Sorenson, D.
Doepker, R.	McAvinchey, R.	Swiderski, J.
Fouch, W.	Merritt, P.	Taylor, S.
Grettenberger, J.	Middleton, D.	VanHouten, G.
Harger, E.	Murk, J.	Walkinshaw, L.
Havard, T.	Nichols, J.	Weinrich, J.
		Wyman, C.

The source of these personnel is as follows:

Independent cooperators	8
U.S. Fish and Wildlife Service	6
U.S. Forest Service	9
Michigan Department of Natural Resources	20

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TABLE 1. Counts of Singing Male Kirtland's Warblers by County

<u>Location</u>	<u>1951</u>	<u>1961</u>	<u>1971</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>
<u>Michigan Counties</u>										
Crawford	142	52	101	101	114	88	90	95	78	71
Oscoda	103	152	48	48	47	41	35	44	59	62
Iosco	74	30	1							2
Montmorency	43	61	1							
Presque Isle	34	34								
Roscommon	4	13				1	4	2	7	2
Alcona	4									
Kalkaska	28	32					3	7	11	16
Ogemaw		114	47	49	51	35	46	51	62	40
Otsego		14	3							
Wexford	—	—	—	2	4	2	1	1	1	—
Michigan Total	432	502	201	200	216	167	179	200	218	193
<u>Wisconsin Counties</u>										
Jackson										2
<u>Ontario Counties</u>										
Renfrew									1	1
<u>Quebec Counties</u>										
Gatineau	—	—	—	—	—	—	—	—	—	1
<u>North American Total</u>										
Total	432	502	201	200	216	167	179	200	219	197
Michigan Counties	8	9	6	4	4	5	6	6	6	6
Michigan Sections*	91	86	27	27	25	27	31	47	42	34

\*Surveyed square miles

TABLE 2. Counts of Michigan Singing Male Kirtland's Warblers by Land Ownership, 1974 to 1978.

Location	Year	State		Federal		Private	Total
		within management areas	outside management areas	within management areas	outside management areas		
Fletcher Burn Kalkaska - Crawford Cos.	1975	-	3	-	-	-	3
	1976	-	8	-	-	-	8
	1977	-	11	-	-	-	11
	1978	-	16	-	-	-	16
Lovells Mgmt. Area & adjacent Crawford Co.	1974	23	-	-	-	-	23
	1975	31	-	-	-	-	31
	1976	32	-	-	-	-	32
	1977	28	-	-	-	-	28
	1978	23	-	-	-	-	23
South Lovells Crawford Co.	1978	-	4	-	-	1	5
Hope Cheney Area Crawford Co.	1974	-	2	-	13	6	21
	1975	-	3	-	5	1	9
	1976	-	3	-	5	1	9
	1977	-	2	-	5	-	7
	1978	-	2	-	2	1	5
Artillery Range and adjacent Crawford Co.	1974	-	44	-	-	-	44
	1975	-	50	-	-	-	50
	1976	-	49	-	-	-	49
	1977	-	39	-	-	-	39
	1978	-	34	-	-	-	34
Ausable Area Crawford Co.	1976	-	1	-	-	3	4
	1977	-	1	-	-	3	4
	1978	-	-	-	-	4	4
Yusknat Lake Mgmt. Area & adjacent Oscoda Co.	1974	14	2	-	-	-	16
	1975	16	5	-	-	-	21
	1976	15	2	-	-	-	17
	1977	25	4	-	-	-	29
	1978	21	5	-	-	-	26
Luzerne Burn Oscoda Co.	1974	-	-	-	6	-	6
Mack Lake Mgmt. Area & adjacent Oscoda Co.	1974	-	-	19	-	-	19
	1975	-	-	14	-	-	14
	1976	-	-	21	-	-	21
	1977	-	-	29	1	-	30
	1978	-	-	35	-	-	35

TABLE 2. (continued)

<u>Location</u>	<u>Year</u>	<u>State</u>		<u>Federal</u>		<u>Private</u>	<u>Total</u>
		<u>within management areas</u>	<u>outside management areas</u>	<u>within management areas</u>	<u>outside management areas</u>		
McKinley Area Oscoda Co.	1976	-	-	-	6	-	6
	1977	-	-	-	-	-	-
	1978	-	-	-	1	-	1
Ogemaw Mgmt. Area & adjacent Ogemaw Co.	1974	29	2	-	-	-	31
	1975	16	5	-	-	-	21
	1976	14	6	-	-	-	20
	1977	5	3	-	-	-	8
	1978	4	-	-	-	-	4
Northwest Corner Ogemaw Co.	1974	-	3	-	-	-	3
	1975	-	4	-	-	-	4
	1976	-	8	-	-	-	8
	1977	-	7	-	-	-	7
	1978	-	8	-	-	1	9
Damon Burn Ogemaw Co.	1975	-	18	-	-	2	20
	1976	-	20	-	-	1	21
	1977	-	43	-	-	3	46
	1978	-	26	-	-	1	27
St. Helen Burn & adjacent Roscommon - Ogemaw Cos.	1974	-	2	-	-	-	2
	1975	-	5	-	-	-	5
	1976	-	4	-	-	-	4
	1977	-	8	-	-	-	8
	1978	-	2	-	-	-	2
Boon Area Wexford Co.	1974	-	-	-	-	2	2
	1975	-	-	-	-	1	1
	1976	-	-	-	-	1	1
	1977	-	-	-	-	1	1
	1978	-	-	-	-	-	-
Silver Creek Iosco Co.	1978	-	-	-	2	-	2
TOTAL	1974	66	55	19	19	8	167
	1975	63	93	14	5	4	179
	1976	61	101	21	11	6	200
	1977	58	112	29	6	7	218
	1978	48	97	35	5	8	193

TABLE 3. Kirtland's Warbler Colony\* Size, 1976 to 1978

<u>Colony Size</u>	<u>1976 Colonies</u>	<u>Birds</u>	<u>1977 Colonies</u>	<u>Birds</u>	<u>1978 Colonies</u>	<u>Birds</u>
1	7	7	3	3	2	2
2	4	8			2	4
3	2	6	1	3	1	3
4	1	4	1	4	2	8
5	1	5			2	10
6	2	12	1	6		
7			2	14		
8	1	8	1	8	2	16
9	1	9				
11			1	11		
16	1	16			1	16
17	1	17				
18	1	18				
19	1	19				
23					1	23
26					1	26
27					2	54
28			1	28		
29			1	29		
30			1	30		
31					1	31
32	1	32				
36			1	36		
39	1	39				
45			1	45		
Total	25	200	15	218	17	153
Mean birds per colony	8.0		14.5		11.4	
Median birds per colony	3		7		5	

\*Includes Michigan Birds only