



MICHIGAN DEPARTMENT OF NATURAL RESOURCES
Wildlife Division Report No. 3150
December, 1991

THE KIRTLAND'S WARBLER IN 1991*

by Jerry Weinrich

INTRODUCTION

The first Kirtland's warbler (*Dendroica kirtlandii*) census was organized by Harold Mayfield in 1951 (Mayfield, 1953). The census was to be repeated every 10 years and the second census in 1961 recorded a total similar to that of 1951 (Mayfield, 1962). The census of 1971 however revealed a precipitous drop in the population--a decline of approximately 60 percent from the 1961 count (Mayfield, 1972). In order to monitor the population more closely, censuses have been conducted every year since 1971 (Mayfield, 1973a, 1973b, 1975; Ryel, 1976a, 1976b, 1979, 1980a, 1980b, 1981, 1982, 1983, 1984; Burgoyne and Ryel, 1978; Weise, 1987; Weinrich, 1988a, 1988b, 1989, 1990a, 1990b).

Mayfield coordinated the censuses through 1975 and the Wildlife Division has assumed this responsibility since. From 1976 through 1985, coordination was through the Surveys and Statistics Section. In 1986 responsibility for the census was delegated to the Houghton Lake Wildlife Research Station.

METHODS

From mid-May through early June, cooperators from the Michigan Department of Natural Resources, Michigan Department of Military Affairs, U. S. Forest Service, U. S. Fish and Wildlife Service, and private volunteers check areas of likely habitat for the presence of singing male Kirtland's warblers. During the actual census period (6 through 15 June in 1991), all newly-occupied areas, areas occupied the previous year, and most areas with likely habitat are searched for singing males. The time period for the actual census is intentionally short so that the possibility of double-counting males moving from one area to another is minimized.

Since nearly all areas occupied by Kirtland's warblers are closed to public entry from 1 May to at least 15 August, census personnel are required to have a permit(s) from the Department of

*A contribution of Federal Aid in Endangered Species Restoration, Michigan Project E-1.

Printed by authority of the Michigan Endangered Species Act, 1974 PA 203		
Copies Printed: 250	Cost Per Copy: \$ 0.28	Total Cost: \$69.46
Michigan Department of Natural Resources		

Natural Resources (state lands) and/or the U. S. Forest Service (National Forest lands). Nesting areas are closed to prevent disturbance to the warbler and its habitat. Accordingly, census personnel take precautions to minimize any disturbance they might cause. Small areas with only a few singing males are checked from the periphery or from roads to prevent walking through nesting habitat. For large areas of habitat, census personnel walk simultaneous transect lines with the minimum number of people necessary to assure hearing all singing males. Transects are usually only run once and roads and areas of "non-habitat" are used where possible. Male Kirtland's are loud and (usually) persistent singers, and most observers can hear their songs for at least 0.2 miles (0.3 km); those with exceptional hearing can hear the song for 0.5 miles (0.8 km) under good conditions. More detail on methods and rationale for the census can be found in Mayfield (1960) and Ryel (1976a). The location of all singing males is recorded on sketch maps and these plus records for all areas checked are used to tabulate final census results.

RESULTS AND DISCUSSION

The 1991 census found 347 singing male Kirtland's warblers in Michigan (Table 1). This represents a significant increase of 31 percent from the 1990 count of 265, and an encouragingly substantial increase of 108 percent from 1987 when the count was only 167. As in recent years, Oscoda and Crawford counties accounted for over 80 percent (actually 84 percent) of the Michigan total (226 singing males in Oscoda County, 65 in Crawford County in 1991). Other Michigan counties where warblers were found were: Ogemaw (35), Roscommon (7), Kalkaska (7), and Alcona (7).

Areas of likely habitat in several adjacent states and provinces have been checked for Kirtland's warblers since 1977. Since then, warblers have been found in Ontario, Quebec, and Wisconsin. This year, one singing male was found in Wisconsin, but he was not found to be mated. Thus, the 1991 known world total of singing male Kirtland's warblers was 348.

The 1991 Michigan count of 347 singing males is the highest of the 21 censuses since annual counts were begun in 1971. The 31 percent increase from 1990 represents the largest increase between any two consecutive years for this same period.

Distribution of warblers in 1991 was similar to that of 1990 in that virtually all were located in areas of young or middle-age habitat (Table 2). The largest area of young habitat, the New Mack Lake Burn, continued to attract more singing males. The count for this area increased by 31 percent from 159 in 1990 to 208 percent of the total Michigan population, as it did in 1990. Several areas of young planted habitat showed significant increases (Ogemaw Management Area, Fletcher Burn, and Big Creek KWMA), but others had unexpected decreases (Eldorado and Silver Creek areas). The Ogemaw

Management Area is the largest contiguous area of young planted habitat relatively close to other established nesting areas. The size and location of this area probably contribute to the rapid colonization observed for this area--the yearly count for this area has at least doubled each year since 3 singing males were found there in 1988 (Table 2). This year as last, almost 75 percent of the Michigan population was found in just two areas (New Mack Lake and Bald Hill Burns). However, it is encouraging that more and more singing males are using stands specifically planted for Kirtland's warbler habitat. Our challenge now is to ensure that there will be enough quality habitat available 10 to 15 years hence to accommodate the increased population likely to result from the large acreage of prime nesting habitat available now.

The 1991 Michigan census involved at least 20 individuals and it was a cooperative effort of the Michigan Department of Natural Resources, U. S. Forest Service, U. S. Fish and Wildlife Service, Michigan Department of Military Affairs, and a number of independent volunteers. The following participated in this year's census:

Andrea, C.	Huber, J.	Prout, L.
Barnes, B.	Huber, P.	Reigle, B.
Bocetti, C.	Hull, C.	Reigle, D.
Bull, J.	Huntington, G.	Roberts, H.
Burns, C.	Irvine, J.	Robinson, L.
Carlson, E.	Irvine, W.	Sanderson, L.
Carlson, T.	Janson, J.	Schmidtke, P.
Caveney, S.	Kailing, G.	Schumacher, C.
Clancy, D.	Klue, G.	Shellenbarger, R.
Colclasure, S.	Koehler, R.	Sherwood, P.
Crnkovich, J.	Kurtz, D.	Sjogren, S.
Curley, A.	Lake, E.	Smith, B.
Deihl, R.	Marzolo, R.	Smith, J.
Donovan, M.	McNichols, Q.	Sunderman, N.
Doran, K.	Moore, L.	Taylor, S.
Drozdowski, J.	Morris, T.	Tophoven, T.
Ekstrum, J.	Munro, L.	Troyer, J.
Eldridge, J.	Munson, D.	Valko, T.
Ennis, R.	Odom, R.	Weidel, L.
Harrigan, M.	Pavlovich, D.	Weinrich, E.
Havard, T.	Peeler, S.	Weinrich, J.
Hepp, D.	Petrucha, M.	Winnicker, T.
Houston, J.	Probst, J.	Zech, K.
Houston, L.		

The source of these personnel was as follows:

U. S. Forest Service	33
Independent Volunteers	17
Michigan Department of Natural Resources	14
U. S. Fish and Wildlife Service	4
Michigan Department of Military Affairs	2

LITERATURE CITED

- Burgoyne, G. E., Jr., and L. A. Ryel, 1978. Kirtland's warbler numbers and colonies, 1977. *Jack-Pine Warbler* 56:185-190.
- Mayfield, H. F. 1953. A census of the Kirtland's warbler. *Auk* 70:17-20.
- _____. 1960. The Kirtland's warbler. Cranbrook Inst. Sci., Bloomfield Hills, Michigan. 242pp.
- _____. 1962. 1961 decennial census of the Kirtland's warbler. *Auk* 79:173-182.
- _____. 1972. Third decennial census of Kirtland's warbler. *Auk* 89:263-268.
- _____. 1973a. Census of Kirtland's warbler in 1972. *Auk* 90:684-685.
- _____. 1973b. Kirtland's warbler census, 1973. *American Birds* 27:950-952.
- _____. 1975. The numbers of Kirtland's warblers. *Jack-Pine Warbler* 53:39-47.
- Ryel, L. A. 1976a. The 1975 census of Kirtland's warblers. *Jack-Pine Warbler* 54:2-6.
- _____. 1976b. Michigan's bicentennial bird. The Kirtland's warbler in 1976. Michigan Dept. Nat. Res., Surveys and Statistical Serv. Rept. No. 152. 6pp.
- _____. 1979. The tenth Kirtland's warbler census, 1978. *Jack-Pine Warbler* 57:141-147.
- _____. 1980a. Kirtland's warbler status, June 1979. *Jack-Pine Warbler* 58:30-32.
- _____. 1980b. Results of the 1980 census of Kirtland's warblers. *Jack-Pine Warbler* 58:142-145.
- _____. 1981. The fourth decennial census of Kirtland's warbler, 1981. *Jack-Pine Warbler* 59:93-95.
- _____. 1982. The Kirtland's warbler in 1982. *Jack-Pine Warbler* 60:147-150.

- _____. 1983. Status of the Kirtland's Warbler, 1983. Jack-Pine Warbler 61:95-98.
- _____. 1984. Situation Report, Kirtland's warbler, 1984. Jack-Pine Warbler 62:103-105.
- Weinrich, J. 1988a. Status of The Kirtland's warbler, 1986. Jack-Pine Warbler. 66:113-116.
- _____. 1988b. Status of the Kirtland's warbler, 1987. Jack-Pine Warbler. 66:154-158.
- _____. 1989. Status of the Kirtland's warbler, 1988. Jack-Pine Warbler. 67:69-72.
- _____. 1990a. Status of the Kirtland's warbler, 1989. Michigan Dept. Nat. Res., Wildlife Div. Rept. No. 3116. 10pp.
- _____. 1990b. Status of the Kirtland's warbler, 1990. Michigan Dept. Nat. Res., Wildlife Div. Rept. No. 3133. 10pp.
- Weise, T. F. 1987. Status of the Kirtland's warbler, 1985. Jack-Pine Warbler. 65:17-19.

Table 1. Counts of Singing Male Kirtland's Warblers by County, all censuses to date

Location	1951	1961	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Michigan Counties																							
Alcona	4																1	1	1	6	6	4	7
Crawford	142	52	101	101	114	88	90	95	78	74	75	93	72	67	72	81	80	84	66	63	55	59	65
Iosco	74	30	1							2	1	3	3	1	1	3	7	3		3	8	5	
Kalkaska	28	32					3	7	11	16	21	38	32	17	15	15	21	16	10	11	7	5	7
Marquette														1	1								
Montmorency	43	61	1												2	1							
Ogemaw		114	47	49	51	35	46	51	62	40	40	46	50	44	42	43	22	17	13	15	12	17	35
Oscoda	103	152	48	48	47	41	35	44	59	62	71	58	67	72	81	71	80	81	68	100	115	166	226
Otsego		14	3																				
Presque Isle	34	34																					
Roscommon	4	13				1	4	2	7	2	2	4	8	5	1	1	5	8	9	9	9	9	7
Wexford				2	4	2	1	1	1														
Michigan Total	432	502	201	200	216	167	179	200	218	196	210	242	232	207	215	215	216	210	167	207	212	265	347
Wisconsin										2	1	1								8	2	1	1
Ontario									1	1							1					1	
Quebec										1													
NORTH AMERICAN TOTAL	432	502	201	200	216	167	179	200	219	200	211	243	232	207	215	215	217	210	167	215	214	267	348
Michigan Counties	8	9	6	4	4	5	6	6	6	6	6	6	6	7	8	7	7	7	6	7	7	7	6
Michigan Sections	91	86	27	27	25	27	31	47	42	36	41	42	46	44	48	49	49	54	54	58	49	54	62

Table 2. Counts of Michigan Singing Male Kirtland's Warblers, 1976 to 1991.

Location*	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Hanson Refuge Kalkaska Co.					1		1	6	1	2	1					
Sharon Kalkaska Co.									2	4	4	2	7	4	3	2**
Fletcher Burn Kalkaska & Crawford Cos.	8	11	17	21	39	34	18	12	12	17	11	8	4**	4**	4**	13**
Lovells Mgmt. Area & adjacent Crawford	32	28	23	12	9	2	2	2	2	2						
South Lovells Crawford Co.			5	7	11	11	5	2								
Pere Cheney Area & adjacent Crawford Co. (includes Chase Bridge)	9	7	5	8	11	3	1			1						
Artillery Range & adjacent Crawford Co. (includes South Artillery Range)	49	39	36	40	54	45	41	34	39	29	19	8	3			
Bald Hill Burn Crawford Co. (includes East and West sites)							4	14	25	31	45	43	53	45	39	47

*These groupings are used merely for convenience to describe general locations and do not necessarily refer to compact clusters of birds.

**In new plantation habitat.

Table 2. (continued)

Location	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Canoe Harbor Crawford Co.								2	1	1						
AuSable Area Crawford Co.	4	4	4	5	6	8	12	13	9	8	12	6	1			
Big Creek Crawford Co.				3												
Howes Lake Crawford Co.						1		2	4	2	1					
Stephan Bridge Crawford Co.									1	4	6	4	5	7	7	5
Eldorado KWMA (includes Rock Cemetery, Hunter's Lake, Douglas Creek, and Meridian Units) Crawford Co.											1	3	1	2	10	3
F-97 Crawford Co.												1			1	
Markle Rd. Crawford Co.												1				1
Walsh Rd. Crawford Co.																1
Muskrat Lake Mgmt. Area & Adjacent Oscoda Co.	17	29	26	39	32	33	28	29	28	25	13	10	4			1**
Big Creek KWMA (includes Briggs Road, County Line, and West Branch Units) Oscoda Co.								3	3	4	5	6	8	6	2	12
Mack Lake Mgmt. Area & Adjacent Oscoda Co.	21	30	35	27	15	18	21	21	20	25	25	12	2	1		

Table 2. (continued)

Location	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
New Mack Lake Burn Oscoda Co.											14	28	78	101	159	208
McKinley Area Oscoda Co.	6		1	1	10	14	22	23	14	22	20	11	7	6	5	4
Perry Creek Oscoda Co.												1				
Meridian Oscoda Co.				1				4	5	4	4					
First Nest Monument Oscoda Co.				3	1	2	1	1	1							
Torched Skidder Oscoda Co.													1	1		
Red Oak Oscoda Co.																1
Ogemaw Mgmt. Area & adjacent Ogemaw Co.	20	8	4	2		1							3**	6**	13**	27**
Northwest Corner Ogemaw Co.	8	7	9	9	6	4	3	2	3	1						
Damon Burn Ogemaw Co.	21	46	27	29	39	45	41	40	35	15	11	6	5			
Hippie Burn Ogemaw Co.									4	6	6	6	7	6	4	8
St. Helen Burn & adjacent Roscommon-Ogemaw Cos.	4	8	2	2	5	8	5	1	2	5	8	10	9	9	9	4
Forest Fire Experiment Station Roscommon Co.																3

Table 2. (continued)

Location*	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Boon Area Wexford Co.	1	1														
Silver Creek Iosco Co.			2	1						4	1		3	6	5	
Galion Road Iosco Co.										3	2					
Vaughn Creek Iosco Co.					3	2										
Monument Rd. Iosco Co.								1	3							
Rollways Burn Iosco Co.						1	1							2		
Clear Lake Montmorency Co.								2	1							
Gwinn Burn Marquette Co.							1	1								
Byron Lake Alcona Co.										1	1	1	1	4		1
Pine River Unit 4 Alcona Co.													2			
Pine River Unit 5 Alcona Co.													3	2	4	5
Pine River Unit 1 Alcona Co.																1
TOTAL	200	218	196	210	242	232	207	215	215	216	210	167	207	212	265	347