

Kirtland's Warbler (*Dendroica kirtlandii*)  
Results of 1988-1990 Surveys in the Upper Peninsula of Michigan

Prepared by  
Thomas F. Weise  
Michigan Department of Natural Resources  
Natural Heritage Program  
Wildlife Division

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# KIRTLAND'S WARBLER SURVEY IN THE UPPER PENINSULA OF MICHIGAN 1988-1990

## ABSTRACT

Jack pine *Pinus banksiana* stands were selected for survey for singing male Kirtland's warblers *Dendroica kirtlandii* based on their potential for having suitable Kirtland's warbler habitat from stand records and knowledge of biologists and foresters. Stands in 53 sections in Chippewa, Luce, and Marquette Counties were surveyed in 1989. Stands in 33 sections in the same counties were surveyed in 1990. Stands in an additional 27 sections in Chippewa and Luce counties were surveyed in 1988. No Kirtland's warblers were found to be present in any of the areas or years surveyed.

## INTRODUCTION

Species such as the Kirtland's warbler that require an ephemeral habitat must be able to locate and exploit new areas. The fate of dispersing individuals and potential establishment of new nesting "colonies" in other areas is of great significance to the ultimate recovery of the species.

Objective 4.2 of the Kirtland's Warbler Recovery Plan recommends that jack pine stands be surveyed in areas which are outside of the known nesting range (i.e. Wisconsin, Minnesota, Ontario, and Quebec).

Approximately 3.8% of the 8,331,200 acres of commercial forest land in the Upper Peninsula (UP), most of which is found in Chippewa, Luce, Schoolcraft, and Marquette Counties (Table 1). *in jack pine.*

Table 1. Area of commercial Jack pine forest land in the Upper Peninsula

<u>COUNTY</u>	<u>ACRES</u>	<u>% OF UP JACK PINE</u>
Chippewa	87,900	27.69
Marquette	55,300	17.42
Schoolcraft	49,200	15.50
Luce	44,100	13.89
Delta	24,800	7.81
Houghton	12,000	3.78
Alger	10,400	3.28
Mackinac	9,500	2.99
Iron	7,200	2.27
Ontonagon	5,200	1.64
Baraga	4,300	1.35
Menominee	3,200	1.01
Gogebic	2,600	0.82
Dickinson	1,700	0.54
Keweenaw	---	0.00
TOTAL	317,400	100.00

There are records of at least 21 singing male Kirtland's warblers from outside the only known nesting area in Michigan's lower peninsula (LP) nesting areas (Table 2).

Table 2. Recent records of Kirtland's warblers from outside the known breeding area in the northern Lower Peninsula of Michigan

Area	77	78	79	80	81	82	83	84	85	86	87	88	89	90
Wisconsin	-	2	1	1	-	-	-	-	-	-	-	8	1	1
Ontario	1	1	-	-	-	-	-	-	1	-	-	1*	-	1
Quebec	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Michigan UP	-	-	-	-	-	1	1	-	-	-	-	-	-	-
Minnesota	-	-	-	-	-	-	-	-	-	-	-	-	0**	-

\*August report from northwest Ontario

\*\*None found in 1989 survey

The purpose of this study was to survey suitable habitat areas in the Upper Peninsula (UP) of Michigan for singing male Kirtland's warblers. This report summarizes information from a 1988 Lake Superior State University (LSSU) study and from 1989 and 1990 Michigan Department of Natural Resources (MDNR) surveys.

#### METHODS

Ray Perez, MDNR District Wildlife Supervisor, coordinated the survey in the Upper Peninsula. LSSU students Todd M. Buck and Russell Utych under direction from Dr. Thomas Allan did most of the survey work.

Jack pine areas were selected using stand treatment and stand description information data available from the MDNR computer based forest inventory system and on the personal observations of MDNR wildlife biologists and knowledgeable MDNR foresters. Possible stands included those 5-25 years old, over 50 acres in size with a minimum expected stand density of 2,500 stems per hectare.

A preliminary vegetational survey of 10 potentially suitable areas was made by LSSU students and compared with stem densities from known nesting areas in the Bald Hill area of the Lower Peninsula (Appendix 1). The results from this comparison suggest that jack pine areas in Luce and Chippewa county are generally less dense than those in the northern Lower Peninsula breeding area.

Areas selected were systematically surveyed for singing male Kirtland's warblers during June using standard survey techniques developed in the Lower Peninsula for the annual Kirtland's Warbler survey. Census routes were at intervals of 1/4 miles or less or a meander course was taken through stands of suitable habitat. A two minute tape loop of recorded singing Kirtland's warbler males provided by the U.S. Fish and Wildlife Service (USFWS) was used at regular intervals to elicit responses. Upon hearing a response, tapes would be discontinued and an attempt for a positive sight confirmation would be made.

Sections surveyed were mapped and evaluated as potential warbler habitat. A sample map is included as Appendix II.

## RESULTS

In 1988, stands in 12 sections of Chippewa and Luce counties were surveyed during June (Appendix I). The 1989 surveys were done in 14 Townships in Chippewa, Luce, and Mackinac Counties (Figure 1, Appendix III). The 1990 surveys were done in 9 townships in the same three counties (Figure 2, Appendix IV). Areas surveyed in Chippewa County were primarily on state and federal (USFS) ownership. Luce County survey areas were primarily state owned. The Marquette County areas were public lands owned by Marquette County or the state of Michigan.

There were no Kirtland's warblers located in any of the areas surveyed in 1988, 1989, or 1990.

USFWS researchers surveyed additional areas in Schoolcraft County in the vicinity of the Seney National Wildlife Refuge in 1989 and 1990 but did not locate any Kirtland's warblers.

## Discussion and Recommendations

Comparisons of selected eastern UP jackpine stands with active nesting habitat at Bald Hill in the Lower Peninsula suggest that density of jack pine stands sampled in the UP tend to be lower. The age/height relationships between stands in the UP and LP were quite similar. Some of the densest areas in the UP were associated with wet sites including shrubs such as Leatherleaf *Chamaedaphne calyculata* which may indicate significant habitat differences between some stands in UP and LP areas.

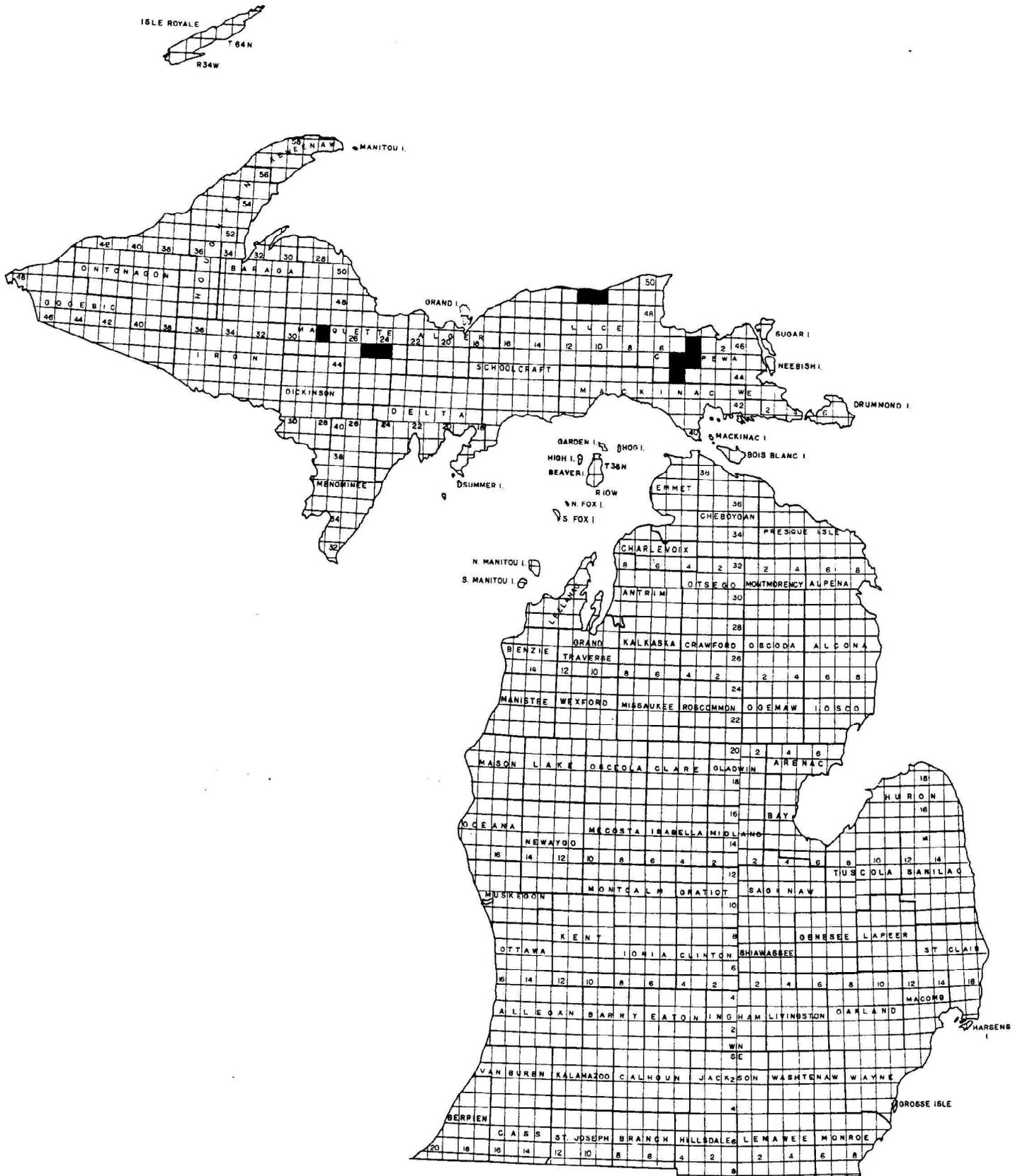
However, there are dryland areas of potential Kirtland's warbler habitat in the UP that are comparable to the LP nesting areas. Chippewa County in the eastern UP has potential habitat and is relatively close to the LP breeding area. The Marquette county area has potential habitat and has a history of at least one male using the area in 1982 and 1983.

Many of the areas of potential habitat are primarily owned by the State of Michigan or the U.S. Forest Service. These areas are managed for jack pine on a regular rotation basis. Along with potential fires, this management will continue to provide potential Kirtland's warbler habitat on a continual basis.

It is recommended that periodic surveys of selected areas of the Upper Peninsula be continued. Future surveys would be of particular importance if the breeding population of Kirtland's warblers continues to increase on its primary breeding areas in the Lower Peninsula.



Figure 2. Upper Peninsula areas surveyed for Kirtland's warblers in 1990.



Eastern Upper Peninsula Kirtlands Warbler  
Survey and Habitat Analysis

by

Todd M. Buck  
Biology and Chemistry Department  
Lake Superior State University  
Sault Ste. Marie, MI 49783  
March 23, 1989

ABSTRACT

The Kirtland's Warbler (*Dendroica kirtlandii*) is an endangered species nesting only in the north-central area of Michigan's lower peninsula. A Kirtland's Warbler survey was undertaken in the eastern end of Michigan's upper peninsula. Twenty sites were surveyed for the presence of Kirtland's Warblers. All sites were surveyed two times. No Kirtland's Warblers were located in any of the sites surveyed.

Ten sites were selected for habitat evaluation and compared to the Kirtland's Warbler breeding habitat in the lower peninsula. Significant differences were discovered in stand density and ground cover composition when the U.P. sites were compared to the breeding grounds. However, isolated areas within some of the stands exhibited characteristics which approached those found in the Kirtland's Warbler breeding ground in the lower peninsula. Future censuses should be conducted in the Upper Peninsula of Michigan.

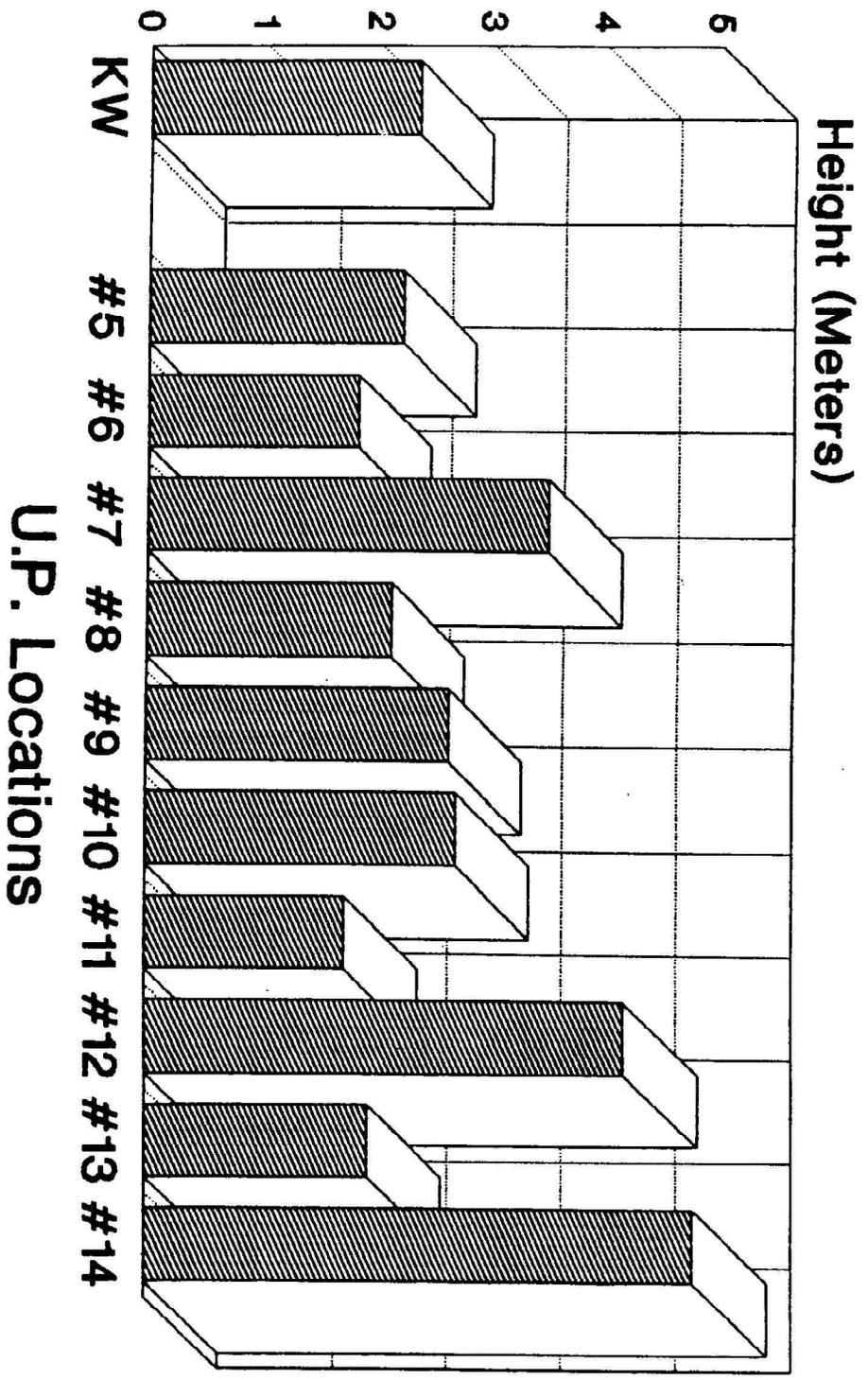
Selected References

- Buech, R.R. 1980. Vegetation of a Kirtland's Warbler breeding area and 10 nest sites. *Jack Pine Warbler* 58(2): 58-72
- Barbour, M.G., J.H. Burk, and W.D. Pitts. 1987. *Terrestrial Plant Ecology*. The Benjamin/Cummings Publishing Co., Inc. Menlo Park, California 94025
- Michigan Audubon Society. 1988. *Kirtland's Warbler, a bird of fire*. Mason Printing Company, Mason, Michigan.



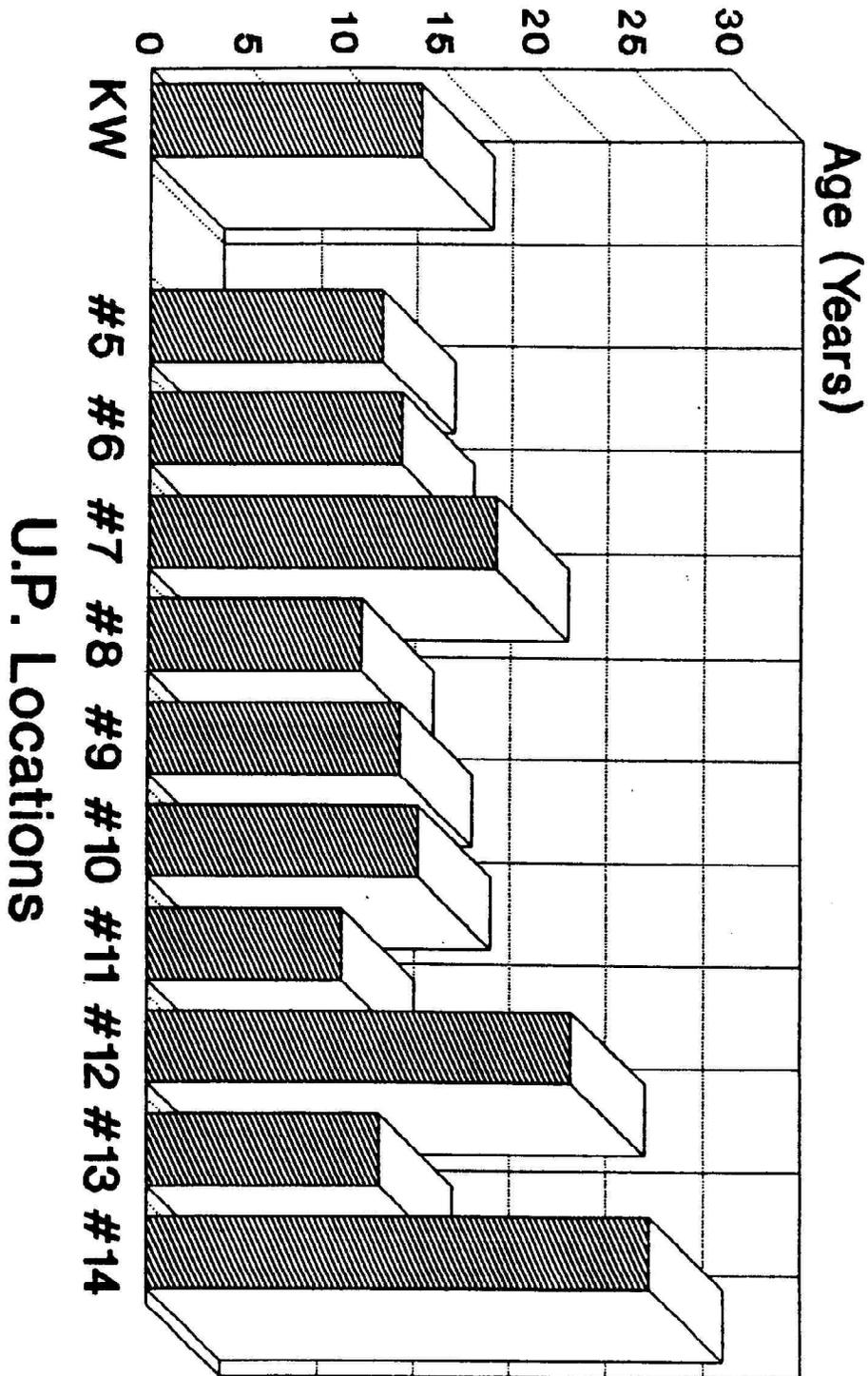
# Stand Characteristics

## Mean Tree Heights



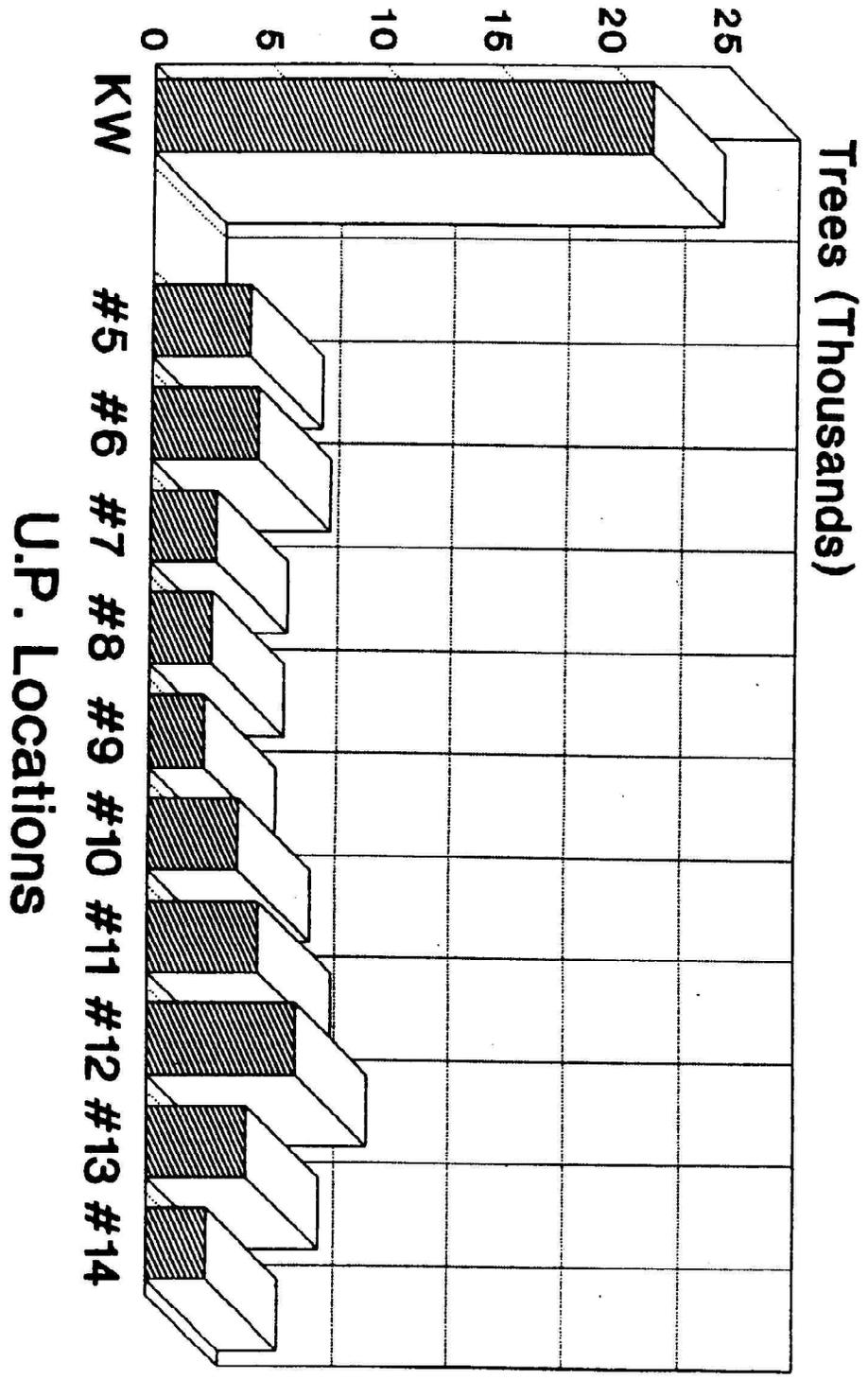
# Stand Characteristics

## Stand Age by Location



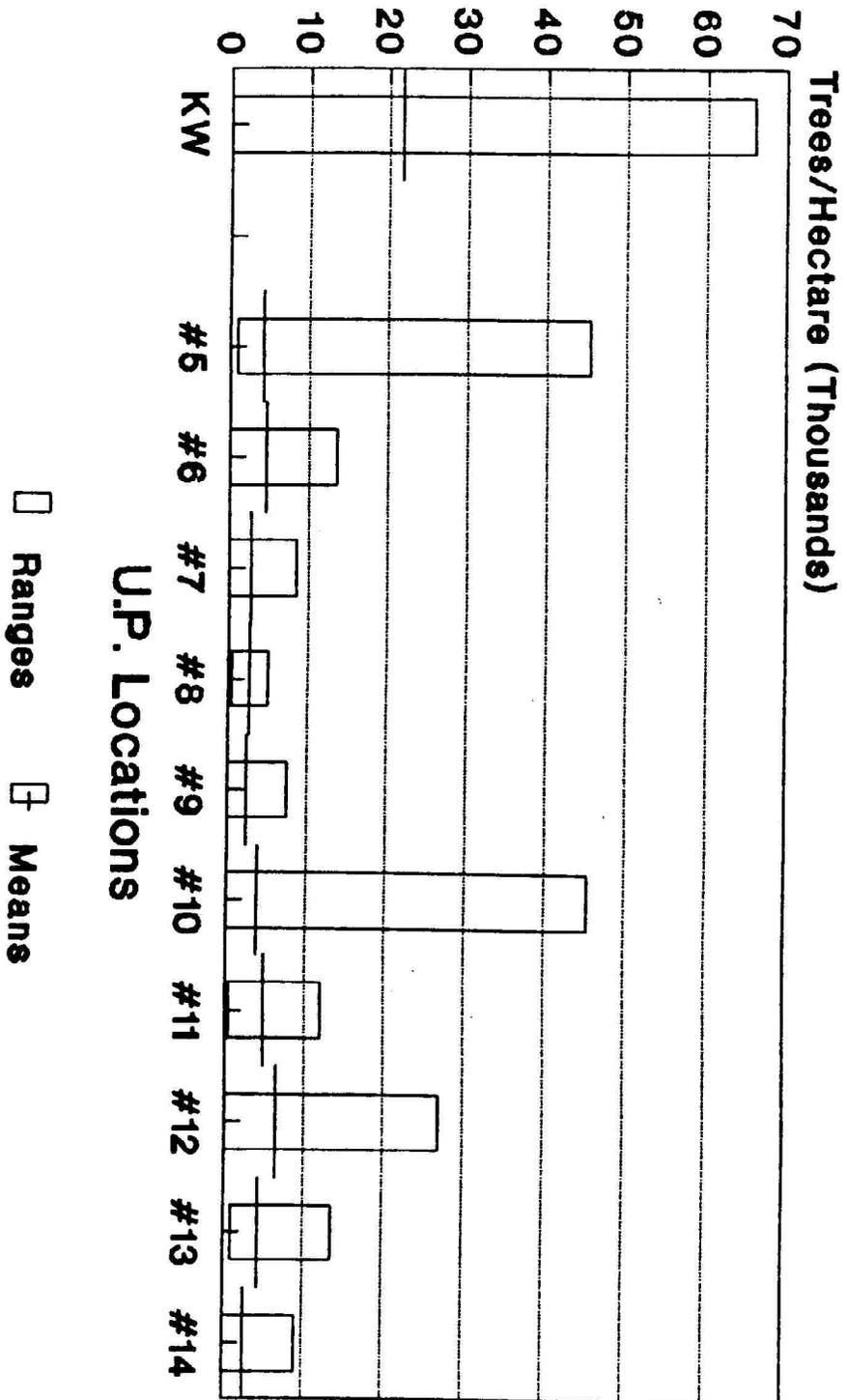
# Stand Characteristics

## Mean Jack Pine Stems/Hectare



# Stand Characteristics

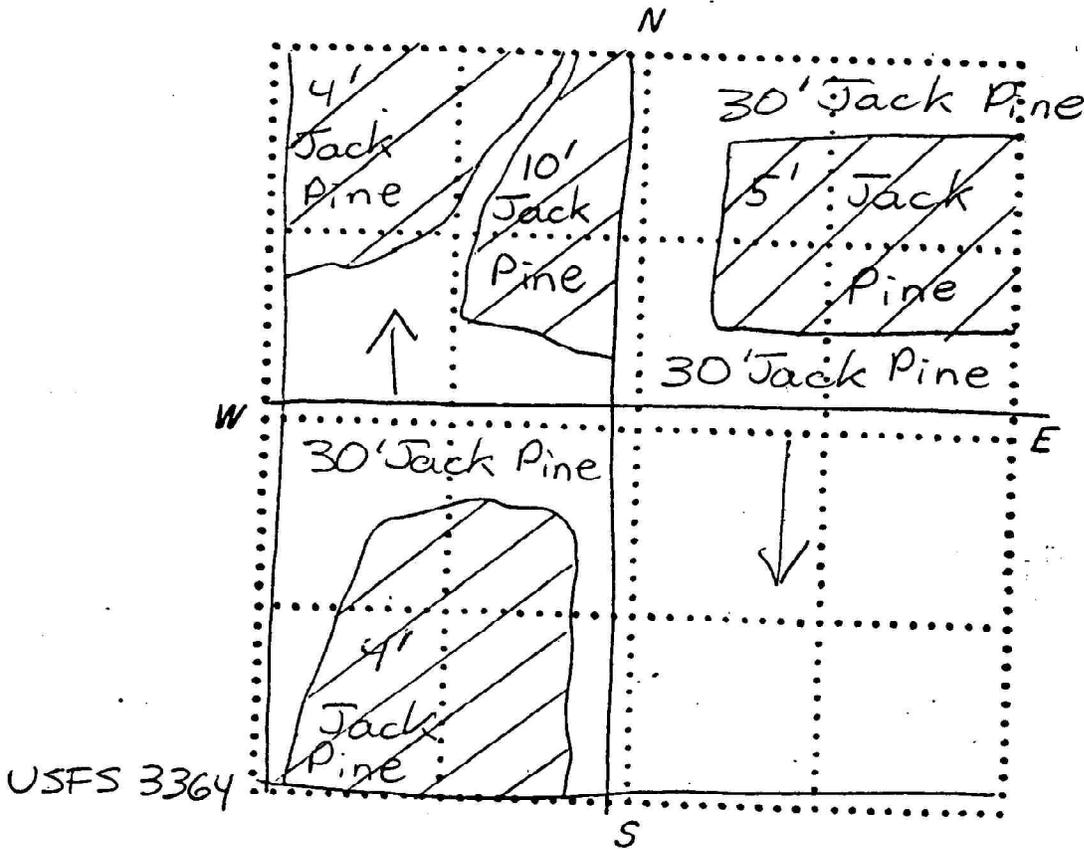
## Mean Trees/Hectare with Ranges



MICHIGAN  
DEPARTMENT OF NATURAL RESOURCES

KIRTLAND'S WARBLER CENSUS  
Locations of Singing Males

COUNTY Chippewa TOWN 46N RANGE 4W SEC 14  
CENSUSED BY Russell Utych DATE 6/14/90  
Dan Edwards



Remarks:

Of all cuts in this section the north central was best. The trees were approximately 10' in height. Given a few years to fill in this stand could provide good habitat. Now it is too sparse.

Appendix III. Upper Peninsula areas surveyed for Kirtland's warblers in 1989.

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Chippewa County 1989

<u>DATE</u>	<u>TOWN</u>	<u>RANGE</u>	<u>SEC</u>	<u>COMMENTS</u>
06/21/89	44N	05W	05	Aspen/maple scrub, not good habitat
06/20/89	45N	04W	05	Large dense cuts S1/2, some maple/aspen
06/16/89	45N	04W	14	Cuts too young, 5'
06/20/89	45N	04W	17	Good future potential, 3-5'
06/20/89	45N	04W	18	Sparse, unplanted or just seeded
06/20/89	45N	05W	04	Mostly aspen/maple scrub
06/21/89	45N	05W	05	Mostly aspen/maple scrub
06/21/89	45N	05W	24	W 1/2 good, E 1/2 too young
06/21/89	45N	05W	26	Area wet, muskeg
06/21/89	45N	05W	27	Too young, 1/4 mi. strip E 1/2 has potential
06/21/89	45N	05W	31	Area wet
06/21/89	45N	05W	32	mostly 25-30' tall jackpine
06/16/89	46N	04W	15	Too young, 3-5'
06/16/89	46N	04W	21	Mostly 20-30' tall
06/16/89	46N	04W	22	Mostly 20', 120 acres 4' sparse
06/20/89	46N	04W	31	Good, lacks some density
06/20/89	46N	04W	32	10' tall, lacks some density
06/13/89	49N	06W	05	Scarification area good potential
06/9,13/89	50N	07W	12	Scarification area good potential
06/9,13/89	50N	07W	13	Scarification area good potential
06/9,13/89	50N	07W	14	Scarification area good potential
06/13/89	50N	07W	27	Scarification area good potential

Marquette County 1989

<u>DATE</u>	<u>TOWN</u>	<u>RANGE</u>	<u>SEC</u>	<u>COMMENTS</u>
06/28/89	45N	24W	18	Burn, good future potential
06/28/89	45N	25W	11	Mostly too mature, 20-25'
06/28/89	45N	25W	12	Burned, charred 10' jackpine
06/28/89	45N	25W	13	W 1/2 excellent, E 1/2 burned
06/28/89	45N	25W	14	Too mature, 20'
06/28/89	45N	25W	15	Too mature, 20'
06/28/89	45N	25W	22	E 1/2 excellent
06/28/89	45N	25W	23	NE 1/4 burned, rest excellent
06/28/89	45N	28W	26	Excellent habitat
06/29/89	45N	28W	27	E 1/2 excellent, remainder clearcut



Appendix III. Upper Peninsula areas surveyed for Kirtland's warblers in 1989.

Chippewa County 1989

<u>DATE</u>	<u>TOWN</u>	<u>RANGE</u>	<u>SEC</u>	<u>COMMENTS</u>
06/21/89	44N	05W	05	Aspen/maple scrub, not good habitat
06/20/89	45N	04W	05	Large dense cuts S1/2, some maple/aspen
06/16/89	45N	04W	14	Cuts too young, 5'
06/20/89	45N	04W	17	Good future potential, 3-5'
06/20/89	45N	04W	18	Sparse, unplanted or just seeded
06/20/89	45N	05W	04	Mostly aspen/maple scrub
06/21/89	45N	05W	05	Mostly aspen/maple scrub
06/21/89	45N	05W	24	W 1/2 good, E 1/2 too young
06/21/89	45N	05W	26	Area wet, muskeg
06/21/89	45N	05W	27	Too young, 1/4 mi. strip E 1/2 has potential
06/21/89	45N	05W	31	Area wet
06/21/89	45N	05W	32	mostly 25-30' tall jackpine
06/16/89	46N	04W	15	Too young, 3-5'
06/16/89	46N	04W	21	Mostly 20-30' tall
06/16/89	46N	04W	22	Mostly 20', 120 acres 4' sparse
06/20/89	46N	04W	31	Good, lacks some density
06/20/89	46N	04W	32	10' tall, lacks some density
06/13/89	49N	06W	05	Scarification area good potential
06/9,13/89	50N	07W	12	Scarification area good potential
06/9,13/89	50N	07W	13	Scarification area good potential
06/9,13/89	50N	07W	14	Scarification area good potential
06/13/89	50N	07W	27	Scarification area good potential

Marquette County 1989

<u>DATE</u>	<u>TOWN</u>	<u>RANGE</u>	<u>SEC</u>	<u>COMMENTS</u>
06/28/89	45N	24W	18	Burn, good future potential
06/28/89	45N	25W	11	Mostly too mature, 20-25'
06/28/89	45N	25W	12	Burned, charred 10' jackpine
06/28/89	45N	25W	13	W 1/2 excellent, E 1/2 burned
06/28/89	45N	25W	14	Too mature, 20'
06/28/89	45N	25W	15	Too mature, 20'
06/28/89	45N	25W	22	E 1/2 excellent
06/28/89	45N	25W	23	NE 1/4 burned, rest excellent
06/28/89	45N	28W	26	Excellent habitat
06/29/89	45N	28W	27	E 1/2 excellent, remainder clearcut

Appendix IV. Upper Peninsula areas surveyed for Kirtland's warblers in 1990.

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Chippewa County 1990

<u>DATE</u>	<u>TOWN</u>	<u>RANGE</u>	<u>SEC</u>	<u>COMMENTS</u>
06/20/90	44N	05W	05	80 acres good, NE 1/4
06/14/90	45N	04W	05	Mostly too mature, 20-30'
06/20/90	45N	04W	17	Too mature, 30'
06/20/90	45N	04W	18	E 1/2 red pine, 80 acre cut, rest too mature
06/20/90	45N	04W	24	Good potential 160 acres in N central area
06/20/90	45N	04W	26	160 acres N 1/4 has future potential
06/20/90	45N	04W	27	Central 160 acres good
06/20/90	45N	04W	31	Too mature
06/20/90	45N	04W	32	Muskeg, <40 acres of habitat, isolated
06/14/90	46N	04W	14	Scattered cuts, good
06/14/90	46N	04W	15	Two cuts in north good, some red pine
06/14/90	46N	04W	21	NE 1/4 good, rest too mature
06/14/90	46N	04W	22	120 acre cut in N has potential
06/14/90	46N	04W	31	100 acre cut in NW has potential
06/14/90	46N	04W	32	Good, could be more dense

Luce County 1990

<u>DATE</u>	<u>TOWN</u>	<u>RANGE</u>	<u>SEC</u>	<u>COMMENTS</u>
06/25/90	49N	10W	02	Good, could be more dense
06/25/90	49N	10W	03	Clumped, 20' tall
06/25/90	49N	10W	13	Too mature 20-30'
06/25/90	49N	10W	23	Too mature 20-30'
06/25/90	49N	10W	24	Too mature 20-30'
06/25/90	49N	11W	13	E 1/2 excellent, W 1/2 too mature
06/25/90	49N	11W	14	Good habitat
06/25/90	49N	11W	24	Good habitat, large area

Marquette County 1990

<u>DATE</u>	<u>TOWN</u>	<u>RANGE</u>	<u>SEC</u>	<u>COMMENTS</u>
06/09/90	45N	24W	18	Burn, potential future habitat
06/09/90	45N	25W	11	SESE excellent, rest 20-25' tall
06/09/90	45N	25W	12	Burned area
06/09/90	45N	25W	13	W 1/2 excellent, E 1/2 burned
06/09/90	45N	25W	14	Generally too mature
06/09/90	45N	25W	15	Too mature
06/09/90	45N	25W	22	NE 1/4 excellent, W 1/2 20'
06/09/90	45N	25W	23	NE 1/2 burned, rest excellent
06/10/90	45N	28W	26	W 3/4 best found in Marquette County
06/10/90	45N	28W	27	E 1/4 excellent

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Luce County 1989

<u>DATE</u>	<u>TOWN</u>	<u>RANGE</u>	<u>SEC</u>	<u>COMMENTS</u>
06/23/89	49N	09W	03	No habitat, 120 acre clearcut, rest 20'
06/23/89	49N	09W	04	Mostly 25', 50 acre cut looks good
06/23/89	49N	09W	08	SE 1/4 looks good
06/23/89	49N	09W	09	160 acre cut 3-6' fair
06/23/89	49N	09W	10	Too mature, 4" dbh
06/24/90	49N	10W	02	15-20' sparse
06/24/89	49N	10W	03	20' sparse
06/24/89	49N	10W	04	S 1/2 good potential
06/24/89	49N	10W	05	E 1/2 fairly good
06/24/89	49N	10W	13	Too mature, 20-30'
06/24/89	49N	10W	23	Too mature, 20-30'
06/24/89	49N	10W	24	Too mature, 20'
06/24/89	49N	11W	13	E 1/2 good
06/24/89	49N	11W	14	E 1/2 of NE good
06/24/89	49N	11W	24	Good, could be more dense
06/23/89	50N	08W	30	Good, could be more dense
06/23/89	50N	09W	25	Good
06/23/89	50N	09W	33	Too mature, some white pine
06/23/89	50N	09W	34	Too mature, 25'
06/23/89	50N	09W	35	Good, could be more dense

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