

FOREWORD

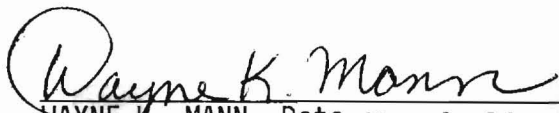
Our changing environment has brought a number of species to the brink of extinction. Congress, in passing the Endangered Species Act of 1973, established as a national goal the conservation of endangered wildlife. Our concern for the environment is our concern for the least of its inhabitants. As Aldo Leopold stated, "The land and the wild things living on it is a community to which man belongs."


The endangered Kirtland's Warbler provides an example of a species whose numbers have been dramatically reduced through the indirect influence of man. The amount of suitable nesting habitat for the Warbler has declined sharply in recent years, due to man's successful endeavors in the area of wildfire control. Although probably never an abundant species, the Kirtland's recent population decline has caused alarm within environmental groups and throughout a diverse concerned public. The Kirtland's population has reached critically low numbers, with extinction casting an ever-present shadow on the future existence of this colorful songbird.

Direction for development of the Habitat Management Plan was provided by the Kirtland's Warbler Recovery Team. The Recovery Plan identifies five major objectives that are essential to the recovery of the Warbler. These objectives are; (1) Maintain and develop suitable nesting habitat for the Kirtland's Warbler throughout its former known range; (2) Protect the Kirtland's Warbler on its winter grounds and along the migration route; (3) Reduce key factors adversely affecting reproduction and survival of the Kirtland's Warbler; (4) Monitor breeding populations of the Kirtland's Warbler to evaluate response to management practices and environmental changes, and (5) Reintroduce Kirtland's Warblers into areas in the Upper Peninsula of Michigan, or in other states, in an attempt to establish independent self-sufficient populations. The proposed Habitat Management Plan is a cooperative effort by the Forest Service - U. S. Department of Agriculture and the Michigan Department of Natural Resources. The Habitat Management Plan describes Forest Service and State responsibilities to meet the first objective stated above.

This Plan, when implemented, will provide a sustained, even flow of suitable nesting habitat for the future. The Plan coordinates timber resource values with known nesting habitat requirements of the Kirtland's Warbler.

In compliance with the provisions of Section 7 of the Endangered Species Act (P.L. 93-205) and in partial fulfillment of the objectives outlined in the Kirtland's Warbler Recovery Plan, we endorse the following Habitat Management Plan.


WAYNE K. MANN Date March 20, 1981
Forest Supervisor
Huron-Manistee National Forest


DR. HOWARD A. TANNER Date 03/10/81
Director
Michigan Department of Natural
Resources

KIRTLAND'S WARBLER MANAGEMENT

Habitat Mgt:

Progress thru 5/83 on
Huron Nat'l Forest

BIG CREEK KWMA

	Block No.	Acres	Activities
Briggs Rd Unit	I	213 ^x	Burned 1975, Planted - 1976
County Line Unit	I	228	cut & ready to burn - 1984
Mapes Rd Unit	I	146	} Both sold & in progress of being cut.
"	V	223	
Power line Unit	I	229	- cut & being plant w/no burn.
Union Corners Unit	I	146	- cut but not treated (79 acres not cut)
West Branch Unit	I	153	- sold - cutting not completed.
"	I	172	- sold - cutting not completed.

Eldorado KWMA

Douglas Creek Unit	I	170	- cut - ready to burn - 1983
Hunters Lake Unit	I	147 ^x	- burned 1977 - planted 1978
Meridian Unit	I	157	- cut - scheduled to burn - 1984
"	II	92 ^x	- burned - 1978 - planted 1980
Rock Cemetery	I	190	- cut - planted Sp. 85/w/ no burn
"	V	154 ^x	- cut - burned 1978 - planted 1979 + 80.

Mack Lake KWMA

Crane Lake Unit	V	210 ^x	cut 1979 - burned 1980 - planted '81
"	I, III + part of IV		
Eggleson Rd Unit	All		} These areas burned in Mack L. Fire - May 5, 1980. This critical habitat and other portions of this burn is regenerating, the jack pine & will provide 8-10m acres of nesting habitat, since 1986 - 1988.
Emley Lake Unit	All but IV		
Fowler Rd Unit	All		
Mack Lake Unit	All but I, VIII and parts of II, IX & X.		
Vaughn Rd Unit	All		

Block# Acres

Mack Lake KWMA - cont.

Mack Lake Unit	VIII	206 *	Burned 1966 - natural regen. Occupied 1974 (orig. 250 ac. - 44 burned 5/80)
"	IX	248 *	Burned 1964 - regen. failed planted 1968-9, occ. 1976. (orig 500 ac. - 252 burned 5/80)

McKinley KWMA

Blockhouse Unit	All	1334	Cut 1966-1968 - natural j. pine regen w/ 401 ac. r. pine planted. occ. 1976
Byron Lake Unit	I	201 *	Burned fall 1982 - plant spring 1983.
Comin Flat Unit	none	-	-
Game + Forest Unit	III, IV + V	526 *	Burned 1975 - planted 1978-1980.
Wardy Grade Unit	I	267	Cut - to be planted without burning.
Old Roadhouse Unit	None	-	-
Reed Road Unit	Part of II + III and IV + V	859	cut 1965-1967 - 514 acre planted to red pine, but natural jack pine has come in on entire acre. Occupied 1978.

Pere Cheney KWMA

Chase Bridge Unit

Block Acres Activity

None - to be exchange w/ state.

Pine River KWMA

PR Unit #1

I 190

Cut 1990 - not treated yet. - Scheduled 1984

PR Unit #2

I 144 ♀

Burned 1979 - planted 1982.

PR Unit #3

I 142

Sold 1980 cutting complete. Scheduled to burn 1983.

PR Unit #4

I 151 ♀

Burned 1978, planted 1980.

PR Unit #5

I 245 ♀

Burned 1978, planted 1980

PR Unit #6

I 208 ♀

Burned 1979, planted 1979.

PR Unit #7

V 96

Cut 1978 - not burned. has some nat. regen. Balance (185 ac) scheduled for sale (1983).

PR Unit #8

I 308

Sold under different contracts - cutting not complete.

PR Unit #9

I 340

Sold. cutting not complete.

PR Unit #10

II 148 ♀

Burned 1978, plant 1982

V 118

Cut - to be planted w/out burn

TAWAS KWMA

<u>Block</u>	<u>Acres</u>	<u>Activity</u>
Buck Creek Monument Rd. Unit	None 134 ♀	Burned 1976, planted 1977 - replant 1981.
	I 56	Natural regen with fill in planting - no burn
Oscoda Unit	I 66 ♀	Burned 1978 - planted fall 1978 - failed. Replant 1981.
Silver Creek Unit	I 78 ♀	Burned 1977 - planted Fall 1977.
	V 266 ♀	Burned 1977 - planted Fall 1977 - failed. Replanted spr. 1981.
Vaughn Cr. Unit	I + V 302 ♀	Burned summer 1978 seeded but not adequately regenerated

SUMMARY

Prescribe Burned - 1964 - 1982	3739 acres (19 of 39 units).
Wild Fires (in critical habitat or jack pine type only)	1972 330 acres (outside KWMA) ⁽¹⁾ 1980 8M - 10M acres (all or part of 6 units) 1983 300-400 acres (outside KWMA)

(1) Occupied 1980 & 1982 by 1 ♂

Natural Regen: P-Burn -	206 ac.
Rollerchopped -	<u>2,193 ac. (2 units)⁽²⁾</u>
	2,299 ac

Planted: P. Burn -	3,533 ac. ⁽³⁾
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Area cut but not treated or regenerated as yet:	1,791 ac. (9 units)
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Area sold - cutting not completed	775 ac. (4 units)
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Significant progress has been made in regenerating jack pine stands to produce KW nesting habitat in 37 of 39 units.

Acres p-burned & regenerated:

a. Occupied -	454
b. Incipient -	3,285

Acres of unburned regen occupied - 2,193

Acres of wild fire

a. Regenerated & occupied	330
b. Natural regen - incipient	8,300 (est)
c. Will require planting	<u>1,370 (est)</u>
	10,000

(2) Still expanding in population.

(3) Some areas will require additional fill-in planting to improve density.

Nesting habitat currently occupied - 2,977 ac.

Nesting habitat that should be available by 1988 (additional) 10,569 ac

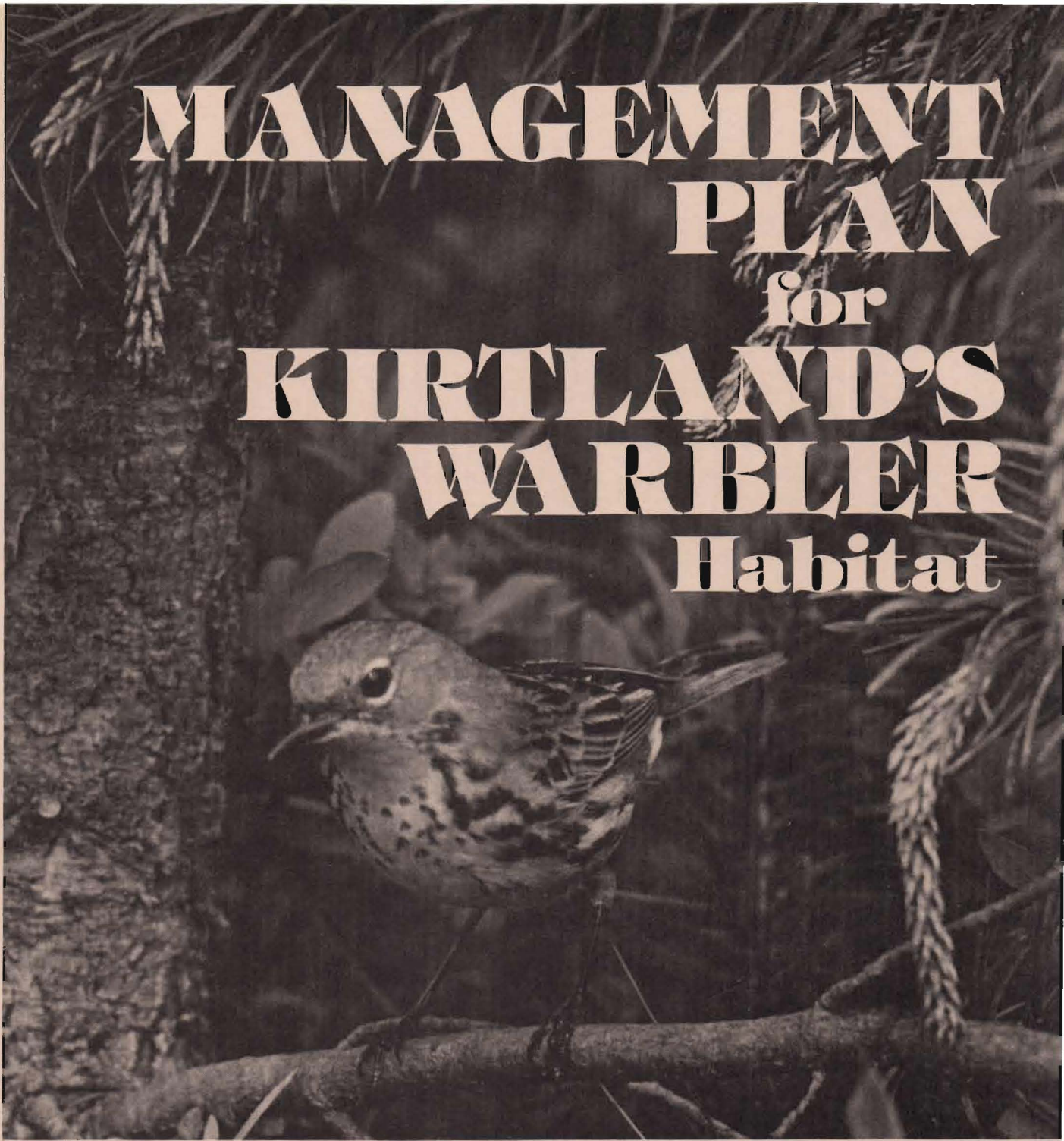
Other Activities Relative to Implementing KW Plans

Protection - 1972-1983 - Maintained closures on 3 areas (Mack Lake, McKinley + Pere Cheney)
Conducted guided tours for public.
Assisted FWS in cowbird control.

Land Acquisition - 271.43 acres purchased. 60 acres optioned.

Monitoring - Conducted census 1957, 1961 + 1971-1982

MANAGEMENT PLAN for KIRTLAND'S WARBLER Habitat



FOREST SERVICE



U.S. DEPARTMENT OF AGRICULTURE

MICHIGAN DEPARTMENT



OF NATURAL RESOURCES

INTERIM REPORT
MACK LAKE FIRE AREA
REHABILITATION
PLANS

February 4, 1981

The Mack Lake fire of May 5, 1981, generated some deep concerns to management personnel on the Huron-Manistee National Forests. Fire has always been closely associated with the Jack Pine species in lower Michigan. Most of the existing natural Jack Pine stands have originated as a result of fires in the past. The 100,000 plus acres of Jack Pine type on the Huron have always been considered to have the potential for carrying a large devastating fire.

As a result of this fire, the Forest Supervisor in June of 1981, appointed a team of Forest Specialists to analyze the situation on the fire area and determine future management objectives for the area. Knowledge gained in this endeavor could be utilized to begin management activities in other pine areas where similar fire hazards exist.

The team consists of Forest personnel with specialities in administration, timber management, wildlife, soils and silviculture. These people will form the core team and will call on other specialists in developing management alternatives.

The objective is to develop a rehabilitation plan of vegetative diversity for the Mack Lake Fire Area that will reduce the hazard of future fires and enhance the multiple use values of the area.

The team determined that there were two basic items necessary to develop such a plan. These were site specific soils information and the pattern of vegetation developing after the fire. A soils survey was begun immediately and permanent sample plots were established to monitor natural regeneration of tree species throughout the summer. In addition, plans were developed to study wildlife populations, effect of the fire on Mack Lake and soil nutrients, vegetative changes, insect and disease activity, fire history of the area, precipitation and opportunities to salvage wood fiber.

The results of the first summer's activities are summarized as follows:

FIRE HISTORY

The Fire Research Project of the North Central Forest Experiment Station is conducting a Fire History Study covering the Mack Lake Area. They have evaluated fourteen sample trees to date. These trees were seedlings in the early 1800's and by analyzing fire scars they can determine

dates of numerous fires. Preliminary results indicate that in at least eight different years since 1820, there were individual fires in excess of 10,000 acres. This includes the fires of 1946 and 1980. This study will continue and give us more detailed information about the fire history of the area.

INSECT AND DISEASE

Entomologists and pathologists with the Forest Service in Minnesota have surveyed the fire area in May, July and October of 1980. The usual bark beetles and wood borers are present.

EFFECTS OF THE 1980 MACK LAKE FIRE ON THE WILDLIFE RESOURCES

1. Immediate Effects:

- a. Game losses - there were many hours of observations made after the fire throughout the burn area for various reasons. Two Forest Service wildlife biologists made observations within the burn area before the fire was totally controlled. No game animal remains were found. One report of a dead turkey was received. The fire occurred prior to any significant fawning by deer. Turkeys and grouse would have been nesting and their nests were undoubtedly lost. However, it would have been early enough to permit re-nesting. Deer losses were probably no greater than 10% of the pre-fawning population. Rabbit losses were probably higher, but recent winter observations of rabbit tracks show that there are still a significant number of rabbits in the burn area.
- b. Other species - a few porcupines and a woodchuck were found. Probably the spruce grouse, a rather unwary bird, was also affected. Studies of burns in Minnesota show that 50% of the ground creatures (mice, shrews, rabbits, etc.) are lost, but these losses were recouped within the first year following the burn. Any nests of song birds would have been lost but, again, this occurred early enough to permit re-nesting.
- c. Kirtland's Warbler - 280 acres of the 750 acres of suitable nesting habitat in this area ^{were} burned. The Kirtland's Warbler did not arrive in the area until May 12 so there were no direct losses. The number of breeding pairs declined from 27 in 1979 to 15 in 1980, but breeding populations increased in other areas to more than offset this decline.

2. Measuring the Short and Long Range Effects:

We have started monitoring the wildlife populations using bird census routes and track count transects in the Mack Lake burn area. The purpose here is to measure population trends over the next several years.

3. Predicted Short and Long Range Effects of Wildlife Habitat. Disturbances of large areas through fire, cutting, insect and disease, or other factors produce a "boom and bust" situation for those animal species adapted to early forest growth conditions. The white-tailed deer is such an animal.

a. Predicted deer population changes are:

- (1) A rise over next 10 years.
- (2) A gradual decline over next 3 to 5 years.
- (3) An abrupt decline, reaching a level lower than it was just prior to burn in about 20 years.
- (4) Gradually come back to the 1980 level after 30 to 35 years.
- (5) With an aggressive habitat management program, such as opening maintenance, conversion of strategic areas to oak and aspen, and cutting selected immature Jack Pine stands to develop age diversity, the habitat potential for deer could be maintained at a level some 30% higher than without habitat management.

b. Turkeys will continue to use the burn over the next 3 to 5 years. As the snags fall or are removed and the reproduction becomes dense, use will decline or cease. As the new stands begin to grow and thin, turkeys will begin to use the area. The use should be comparable to what it was just prior to the burn in some 35 years. Habitat work that maintains openings and provides oak and aspen stands interspersing the pine stands will increase turkey use.

c. Ruffed grouse - The spotty nature of the burn in the aspen types in the eastern and southern fringes of the burn will produce stands of varied age classes. This is very beneficial to grouse habitat conditions. The grouse habitat will be improved over the next 10 years in the aspen types.

- d. Rabbits were probably reduced but should become more plentiful in young pine and aspen sprout stands. These numbers will decline as stands grow up and become less dense.
 - e. Kirtland's Warbler - Some 8,000 acres of the Jack Pine stands were identified as critical habitat. There is a potential of some 10,000 acres of nesting habitat being regenerated as a result of the fire. This would be occupiable starting as early as 1986, but will grow out of the nesting stage by the year 2000. At the peak, it has the potential of having 300 breeding pairs.
 - f. Other wildlife - Those birds and small mammals that prosper in open and young forest stages will flourish over the next 10-15 years with the internal forest species declining. The trend will reverse with open species declining and forest species increasing after 15 years.
4. Information gained from wildlife surveys will be fully utilized in developing the long range management objectives of the area.

EFFECT ON MACK LAKE

A Michigan Representative requested assistance from the Michigan Department of Natural Resources to determine what impact the fire had on the water quality of Mack Lake. As a result, a limnological survey was conducted on Mack Lake, Oscoda County by the Land Resource Programs Division of the Department of Natural Resources.

Their conclusions were:

Mack Lake is a shallow soft water lake. It is eutrophic and has an over abundance of aquatic plants. Analysis of the data indicates no significant difference in key selected chemical constituents in the waters of Mack Lake before and after the forest fire.

Conclusions reached by the Huron-Manistee Forest Hydrologist were:

Mack Lake is a shallow lake which can exhibit either soft or hard water conditions dependent on the season of the year. It is a eutrophic system (as determined by Northeast Michigan Council of Governments) that has an over-abundance of readily

observable aquatic plants throughout the lake. Mack Lake suffers from winter oxygen deficits that have resulted in severe fish kills and an abundance of poor quality fish (bullheads). An analysis of the data collected both before and after the fire indicates no substantial differences in the most important chemical components of the lake. The two exceptions to this are nitrate and chlorophyll a. Nitrate values rose dramatically after the fire (May 5, 1980) but returned to pre-fire levels by July 1, 1980. Chlorophyll a, a measure of total algal biomass, rose from 2.95 micrograms per liter pre-fire to 4.84 micrograms per liter after the fire. Since Mack Lake has been an enriched system, residents would be well advised to control nutrient input into the lake and work to minimize future development on the lake.

FISHERIES OF MACK LAKE

Typical of winterkill lakes, the most persistent fish species found in Mack Lake are the brown and black bullheads. These species are extremely tolerant in waters having low dissolved oxygen contents. Although several fish species have been planted in Mack Lake over the past years, the high oxygen demanding species such as largemouth bass, bluegills and walleyes have failed to persist. The northern pike and especially the yellow perch, which are less oxygen demanding, have fared better and produced good fishing on a periodic basis. Even with these species, supplemental plantings are required following heavy winterkills to maintain them.

In a survey made in 1978, only black bullheads were found. Largemouth bass, walleyes and yellow perch were planted in 1979. Probably the bass and walleyes did not survive the winterkill which occurred last winter (1979-80). Another, more thorough survey was made in August, 1980. A few pumpkin seed sunfish and suckers were found along with an abundance of brown and black bullheads and a large year class of 3-inch yellow perch. The growth rate on the yellow perch equals the state average and should provide good fishing in 1981 and 1982 barring an extreme winterkill. The DNR plans to plant about 1000 northern pike in spring, 1981.

In the judgement of the fisheries biologists, the fire has had no effect on the fisheries of Mack Lake. The fish population is in as good condition as can be expected for this lake at this time. The future management should be concentrated on low oxygen demand species (yellow perch and northern pike) which are more adapted to shallow, eutrophic lakes.

SOIL SURVEY AND MONITORING

The soil program in the Mack Lake Area consisted of soil monitoring and soil survey projects. The objectives of soil monitoring are to determine (1) the immediate and long term effects of the fire on the soil, and (2) how these impacts will affect future management. Soil survey objectives are to locate soil types exhibiting significantly different capability-response potentials.

The immediate effects of the fire are highly variable. On the burned soils, nutrient level increases range from 0 to 800%, moisture holding capacities are reduced from 0-40%, organic matter levels are unchanged, soil pH's and cation exchange capacities are slightly elevated, litter horizons are reduced, and the soil surface horizons are somewhat thicker. Very little erosion has occurred.

The anticipated long term effects are:

- 1) a gradual re-equilibration of soil nutrient levels, pH, and cation exchange capacities within 4 or 5 years;
- 2) maintenance of thicker surface horizons for several decades; and
- 3) a gradual improvement in moisture holding capacities following re-vegetation.

In summary, it appears that the fire:

- 1) has enhanced Jack Pine seedling regeneration by
 - a) reducing plant competition, b) providing a seed source (in opened cones), and c) promoting initial rapid growth and vigor through increased available nutrients; and
- 2) will not affect long term productivity since it is anticipated (based upon other research findings) the nutrient and moisture relationship will return to pre-fire status within a few years.

The soil survey has 14,000 acres mapped, with the remaining 20,000 acres scheduled for completion this spring.

SALVAGE OPERATIONS

To date we have issued about fifty commercial salvage permits. The value of the products is approximately \$22,000 and covers the harvesting of some 4000 cords of wood on 2300 acres.

In addition, many free use firewood permits have been issued during the summer and fall. We do not have a current estimate of the volume of wood removed under this procedure.

NATURAL REGENERATION

It is anticipated that at least two-thirds of the burn area will be reforested through natural seeding and sprouting. The aspen type reproduces through root suckers following a fire which destroys the parent trees. This suckering was quite evident by the fall of 1980. The oak and red maple will produce stump sprouts from larger trees and seedling sprouts from small seedlings that were destroyed by the fire. These species were reproducing well by the fall also. We do not anticipate much natural red pine reproduction.

We are expecting considerable, but less uniform regeneration through natural seeding in the Jack Pine types. The success of regeneration in this type is dependent upon moisture, seed numbers, overstory shade and a good seed bed. Final results will not be known for 3 to 5 years. Seeds germinating and developing the first summer following the fire can be destroyed by drought the second and third year.

Moisture conditions favorable to Jack Pine regeneration were very good throughout the summer and fall of 1980. Seeds began germinating in June and seedlings increased in number until early August. Rainfall was below normal in August and die off became apparent. By early November the number of Jack Pine seedlings monitored on plots had dropped to about one-half the early August count. Seedling numbers had run as high as 33,000 per acre on some plots.

Seedfall had varied from zero to several million per acre shortly after the fire depending on the size and condition of the Jack Pine before the burn.

The fire produced a seedbed that was generally good for seed germination and seedling development.

FUTURE PLANS

Soils, wildlife populations, natural regeneration of tree species, other vegetation trends, insect and disease activity, precipitation and Mack Lake will be monitored for several years to gain additional information on the effects of the fire.

The soil survey should be completed by early summer and the information will be used to develop alternative vegetation patterns for the area. The Mack Lake Kirtland's Warbler Management Plan will be modified to reflect changed conditions and a more extensive network of fuelbreaks will be considered. We believe it is best to go slow with artificial reforestation efforts until we see what natural regeneration is established. At that time, we will have an opportunity to favor the regeneration that will help meet our objective of developing vegetative diversity. Artificial reforestation will be utilized as necessary to meet this objective. This would include planting of hardwood species where soil conditions will support them and where they can be beneficial as greenbelts or fuelbreaks.

Opportunities for increased salvage operations will be explored more fully in the near future. There may be an opportunity to use some of the aspen in conventional pulping or flake board processes where the charring from the fire was not too severe. We are also exploring the possibility of using some of the pine fiber as chips for fuel. This outlet appears to have the greatest potential for best utilization and clean up of the fire residue.

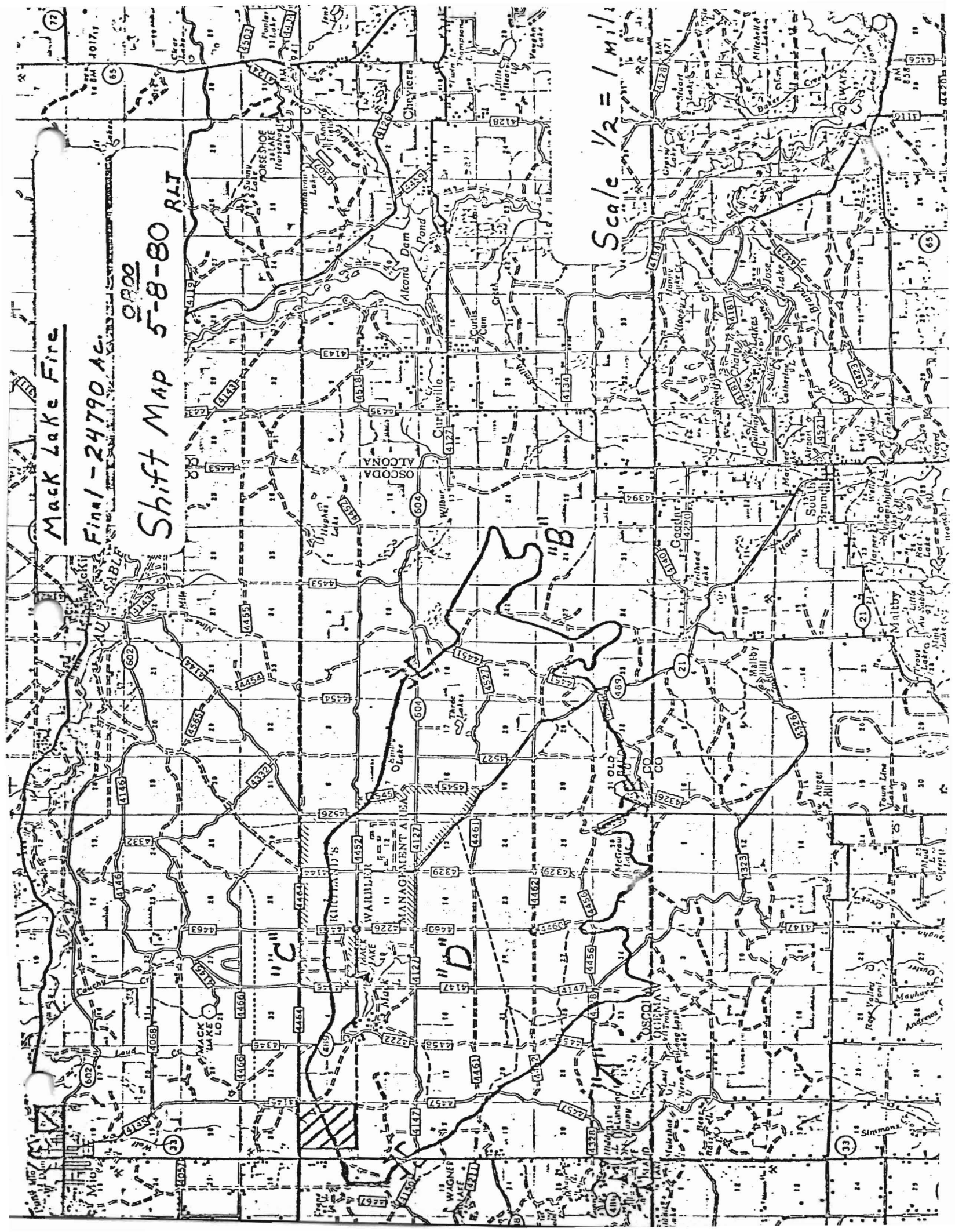
As we complete our basic inventories, we will be asking for assistance and input from the public and other agencies in the development of alternative management prescriptions for the area.

Mack Lake Fire

Final - 24790 AC.

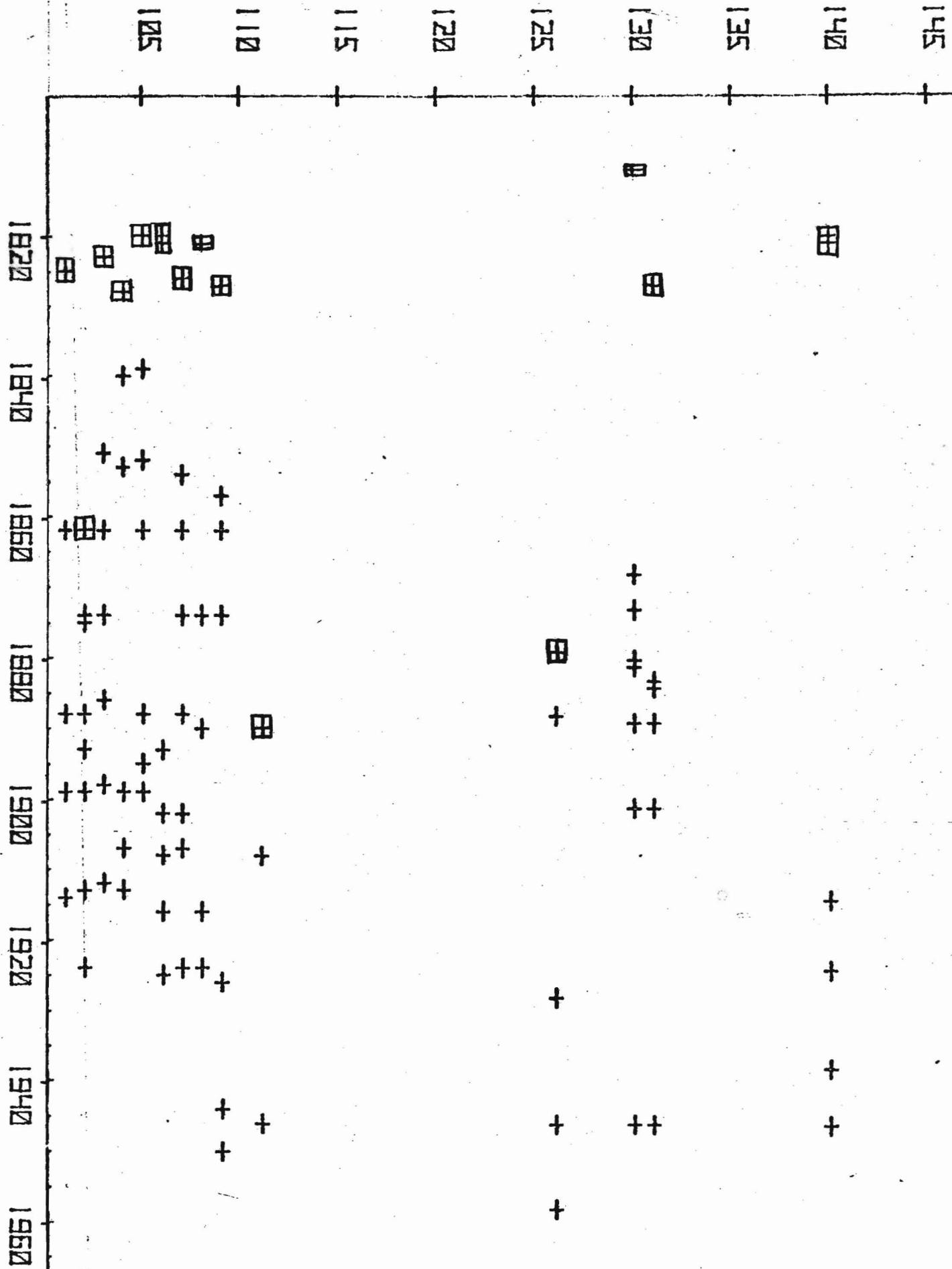
Shift Map 5-8-80 RLT
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Scale 1/2" = 1 mile



TREE NUMBERS

YEARS OF FIRE SCARS



MACK LAKE FIRE HISTORY

Sample Numbers	101	102	103	104	105	106	107	108	109	111	126B	130A	131	140
Seedling	1825	1862	1823	1828	1820	* 1832	1826	1821	1827	1890	1879	1811	1827	*
Fire Scar Years	1862	1874	1851	1840	1839	1862 1893	1854	1874	1857	1908	1888	1868	1883	1914
	1888	1875	1862	1853	1852	1902	1862	1890	1862	1946	1928	1873	1884	1924
	1899	1888	1874	1899	1862	1908	1874	1916	1874	1980	1946	1880	1889	1938
	1914	1893	1886	1907	1888	1916	1888	1924	1926		1958	1881	1901	1946
	1980	1899	1898	1913	1895	1925	1902	1980	1944		1980	1901	1946	1980
		1913	1912	1980	1899	1980	1907		1950			1946	1980	
	1924	1980		1980		1924		1980			1980			
	1980					1980								

* No Center

Market Fire
5-5-80

2-4-81

ACREAGE BURNED AND PROJECTED NATURAL REGENERATION

JACK PINE	10,100	6,000	
RED PINE	3,700	1,000	- J pine
OAK PINE	2,000	1,000	- J pine - oak
MIXED HARDWOOD	2,900	2,900	
ASPEN	3,300	3,300	
OTHER	300	0	
	<hr/>		
	22,300	14,200	

"Bumper Zone"

TABLE OF CONTENTS

INTRODUCTION	1
MANAGEMENT DIRECTIONS	7
Habitat Management Framework	7
Silviculture	8
Species and Habitat Protection	11
Unforeseen Circumstances	14
The Mack Lake Fire	14
SUMMARY - KIRTLAND'S WARBLER CRITICAL HABITAT - STATEWIDE MAP.	15
Acreage Identified as Critical Habitat	16
Present and Projected Acreage of Occupiable Habitat.	24
<hr/>	
HABITAT MANAGEMENT SCHEDULE - HURON-MANISTEE NATIONAL FOREST	27
Big Creek Area	29
Eldorado Area	83
Mack Lake Area	121
McKinley Area	179
Pere Cheney Area	241
Pine River Area	253
Tawas Area	341
<hr/>	
HABITAT MANAGEMENT SCHEDULE - STATE OF MICHIGAN	385
Big Creek Area	387
Clear Lake - Tomahawk Creek Area	403
Crapo Lake Area	439
Damon Area	461
Fletcher Road Area	543
Leota Area	565
Lovells Area	593
Manistee River Area	627
Muskrat Lake Area	649
North Branch Area	673
Ogemaw Refuge Area	689
Pere Cheney Area	721
St. Helen Area	737
Sharon Area	757
Staley Lake Area	785
Warbler Monument Area.	801
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PLAN REVISION AND UPDATE	807
CRITICAL HABITAT DEFINITION AND LIST	811
DESIRABLE HABITAT ACQUISITION	835

INTRODUCTION

The Kirtland's Warbler, Dendroica kirtlandii, was first discovered in 1851 when a spring migrant was taken near Cleveland, Ohio. Five more spring migrants (four in Ohio and one in southern Michigan) were collected before the first wintering bird was collected on January 9, 1879, on Andros Island, Bahamas. Between 1884 and 1897 there were 71 specimens collected throughout the Bahamas. This species has never been found outside the Bahamas in winter, except for an unconfirmed report of two being observed near Veracruz, Mexico in November, 1974. Subsequent searches in the area have failed to verify that the Kirtland's Warbler does winter in Mexico.

It was over a half century after the species was first described that its nesting range was discovered. A specimen collected on June 13, 1903, near the AuSable River in western Oscoda County, Michigan was taken to Norman A. Wood, curator of birds at the University of Michigan Museum of Zoology, who identified it as a Kirtland's Warbler. Wood promptly set out on a trip to Oscoda County, traveling by rail, rowboat, buggy, and foot to search for nesting birds. Between July 2 and 7 he discovered two small groups of Warblers which he described as "colonies" near Butler Bridge (now Parmalee Bridge) in "jack pine plains," but found no nests. On July 8, 1903, Wood moved to a jack pine plain farther to the west and in the western part of Section 31, T27N, R1E, Oscoda County, he found the first nest.

Singing males and migrants have been found in other parts of the Great Lakes Region, from Minnesota to Quebec, but nowhere other than Michigan has a nest been found. Searches for nesting birds have been intensified in Canada and Wisconsin the past year or two. These searches were continued and were expanded to Minnesota in 1979.

Nesting Habitat

It became quickly apparent to the early observers of the Kirtland's Warbler that these birds were always associated with the areas of the northern Lower Peninsula of Michigan commonly referred to as the "jack pine plains" or "barrens". Residents of the region called this Warbler the "Jack-pine Bird". Subsequent studies of the species have shown it to have an extremely close association with a particular "life community" of the jack pine type.

Jack pine is found on the North American continent from the Maritime Provinces of eastern Canada west to the upper Yukon Valley in the Northwest Territories, and from the middle of Michigan's Lower Peninsula and mid-Wisconsin to the continent's tree line. It is in the southern

extremity of the jack pine range and on the driest, most rudimentary sand soils of Lower Michigan that the Kirtland's Warbler has found its niche. Almost all nesting has been found to occur on the Grayling sand soils. A few have been found nesting adjacent to the Grayling sands on Grayalm, Deer Park, Rubicon and Croswell sands. There are also records of nesting on two isolated areas where jack and/or red pine had been planted on severely eroded Kalkaska sands.

Although it is not completely understood why, the recent burning of a jack pine site prior to its regeneration appears to be a highly significant, if not a necessary factor in the use of a stand for nesting.

Burning may have some subtle effects on the soil and plant community that have yet to be detected. Observations to date show that recent fire has been a factor on nearly all sites where Warblers have been known to nest successfully.

The jack pine stand itself is used for nesting only in a certain stage of development. Warblers will start using a stand when the height of the tree reaches 5 to 7 feet (or at an age of 6 to 13 years with the average being 8). Stands less than 80 acres in size are seldom occupied, and nesting success has been found to improve greatly where "colonies" of Warblers occupy stands 200 acres and larger.

The density of the stand is usually variable, with dense patches and numerous small openings interspersed throughout. Evenly spaced plantations are used but the presence of openings appears to be essential. Common associated tree species in these jack pine stands are oaks, aspen, cherries, june berry, and other pines. It appears that the Kirtland's Warbler will not use a stand where the density of the deciduous species approaches equity with the pine.

The ground vegetation consists of plants that can survive fire, drought, and thermal extremes. These are mostly low shrubs and deep-rooted perennial herbs. The density varies from sparse areas with bare ground exposed to quite dense patches. In fact, there is usually a mosaic of patches of sedges, patches of shrubs, and patches of grasses and forbs. These Warblers prefer heavier cover for nest sites, with mixed blueberry and grass areas being favored locations. However, nests are occasionally found where cover is poor.

The Kirtland's Warbler will continue to nest in jack pine stands as long as the trees retain relatively dense living branches near the ground. Depending on the density of the trees, the lower branches are lost when jack pine reaches a height from 16 to 20 feet (usually age 21 in Michigan). When this occurs the structure of the habitat is apparently no longer acceptable to the Warbler for nesting.

Kirtland's Warblers have occasionally been found to nest in red pine plantations. Apparently, planted red pine sometimes creates a life form that is acceptable for this bird. However, in most cases the Warblers have moved into the red pine from an adjacent jack pine habitat. In other circumstances where this species has used unusual habitats such as jack pine not regenerated by fire, or on soils other than Grayling sand, they apparently have moved from adjacent "typical" habitats. Trying to create a typical habitat in isolated areas would probably be futile.

The Dry Site Jack Pine Community

The identification of some 135,000 acres of the Grayling sand jack pine type for management of Kirtland's Warbler habitat is, in essence, the identification of these stands for the management of a life community in which there is a rather unique assemblage of species. It is the only known life community where the Kirtland's Warbler is adapted to survive.

Like all forest types, there are sequential changes throughout the various stages of these jack pine stands. Immediately after the old stand has been removed through cutting and/or burning, those species adapted to open conditions will occupy the site. Representative bird species include the Common Nighthawk, Vesper and Field Sparrows, Prairie Warbler, Sharp-tailed Grouse (if in adjacent areas), and Upland Sandpiper. Where there are snags to produce cavities, the Eastern Bluebird, Tree Swallow, Yellow-shafted Flicker, and other open area cavity-nesters are common. As the new stand of jack pine takes form, and the lower pine branches begin to touch, the "open" species decline and the "intermediate" species move in. These include the Clay-colored Sparrow, Hermit Thrush, and the Nashville and Kirtland's Warbler (along with other species). As the stand continues to develop, the community changes. At about the stage where the lower branches thin out and the Warbler leaves, the stand then becomes usable by other species such as the Spruce Grouse and Whip-poor-will. When the stand moves into the "old-age" form, inhabitants include the woodpeckers, cuckoos, and other arboreal species. Of course, the more adaptive species such as the Robin, Blue Jay, Black-capped Chickadee, and Brown Thrasher will be found in all stages of this community.

The management of the dry site jack pine community under the strategy outlined in this plan will simultaneously provide sustained habitat conditions for a wide variety of plant and animal species, including the Kirtland's Warbler, and a valuable wood fiber resource for man.

History of Organized Efforts at Management

In 1957, the first major effort was made at providing breeding habitat for the Kirtland's Warbler. Three areas, in Ogemaw, Crawford, and Oscoda counties, each comprising roughly four square miles, were established specifically as Warbler management units (Radtke and Byelich, 1963; Mayfield, 1963). All three were on state forest land. Portions of two of these areas were planted with jack pine using a special configuration to provide openings within the stand. The intention was to maintain these tracts in three age classes, seven years apart, by burning and replanting the stands when they reached an age of 21 years. Planting of the third area in Oscoda County was held in abeyance because pines on that area were approaching a commercially harvestable age. Harvesting has not yet occurred on this area, however, since almost one-third of this tract was burned by a wildfire in 1964. The regeneration which resulted because of that fire has provided nesting habitat for the past several years.

In 1960, the Forest Service began working on a management plan for the Kirtland's Warbler. This plan was approved in 1962 and a 4,010-acre tract was dedicated in June 1963. The plan established 12 management blocks of about 320 acres each in the Mack Lake Area, Oscoda County. Ultimately, each block was to be grown on a 60-year commercial rotation with five years age difference between blocks (Mayfield, 1963).

In addition, in 1973 and 1974, the Huron National Forest cut, burned, and planted areas near Luzerne, Oscoda County, and Tawas, Iosco County, for the benefit of the Warbler.

Since potential Warbler habitat occurs in significant acreages on both State (Michigan Department of Natural Resources) and Federal (USDA -- Forest Service) land and since both these agencies have individual land management functions, each agency has been made responsible for developing habitat on the land with which it is entrusted. The Management Schedule portion of this Habitat Management Plan will describe, in detail, each agency's on-the-ground land management program for the development and improvement of Kirtland's Warbler nesting habitat for the next 50 year period.

LITERATURE CITED

- Byelich, J., et al. Kirtland's Warbler Recovery Plan Kirtland's Warbler Recovery Team. Lansing, Michigan.
- Mayfield, H.F. 1963. Establishment of Preserves for the Kirtland's Warbler in the State and National Forests of Michigan. Wilson Bulletin 75: 216-220
- Radtke, R. and J. Byelich. 1963. Kirtland's Warbler Management. Wilson Bulletin 75: 208-215.

Efforts to aid the Kirtland's Warbler were given a giant thrust forward when the Endangered Species Act of 1973 became law (P.L. 93-205). This act provided the means to have the Kirtland's Warbler officially declared "endangered", provided for acquisition of land to increase available habitat, provided funding to carry out additional management programs, set up provisions for state cooperation with the Federal government, and established various legal protections for endangered species. It was the most encompassing endangered species legislation to date. Previous Acts in 1966 and 1969 (P.L. 89-669 and P.L. 91-135, respectively) did, however, among other things, provide for endangered species listings, research, and some habitat acquisition.

The Federal Endangered Species Act was supplemented by the Michigan Endangered Species Act of 1974 (P.A. 203, 1974). This act provides added legal protection to listed species.

Rules promulgated under the Endangered Species Act of 1973 called for the establishment of Recovery Teams to assist the Fish and Wildlife Service in carrying out provisions in the Act. In early 1975, a Kirtland's Warbler Recovery Team was named by the Secretary of the Interior to guide efforts in aiding the Warbler. As a result of efforts by the Team, a Kirtland's Warbler Recovery Plan (Byelich, et al, 1976) was prepared outlining steps designed to increase the species' population. The primary objective of the Plan is to "Reestablish a self-sustaining wild Kirtland's Warbler population throughout its known former range at a minimum level of 1,000 pairs". Secondary objectives, designed to accomplish the primary objective, are as follows:

1. Maintain and develop 135,000 acres of suitable nesting habitat for the Kirtland's Warbler throughout its former known range.
2. Protect the Kirtland's Warbler on its wintering grounds and along the migration route.
3. Reduce key factors adversely affecting reproduction and survival of Kirtland's Warbler.
4. Monitor breeding populations of the Kirtland's Warbler to evaluate responses to management practices and environmental changes.
5. Reintroduce Kirtland's Warblers into areas in the Upper Peninsula of Michigan or in other states in an attempt to establish independent self-sufficient populations.

The Kirtland's Warbler Habitat Management Plan is a guide designed to direct management toward the achievement of the first of these secondary objectives listed above.

Since potential Warbler habitat occurs in significant acreages on both State (Michigan Department of Natural Resources) and Federal (USDA -- Forest Service) land and since both these agencies have individual land management functions, each agency has been made responsible for developing habitat on the land with which it is entrusted. The Management Schedule portion of this Habitat Management Plan will describe, in detail, each agency's on-the-ground land management program for the development and improvement of Kirtland's Warbler nesting habitat for the next 50 year period.

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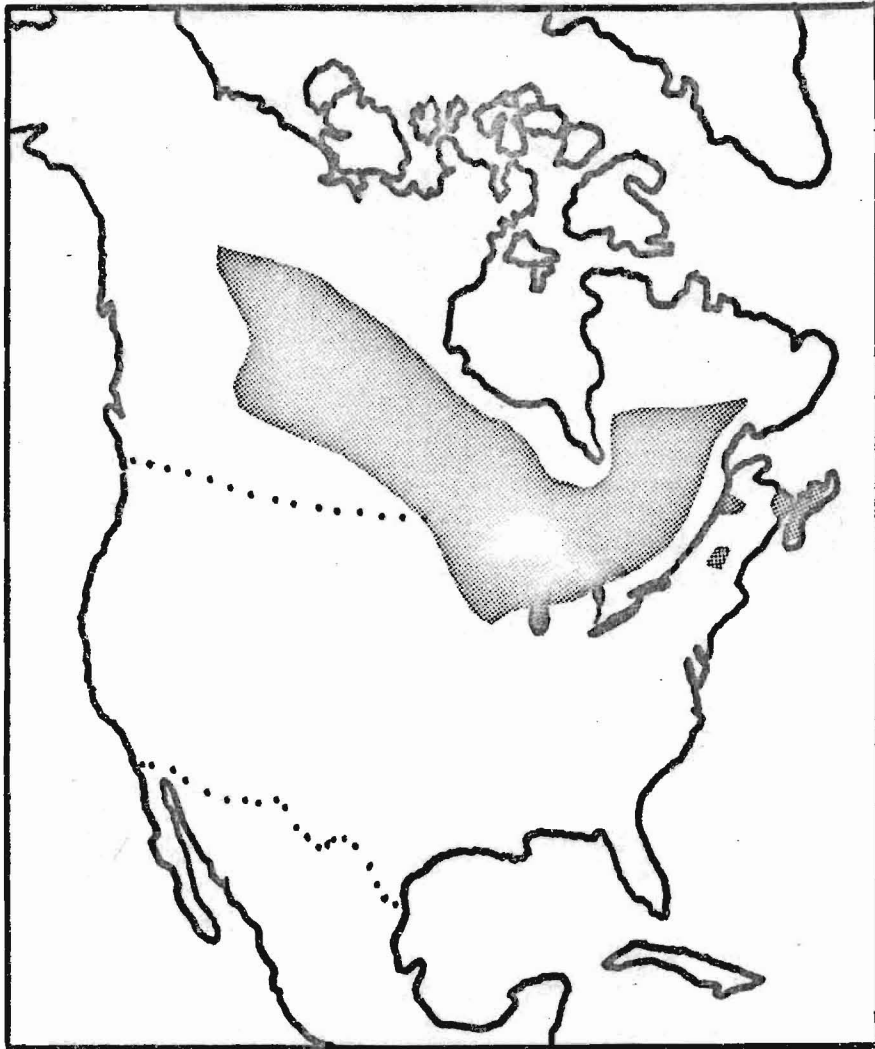
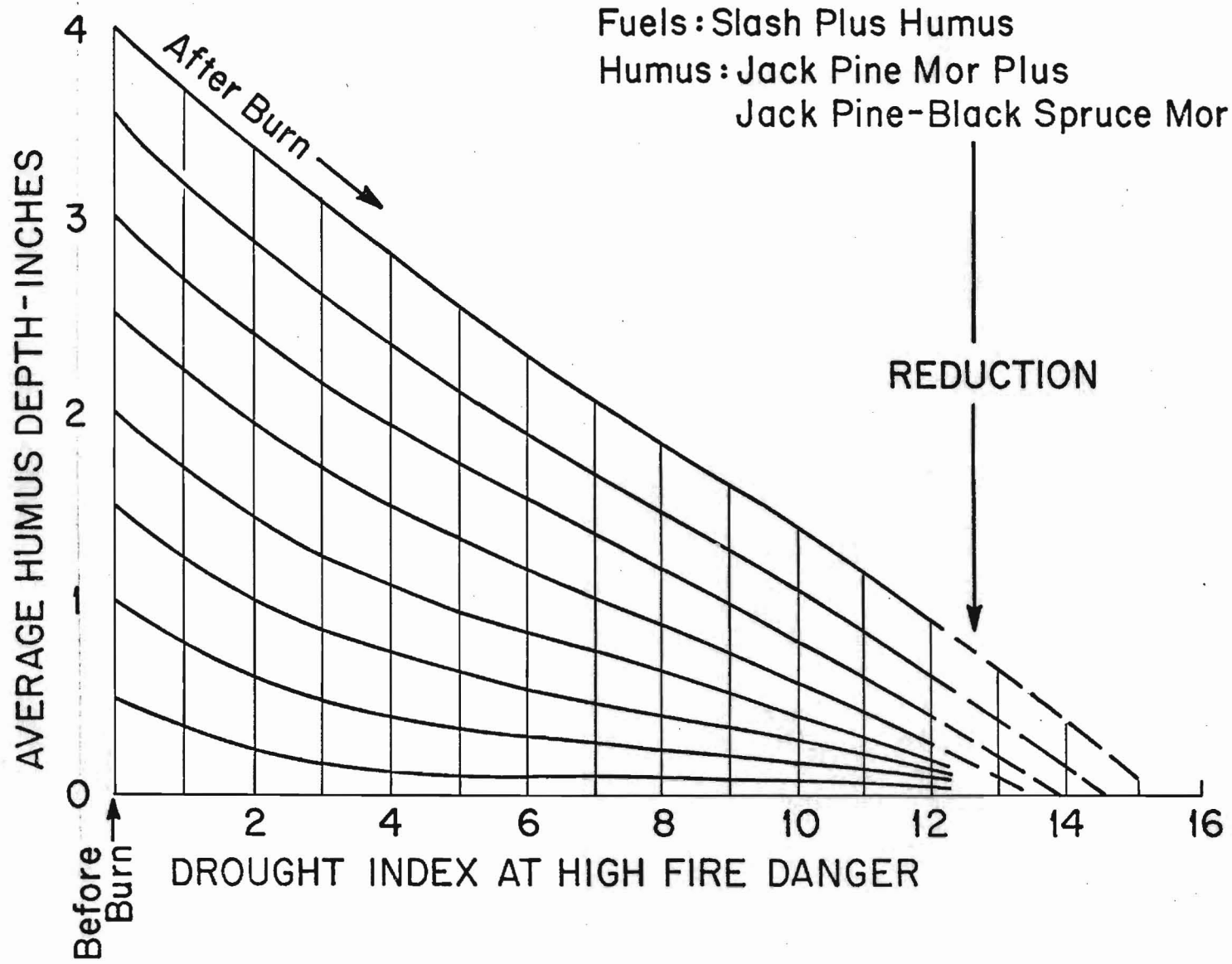


Figure 1. Range of jack pine in North America



MANAGEMENT DIRECTIONS

The purpose of this section is to define the methods for protecting and improving designated critical nesting habitat for the survival of the Kirtland's Warbler and for compliance with the provisions of Section 7 of the Endangered Species Act, as amended. After acceptance of this plan any proposed deviations from these specified practices shall be subject to the consultation process as required by that Act.

A. Habitat Management Framework

All potential breeding habitat on the State and National Forests (and on adjacent private lands) was identified. After field examination and stand data analysis, those stands that were believed to be suitable and manageable for nesting habitat were identified for proposal as critical habitat. Contiguous stands or stands in close proximity were grouped into Management Areas. Twenty-three Areas have been established, 16 on State Forests and seven on the Huron National Forest. Each Area is divided into Management Units containing between 1,000 and 2,000 acres of suitable habitat. Most Units have been subdivided into five Cutting Blocks, with each Block containing some 200 or more acres of contiguous stands of habitat. Blocks were laid out so that the stands within a Block are as near the same age as possible. However, many Cutting Blocks contain stands of dissimilar ages. Cutting and regeneration of these Blocks may result in less than optimum timber yield during the first rotation, due to sacrificing some immature stands and carrying some mature stands beyond their economic rotation age. In many cases, however, individual Block prescriptions have been adjusted to provide for the harvesting of mature timber in an otherwise non-current Block to minimize this loss. In some cases, an adjustment could result in a reduction of the full potential of the habitat during the first rotation period.

Blocks in each of the Management Units are to be cut sequentially at 10-year intervals, starting with the first Block and progressing to the fifth Block during the last decade of the rotation. Rotation length is to be 50 years. Exceptions to this will be made where there is a preponderance of stands of older age classes within a Unit. In such Units, both the first and fifth Blocks should be regenerated during the first decade so that the stands in the fifth Block are not deferred too long and will be once again merchantable during the last decade of the rotation period. Where all Blocks are of the same age in a Unit (e.g. as some of the Pine River and McKinley Units), the regeneration of Blocks could be at 5-year intervals for the first rotation. During the next rotation, Block ages can be adjusted by cutting the first Block at age 40 and then cutting the subsequent Blocks at 10-year intervals. This would mean

that a high amount of nesting habitat would be available in these Units during the first rotation, followed by a probable period of some 10 years where there would be no suitable habitat. Since the number of such Units will not be too great and such adjustments will vary somewhat, the overall effect should not be very significant to the total population.

The Mack Lake Unit, which is a dedicated area on the Huron National Forest has been subdivided into 10 Blocks which are to be regenerated at five year intervals. This is consistent with the original management plan and allows for more intensive management on this area.

B. Silviculture

Even-aged silvicultural methods that will produce the habitat structure necessary for Kirtland's Warbler nesting are to be used. The well-documented history of Warbler nesting based on thousands of observations very strongly indicates that fire is a necessary factor in creating suitable nesting habitat for this species. Research is in progress which should better define the specific impact of burning on nesting habitat and nesting success. Unless it can be demonstrated that productive nesting habitat can consistently be developed without the use of fire, prescribed burning will be the primary tool used in the regeneration process. Any proposals that deviate from this must receive Wildlife review and interdisciplinary approval.

1. Final Harvest and Prescribed Burning

- a. Clearcut - Clearcut, prescribe burn for site preparation, and plant jack pine seedlings. (Since natural regeneration of jack pine may fail or require a longer time to become established, planting will be the preferred method for regenerating most stands in the first Block in each Unit. Exceptions will be to designate some stands for natural regeneration attempts using method b. or proposals under c.).
- b. Seed tree cut - A seed tree cut (leaving 20 or more jack pine seed trees per acre, or comparable numbers in patches or strips), followed by prescribed burning to prepare the site for natural regeneration and seed release, is recommended.
- c. Logging methods - Some mechanized logging methods remove slash or concentrate slash in a logging area. This may adversely affect the results of a burn and not produce suitable habitat.

Sale contract provisions shall exclude logging methods which remove tree tops and other slash, or which allow windrowing or concentrating slash. Contract specifications should require slash to be left scattered over the cutting area. Any deviations from such provisions will require interdisciplinary review and approval.

- d. Other - Proposals to regenerate a stand using any method other than described above shall receive interdisciplinary review and approval. This will include experimental treatments, high hazard conditions, critical timing for planting and other reasonable proposals.

2. Regeneration

- a. Planting - In addition to regenerating the stand, the objective is to produce a suitable configuration for nesting habitat. General guides are:
 - (1) Spacing - Spacing of jack pine trees will be 6' x 6' or less.
 - (2) Density and Configuration - Approximately 25% of the block will be left unplanted in small (about 1/4 to 1/2 acre), well-dispersed openings, or in a strip configuration.
 - (3) Survival Checks - Survival checks shall be made:
 - (a) In planted areas after the first and third year.
 - (b) In natural regeneration areas after the third and fifth years. (If it appears that the area may still have a good chance to be regenerated, additional checks may be made up to the 10th year after the burn or other treatment.) The decision for the necessity to re-plant shall be made if survival of planting is found to be inadequate (less than 75% in planted areas) after either the first year or third year checks of planted areas. If it appears that natural regeneration has failed after the fifth year, with little likelihood of a well stocked stand developing, planting may be necessary.

- b. Broadcast seeding - Broadcast seeding is another possible alternative for regeneration of Warbler Habitat. To date, success with this regeneration method has been localized and infrequent. Perhaps future developments or research findings may make this alternative more feasible. Until reliable techniques are developed, any broadcast seeding in Warbler habitat will require interdisciplinary approval.

3. Cultural and Intermediate Treatments

Practices such as the development of openings, overstory removal, thinning, interplanting, etc., shall not lessen the quality of the habitat.

- a. Proposals for such work shall be reviewed by the appropriate Wildlife Biologist to assure compatibility with Warbler habitat requirements. Should there be possible adverse effects and the Forest wishes to continue with the proposal, consultation as required by the Endangered Species Act will follow. In the case of the Forest Service, informal consultation shall be initiated by the Forest Supervisor.
- b. Proposed activities should be performed prior to when the stand is occupied or after abandonment by Kirtland's Warblers, but not during the years of occupancy.
- c. Snags provide favored perch sites for the Kirtland's Warbler and are also utilized by cavity nesting species (Bluebird, Kestrel, Black-backed Three-toed Woodpecker, etc.). Conversely, snags are probably also used substantially as perching sites for Brown-headed Cowbirds during the process of nest parasitism. Intensive cowbird trapping has precluded this undesirable use of snags at the present time. Harvest of live or dead trees should not be permitted in Warbler habitat during years of occupancy. Snags and live overstory may be removed from incipient habitat only where beneficial to the Warbler, as determined by the Forest Biologist.

C. Species and Habitat Protection

Some uses of public forest lands can and do have adverse impact on this species and its habitat. However, many of these uses can be permitted if properly regulated and coordinated. There are some activities that are also essential for insuring the protection of the species and maximum use of its habitat.

1. Fire Prevention and Control: Although fire is considered essential for the development of this bird's habitat, it can also be a threat to occupied or developing habitat. Therefore, prevention, pre-suppression, and suppression plans should, to the extent possible:
 - a. Consider critical habitat, where ages of jack pine are from one to 21 years, (or whenever occupancy has concluded) as very high priority in prevention of fire losses.
 - b. Employ compatible methods in hazard and risk reduction. Anything that alters vegetation or habitat should be done prior to or following occupancy by Kirtland's Warblers.

When critical habitat has reached the stage where it no longer supports Warblers, the priority can be changed to whatever is appropriate for the area.

2. Insect and Disease Control--Some insects and diseases can be a threat to Warbler habitat, and some of these could present a real dilemma. The use of certain control methods could be very destructive to the birds. Should a significant problem develop in critical habitat, the responsible land manager shall request that the situation be appraised and appropriate action taken. This will require consultation if a chemical insecticide is proposed.
3. Predator and Parasite Control--At the present time the Fish and Wildlife Service is controlling cowbirds within nesting areas. These activities are within the scope of the Recovery Plan and are coordinated through the Recovery Team. Any other such activities will be coordinated in this manner. These activities may be reduced if the Warbler population increases significantly.

4. Recreation--Recreationists can adversely affect (intentionally or inadvertently) this bird and its habitat. There is a need to regulate recreational use to reduce such impacts.
- a. Occupied habitats shall be closed to public entry during the breeding and nesting season, except through conducted tours. (There may be some relaxation on closures as populations increase and conditions warrant.) Closed areas are to be adequately posted and closed roads within such areas are to be gated where necessary.
 - b. Recreational developments, including trails and roads, generally are not to be constructed in or adjacent to critical habitat. Where trails are proposed, an interdisciplinary review and approval shall be required. Approval may be contingent upon closing and/or re-routing the trail when a Block is regenerated or occupied by Warblers.
 - c. It is recognized that forest cover manipulation necessary for Kirtland's Warbler habitat management is highly visible to the public. It is also recognized that a significant number of the public that use or reside near the management areas place high value on the visual resource. Their acceptance of the management practices is necessary to the continuance of the program.

An active visual management program including information-education and modification of normal management practices near high public use zones, such as major roads and residential areas, is necessary to maintain this public acceptance. Both the U.S. Forest Service and Michigan Department of Natural Resources have ongoing visual management programs.

Modification of Kirtland's Warbler habitat management practices for the protection of visual values will in some cases reduce or eliminate use of minor acreages by the birds. The significance of this small loss of habitat is not great when compared to the values gained.

5. Road Construction and Other Structural Developments--When planning new roads and structures, critical habitat should be avoided. If this can not be done feasibly, (on Federal lands or where Federal project dollars are involved), then a request for consultation with the Fish and Wildlife Service will be required. (This does not include roads that are part of a timber sale in critical habitat).
6. Minerals--Gas and oil deposits under some critical habitat areas may be developed with the application of certain restrictions.
 - a. Drilling activity shall only be done from approved locations, including access roads.
 - b. Drilling activities in, or adjacent to, occupied habitat shall not be done between May 1 and September 30.
 - c. In occupied habitat a proven well can be operated between October 1 and May 1, but shall not be operated between May 1 and September 30 unless it is pumped by a bottom-hole pump and the oil is transported by buried pipeline. Any well emitting toxic or sour gases into the air shall not be operated from May 1 to September 30.
 - d. Approved drilling activities may occur in unoccupied critical habitat the year round.
 - e. Oil and gas development in all habitat shall be done in such a manner that the management of habitat through the use of prescribed burning is not precluded. This includes:
 - (1) Taking steps to protect well pads.
 - (2) Burying of pipelines to safe depths.
 - (3) Locating storage facilities outside of critical habitats.
7. All proposals for any other activities within critical habitat not covered above are subject to the consultation process.

D. Unforeseen Circumstances

A substantial amount of potential Warbler habitat has been excluded from the existing designated critical habitat. Most of the deleted potential habitat is presently in areas with established red pine plantations. Wildfires, insects, disease, and other factors, may offer an opportunity for conversion of some of these sites back to the jack pine type. When these opportunities appear, each site should be critically evaluated and considered for designation as critical habitat.

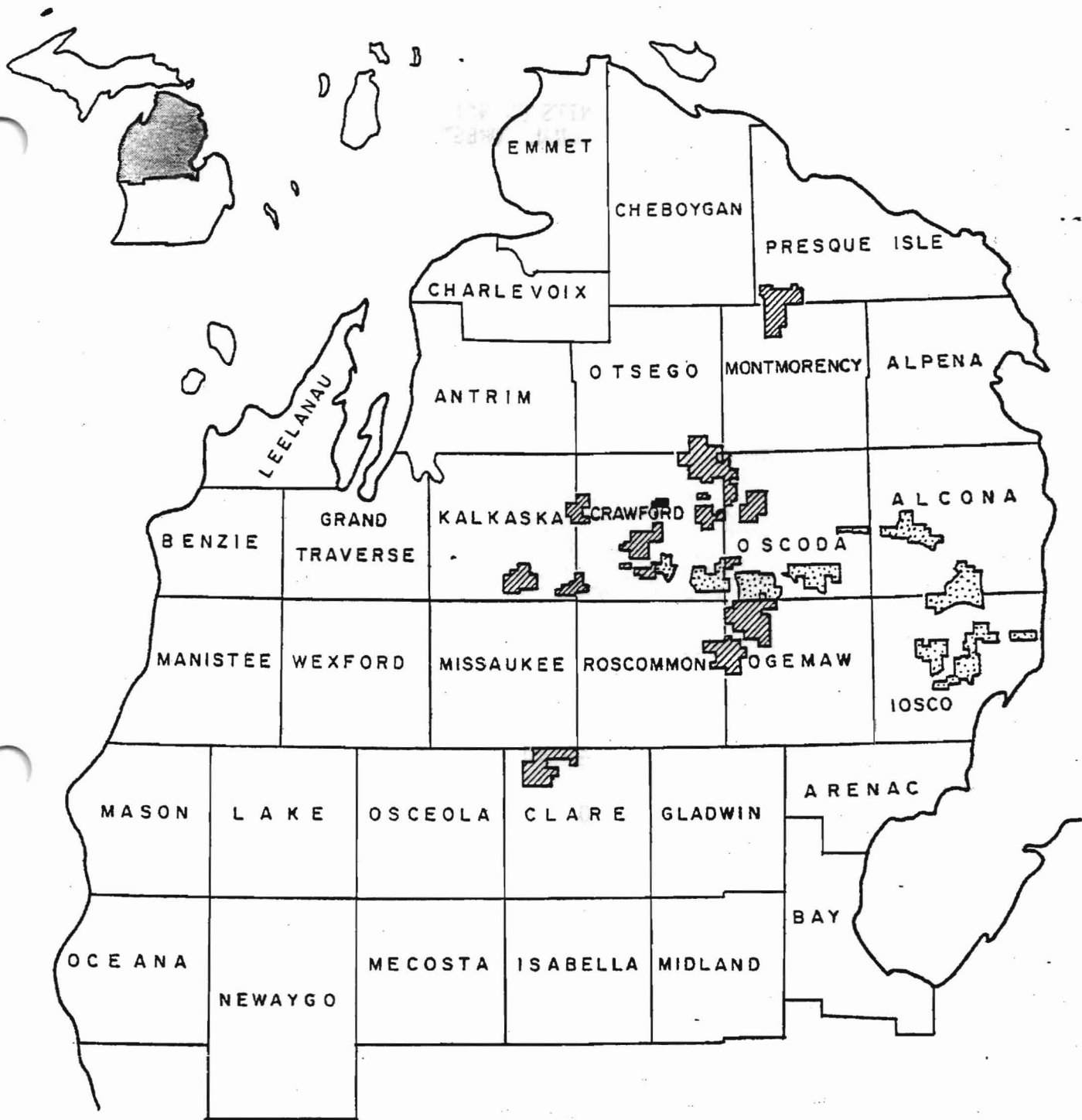
E. The Mack Lake Fire




A prescribed burn to improve habitat for the Kirtland's Warbler, fanned by high winds and changes in burning conditions, turned a 200 acre controlled burn into a major wildfire covering 25,000 acres before being contained. The fire, located in the Mack Lake Management Area burned 100 acres of suitable habitat and 200 acres of habitat nearing optimum age. The fire, which occurred on May 5-6, 1980, had little direct effect on the Kirtland's Warbler, as the birds had not yet arrived from their wintering grounds.

The Mack Lake Area is important since it supports a majority of the Warbler nesting population found on National Forest land. Nesting use have been declining however because of advancing age of the jack pine.

The Mack Lake Area includes 10,420 acres of National Forest land proposed for classification as Critical Habitat (see Summary). An additional 785 acres of private land could provide suitable habitat. Of this acreage, 6,900 acres of National Forest land and 545 acres of private land were within the Mack Lake fire. The fire will significantly alter the cutting schedule for the Mack Lake Management Area as detailed in this Plan.

There has been good to excellent regeneration of natural jack pine following the burn. If this continues the Mack Lake Area will provide good warbler habitat in the late 1980s, and the anticipated outlook for limited nesting habitat in the late 1980s might not occur (see Present and Projected Acreage of Occupiable Nesting Habitat).



-  U.S. Forest Service Critical Habitat
-  State Forest Critical Habitat
-  Military Area Habitat

KIRTLAND'S WARBLER HABITAT IN MICHIGAN

SUMMARY OF ACREAGE IDENTIFIED AS CRITICAL KIRTLAND'S WARBLER
HABITAT BY AREAS AND MANAGEMENT UNITS ON NATIONAL FOREST LANDS
(HURON-MANISTEE NATIONAL FOREST).

<u>AREA</u>	<u>ACRES</u>	<u>DISTRICT</u>
<u>Big Creek KWMA</u>		
Briggs Road Unit -	1,428	Mio
County Line Road -	1,618	Mio
Mapes Road Unit -	1,074	Mio
Power Line Unit -	1,355	Mio
Union Corners Unit -	1,242	Mio
West Branch Unit -	<u>1,315</u>	Mio
TOTAL -	8,032	
 <u>Eldorado KWMA</u>		
Douglas Creek Unit -	1,007	Mio
Hunter's Lake Unit -	1,410	Mio
Meridian Unit -	1,390	Mio
Rock Cemetery Unit -	<u>1,342</u>	Mio
TOTAL -	5,149	
 <u>Mack Lake KWMA</u>		
Crane Lake Unit -	1,233	Mio
Eggleston Road Unit -	1,271	Mio
Emley Lake Unit -	976	Harrisville
Fowler Road Unit -	1,260	Mio
Mack Lake Unit -	4,039	Mio
Vaughn Road Unit -	<u>1,641</u>	Mio
TOTAL -	10,420	

<u>AREA</u>	<u>ACRES</u>	<u>DISTRICT</u>
<u>McKinley KWMA</u>		
Blockhouse Unit -	1,334	Harrisville
Byron Lake Unit -	1,373	Harrisville
Comins Flat Unit -	1,995	Mio-Harrisville
Game & Forest Unit -	947	Harrisville
Hardy Grade -	1,416	Harrisville
Old Roadhouse Unit -	1,243	Harrisville
Reed Road Unit -	<u>1,322</u>	Harrisville
TOTAL -	9,630	

<u>Pere Cheney KWMA</u>		
Chase Bridge Unit -	<u>1,527</u>	Mio
TOTAL -	1,527	

<u>Pine River KWMA</u>		
Unit I -	1,217	Harrisville
Unit II -	1,294	Harrisville
Unit III -	905	Harrisville
Unit IV -	951	Harrisville
Unit V -	1,482	Harrisville
Unit VI -	1,035	Harrisville
Unit VII -	1,367	Tawas
Unit VIII -	1,576	Tawas
Unit IX -	1,788	Tawas
Unit -	<u>1,283</u>	Tawas
TOTAL -	12,898	

<u>AREA</u>	<u>ACRES</u>	<u>DISTRICT</u>
<u>Tawas KWMA</u>		
Buck Creek Unit -	1,175	Tawas
Monument Road Unit -	1,043	Tawas
Oscoda Unit -	1,294	Tawas
Silver Creek Unit -	1,207	Tawas
Vaughn Creek Unit -	<u>1,113</u>	Tawas
TOTAL -	5,832	

TOTALS:

Mio Ranger District	26,147
Harrisville Ranger District	15,495
<u>Tawas Ranger District</u>	<u>11,846</u>
Huron National Forest -----	53,488

SUMMARY OF ACREAGE IDENTIFIED AS CRITICAL KIRTLAND'S WARBLER
HABITAT BY AREAS AND MANAGEMENT UNITS ON STATE OF MICHIGAN LANDS

<u>AREA</u>	<u>ACRES</u>	<u>STATE FOREST</u>
<u>Big Creek</u>		
Management Unit 1	1,334	AuSable St. Forest
Management Unit 2	<u>1,040</u>	AuSable St. Forest
TOTAL	2,374	
<u>Clear Lake - Tomahawk Creek</u>		
Management Unit 1	1,894	Mackinac St. Forest
Management Unit 2	1,096	Mackinac St. Forest
Management Unit 3	1,031	Mackinac St. Forest
Management Unit 4	742	Mackinac St. Forest
Management Unit 5	1,409	Mackinac St. Forest
Management Unit 6	<u>299</u>	Mackinac St. Forest
TOTAL	6,471	
<u>Crapo Lake Area</u>		
Management Unit 1	1,215	Mackinac St. Forest
Management Unit 2	1,041	Mackinac St. Forest
Management Unit 3	<u>949</u>	Mackinac St. Forest
TOTAL	3,205	

<u>AREA</u>	<u>ACRES</u>	<u>STATE FOREST</u>
<u>Damon</u>		
Management Unit 1	1,393	AuSable St. Forest
Management Unit 2	1,263	AuSable St. Forest
Management Unit 3	1,460	AuSable St. Forest
Management Unit 4	1,039	AuSable St. Forest
Management Unit 5	1,513	AuSable St. Forest
Management Unit 6	1,649	AuSable St. Forest
Management Unit 7	1,141	AuSable St. Forest
Management Unit 8	1,600	AuSable St. Forest
Management Unit 9	1,327	AuSable St. Forest
Management Unit 10	1,361	AuSable St. Forest
Management Unit 11	1,356	AuSable St. Forest
Management Unit 12	1,256	AuSable St. Forest
Management Unit 13	<u>1,219</u>	AuSable St. Forest
TOTAL	17,577	

<u>Fletcher Road</u>		
Management Unit 1	1,556	Pere Marquette St. Forest
Management Unit 2	1,206	Pere Marquette St. Forest
Management Unit 3	<u>1,616</u>	AuSable St. Forest
TOTAL	4,378	

<u>AREA</u>	<u>ACRES</u>	<u>STATE FOREST</u>
<u>Leota</u>		
Management Unit 1	1,345	AuSable St. Forest
Management Unit 2	967	AuSable St. Forest
Management Unit 3	1,170	AuSable St. Forest
Management Unit 4	<u>877</u>	AuSable St. Forest
TOTAL	4,359	

<u>Lovells</u>		
Management Unit 1	1,442	AuSable St. Forest
Management Unit 2	1,229	AuSable St. Forest
Management Unit 3	1,433	AuSable St. Forest
Management Unit 4	1,266	AuSable St. Forest
Management Unit 5	<u>1,516</u>	AuSable St. Forest
TOTAL	6,886	

<u>Manistee River</u>		
Management Unit 1	1,003	Pere Marquette St. Forest
Management Unit 2	1,258	AuSable St. Forest
Management Unit 3	<u>967</u>	AuSable St. Forest
TOTAL	3,228	

<u>Muskrat Lake</u>		
Management Unit 1	1,370	AuSable St. Forest
Management Unit 2	1,656	AuSable St. Forest
Management Unit 3	<u>1,594</u>	AuSable St. Forest
TOTAL	4,620	

<u>AREA</u>	<u>ACRES</u>	<u>STATE FOREST</u>
<u>North Branch</u>		
Management Unit 1	1,441	AuSable St. Forest
Management Unit 2	<u>955</u>	AuSable St. Forest
TOTAL	2,396	
<u>Ogemaw Refuge</u>		
Management Unit 1	1,633	Ausable St. Forest
Management Unit 2	1,379	AuSable St. Forest
Management Unit 3	1,405	AuSable St. Forest
Management Unit 4	946	AuSable St. Forest
Management Unit 5	<u>529</u>	AuSable St. Forest
TOTAL	5,892	
<u>Pere Cheney</u>		
Management Unit 1	1,230	AuSable St. Forest
Management Unit 2	<u>1,168</u>	AuSable St. Forest
TOTAL	2,398	
<u>Sharon</u>		
Management Unit 1	1,167	Pere Marquette St. Forest
Management Unit 2	1,020	Pere Marquette St. Forest
Management Unit 3	942	Pere Marquette St. Forest
Management Unit 4	<u>965</u>	Pere Marquette St. Forest
TOTAL	4,094	

<u>AREA</u>	<u>ACRES</u>	<u>STATE FOREST</u>
<u>St. Helen</u>		
Management Unit 1	1,150	AuSable St. Forest
Management Unit 2	1,324	AuSable St. Forest
Management Unit 3	<u>579</u>	AuSable St. Forest
TOTAL	3,053	

<u>Staley Lake</u>		
Management Unit 1	1,236	AuSable St. Forest
Management Unit 2	<u>1,422</u>	AuSable St. Forest
TOTAL	2,658	

<u>Warbler Monument</u>		
Management Unit 1	<u>554</u>	AuSable St. Forest
TOTAL	554	

<u>TOTALS:</u>	
AuSable State Forest	- 56,608 Acres
Mackinac State Forest	- 9,676 Acres
Pere Marquette State Forest	- <u>7,859 Acres</u>
State of Michigan	74,143 Acres

Summary - Critical Habitat for Kirtland's Warbler

Huron-Manistee National Forest	- 53,488 Acres
State of Michigan	- 74,143 Acres
Total - Michigan	127,631 Acres

PRESENT AND PROJECTED ACREAGE OF OCCUPIABLE

NESTING HABITAT (1979 - 1989)

An analysis was recently completed on State of Michigan and National Forest lands proposed for designation as critical or essential habitat for the Kirtland's Warbler. Stand data were examined to determine how much occupiable Kirtland's Warbler habitat exists at the present time (1979), how much will exist five years from now (1984), and ten years from now (1989). In making this analysis the following criteria were utilized:

- (1) Stands 40 acres or larger were considered (actually the Kirtland's Warbler rarely occupies a stand less than 80 acres in size).
- (2) "Occupiable-aged" is assumed to be from 10 to 20 years old for planting and for regeneration following commercial harvest, and 8 to 20 for wildfire areas.
- (3) Only those stands that have been regenerated to date (1979) were included in the analysis.

The following table summarizes the findings of this analysis:

<u>Management Agency</u>	<u>Acreage Apparently Occupiable in 1979</u>	<u>Acreage Occupiable-Aged in 1984</u>	<u>Acreage Occupiable-Aged in 1989</u>
U.S. Forest Service	3,937	5,388	5,926
State of Michigan-Proposed Critical Habitat	11,017	10,474	4,618
State of Michigan-Military Area	950	4,000	3,000
TOTALS	<u>15,904</u>	<u>19,862</u>	<u>13,544</u>

It should be noted that much of this habitat, even though of suitable age, has not been and probably will not be occupied by Kirtland's Warblers. Many of these stands, even to human eyes, lack characteristics of stand size, ground cover, stocking density and/or uniformity of height apparently preferred by this Warbler. Overall, less than 60 per cent of the "occupiable-aged" habitat on these public lands was known to hold Kirtland's Warblers in 1979 (stands totalling 8,900 acres were known to be used by Warblers, but in many cases only portions of these stands were occupied). This 8,900 acres of occupied habitat represents less than 7 per cent of the 128,000 acres of public land identified for Kirtland's Warbler management.

Additional occupiable habitat exists outside of the designated State and National Forest Management Areas. This additional acreage is included in the data presented below:

The following table shows present and projected total acreage estimates of habitable-aged jack pine lands, by ownership type, for the 11 county area comprising all of the known nesting* range for the Kirtland's Warbler:

<u>Ownership</u>	<u>Apparently-Occupiable In 1979 (Acres)</u>	<u>Occupiable-Aged In 1984 (Acres)</u>	<u>Occupiable-aged In 1989 (Acres)</u>
State of Michigan-Management Areas	11,017	10,474	4,618
State of Michigan-Military Lands	950	4,000	3,000
State of Michigan-Outside Management Areas	600	600	600
U.S. Forest Service-Management Areas	3,937	5,388	5,926
U.S. Forest Service-Outside Management Areas	400	400	400
Private-Within State of Michigan Management Areas	700	700	700
Private-Outside State of Michigan Management Areas	200	650	650
Private-Within Huron Nat'l Forest	0	0	0
TOTALS (Maximal)	17,804	22,212	15,794

*Presence of female Kirtland's Warblers was not determined for the Wexford County site recently occupied by male warblers; and no females could be found associated with the male warblers recently observed in Ontario, Quebec or Wisconsin.

Upon initial examination of this table it would appear that suitable nesting habitat is not the major factor limiting the population of the Kirtland's Warbler. Closer evaluation of the data, however, indicates a situation that should be considered with deep concern.

Seventy five percent (157) of the singing males censused in 1979 were found within five large wildfire areas (Military Area, Fletcher Road, Damon, St. Helen and Muskrat Lake) and in that part of the USFS, Mack Lake Management Area regenerated in the mid 1960's with prescribed seed tree burning and supplemental planting. The acreage of occupiable-aged habitat in these six areas totals 7,010 acres - only 40 per cent of the 17,804 acres of occupiable-aged habitat present in these 11 counties. This disproportionate distribution suggests selection for quality of habitat, i.e. habitat of wildfire origin in habitat approximating the same. Much of the "occupiable-aged" habitat in these counties, even to human eyes, appears to be very different from that of wildfire origin and will probably not be utilized by nesting Warblers.

Based on recent trends, the amount of Warbler habitat created by wildfire will continue to decline. As this "quality" habitat diminishes, we will need to rely heavily on habitat created in designated Management Areas. Hopefully, research will provide more definitive information on optimal nesting habitat conditions and the minimal tolerance levels for occupied nesting habitat. Until more information is available, it is imperative that every effort be made to create high quality habitat, that will closely simulate areas of wildfire origin.

Management Schedule on National Forest lands
BIG CREEK KIRTLAND'S WARBLER MANAGEMENT AREA

Compartments - 102, 105, 120, 121, 122, 123, 124, 125, 127, 128, 146,
149, 151, and 152 - Mio Ranger District

I. Area Description

- A. General location and background information - The Big Creek KWMA lies in the southwest corner of Oscoda County between the East and West Branches of Big Creek. The area is limited to the south by the Forest boundary; to the east by a change in soils; to the north by soils and development; and to the west by extensive red pine plantations.

Extensive cutting has already taken place in the Briggs Road Unit and a number of other sales have been proposed or made in Compartments 120, 123, 124, 125, and 152. Much of the timber in this area is mature and extensive logging and reforestation work will be necessary during the next 20 years.

Six management units have been identified in the Big Creek KWMA. A total of 8,040 acres has been identified as critical habitat. Ideally, 6 management Blocks (comprising approximately 1600 acres) should be treated during this 10 year period.

Warblers have not been recorded in this Area during this decade. It is highly desirable to establish a population here as soon as possible. If the necessary management activities are carried out after planned sales are completed, Warblers should invade the Area in 8 to 10 years (1986-1988).

- B. Land ownership patterns - Briggs Road, County Line, and Mapes Road Units are entirely within National Forest ownership. Powerline, West Branch and Union Corners Units have some private lands dispersed within the designated critical habitat. A total of 200 acres has been identified for potential acquisition within this Area (see Unit maps).

The only known permanent residence in the area is in the northeast corner of the private parcel in Section 28, T25N, R1E. There are numerous cabins scattered around the periphery of the area primarily adjacent to the lakes and streams. Generally, developments in the area are minimal.

- C. Status of other resources - Mapes Road and Valley Road receive a moderate amount of traffic, particularly during the summer recreation season. Extra measures should be utilized along these routes to minimize aesthetic conflicts while maintaining habitat viability.

There is a substantial acreage of subsurface mineral rights held by the State in this area. Close coordination with the State of Michigan will minimize any potential conflict with their holdings. There are, however, several locations where private groups hold the mineral rights to Federal lands. The only such location overlapping critical habitat is in Section 29, T25N, R2E. Special precautions should be taken in this area to assure the management options will not be lost.

The recreational uses in the area are primarily deer hunting, berry picking, and O.R.V. riding. The jack pine flats are well suited to the seasonal pursuits of berry picking and deer hunting. ORV riding is probably the most prevalent form of recreation in the area. The Cycle Conservation Club Trail runs through the area and may need realignment to minimize conflict with nesting Warblers.

- D. Kirtland's warbler nesting history in area - Warblers were previously found in Sections 13, 14, 23, and 24 of T25N, R1E, in 1961 and in Section 20 of T25N, R2E, in 1951. Warblers were also found in Section 9 of this Township, but five red pine plantations of 14 to 92 acres were planted in 1964 effectively eliminating the present usefulness of this acreage for Warbler management. Warblers have also nested near Luzerne (north of the area), but management opportunities have been minimized by development.

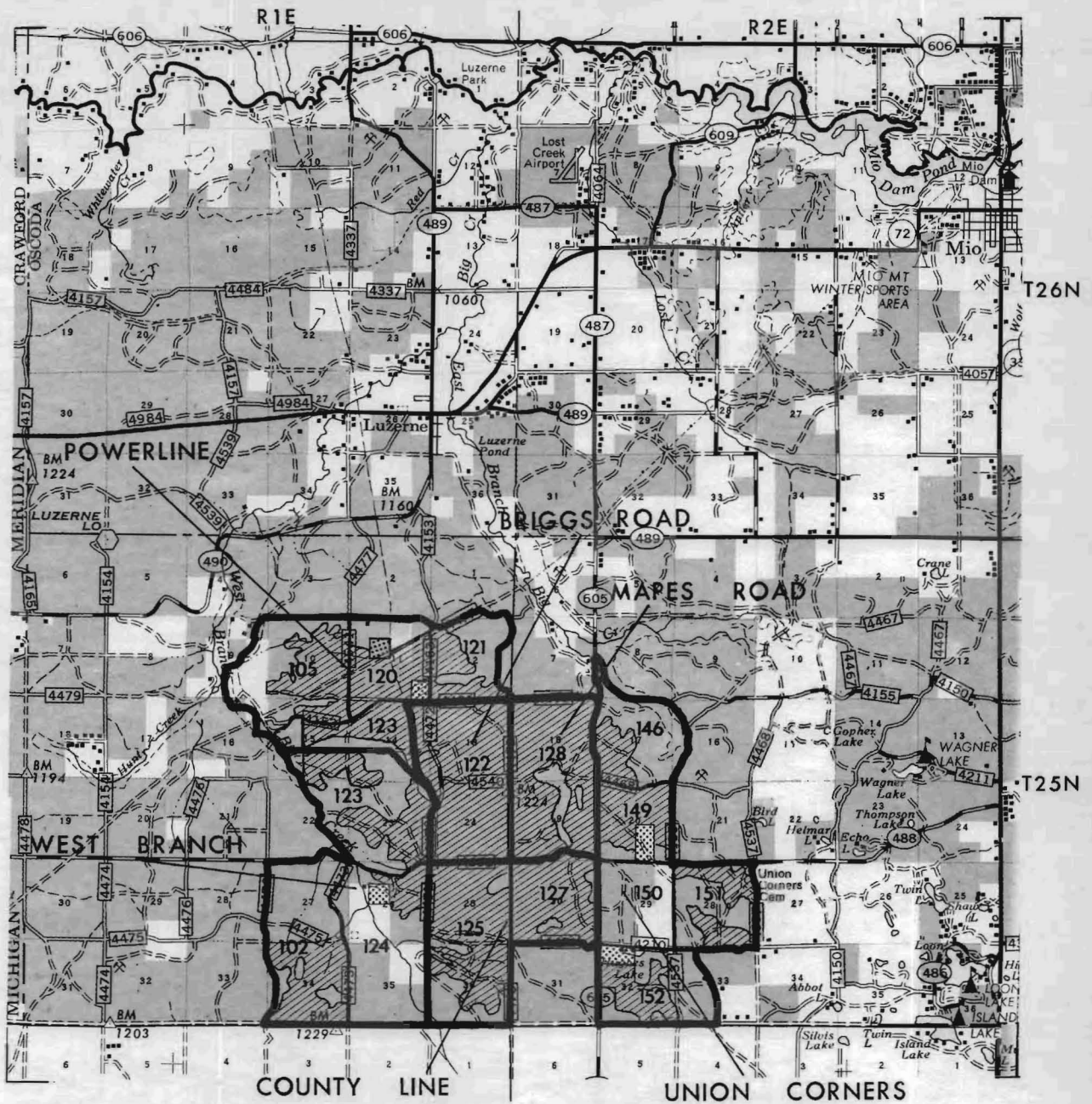
HURON-MANISTEE NATIONAL FOREST

KIRTLAND'S WARBLER MANAGEMENT AREA

BIG CREEK

OSCODA COUNTY, MICHIGAN

1978



LEGEND

- UNIT BOUNDARY
- COMPARTMENT BOUNDARY
- RANGER DISTRICT BOUNDARY
- CRITICAL HABITAT IN NATIONAL FOREST OWNERSHIP
- POTENTIAL HABITAT IN PRIVATE OWNERSHIP

SCALE 1/2" = 1 MILE

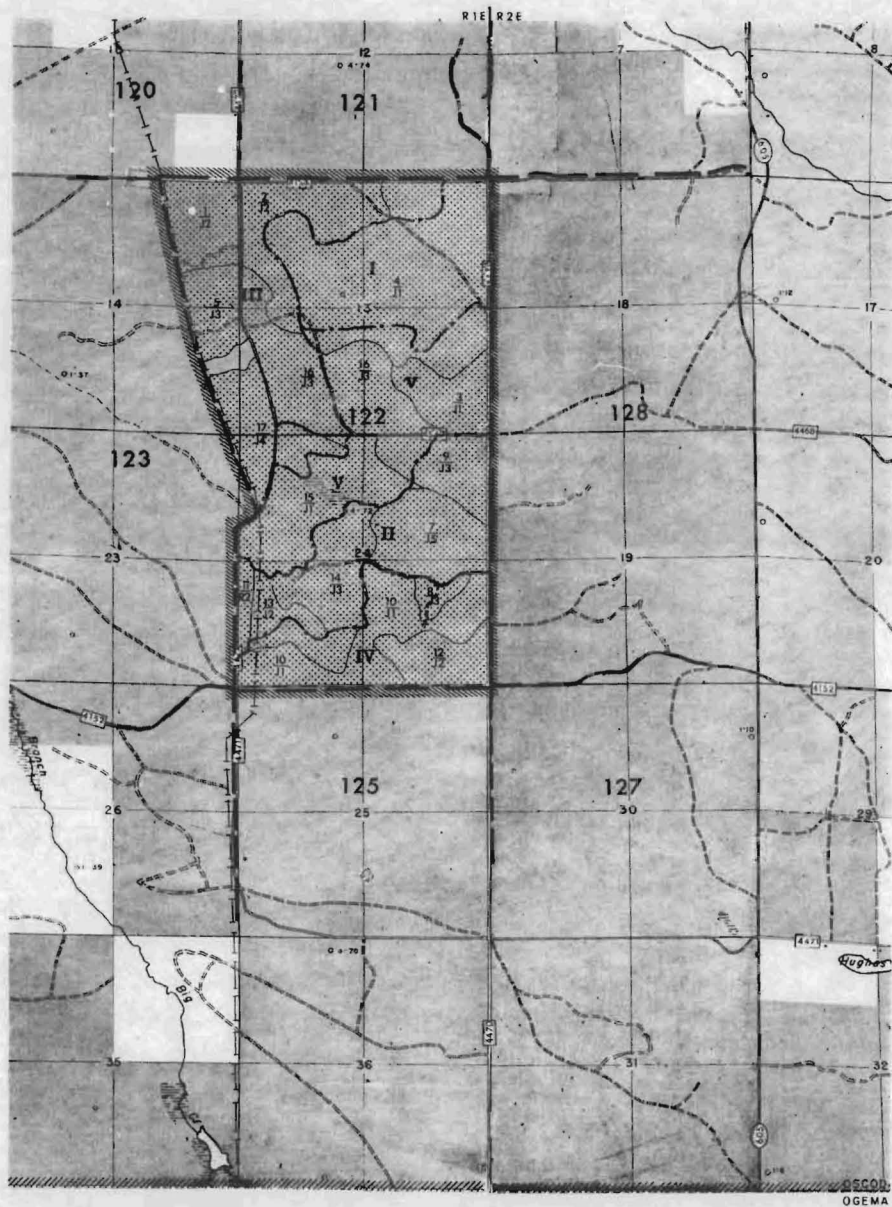
BRIGGS ROAD UNIT

I. Unit Description

- A. Compartments involved and acreage of critical habitat - This Unit is located in Compartment 122. A total of 1,428 acres has been identified as Critical Habitat in this Unit.
- B. Complex needs - Compartment examination was completed for Compartment 122 in 1977. There are no immediate Complex needs.
- C. Status of existing habitat - The major impediment to effective Warbler management is the extensive harvesting that was completed in this Compartment in the early 1970's. Approximately 60 percent of the entire compartment was harvested during this period. Age class regulation will not be achieved during this rotation period. Block 3 (213 acres) was burned and planted to jack pine in 1976. An additional 328 acres were harvested in this Unit with adequate levels of natural regeneration for timber management existing within most of the area. Other than removal of the remaining strips in Stand 7 and an overstory removal in Stand 17, additional timber harvest activities in this Unit should not be necessary for 20 years.
- D. Planned or existing timber sales - There are no planned (through 1983) or existing timber sales in this Unit.

II. Known or Potential Human Activity


















- A. Developments - A natural gas pipeline follows the west edge of this Unit. There are no other known structural developments in this Unit.
- B. Known or potential historic sites - There are no known historic sites within this Unit.
- C. Special uses - As stated previously, a gas pipeline right-of-way exists along the west edge of the Unit. Prior to any prescribed burning adjacent to the pipeline, an inspection of the line for possible leaks may be necessary.

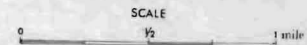


BRIGGS ROAD UNIT
BIG CREEK AREA
KIRTLAND'S WARBLER MANAGEMENT PLAN

OSCODA COUNTY, MICH.
 T26N. R1E
 1979

LEGEND

-  UNIT BOUNDARY
-  RANGER DISTRICT BOUNDARY
-  COMPARTMENT BOUNDARY
- 622** COMPARTMENT NUMBER
-  BLOCK BOUNDARY
- IV** BLOCK NUMBER
-  STAND BOUNDARY
-  STAND NUMBER
-  NATIONAL FOREST OWNERSHIP
-  CRITICAL HABITAT
-  POTENTIAL ACQUISITION
-  MAIN HIGHWAY
-  ALL WEATHER OR SECONDARY ROAD
-  DEVELOPED ROUTE
-  UNDEVELOPED ROUTE
-  US ROUTE
-  STATE ROUTE
-  COUNTY ROUTE
-  FOREST ROUTE



OGEMA

HABITAT MANAGEMENT PRESCRIPTION

UNIT: Briggs Road

CUTTING BLOCK: I

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
122	(Part) 4	213	J0	1979-88	12	
	TOTAL =	213				

COMMENTS: This Block was burned and planted to jack pine in 1976. The survival appears to be very good in this plantation, at this time (1979).

UNIT: Briggs Road

CUTTING BLOCK: II

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
122	7	120	J5	1989-98	73*	
	(Part) 9	58	J3		48	
	11	10	R2		40	
	13	21	J2		39	
	(Part) 14	42	J3		48	
	TOTAL =	251				

COMMENTS: Stand 7 was strip cut, disced, and direct seeded in 1975. A stocking survey should be conducted to determine if there is adequate regeneration (for Warbler management) in the cut strips. If regeneration is insufficient, the remaining strips should be cut, the entire area burned, and then planted to jack pine.

If desirable, Stand 11 could be deferred and harvested at the end of the second rotation period (2048). Stand 13 could also be deferred for an additional 10 years beyond the prescribed harvest date.

HABITAT MANAGEMENT PRESCRIPTION

UNIT: BRIGGS ROAD

CUTTING BLOCK: III

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
122	1	60	J2	1999-2008	44	
	2	84	J2		44	
	(Part) 4	17	J1		32	
	5	50	J2		58	
	(Part) 16	98	J3		58	
	17	75	J4		96* (58)	
	TOTAL =	384				

COMMENTS: The age at time of treatment for Stand 17 (96 years) refers to the age of the overstory. The J4 overstory is mature and could be harvested now. The remaining understory is a J3 type that should be about 58 years old by the prescribed harvest date.

UNIT: BRIGGS ROAD

CUTTING BLOCK: IV

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
122	8	17	J3	2009-18	73*	
	10	132	J1		45 (38)	
	12	66	J2		65*	
	(Part) 14	28	J3		68*	
	TOTAL =	243				

COMMENTS: Stand 10 should be burned and planted to jack pine as soon as possible. The age in parenthesis represents the age of the stand in 2018 if it is burned and planted by 1980.

HABITAT MANAGEMENT PRESCRIPTION

UNIT: BRIGGS ROAD

CUTTING BLOCK: V

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
122	3	60	J1	2019-28	55	
	(Part) 4	65	J1		52	
	15	136	J1		55	
	(Part) 16	62	J3		78*	
	(Part) 9	14	J3		78*	
	TOTAL =	337				

COMMENTS: Stands 3, 4 (Part), and 15 have all been clearcut since 1973. All three stands have a fair amount of recent natural regeneration. This recent regeneration, in combination with the existing remnant understory, has created adequate stocking levels of 50-60%. Some sparse pockets may require fill-in planting of jack pine.

The portions of Stands 9 and 16 within this Block may require harvest prior to the prescribed treatment date.

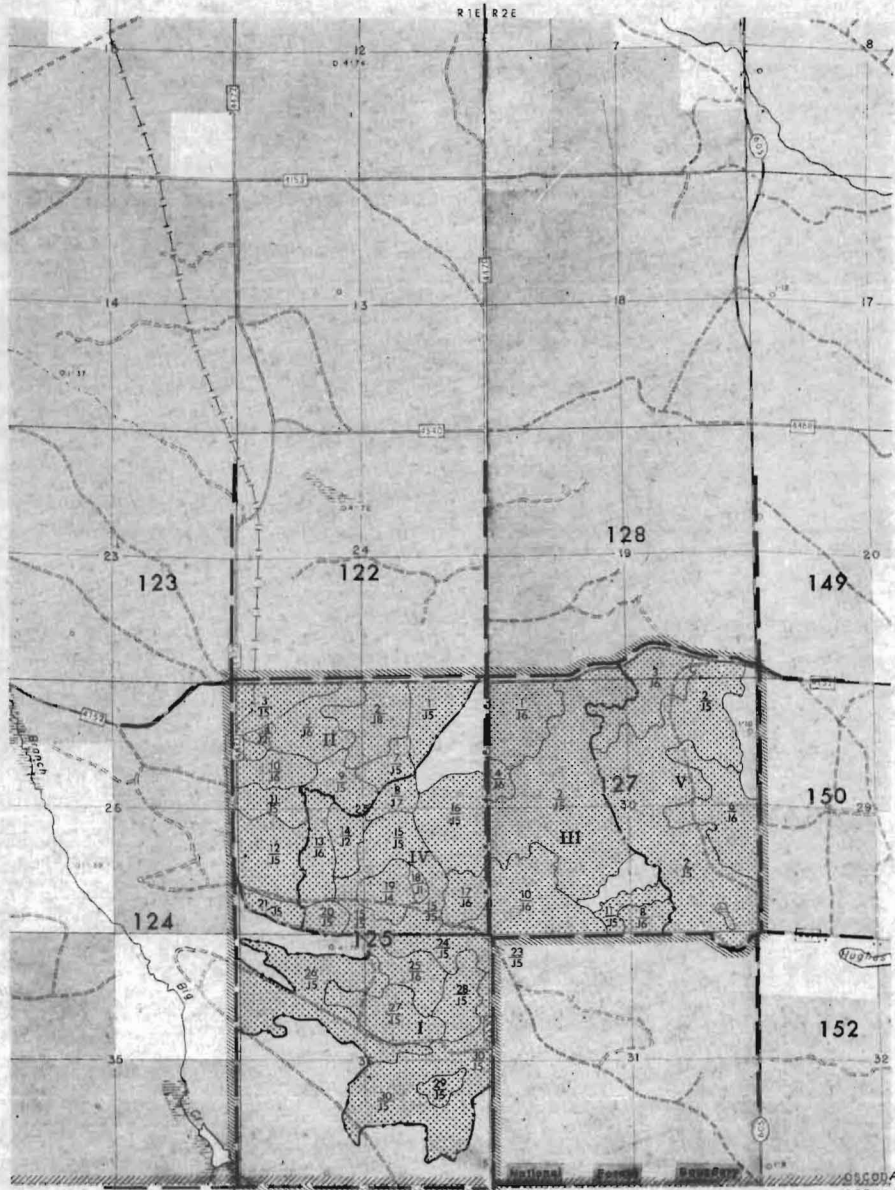
COUNTY LINE UNIT

I. Unit Description

- A. Compartments involved and acreage of critical habitat - Compartments 125 and 127 are included in the County Line Unit. A total of 1,618 acres has been identified as Critical Warbler Habitat within this Unit.
- B. Compex needs - Compartment examination has been completed on both of these compartments since 1974. There are no compex needs until the next periodic scheduled examination (every 10 years).
- C. Status of existing habitat - Most of the jack pine in this Unit is in the 40 to 55 year age class. Age class regulation will not be achieved until the end of the next rotation period. Timber harvest activities are planned in Blocks I, II, and III during the next 5 year period. Blocks IV and V should be held as long as possible to initiate stratification of age classes in the Blocks of this Unit.
- D. Planned or existing timber sales - Timber sale activities are planned in Blocks I and II (Jenkins Road Sale - Packaging Corp. - 6/21/77), and Block III (Lemon Road Sale - Packaging Corp. - 3/29/78).

II. Known or Potential Human Activity

- A. Developments - A gas pipeline runs along the west edge of this Unit. No other known structural developments exist within this Unit.
- B. Known or potential historic sites - There are no known historical sites within this Unit.
- C. Special uses - The presence of the gas pipeline that follows the west end of the Unit should be considered prior to any prescribed burning in Block I and II. There are no other known special uses in this Unit.



COUNTY LINE UNIT
BIG CREEK AREA
KIRTLAND'S WARBLER MANAGEMENT PLAN

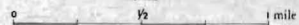
OSCODA COUNTY, MICH.
 T25N. R1 & 2E

1979

LEGEND

- UNIT BOUNDARY
- RANGER DISTRICT BOUNDARY
- COMPARTMENT BOUNDARY
- 622** COMPARTMENT NUMBER
- BLOCK BOUNDARY
- IV** BLOCK NUMBER
- STAND BOUNDARY
- $\frac{4}{16}$ STAND NUMBER
- TIMBER TYPE-SIZE-DENSITY
- NATIONAL FOREST OWNERSHIP
- CRITICAL HABITAT
- POTENTIAL ACQUISITION
- MAIN HIGHWAY
- ALL WEATHER OR SECONDARY ROAD
- DEVELOPED ROUTE
- UNDEVELOPED ROUTE
- US ROUTE
- STATE ROUTE
- COUNTY ROUTE
- FOREST ROUTE

SCALE



OSCODA CO
 OCEMA CO

HABITAT MANAGEMENT PRESCRIPTION

UNIT: COUNTY LINE

CUTTING BLOCK: I

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
125	24	20	J5	1979-88	71	Final Harvest
	25	32	J6		62	Final Harvest
	26	104	J5		73	Final Harvest
	27	42	J5		68	Final Harvest
	28	30	J5		71	Final Harvest
	29	10	J5		63	
	30	109	J5		52	
	TOTAL -	347				

COMMENTS: Stands 24, 25, 26, 27, and 28 are presently being harvested under the Jenkins Road Sale. Upon completion or closure of this sale, a small sale should be made to encompass Stands 29 and 30. This should be done as soon as possible to retain homogeneity in the Block. Full tree skidding was not excluded from the Jenkins Road Sale and may cause problems with prescribed burning in the future.

HABITAT MANAGEMENT PRESCRIPTION

UNIT: _____ COUNTY LINE

CUTTING BLOCK: II

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
125	1	32	J5	1989-98	(10)	Final Harvest
	2	45	J8		(10)	Final Harvest
	3	32	J5		(10)	Final Harvest
	4	5	J2		60	Final Harvest
	5	44	J6		(10)	
	7	19	J5		(10)	Final Harvest
	9	24	J5		(10)	Final Harvest
	10	27	J6		(10)	Final Harvest
	11	21	J5		63	
	12	60	J5		(10)	Final Harvest
	21	14	J5		68*	

TOTAL = 323

COMMENTS:

Stands 1, 2, 3, 4, 7, 9, 10, and 12 are scheduled for final harvest under the Jenkins Road Sale. Upon completion or closure of this Sale, Stands 5, 11, and 21 should be final harvested through a small sale. If this small sale is completed soon enough, the entire Block could be burned and planted at the same time. The ages in parenthesis represent the age of the stands in 1978 if harvested, burned, and regenerated by 1988.

HABITAT MANAGEMENT PRESCRIPTION

UNIT: _____ COUNTY LINE _____

CUTTING BLOCK: III

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
127	1	51	J6	1999-2008	(20)	Final Harvest
	(Part) 2	170	J5		74*	
	4	9	J6		(20)	Final Harvest
	8	14	J6		(20)	Final Harvest
	10	70	J6		(20)	Final Harvest
	11	14	J5		(20)	Final Harvest
	TOTAL =	328				

COMMENTS: Stands 1, 4, and 10 are scheduled for final harvest under the Lemon Road Sale. Stand 8 and 11 are scheduled for a reserve tree cut where scattered red pine will be retained. The area is then scheduled for prescribed burning and planting. The portion of Stand 2 within Block III should be final harvested within the next 20 years, to combine the two separate cutting areas created by the Lemon Road Sale and enhance the value of this Block for Warbler nesting. The age in parenthesis represents the age of the stands in 2008 if harvested, burned, and regenerated by 1988.

HABITAT MANAGEMENT PRESCRIPTION

UNIT: _____ COUNTY LINE

CUTTING BLOCK: IV

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
125	8	15	J1	2009-18	65	Defer for 5-10 years
	13	33	J6		83*	"
	14	20	J2		56*	"
	15	74	J5		101*	"
	16	63	J5		101*	"
	17	18	J6		101*	"
	18	5	J1		63*	"
	19	27	J4		103*	"
	20	13	J5		81*	"
	23	9	J5		88*	"
	TOTAL =	227				

COMMENTS: Defer this Block for at least 10 years (until 1988) if possible.

HABITAT MANAGEMENT PRESCRIPTION

UNIT: _____ COUNTY LINE _____

CUTTING BLOCK: V

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
127	(Part) 2	236	J5	2019-28	94*	
	3	48	J6		94*	
	6	59	J6		98*	
	TOTAL =	343				

COMMENTS: Defer this Block for at least 20 years (1998) if possible. This Block will require treatment prior to the prescribed harvest dates.

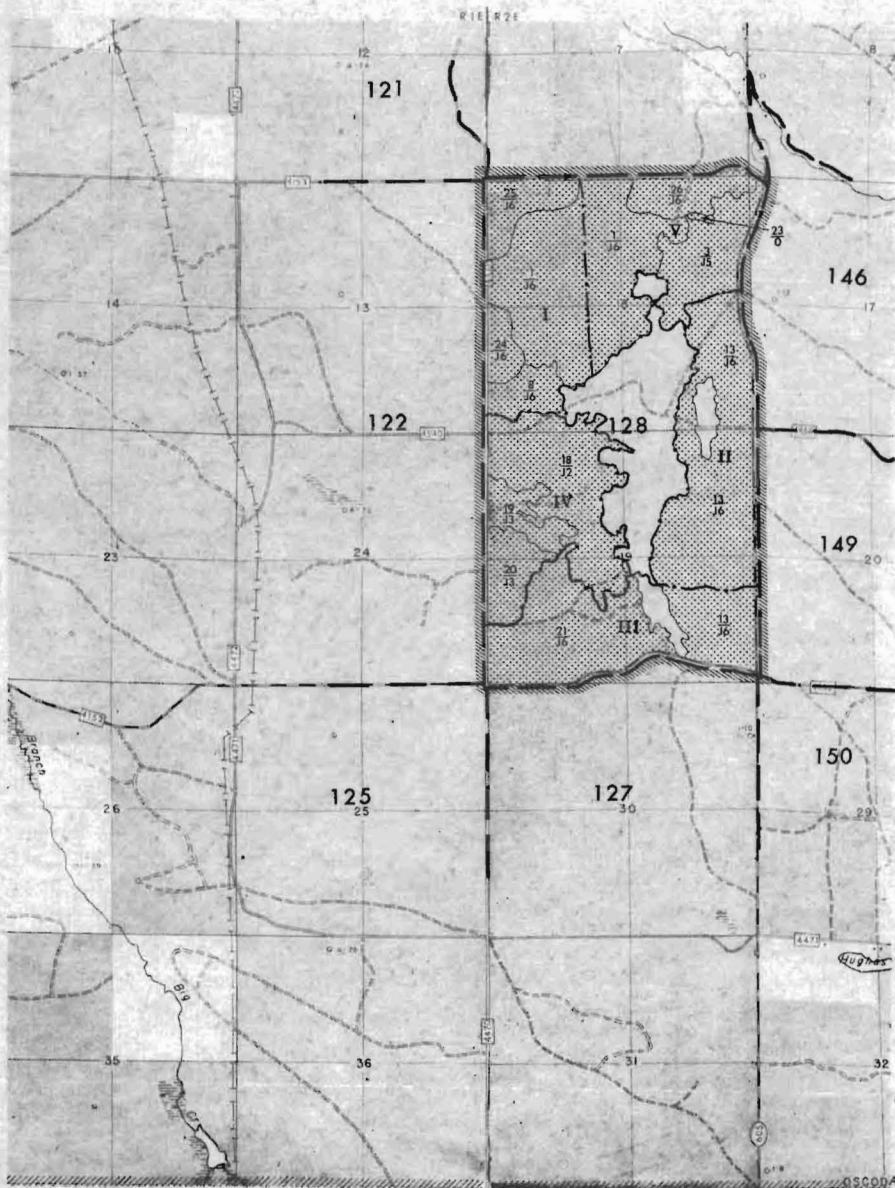
MAPES ROAD UNIT

I. Unit Description

- A. Compartments involved and acreage of critical habitat - The Mapes Road Unit is located in Compartment 128 with a total of 1,074 acres identified as Critical Warbler nesting Habitat.
- B. Compex needs - Compartment examination was completed in Compartment 128 in 1976. There are no compex needs until the next periodic scheduled examination (every 10 years).
- C. Status of existing habitat - The Merritt Road Sale will remove most of the mature jack pine in Blocks I and V. Blocks II and III contain approximately 45 year old jack pine that should be held to the prescribed cutting dates (if possible). Block IV contains jack pine in the 35 year age class and should also be held to the prescribed cutting date.
- D. Planned or existing timber sales - Timber sale activities are planned in Blocks I and V (Merritt Road Sale - McKellar Forest Products, 10/78).

II. Known or Potential Human Activities

- A. Developments - There are no known structural developments within this Unit.
- B. Known or potential sites - There are no known historical sites in this Unit.
- C. Special uses - There are no known special uses in this Unit.
















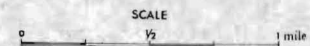
MAPES ROAD UNIT
BIG CREEK AREA
KIRTLAND'S WARBLER MANAGEMENT PLAN

OSCODA COUNTY, MICH.
 T25N. R2E

1979

LEGEND

-  UNIT BOUNDARY
-  RANGER DISTRICT BOUNDARY
-  COMPARTMENT BOUNDARY
- 622** COMPARTMENT NUMBER
-  BLOCK BOUNDARY
- IV** BLOCK NUMBER
-  STAND BOUNDARY
-  STAND NUMBER
-  TIMBER TYPE-SIZE-DENSITY
-  NATIONAL FOREST OWNERSHIP
-  CRITICAL HABITAT
-  POTENTIAL ACQUISITION
-  MAIN HIGHWAY
-  ALL WEATHER OR SECONDARY ROAD
-  DEVELOPED ROUTE
-  UNDEVELOPED ROUTE
-  US ROUTE
-  STATE ROUTE
-  COUNTY ROUTE
-  FOREST ROUTE



OSCODA CO
 OGEMAW CO

HABITAT MANAGEMENT PRESCRIPTION

UNIT: MAPES ROAD

CUTTING BLOCK: I

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
128	(Part) 1	111	J6	1979-88		Final Harvest
	8	35	J6			Final Harvest
	24	22	J6		73*	Deferral
	25	26	J6		73*	Deferral
	TOTAL =	194				

COMMENTS: Final harvest is scheduled for Stands 1 and 8 under the Merritt Road Sale. Stand 24 and 25 should also be harvested within the next 10 years to establish a Block with a homogeneous age class and to increase the acreage of potential nesting habitat.

UNIT: MAPES ROAD

CUTTING BLOCK: II

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
128	(Part) 13	189	J6	1989-98	63	
	TOTAL =	189				

COMMENTS: The timber in this Block should be deferred until the scheduled cutting in 20 years.

HABITAT MANAGEMENT PRESCRIPTION

UNIT: MAPES ROAD

CUTTING BLOCK: III

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
128	(Part) 13	65	J6	1999-2008	73*	
	21	145	J6		74*	
	TOTAL =	210				

COMMENTS: In order to attain age class regulation, this Block should be held as long as possible toward the proposed harvest date.

UNIT: MAPES ROAD

CUTTING BLOCK: IV

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
128	18	146	J2	2009-18	67*	
	19	32	J3		70*	
	20	44	J3		63*	Overstory Removal

COMMENTS: Stand 20 is scheduled for an overstory removal under the Merritt Road Sale. The understory of this stand and the remaining two stands should be held to the scheduled harvest date (if possible).

HABITAT MANAGEMENT PRESCRIPTION

UNIT: MAPES ROAD

CUTTING BLOCK: V

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
128	(Part) 1	148	J6	2019-28		Final Harvest
	3	75	J5			Final Harvest
	23	1	00			
	26	35	J6		113*	Defer
	TOTAL =	259				

COMMENTS: Stands 1 and 3 are being harvested under the Merritt Road Sale. Stand 26 should be harvested within the next 10 years to establish an even-aged Block.

POWERLINE UNIT

I. Unit Description

- A. Compartments involved and acreage of critical habitat - Compartments 105, 120, 121, and 123 are included within this Unit. A total of 1,255 acres has been identified as Critical Warbler Habitat in this Unit.
- B. Complex needs - Compartments 105 and 121 are presently (March, 1979) being field examined. Approved E.A.R.'s should be available for these compartments by the end of FY 1980. Compartments 120 and 123 were examined in 1973 with E.A.R.'s approved in 1974.
- C. Status of existing habitat - With the exception of Block I most of the remaining habitat is presently in the 40 to 55 year age class. In order to initiate the development of age class diversity between Blocks and harvest the timber before it becomes overmature, the harvest schedule has been advanced to five year intervals during the first rotation period. The boundary of Compartment 123 was recently realigned to follow Big Creek rather than the north-south line along the western edge of Section 15. When this compartment is reinventoried, the jack pine stands in the added acreage should be designated as critical habitat.
- D. Planned or existing timber sales - There are presently two active timber sales in this Unit. The Comstock Road Sale (Mead Corp. - 7/20/77) will harvest 229 acres of essential habitat in Block I (Compartment 120). In addition, Stands 1 and 6 (Compartment 123) have been identified for an overstory removal under the Big Creek Sale (L.Z. Hizer - 9/21/76). Compartments 105 and 121 are scheduled for sales in FY 1982.

II. Known or Potential Human Activity

- A. Developments - A large natural gas pipeline runs in a north-south direction through the center portion of this Unit. The associated right-of-way (60' wide) was issued to Lakehead Pipeline Company. There is also a power transmission line that bisects the Unit in a northeast-southeast direction (see Unit map). This right-of-way (125' wide) was issued to Top O' Michigan Rural Electric Company.

In addition, seasonal residences (on private lands) are located adjacent to Warbler habitat in T25N, R1E, Section 11 NW NE and SE SE. Private residences are also located approximately 1/4 mile

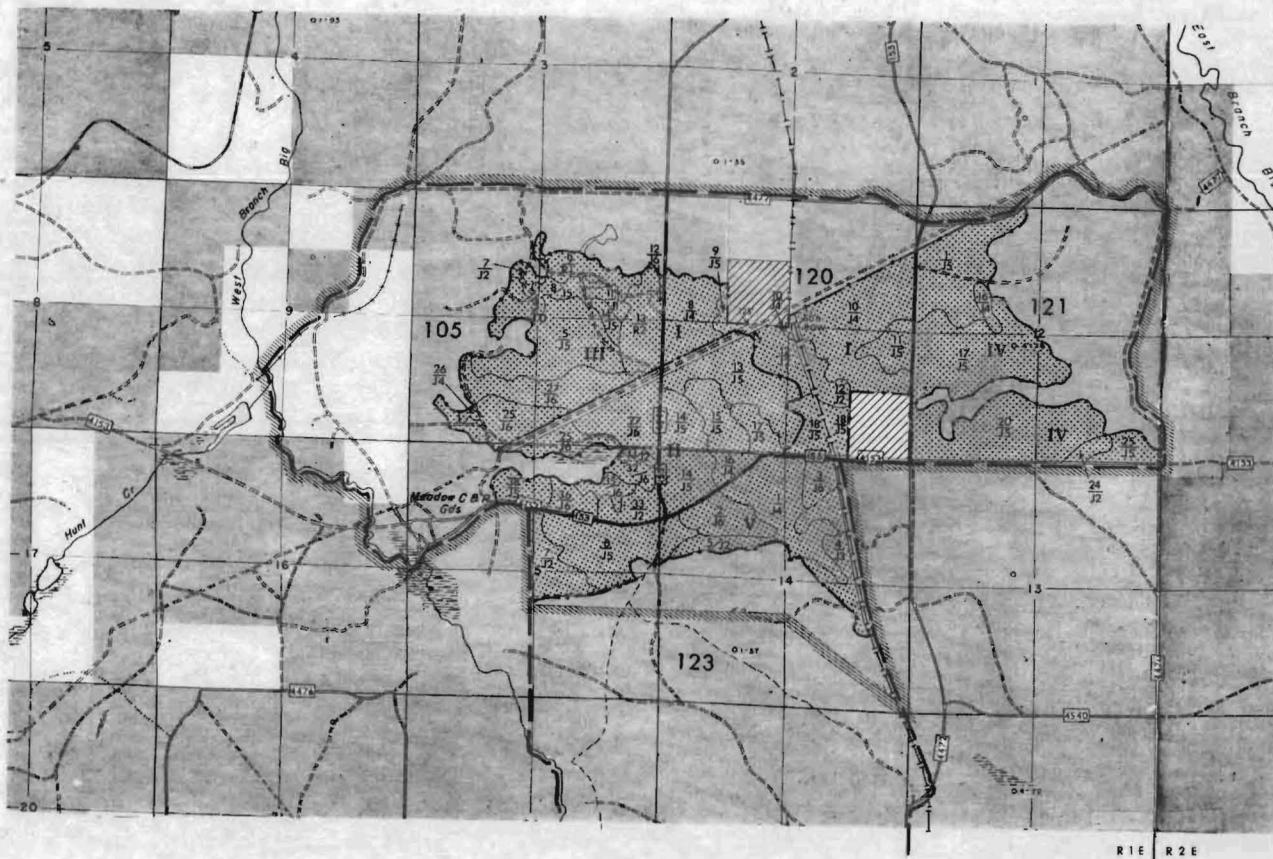
southwest (T25N, R1E, Section 16 NE NE) and 1/2 mile west (T25N, R1E, Section 9 SE NE) of the Warbler habitat in this Unit. The Meadow Camp and Picnic Grounds is situated approximately 1/2 mile west of the Warbler habitat in Compartment 123.

- B. Known or potential historic sites - There are no known historical sites in this Unit.
- C. Special uses - The C.C.C. trail follows the pipeline along the eastern edge of Compartment 123 and through the center of Compartment 120. As the habitat in this Unit approaches the size class suitable for Warbler occupancy, special consideration should be given to relocating this trail away from potential nesting habitat.



















POWERLINE UNIT
 BIG CREEK AREA
 KIRTLAND'S WARBLER MANAGEMENT PLAN

OSCODA COUNTY, MICHIGAN
 T25N. R1 & 2E

1979



LEGEND

- | | | | |
|---|---------------------------|---|-------------------------------|
|  | UNIT BOUNDARY |  | MAIN HIGHWAY |
|  | RANGER DISTRICT BOUNDARY |  | ALL WEATHER OR SECONDARY ROAD |
|  | COMPARTMENT BOUNDARY |  | DEVELOPED ROUTE |
| 622 | COMPARTMENT NUMBER |  | UNDEVELOPED ROUTE |
|  | BLOCK BOUNDARY |  | US ROUTE |
| IV | BLOCK NUMBER |  | STATE ROUTE |
|  | STAND BOUNDARY |  | COUNTY ROUTE |
|  | STAND NUMBER |  | FOREST ROUTE |
|  | TIMBER TYPE-SIZE-DENSITY | | |
|  | NATIONAL FOREST OWNERSHIP | | |
|  | CRITICAL HABITAT | | |
|  | POTENTIAL ACQUISITION | | |

SCALE

0 1/2 1 mile

HABITAT MANAGEMENT PRESCRIPTION

UNIT: POWERLINE UNIT

CUTTING BLOCK: I

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY).
120	8	48	J4	1979-83	70	Final Harvest
	9	8	J5		73	Final Harvest
	10	86	J4		71	Removal
	11	21	J5		72	Final Harvest
	12	42	J2		23	Removal
	18	24	J5		73	Final Harvest
	TOTAL =	229				

COMMENTS: Stands 8, 9, 10, 11, 12, and 18 are scheduled for harvest under the Comstock Road Sale (Mead Corp. -7/20/77). Most of this acreage has been identified for an overstory removal (indicating advanced regeneration in the understory). Upon completion of the sale, an analysis should be made to determine whether this advanced regeneration should be managed to rotation or if it should be burned over and regenerated.

HABITAT MANAGEMENT PRESCRIPTION

UNIT: POWERLINE UNIT

CUTTING BLOCK: II

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
105	(Part) 25	13	J6	1984-88	57	
	(Part) 27	28	J6		64	
	32	9	J6		63	
	33	25	J2		26	
	35	9	J6		64	
	36	14	J6		66	
	38	23	J5		57	
120	13	47	J5		78*	Final Harvest - Deferred
	14	49	J5		62	Final Harvest - Deferred
	15	27	J5		54	
	16	11	J2		28	Removal
	17	13	J5		82*	Final Harvest - Deferred
TOTAL =		268				

COMMENTS: A removal cut is scheduled for Stand 16 (Compartment 120) under the Comstock Road Sale (Mead Corp. - 7/20/77).

Compartment 105 is presently being field examined (March, 1979) and the timber management prescriptions are presently not available. Most of the jack pine habitat in this Block will be mature and merchantable at the prescribed harvest date. Stands 13 and 17 (Compartment 120) may require harvest prior to the proposed treatment date.

HABITAT MANAGEMENT PRESCRIPTION

UNIT: POWERLINE UNIT

CUTTING BLOCK: III

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
105	7	7	J2	1989-93	27	
	8	22	J5		65	
	9	24	R1		19	
	11	9	J1		27	
	12	3	J2			
	13	36	R2		29	
	14	7	J5		66*	
	15	82	J5		71*	
	(Part) 25	34	J6		62	
	26	2	J4		65	
	(Part) 27	92	J6		69*	

TOTAL = 318

COMMENTS: Compartment 105 is presently (March, 1979) being field examined. Management prescriptions are not available at this time.

HABITAT MANAGEMENT PRESCRIPTION

UNIT: POWERLINE UNIT

CUTTING BLOCK: IV

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
121	1	App 60	J2 (J5?)	1994-98		
	16	App 7	J4			
	17	App 96	J5			
	20	App 102	J5			
	24	App 7	J2			
	25	App 15	J5			
	TOTAL =	287				

COMMENTS: Compartment 121 is presently (March, 1979) being field examined. Stand data and associated management prescriptions are not available at this time.

UNIT: POWERLINE UNIT

CUTTING BLOCK: V

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
123	1	62	J4	1999-2003		Overstory Removal
	2	28	J6		73*	
	3	16	J6		83*	
	4	37	J3		53*	
	5	11	J2		48	
	6	70	J5			Overstory Removal
	7	29	J2		53	
	TOTAL =	253				

COMMENTS: Stands 1 and 6 are scheduled for an overstory removal under the Big Creek Sale (L. Z. Hizer, 9/21/76). The remaining advanced regeneration will be managed with the surrounding stands to the prescribed Block treatment date (2003). Stands 2 and 3 should be deferred as long as possible toward the prescribed treatment date.

UNION CORNERS UNIT

I. Unit Description

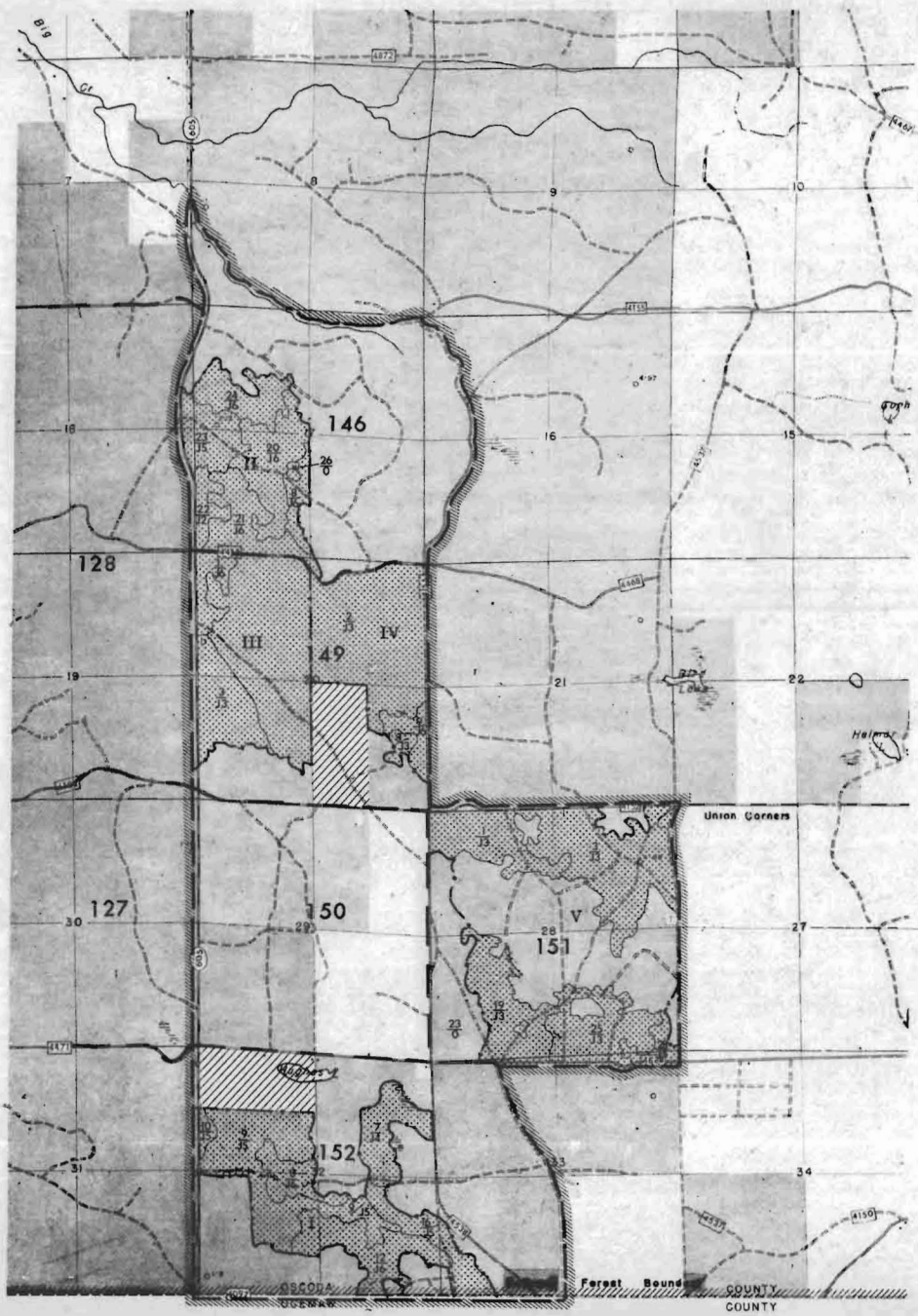
- A. Compartment involved and acreage of critical habitat - Compartments 146, 149, 151, and 152 are included within this Unit. A total of 1,242 acres has been identified as Critical Warbler Habitat in this Unit.
- B. Complex needs - All four of the compartments involved have had compartment examinations completed since 1976. There are no immediate complex needs.
- C. Status of existing habitat - Over half of Block I is presently scheduled for harvest. The ages of the timber in the remaining Blocks are already somewhat stratified. Blocks III and IV are approximately the same age (40 years+) and will probably require harvest before the prescribed cutting dates.
- D. Planned or existing timber sales - There are presently three timber sales planned for this Unit. In Compartment 152, the Hughes Lake Sale (Lakewood Forest Products - 9/27/76) will remove timber in Stands 7, 12, 16, and portions of 8 and 9. This will create approximately 150 acres of potential habitat in Block I.

In Compartment 146, the Howard Road Sale (Glawe Co. -11/78) will remove the timber in the portion of Stand 8 within Block II. An overstory removal is also scheduled for Stand 22.

In Compartment 149, the Benchmark Sale is scheduled to be sold in FY 1980. Stand 1 (Block III) and Stand 9 (Block IV) will be harvested as part of this sale.

II. Known or Potential Human Activity


















- A. Developments - A seasonal residence is situated on private land along FR 4210 in Section 32 NE NW. Other residences are located in the SE 1/4 of Section 33 and the NW 1/4 of Section 34.
- The Union Corners Cemetery is located along the east edge of Compartment 151 (in Section 28 SE NE).
- B. Known or potential historic sites - A portion of the Union Corners Town Site is located in Stand 5 and the northeast portion of Stand 3 - Compartment 151. As stated previously, the Union Corners Cemetery is situated approximately 1/2 mile due south of the Town Site. In addition, the Luzerne C.C.C. Camp was located in Stand 1 of Compartment 146.
- C. Special uses - The C.C.C. Trail passes through critical habitat in Compartments 146, 151, and 152. As the habitat in this Unit attains the required growth stage for Warbler nesting, alternate (non-conflicting) routes for this trail should be developed.



UNION CORNERS UNIT
BIG CREEK AREA
KIRTLAND'S WARBLER MANAGEMENT PLAN

OSCODA COUNTY, MICH.
 T25N. R2E
 1979

LEGEND

-  UNIT BOUNDARY
-  RANGER DISTRICT BOUNDARY
-  COMPARTMENT BOUNDARY
- 622** COMPARTMENT NUMBER
-  BLOCK BOUNDARY
- IV** BLOCK NUMBER
-  STAND BOUNDARY
- $\frac{4}{16}$ STAND NUMBER
-  TIMBER TYPE-SIZE-DENSITY
-  NATIONAL FOREST OWNERSHIP
-  CRITICAL HABITAT
-  POTENTIAL ACQUISITION
-  MAIN HIGHWAY
-  ALL WEATHER OR SECONDARY ROAD
-  DEVELOPED ROUTE
-  UNDEVELOPED ROUTE
-  US ROUTE
-  STATE ROUTE
-  COUNTY ROUTE
-  FOREST ROUTE

SCALE
 0 $\frac{1}{2}$ 1 mile

HABITAT MANAGEMENT PRESCRIPTION

UNIT: UNION CORNERS

CUTTING BLOCK: I

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
152	7	40	J4	1979-88		Final Harvest
	8	25	J6		62	
	9	114	J5		53	
	10	7	J1		15	
	12	61	J6			Final Harvest
	16	31	J5			Final Harvest
	TOTAL =	278				

COMMENTS: Stands 7, 8 (Part), 9 (Part), 12, and 16 will be harvested under the Hughes Lake Sale. The remaining portions of Stand 8 and 9 (approx. 125 acres) should be harvested as soon as possible to create a single age class of jack pine in this Block.

HABITAT MANAGEMENT PRESCRIPTION

UNIT: UNION CORNERS

CUTTING BLOCK: II

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
146	(Part) 8	15	J6	1989-98		Final Harvest
	11	1	00		-	
	20	56	J6		62	
	21	47	J6		61	
	22	15	J6		45	Overstory Removal
	23	37	J5		61	
	24	40	J6		62	
	26	2	00		-	
	TOTAL =	213				

COMMENTS: The portion of Stand 8 within this Block will be harvested under the Howard Road Sale. The remaining Stands in this Block should be ready for harvest at the prescribed treatment date.

HABITAT MANAGEMENT PRESCRIPTION

UNIT: UNION CORNERS

CUTTING BLOCK: III

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
149	1	23	J6	1999-2008		Final Harvest
	(Part) 2	155	J3		71*	
	3	57	J3		72*	
	TOTAL =	235				

COMMENTS: Stand 1 will be harvested as part of the Benchmark Sale scheduled for FY 1980.

Stands 2 and 3 should be held as long as possible toward the scheduled harvest date.

UNIT: UNION CORNERS

CUTTING BLOCK: IV

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
149	(Part) 2	164	J3	2009-18	81*	
	8	6	J3		83*	
	9	17	J6			Final Harvest
	TOTAL =	187				

COMMENTS: Stand 9 will be harvested as part of the Benchmark Sale scheduled for FY 1980. Stands 2 and 8 should be deferred from cutting as long as possible.

HABITAT MANAGEMENT PRESCRIPTION

UNIT: UNION CORNERS

CUTTING BLOCK: V

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
151	1	64	J3	2019-28	64	
	3	114	J3		69*	
	19	69	J3		79*	
	23	1	00		-	
	25	68	J3		66*	
	28	13	J5		96*	
	TOTAL =	329				

COMMENTS: Hold the Stands in this Block as long as possible toward the prescribed harvest date.

WEST BRANCH UNIT

I. Unit Description

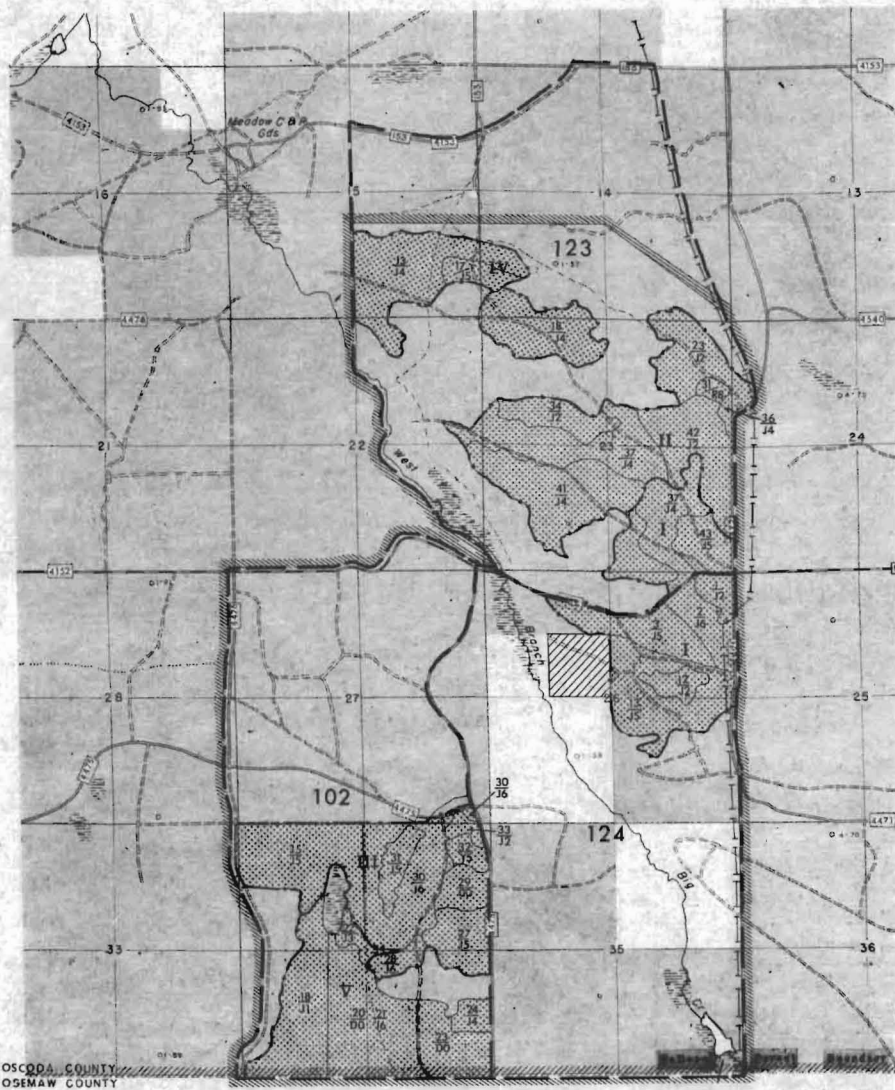
- A. Compartments involved and acreage of critical habitat - Compartments 102, 123, and 124 are included within the West Branch Unit. A total of 1,315 acres have been identified as Critical Habitat within this Unit.
- B. Complex needs - Compartment examination has been completed on all three of these compartments since 1974. There are no complex needs until the next periodic scheduled examination (every 10 years).
- C. Status of existing habitat - Due to the relatively even age of the timber in this Unit, a significant amount of the jack pine has been, or soon will be, harvested. Substantial timber harvest activities were recently completed in Block V and are scheduled for Blocks I and II. In order to begin establishing age class regulation in this Unit, an attempt should be made to hold Block III to the scheduled entry date (see Habitat Management Prescription).
- D. Planned or existing timber sales - There are presently two timber sales that have been sold in this Unit. The Big Creek Sale (L.Z. Hizer, 04-893) will primarily affect Block IV. An overstory removal is planned for Stands 13, 17, and 18 in this Block. The advanced jack pine regeneration that will remain is between 4 and 10 feet tall. Stocking is adequate silviculturally but probably is not sufficient for use as Warbler nesting habitat. Stand 43, in Block I, will also be clearcut in this Sale.

The Tombstone Sale (Mead Corporation, 04-4-463) will remove timber in a portion of Block I. Stands 12 and 13 will be final harvested. Stand 2 is scheduled for a shelterwood cut. If possible, the Sale should be modified and the stand should be clearcut.

A third timber sale, the Greenwood Sale, is scheduled to be sold in FY 1981. This sale will remove the remnant strips of jack pine in Stand 21 (Compartment 102), Block V.

II. Known or Potential Human Activity

- A. Developments - A gas pipeline runs along the east edge of the Unit. In addition, there is a seasonal residence immediately south of the Unit. The residence is situated along the east side of Big Creek (owner - Albert Segur).
- B. Known or potential historic sites - There are no known historical sites within this Unit.
- C. Special uses - The presence of the gas pipeline that follows the east end of the Unit should be considered prior to any prescribed burning in Blocks I and II. Other than the widespread O.R.V. use in the general vicinity, there are no other known special uses in this Unit.



WEST BRANCH UNIT
BIG CREEK AREA
KIRTLAND'S WARBLER MANAGEMENT PLAN

OSCODA COUNTY, MICH.
 T25N. R1E
 1979

LEGEND

- UNIT BOUNDARY
- RANGER DISTRICT BOUNDARY
- COMPARTMENT BOUNDARY
- 622** COMPARTMENT NUMBER
- BLOCK BOUNDARY
- IV** BLOCK NUMBER
- STAND BOUNDARY
- STAND NUMBER
- NATIONAL FOREST OWNERSHIP
- CRITICAL HABITAT
- POTENTIAL ACQUISITION
- MAIN HIGHWAY
- ALL WEATHER OR SECONDARY ROAD
- DEVELOPED ROUTE
- UNDEVELOPED ROUTE
- US ROUTE
- STATE ROUTE
- COUNTY ROUTE
- FOREST ROUTE

SCALE
 0 1/2 1 mile

HABITAT MANAGEMENT PRESCRIPTION

UNIT: WEST BRANCH

CUTTING BLOCK: I

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
124	1	13	J2	1979-88	33	
	2	34	J6		62	Shelterwood
	3	47	J5		68*	Defer for Aesthetics
	12	15	J2		38	
123	13	77	J5		70	Final Harvest
	37	55	J4		59	Defer 10 years
	41	53	J4		54	Defer 10 years
	43	27	J5		61	Final Harvest
	TOTAL =	321				

COMMENTS: Stands 12 and 13 are planned for final harvest under the Tombstone Sale.
 A shelterwood cut within Stand 2 is also scheduled as part of this sale.
 If possible, this prescription should be changed to final harvest. Stand 43
 will be clearcut under the Big Creek Sale.

HABITAT MANAGEMENT PRESCRIPTION

UNIT: WEST BRANCH

CUTTING BLOCK: II

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
123	23	55	J2	1989-98	43	
	31	6	R8		106	
	34	30	J2		43	
	36	5	J4		-	
	(Part) 37	80	J4		69*	Defer for 10 years
	(Part) 41	67	J4		64	Defer for 10 years
	42	72	J2		48	
	TOTAL =	315				

COMMENTS:

HABITAT MANAGEMENT PRESCRIPTION

UNIT: WEST BRANCH

CUTTING BLOCK: III

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
102	15	91	J5	1999-2008	68*	
	27	37	J5		73*	
	28	13	J6		73*	
	29	19	J1		33	
	30	85	J6		73*	
	31	17	J5		73*	
	32	10	Y5		82*	
	33	8	J2		61	
	TOTAL =	280				

COMMENTS: Most of the Stands in this Block will probably require harvest prior to the prescribed harvest dates.

HABITAT MANAGEMENT PRESCRIPTION

UNIT: WEST BRANCH

CUTTING BLOCK: IV

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
123	13	96	J4	2009-18	98* (45)	Overstory Removal
	17	16	J5		98* (45)	Overstory Removal
	18	60	J4		98* (45)	Overstory Removal
	TOTAL =	172				

COMMENTS: Stands 13, 17, and 18 are planned for harvest under the Big Creek Sale. All three stands are scheduled for an overstory removal. The remaining advanced regeneration (4 to 10 feet tall) provides adequate stocking silviculturally, but is probably too sparse for Warbler nesting habitat. This advanced regeneration should be ready to final harvest by 2018. Portions of Stand 18 have been underplanted to red pine (3 to 6 feet tall). The age in parenthesis represents the age of the existing understory in 2018.

UNIT: WEST BRANCH

CUTTING BLOCK: V

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
102	18	78	J1	2028	53	
	20	53	J1		53	
	21	36	J6		(40)	Final Harvest
	22	10	J3		78*	
	23	39	J1		53	
	24	11	J4		(40)	Final Harvest
	TOTAL =	227				

COMMENTS: Stands 21 and 24 are scheduled for harvest under the Greenwood Sale. Stands 18 and 23 should be burned and planted to jack pine as soon as possible. Stands 20 and 21 should also be burned and regenerated following the final harvest of Stand 21. The age in parenthesis represents the age of Stand 21 in 2028 if harvested, burned and regenerated by 1988.

ELDORADO KIRTLAND'S WARBLER MANAGEMENT AREA

Compartments - 47, 49, 54, 55, 56, 72, 73, 74, 75, 79, 80, and 81 - Mio Ranger District

I. Area Description

- A. General location and background information - The Eldorado KWMA is located along M-18 just south of the old town site of Eldorado. The area is limited on the north, west, and south by soil types and to the east by extensive red pine plantations. Much of the jack pine in these compartments was found to be mature and in need of harvesting. It will be difficult to obtain a regulated cut in the near future.

Four management Units have been identified in the Eldorado KWMA. A total of 5, 149 acres has been identified as critical habitat within this Area. Ideally, four management Blocks (comprising approximately 990 acres) should be harvested and regenerated during each 10 year period.

Even though Warbler use has not been recently recorded in the Eldorado KWMA, with correct management there is enough potential habitat to sustain a nesting population of approximately 35 pairs of Warblers. The age distribution is such that a great deal of habitat will be available in 10 to 15 years. Long term prospects are not as bright and extra efforts will be needed to sustain a viable Warbler population and achieve age class regulation.

- B. Land ownership patterns - Most of the Warbler habitat in this area is in solid National Forest ownership. There are, however, four small private parcels scattered through the Area that create management problems. South Branch Township owns a one acre parcel in the southwest corner of Section 9 in Compartment 47. Rock Cemetery is a five acre exclusion in SW NW of Section 11. There are two additional 1 acre exclusions in the NE NW and SE SE of Section 22. The parcel in Section 9 and the southern one in Section 22 are proposed land acquisitions, but the other two are existing cemeteries.
- C. Status of other resources - Four roads in the Area are considered travel influence zones. State Highway M-18 is the most heavily traveled of these and receives considerable use. Crawford County Road 502 (F-97) leads to Kirtland Community College and also receives substantial use. Old 144 coming from Luzerne to M-18 (just south of Eldorado) is moderately traveled, but is not adjacent to any proposed habitat. The least traveled road is the access to Rock Cemetery. A special effort should be made to utilize aesthetically acceptable management techniques along these routes.

The mineral rights in this Area are primarily in Federal ownership. Private lands comprise about 14 percent of the Area and the State holds mineral rights on 10 percent of the Area. These lands will not present any major management problems. Federal lands where the mineral rights are held privately comprise 2 percent of the land. These lands are located in the E 1/2 SE and NW SE, Section 11; E 1/2 NW, Section 3 and the W 1/2 SE of Section 26, T25N, R1W. Only the holdings in Section 13 may conflict with Warbler management. Special caution should be used to be sure these holdings do not conflict with management needs.

Recreational uses of the area are typical of the Forest. O.R.V. use is quite heavy, especially on the trails leading into the Mason Tract (west of the area). Fishermen also use the trails for access to the South Branch of the AuSable. Hunter's Lake receives a light amount of use by hunters and trappers. Deer hunting and berry picking would be the other significant recreational uses.

- D. Kirtland's Warbler nesting history in area - Warbler use has not been previously recorded in this Area. Warblers were found in T25N, R1E, Section 7. Most of the acreage in this Section has been planted to red pine and the remaining jack pine is not on Grayling sand.

DOUGLAS CREEK UNIT

I. Unit Description

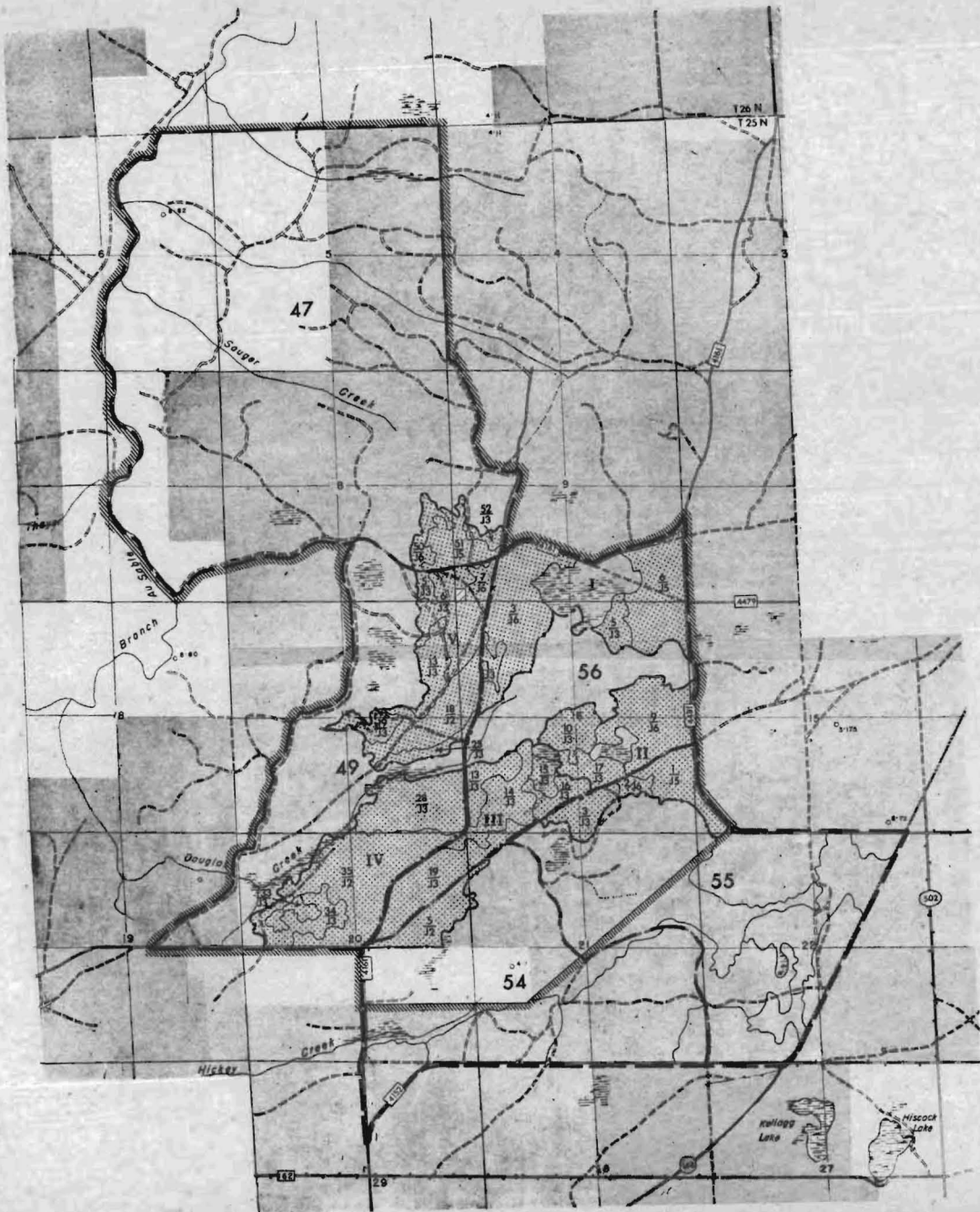
- A. Compartments involved and acreage of critical habitat - Compartments 47, 49, 54, 55, and 56 are included within this Unit. A total of 1,007 acres has been identified as Critical Habitat in this Unit.
- B. Complex needs - All five compartments have recent field examination data and E.A.R.'s approved since 1974.
- C. Status of existing habitat - Block I is scheduled for final harvest under the River Lake Sale. The remaining blocks contain stands with varied age classes that will require harvest prior to the prescribed dates. Complete age class regulation will not be achieved in this Unit during this rotation period.
- D. Planned or existing timber sales - As stated previously, Block I will be final harvested during this 10 year period under the River Lake Sale (Janissee Const. Co. - 8/15/78). Overstory removals and scattered small clearcuts will also be conducted in Blocks II and III under this Sale.

Overstory removals have recently been completed in Blocks IV and V (Compartment 49) under the Douglas Creek Sale (Alvin Kimball - 12/2/74).

The Sauger Creek Sale is scheduled to be sold in FY 1979. Under this Sale, Stand 51 (30 acres) will be final harvested in Block V.

II. Known or Potential Human Activity

- A. Developments - There is a seasonal residence, located on private land in T25N, R1W, Section 20, NW SE. This residence is located adjacent to potential Warbler habitat in Stand 5 - Compartment 54.
- B. Known or potential historic sites - There are no known historical sites in this Unit.
- C. Special uses - There are no known special uses associated with this Unit.



DOUGLAS CREEK UNIT
ELDORADO AREA
KIRTLAND'S WARBLER MANAGEMENT PLAN

CRAWFORD COUNTY, MICHIGAN
 T26N, R1W

1979

LEGEND

- UNIT BOUNDARY
- RANGER DISTRICT BOUNDARY
- COMPARTMENT BOUNDARY
- 622** COMPARTMENT NUMBER
- BLOCK BOUNDARY
- IV** BLOCK NUMBER
- STAND BOUNDARY
- STAND NUMBER
- TIMBER TYPE-SIZE-DENSITY
- NATIONAL FOREST OWNERSHIP
- CRITICAL HABITAT
- POTENTIAL ACQUISITION
- MAIN HIGHWAY
- ALL WEATHER OR SECONDARY ROAD
- DEVELOPED ROUTE
- UNDEVELOPED ROUTE
- US ROUTE
- STATE ROUTE
- COUNTY ROUTE
- FOREST ROUTE

SCALE

0 1/2 1 mile

HABITAT MANAGEMENT PRESCRIPTION

UNIT: DOUGLAS CREEK

CUTTING BLOCK: I

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
56	3	90	J6	1979-88	62	Final Harvest
	5	15	J3		50	Final Harvest
	6	70	J5		66	Final Harvest
	12	10	J3		50	Final Harvest
	TOTAL =	185				

COMMENTS: Block I is scheduled for final harvest under the River Lake Sale. Upon completion of this Sale, the potential Warbler habitat in this Block will be divided into two separate parcels of 100 and 85 acres. This is not ideal for Warbler management but is a result of the relative location of unsuitable habitat in the center of Compartment 56 (see Unit map). Eventual conversion of Stand 1 from red pine to jack pine would help to combine this habitat into one contiguous Block.

UNIT: DOUGLAS CREEK

CUTTING BLOCK: II

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
55	1	45	J5	1989-98	81* (15)	Final Harvest
	2	8	J6		81* (15)	Final Harvest
	3	28	J3		61	
	9	63	J6		75*	
	10	28	J3		57	
	17	18	J3		42	Overstory Removal
	TOTAL =	190				

COMMENTS: Stands 1 and 2 (Compartment 55) are scheduled for final harvest under the River Lake Sale. In addition, Stand 17 (Compartment 56) is scheduled for an overstory removal in the same sale. The ages in parenthesis represent the ages of Stands 1 and 2 in 1998 if they are burned and regenerated by 1983.

HABITAT MANAGEMENT PRESCRIPTION

UNIT: DOUGLAS CREEK

CUTTING BLOCK: III

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
54	5	34	J2	1999-2008	53	
56	13	23	J3		70*	
	14	39	J3		70*	
	15	12	J5		89*	
	16	15	J3		71*	
	19	55	J3		51	Overstory Removal
	TOTAL =	178				

COMMENTS: Stand 19 is scheduled for an overstory removal under the River Lake Sale. Stands 13, 14, 15, and 16 may require harvest before the prescribed treatment dates.

UNIT: DOUGLAS CREEK

CUTTING BLOCK: IV

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
49	28	70	J3	2009-18	78*	
	33	10	J3		63	
	34	29	J3		78*	
	35	117	J2		58	Overstory Removal
	TOTAL =	226				

COMMENTS: An overstory removal has been completed in Stand 35 under the Douglas Creek Sale. Stands 28 and 34 will require harvest prior to the proposed treatment date.

HABITAT MANAGEMENT PRESCRIPTION

UNIT: DOUGLAS CREEK

CUTTING BLOCK: V

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
47	50	15	J6	2019-28	88*	
	51	30	J5		103* (40)	Final Harvest
	52	5	J3		88*	
49	5	7	J3		68*	
	6	51	J3		68	Overstory Removal
	7	9	J6		102*	
	13	22	J3		68*	
	18	61	J2		68	Overstory Removal
	19	15	J3		68	
	25	13	J3		88*	
	TOTAL =	228				

COMMENTS: Stand 51 (Compartment 47) is scheduled for final harvest under the Sauger Creek Sale. The age in parenthesis represents the age of the stand in 2028 if regenerated by 1988.

An overstory removal has been completed in Stands 6 and 18 (Compartment 49) under the Douglas Creek Sale.

The remaining stands in this Block should be deferred as long as possible toward the prescribed harvest date.

HUNTER'S LAKE UNIT

I. Unit Description

- A. Compartments involved and acreage of critical habitat - Compartments 54, 55, 74, and 75 are included within this Unit. A total of 1,410 acres has been identified as Critical Habitat in this Unit.
- B. Complex needs - All four compartments have recent field examination data and E.A.R.'s approved since 1974.
- C. Status of existing habitat - In Block I, Stand 3 (147 acres) was burned and planted to jack pine in the spring of 1978. A total of 141 acres (in two separate areas) are scheduled for final harvest in Block V during this ten year period. Block II, III, and the remaining portion of V have staggered age classes and fit fairly well into the proposed harvest dates. Block IV will require harvest prior to the proposed treatment date.
- If additional acreage is needed in the future, there is potential for type conversion of red pine to jack pine in this Unit. In Compartment 75, there are 251 acres of red pine, mostly on Grayling Sand. Conversion of Stand 12 would be particularly desirable to combine the finger of jack pine to the south with the habitat to the north.
- D. Planned or existing timber sales - There are presently two active timber sales in this Unit. The River Lake Sale (Janissee Construction Co. - 8/15/78) will affect habitat in Block V (Compartment 55). An overstory removal is planned in Block III (Compartment 54) under the Hickey Creek Sale (Norman Shifty - 8/31/77). There are no other sales planned for this Unit through 1983.

II. Known or Potential Human Activity

- A. Developments - Seasonal residences are located on private lands in the following locations near this Unit; (1) T25N, R1W, Sec. 20, NW SE, (2) T25N, R1W, Sec. 14, NE NE, and (3) T25N, R1W, Sec. 11, SW SE.

There is also a one acre private tract that has been reserved as a cemetery in T25N, R1W, Sec. 22, NE NW. There are presently three marked graves at this site.

- B. Known or potential historic sites - The site of the old Eldorado C.C.C. Camp is located in the northeast corner of Compartment 55 (Stand 12) and has been excluded from Critical habitat designation.

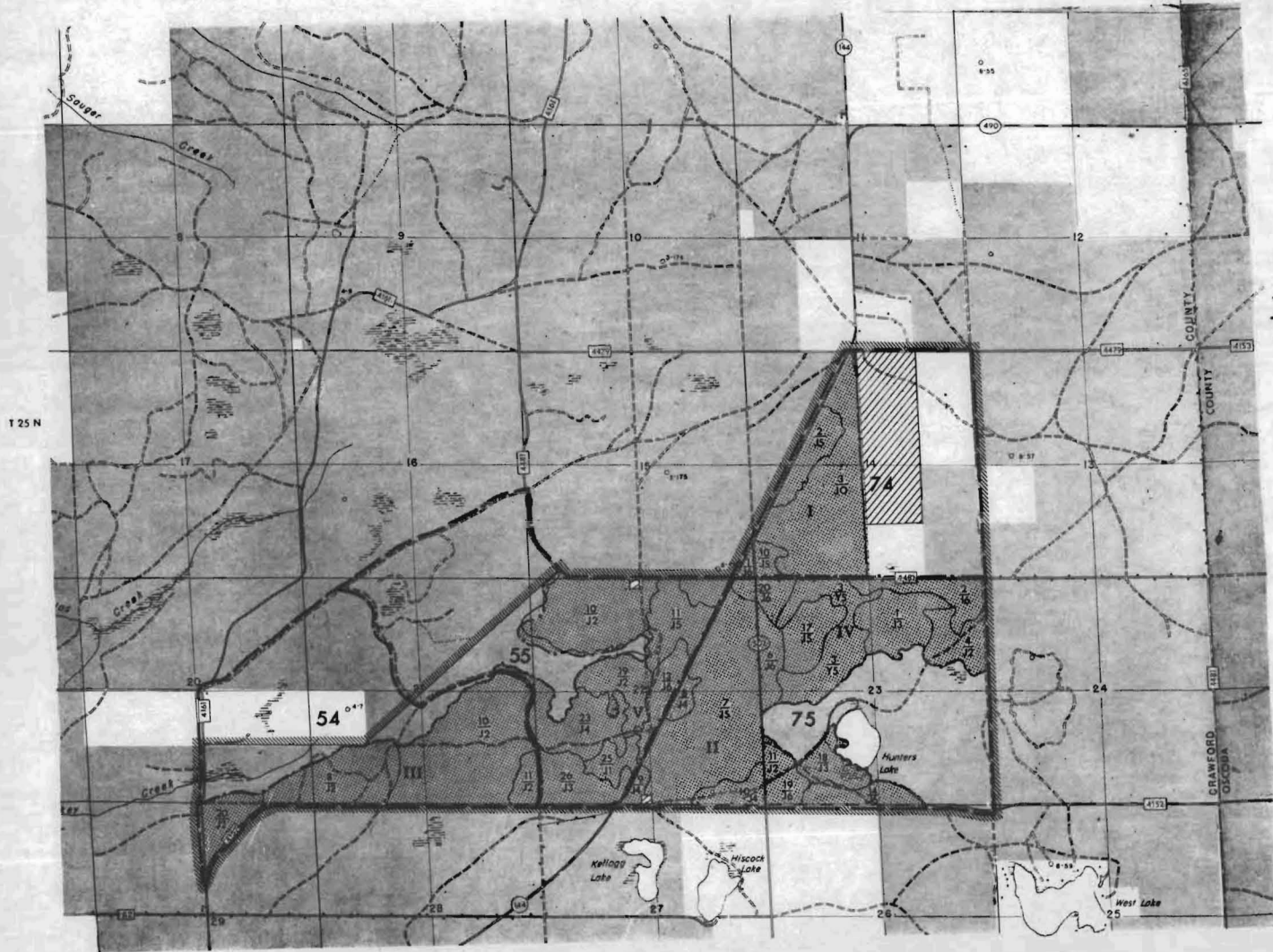
As stated previously, there is also a small cemetery with three marked graves in T25N, R1W, Sec. 22, NE NW.

- C. Special uses - A telephone line right-of-way exists along the southern boundary of Section 22, the section line between Sections 22 and 23, and along the northern boundary of Section 23. There are no other known special uses in this Unit.

HUNTERS LAKE UNIT
ELDORADO AREA
KIRTLAND'S WARBLER MANAGEMENT PLAN

CRAWFORD COUNTY, MICH.
 T26N, R1W
 1979

R1W | R1E



LEGEND

- UNIT BOUNDARY
- RANGER DISTRICT BOUNDARY
- COMPARTMENT BOUNDARY
- COMPARTMENT NUMBER
- BLOCK BOUNDARY
- BLOCK NUMBER
- STAND BOUNDARY
- STAND NUMBER
- TIMBER TYPE-SIZE-DENSITY
- NATIONAL FOREST OWNERSHIP
- CRITICAL HABITAT
- POTENTIAL ACQUISITION
- MAIN HIGHWAY
- ALL WEATHER OR SECONDARY ROAD
- DEVELOPED ROUTE
- UNDEVELOPED ROUTE
- US ROUTE
- STATE ROUTE
- COUNTY ROUTE
- FOREST ROUTE

SCALE
 0 1/2 1 mile

HABITAT MANAGEMENT PRESCRIPTION

UNIT: HUNTER'S LAKE

CUTTING BLOCK: I

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
74	2	29	J5	1979-88	64	
	3	147	J0		10	
	10	14	J5		58	
	TOTAL =	190				

COMMENTS: Stand 3 was burned and planted in the spring of 1978. This stand will form the initial area (147 acres) of potential habitat in this Block. Stands 2 and 10 should be harvested by the end of this 10 year period.

HABITAT MANAGEMENT PRESCRIPTION

UNIT: HUNTER'S LAKE

CUTTING BLOCK: II

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
75	7	188	J5	1989-98	76*	
	8	11	J4		75 (10)	Final Harvest
	9	8	J4		60*	
	10	20	J4		70 (10)	Final Harvest
	11	14	J2		51	
	14	27	J6		73*	
	18	26	J3		54	
	19	17	J6		78*	
	TOTAL =	311				

COMMENTS: Stands 7, 9, 14, and 19 may require harvest prior to the proposed treatment date. The ages in parenthesis represent the age of the stands in 1998 if harvest and regeneration is completed by 1988.

HABITAT MANAGEMENT PRESCRIPTION

UNIT: HUNTER'S LAKE

CUTTING BLOCK: III

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
54	8	90	J2	1999-2008	53	
	10	154	J2		53	Overstory Removal
	11	16	J2		53	None
	20	35	J2		53	Overstory Removal
	TOTAL =	295				

COMMENTS: Stands 10 and 20 are scheduled for an overstory removal under the Hickey Creek Sale.

UNIT: HUNTER'S LAKE

CUTTING BLOCK: IV

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
75	1	50	J3	2009-18	70*	
	2	30	J6		93* (30)	Shelterwood
	3	73	Y5			Overstory removal
	4	32	J2		66	
	6	26	J6		93*	
	17	36	J5		90*	
	20	18	J6		106* (30)	Final Harvest
	TOTAL =	265				

COMMENTS: Most of the stands in this Block will require harvest prior to the proposed treatment date. The ages in parenthesis represents the age of the stands in 2018 if harvested and regenerated by 1988.

HABITAT MANAGEMENT PRESCRIPTION

UNIT: HUNTER'S LAKE

CUTTING BLOCK: V

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
55	10	99	J2	2019-28	62	
	11	49	J5		(40)	Final Harvest
	13	29	J6		(40)	Final Harvest
	19	46	J2		74*	
	23	63	J4		(40)	Final Harvest
	25	21	J1		70*	
	26	42	J3		64	Overstory Removal
	TOTAL =	349				

COMMENTS: Stands 11, 13, and 23 are scheduled for final harvest under the River Lake Sale. The cutting is separated into two separate areas within the Unit, not ideal for Warbler management. If possible, these two areas should be connected through treating Stands 19 or 25. A total of 141 acres will be final harvested, burned, and planted as a result of this Sale. The ages in parenthesis represent the ages of the stands in 2028 if harvested and regenerated by 1988.

MERIDIAN UNIT

I. Unit Description

- A. Compartments involved and acreage of critical habitat - Compartments 79, 80, and 81 are included within this Unit. A total of 1,390 acres has been identified as Critical Habitat in this Unit.
- B. Complex needs - All three compartments have been field examined recently with approved E.A.R.'s dated 1977.
- C. Status of existing habitat - The Brush Road Sale will create 158 acres of potential Warbler habitat in Block I and 92 acres of habitat in Block II (during this 10 year period). With the exception of Block V, the remaining Blocks have staggered age classes and appear to fit in fairly well with the proposed harvest dates (see Habitat Management Prescription).

Stands 4 and 5 (Compartment 79), and Stand 18 (Compartment 81) have potential for conversion to Jack pine if this acreage is needed at some future date.

There appears to be some question as to the suitability of portions of this Unit for Warbler management. The areas in question are the northeast corner of Compartment 80 and the adjoining habitat in Compartment 81. The 1927 soil survey of Crawford County shows the soils of this area to be Roselawn sand. The Roselawn series has been discontinued and broken into the Grayling and Rubicon series. Most old Roselawn soils had a significant amount of hardwoods on them, but in this area the hardwoods are not excessive. A thorough analysis of this area by a soil scientist would be very helpful. Until such an analysis is available, most jack pine stands should be considered as potential habitat.

- D. Planned or existing timber sales - There are presently two active timber sales in this Unit. The Brush Road Sale (Glawe Inc., 3/28/77) will create 158 acres of potential habitat in Block I and 92 acres of habitat in Block II.

The Chickadee Sale (Lake Woods Forest Products, 4/18/78) will affect 72 acres of potential habitat in Block V.

II. Known or Potential Human Activity

- A. Developments - Seasonal residences exist on private land in NW SW of Section 13 (Compartment 80) and in NE NE of Section 14. In Compartment 81, seasonal residences are situated in SE NE, Section 11, SW SE Section 11, and the NE 1/4 of Section 12.

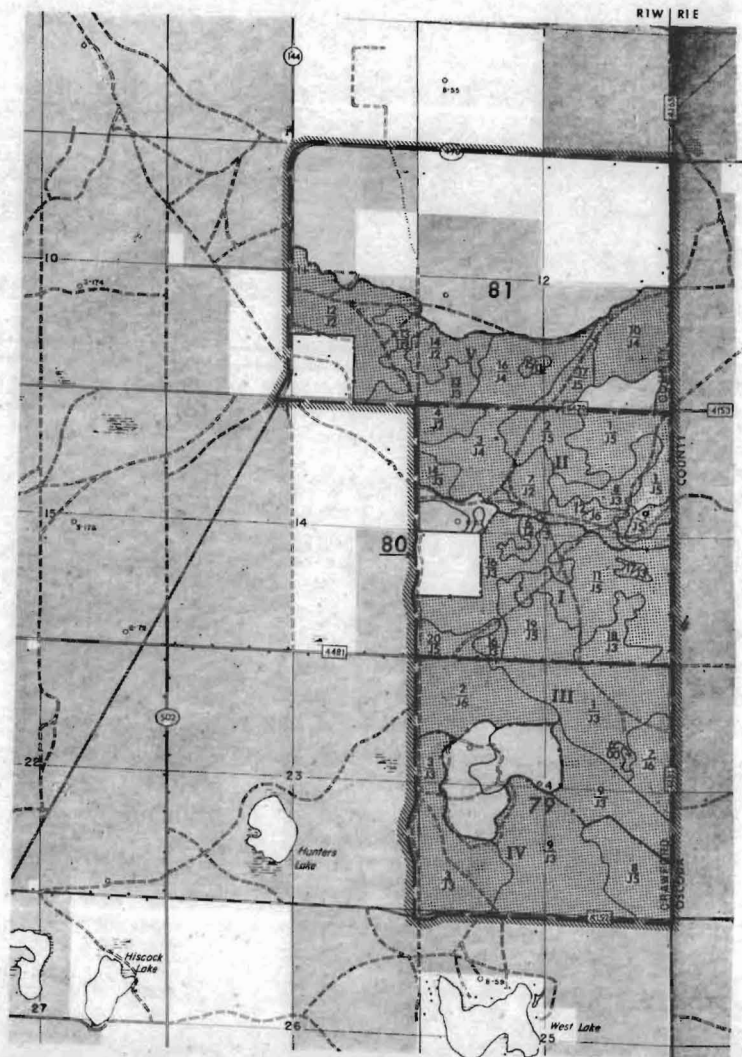
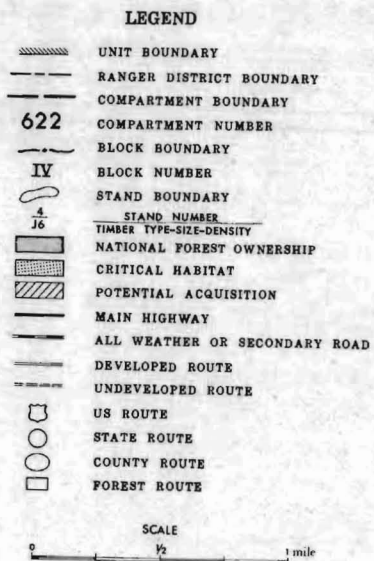
A 30' powerline right-of-way exists along the west side of Sections 13 and 24 (Compartments 79 and 80), adjacent to critical warbler habitat. In Compartment 81, a powerline runs in an east-west direction along the centerline of Section 11. A portion of this right-of-way passes through the northern corner of Stand 12, also identified as Critical Kirtland's Warbler Habitat. These rights-of-way are issued to Top O' Michigan Rural Electric Company. Sales adjacent to these right-of-ways, should require a slash disposal zone along the transmission line.

- B. Known or potential historic sites - There are no known historical sites in this Unit.
- C. Special uses - Other than the powerline rights-of-way mentioned previously, there are no known special uses in this Unit.

MERIDIAN UNIT
ELDORADO AREA
KIRTLAND'S WARBLER MANAGEMENT PLAN

CRAWFORD COUNTY, MICHIGAN
 T25N, R1W

1979



HABITAT MANAGEMENT PRESCRIPTION

UNIT: MERIDIAN

CUTTING BLOCK: I

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
80	6	8	J4	1979-88	68	Final Harvest
	11	99	J5		65	Final Harvest
	16	85	J3		48	
	17	5	J3		48	
	18	24	J3		48	
	19	46	J5		62	Final Harvest
	20	13	J5		68	Final Harvest
	TOTAL =	280				

COMMENTS: Stands 6, 11, 19, and 20 are presently scheduled for final harvest under the Brush Road Sale. Harvest of Stands 11, 19, and 20 will initially create 158 acres of contiguous potential habitat. Stands 16, 17, and 18 should be harvested by 1988 (if merchantable).

HABITAT MANAGEMENT PRESCRIPTION

UNIT: MERIDIAN

CUTTING BLOCK: II

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
80	1	62	J5	1989-98	74*	
	2	43	J5			Final Harvest
	3	49	J4			Final Harvest
	4	26	J2		48	Overstory Removal
	7	19	J2		43	
	8	29	J3		58	
	9	11	J5			Final Harvest
	12	19	J6		70*	
	14	9	J3		58	
	TOTAL =	267				

COMMENTS: Stands 2 and 3 have been final harvested under the Brush Road Sale. Prescribed burning was completed in these stands in October, 1978. Upon completion of planting, these stands will create 92 acres of potential habitat during this 10 year period. The remaining stands in this Block should be harvested by the prescribed treatment date.

HABITAT MANAGEMENT PRESCRIPTION

UNIT: MERIDIAN

CUTTING BLOCK: III

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
79	1	107	J3	1999-2008	70*	
	2	76	J6		72*	
	6	2	00		-	
	7	32	J6		71*	
	(Part) 9	56	J3		62	
	TOTAL =	273				

COMMENTS: Stands 1, 2 and 7 may require treatment prior to the proposed harvest date.

UNIT: MERIDIAN

CUTTING BLOCK: IV

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
79	3	96	J3	2009-18	72*	
	8	50	J5			Final Harvest
	(Part) 9	125	J3		72*	
	TOTAL =	271				

COMMENTS: Stand 8 has been identified in the compartment E.A.R. for final harvest. To date (1978), no sale has been planned to incorporate this prescription. The other two stands in this Block may require harvest before the proposed date.

HABITAT MANAGEMENT PRESCRIPTION

UNIT: MERIDIAN

CUTTING BLOCK: V

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
81	10	63	J4	2019-28	118*	Defer
	12	87	J2		81*	Overstory Removal
	13	48	J3		89*	
	14	29	J2		81*	
	15	5	00		-	
	16	58	J4		80*	Final Harvest
	17	14	J5		(45)	Final Harvest
	TOTAL =	304				

COMMENTS: Stands 16 and 17 are scheduled for final harvest under the Chickadee Sale. The remaining advanced regeneration in these stands should be surveyed upon completion of the sale. If the stocking is inadequate or marginal, these stands should be burned and planted to jack pine during this 10 year period. A final harvest should also be made in Stand 10 during this 10 year period to develop a block of suitable habitat with Stands 16 and 17. The age at time of treatment indicated in the table for Stands 12 and 16 refers to the age of the existing understory. Final harvest before the proposed treatment date will be necessary for the stands in this Block. The age in parenthesis represents the age of the stand in 2028 if regenerated by 1983.

ROCK CEMETERY UNIT

I. Unit Description

- A. Compartments involved and acreage of critical habitat - Compartments 72 and 73 are included within this Unit. A total of 1,342 acres has been identified as Critical Habitat in this Unit.
- B. Complex needs - Both compartments have recently been examined and have approved E.A.R.'s completed in 1976.
- C. Status of existing habitat - The Rock Cemetery Sale will create 211 acres of potential habitat in Block I and an additional 80 acres in Block IV. Harvesting before the prescribed cutting dates may be necessary in Blocks II, III, and IV. The Eldorado Sale (closed) created an additional 215 acres of potential habitat in Block V, and 76 acres in Block II. This acreage is being burned and regenerated at the present time.
- In the future, Stands 32, 37, and 42 (Compartment 72) should be considered for conversion to jack pine to simplify management. Stand 32 has been identified as Critical Habitat at this time. If the the red pine underplanting is insufficient, this stand should be regenerated to jack pine during this 10 year period.
- D. Planned or existing timber sales - The Rock Cemetery Sale (Fishell Brothers, 6/22/76) is presently in operation in Compartment 72. This sale will create potential habitat in Blocks I and IV.

II. Known or Potential Human Activity

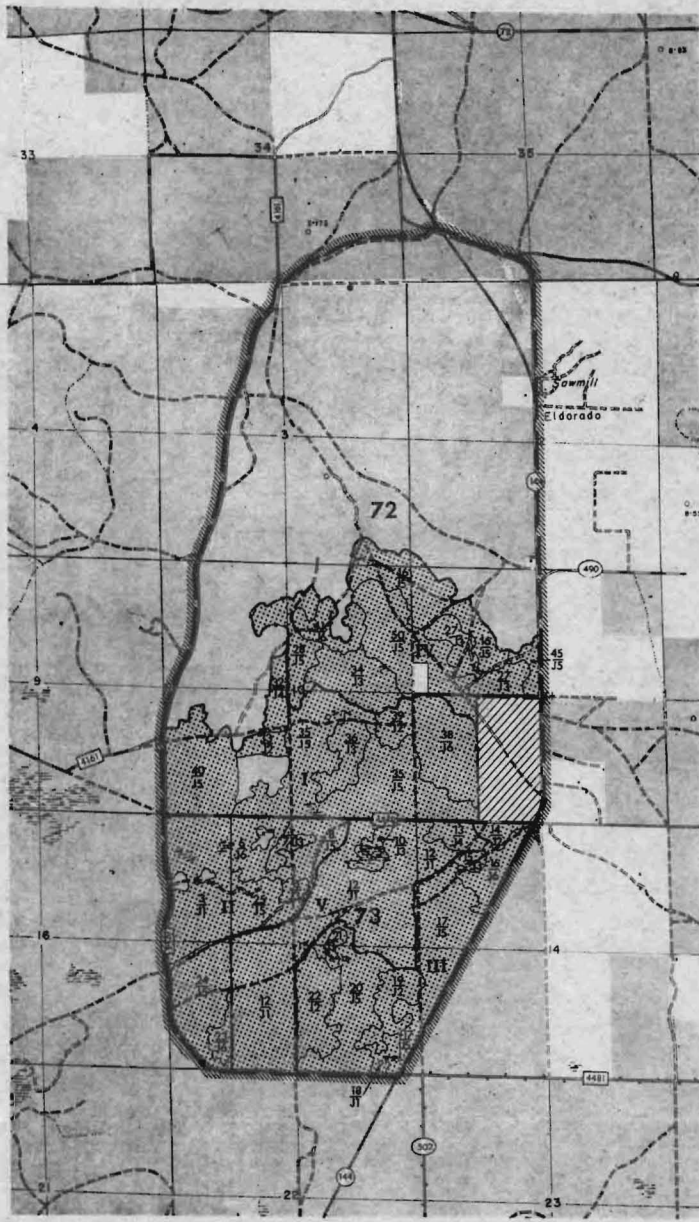
- A. Development - Rock Cemetery is located in Block IV of this Unit (see Unit map). Seasonal residences are scattered along the east side of M-18, within 1/4 mile east of the Unit.

A permit has been issued to the U.S. Geological Survey for a 4'x 4'x 68" concrete block building in the southeast corner of Compartment 73. This building houses scientific equipment and should be protected along with the Eldorado C.C.C. Camp (see known historical sites).

- B. Known or potential historic sites - The Eldorado C.C.C. Camp was located in the southeast corner of Compartment 73 (Block III). The exact location of the Camp should be determined before any management activities take place in this Block.

As stated previously, Rock Cemetery is located in this Unit. In addition, the Eldorado Town Site is situated approximately 1/2 mile northeast from the northern edge of Block IV in this Unit.

- C. Special uses - The State of Michigan holds a right-of-way for Highway M-18. The General Telephone Company has a 4 foot right-of-way along M-18 for a buried cable. The cable is buried to a minimum depth of 30" and should not present any obstacles to management.





















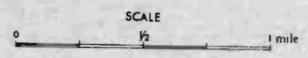
ROCK CEMETERY UNIT
ELDORADO AREA
KIRTLAND'S WARBLER MANAGEMENT PLAN

CRAWFORD COUNTY, MICHIGAN
 T25 & 26N. R1W

1979

LEGEND

-  UNIT BOUNDARY
-  RANGER DISTRICT BOUNDARY
-  COMPARTMENT BOUNDARY
- 622** COMPARTMENT NUMBER
-  BLOCK BOUNDARY
- IV** BLOCK NUMBER
-  STAND BOUNDARY
-  STAND NUMBER
-  TIMBER TYPE-SIZE-DENSITY
-  NATIONAL FOREST OWNERSHIP
-  CRITICAL HABITAT
-  POTENTIAL ACQUISITION
-  MAIN HIGHWAY
-  ALL WEATHER OR SECONDARY ROAD
-  DEVELOPED ROUTE
-  UNDEVELOPED ROUTE
-  US ROUTE
-  STATE ROUTE
-  COUNTY ROUTE
-  FOREST ROUTE



R1W

HABITAT MANAGEMENT PRESCRIPTION

UNIT: ROCK CEMETERY

CUTTING BLOCK: I

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
72	32	11	J4	1979-88	71	Final Harvest
	33	11	J2		26	
	35	149	J1		10	Final Harvest
	36	21	J3		48	
	38	55	J6		48	
	39	13	J2		33	
	40	62	J5		70	Final Harvest
	TOTAL =	322				

COMMENTS: Stands 32, 35, and 40 are presently scheduled for final harvest under the Rock Cemetery Sale. Stand 32 was under planted to red pine in 1967. Survival of the red pine appears to be fair and the stand will probably have to be deferred from Warbler management for an additional rotation period. Upon completion of timber harvest activities, Stands 35 and 40 will form a nucleus of 211 acres of potential nesting habitat in this Block.

Stand 36, an immature J3 type that is presently non-merchantable, should be ready for harvest in another 10-20 years. From the standpoint of Warbler management, it would be desirable if this stand could be treated at the same time Stand 35 is burned and planted.

A final harvest should also be completed in Stand 38 at the end of this 10 year period.

HABITAT MANAGEMENT PRESCRIPTION

UNIT: ROCK CEMETERY

CUTTING BLOCK: II

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
73	3	76	J1	1989-98	8	Burn & plant J.P.
	6	26	J6		83*	Defer-Age class diversity
	7	7	J3		57	
	8	24	J5		76*	Defer-Age class diversity
	9	5	J3		58	
	23	9	J6		83*	Defer-Age class diversity
	24	48	J5		83*	Defer-Age class diversity
	25	33	J5		78*	Defer-Age class diversity
	TOTAL =	228				

COMMENTS: Most of Stand 3 was burned in October of 1978. This stand should be planted to jack pine in FY 1979 or 1980. Most of the remaining stands in this Block have been deferred for 10 years. These stands may require harvest during the early portion of the next 10 year period (1989-1998).

HABITAT MANAGEMENT PRESCRIPTION

UNIT: ROCK CEMETERY

CUTTING BLOCK: III

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
73	14	6	J2	1999-2008	55	
	15	5	J3		68	
	16	23	J6			Shelterwood (seed tree cut)
	17	78	J5		88*	
	18	7	J1		58	
	19	25	J2		58	
	20	63	J3		86*	
	21	4	J3		68	
	22	37	J2		55	
	TOTAL =	248				

COMMENTS: A shelterwood cut is planned for Stand 16 (for aesthetics) during this 10 year period.

HABITAT MANAGEMENT PRESCRIPTION

UNIT: ROCK CEMETERY

CUTTING BLOCK: IV

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
72	16	101	J1	2009-18	(33)	Final Harvest
	27	31	J3		78*	
	28	33	J5		85*	
	34	41	J3		78*	
	41	22	J1		(33)	Final Harvest
	45	8	J5		88*	
	50	71	J5		85*	
	TOTAL =	307				

COMMENTS: Several stands in this Block (Stands 16 and 41) are presently being harvested under the Rock Cemetery Sale. The remaining stands should be deferred for as long as possible (30+ years).

The southern portion of Stand 16 (approximately 80 acres) should be burned and planted to jack pine upon completion of harvesting. The northern portion of Stand 16 and Stand 41 are isolated in this Block and could be left to regenerate naturally if desirable.

The ages in parenthesis represent the age of the stands in 2018 if burned and regenerated by 1985.

HABITAT MANAGEMENT PRESCRIPTION

UNIT: ROCK CEMETERY

CUTTING BLOCK: V

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
73	10	8	J3	2019-28	78*	
	12	215	J1		50	Pres. burn & plant J.P.
	13	12	J4		108*(40)	Final Harvest
	TOTAL =	235				

COMMENTS: The northeast portion of Stand 12 (43 acres) was burned and planted in the fall of 1978. An additional 61 acres was burned in the western portion of the stand in the summer of 1978. This area is scheduled for planting in the near future. The southeast portion of the stand (approximately 50 acres) still needs to be burned and planted.

Stand 13 is scheduled for final harvest during this 10 year period. This stand will provide additional acreage to the potential nesting habitat established in Stand 12. The age in parenthesis represents the age of the stand in 2028 if regenerated by 1988.

MACK LAKE KIRTLAND'S WARBLER MANAGEMENT AREA

Compartments - 158, 177, 178, 185, 200, 201, 202, 203, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, and 217 - Mio Ranger District

Compartments - 163, 164, 165, and 166 - Harrisville Ranger District

I. Area Description

- A. General location and background information - The Mack Lake KWMA is located about 6 miles southeast of Mio on a large sand flat encompassing the northern half of T25N, R3E, and some adjacent acreage. The area is limited primarily by soil changes on the east, south, and west and by a large oak component to the north. The topography is typically flat with small drainages running into and westward from Mack Lake. In addition to the fire history of this area, timber management has created more age diversity than is typically found throughout the Forest.

The Mack Lake Area has been the center of Warbler nesting activity on the Huron National Forest for more than 25 years. Recent Warbler use in the area began with the Mack Lake Fire that burned more than 6,400 acres in April of 1946. Warblers soon occupied much of the burned acreage. Mr. Harold Mayfield and other concerned private citizens recognized that the Warbler's fate should not be left to the chance of major wildfires. Due greatly to Mr. Mayfield's efforts, the State established 3 management areas in 1957 and the Forest Service followed suit in 1961 by establishing the original Mack Lake KWMA encompassing 4,010 acres of jack pine. Most of the original KWMA has been preserved as the Mack Lake Unit.

The Mack Lake KWMA currently supports most of the Warbler nesting population found on National Forest lands. Last year (1978), a total of 35 singing males were found in the Mack Lake Area. In 1978, Warblers were found in Sections 2, 3, and 12, T25N, R3E, and Section 7, T25N, R4E. The Warbler nesting density is probably reaching its optimum level at this time. Nesting use should continue to increase in Section 3. Warbler use in Sections 7 and 12 will continue to decline due to the relatively advanced growth condition of the jack and red pine regeneration.

The existence of a nesting population should be secure until new habitat is developed. Section 4 should support birds approximately 6 years after the fill-in planting scheduled for the spring of 1979. The removal of a scattered overstory (through a TSI contract) over some fairly thick regeneration in Section 5 may also attract nesting Warblers. A number of active and planned timber sales will also generate additional habitat in the near future (see Unit narratives).

- B. Land ownership patterns - With the exception of the Crane Lake Unit and the southwest portion of the Mack Lake Unit, the Mack Lake KWMA is in solid National Forest ownership. This should simplify Warbler management significantly within this Area.

Developments in the area are almost exclusively on the private land along the south shore of Mack Lake. Proposed Warbler habitat adjoins only a few private cabins on County Road 604. A total of approximately 980 acres has been identified for potential land acquisition in the Mack Lake Area (see Unit maps).

- C. Status of other resources - Visual impact will be of major concern primarily where Warbler habitat crosses M-33 (State Highway) in the Crane Lake Unit. The remaining critical habitat in this Area is primarily interlaced with infrequently traveled secondary routes where visual impact will be of a lesser concern.

All mineral rights on lands proposed as Critical Habitat are held by the State of Michigan or the United States. No problems are anticipated in coordinating our management program on lands where the State holds the mineral rights.

Many motorcyclists camp at Mack Lake and ride the trails in the area, particularly in the Maltby Hills to the south and Bull Gap to the north. Blueberry pickers and deer hunters are also attracted to this area during their respective seasons. Warbler management will not unduly conflict with these activities.

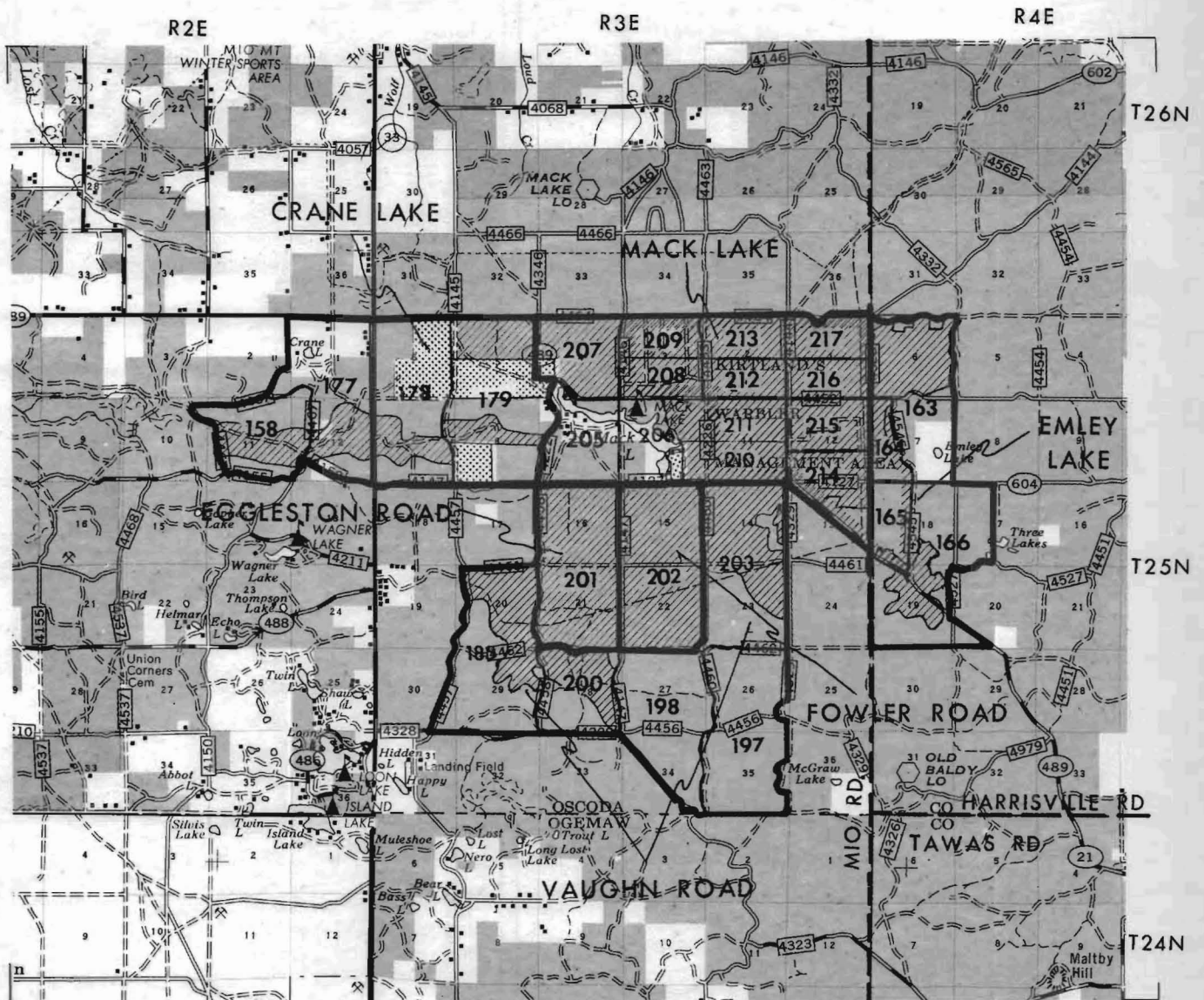
- D. Kirtland's warbler nesting history in area - Warblers have previously been found in many of the sections in the Management Area. Census data shows the following dates of occupancy and the number of birds in each section when these data were available.

Town	Range	Section	1951	1961	1971	1972	1973	1974	1975	1976	1977	1978	1979	
25N	3E	1	0	X	0	0	0	0	0	0	0	0	0	
		2	0	X	6	5	6	1	0	4	11	18	12	
		3	0	X	1	0	1	0	0	0	5	7	9	14
		4	0	X	0	0	0	0	0	0	0	0	0	0
		5	0	X	0	0	0	0	0	0	0	0	0	0
		6	0	X	0	0	0	0	0	0	0	0	0	0
		7	X	X	3	1	0	0	0	0	0	0	0	0
		8	0	X	1	0	0	0	0	0	0	0	0	0
		9	0	X	0	0	0	0	0	0	0	0	0	0
		10	X	X	1	0	0	1	0	0	0	0	0	0
		11	X	X	4	6	6	5	2	2	2	0	0	0
		12	0	X	13	12	10	12	11	7	6	7	1	0
		13	X	0	0	0	0	0	0	0	0	0	0	0
		14	X	0	0	0	0	0	0	0	0	0	0	0
		15	X	0	0	0	0	0	0	0	0	0	0	0
		16	X	0	0	0	0	0	0	0	0	0	0	0
		17	X	0	0	0	0	0	0	0	0	0	0	0
		18	X	X	0	0	0	0	0	0	0	0	0	0
21	X	0	0	0	0	0	0	0	0	0	0	0		
23	X	0	0	0	0	0	0	0	0	0	0	0		
26	X	0	0	0	0	0	0	0	0	0	0	0		
28	X	0	0	0	0	0	0	0	0	0	0	0		
25N	4E	6	X	0	0	0	0	0	0	0	0	0	0	
		7	0	0	0	0	0	0	1	3	3	1	0	

0 = Birds Absent
X = Birds Present

HURON-MANISTEE NATIONAL FOREST
KIRTLAND'S WARBLER MANAGEMENT AREA
MACK LAKE
OSCODA COUNTY, MICH.

MARCH, 1978



LEGEND

- UNIT BOUNDARY
- COMPARTMENT BOUNDARY
- RANGER DISTRICT BOUNDARY
- ▨** CRITICAL HABITAT IN NATIONAL FOREST OWNERSHIP
- ▩** POTENTIAL HABITAT IN PRIVATE OWNERSHIP

SCALE 1/2" = 1 MILE

CRANE LAKE UNIT

I. Unit Description

- A. Compartments involved and acreage of critical habitat - Warbler habitat in this Unit is spread over Compartments 158, 177, 178, and 179. A total of 1,233 acres has been identified as Critical Habitat in this Unit.
- B. Complex needs - All four compartments have been recently field examined and have approved E.A.R.'s dated since 1975.
- C. Status of existing habitat - In Block V, an area of 210 acres has recently been final harvested and is scheduled for burning and planting within the next few years.

Stands in the north half of Section 5 (Block IV) are approximately 10 years old. This habitat will be enhanced for potential Warbler nesting following a proposed T.S.I. project that will remove the scattered oak overstory. Warblers were nesting in Section 8 (Block III) until approximately five years ago, when the jack pine growth finally exceeded the nesting habitat requirements of the bird.

Blocks I, II, III, and IV fit into the proposed harvest schedule very nicely.

- D. Planned or existing timber sales - The Crane Lake Sale (Lakewood Forest Products - 9/7/77) final harvested most of the habitat in Block V (Compartment 177). There are no active or planned timber sales within the remaining Blocks of this Unit.

II. Known or Potential Human Activity

- A. Developments - Seasonal and permanent residences are located in T25N, R2E, Section 1, SE NE and SW NW (approximately 1/2 mile north of Warbler habitat in Block V).

A buried transmission and telephone line are located just north of Block V in the SE SE of Section 1, T25N, R2E.

State highway M-33 bisects Blocks V and I in this Unit. Special provisions for aesthetics should be made when planning timber harvest activities in these Blocks.

- B. Known or potential historic sites - There are no known historical sites in this Unit.
- C. Special uses - There are no known special uses in this Unit.

CRANE LAKE UNIT

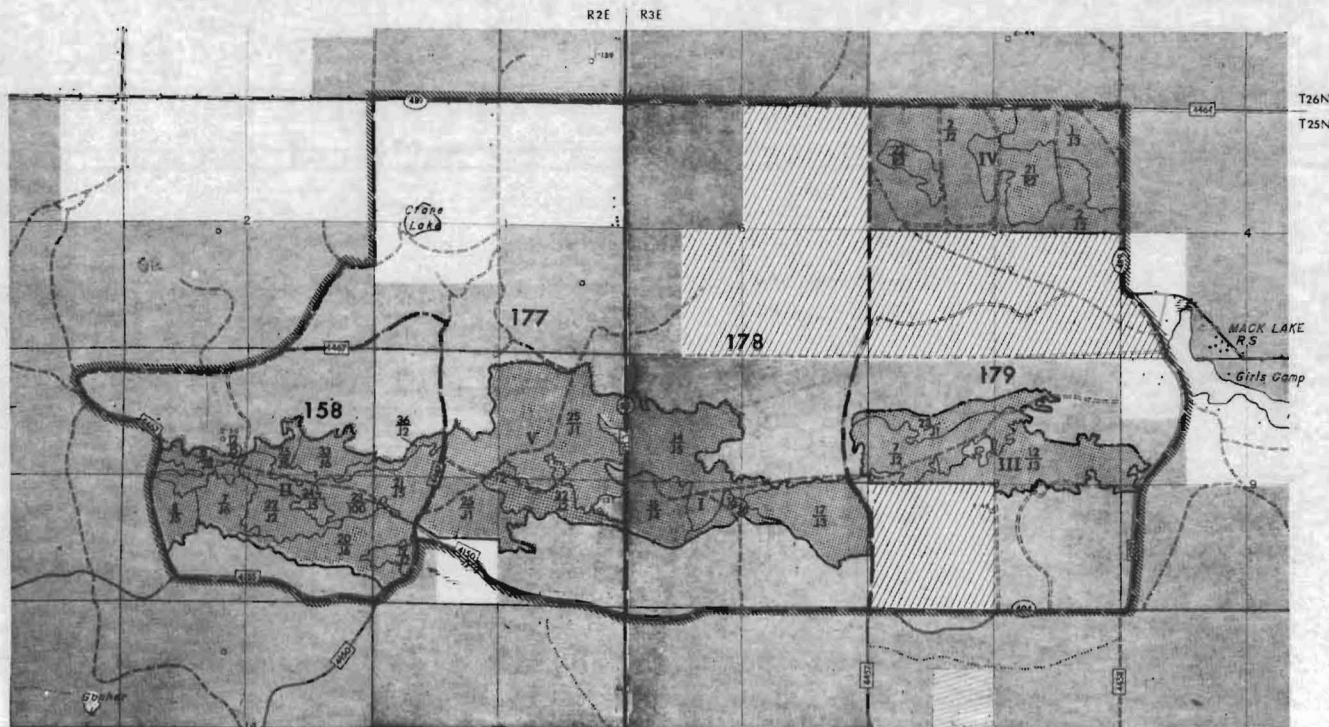
MACK LAKE AREA

KIRTLAND'S WARBLER MANAGEMENT PLAN

OSCODA COUNTY, MICHIGAN

T26N, R2&3E

1978



LEGEND

- UNIT BOUNDARY
- RANGER DISTRICT BOUNDARY
- COMPARTMENT BOUNDARY
- 622** COMPARTMENT NUMBER
- BLOCK BOUNDARY
- IV** BLOCK NUMBER
- STAND BOUNDARY
- $\frac{4}{16}$ STAND NUMBER
- TIMBER TYPE-SIZE-DENSITY
- NATIONAL FOREST OWNERSHIP
- CRITICAL HABITAT
- POTENTIAL ACQUISITION
- MAIN HIGHWAY
- ALL WEATHER OR SECONDARY ROAD
- DEVELOPED ROUTE
- UNDEVELOPED ROUTE (TWO-TRACK)
- US ROUTE
- STATE ROUTE
- COUNTY ROUTE
- FOREST ROUTE

SCALE

0 $\frac{1}{2}$ 1 mile

HABITAT MANAGEMENT PRESCRIPTION

UNIT: CRANE LAKE

CUTTING BLOCK: I

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
178	14	93	J5	1979-88	68	
	15	38	J4		68	
	16	13	J6		68	
	17	64	J3		38	
	TOTAL =	208				

COMMENTS: Stands 14, 15, and 16 were not identified for cutting during this 10 year period in the Compartment E.A.R. (due to aesthetic considerations along M-33). If possible, these stands should be harvested at the end of this 10 year period (prior to 1988). This will initially create 144 acres of potential habitat to be burned and planted. Stand 17 should be harvested as soon as merchantable to lessen the age differences of the stands in this Block.

HABITAT MANAGEMENT PRESCRIPTION

UNIT: CRANE LAKE

CUTTING BLOCK: II

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
158	7	29	J6	1989-98	66	
	8	20	J5		57	
	9	19	J8		75*	
	12	3	J5		56	
	19	9	J2		47	
	(Part) 20	57	J6		64	
	21	51	J5		61	
	22	30	J2		44	
	23	1	00		--	
	24	20	J5		63	
	25	14	J5		56	
	(Part) 33	22	J6		76*	
	36	10	J2		44	
	TOTAL =285					

COMMENTS: Stands 9 and 33 may require harvest prior to the proposed treatment date.
 Stands 19, 22, and 36 may require harvest prior to the economic rotation age.

HABITAT MANAGEMENT PRESCRIPTION

UNIT: CRANE LAKE

CUTTING BLOCK: III

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
179	7	63	J2	1999-2008	58	Final Harvest
	11	14	J5		(20)	
	12	80	J3		58	
	23	29	J1		58	
	TOTAL =	186				

COMMENTS: The age in parenthesis represents the age of Stand 11 in 2008 if harvested and regenerated by 1988. This stand has been included in the East Mack Sale scheduled for sale in FY 1979.

UNIT: CRANE LAKE

CUTTING BLOCK: IV

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
179	1	66	J3	2009-18	52	Release
	2	173	J2		50	Release
	21	53	R2		47	Release
	22	18	R2		68	Release
	TOTAL =	310				

COMMENTS: All four stands are scheduled for a non-commercial removal of the existing 3-5" scattered overstory (in 1979 or 1980). This action may improve the quality of the existing jack and red pine regeneration for Warbler nesting in the near future.

HABITAT MANAGEMENT PRESCRIPTION

UNIT: CRANE LAKE

CUTTING BLOCK: V

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
177	25	210	J1	2019-28	(48)	Final Harvest - Complete
	32	34	J2		68	
	TOTAL =	244				

COMMENTS: The Crane Lake Sale (closed December, 1978) created 210 acres of potential habitat through final harvest. This area is scheduled for burning in FY 1979 and should be planted as soon thereafter as possible. The age in parenthesis represents the age of this Stand in 2028 if regenerated by 1980.

Stand 32 should be deferred as long as possible toward the prescribed harvest date.

EGGLESTON ROAD UNIT

I. Unit Description

- A. Compartments involved and acreage of critical habitat -
Compartment 201 occupies the entire area within this Unit. A total of 1,271 acres has been identified as Critical Habitat in this Unit.
- B. Complex needs - Compartment 201 has had recent field examination with an approved E.A.R. written in 1976.
- C. Status of existing habitat - Most of this Unit is presently in the 40 to 50 year age class. Blocks IV and V will require harvest at least several decades prior to the proposed date. Age class regulation will not be achieved until the end of the next rotation period. Block I and portions of Blocks III and IV are scheduled for treatment during this 10 year period.
- D. Planned or existing timber sales - The Brainard Springs Sale (Shultz Woodland Company 9/19/78) will affect habitat in Blocks I, III and IV.

II. Known or Potential Human Activity

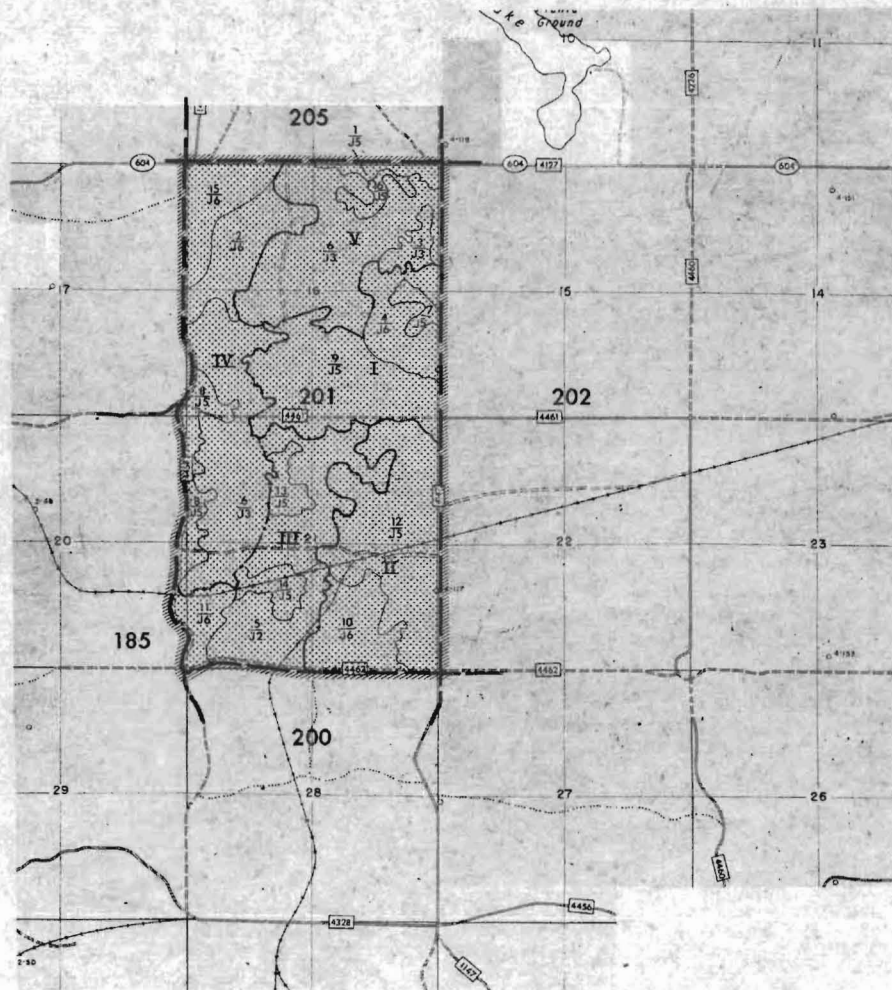
- A. Developments - Other than the residences along the south shore of Mack Lake (1/2 mile north) there are no known structural developments in or adjacent to this Unit.
- B. Known or potential historic sites - There are several old railroad grades running through the south half of Section 21. There are no other known historical sites in this Unit.
- C. Special uses - A road right-of-way was granted to Oscoda County along C.R. 604. There is also an O.R.V. route that follows the railroad grades in the southern portion of Section 21. This route should be altered when the habitat in Blocks II and III reaches a suitable age for Warbler nesting.

EGGLESTON ROAD UNIT
MACK LAKE AREA



















KIRTLAND'S WARBLER MANAGEMENT PLAN
OSCODA COUNTY, MICHIGAN

T 26 N, R 3 E

1978



LEGEND

-  UNIT BOUNDARY
-  RANGER DISTRICT BOUNDARY
-  COMPARTMENT BOUNDARY
- 622** COMPARTMENT NUMBER
-  BLOCK BOUNDARY
- IV** BLOCK NUMBER
-  STAND BOUNDARY
-  STAND NUMBER
-  TIMBER TYPE-SIZE-DENSITY
-  NATIONAL FOREST OWNERSHIP
-  CRITICAL HABITAT
-  POTENTIAL ACQUISITION
-  MAIN HIGHWAY
-  ALL WEATHER OR SECONDARY ROAD
-  DEVELOPED ROUTE (UNPAVED)
-  UNDEVELOPED ROUTE (TWO TRACK)
-  US ROUTE
-  STATE ROUTE
-  COUNTY ROUTE
-  FOREST ROUTE

SCALE

0 1/2 1 mile

HABITAT MANAGEMENT PRESCRIPTION

UNIT: EGGLESTON ROAD

CUTTING BLOCK: I

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
201	4	67	J6	1979-88	60	Final Harvest
	7	11	J5		60	Final Harvest
	9	148	J4		50	Final Harvest
	TOTAL -	226				

COMMENTS: Stands 4, 7, and 9 are scheduled for final harvest under the Brainard Springs Sale (Shultz Woodland Co. -9/19/78).

UNIT: EGGLESTON ROAD

CUTTING BLOCK: II

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
201	10	65	J6	1989-98	58	
	12	182	J5		68	
	TOTAL -	247				

COMMENTS:

HABITAT MANAGEMENT PRESCRIPTION

UNIT: EGGLESTON ROAD

CUTTING BLOCK: III

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
201	5	58	J2	1999-2008	71*	Removal - Inoperable
	(Part) 6	93	J3		70*	
	11	30	J6		(20)	Final Harvest
	13	18	J5		72*	
	14	40	J5		(20)	Final Harvest
	TOTAL =	239				

COMMENTS: Stands 11 and 14 are scheduled for final harvest under the Brainard Springs Sale. The harvest of these two stands will create 70 acres of potential habitat in this Block during this 10 year period. The ages shown in parenthesis represent the age of these stands if regenerated by 1988. The remaining stands may require treatment before the prescribed harvest date.

UNIT: EGGLESTON ROAD

CUTTING BLOCK: IV

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
201	2	66	J6	2009-18	91*	
	(Part) 6	148	J3		80*	
	8	42	J5		(30)	Final Harvest
	15	64	J6		(30)	Final Harvest
	TOTAL =	320				

COMMENTS: Stands 8 and 15 will also be final harvested under the Brainard Springs Sale. Stand 8 is long and very narrow, making prescribed burning impractical. Stand 15, however, should be burned and regenerated in the prescribed Warbler management format. The remaining stands in this Block will require treatment before the prescribed harvest date, but should be deferred as long as possible. The ages shown in parenthesis represent the age of these stands if regenerated by 1988.

HABITAT MANAGEMENT PRESCRIPTION

UNIT: EGGLESTON ROAD

CUTTING BLOCK: V

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
201	1	15	J5	2019-28	100*	Final Harvest - Inoperable
	3	17	J3		90*	
	(Part) 6	192	J3		90*	
	16	15	J6		100*	
	TOTAL =	239				

COMMENTS: The stands in this Block should be cut in approximately 10 years (1988) if possible. This will make the timber 40 years old by the next treatment date prescribed above. It will take at least another rotation period before this Unit reaches complete age class regulation.

EMLEY LAKE UNIT

I. Unit Description

- A. Compartments involved and acreage of critical habitat - Portions of Compartments 163, 164, 165 and 166 (Harrisville District) are included within this Unit. A total of 976 acres has been identified as Critical Habitat in this Unit.
- B. Complex needs - Compartments 163, 164, 165, and 166 were field examined in 1975 and were incorporated into a joint E.A.R. approved in 1976.
- C. Status of existing habitat - Three singing male Kirtland's Warblers were found in Stand 9 (Comp. 164) as late as 1976, but no Warbler use was recorded in 1978. The remaining habitat in this Unit is primarily in the 35 to 50 year age class. This relatively mature even-age condition will necessitate an intensified cutting schedule. Harvest of the cutting blocks in this Unit will occur at five year intervals during the first rotation period. Age classes will be staggered to 10 year intervals during the second rotation period (ending in 2053).

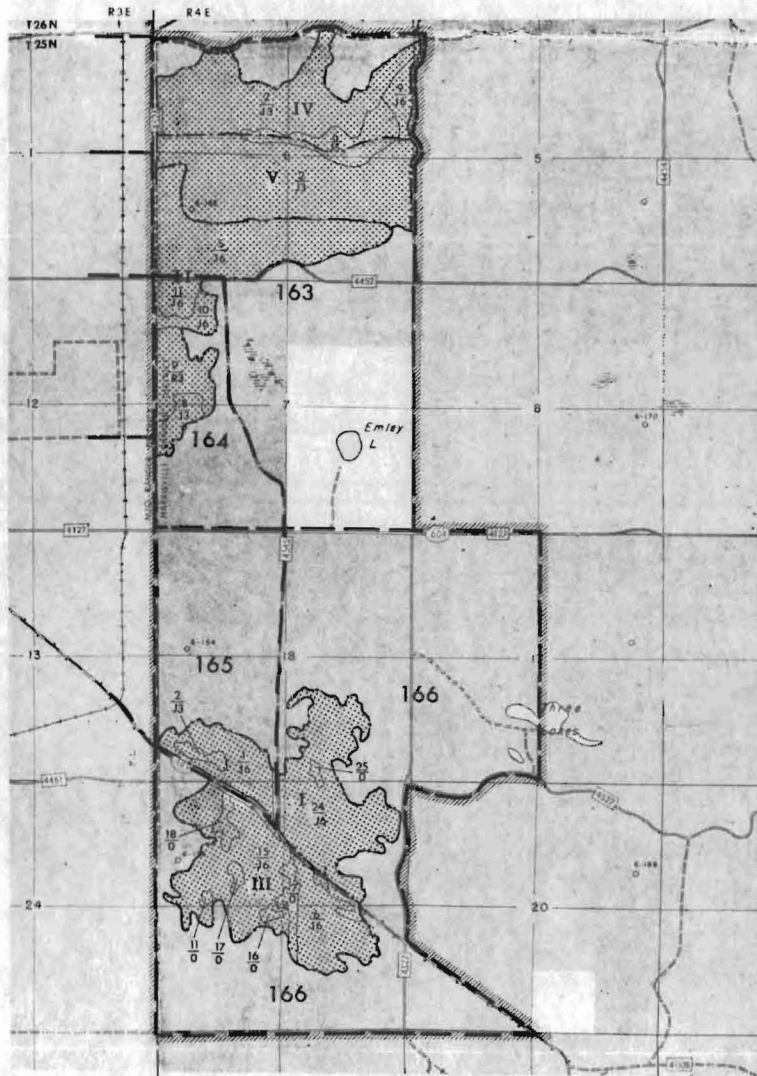
It is desirable to gain additional acreage in this Unit, but the soil types limit the conversion potential. Stand 9, Compartment 164, is the most important opportunity for type conversion. When the adjacent habitat has matured again, Stand 9 should be harvested with it and converted to jack pine.

- D. Planned or existing timber sales - There are presently two active timber sales in this Unit. The Angry Woman Sale (Champion International, 3/14/78) will final harvest 185 acres of potential habitat in Block I.

In Block II, the Pine Ridge Sale (Lakewood Forest Products, 6/16/77) is scheduled to final harvest 154 acres of critical habitat. This sale is adjacent to the active Warbler nesting colony in Section 12. Operating restrictions between May 1 and August 15 should be enforced. There are no additional sales planned for this Unit through F.Y. 1982.

II. Known or Potential Human Activity

- A. Developments - There are no known developments in, or adjacent to, this Unit.
- B. Known or potential historic sites - There are no known historical sites in this Unit.
- C. Special uses - Other than the normal dispersed recreational activities in the area, there are no known special uses in this Unit.



EMLEY LAKE UNIT MACK LAKE AREA KIRTLAND'S WARBLER MANAGEMENT PLAN

OSCODA COUNTY, MICHIGAN
T25N, R4E

1978

LEGEND

- UNIT BOUNDARY
- RANGER DISTRICT BOUNDARY
- COMPARTMENT BOUNDARY
- 622** COMPARTMENT NUMBER
- BLOCK BOUNDARY
- IV** BLOCK NUMBER
- STAND BOUNDARY
- STAND NUMBER
- TIMBER TYPE-SIZE-DENSITY
- NATIONAL FOREST OWNERSHIP
- CRITICAL HABITAT
- POTENTIAL ACQUISITION
- MAIN HIGHWAY
- ALL WEATHER OR SECONDARY ROAD
- DEVELOPED ROUTE (UNPAVED)
- UNDEVELOPED ROUTE (TWO TRACK)
- US ROUTE
- STATE ROUTE
- COUNTY ROUTE
- FOREST ROUTE

SCALE
0 $\frac{1}{2}$ 1 mile

HABITAT MANAGEMENT PRESCRIPTION

UNIT: EMLEY LAKE

CUTTING BLOCK: I

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
165	1	52	J6	1979-83	55	Final harvest
	2	6	J3		34	
166	24	127	J6		56	Final harvest
	TOTAL =		185			

COMMENTS: Angry Woman Sale

This Block is presently scheduled for harvest under the Angry Woman Sale (Champion International, 3/14/78). This sale will create 185 acres of potential habitat to be burned and regenerated.

UNIT: EMLEY LAKE

CUTTING BLOCK: II

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
164	8	13	J3	1984-88	42	
	9	30	R3		32	
	10	14	J6		78	Final harvest
	11	12	J6		60	Final harvest
163	5	128	J6		60	Final harvest
	TOTAL =		197			

COMMENTS: Stand 5 (Compartment 163) and Stands 10 and 11 (Compartment 164) are scheduled for final harvest under the Pine Ridge Sale (Lakewood Forest Products 6/16/77). A total of 154 acres of potential habitat will be prepared for regeneration under this Sale. Timber harvest is progressing slowly on the Sale and may not be completed by the termination date.

Stand 8 (Compartment 164) should be deferred from harvest until merchantable. Stand 9 supported at least three singing male Warblers as late as 1975. Stand 9 (an R3 type) should be managed on a short rotation basis, with harvest occurring when the remaining portion of the Block is scheduled for harvest again (approximately 2038).

HABITAT MANAGEMENT PRESCRIPTION

UNIT: EMLEY LAKE

CUTTING BLOCK: III

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
166	6	54	J6	1989-93	65	
	7	8	00		-	
	11	28	J6		66	
	15	119	J6		66	
	16	3	00		-	
	17	4	00		-	
	18	7	00		-	
TOTAL =		223				

COMMENTS:

UNIT: EMLEY LAKE

CUTTING BLOCK: IV

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
163	2 (part)	142	J3	1994-98	56	
	6 (part)	28	J5		75*	
	9	14	J6		76*	
TOTAL =		184				

COMMENTS: Stand 9 and the portion of Stand 6 within this Block should be deferred as long as possible toward the prescribed treatment dates.

HABITAT MANAGEMENT PRESCRIPTION

UNIT: EMLEY LAKE

CUTTING BLOCK: V

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
163	2 (part)	175	J3	1999-2003	61	
	6 (part)	12	J5		80*	
	TOTAL =	187				

COMMENTS: The portion of Stand 6 within this Block should be deferred as long as possible toward the prescribed treatment date.

FOWLER ROAD UNIT

I. Unit Description

- A. Compartments involved and acreage of critical habitat - All of Compartment 202 is included within this Unit. A total of 1,260 acres has been identified as Critical Habitat in this Unit.
- B. Complex needs - Recent field examination data have been gathered and the E.A.R. is presently (December-1978) being written for Compartment 202. The compartment management prescription is being coordinated with the proposed Kirtland's Warbler Habitat Management Plan.
- C. Status of existing habitat - Most of the timber in this Compartment is presently in the 40 to 50 year age class. As a result of this mature even-age condition, Blocks I and II will be harvested during this 10 year period (prior to 1988). Blocks III and IV will be final harvested between 1988 and 1998. Block V (the youngest timber in the Unit) is scheduled for harvest during the time period between 1998 and 2008. This will make the first step toward age-class regulation in this Unit. Full age class regulation will not be reached until the end of the next rotation period.
- D. Planned or existing timber sales - The Saginaw Grade Sale, planned for sale in FY 1981, should final harvest most of the habitat in Blocks I and II.

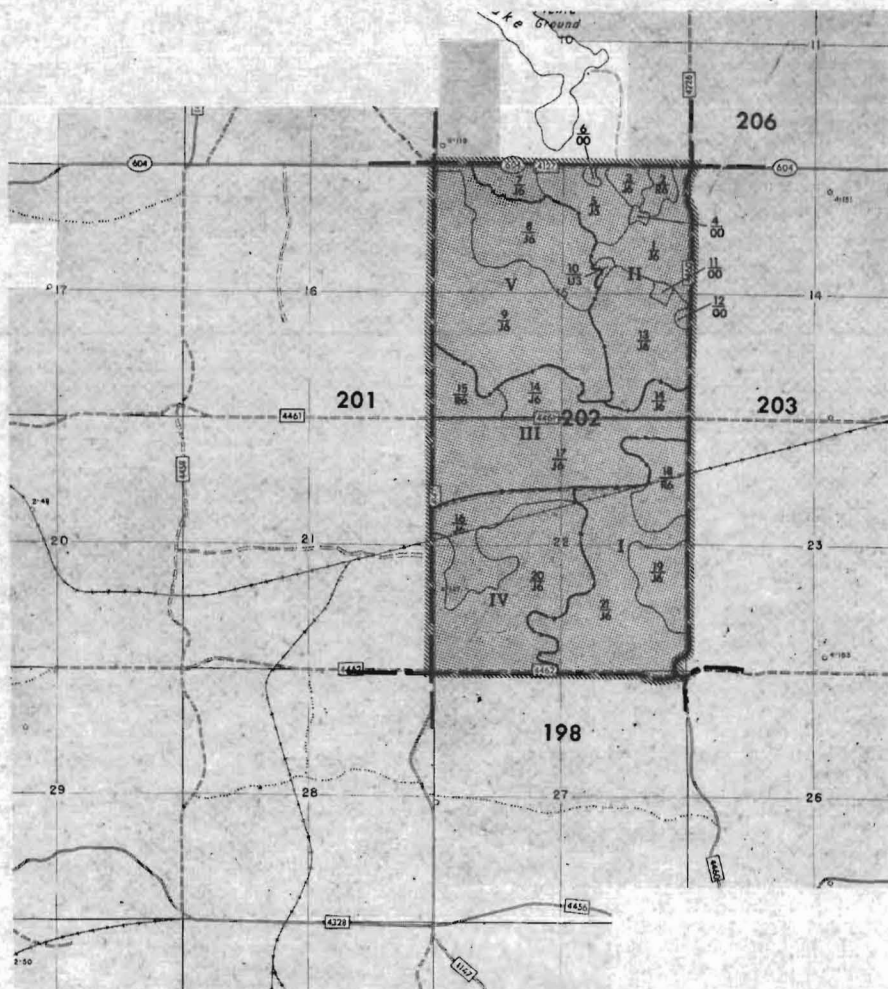
II. Known or Potential Human Activity - The only known structural developments in or near this Unit are the seasonal residences located on private lands along Mack Lake. These residences are located within 1/4 mile north of the critical habitat in this Unit (in T25N, R3E, Section 10, SW SE and SE SW).

- B. Known or potential historic sites - An old railroad grade passes through the north half of Section 22. The historical significance of this grade is not known.
- C. Special uses - There are no known special uses in this Unit.

FOWLER ROAD UNIT
MACK LAKE AREA

KIRTLAND'S WARBLER MANAGEMENT PLAN
OSGUDA COUNTY, MICHIGAN
T26N. R3E

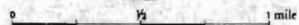
1978



LEGEND

- UNIT BOUNDARY
- RANGER DISTRICT BOUNDARY
- COMPARTMENT BOUNDARY
- 622** COMPARTMENT NUMBER
- BLOCK BOUNDARY
- IV** BLOCK NUMBER
- STAND BOUNDARY
- $\frac{4}{16}$ STAND NUMBER
- TIMBER TYPE-SIZE-DENSITY
- NATIONAL FOREST OWNERSHIP
- CRITICAL HABITAT
- POTENTIAL ACQUISITION
- MAIN HIGHWAY
- ALL WEATHER OR SECONDARY ROAD
- DEVELOPED ROUTE (UNPAVED)
- UNDEVELOPED ROUTE (TWO-TRACK)
- US ROUTE
- STATE ROUTE
- COUNTY ROUTE
- FOREST ROUTE

SCALE



HABITAT MANAGEMENT PRESCRIPTION

UNIT: FOWLER ROAD

CUTTING BLOCK: I

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
202	18	38	R6	1979-88	54	
	19	33	J6		60	
	21	157	J6		58	
	TOTAL =	228				

COMMENTS: Stands 19 and 21 should be final harvested under the Saginaw Grade Sale, scheduled for sale in FY 1981. Stand 18 should be deferred from final harvest until the end of the next rotation period (2038).

HABITAT MANAGEMENT PRESCRIPTION

UNIT: FOWLER ROAD

CUTTING BLOCK: II

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
202	1	58	J6	1989-98	65 (10)	
	2	13	R6	(See Comments)	64	
	3	12	J6		65 (10)	
	4	3	00		--	
	5	41	J5		67 (10)	
	6	3	00		--	
	7	20	J6		67 (10)	
	10	4	U3		--	
	11	3	00		--	
	12	2	00		--	
	13	89	J6		68 (10)	

TOTAL = 248

COMMENTS:

Due to the predominantly mature even-age condition of the timber in this Unit, Block II should also be harvested prior to 1988. The final harvest of this Block should be incorporated into the proposed Saginaw Grade Sale, scheduled to be sold in FY 1981. If desirable, the final harvest of Stand 2 could be deferred until the next rotation period (2048). This will create an area of 235 acres of potential habitat that should be burned and planted during this 10 year period. The ages in parenthesis represent the ages of stands in 1998 if burned and regenerated by 1988.

HABITAT MANAGEMENT PRESCRIPTION

UNIT: FOWLER ROAD

CUTTING BLOCK: III

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
202	14	56	J6	1999-2008	78* (10)	
	15	33	R6	(See	75	
	17	154	J6	Comments)	78* (10)	
	TOTAL =	243				

COMMENTS: Due to the predominantly mature, even-age condition of the timber in this Unit, final harvest of the timber in this Block should be advanced to the time period between 1988 and 1998. If desirable, Stand 15 could be deferred until the end of the next rotation period (2058). The ages in parenthesis represent the age of the stands in 2008 if they are burned and regenerated by 1998.

UNIT: FOWLER ROAD

CUTTING BLOCK: IV

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
202	16	64	J6	2009-18	88* (20)	
	20	180	J6	(See	86* (20)	
				Comments)		
	TOTAL =	244				

COMMENTS: Due to the predominantly mature even-age condition of the timber in this Unit, final harvest of the timber in this Block should be advanced to the time period between 1988 and 1998. The ages in parenthesis represent the age of the stands in 2018 if burned and regenerated by 1998.

HABITAT MANAGEMENT PRESCRIPTION

UNIT: FOWLER ROAD

CUTTING BLOCK: V

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
202	8	98	J6	2019-28	84* (20)	
	9	199	J6	(See Comments)	87* (20)	
	TOTAL =	297				

COMMENTS: Due to the predominantly mature even-age condition of the timber in this Unit, final harvest of the timber in this Block should be advanced to the time period between 1998 and 2008. The ages in parenthesis represent the age of the stands in 2028 if burned and regenerated by 2008.

MACK LAKE UNIT

I. Unit Description

- A. Compartments involved and acreage of critical habitat - Compartments 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, and 217 are included within this Unit. A total of 4,039 acres has been identified as Critical Habitat in this Unit.
- B. Compex needs - Compartments 208, 209, 210, 211, 212, 213, 214, 215, 216, and 217 have compartment examination completed, but these were done under the old system and are not of the quality of more recent work. Field examination was completed and the E.A.R. approved for Compartment 207 in 1976. Compex has been completed and the E.A.R. is presently (December, 1978) being written for Compartment 206.
- C. Status of existing habitat - The Mack Lake Unit is essentially the old Kirtland's Warbler Management Area. This Unit has long been recognized as the showplace of Warbler management on National Forest lands. The integrity of this Unit should be maintained and our best efforts put forth to develop a demonstration area that will meet public expectations.

This Unit will be managed more intensively than other Units to maintain a large nesting population that will be more accessible for V.I.S. purposes. Demand for a look at this endangered species is increasing annually, and with a large population, the chances of a male establishing a territory along a road or trail is increased, viewing chances enhanced, and potential hazards to nesting birds reduced.

The primary objective in this Unit is to develop the highest quality habitat possible. Other resource management should play a very secondary role. This will entail larger than normal clearcuts, pre and post-commercial treatments, intensive reforestation efforts, and a comprehensive education and law enforcement program. Approximately one tenth of the Unit (a management Block) will be regenerated every five years. Theoretically, three of these blocks would be in a suitable condition for nesting at any one time and provide habitat for approximately 40 pairs of Warblers.

The main negative impacts of intensive Warbler management will be on timber production and aesthetics. Jack pine and oak pulpwood production should not be greatly affected. There will be some loss from regenerating immature stands or delaying harvest of mature stands, but it should be minor in most cases. The loss per acre in the red pine plantations will be more significant if their future value as sawlogs is considered. Of the 4,051 acres of potential habitat in this Unit, 477 acres

(11Δ) are classified as immature red pine plantations. These plantations are to be managed on a short rotation basis, and will be harvested if they are a merchantable pulpwood size at the proposed treatment date.

The aesthetics of the large regularly shaped Blocks will not be attractive to some people. In this Unit, however, quality habitat is the major consideration. Aesthetic qualities will not be emphasized to the degree in this Unit as in others.

- D. Planned or existing timber sales - At this time (1978), there is only one planned timber sale in this Unit. This sale, the Eugene Sale (Block I, Compartment 217), is scheduled to be sold in FY 1981.

II. Known or Potential Human Activity

- A. Developments - Several seasonal residences are located on private lands along the southeast shore of Mack Lake in T25N, R3E, Section 10, NW SE and SW SE, within 1/4 mile of the west edge of critical habitat in Compartment 206.

The developed Mack Lake Campground site is directly adjacent to designated Critical Habitat in Stand 2-Compartment 206. Critical Habitat is also located approximately 1/8 mile east of the undeveloped campsite (Stand 14) situated along the north shoreline of Mack Lake.

- B. Known or potential historic sites - The town of Mack City was located along the north shore of Mack Lake, mainly in the S-1/2 SE of Section 3 and the N-1/2 NE of Section 10, T25N, R3E. It was an early farming community founded in 1879 and abandoned around 1890. The Mio District Multiple Use Management Plan specifies that there will be no artificial regeneration or surface disturbance of this site. This area should be evaluated for its potential historic significance to determine once and for all if it should be reserved or managed.

MACK LAKE UNIT

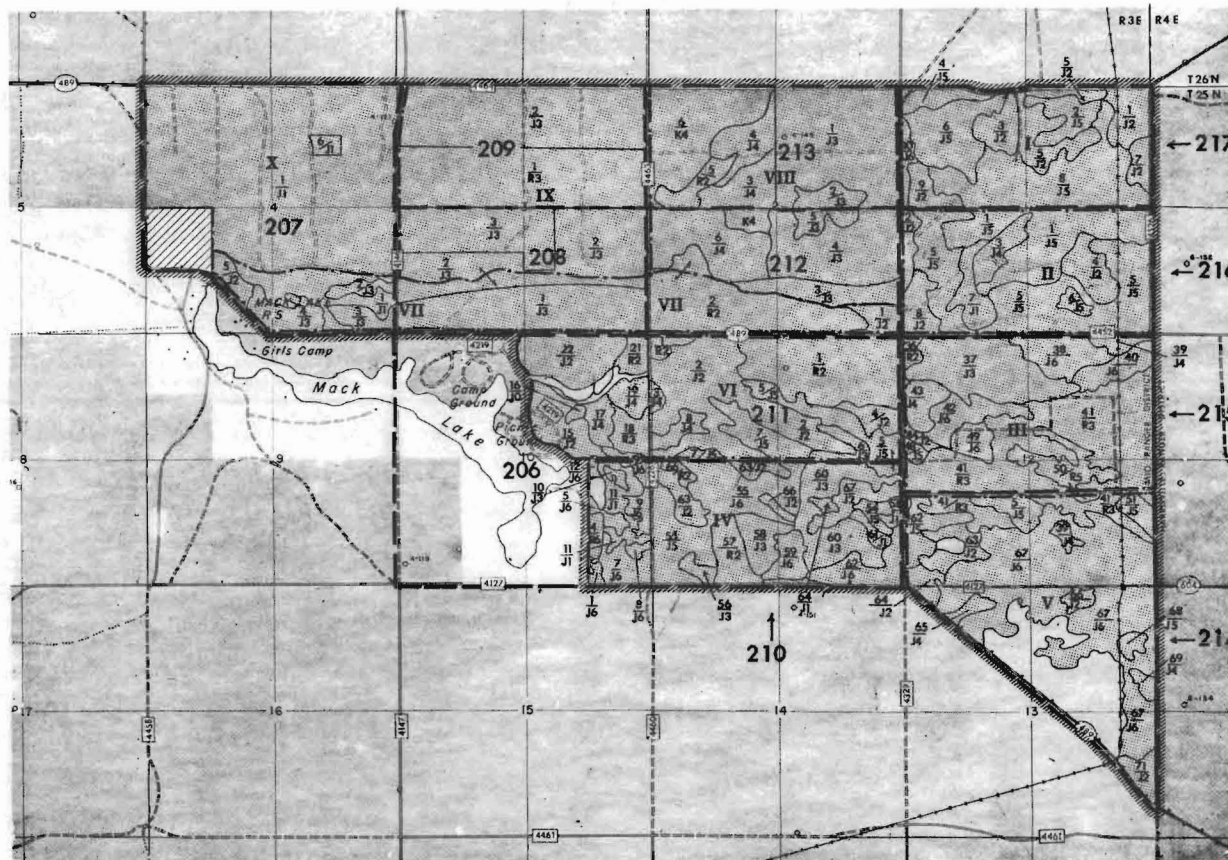
MACK LAKE AREA

KIRTLAND'S WARBLER MANAGEMENT PLAN

OSCODA COUNTY, MICHIGAN

T26N, R3E

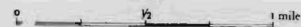
1978



LEGEND

- | | | | |
|------------|---------------------------|--|---|
| | UNIT BOUNDARY | | MAIN HIGHWAY |
| | RANGER DISTRICT BOUNDARY | | ALL WEATHER OR SECONDARY ROAD (UNPAVED) |
| | COMPARTMENT BOUNDARY | | DEVELOPED ROUTE (UNPAVED) |
| 622 | COMPARTMENT NUMBER | | UNDEVELOPED ROUTE (TWO-TRACK) |
| | BLOCK BOUNDARY | | US ROUTE |
| IV | BLOCK NUMBER | | STATE ROUTE |
| | STAND BOUNDARY | | COUNTY ROUTE |
| | STAND NUMBER | | FOREST ROUTE |
| | TIMBER TYPE-SIZE-DENSITY | | |
| | NATIONAL FOREST OWNERSHIP | | |
| | CRITICAL HABITAT | | |
| | POTENTIAL ACQUISITION | | |

SCALE



HABITAT MANAGEMENT PRESCRIPTION

UNIT: MACK LAKE

CUTTING BLOCK: I

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
217	1	24	J2	1979-83	28	
	2	21	J5		63	Final harvest
	3	19	J2		43	
	4	12	J5		53	
	5	34	J2		41	
	6	44	J5		53	
	7	10	J2		41	
	8	116	J5		61	Final harvest
	9	15	J2		27	
	10	9	J6		63	Final harvest

COMMENTS: Stands 2, 8, and 10 are scheduled to be harvested under the Eugene Sale, planned for sale in FY 1981. Stands 4, 6, and any additional merchantable stands in this Compartment should also be included in this Sale. Upon completion of the Sale, the entire Block should be burned and planted to jack pine.

HABITAT MANAGEMENT PRESCRIPTION

UNIT: MACK LAKE

CUTTING BLOCK: II

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
216	1	85	J5	1984-88	70	Final Harvest
	2	7	J6		68	Final Harvest
	3	18	J4		68	Final Harvest
	4	26	J2		36	
	5	140	J5		68	Final Harvest
	6	8	J5		61	Final Harvest
	7	16	J1		36	
	8	20	J2		42	
	TOTAL -	320				

COMMENTS: Stands 1, 2, 3, 5, and 6 were scheduled for final harvest in the E.A.R. for Compartment 216 (approved in 1974). To date (1978) this compartment has not been included in the proposed timber sales through 1983.

HABITAT MANAGEMENT PRESCRIPTION

UNIT: MACK LAKE

CUTTING BLOCK: III

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR- (IF ANY)
215	36	7	R2	1989-93	34	
	37	77	J3		47	
	38	30	J6		61	
	39	12	J4		66*	
	40	20	J6		67*	
	41	170	R3		36	
	42	26	J6		61	
	43	16	J4		63	
	44	4	J2		47	
	48	6	J5		63	
	49	12	J6		55	
	50	20	R5		55	
	TOTAL =	400				

COMMENTS: Stand 41 (R3) should be managed on a short rotation basis. Final harvest of this stand could be deferred 10 to 15 years, until the timber reaches a merchantable pulpwood size class. Stand 50 (R5) should be final harvested at the prescribed treatment date.

HABITAT MANAGEMENT PRESCRIPTION

UNIT: MACK LAKE

CUTTING BLOCK: IV

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
210	(Part) 48	4	J6	1994-98	73*	
	53	6	J1		51	
	54	6	J5		59	
	55	94	J6		73*	
	56	6	J3		59	
	57	21	R2		41	
	58	21	J3		41	
	59	18	J6		73*	
	60	55	J3		59	
	61	6	J1		48	
	62	53	J6		73*	
	63	20	J2		51	
	64	3	J1		51	
	65	4	J2		41	
	66	3	J2		51	
206	1	2	J6		71*	
	4	5	J6		59	
	5	5	J6		68*	
	7	18	J6		56	
	8	4	J6		63	
	9	16	J6		68*	
	10	4	J3		57	
	11	17	J1		40	
	12	2	J6		68*	
	TOTAL =	393				

COMMENTS: Several stands may require treatment prior to the proposed harvest date.

HABITAT MANAGEMENT PRESCRIPTION

UNIT: MACK LAKE

CUTTING BLOCK: VI

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
211	1	108	R2	2004-08	50	
	2	121	J2		61	
	3	5	J4		91*	
	4	11	J2		62	
	5	28	J5		98*	
	6	10	J3		72*	
	7	28	J5		88*	
	8	9	J4		98*	
206	15	30	J2	50		
	16	4	J1	31		
	17	12	J5	77*		
	18	16	R3	50		
	19	17	J5	88*		
	21	10	R2	50		
	22	46	J2	57		
	TOTAL =	455				

COMMENTS: In Compartment 211, Stands 3, 5, 7, and 8 should be held as long as possible toward the prescribed harvest date. Stands 17 and 19, Compartment 206, will also require harvest prior to the proposed treatment date but should be deferred as long as possible.

Stand 1 (R2) in Compartment 211, should be final harvested at the prescribed treatment date. Stands 18 (R3) and 21 (R2) should also be final harvested at this time.

HABITAT MANAGEMENT PRESCRIPTION

UNIT: MACK LAKE

CUTTING BLOCK: VII

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
212	1	15	J2	2009-13	67*	
	2	112	R2		55	
208	1	125	J3		67*	
207	(Part) 1	49	J1		40	
	2	8	J3		67*	
	3	12	J3		67*	
	4	22	J3		67*	
	5	9	J2		67*	
	TOTAL =	352				

COMMENTS: Stand 2 (R2), Compartment 212, should be final harvested at the prescribed treatment date.

HABITAT MANAGEMENT PRESCRIPTION

UNIT: MACK LAKE

CUTTING BLOCK: VIII

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)	
212	3	40	J3	2014-18	57		
	4	80	J3	(See	51		
	5	9	J3	Comments)	49		
	6	58	J4		99*(35)		
	7	6	K4		118*(35)	Final Harvest	
	213	1	136	J3		51	
	2	14	J3		49		
	3	29	J4		(35)	Final Harvest	
	4	25			90*(35)		
	5	19	R2		60*(35)		
	6	81	K4		97*(35)	Final Harvest	
	TOTAL =	497					

COMMENTS: Stands 3, 4, 5, 6, (Comp. 213), and Stands 6 and 7 (Comp. 212) have a somewhat complex management history. These stands were originally harvested as a seed tree cut in the early 1960's, to be followed by a prescribed burn. Burning was never accomplished in these stands. The seed trees were then sold in FY 1974 with 93 cords of jack pine and 126 cords of oak being removed. During the spring of 1974, part of Stand 6 (31 acres), Compartment 212, was planted to jack pine, an action not covered by the approved Compartment E.A.R. Characteristically, the area now has a heavy slash accumulation, generally poor regeneration, and a poor chance of becoming quality habitat.

To improve this area, the entire NW $\frac{1}{2}$ of Section 2 (Comp. 213) should be burned and planted to jack pine as soon as possible. Compartment 212, Stand 7, and the portion of Stand 6 east of the area planted in 1974 should also be burned and planted. The ages in parenthesis represent the age of these stands in 2018, if burned and regenerated by 1983.

In addition, the remaining overstory in Stand 6, Compartment 212, should be removed by girdling or through a commercial sale if there is enough volume. The removal of the oak snags on the north end of the Section (2) should be deferred as long as cowbird control is continued. These snags provide important habitat for other species of birds.

HABITAT MANAGEMENT PRESCRIPTION

UNIT: MACK LAKE

CUTTING BLOCK: IX

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
208	2	120	J3	2019-23	54	
	3	75	J3		55	
209	1	160	R3		55	
	2	144	J3		54	
	TOTAL =	499				

COMMENTS: In Compartment 209, Stand 1 (R3) should be managed on a short rotation basis. This stand should be final harvested at the prescribed treatment date.

The competing oak sprouts in portions of Stands 1 and 2 (Compartment 209) have been treated with Tordon and through hand chopping in FY 1976.

UNIT: MACK LAKE

CUTTING BLOCK: X

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
207	1	414	J1	2028	55	Fill-in-plant
	6	6	J1		56	Fill-in-plant
	TOTAL =	420				

COMMENTS: Stands 1 and 6 are presently scheduled for fill-in planting during the spring of 1979.

VAUGHN ROAD UNIT

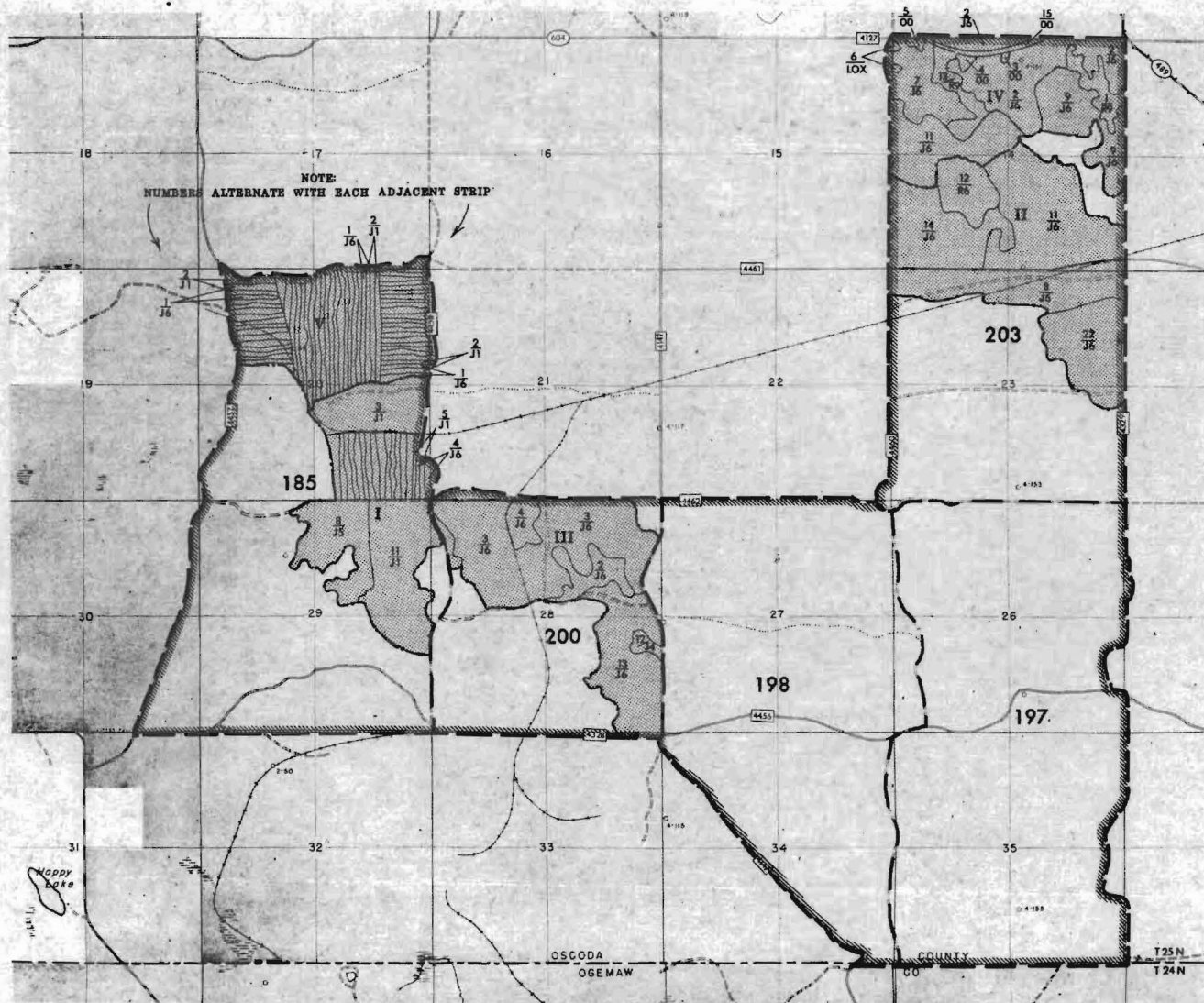
I. Unit Description

- A. Compartments involved and acreage of critical habitat - Warbler habitat in this Unit is spread over Compartments 185, 200, and 203. A total of 1,641 acres has been identified as Critical Habitat in this Unit.
- B. Complex needs - An approved E.A.R. was written for Compartment 200 in 1976. E.A.R.'s for Compartments 185 and 203 are presently being written and should be approved by the spring of 1979. The Warbler management prescription in this plan has been incorporated into these compartment E.A.R.'s.
- C. Status of existing habitat - The Vaughn Road Unit is one of the more dispersed Units, but in order not to split compartments between Units and utilize all existing potential habitat, this grouping was necessary. Most of the existing timber in this Unit is in the 38-50 year age class. Blocks V and I are scheduled for harvest and regeneration during this 10 year period. Blocks II, III, and IV are essentially the same age and should be deferred as long as possible toward the prescribed harvest dates.
- D. Planned or existing timber sales - The Eggleston Road Sale is planned to be sold in FY 1979 and would affect habitat in Compartment 200 (Block III). In addition, the Plantagenet Sale is scheduled to be sold in FY 1981 and will harvest the timber in Blocks V and I (Compartment 185).

II. Known or Potential Human Activity

- A. Developments - An active oil drilling site is located in T25N, R3E, Section 32, NW NW, approximately 3/4 of a mile south of critical habitat in Compartment 185. There are no other known structural developments in or adjacent to this Unit.
- B. Known or potential historic sites - Other than the old railroad grade that passes through the northwest corner of Section 23, T25N, R3E, there are no known historical sites in this Unit.
- C. Special uses - The old railroad grade mentioned above is presently utilized by O.R.V.'s. When the Warbler habitat in Block III becomes suitable for nesting, this route should be closed off or re-routed through non-Warbler habitat.

VAUGHN ROAD UNIT
MACK LAKE AREA
KITLAND'S WARBLER MANAGEMENT PLAN
 OSCODA COUNTY, MICHIGAN
 T26N, R3E
 1979



NOTE:
 NUMBERS ALTERNATE WITH EACH ADJACENT STRIP

LEGEND

- UNIT BOUNDARY
- RANGER DISTRICT BOUNDARY
- COMPARTMENT BOUNDARY
- 622** COMPARTMENT NUMBER
- BLOCK BOUNDARY
- IV** STAND NUMBER
- STAND BOUNDARY
- STAND NUMBER
- TIMBER TYPE-SIZE-DENSITY
- NATIONAL FOREST OWNERSHIP
- CRITICAL HABITAT
- POTENTIAL ACQUISITION
- MAIN HIGHWAY
- ALL WEATHER OR SECONDARY ROAD
- DEVELOPED ROUTE (UNPAVED)
- UNDEVELOPED ROUTE (TWO-TRACK)
- US ROUTE
- STATE ROUTE
- COUNTY ROUTE
- FOREST ROUTE

SCALE
 0 1/2 1 mile

HABITAT MANAGEMENT PRESCRIPTION

UNIT: VAUGHN ROAD

CUTTING BLOCK: I

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
185	3	59	J1	1979-88	15	
	4	41	J6		58	
	5	35	J1		15	
	8	78	J6		78*	
	11	83	J1		15	

COMMENTS: Stands 4 and 8 should be final harvested during this 10 year period. Upon completion of harvest, Stands 4, 5, and 8 should be burned and planted to jack pine in the prescribed Warbler format. Stands 3 and 11 have moderate existing regeneration (approximately 55%) and should be fill-in planted to increase the stocking to an optimum level for Kirtland's Warbler habitat. This fill-in planting should be conducted as soon as possible to minimize the size differences between established regeneration and planted stock.

UNIT: VAUGHN ROAD

CUTTING BLOCK: II

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
203	8	90	J6	1989-98	68*	
	(Part) 11	79	J6		68*	
	12	35	R6		64	
	14	86	J6		70*	
	22	76	J6		68*	
	TOTAL =	366				

COMMENTS: If desirable, harvest of Stand 12 could be deferred until the next scheduled cut in this Block (2048). The remaining stands should be deferred as long as possible toward the prescribed date.

HABITAT MANAGEMENT PRESCRIPTION

UNIT: VAUGHN ROAD

CUTTING BLOCK: III

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
200	2	24	J6	1999-2008	79*	
	3	192	J6		69*	
	4	17	J6		77*	Shelterwood
	5	8	J5		72*(20)	Final Harvest
	12	5	J4		71*	
	13	92	J6		75*	
	TOTAL =	338				

COMMENTS: Stands 4 and 5 are designated for harvest under the Eggleston Road Sale, scheduled to be sold in FY 1979. The remaining stands will require harvest somewhat prior to the proposed treatment date.

HABITAT MANAGEMENT PRESCRIPTION

UNIT: VAUGHN ROAD

CUTTING BLOCK: IV

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
203	1	19	R9	2009-18	85	
	2	94	J6		78*	
	3	3	00		--	
	4	3	00		--	
	5	2	00		--	
	7	46	J6		80*	
	9	58	J6		78*	
	(Part) 11	129	J6		88*	
	13	22	R9		85	
	TOTAL =	376				

COMMENTS: The stands in this Block should be deferred as long as possible toward the proposed harvest date. If desirable, Stands 1 and 13 could be deferred until they reach their economic rotation age. This option, however, would increase costs for prescribed burning and lessen the value of the potential nesting habitat in Stand 9 and the northeast portion of Stand 2.

HABITAT MANAGEMENT PRESCRIPTION

UNIT: VAUGHN ROAD

CUTTING BLOCK: V

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
185	1	129	J6	2028	112* (50)	
	2	134	J1		65 (50)	
	TOTAL =	263				

COMMENTS: The entire Block was strip cut between 1972 and 1974. Various experimental treatments have been applied within the cut-over strips to achieve adequate jack pine regeneration. Recent stocking surveys (summer-1978) show regeneration to be inadequate.

The silvicultural prescription for the remaining strips (Stand 1) is to cut within the next 10 years (by 1988). The Plantagenet Sale, planned for sale in FY 1981, has scheduled final harvest for these strips. It is proposed that a seed tree cut be made when harvesting the strips (leaving approximately 20-25 trees/acre) and then prescribe burn the entire Block. Hopefully, burning after the seed tree cut will provide natural regeneration within the recently cut strips and possibly some "over-lap" into the strips cut several years ago. If adequate regeneration does not appear within 3 years after burning, the Block should be planted with jack pine seedlings.

The ages in parenthesis represent the ages of Stands 1 and 2 at the prescribed harvest date (2028) if they are regenerated by 1988.

McKINLEY KIRTLAND'S WARBLER MANAGEMENT AREA

Compartments - 39, 42, 53, 55, 56, 57, 58, 98, 99, 100, 101, 102, and 103 - Harrisville Ranger District

Compartments - 230, 232, 233, 234, and 235 - Mio Ranger District

I. Area Description

- A. General location and background information - The McKinley KWMA lies northeast of the town of McKinley, stretching along the north bank of the AuSable River. The boundaries of the area are formed primarily by changes in soil types. Most of the surrounding area is flat with the exception of the Curran Hills to the northeast. Several tributaries to the AuSable River pass through the proposed habitat, but they are not directly adjacent to any of the stands to be treated and should not be adversely affected.

Much of the Area has been logged within the past ten years (since 1968). Some of the stands along AuSable Road have been diameter limit cut and some have been strip cut. Several Blocks have also been recently harvested in the Comins Flat Unit. These previous sales will simplify the job of age class regulation in several Units. Within the large McKinley clearcut (approximately 2500 acres), however, three of the management Units will not attain full age class regulation for 2-3 rotation periods.

Seven Management Units have been identified in the McKinley KWMA. A total of 9,630 has been identified as critical habitat within this Area. Ideally, seven management Blocks (comprising approximately 1390 acres) should be harvested and regenerated during each 10 year period.

As stated previously, much of the jack pine habitat in the McKinley clearcut (Blockhouse, Reed Road, and Game and Forest Units) is approaching the size class that should be desirable for Warbler occupancy. The nesting population in this area should peak in approximately five years (1984), with a potential for supporting the largest nesting colony on the Forest. The extensive cutting that has been done in the area will make it difficult, it not impossible, to sustain the population at this projected peak level. Every effort should be made to achieve age class regulation as soon as possible to obtain an even flow of habitat and a stable Warbler population.

- B. Land ownership patterns - Most of the Warbler habitat in this area is in solid National Forest ownership. There is, however, 560 acres of potential habitat around the periphery of the area (in private ownership) that has been proposed for acquisition.

Developments are minimal in the McKinley KWMA. Private dwellings adjoin proposed habitat only in the Comins Flat and Old Roadhouse Units. These developments are located primarily around the habitat in Section 2 of the Comins Flat Unit and in the small subdivision located in the Old Roadhouse Unit (north end of Compartment 102). Visual management techniques should be utilized to decrease the impact on the residents of these areas.

- C. Status of other resources - The major roads that adjoin Warbler habitat are Abbe Road (County Road 601) on the Mio District, Old State Road or Russell Road (County Road 600), and AuSable Road on the Harrisville District. Visual management techniques should be employed on these routes (and adjacent to the residences described above) to mitigate the effects of the large cutting blocks.

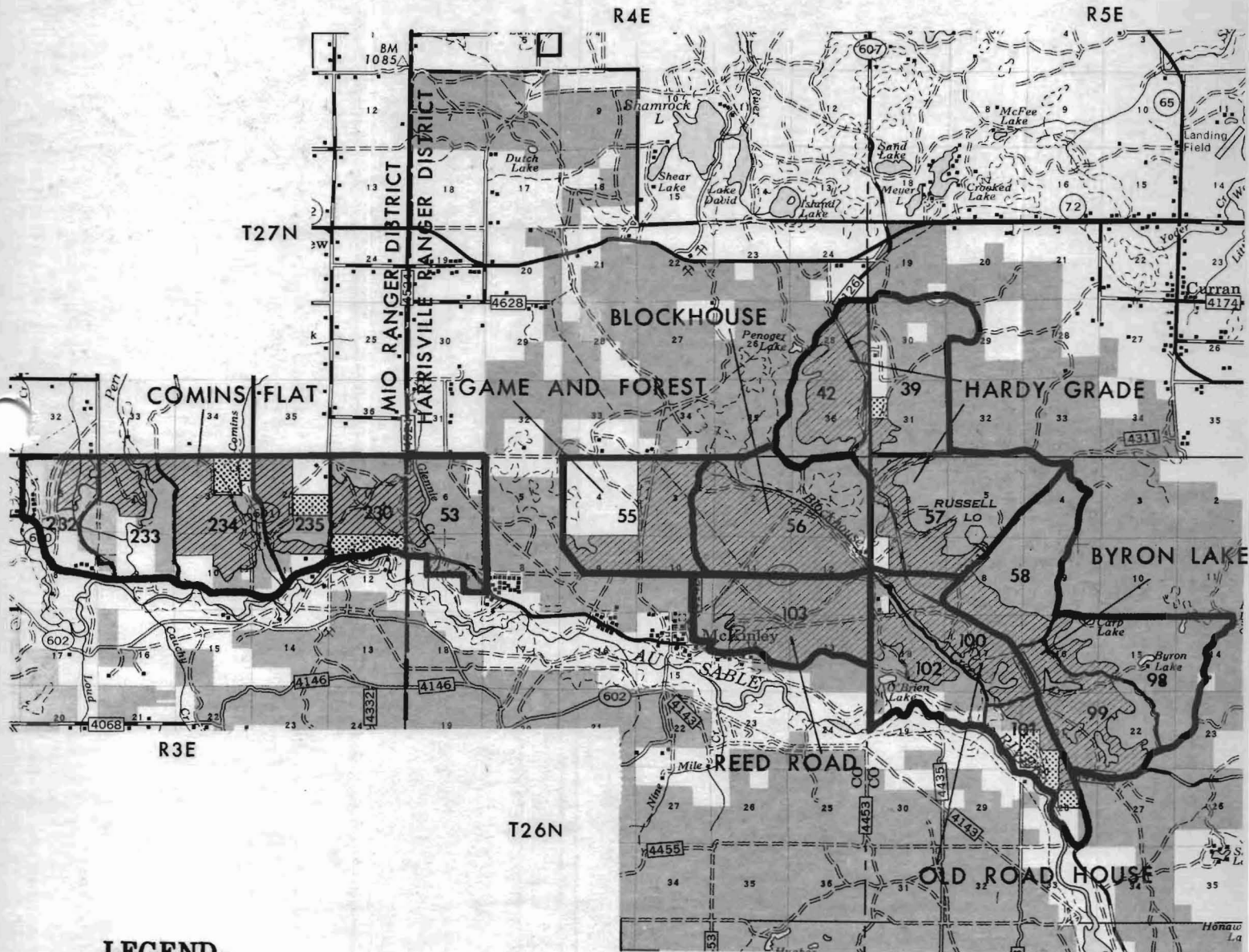
The State of Michigan holds most of the mineral rights in the McKinley KWMA. Much of this land was obtained from the State and when it was transferred, they retained the mineral rights. Private parties hold the mineral rights to 240 acres of Federal land in T25N, R5E. Coordination with the State mineral development permit system will minimize any potential conflicts with Warbler management.

The recreational uses in the area are typical of the dispersed recreation found throughout the Forest. Deer hunting, berry picking, and O.R.V. riding are the most popular of these recreational pursuits. Trout fishing, along the tributaries of the AuSable River that bisect the Warbler habitat in this area, is also prevalent.

- D. Kirtland's warbler nesting history in area - Warblers had never been recorded in the McKinley KWMA until 1976, when six singing males were found. Two males were found in the N-1/2 of Section 11, two were found in the NE 1/4 of Section 10, and two were found in the W-1/2 of Section 3, T26N, R4E. This is part of the McKinley clearcut and is unique in the fact that warblers invaded it even though much of the area was unburned. Most of the area was roller chopped and some of it has been planted to red pine. The jack pine regeneration is spotty with excellent regeneration in some locations and poor reproduction in others. The area in Section 3 had a noncommercial overstory removed the previous winter to favor Warblers. The McKinley Area was unoccupied in 1977 and a single unmated male was found in the Area in 1978 (in T26N, R4E, Section 12, NE SE).

HURON-MANISTEE NATIONAL FOREST
KIRTLAND'S WARBLER MANAGEMENT AREA
McKINLEY
 OSCODA & ALCONA COUNTIES, MICH.

1978



LEGEND

- UNIT BOUNDARY
- COMPARTMENT BOUNDARY
- - -** RANGER DISTRICT BOUNDARY
- ▨** CRITICAL HABITAT IN NATIONAL FOREST OWNERSHIP
- ▩** POTENTIAL HABITAT IN PRIVATE OWNERSHIP

SCALE 1/2" = 1 MILE

BLOCKHOUSE UNIT

I. Unit Description

- A. Compartments involved and acreage of critical habitat -
Compartment 56 encompasses the entire Unit. A total of 1,334 acres has been identified as Critical Habitat within this Unit.
- B. Complex needs - There are no recent field data available for this Compartment and no E.A.R. has been prepared. Most of the Warbler habitat has been harvested in this Compartment and the existing base map does not reflect these changes. Complex should be considered high priority for this Compartment.
- C. Status of existing habitat - The habitat for this Unit has been almost completely harvested within the past 10 years. Two larger stands of approximately 30 and 80 acres were left along with a number of 2 or 3 acre patches. This uncut timber represents less than 10% of the habitat in this Unit. Seasonal logging restrictions should be implemented when these remnant stands are harvested. In addition, there are approximately 100 mature red pine (sawtimber size) that are scattered throughout the Unit. Harvest of these trees should also be seasonally restricted and conducted in such a manner as to minimize damage to the existing regeneration.

There are presently only three stands that have been identified in the new compartment record. Stand 1 is an R3 type (46 acres) planted in 1976. This stand is located in the SE-1/4 of Section 2. Stand 2, identified as a J3 type, is a 355 acre plantation that was originally planted with red pine in 1972. This larger plantation is located south of Blochhouse Creek and east of the diagonal two track that bisects this Unit. Both stands are presently (1978) 75% stocked. Stand 1 will require an additional stocking survey in 1979 or 1980. In addition, Stand 3 (a red pine plantation of 127 acres) was established in the SW NW of Section 2 and the NE NE and SE NE of Section 3. This stand was planted in 1974 and will also require a stocking survey in 1979. The red pine plantations that have been established in this Unit should be managed as Warbler habitat.

The habitat in the north 1/2 of Section 11, appears to be suitable now. It was occupied by two male Warblers in 1976. No Warblers were found in 1977 or 1978. The remaining habitat in this Unit should be assessed for reforestation needs. The old stand boundaries and type designations are presently meaningless and were not included on the Unit map. The Block boundaries should be developed after Compex has been completed for Compartment 56. Management responsibilities for the next 30 years will be primarily custodial in nature.

- D. Planned or existing timber sales - Most of this Unit has been cut over in the past 10 years. There are no active or planned sales through FY 1983.

II. Known or Potential Human Activity

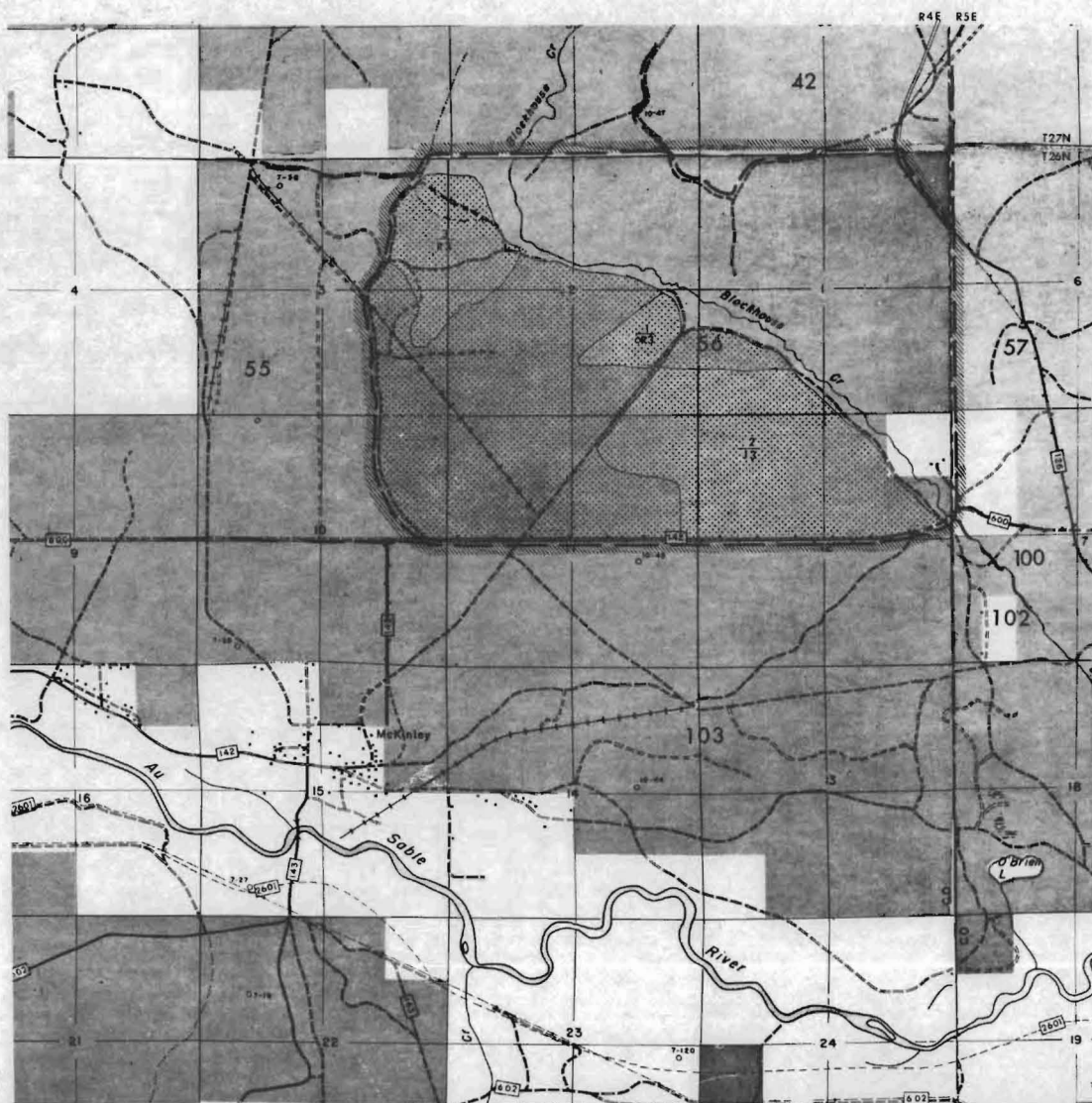
- A. Developments - Several seasonal residences are located within 1/4 mile east of Warbler habitat in T26N, R4E, Section 12 NE. A paved county road (C.R. 600) forms the southern boundary of this Unit. A buried telephone line is located along the right-of-way of this road.
- B. Known or potential historic sites - Other than the old railroad grades running diagonally through this Unit, there are no known historical sites in this Unit.
- C. Special uses - Other than the dispersed recreational activities in the area, there are no known special uses in this Unit.

BLOCKHOUSE UNIT
MC KINLEY AREA
KIRTLAND'S WARBLER MANAGEMENT PLAN

















OSCODA COUNTY, MICHIGAN

T26N. R4E

1979



LEGEND

-  UNIT BOUNDARY
-  RANGER DISTRICT BOUNDARY
-  COMPARTMENT BOUNDARY
- 622** COMPARTMENT NUMBER
-  BLOCK BOUNDARY
- IV** BLOCK NUMBER
-  STAND BOUNDARY
- $\frac{4}{16}$ STAND NUMBER
TIMBER TYPE-SIZE-DENSITY
-  NATIONAL FOREST OWNERSHIP
-  CRITICAL HABITAT
-  POTENTIAL ACQUISITION
-  MAIN HIGHWAY
-  ALL WEATHER OR SECONDARY ROAD
-  DEVELOPED ROUTE
-  UNDEVELOPED ROUTE
-  US ROUTE
-  STATE ROUTE
-  COUNTY ROUTE
-  FOREST ROUTE

SCALE

0 $\frac{1}{2}$ 1 mile

HABITAT MANAGEMENT PRESCRIPTION

UNIT: BLOCKHOUSE

CUTTING BLOCK: I

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
56						

COMMENTS:

UNIT: BLOCKHOUSE

CUTTING BLOCK: II

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
56						

COMMENTS:

HABITAT MANAGEMENT PRESCRIPTION

UNIT: BLOCKHOUSE

CUTTING BLOCK: III

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
56						

COMMENTS:

UNIT: BLOCKHOUSE

CUTTING BLOCK: IV

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
56						

COMMENTS:

HABITAT MANAGEMENT PRESCRIPTION

UNIT: _____ BLOCKHOUSE

CUTTING BLOCK: v

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
56						

COMMENTS:

BYRON LAKE UNIT

I. Unit Description

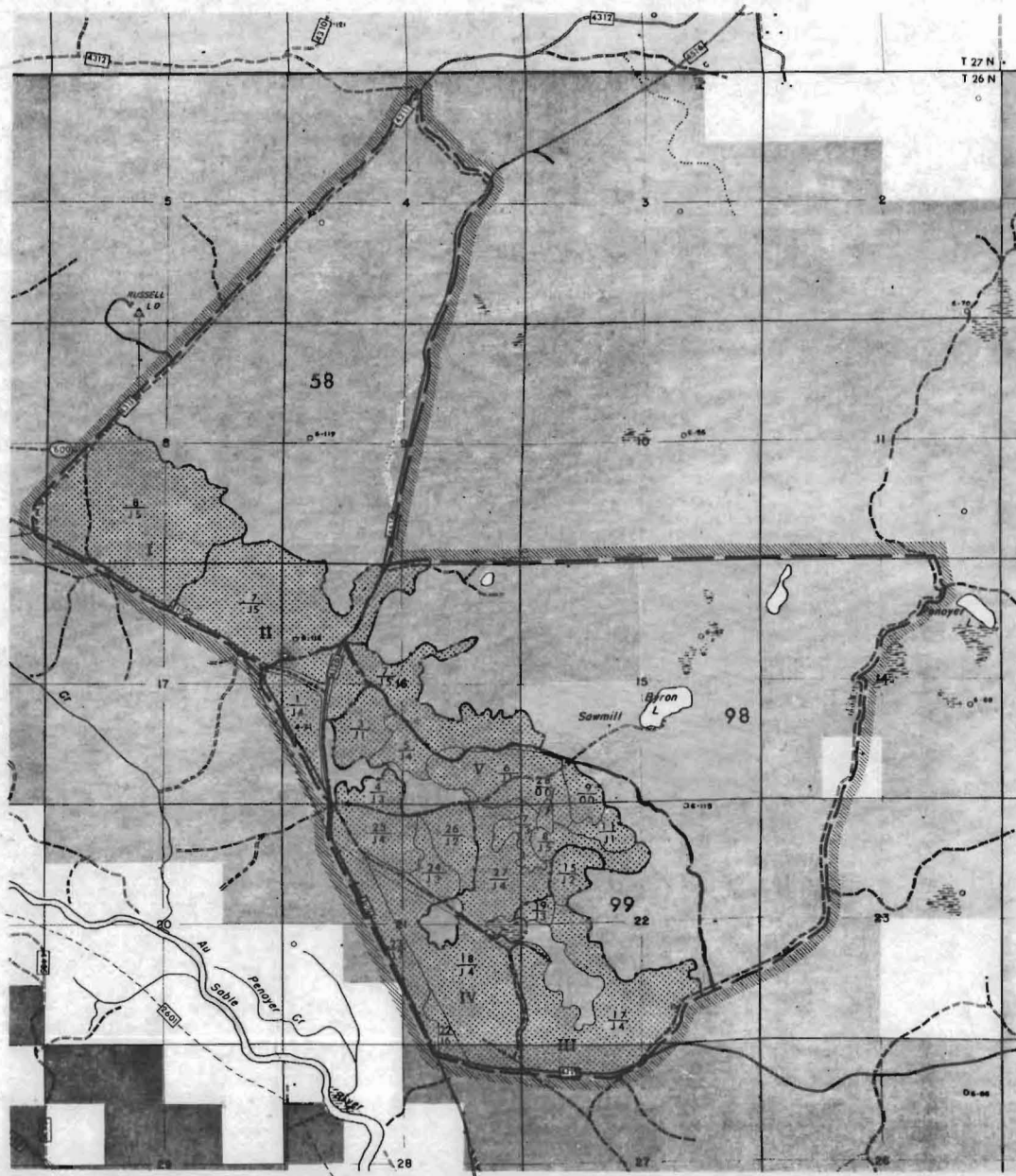
- A. Compartments involved and acreage of critical habitat - Compartments 58, 98, and 99 are included within this Unit. A total of 1,373 acres has been identified as Critical Habitat in this Unit.
- B. Complex needs - All three compartments have been recently field examined and have E.A.R.'s approved since 1974.
- C. Status of existing habitat - Most of the timber in this Unit is presently in the 50 year age class. The entire Unit is scheduled for harvest during the next 20 years. Block V encompasses the area of the Byron Lake Fire and adjacent habitat. A target date of 1983 has been made for harvest and regeneration of a portion of this Block. Block I is presently under a timber sale contract and should be harvested and regenerated by 1988. Blocks II, III, and IV will probably require harvest during the time period between 1988 and 1998. If possible, cutting of one of these Blocks should be deferred until the early portion of the following ten year period (1998-2003). Full age class regulation will not be achieved in this Unit until the end of the next rotation period.

Stand 2, Compartment 99, should be considered for eventual conversion from red pine to jack pine. This stand isolates several other stands and decreases the quality of the habitat in this Unit.

- D. Planned or existing timber sales - The Broken Arrow Sale (Lakewood Forest Products-3/15/76) will final harvest the timber in Block I (Compartment 58). There are no other existing or planned sales in this Unit through 1983.

II. Known or Potential Human Activity

- A. Developments - A buried telephone line runs along FR 4126. There are no other known developments in, or adjacent to, this Unit.
- B. Known or potential historic sites - There are no known historical sites in this Unit.
- C. Special uses - There is a two track that passes through the Warbler habitat in Compartment 99, to a small private tract on Byron Lake. The use of this two track should be evaluated in the future, if the adjacent habitat is occupied by nesting Warblers.



BYRON LAKE UNIT
 MC KINLEY AREA
 KIRTLAND'S WARBLER MANAGEMENT PLAN

ALCONA COUNTY, MICH.
 T26N. R5E
 1979

LEGEND

- UNIT BOUNDARY
- RANGER DISTRICT BOUNDARY
- COMPARTMENT BOUNDARY
- 622** COMPARTMENT NUMBER
- BLOCK BOUNDARY
- IV** BLOCK NUMBER
- STAND BOUNDARY
- STAND NUMBER
- TIMBER TYPE-SIZE-DENSITY
- NATIONAL FOREST OWNERSHIP
- CRITICAL HABITAT
- POTENTIAL ACQUISITION
- MAIN HIGHWAY
- ALL WEATHER OR SECONDARY ROAD
- DEVELOPED ROUTE
- UNDEVELOPED ROUTE
- US ROUTE
- STATE ROUTE
- COUNTY ROUTE
- FOREST ROUTE

SCALE
 0 1/2 1 mile

HABITAT MANAGEMENT PRESCRIPTION

UNIT: BYRON LAKE

CUTTING BLOCK: I

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
58	8	201	J5	1979-88	(5)	
	TOTAL =	201				

COMMENTS: This Block is presently scheduled for harvest under the Broken Arrow Sale (Lakewood Forest Products - 3/15/76). Upon completion of timber harvest, this Block should be burned and planted to jack pine as soon as possible. The age in parenthesis represents the age of Stand 8 in 1988 if burned and regenerated by 1983.

UNIT: BYRON LAKE

CUTTING BLOCK: II

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
58	7	196	J5	1989-98	70*	
98	(Part) 7	43	J5		50	
99	1	73	J4		71*	
	TOTAL =	312				

COMMENTS:

HABITAT MANAGEMENT PRESCRIPTION

UNIT: BYRON LAKE

CUTTING BLOCK: III

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
99	15	23	J2	1999-2008	63	
	17	175	J4		81*	
	19	9	J3		63	
	TOTAL =	207				

COMMENTS: Stand 17 (strip cut in approximately 1974) should be deferred as long as possible toward the prescribed treatment date (1998). The entire Block should then be final harvested, burned, and regenerated to jack pine.

UNIT: BYRON LAKE

CUTTING BLOCK: IV

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
99	4	20	J3	2009-18	77	
	18	150	J4	(See	90*	
	22	10	J0	Comments)	40	Final Harvest
	23	21	J3		75*	Removal
	24	33	J3		73*	
	25	40	J4		98*	
	26	33	J2		74*	
	TOTAL =	307				

COMMENTS: Stands 18, 24, 25, and 26 have been strip cut (in approximately 1974) within this Block. Due to the existing even age class of the timber within this Unit, cutting should be advanced 20 years in Block IV. The entire Block should be harvested during the time period between 1988 and 1998.

HABITAT MANAGEMENT PRESCRIPTION

UNIT: BYRON LAKE

CUTTING BLOCK: V

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
99	3	37	J3	2019-28	5	
	5	22	J4		(45)	
	6	91	J1		(45)	
	7	18	J3		84*	
	8	28	J5		(45)	
	9	19	00		(45)	
	11	13	J1		(45)	
	27	64	J4		(45)	
	28	5	00		(45)	
98	(Part) 7	49	J5		80*	

TOTAL = 346

COMMENTS: Stands 6, 9, 11 and 28 (total of 128 acres) were burned by the Byron Lake Fire in August of 1976. Stands 5 and 27 (previously strip cut) and Stand 8 should be harvested as soon as possible to increase the acreage initially created by the fire. A stocking survey should be conducted in the wild fire area in 1979 or 1980 to determine if there is adequate regeneration for Warbler nesting. If not, the area should be fill-in planted. Upon completion of harvest in Stands 5, 8, and 27, these stands should be burned and planted to jack pine in the prescribed Warbler format. These proposed management activities will create 242 acres of potential habitat during this ten year period. Harvest of Stand 7 (Compartment 98) and Stand 7 (Compartment 99) could be deferred until these stands are merchantable.

The ages in parenthesis represent the age of the stands in 2028 if burned and regenerated by 1983.

COMINS FLAT UNIT

I. Unit Description

- A. Compartments involved and acreage of critical habitat - Compartments 230, 232, 233, 234, 235 (Mio District), and Compartment 53 (Harrisville District) are included within this Unit. A total of 1,995 acres has been identified as Critical Habitat in this Unit.
- B. Complex needs - All six compartments have been recently field examined. Approved E.A.R.'s are available for all the compartments except 230 (presently being written).
- C. Status of existing habitat - The Comins Flat Unit is larger than many others, but does not contain sufficient acreage to be divided into two Units. This Unit will have six blocks, however, varying from the standard five block format. Block I has been divided into Blocks IA and IB. Most of Block IA should be harvested within the next five years (by 1983). A portion of Block IB should be harvested by 1988, the remaining portion deferred until merchantable.

Most of this Unit has been cut during the last 20 years, making age class regulation difficult to achieve. Habitat in Blocks IB and II will require deferring treatment beyond the prescribed harvest date. A recently planted area in Block V will provide 174 acres of potential nesting habitat by approximately 1986.

Compartments 232, 233, and 235 offer opportunities for type conversion, but only in Compartment 232 is it thought to be essential. Stands 5 and 6 break up the proposed habitat and will increase management costs. Both stands should be regenerated to jack pine when the surrounding stands are. Other conversions would be desirable for additional acreage so that eventually two Units could be delineated from this one. Conversion should be considered as the opportunity presents itself.

- D. Planned or existing timber sales - There is presently an active timber sale in this Unit. This sale, the Deer Yard Sale (Glawe, Inc. - 9/20/77), will affect Warbler habitat in Compartments 232 and 233.

The Weaver sale, to be sold in FY 1981, will harvest timber in Blocks IA and IB (Compartment 230 - Mio and Compartment 53 - Harrisville).

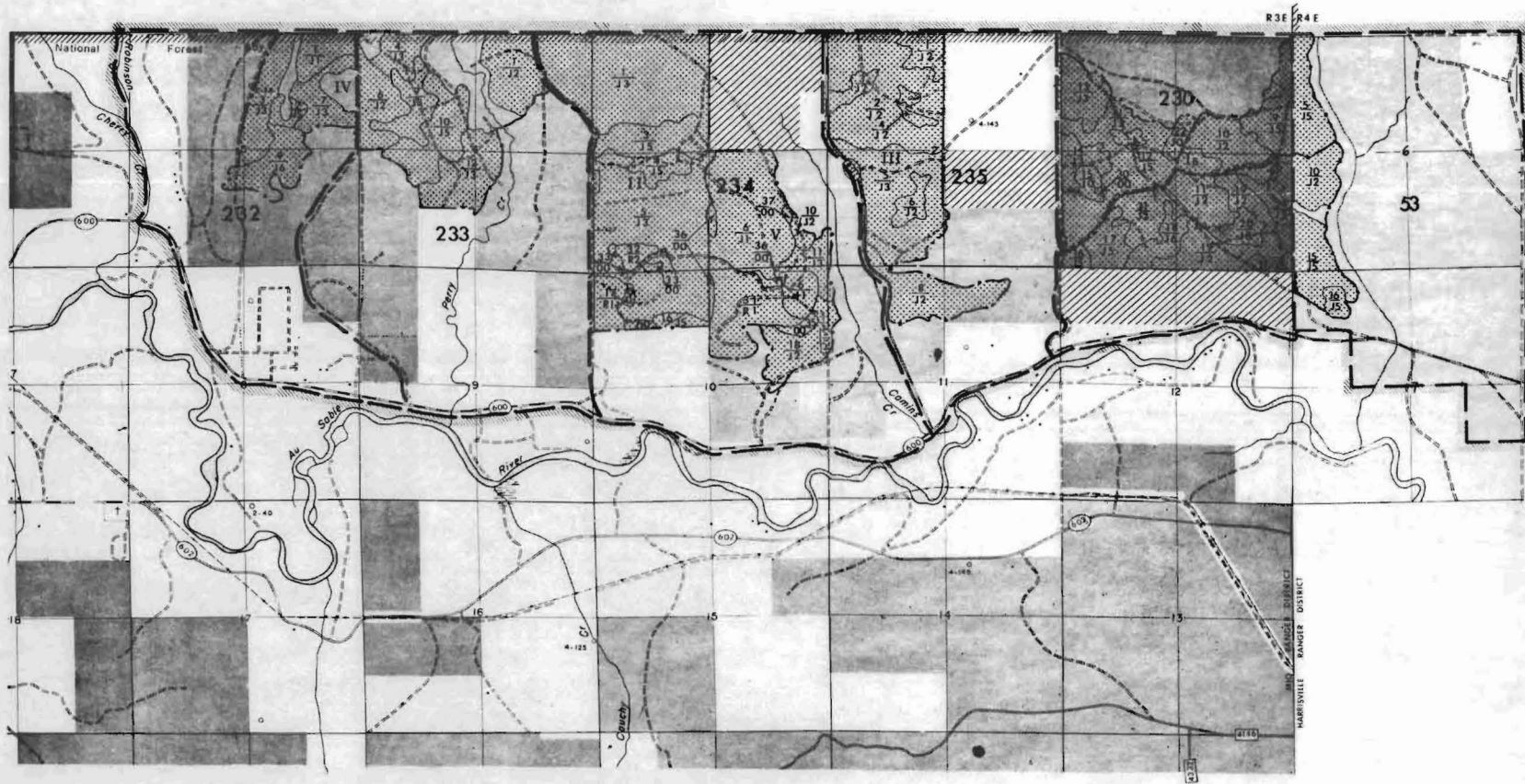
II. Known or Potential Human Activity

- A. Developments - Seasonal residences are located in T26N, R3E, Section 5, NW SW, Section 2, NE NE, and Section 11, S-1/2 NE. Additional seasonal residences are scattered along the northern edge of the Forest boundary in T27N, R3E, Sections 32, 33, and 34.
- B. Known or potential historic sites - There are no known historical sites in this Unit.
- C. Special uses - There are no known special uses in this Unit.



















COMINS FLAT UNIT
 MC KINLEY AREA
 KIRLAND'S WARBLER MANAGEMENT PLAN

OSCODA COUNTY, MICH.
 T26N, R34E

1979



LEGEND

	UNIT BOUNDARY		MAIN HIGHWAY
	RANGER DISTRICT BOUNDARY		ALL WEATHER OR SECONDARY ROAD
	COMPARTMENT BOUNDARY		DEVELOPED ROUTE
622	COMPARTMENT NUMBER		UNDEVELOPED ROUTE
	BLOCK BOUNDARY		US ROUTE
IV	BLOCK NUMBER		STATE ROUTE
	STAND BOUNDARY		COUNTY ROUTE
	STAND NUMBER		FOREST ROUTE
	TIMBER TYPE-SIZE-DENSITY		
	NATIONAL FOREST OWNERSHIP		
	CRITICAL HABITAT		
	POTENTIAL ACQUISITION		

SCALE
 0 1/2 1 mile

HABITAT MANAGEMENT PRESCRIPTION

UNIT: COMINS FLAT

CUTTING BLOCK: IA

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
53(H)	10	33	J2	1979-83	21	
	15	49	J5		67	Final Harvest
	16	8	J5		57	Final Harvest
230 (Mio)	(Part)	11	25	J2		28
	16	7	J5		59	Final Harvest
	17	20	J5		59	Final Harvest
	18	21	J6		65	Final Harvest
	19	65	J2		28	Shelterwood Removal
	20	14	J5		63	Final Harvest
	21	10	J5		68	Final Harvest
	26	13	J2		27	Shelterwood Removal
	27	16	J2		27	
	31	30	J2		28	
	TOTAL =	311				

COMMENTS: The Weaver Sale, planned for FY 1981, will final harvest Stands 16, 17, 18, 20, and 21 (Compartment 230). A removal cut is planned for Stand 19. Stands 16, 17, 18, and 31 should then be burned and planted in the prescribed Warbler format. In addition, Stands 15 and 16 (Compartment 53-Harrisville) have been identified for final harvest under the same sale. A total of 210 acres will be regenerated in Block IA as a result of the proposed cutting and burning.

Stands 27 (Compartment 230), and 10 (Compartment 53) have been deferred until merchantable.

HABITAT MANAGEMENT PRESCRIPTION

UNIT: COMINS FLAT

CUTTING BLOCK: IB

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
53(H)	5	45	J5	1984-88	65	Final Harvest
230(M)	9	38	J5		69	Final Harvest
	10	33	J2		30	
	(Part) 11	99	J2		33	
	12	7	J5		40	
	13	28	J3		41	
	14	19	J3		30	
	15	8	J0		18	
	22	10	J0		11	
	30	2	00		-	
	TOTAL =	289				

COMMENTS: Stand 9 (Compartment 230) and Stand 5 (Compartment 53) are scheduled for final harvest under the Weaver Sale in FY 1981. This cutting will create 83 acres of potential habitat after burning and regeneration. The remaining stands in this Block should be deferred until merchantable. Age class regulation in this Block will not be reached until the end of the next rotation period.

HABITAT MANAGEMENT PRESCRIPTION

UNIT: COMINS FLAT

CUTTING BLOCK: II

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
234	1	173	J3	1989-98	39	
	3	39	J5	(See Comments)	78 (10)	Final Harvest
	4	16	J5		74 (10)	Final Harvest
	5	181	J3		38	
	16	7	J5		72 (10)	Final Harvest
	17	19	R1		23	
	32	10	R1		23	
	33	9	00		-	
	TOTAL =	454				

COMMENTS: Stands 3, 4, and 16 are scheduled for final harvest during this 10 year period. The numbers in parenthesis represent the age of these stands in 1998 if regenerated by 1988.

This relatively small acreage of cutting (55 acres) will not be conducive to Warbler nesting but will tie in with some adjacent habitat in Block V that was recently planted (fall 1978).

The remaining stands in Block II should be deferred 10 years beyond the prescribed harvest date.

HABITAT MANAGEMENT PRESCRIPTION

UNIT: COMINS FLAT

CUTTING BLOCK: III

COMP.	STAND	ACRES	CURRENT ISD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
235	1	16	J2	1999-2008	62	
	2	117	J2		57	
	3	12	J2		57	
	4	8	J2		58	
	5	98	J3		53	
	6	12	J2		52	
	8	54	J2		49	
	TOTAL =	317				

COMMENTS:

HABITAT MANAGEMENT PRESCRIPTION

UNIT: COMINS FLAT

CUTTING BLOCK: IV

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR -(IF ANY)
232	1	23	J1	2009-18	46	
	2	9	J5		(30)	Final Harvest
	3	42	J3		62	
	7	23	J3		48	
	9	37	J6		(30)	Final Harvest
233	1	50	J2		55	
	4	20	J3		59	
	6	41	J2		66	
	7	29	J3		63	
	10	48	J5		(30)	Final Harvest
	12	48	J3		67	Removal
	TOTAL =	370				

COMMENTS: Stands 2 and 9 (Compartment 232) are scheduled for final harvest under the Deer Yard Sale. Stand 3 (Compartment 232) is planned for a removal cut in the same sale. If the reproduction in Stand 3 is inadequate after the sale, it should also be treated. Including this stand would simplify the burning of Stands 2 and 9 in addition to creating a better Block of habitat.

Stand 10 and 12 (Compartment 233) are scheduled for a final harvest and removal cut, respectively, in the Deer Yard Sale. As above, Stand 10 should be burned, if possible, and planted to jack pine. If the stocking in Stand 12 is inadequate, it should also be burned and planted.

The remaining stands in Block IV should be harvested at the prescribed treatment date. The ages in parenthesis represent the age of the stands in 2018 if burned and regenerated by 1988.

HABITAT MANAGEMENT PRESCRIPTION

UNIT: COMINS FLAT

CUTTING BLOCK: V

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
234	6	70	J3	2019-28	50	
	10	5	J2		76*	
	11	18	J3		69*	
	18	44	J2		70*	
	31	104	J0		(50)	
	35	5	00		-	
	36	6	00		-	
	37	1	00		-	
	38	1	00		-	
	TOTAL =	254				

COMMENTS: Stand 31 was recently replanted (Fall 1978) to jack pine after a failure of the initial planting of red pine. Stand 6 was also recently planted (Spring 1978) after being roller chopped in 1973.

GAME AND FOREST UNIT

I. Unit Description

- A. Compartments involved and acreage of critical habitat -
Compartment 55 encompasses this Unit. A total of 947 acres has been identified as Critical Habitat in this Unit.
- B. Complex needs - Field data were gathered for this Compartment in 1976. To date (1978) no E.A.R. has been prepared.
- C. Status of existing habitat - The Game and Forest Unit is smaller than desirable, but the habitat in this area is limited by hardwoods and private land. It would be possible to combine this Unit with the Blockhouse Unit, but this would make an exceptionally large unit with correspondingly large clearcuts. The cutting Blocks will still average 190 acres in size, which should be adequate.

All of the jack pine stands in this compartment have been harvested, most by clearcutting and a few by diameter limit cuts. Much of the area was subsequently roller chopped and stands 7, 8, and 9 have been burned. The overstory was removed from Stand 6 in 1975 to increase chances for Warbler occupancy. Part of the plantation in stand 9 failed and it was replanted in 1978.

Warblers occupied stand 6 the summer after the overstory was removed. Two Warblers were found in this stand in 1976. The stand has been unoccupied in 1977 and 1978.

The immediate goals for this Unit consists primarily of establishing stands of jack pine in unstocked areas and improving those stands that are already established. Stands with residual overstories should be treated to develop them as "instant" habitat, similar to Stand 6. If there is sufficient volume the overstory could be sold.

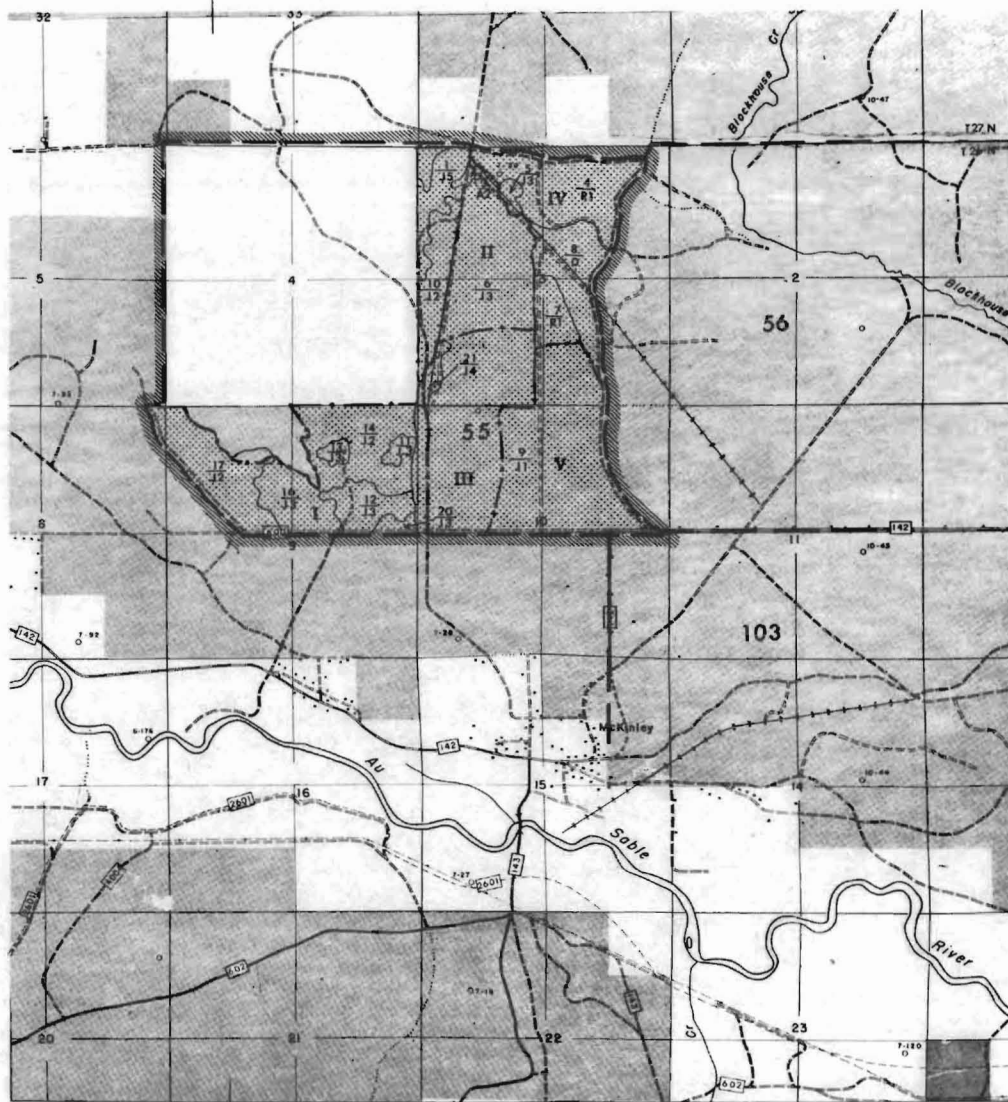
Once the new plantations are established, the primary job will be one of custodial management. Obtaining age class regulation will be difficult and may require non-commercial treatment. The sequence of harvest within the identified Blocks should be re-evaluated as the stands begin to reach maturity.

Stands 4 and 7 are considered essential for type conversion. If these stands were removed from the proposed habitat it would make the Unit unacceptably small and complicate the management of adjacent stands.

- D. Planned or existing timber sales - Most of this Unit is in the early stages of regeneration. There are no existing or planned timber sales in this Unit through 1983.

II. Known or Potential Human Activity

- A. Developments - The village of McKinley is located approximately 1/2 mile south of the habitat in this Unit. In addition, several seasonal residences are situated immediately adjacent to Warbler habitat in T27N, R4E, Section 34, SW SW. A paved county road (C.R. 600) runs adjacent to habitat in the southeast corner of the Unit.
- B. Known or potential historic sites - Other than the two old railroad grades that run diagonally through this Unit, there are no known historical sites.
- C. Special uses - Other than the normal dispersed recreational activities associated with the area, there are no known special uses in this Unit.



**GAME & FOREST UNIT
MC KINLEY AREA
KIRTLAND'S WARBLER MANAGEMENT PLAN**

OSCODA COUNTY, MICHIGAN
T28N, R4E

1979

LEGEND

- UNIT BOUNDARY
- RANGER DISTRICT BOUNDARY
- COMPARTMENT BOUNDARY
- 622** COMPARTMENT NUMBER
- BLOCK BOUNDARY
- IV** BLOCK NUMBER
- STAND BOUNDARY
- 4** STAND NUMBER
- J6** TIMBER TYPE-SIZE-DENSITY
- NATIONAL FOREST OWNERSHIP
- CRITICAL HABITAT
- POTENTIAL ACQUISITION
- MAIN HIGHWAY
- ALL WEATHER OR SECONDARY ROAD
- DEVELOPED ROUTE
- UNDEVELOPED ROUTE
- US ROUTE
- STATE ROUTE
- COUNTY ROUTE
- FOREST ROUTE

SCALE

0 1/2 1 mile

HABITAT MANAGEMENT PRESCRIPTION

UNIT: GAME AND FOREST

CUTTING BLOCK: I

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
55	11	7	J3	1979-88	42	
	12	31	J3	(Defer)	43	
	13	8	J3		38	
	14	74	J2		20	
	16	39	J3		18	
	17	63	J2		33	
	20	7	J3		18	
	(Part) 9	20	J1		13	
	TOTAL =	249				

COMMENTS: Stands 11, 14, 16, and 23 were diameter limit cut between 1968 and 1970. Stand 14 may require residual stem removal. Harvest of Stands 11, 12, 13, and 23 should be deferred as long as possible to minimize the age class disparity with the rest of the Block. If possible, defer cutting in the entire Block until the time period between 2009 and 2018.

HABITAT MANAGEMENT PRESCRIPTION

UNIT: GAME AND FOREST

CUTTING BLOCK: II

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
55	1	27	J5	1989-98	69*	
	(Part) 6	109	J3	(Defer)	28	
	10	36	J2		30	
	TOTAL =	172				

COMMENTS: Portions of Stand 1 were previously diameter limit cut. The remaining overstory in this stand should be harvested as soon as possible to minimize age class differences within the Block. An overstory removal was completed in Stand 6 during 1975. Two male Warblers occupied the stand in 1976. The stand was unoccupied by Warblers in 1977 and 1978. Stand 10 has been identified for residual stem removal.

Stands 6 and 10 should be deferred from final harvest until the time period between 2019 and 2028.

UNIT: GAME AND FOREST

CUTTING BLOCK: III

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
55	(Part) 6	75	J3	1999-2008	38	
	(Part) 9	99	J1	(Defer)	33	
	21	9	J4		(20)	Final Harvest
	TOTAL =	183				

COMMENTS: An overstory removal was completed in Stand 6 during 1975. As stated previously, two male Warblers occupied this stand in 1976. This stand was unoccupied by Warblers in 1977, 1978, and 1979. Stand 9 was burned and planted to jack pine in 1975. The northern half of Stand 9 was replanted with jack pine in 1978. Stand 21 has been identified for final harvest. This cutting should be conducted during the unrestricted time period after August 15 and before May 1.

Harvest of this Block should be deferred to the time period between 2029 and 2038. The age in parenthesis represents the age of the stand in 2008 if harvested and regenerated by 1988.

HABITAT MANAGEMENT PRESCRIPTION

UNIT: GAME AND FOREST

CUTTING BLOCK: IV

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
55	4	79	R1	2009-18	44	
	5	7	J3	(Defer)	69*	
	7	23	R1		43	
	8	54	00		--	
	TOTAL =	163				

COMMENTS: Stand 4 was planted to red pine in 1974. A prescribed burn was completed in Stand 7 prior to planting of red pine in 1975. The stand was replanted with both red pine and jack pine in 1978. Stand 8 was also burned but apparently has not been planted to date (1978). This stand has been identified as a wildlife opening and fuel break. In order to maximize Warbler utilization, this stand should be planted with jack pine seedlings in the suggested Warbler format.

The entire Block should be deferred from harvest until the time period between 2039 and 2048.

UNIT: GAME AND FOREST

CUTTING BLOCK: V

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
55	(Part) 9	180	J1	2019-28	53	
	TOTAL =	180				

COMMENTS: Stand 9 was burned and planted to jack pine in 1975. The northern half of this Block was replanted by YACC crews in 1978. Additional stocking surveys may be necessary in 1980 or 1981 to determine if survival is adequate for Warbler nesting. This Block should be harvested at the prescribed treatment date.

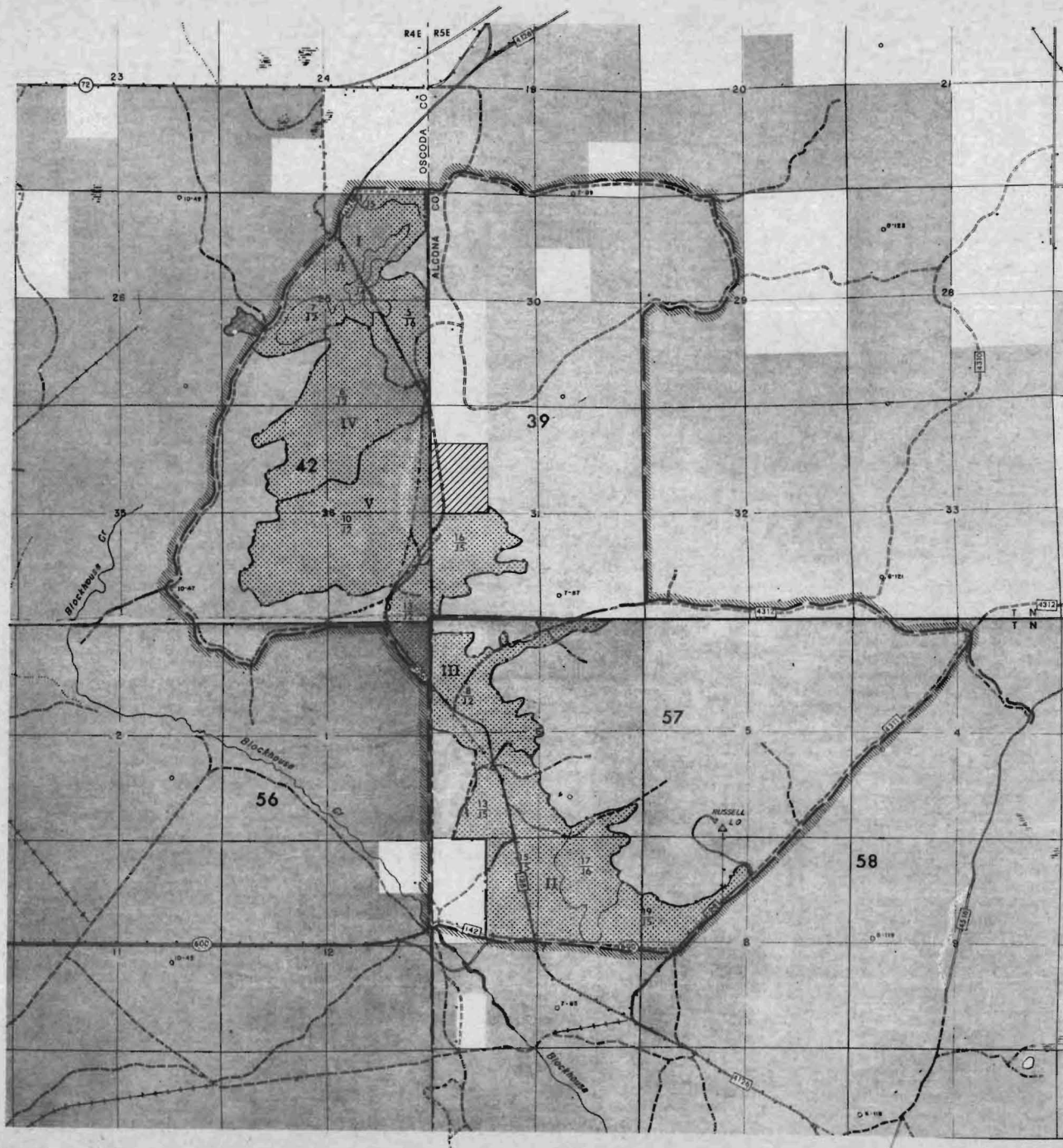
HARDY GRADE UNIT

I. Unit Description

- A. Compartments involved and acreage of critical habitat - Compartments 39, 42, and 57 are included within this Unit. A total of 1,416 acres has been identified as Critical Habitat in this Unit.
- B.. Complex needs - All three compartments have been recently field examined with an E.A.R. approved in 1974.
- C. Status of existing habitat - The existing habitat in this Unit fits fairly well into the projected goals for age class regulation. Most of Block I is presently under the Penoger Lake Sale. Other than 51 acres under sale in Block II, the remaining Blocks are presently free of timber sale activity. The remaining portions of Block II, III, IV, and V should be harvested at the prescribed treatment dates.
- D. Planned or existing timber sales - In Block I (Compartment 42), the Penoger Lake Sale (Abitibi - 4/25/78) is scheduled to harvest 240 acres of potential Warbler habitat. The Broken Arrow Sale (Lakewood Forest Products - 3/15/76) will harvest 51 acres of Warbler habitat in Block II (Compartment 57). There are no additional planned sales in this Unit through FY 1981.

II. Known or Potential Human Activity

- A. Developments - A seasonal residence is located within 1/4 mile east of habitat in Compartment 42. The legal description of this residence is: T27N, R5E, Section 30, NW SW. Seasonal residences are also located approximately 1/4 mile west of Warbler habitat in T26N, R4E, Section 12, NE NE. A buried telephone cable follows the right-of-way along FR 4126. A powerline also follows this right-of-way through habitat in Compartment 42.
- B. Known or potential historic sites - There are no known historical sites in this Unit.
- C. Special uses - Other than the normal dispersed recreational activities associated with the area, there are no known special uses in this Unit.





















**HARDY GRADE UNIT
MC KINLEY AREA
KIRTLAND'S WARBLER MANAGEMENT PLAN**

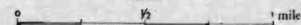
OSCODA & ALCONA COUNTY, MICH.
T26 & 27N, R4 & 5E

1979

LEGEND

-  UNIT BOUNDARY
-  RANGER DISTRICT BOUNDARY
-  COMPARTMENT BOUNDARY
- 622** COMPARTMENT NUMBER
-  BLOCK BOUNDARY
- IV** BLOCK NUMBER
-  STAND BOUNDARY
-  STAND NUMBER
-  TIMBER TYPE-SIZE-DENSITY
-  NATIONAL FOREST OWNERSHIP
-  CRITICAL HABITAT
-  POTENTIAL ACQUISITION
-  MAIN HIGHWAY
-  ALL WEATHER OR SECONDARY ROAD
-  DEVELOPED ROUTE
-  UNDEVELOPED ROUTE
-  US ROUTE
-  STATE ROUTE
-  COUNTY ROUTE
-  FOREST ROUTE

SCALE



HABITAT MANAGEMENT PRESCRIPTION

UNIT: HARDY GRADE

CUTTING BLOCK: I

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
42	1	15	J5	1979-88	(5)	Seed Tree Cut
	2	125	J5		(5)	Seed Tree Cut
	3	23	J4		(5)	Final Harvest
	5	77	J6		(5)	Seed Tree Cut
	7	27	J2		(5)	
	TOTAL =	267				

COMMENTS: Stands 1, 2, 3, and 5 are scheduled for harvest under the Penoger Lake Sale. Most of this acreage is designated for a seed tree cut. A stocking survey should be conducted 3 years after the timber harvest and prescribed burning have been completed. If the level of natural regeneration is inadequate for Warbler management after 5 years, the area should be fill-in planted with jack pine seedlings. It would be desirable to treat (burn) Stand 7 along with the remaining stands in this Block. This would prepare a total of 267 acres of potential Warbler habitat during this 10 year period. The ages in parenthesis represent the age of the stands in 1988 if burned and regenerated by 1983.

UNIT: HARDY GRADE

CUTTING BLOCK: II

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
57	15	160	J5	1989-98	63	
	17	62	J6		70*	Seed Tree Cut
	19	60	J5		65	
	TOTAL =	282				

COMMENTS: Stand 17 is identified as mature and in need of a regeneration cut. This stand should be deferred and harvested with Stands 15 and 19 in the next management period (1989-1998). Portions of Stands 17 and 19 are presently being cut in Payment Unit 2 of the Broken Arrow Sale (Lakewood Forest Products - 3/15/76). This sale will harvest approximately 51 acres of Warbler habitat within these two stands.

In the future, this acreage will be approximately 10 years older than the remaining habitat in this Block. Full age class uniformity will not be reached until the next rotation period.

HABITAT MANAGEMENT PRESCRIPTION

UNIT: HARDY GRADE

CUTTING BLOCK: III

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
39	16	85	J5	1999-2008	69*	
	42	13	J2	6	69*	
	57	8	J2		48	
		13	J5		80*	
	TOTAL =	322				

COMMENTS: Stand 8 (Compartment 57) is approximately 20 years younger than most of the other habitat in this Block. Stand 16 (Compartment 39) and Stand 13 (Compartment 42) should be deferred as long as possible toward the proposed harvest date. When Stand 8 reaches merchantable size, all three stands could then be harvested.

Stand 13 (Compartment 57) has been identified for a seed tree cut. If possible, harvest of this stand should be deferred for 20 years, to the time period between 1999 and 2008. This will minimize the potential age class discrepancy between this stand and the rest of the Block during the next rotation period.

UNIT: HARDY GRADE

CUTTING BLOCK: IV

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
42	6	220	J2	2009-18	62	
	TOTAL =	220				

COMMENTS:

HABITAT MANAGEMENT PRESCRIPTION

UNIT: HARDY GRADE

CUTTING BLOCK: V

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
42	(Part) 10	325	J2	2019-28	70*	
	TOTAL =	325				

COMMENTS:

OLD ROADHOUSE UNIT

I. Unit Description

- A. Compartments involved and acreage of critical habitat - Compartments 100, 101, and 102 are included within this Unit. A total of 1,243 acres has been identified as Critical Habitat in this Unit.
- B. Complex needs - All three compartments have field data that were gathered in 1976. To date (1978), only Compartment 100 has an approved E.A.R.
- C. Status of existing habitat - Most of the Warbler habitat in this Unit is presently in the 30-42 year age class. In order to initiate age class distribution, portions of Blocks I and II are planned for harvest during this ten year period (1979-1988). Block III should be harvested between 1999 and 2008. Full age class regulation will not be achieved in this Unit until the end of the next rotation period.

There is some potential for type conversion in the south end of Compartment 102. Several stands have been underplanted to red pine that could be managed for jack pine. This acreage is presently surplus but could be developed as Warbler habitat, if necessary.

The proposed purchase of Consumers Power Company lands in the southern portion of Compartment 101 would consolidate the presently divided habitat in Block III.

- D. Planned or existing timber sales - There are presently no active timber sales in this Unit. The Blockhouse Creek and Old Roadhouse Sales, planned for sale in FY 1981, will harvest manageable tracts of jack pine in Block I and II during this ten year period.

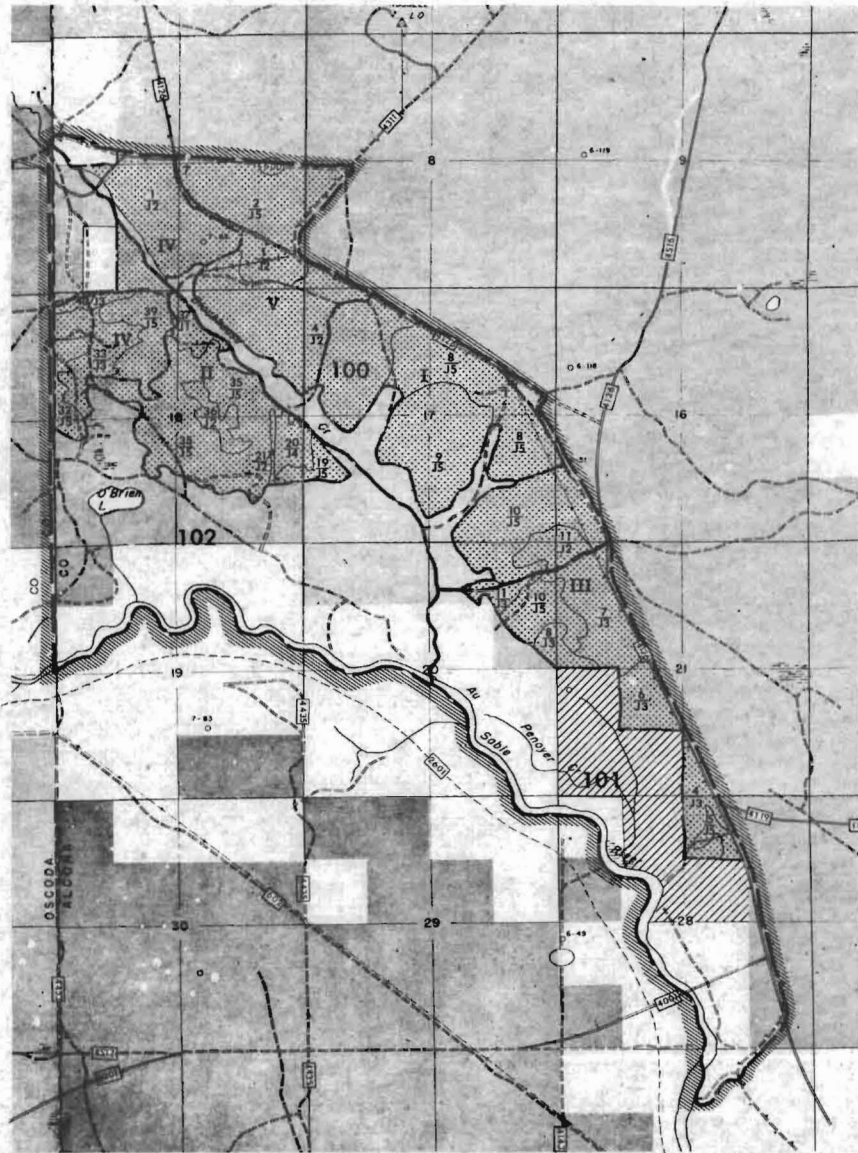
II. Known or Potential Human Activity

- A. Developments - Seasonal residences are located on a private 20 acre tract, adjacent to Warbler habitat in T26N, R5E, Section 7 SW SW. In addition, a buried telephone line is located along FR 4126. This line separates from FR 4126 and passes through stands 8 and 10 of Compartment 100.

- B. Known or potential historic sites - There is an old roadhouse, used by travelers in the logging days, located along the abandoned railroad grade in the extreme northwest corner of Stand 4 (Compartment 100). Traces of the building are still evident. A field reconnaissance should be conducted prior to any management activity in this area. A 10 acre exclusion around the site should provide sufficient protection.

In addition, there may be a site of historical significance in Stand 2, Compartment 100. An old watering and weigh station may have been located at the site where the railroad grade intersects FR 4126 (referred to as Russell Crossing).

- C. Special uses - Other than the normal dispersed recreational activities associated with the area, there are no known special uses in this Unit.





















**OLD ROAD HOUSE UNIT
MC KINLEY AREA
KIRTLAND'S WARBLER MANAGEMENT PLAN**

ALCONA COUNTY, MICHIGAN
T28N. R5E

1979

LEGEND

-  UNIT BOUNDARY
-  RANGER DISTRICT BOUNDARY
-  COMPARTMENT BOUNDARY
- 622** COMPARTMENT NUMBER
-  BLOCK BOUNDARY
- IV** BLOCK NUMBER
-  STAND BOUNDARY
-  STAND NUMBER
-  TIMBER TYPE-SIZE-DENSITY
-  NATIONAL FOREST OWNERSHIP
-  CRITICAL HABITAT
-  POTENTIAL ACQUISITION
-  MAIN HIGHWAY
-  ALL WEATHER OR SECONDARY ROAD
-  DEVELOPED ROUTE
-  UNDEVELOPED ROUTE
-  US ROUTE
-  STATE ROUTE
-  COUNTY ROUTE
-  FOREST ROUTE

SCALE

0 1/2 1 mile

HABITAT MANAGEMENT PRESCRIPTION

UNIT: OLD ROADHOUSE

CUTTING BLOCK: I

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
100	(Part) 4	78	J2	1979-88	40	
	8	104	J5		53	Final Harvest
	9	99	J5		56 (0)	Final Harvest
	TOTAL =	281				

COMMENTS: Stand 9 and part of Stand 8 have been identified for final harvest under the Old Roadhouse Sale, scheduled for sale in FY 1981. This Sale will create 173 acres of potential habitat after burning and planting. The remaining portion of this Block should be harvested at the prescribed treatment date. The ages in parenthesis represent the age of the stands if burned and regenerated by 1988.

UNIT: OLD ROADHOUSE

CUTTING BLOCK: II

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
102	19	16	J5	1989-98	(10)	Final Harvest
	20	16	J5		(10)	Final Harvest
	21	3	J2		21	
	35	148	J5		(10)	Final Harvest
	36	17	J2		37	
	37	16	J1		24	
	TOTAL =	216				

COMMENTS: Stands 19, 20, and 35 have been identified for final harvest under the Blockhouse Creek Sale, scheduled to be sold in FY 1981. This Sale will create a nucleus of 180 acres of potential habitat after burning and regeneration. The ages in parenthesis represent the age of the stands in 1998 if burned and regenerated by 1989.

From the standpoint of Block uniformity, it would be desirable to burn and plant Stands 21, 36, and 37 at the same time the other stands within this Block are treated. This would require pre-commercial treatment.

HABITAT MANAGEMENT PRESCRIPTION

UNIT: OLD ROADHOUSE

CUTTING BLOCK: III

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
100	10	67	J5	1999-2008	72*	
	11	22	J2		43	
101	4	32	J3		65	
	5	9	J5		(20)	Final Harvest
	6	33	J3		59	
	7	66	J3		64	
	8	14	J3		59	
	10	32	J5		75*	Final Harvest
	11	14	J3		59	
	TOTAL =	289				

COMMENTS: Stand 5 (Compartment 101) has been included in the AuSable Road Sale, planned for sale in FY 1981. Stand 10 has also been identified for final harvest, but has not been incorporated into a planned sale. The age in parenthesis represents the age of the stand in 2008 if harvested and regenerated by 1989.

Due to the uniformity of age class in this Unit, the harvest of Block III should be advanced 10 years to the time period between 1989 and 1998.

HABITAT MANAGEMENT PRESCRIPTION

UNIT: OLD ROADHOUSE

CUTTING BLOCK: IV

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
100	1	92	J2	2009-18	78*	
102	32	23	J5		88*	Final Harvest
	33	42	J3		54	
	(Part) 39	68	J5		71*	
	TOTAL =	225				

COMMENTS: Stand 32 has been identified for final harvest but has not been included in a planned timber sale through 1983. Due to the relatively even age class condition in this Unit, the harvest of Block IV should be advanced 10 years to the time period between 1999 and 2008.

UNIT: OLD ROADHOUSE

CUTTING BLOCK: V

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
100	(Part) 1	23	J2	2019-28	88*	
	2	88	J5		92*	
	(Part) 4	121	J2		80*	
	TOTAL =	232				

COMMENTS: As a result of the advanced age of the timber in this Block (at the prescribed treatment date), harvest should be advanced 20 years to the time period between 1999 and 2008.

REED ROAD UNIT

I. Unit Description

- A. Compartments involved and acreage of critical habitat - The entire Unit is encompassed by Compartment 103. A total of 1,336 acres has been identified as Critical Habitat in this Unit.
- B. Complex needs - Compartment 103 has been recently field examined and an E.A.R. was prepared and approved in 1976.
- C. Status of existing habitat - Almost all of the Critical Habitat in this Unit has been recently harvested. The northern half of Compartment 103 was clearcut with several of the adjacent compartments between 1962-1970. Stand 17 was diameter-limit cut in a Packaging Corporation Sale. The overstory remaining from the Packaging Sale is presently being harvested under the O'Brien Lake Sale (Glawe Inc.).

Most of this Unit was subsequently planted to red pine with varied success. Natural regeneration of jack pine and oak is also present at various stocking levels within these plantations. Intensive stocking surveys are needed to determine where additional planting is required to achieve the desired density of seedlings. Fill in planting should be done with jack pine.

Custodial management for the next several decades will be the primary objective. Fire protection and closure of occupied nesting habitat will be the major tasks within this Unit. The development of regulated age classes for each block will require re-evaluation as soon as it is feasible to begin harvesting these stands again.

Most of the Compartment (1,086 acres) is presently typed as R2. Intensive stocking surveys are needed to identify whether these stands are established. It is likely that Warblers will begin nesting in some of these stands within a few years (possibly 1979 or 1980). A single unmated male Warbler was found in Block II (Stand 2) during the 1978 Census. This Unit provides a substantial amount of potential nesting habitat and eventual conversion of these extensive red pine stands to jack pine should be considered the long term goal.

- D. Planned or existing timber sales - The O'Brien Lake Sale (Glawe Inc.), will final harvest Stand 16 and remove the overstory in stands 17 and 18. There are no other sales planned for this Unit through 1983.

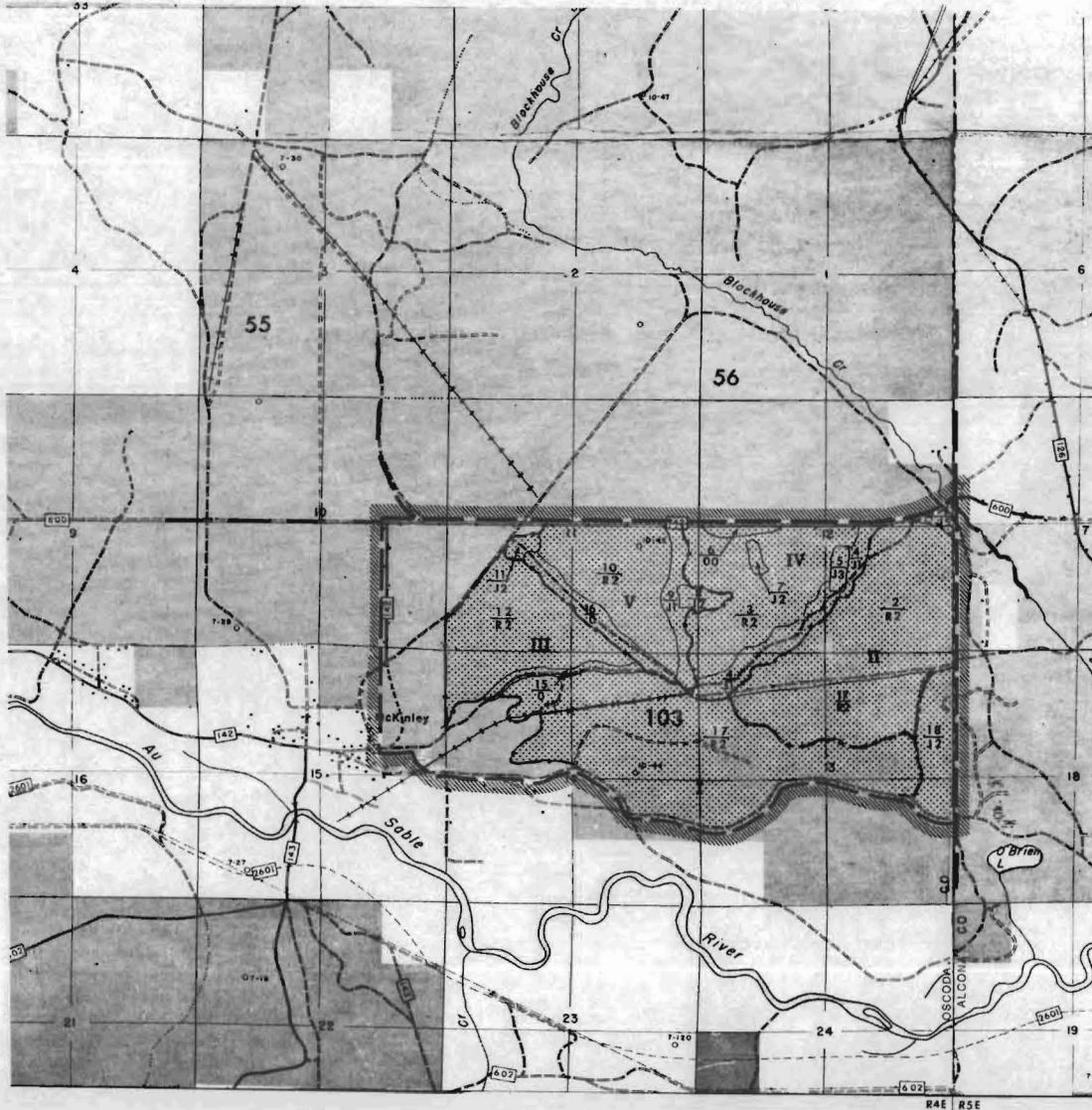
II. Known or Potential Human Activity

- A. Developments - The village of McKinley is located immediately adjacent to the designated Warbler habitat on the west end of this Unit. A developed subdivision is also located 1/4 mile east of this Unit in T26N, R5E, Section 7, SW SW. In addition, a paved county road (C.R. 600) follows the north edge of the habitat within this Unit. A buried telephone line follows the right-of-way of this road.
- B. Known or potential historical sites - Other than the old railroad grade that passes through the center of this Unit, there are no known historical sites within this Compartment.
- C. Special uses - Other than the normal dispersed recreational activities, there are no known special uses in this Unit.
















REED ROAD UNIT
MC KINLEY AREA
KIRTLAND'S WARBLER MANAGEMENT PLAN

OSCODA COUNTY, MICHIGAN
T26N. R4E

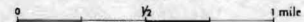
1979



LEGEND

-  UNIT BOUNDARY
-  RANGER DISTRICT BOUNDARY
-  COMPARTMENT BOUNDARY
- 622** COMPARTMENT NUMBER
-  BLOCK BOUNDARY
- IV** BLOCK NUMBER
-  STAND BOUNDARY
-  STAND NUMBER
TIMBER TYPE-SIZE-DENSITY
-  NATIONAL FOREST OWNERSHIP
-  CRITICAL HABITAT
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-  ALL WEATHER OR SECONDARY ROAD
-  DEVELOPED ROUTE
-  UNDEVELOPED ROUTE
-  US ROUTE
-  STATE ROUTE
-  COUNTY ROUTE
-  FOREST ROUTE

SCALE



HABITAT MANAGEMENT PRESCRIPTION

UNIT: REED ROAD

CUTTING BLOCK: I

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
103	(Part) 17	242	R2	1979-88	20	Removal
	18	50	J2		37	Removal
	TOTAL =	292				

COMMENTS: Overstory removals are presently scheduled for Stands 17 and 18 under the O'Brien Lake Sale. Additional timber harvest in this Block should be deferred for at least 30 years beyond the prescribed harvest date. Even though planted to red pine, Stand 17 is approaching the size class suitable for Kirtland's Warbler nesting and should be monitored annually through 1988.

UNIT: REED ROAD

CUTTING BLOCK: II

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
103	1	9	J5	1989-98	73*	
	2	200	R2		25	
	(Part) 17	103	R2		30	Removal
	TOTAL =	312				

COMMENTS: Stand 1 will probably require harvest by 1988. Stands 2 and 17 have been planted to red pine. A stocking survey should be conducted in Stand 2 to determine if there is adequate stem density for Warbler nesting. If necessary, the fill-in planting should be conducted as soon as possible to minimize the size differences between established regeneration and planted stock.

An overstory removal is presently being completed in Stand 17 under the O'Brien Lake Sale. The red pine in this stand is approximately 5 years older than in Stand 2, decreasing the value of additional fill-in planting (due to the variation in size classes).

Stands 2 and 17 should be monitored annually through at least 1993 for Warbler occupancy. A lone singing male occupied a portion of Stand 2 during the 1978 nesting season.

HABITAT MANAGEMENT PRESCRIPTION

UNIT: REED ROAD

CUTTING BLOCK: III

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
103	12	171	R2	1999-2008	38	
	(Part) 15	17	J1		65	
	(Part) 17	56	R2		40	Removal
	TOTAL =	244				

COMMENTS: The overstory removal in Stand 17 is near completion under the O'Brien Lake Sale. Any additional timber harvest activities in Stands 12 and 17 will require deferment beyond the prescribed harvest date. Stand 15 is scheduled for prescribed burning and planting to jack pine.

Stands 12 and 17 should be monitored annually through 1993 for Warbler occupancy.

UNIT: REED ROAD

CUTTING BLOCK: IV

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
103	3	161	R2	2009-18	45	
	4	52	J1		48	
	5	7	J3		70*	
	6	10	00		--	
	7	6	J2		72*	
	TOTAL =	236				

COMMENTS: Stands 5 and 7 may require harvest before the prescribed treatment date. A stocking survey should be conducted in Stand 3 to determine if there is adequate stem density for Warbler nesting. If fill-in planting is necessary, it should be accomplished as soon as possible to minimize size differences between established regeneration and planted stock. Jack pine seedlings should be used for any additional planting in this Block.

Stand 3 should be censused annually through at least 1993 for Warbler occupancy.

HABITAT MANAGEMENT PRESCRIPTION

UNIT: REED ROAD

CUTTING BLOCK: V

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
103	8	10	J2	2019-28	83*	
	9	28	J1		58	
	10	153	R2		54	
	11	6	J2		78*	
	16	55	00		--	
	TOTAL =	252				

COMMENTS:

Stands 8 and 11 will probably require harvest before the prescribed treatment date. A stocking survey should be conducted in Stand 10 to determine if there is adequate stem density for Warbler nesting. If necessary, fill-in planting (with jack pine seedlings) should be initiated as soon as possible to minimize size differences between existing regeneration and planted stock.

Stand 10 will soon be approaching the size class suitable for Warbler nesting. This stand should be censused annually from 1983 through 1998.

PERE CHENEY KIRTLAND'S WARBLER MANAGEMENT AREA

Compartments - 4, 6, 16, 34, and 35 - Mio Ranger District

I. Area Description

- A. General location and background information - The Pere Cheney KWMA is located eight miles southeast of Grayling in the far west end of the Mio Ranger District. The area lies on a Grayling sand flat that begins just south of Kneff Lake and runs for four miles to the south, until it gives way to more broken topography and better soils. The area runs east (from the Forest boundary) to the South Branch of the AuSable. The sands on the east end of this flat are underlaid by layers of gravel giving a higher site index and larger hardwood component than the soils to the west.

Most of Compartment 3 was burned in the late 1950's by the Pere Cheney Fire. Sites are generally poor with a slight improvement in the eastern portion of the area. A number of red pine plantations have been put in with poor results in the western part of the Area and fair results in the eastern part.

Two Management Units were identified within the Pere Cheney Area. One Unit, the Pere Cheney Unit, was recently included in a land exchange with the State of Michigan. Five Management Blocks, totaling 1,527 acres of Critical Habitat, are located within the remaining Unit.

- B. Land ownership patterns - There is a substantial amount of private land intermixed with National Forest lands in this Area (see Area map). Warbler management will be somewhat restricted by this ownership pattern. There are few permanent residences, but numerous seasonal residences are situated on the private tracts along Chase Bridge and Pere Cheney Roads. A total of approximately 520 acres has been identified for potential land acquisition in the Pere Cheney Area.
- C. Status of other resources - Human use in the area is relatively light. Chase Bridge Road is a paved route that receives moderate use and is designated as a travel influence zone. It serves primarily to connect M-72 with Roscommon and to provide access to the South Branch of the AuSable River. Pere Cheney Road and Stephan Bridge Road are the other main routes through the area. Both are improved gravel roads and receive light to moderate use.

Recreational use in the area is typical of the dispersed use in other areas of the Forest. Blueberry picking and ORV use of the trails in the area are probably the major uses. Neither of these activities are done to a great extent. The proposed relocation of the Shore-to-Shore Riding and Hiking Trail runs through the Area. The route may require relocation in the future if adjacent habitat becomes occupied by nesting Warblers. In addition, the active habitat in Compartment 3 has been occasionally used by the U.S. Fish and Wildlife Service for VIS purposes on their tours from Grayling.

- D. Kirtland's Warbler nesting history in area - Warbler use has been recorded in six sections of this Area since 1951. Warblers were recorded in Section 33 and 34, T26N, R2W, and in Section 4, T25N, R2W, during the 1951 census. Warblers were still occupying Section 4 and 33 in 1961. These sections were vacant when the 1971 census was conducted, but by that time Warblers were occupying the Pere Cheney burn in Section 6 and 7, T25N, R2W. This habitat is rapidly growing out of the suitable growth stage for Kirtland's Warbler nesting. As of 1978, a relict population of three singing males still exists in Sections 6 and 7. In addition, two males were found just off the Forest in T25N, R3W, Sec. 12 during the 1978 census. In 1979, a pair of nesting Warblers occupied an 80 acre red pine plantation in T25N, R2W, Sec. 4 NE-1/4. The following table summarizes the known nesting history in this area:

TOWN	RANGE	SECTION	1951	1961	1971	1972	1973	1974	1975	1976	1977	1978	1979
25N	2W	4	X	X	0	0	0	0	0	0	0	0	1
		5	0	0	0	0	0	1	0	0	0	0	0
		6	0	0	15	8	14	13	3	4	3	2	4
		7	0	0	4	11	6	5	3	2	2	1	2
25N	3W	11			2	2	4	0	0	0	0	0	0
		12			2	3	2	2	3	3	2	2	1
26N	2W	33	X	X	X	0	0	0	0	0	0	0	0
		34	X	0	0	0	0	0	0	0	0	0	0

X = Birds Present

0 = Birds Absent

Crawford County

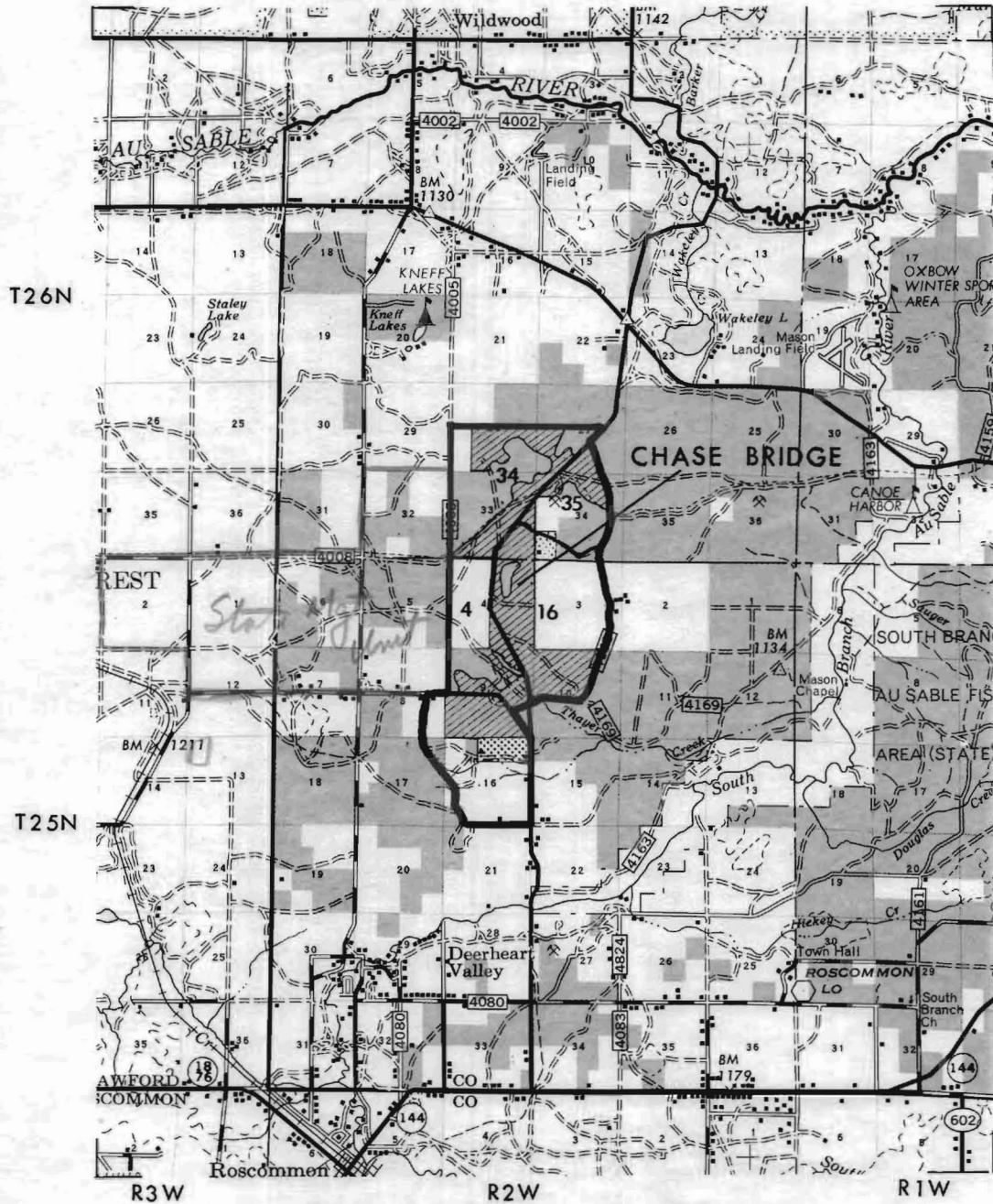
- (3) N Fr $\frac{1}{2}$ *, N $\frac{1}{2}$ of SW $\frac{1}{4}$ *, and E $\frac{1}{2}$ of SE $\frac{1}{4}$ *, Sec. 5, NE Fr $\frac{1}{4}$ *, SW Fr $\frac{1}{4}$ of NW Fr $\frac{1}{4}$, and SW Fr $\frac{1}{4}$, Sec. 6, E $\frac{1}{2}$ of NE $\frac{1}{4}$ *, NW $\frac{1}{4}$ of NE $\frac{1}{4}$, N Fr $\frac{1}{2}$ of NW Fr $\frac{1}{4}$, and SW Fr $\frac{1}{4}$ of NW Fr $\frac{1}{4}$, Sec. 7, SW $\frac{1}{4}$, Sec. 8, E $\frac{1}{2}$ of NE $\frac{1}{4}$ *, W $\frac{1}{2}$ of NE $\frac{1}{4}$, NW $\frac{1}{4}$ except SW $\frac{1}{4}$ thereof, NE $\frac{1}{4}$ of SW $\frac{1}{4}$, NW $\frac{1}{4}$ of SW $\frac{1}{4}$ except NW $\frac{1}{4}$ thereof, S $\frac{1}{2}$ of SW $\frac{1}{4}$ *, N $\frac{1}{2}$ of SE $\frac{1}{4}$ *, SW $\frac{1}{4}$ of SE $\frac{1}{4}$ *, and NW $\frac{1}{4}$ of SE $\frac{1}{4}$ of SE $\frac{1}{4}$ *, Sec. 17, Entire Fr $\frac{1}{2}$ Sec. 18, NW Fr $\frac{1}{4}$ except E $\frac{1}{2}$ of NE $\frac{1}{4}$ thereof, NE $\frac{1}{4}$ of SW Fr $\frac{1}{4}$, SW Fr $\frac{1}{4}$ of SW Fr $\frac{1}{4}$, N $\frac{1}{2}$ of SE $\frac{1}{4}$, SW $\frac{1}{4}$ of SE $\frac{1}{4}$ *, and SE $\frac{1}{4}$ of SE $\frac{1}{4}$, Sec. 19, T 25 N, R 2 W; S $\frac{1}{2}$ of NE $\frac{1}{4}$, S Fr $\frac{1}{2}$ of NW Fr $\frac{1}{4}$, SW Fr $\frac{1}{4}$, and SE $\frac{1}{4}$, Sec. 18, E $\frac{1}{2}$ of NE $\frac{1}{4}$, Sec. 30, W Fr $\frac{1}{2}$ *, Sec. 31, E $\frac{1}{2}$ of NW $\frac{1}{4}$, N $\frac{1}{2}$ of SW $\frac{1}{4}$ *, SW $\frac{1}{4}$ of SW $\frac{1}{4}$, and SE $\frac{1}{4}$, Sec. 32, T 26 N, R 2 W - Crawford County - Huron National Forest - (3,936.53 acres)

State Lands desired - (27,517.30 acres)






- (1) Gov't Lot 3, Sec. 11, T 40 N, R 4 W - NW Fr $\frac{1}{4}$ of NE Fr $\frac{1}{4}$ *, Sec. 2, SW $\frac{1}{4}$ of SE $\frac{1}{4}$ *, Sec. 7, NW $\frac{1}{4}$ of SW $\frac{1}{4}$ *, Sec. 23, SW $\frac{1}{4}$ of NE $\frac{1}{4}$ * and NE $\frac{1}{4}$ of NW $\frac{1}{4}$ *, Sec. 31, T 41 N, R 4 W - NW Fr $\frac{1}{4}$ of NW Fr $\frac{1}{4}$ *, Sec. 30, T 42 N, R 3 W - N $\frac{1}{2}$, E $\frac{1}{2}$ of SW $\frac{1}{4}$, and SE $\frac{1}{4}$, Sec. 19, W $\frac{1}{2}$, Sec. 20, Entire Sec. 28 except S $\frac{1}{2}$ of SW $\frac{1}{4}$ thereof, Sec. 28, N Fr $\frac{1}{2}$, Sec. 30, T 42 N, R 4 W - SE $\frac{1}{4}$ of SW $\frac{1}{4}$ and SW $\frac{1}{4}$ of SE $\frac{1}{4}$, Sec. 8, SW $\frac{1}{4}$ of SW $\frac{1}{4}$ of SE $\frac{1}{4}$, Sec. 16, T 42 N, R 5 W - NE $\frac{1}{4}$ of SE $\frac{1}{4}$, Sec. 4, T 43 N, R 2 W - Gov't Lots 1* and 2*, Sec. 9, T 43 N, R 4 W - W $\frac{1}{2}$ of NE $\frac{1}{4}$, E $\frac{1}{2}$ of NW $\frac{1}{4}$, NW $\frac{1}{4}$ of SW $\frac{1}{4}$, and N $\frac{1}{2}$ of SE $\frac{1}{4}$, Sec. 10, NW $\frac{1}{4}$ of SW $\frac{1}{4}$, Sec. 26, T 43 N, R 5 W - Mackinac County - Hiawatha National Forest - (2,605.95 acres)
- (2) SE $\frac{1}{4}$, Sec. 6, N $\frac{1}{2}$ of NE $\frac{1}{4}$, and NW $\frac{1}{4}$ of SE $\frac{1}{4}$, Sec. 7, NW Fr $\frac{1}{4}$ of NW Fr $\frac{1}{4}$, Sec. 18, and W $\frac{1}{2}$ of NW $\frac{1}{4}$, Sec. 29, T 44 N, R 3 W - SW $\frac{1}{4}$ of NW $\frac{1}{4}$, Sec. 1, SW $\frac{1}{4}$ of SE $\frac{1}{4}$ except Railroad right-of-way, Sec. 19, NW $\frac{1}{4}$ of NW $\frac{1}{4}$, Sec. 21, SW $\frac{1}{4}$ of NE $\frac{1}{4}$, and S $\frac{1}{2}$ of NW $\frac{1}{4}$, Sec. 34, SE $\frac{1}{4}$ of SE $\frac{1}{4}$, Sec. 36, T 44 N, R 4 W - SW $\frac{1}{4}$ of NW $\frac{1}{4}$, Sec. 4, NW Fr $\frac{1}{4}$ of NE Fr $\frac{1}{4}$, N Fr $\frac{1}{2}$ of NW Fr $\frac{1}{4}$, NE $\frac{1}{4}$ of SW $\frac{1}{4}$, SW $\frac{1}{4}$ of SW $\frac{1}{4}$, and NW $\frac{1}{4}$ of SE $\frac{1}{4}$, Sec. 5, SE $\frac{1}{4}$ of SE $\frac{1}{4}$, Sec. 6, W Fr $\frac{1}{2}$ of NW Fr $\frac{1}{4}$, SW Fr $\frac{1}{4}$, W $\frac{1}{2}$ of SE $\frac{1}{4}$, and SE $\frac{1}{4}$ of SE $\frac{1}{4}$, Sec. 7, NW $\frac{1}{4}$ of NW $\frac{1}{4}$, Sec. 8, S $\frac{1}{2}$ of SW $\frac{1}{4}$, Sec. 9, SW $\frac{1}{4}$ of SW $\frac{1}{4}$, and SE $\frac{1}{4}$, Sec. 10, N $\frac{1}{2}$ of SE $\frac{1}{4}$, and SW $\frac{1}{4}$ of SE $\frac{1}{4}$, Sec. 14, SW $\frac{1}{4}$ of NE $\frac{1}{4}$, N $\frac{1}{2}$ of NW $\frac{1}{4}$, NW $\frac{1}{4}$ of SW $\frac{1}{4}$, W $\frac{1}{2}$ of SE $\frac{1}{4}$, and SE $\frac{1}{4}$ of SE $\frac{1}{4}$, Sec. 15, NW $\frac{1}{4}$ of NW $\frac{1}{4}$, W $\frac{1}{2}$ of SE $\frac{1}{4}$, and SE $\frac{1}{4}$ of SE $\frac{1}{4}$, Sec. 16, SW $\frac{1}{4}$ of SW $\frac{1}{4}$, Sec. 17, Entire Fr $\frac{1}{2}$ Sec. 18, N $\frac{1}{2}$ except Railroad right-of-way, and N $\frac{1}{2}$ of SE $\frac{1}{4}$, Sec. 20, N $\frac{1}{2}$ of NE $\frac{1}{4}$, SW $\frac{1}{4}$ of NE $\frac{1}{4}$, NW $\frac{1}{4}$ except Railroad right-of-way, and E $\frac{1}{2}$ of SE $\frac{1}{4}$ except Railroad right-of-way, Sec. 21, NE $\frac{1}{4}$ except Railroad right-of-way, NE $\frac{1}{4}$ of NW $\frac{1}{4}$, S $\frac{1}{2}$ of NW $\frac{1}{4}$ except Railroad right-of-way, and E $\frac{1}{2}$ of SE $\frac{1}{4}$ except Railroad right-of-way, Sec. 22, NW $\frac{1}{4}$ of NE $\frac{1}{4}$, N $\frac{1}{2}$ of NW $\frac{1}{4}$, and S $\frac{1}{2}$ of S $\frac{1}{2}$, Sec. 23, SE $\frac{1}{4}$ of NW $\frac{1}{4}$, Sec. 24, NE $\frac{1}{4}$, N $\frac{1}{2}$ of NW $\frac{1}{4}$, SE $\frac{1}{4}$ of NW $\frac{1}{4}$, and SW $\frac{1}{4}$, Sec. 25, E $\frac{1}{2}$ of NE $\frac{1}{4}$, E $\frac{1}{2}$ of W $\frac{1}{2}$, and SE $\frac{1}{4}$, Sec. 26, S $\frac{1}{2}$ of NW $\frac{1}{4}$, and NE $\frac{1}{4}$ of SE $\frac{1}{4}$, Sec. 27, NE $\frac{1}{4}$ of NE $\frac{1}{4}$ *, Sec. 28, SW $\frac{1}{4}$ of NE $\frac{1}{4}$ *, NE $\frac{1}{4}$ of NW $\frac{1}{4}$ *, S $\frac{1}{2}$ of NW $\frac{1}{4}$ *, E $\frac{1}{2}$ of SW $\frac{1}{4}$ *, W $\frac{1}{2}$ of SE $\frac{1}{4}$ *, and SE $\frac{1}{4}$ of SE $\frac{1}{4}$ *, Sec. 29, W $\frac{1}{2}$ of NE $\frac{1}{4}$ *, SE $\frac{1}{4}$ of NW $\frac{1}{4}$ *, and

(* (asterisks designate lands to be conveyed without mineral reservations)

HURON-MANISTEE NATIONAL FOREST
KIRTLAND'S WARBLER MANAGEMENT AREA
PERE CHENEY
CRAWFORD COUNTY, MICH.
 1978



LEGEND

-  UNIT BOUNDARY
-  COMPARTMENT BOUNDARY
-  RANGER DISTRICT BOUNDARY
-  CRITICAL HABITAT IN NATIONAL FOREST OWNERSHIP
-  POTENTIAL HABITAT IN PRIVATE OWNERSHIP

SCALE 1/2" = 1 MILE

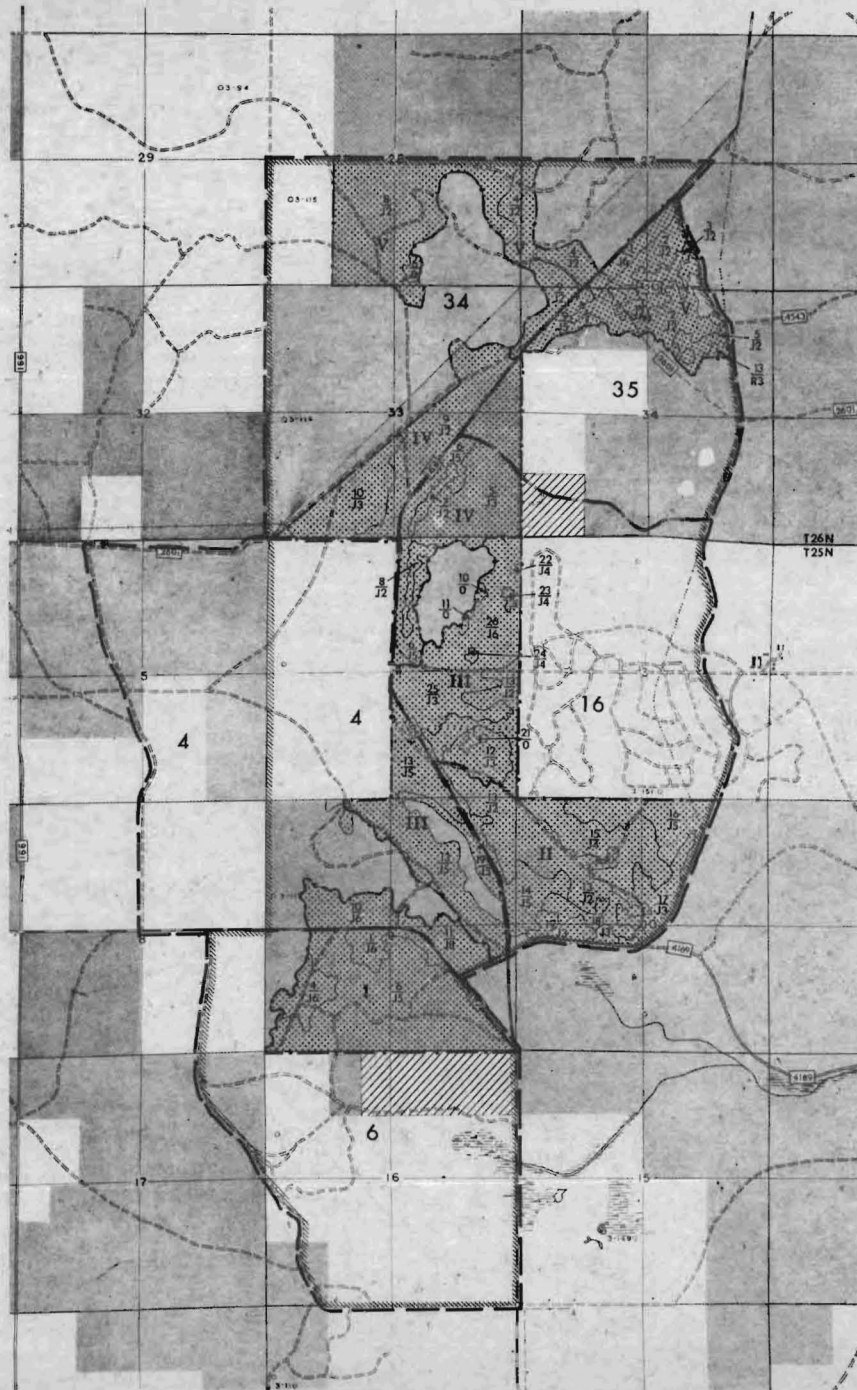
CHASE BRIDGE UNIT

I. Unit Description

- A. Compartments involved and acreage of critical habitat - Compartments 4, 6, 16, 34 and 35 are included within this Unit. A total of 1,527 acres has been identified as critical Warbler habitat in this Unit.
- B. Complex needs - Approved E.A.R.'s are available for Compartment 4 (1977) and Compartment 34 (1974). Compartments 6, 16, and 35 have recent Complex data but have no approved E.A.R.'s.
- C. Status of existing habitat - The proposed cutting of Stand 6 (Compartment 6), as part of the Pere Cheney Sale, will create 196 acres of new habitat in Block I. An area of 146 acres (Stands 14, 15, and 16) is also planned for final harvest in Block II. The remaining Blocks in this Unit will require the cutting of some stands prior to the proposed harvest dates (see Habitat Management Prescription).
- D. Planned or existing timber sales - There are presently no active timber sales in this Unit. The Pere Cheney Sale (Compartment 6) is scheduled to be sold during FY 1981.

II. Known or Potential Human Activity

















- A. Developments - In Compartment 6, a private parcel adjacent to Warbler habitat has recently been subdivided and the lots are presently for sale. The legal description of this tract is: T25N, R2W, Section 16, NW NE and NE NE. There are presently only a few year around homes in the area, but numerous seasonal residences are situated on the private tracts along Chase Bridge and Pere Cheney Roads.
- B. Known or potential historic sites - There are no known historical sites in this Unit.
- C. Special uses - The new alignment of the Michigan Shore-to-Shore Riding and Hiking Trail passes through Block V (Compartment 35) of this Unit. The trail would follow the two-track that bisects Stands 2 and 3. If the adjacent habitat is occupied, an alternate route should be selected.



CHASE BRIDGE UNIT
 PERE CHENEY AREA
 KIRTLAND'S WARBLER MANAGEMENT PLAN

CRAWFORD COUNTY, MICHIGAN
 T26N R11W
 1979

LEGEND

-  UNIT BOUNDARY
-  RANGER DISTRICT BOUNDARY
-  COMPARTMENT BOUNDARY
- 622** COMPARTMENT NUMBER
-  BLOCK BOUNDARY
- IV** BLOCK NUMBER
-  STAND BOUNDARY
- $\frac{4}{16}$ STAND NUMBER
-  NATIONAL FOREST OWNERSHIP
-  CRITICAL HABITAT
-  POTENTIAL ACQUISITION
-  MAIN HIGHWAY
-  ALL WEATHER OR SECONDARY ROAD (PAVED)
-  DEVELOPED ROUTE
-  UNDEVELOPED ROUTE
-  US ROUTE
-  STATE ROUTE
-  COUNTY ROUTE
-  FOREST ROUTE

SCALE
 0 $\frac{1}{2}$ 1 mile

HABITAT MANAGEMENT PRESCRIPTION

UNIT: CHASE BRIDGE

CUTTING BLOCK: I

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
4	10	38	J6	1979-88	45	
	11	28	J8		72	Final Harvest
6	1	16	J6		42	
	4	25	J6		46	
	6	196	J5		66	Final Harvest
TOTAL =		303				

COMMENTS: Stand 6 (Compartment 6) is scheduled for final harvest under the Pere Cheney Sale that will be sold in FY 1981. Stand 11 (Compartment 4) is also scheduled for final harvest but has not been incorporated into a sale as of 1978. The remaining stands in this Block should be close to maturity by the proposed harvest date.

UNIT: CHASE BRIDGE

CUTTING BLOCK: II

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
16	(Part) 13	100	J2	1989-98	34	Overstory Removal (Inoperable volume)
	14	37	J5		(10)	Final Harvest
	15	62	J4		(10)	Final Harvest
	16	47	J5		(10)	Final Harvest
	17	26	J3		58	
	18	18	J3		58	
	19	13	J3		34	Overstory Removal
TOTAL =		303				

COMMENTS: Stands 13 and 19 are two-storied stands. The scattered jack pine overstory appears to be inoperable and may have to be removed non-commercially. Stands 14, 15, and 16 have been designated for final harvest but are not presently incorporated into a planned timber sale. The ages in parenthesis represent the age of the stands in 1998 if harvested, burned, and regenerated by 1989.

HABITAT MANAGEMENT PRESCRIPTION

UNIT: CHASE BRIDGE

CUTTING BLOCK: III

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
4	13	99	J5	1999-2008	80*	
	19	13	J5		80*	
16	10	2	00		--	
	11	1	00		--	
	12	22	J3		68*	
	(Part) 13	38	J2		44	Overstory removal
	21	2	00		--	
	22	2	00		--	Remove overstory and create permanent openings
	23	2	J4			" "
	24	1	J4			
	25	47	J3		68*	
	26	74	J6		62	
	TOTAL =	303				

COMMENTS: Several stands in this Block may require treatment prior to the proposed harvest date.

HABITAT MANAGEMENT PRESCRIPTION

UNIT: CHASE BRIDGE

CUTTING BLOCK: IV

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
16	5	67	J3	2009-18	78*	
	6	16	J5		84*	
	7	6	J2		50	
	8	10	J2		50	
34	(Part)	9	89	J2	68*	
	10	57	J3		78*	
35	10	33	J3		78*	
	TOTAL	= 278				

COMMENTS: Stands 5, and 7 (Compartment 16), 9 and 10 (Compartment 34), and 10 (Compartment 35) will probably require harvest prior to the proposed treatment date.

HABITAT MANAGEMENT PRESCRIPTION

UNIT: CHASE BRIDGE

CUTTING BLOCK: v

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
34	4	37	J2	2019-28	58	
	6	3	00		--	
	8	153	J2		83*	
	(Part) 9	21	J2		78*	
35	1	16	J6		(40)	Final Harvest
	2	67	J2		60	Release
	3	20	J2		88*	
	5	12	J2		88*	
	9	12	J5		97*	
	TOTAL	=341				

COMMENTS:

Stands 8 and 9 (Compartment 34), and Stands 3, 5, and 9 (Compartment 35) should be deferred as long as possible toward the prescribed treatment date. The age in parenthesis represents the age of the stand (Stand 1, Compartment 35) if harvested and regenerated by 1988.

PINE RIVER KIRTLAND'S WARBLER MANAGEMENT AREA

Compartments - 136, 184, 185, 186, 189, 190, 191, 192, 193, 194, 195,
and 196 - Harrisville Ranger District

Compartments - 1, 2, 3, 4, 5, 7, 30, 31, 32, and 33 - Tawas Ranger
District

I. Area Description

- A. General location and background information - The Pine River KWMA is located on the Alcona-Iosco County line, in the east end of the Huron National Forest. The Area is bounded on the north by the South Branch of the Pine River and on the south by the AuSable River. This dry sand flat is dissected by numerous small tributaries of the Pine River.

The jack pine in the Pine River Area is mostly the same age class (40 to 45 years old). Due to this relatively even-age, mature condition, an accelerated timber harvest program has been proposed for most of the Units in this Area. Harvest of the Management Blocks at five year intervals (instead of at ten year intervals) has been proposed for this 50 year rotation period.

Some question has been raised as to the accuracy of the field examination of several of the Tawas District compartments. Compartments 1, 2, 3, 4, 32, and 33 were examined in the early 1970's. After the examination was completed, the stands were re-typed from the new aerial photographs with some drastic departures from the previous stand delineations. The existing timber sales and Management Block layouts have been derived from these new type maps. When the compartments are re-examined during the next management period, a more thorough field examination should be conducted to establish the stand boundaries accurately.

Six of the Management Units in the Pine River Area are located on the Harrisville District and the remaining four are on the Tawas District. A total of 12,886 acres has been identified as Critical Habitat in the Pine River KWMA.

- B. Land ownership patterns - Private ownership in the Pine River KWMA is less than five percent of the total acreage. Private lands abut proposed habitat in Compartments 136, 184, and 195 (Harrisville District). No year around residences are known to occur in the Area, but several summer homes are located on private parcels near Bryant Landing and along Bissonette Road (to the south). Presently, the only proposed acquisition site in the Area is the narrow strip of private land in Compartment 5 (Tawas District).
- C. Status of other resources - Proposed habitat borders three well-traveled routes. In order of importance they are: M-65, Bissonette Road, and Rearing Pond Trail (FR 4121). M-65 and Bissonette Road are paved and receive moderate to heavy use. Visual management techniques should be employed to minimize negative impacts. However, the viability of the habitat should be of primary importance. Rearing Pond Trail is the main access to the Pine River Campground and the adjacent uplands. While not receiving the traffic of the other roads, it is used extensively by Forest visitors. It is a low speed road and presents an opportunity to educate Forest users about Warbler management through signs and examples of actual habitat management.

Most of the mineral rights in this Area are held by the State of Michigan. The Forest Service acquired much of this land from the State. The subsurface rights, however, were retained by the State. Close coordination with the State should preclude any management problems.

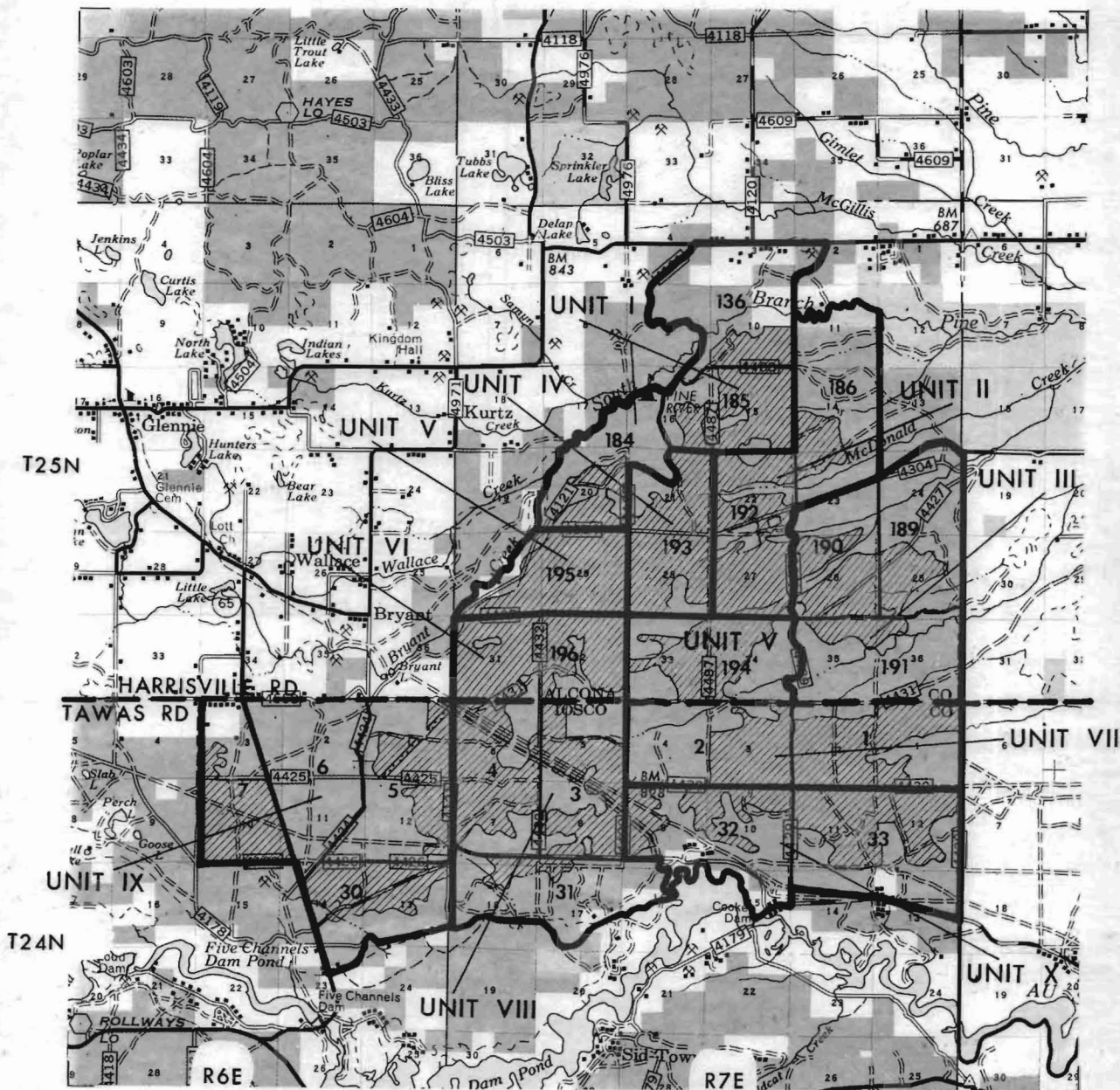
Recreation in the Pine River KWMA centers mostly around berry picking, ORV riding, and hunting. Warbler management will enhance berry picking and hunting opportunities. Some potential conflicts exist between ORV users and Warbler management, but should not pose any serious problems.

- D. Kirtland's warbler nesting history in area - Warblers have not been recorded in the Pine River Area since 1951, when they were occupying four sections. These were Section 13, T24N, R6E, Sections 3 and 4, T24N, R7E, and Section 29, T25N, R7E. A number of timber sales have been made recently to develop potential nesting habitat. Warblers should occupy these stands within the decade (by 1988). Eventually, this Area should provide sustained nesting habitat for over 100 pairs of Kirtland's Warblers.

HURON-MANISTEE NATIONAL FOREST KIRTLAND'S WARBLER MANAGEMENT AREA PINE RIVER

ALCONA & IOSCO COUNTIES, MICH.

1978



LEGEND

- UNIT BOUNDARY
- COMPARTMENT BOUNDARY
- - - -** RANGER DISTRICT BOUNDARY
- CRITICAL HABITAT IN NATIONAL FOREST OWNERSHIP
- POTENTIAL HABITAT IN PRIVATE OWNERSHIP

SCALE 1/2" = 1 MILE

PINE RIVER UNIT I

I. Unit Description

- A. Compartments involved and acreage of critical habitat - Portions of Compartments 136, 184, and 185 are included within this Unit. A total of 1,217 acres has been identified as Critical Habitat in this Unit.
- B. Complex needs - Compartment 136 was field examined in 1978 and an E.A.R. is presently (January 1979) being developed. As of this date, there are no Complex data available for Compartment 184. Field data were gathered for Compartment 185 in 1974 and an E.A.R. was approved in 1975.
- C. Status of existing habitat - Most of the habitat in this Unit is presently in the 40 to 55 year age class. This condition will require harvest of the Cutting Blocks at five year intervals during this rotation period. Full age class regulation (each Block staggered at 10 year intervals) will not be achieved until the end of the next rotation period (2053).

Several stands in Compartment 185 should be considered for eventual conversion to jack pine. The conversion of Stands 10, 22 and 23 would provide needed additional habitat, eliminate the problems of managing around these stands, and improve the overall quality of the nesting habitat.

- D. Planned or existing timber sales - There are presently no active sales in this Unit. The timber in Block I is scheduled for sale in FY 1979 under the South Pine River Sale. There are no other planned sales in this Unit through FY 1982.

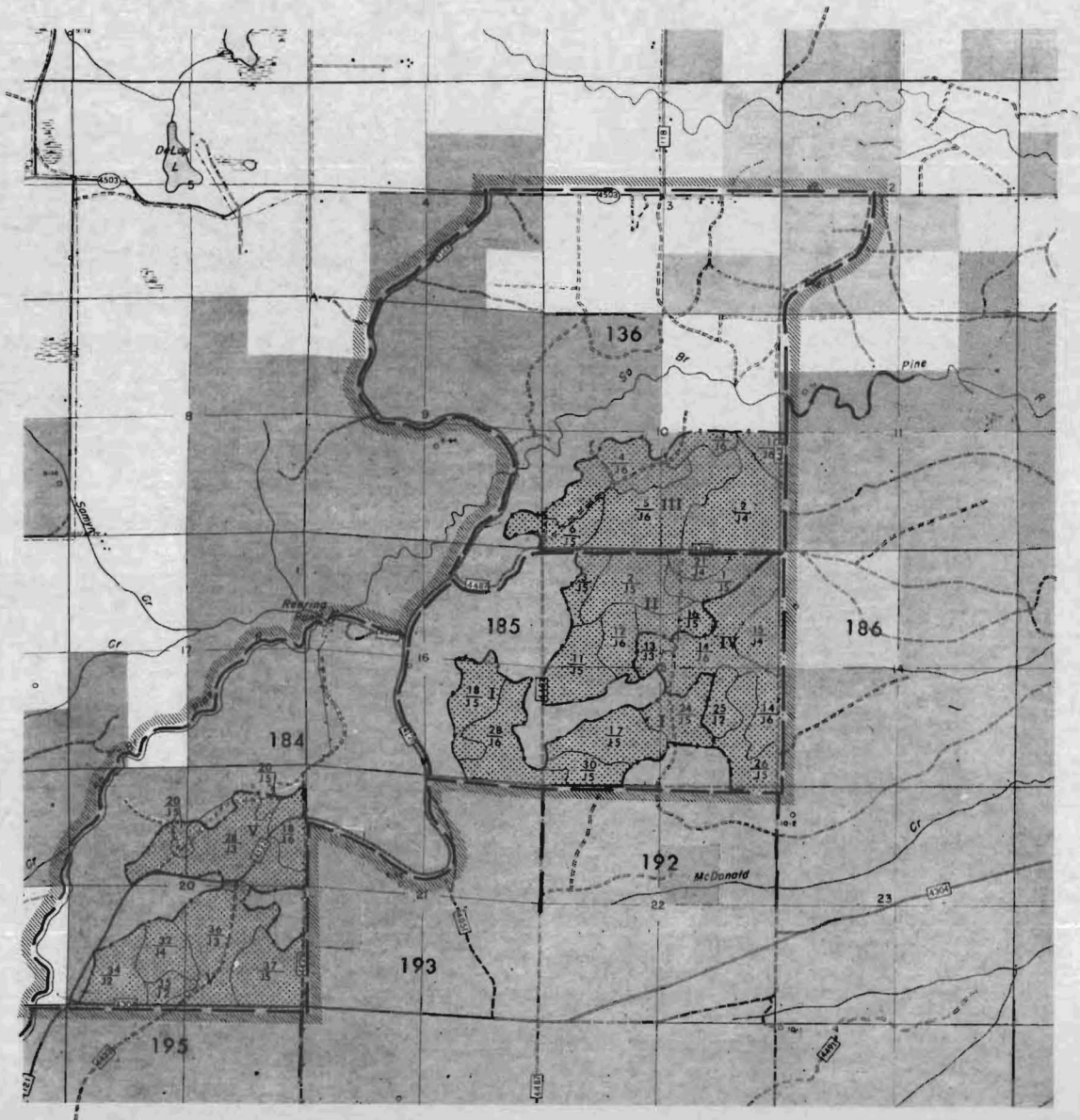
II. Known or Potential Human Activity

- A. Developments - The Pine River Campground is located approximately 1/2 mile west of the habitat in this Unit. There are no other known developments in, or adjacent to, this Unit.
- B. Known or potential historic sites - There are no known historical sites in this Unit.
- C. Special uses - Other than the normal dispersed recreational activities associated with the area, there are no known special uses in this Unit.

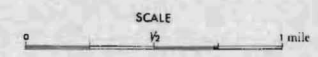
UNIT I
PINE RIVER AREA
KIRTLAND'S WARBLER MANAGEMENT PLAN

ALCONA COUNTY, MICHIGAN
 T25N. R7E

1979



- LEGEND**
- UNIT BOUNDARY
 - RANGER DISTRICT BOUNDARY
 - COMPARTMENT BOUNDARY
 - 622** COMPARTMENT NUMBER
 - BLOCK BOUNDARY
 - IV** BLOCK NUMBER
 - STAND BOUNDARY
 - STAND NUMBER
 - TIMBER TYPE-SIZE-DENSITY
 - NATIONAL FOREST OWNERSHIP
 - CRITICAL HABITAT
 - POTENTIAL ACQUISITION
 - MAIN HIGHWAY
 - ALL WEATHER OR SECONDARY ROAD
 - DEVELOPED ROUTE
 - UNDEVELOPED ROUTE
 - US ROUTE
 - STATE ROUTE
 - COUNTY ROUTE
 - FOREST ROUTE



HABITAT MANAGEMENT PRESCRIPTION

UNIT: PINE RIVER UNIT I

CUTTING BLOCK: I

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
185	17	45	J5	1979-83	48	
	18	38	J5		50	
	24	31	J5		48	
	28	53	J6		60	
	30	20	J5		60	
	TOTAL =	190				

COMMENTS:

The timber in this Block is scheduled to be sold in FY 1979 under the South Pine River Sale. The entire area within the Block will be final harvested. An addendum to the E.A.R. for this Compartment will be needed to document this action.

HABITAT MANAGEMENT PRESCRIPTION

UNIT: PINE RIVER UNIT I

CUTTING BLOCK: II

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
185	1	30	J5	1984-88	50	Final Harvest
	2	52	J5		45	Final Harvest(Defer 6-11 yrs.)
	3	20	J5		62	" " "
	11	41	J5		62	" " "
	12	28	J6		63	" " "
	16	23	J5		61	Final Harvest
	21	14	J4		43	
	TOTAL =	208				

COMMENTS:

HABITAT MANAGEMENT PRESCRIPTION

UNIT: PINE RIVER UNIT I

CUTTING BLOCK: III

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
136	1	21	J6	1989-93	66*	Final Harvest-Deferred
	2	77	J4		59	
	3	16	J6		65	
	4	60	J6		64	
	5	82	J6		65	
	(Part) 6	31	J6		66*	Final Harvest-Deferred
	TOTAL	287				

COMMENTS:

UNIT: PINE RIVER UNIT I

CUTTING BLOCK: IV

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
185	13	12	J3	1994-98	38	
	14	93	J6		71*	Final Harvest
	15	29	J4		60	Final Harvest- Deferred
	25	20	J2		33	
	26	43	J5		63	
	TOTAL =	197				

COMMENTS: Stand 14 should be deferred as long as possible toward the prescribed treatment date.

HABITAT MANAGEMENT PRESCRIPTION

UNIT: PINE RIVER UNIT I

CUTTING BLOCK: V

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
184	18	23	J6	1999-2003	No Age Data Available	
	(Part) 20	17	J5			
	28	86	J3			
	32	28	J4			
	(Part) 34	43	J2			
	35	13	J2			
	36	73	J3			
	37	52	J5			
	TOTAL =	335				

COMMENTS: There are no detailed stand data available for this Compartment as of this date (January 1979). Upon completion of compartment examination, it may be necessary to reconsider the treatment sequence for Blocks III, IV, and V in this Unit.

PINE RIVER UNIT II

I. Unit Description

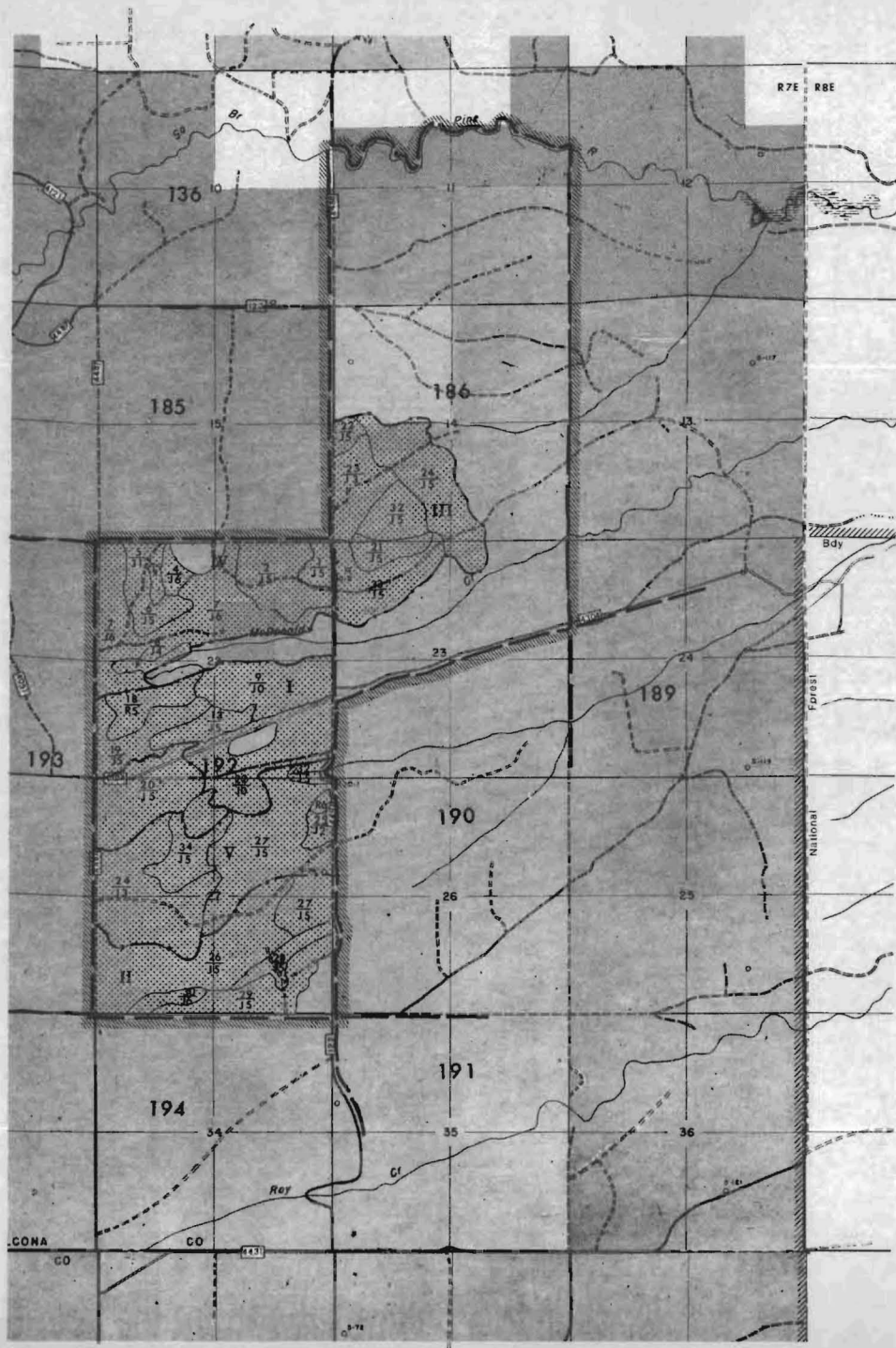
- A. Compartments involved and acreage of critical habitat - Compartments 186 and 192 are included within this Unit. A total of 1,294 acres has been identified as Critical Habitat in this Unit.
- B. Complex needs - Field data were gathered for these Compartments in 1973. A joint E.A.R. was prepared for both compartments in 1974. An addendum was written in 1977 to modify an existing sale that affected Warbler habitat in Compartment 192.
- C. Status of existing habitat - Most of the timber in this Unit is presently in the 40 to 55 year age class. This relatively even aged mature condition will require initial harvest of the Blocks at five year intervals. Most of the habitat in Block I will be harvested by 1983 (through present and planned sales). Harvest of the remaining habitat in this Unit fits fairly well into the prescribed treatment schedule.

There are several stands of red pine that should be considered for conversion. Stand 17, Compartment 192, is the most important stand. It is relatively small stand surrounded by habitat and should eventually be included. Stand 18 has been identified for immediate conversion. The other red pine stands should be considered for conversion when mature. The need for this additional acreage is not critical at this time.

- D. Planned or existing timber sales - The Warbler Sale No. 1 (Michael DeJarlais-12/10/75) has recently harvested timber on 144 acres of potential habitat in Block I. In addition, the McDonald Creek Sale (FY 1979) is scheduled to harvest an additional 67 acres in this Block.

II. Known or Potential Human Activity

- A. Developments - There are no known developments in this Unit.
- B. Known or potential historic sites - There are no known historical sites in this Unit.
- C. Special uses - Other than the normal dispersed recreational activities there are no known special uses in this Unit.





















UNIT II
PINE RIVER AREA
KIRTLAND'S WARBLER MANAGEMENT PLAN

ALCONA COUNTY, MICHIGAN
 T26N. R7E

1979

LEGEND

-  UNIT BOUNDARY
-  RANGER DISTRICT BOUNDARY
-  COMPARTMENT BOUNDARY
- 622** COMPARTMENT NUMBER
-  BLOCK BOUNDARY
- IV** BLOCK NUMBER
-  STAND BOUNDARY
-  STAND NUMBER
-  TIMBER TYPE-SIZE-DENSITY
-  NATIONAL FOREST OWNERSHIP
-  CRITICAL HABITAT
-  POTENTIAL ACQUISITION
-  MAIN HIGHWAY
-  ALL WEATHER OR SECONDARY ROAD
-  DEVELOPED ROUTE
-  UNDEVELOPED ROUTE
-  US ROUTE
-  STATE ROUTE
-  COUNTY ROUTE
-  FOREST ROUTE

SCALE
 0 $\frac{1}{2}$ 1 mile

HABITAT MANAGEMENT PRESCRIPTION

UNIT: PINE RIVER UNIT II

CUTTING BLOCK: I

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
192	9	70	J0	1979-83	4 (2)	Final Harvest
	13	24	J5		53 (2)	
	18	39	R5		43	
	19	43	J6		48 (2)	
	20	70	J5		42	
	22	74	J0		(2)	Final Harvest
	TOTAL =	320				

COMMENTS: Stands 9 and 22 have been recently harvested under Warbler Sale No. 1 (Michael DeJarlais-12/10/75). This has created 144 acres of habitat to be burned and regenerated. Stands 13 and 19 are scheduled for harvest under the McDonald Creek Sale (to be sold in FY 1979). This will add an additional 67 acres to be regenerated by 1983. Stand 18 should also be harvested as soon as merchantable. This stand is typed as an R5 but has only 20 square feet of red pine with equal amounts of jack pine and oak.

UNIT: PINE RIVER UNIT II

CUTTING BLOCK: II

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
192	26	128	J5	1984-88	62	
	(Part) 27	28	J5		58	
	28	23	J5		62	
	29	51	J5		62	
	30	11	J6		48	
	TOTAL =	241				

COMMENTS:

HABITAT MANAGEMENT PRESCRIPTION

UNIT: PINE RIVER UNIT II

CUTTING BLOCK: III

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
186	21	20	J5	1989-93	51	
	22	6	J5		57	
	23	36	J3		48	
	24	104	J5		70*	
	32	36	J5		73*	
	33	49	J5		53	
	TOTAL =		251			

COMMENTS: Stands 24 and 32 should be deferred as long as possible toward the prescribed treatment date.

UNIT: PINE RIVER UNIT II

CUTTING BLOCK: IV

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
192	1	10	J5	1994-98	62	
	2	57	J5		67*	
	4	12	J6		62	
	5	5	J1		50	
	6	34	J5		61	
	7	146	J6		70*	
	8	11	J4		68*	

TOTAL = 275

COMMENTS: Stands 2, 7, and 8 should be deferred as long as possible toward the prescribed treatment date.

HABITAT MANAGEMENT PRESCRIPTION

UNIT: PINE RIVER UNIT II

CUTTING BLOCK: V

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
192	24	116	J3	1999-2003	54	
	25	13	J2		63	
	(Part) 27	116	J5		73*	
	32	10	J5		77*	
	34	32	J5		73*	
	TOTAL =	277				

COMMENTS: Stands 27, 32, and 34 should be deferred as long as possible toward the prescribed treatment date.

PINE RIVER UNIT III

I. Unit Description

- A. Compartments involved and acreage of critical habitat - Compartments 189, 190, and 191 are included within this Unit. A total of 905 acres has been identified as Critical Habitat in this Unit.
- B. Complex needs - These compartments were recently field examined (1976) with a joint E.A.R. approved in 1978.
- C. Status of existing habitat - This Unit is located on the eastern edge of the Pine River Kirtland's Warbler Management Area. The size of the Unit is smaller than desirable but it is limited by soil changes in the surrounding area. These changes are gradual, however, and opportunities for expansion should be considered. An additional 100 acres of habitat is needed to achieve an overall average of 200 acres per Block. Any additional acreage would provide more management flexibility.

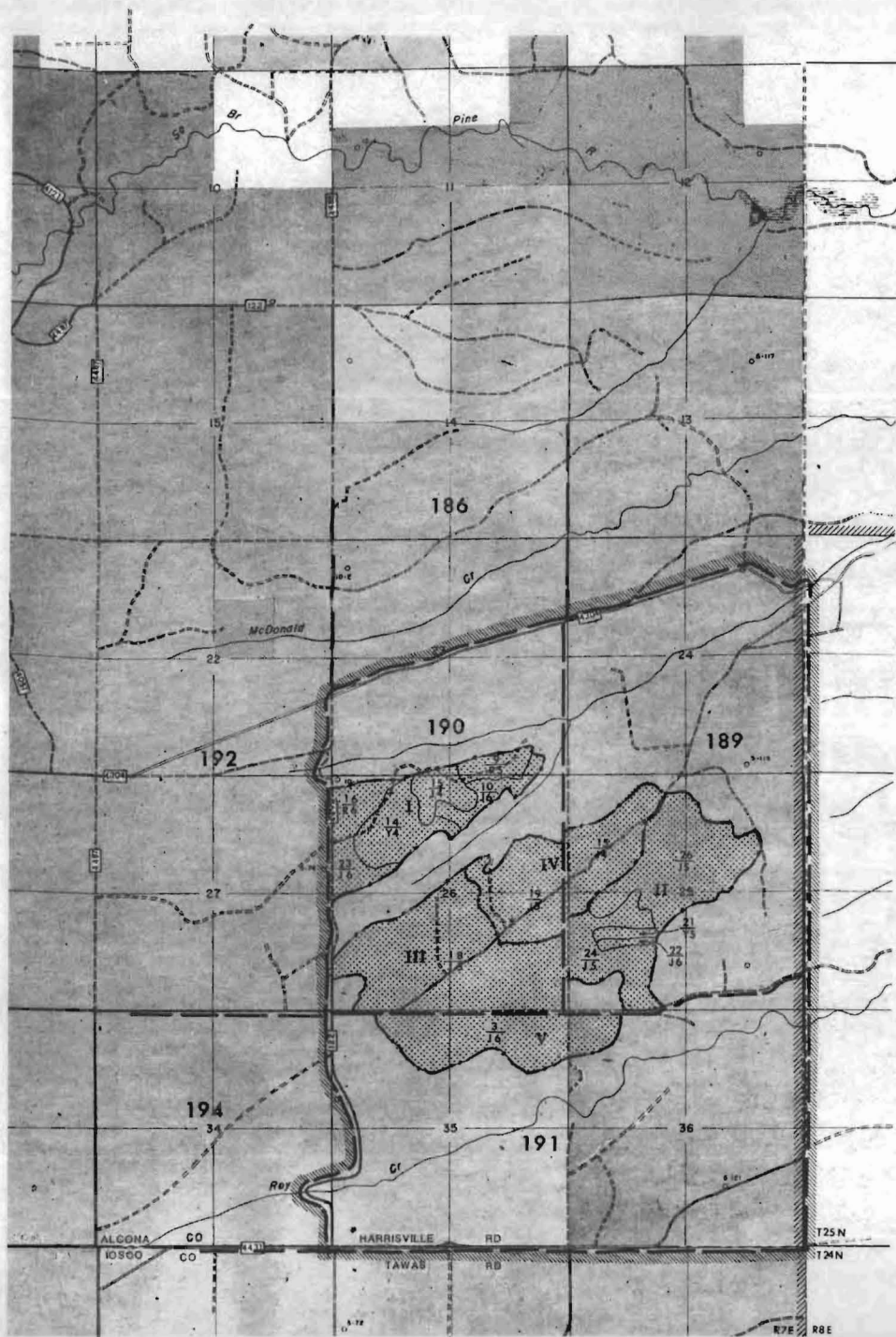
Most of the timber in this Unit is also in the 40 to 55 year age class. Due to this relatively even-aged mature condition, the Blocks in this Unit will initially be harvested at five year intervals. Full age class regulation will not be achieved until the end of the next rotation period (2053).

Several red pine stands (Stands 9, and 16 - Compartment 190, and Stand 25 - Compartment 185) should be converted to jack pine following their scheduled harvest.

- D. Planned or existing timber sales - The Vandercook Creek Sale (scheduled for sale in FY 1981) will harvest 124 acres of habitat in Block I. There are no other planned sales within this Unit through FY 1983.

II. Known or Potential Human Activity

- A. Developments - This Unit is in solid National Forest ownership. The only known development is a Consumers Power high voltage transmission line that follows the National Forest boundary in a north-south direction.
- B. Known or potential historic sites - There are no known historical sites in this Unit.
- C. Special uses - Other than the normal dispersed recreational activities associated with the area, there are no known special uses.



















UNIT III
PINE RIVER AREA
KIRTLAND'S WARBLER MANAGEMENT PLAN

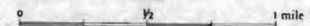
ALCONA COUNTY, MICHIGAN
 T25N, R7E

1979

LEGEND

-  UNIT BOUNDARY
-  RANGER DISTRICT BOUNDARY
-  COMPARTMENT BOUNDARY
- 622** COMPARTMENT NUMBER
-  BLOCK BOUNDARY
- IV** BLOCK NUMBER
-  STAND BOUNDARY
-  STAND NUMBER
-  TIMBER TYPE-SIZE-DENSITY
-  NATIONAL FOREST OWNERSHIP
-  CRITICAL HABITAT
-  POTENTIAL ACQUISITION
-  MAIN HIGHWAY
-  ALL WEATHER OR SECONDARY ROAD
-  DEVELOPED ROUTE
-  UNDEVELOPED ROUTE
-  US ROUTE
-  STATE ROUTE
-  COUNTY ROUTE
-  FOREST ROUTE

SCALE



HABITAT MANAGEMENT PRESCRIPTION

UNIT: PINE RIVER UNIT III

CUTTING BLOCK: I

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
190	9	16	R5	1979-83	43	
	10	26	J6		61	Final Harvest
	14	54	Y4		60	Final Harvest
	15	22	J4		61	Final Harvest
	16	29	R6		43	
	23	24	J6		61	Final Harvest
	TOTAL =	171				

COMMENTS: Stands 10, 14, 15, and 23 are designated for harvest under the Vandercook Creek Sale, scheduled to be sold in FY 1981. After harvest, this will create 126 acres of potential habitat to be burned and regenerated. If desirable, Stands 9 and 16 can be deferred until the next scheduled harvest during the next rotation period (2033).

UNIT: PINE RIVER UNIT III

CUTTING BLOCK: II

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
189	(Part) 21	6	Y5	1984-88	63	
	(Part) 22	6	J6		64	
	24	75	J5		63	
	26	123	J5		62	
	TOTAL =	210				

COMMENTS:

HABITAT MANAGEMENT PRESCRIPTION

UNIT: PINE RIVER UNIT III

CUTTING BLOCK: III

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
190	18	231	J5	1989-93	63	
	TOTAL =	231				

COMMENTS:

UNIT: PINE RIVER UNIT III

CUTTING BLOCK: IV

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
189	15	72	J4	1994-98	70*	
190	19	88	J5		61	
	TOTAL =	160				

COMMENTS: Stand 15 presently has a J4 overstory that was underplanted with red pine in 1941. An overstory removal may be necessary prior to final harvest. Due to the small size of this Block, the red pine understory in this stand should be final harvested (as pulp) at the prescribed treatment date.

HABITAT MANAGEMENT PRESCRIPTION

UNIT: PINE RIVER UNIT III

CUTTING BLOCK: V

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
191	3	133	J6	2003	69*	
	TOTAL =	133				

COMMENTS: This Block should be held as long as possible toward the prescribed treatment date. A special effort should be made to reduce the strong oak component (approximately 25 square feet/acre) that presently exists in this Block.

PINE RIVER UNIT IV

I. Unit Description

- A. Compartments involved and acreage of critical habitat - This Unit is entirely encompassed by Compartment 193. A total of 951 acres (less than optimal) has been identified as Critical Habitat in this Unit.
- B. Complex needs - Field data were gathered for Compartment 193 in 1974 with an E.A.R. written and approved in 1975.
- C. Status of existing habitat - This Unit is somewhat smaller than what is desirable, with each Block averaging approximately 190 acres. Expansion of critical habitat is primarily limited by adjacent Units. Jack pine budworm loss is heavy throughout Compartment 193.

Most of Block I has already been harvested and burned. Blocks II-V have relatively even-aged mature stands (40-45 years old) and will require harvest at five year intervals during this rotation period. Full age class regulation (five blocks staggered at 10 year intervals) will not be achieved until the end of the next rotation period (2053).

The only opportunity for conversion is in Stand 11. Presently the stand is quite heavy to oak (a K5 type). An effective method for eliminating oak sprouting will be needed before this stand could be considered as potential Warbler habitat.

- D. Planned or existing timber sales - Under Warbler Sale No. 1 (Michael De Jarlais - 12/10/75), most of Block I has been recently harvested. There are no other planned sales for this Unit through 1982.

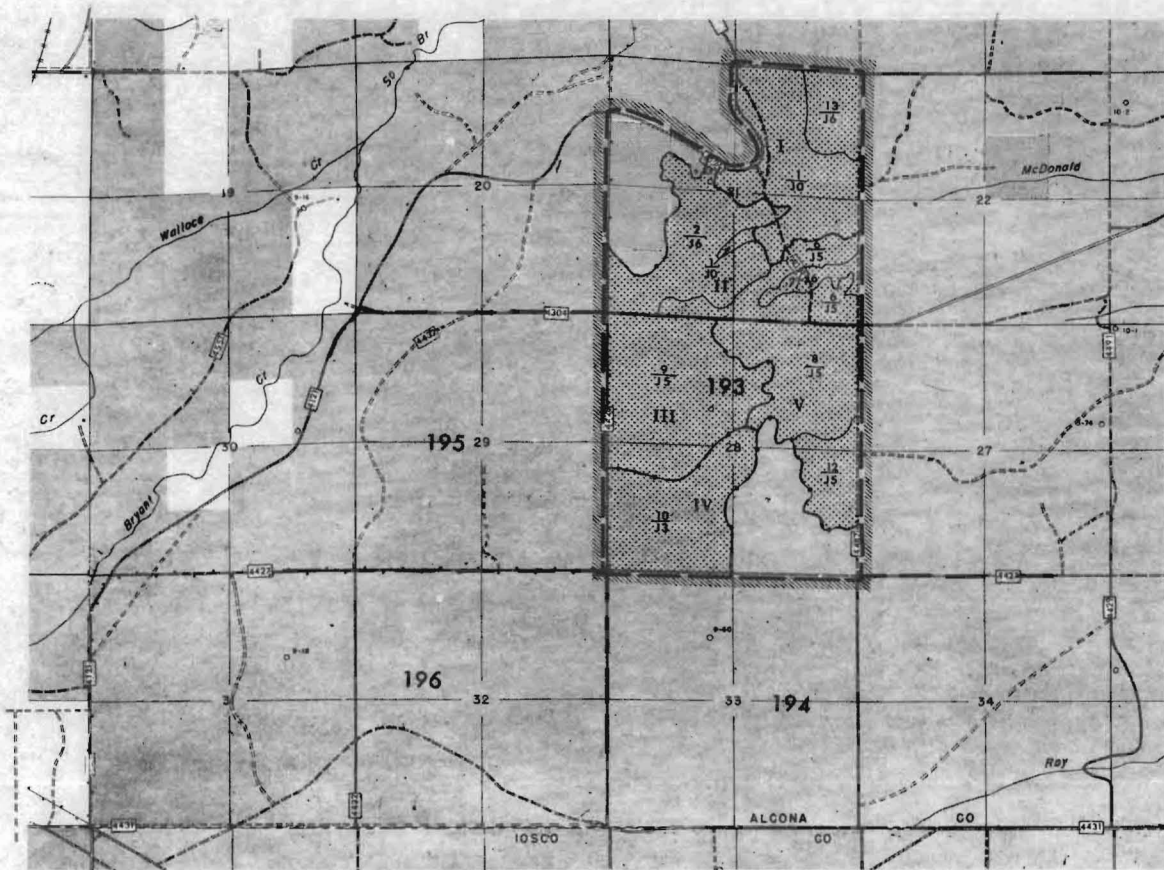
II. Known or Potential Human Activity




















- A. Developments - A buried telephone line is located along the west side of this Unit. The line follows FR 4428 in a north-south direction. Solid National Forest ownership within this area precludes any other known developments in this Unit.
- B. Known or potential historic sites - There are no known historical sites in this Unit.
- C. Special uses - Other than the normal dispersed recreational activities associated with this area, there are no known special uses in this Unit.

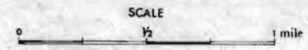
UNIT IV
PINE RIVER AREA
KIRTLAND'S WARBLER MANAGEMENT PLAN

ALCONA COUNTY, MICHIGAN
T26N, R7E

1979



- LEGEND**
-  UNIT BOUNDARY
 -  RANGER DISTRICT BOUNDARY
 -  COMPARTMENT BOUNDARY
 -  BLOCK BOUNDARY
 - 622** COMPARTMENT NUMBER
 -  BLOCK NUMBER
 - IV** STAND BOUNDARY
 -  STAND BOUNDARY
 -  STAND NUMBER
 -  TIMBER TYPE-SIZE-DENSITY
 -  NATIONAL FOREST OWNERSHIP
 -  CRITICAL HABITAT
 -  POTENTIAL ACQUISITION
 -  MAIN HIGHWAY
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 -  DEVELOPED ROUTE
 -  UNDEVELOPED ROUTE
 -  US ROUTE
 -  STATE ROUTE
 -  COUNTY ROUTE
 -  FOREST ROUTE



HABITAT MANAGEMENT PRESCRIPTION

UNIT: PINE RIVER UNIT IV

CUTTING BLOCK: I

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
193	1	151	J0	1979-83	(3)	
	13	42	J6		64	
	TOTAL =	193				

COMMENTS: Stand 1 was recently final harvested (under Warbler Sale No. 1) with seed trees retained for natural regeneration. The stand was burned in August of 1978. If stocking levels do not appear adequate for Warbler nesting by 1983, this stand should be fill-in planted to increase stem density to the optimum level.

Stand 13, a merchantable J6 type, should also be harvested, burned and regenerated as soon as possible to minimize size differences with the regeneration in Stand 1.

The age in parenthesis represents the age of Stand 1 in 1983 if established by 1980.

UNIT: PINE RIVER UNIT IV

CUTTING BLOCK: II

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
193	1	6	J0	1984-88	-	
	2	157	J6		54	Shelterwood
	6	78	J5		56	Final Harvest
	7	15	J6		56	Final Harvest
	TOTAL =	256				

COMMENTS: Stands 2, 6, and 7 have been identified for harvest in the Compartment E.A.R. The cutting prescription for Stand 2 should be changed to final harvest (leaving seed trees). Stands 6 and 7 should also be seed tree cuts. Harvest of this Block should occur between 1984-1988.

HABITAT MANAGEMENT PRESCRIPTION

UNIT: PINE RIVER UNIT IV

CUTTING BLOCK: III

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
193	9	194	J5	1989-93	59	
	TOTAL =	194				

COMMENTS:

UNIT: PINE RIVER UNIT IV

CUTTING BLOCK: IV

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
193	10	132	J3	1994-98	61	
	TOTAL =	132				

COMMENTS:

HABITAT MANAGEMENT PRESCRIPTION

UNIT: PINE RIVER UNIT IV

CUTTING BLOCK: v

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
193	8	126	J5	1999-2003	65*	
	12	50			69*	
	TOTAL =	176				

COMMENTS: This Block should be deferred as long as possible toward the prescribed harvest date.

UNIT: _____

CUTTING BLOCK: _____

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)

COMMENTS:

PINE RIVER UNIT V

I. Unit Description

- A. Compartments involved and acreage of critical habitat - Compartments 194 and 195 are included within this Unit. A total of 1,482 acres has been identified as Critical Habitat within this Unit.
- B. Complex needs - Both Compartments were field examined in 1974 and were included in a joint E.A.R. written and approved in 1975.
- C. Status of existing habitat - Block I was recently harvested and burned. The stand is presently in the early stages of natural regeneration. Blocks II-V are in the 30 to 55 year age class. This relatively even age condition will require harvest of these Blocks at five year intervals during this rotation period. Full age class regulation, with each Block at staggered 10 year intervals, will not be achieved until the end of the next rotation period (2053).

The red pine plantations in Compartment 194 present an opportunity for type conversion, but this acreage is not currently needed. Stand 4, Compartment 194, also could be developed as habitat. It was not included because the field examination indicated 30 sq. ft. of oak, 10 sq. ft. of red pine, and 10 sq. ft. of jack pine. If this acreage is needed, it could probably be managed into a jack pine type.

- D. Planned or existing timber sales - Block I was recently harvested under the Unit Two Sale (Glawe Inc., 5/23/75). There are no additional sales planned for this Unit through F.Y. 1982.

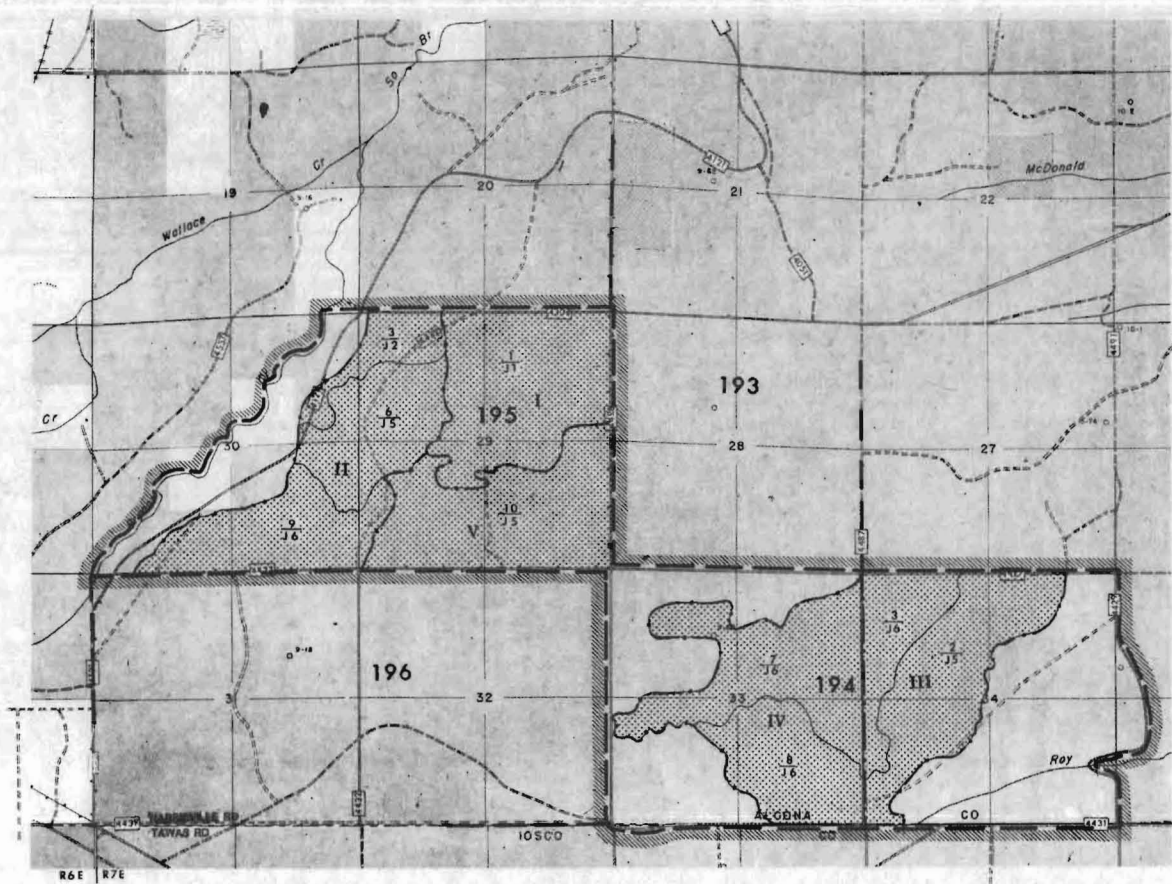
II. Known or Potential Human Activity

- A. Developments - A buried telephone line follows the southern boundary of Compartment 195 (E.R. 4427) and then northward along the western edge of section 29. In addition, there are several seasonal residences located on the two private 40 acre tracts situated immediately west of the Critical Habitat in Compartment 195.
- B. Known or potential historic sites - There are no known historical sites in this Unit.
- C. Special uses - Rearing Pond Trail (F.R. 4121) is the main access to the Pine River Campground and is used extensively by forest visitors. It is a low-speed road and presents an opportunity to educate forest users about Warbler management through signs and actual management examples. There are presently no known special uses in this Unit.

UNIT V
PINE RIVER AREA
KIRTLAND'S WARBLER MANAGEMENT PLAN

ALCONA COUNTY, MICHIGAN
 T25N. R7E

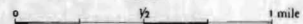
1979



LEGEND

- UNIT BOUNDARY
- RANGER DISTRICT BOUNDARY
- COMPARTMENT BOUNDARY
- 622** COMPARTMENT NUMBER
- BLOCK BOUNDARY
- IV** BLOCK NUMBER
- STAND BOUNDARY
- A** STAND NUMBER
- TIMBER TYPE-SIZE-DENSITY
- NATIONAL FOREST OWNERSHIP
- CRITICAL HABITAT
- POTENTIAL ACQUISITION
- MAIN HIGHWAY
- ALL WEATHER OR SECONDARY ROAD
- DEVELOPED ROUTE
- UNDEVELOPED ROUTE
- US ROUTE
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- COUNTY ROUTE
- FOREST ROUTE

SCALE



HABITAT MANAGEMENT PRESCRIPTION

UNIT: PINE RIVER UNIT V

CUTTING BLOCK: I

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
195	1	245	J1	1979-83	(2)	Seed tree cut
	TOTAL =	245				

COMMENTS: Stand 1 was final harvested (leaving seed trees) under the Unit Two Sale (Glawe, Inc., 5/23/75). Prescribed burning was conducted in May, 1977. Cones were opened successfully and the coverage of the burn was almost complete. A stocking survey should be conducted in 1980 or 1981 to determine the density of natural regeneration. If stocking levels are inadequate for Warbler nesting, this stand should be fill-in planted. The age in parenthesis represents the age of this stand in 1983 if established by 1981.

UNIT: PINE RIVER UNIT V

CUTTING BLOCK: II

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
195	3	52	J2	1984-88	41	
	6	149	J5		64	Seed tree cut
	9	152	J6		47	
	TOTAL	353				

COMMENTS: If non-merchantable at the prescribed treatment date, Stand 3 could be deferred for an additional 5-10 years.

HABITAT MANAGEMENT PRESCRIPTION

UNIT: PINE RIVER UNIT V

CUTTING BLOCK: III

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
194	2	208	J5	1989-93	59	Final Harvest-deferred
	3	92	J6		57	
	TOTAL =	300				

COMMENTS: Both stands have heavy budworm damage and may require harvest prior to the prescribed treatment date.

UNIT: PINE RIVER UNIT V

CUTTING BLOCK: IV

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
194	7	211	J6	1994-98	62	
	8	133	J6		62	
	TOTAL =	344				

COMMENTS:

HABITAT MANAGEMENT PRESCRIPTION

UNIT: PINE RIVER UNIT V

CUTTING BLOCK: V

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
195	10	240	J5	1999-2003	60	
	TOTAL =	240				

COMMENTS:

PINE RIVER UNIT VI

I. Unit Description

- A. Compartments involved and acreage of critical habitat -
Compartment 196 encompasses this Unit. A total of 1,035 acres has been identified as Critical Habitat in this Unit.
- B. Complex needs - Field data were gathered for Compartment 196 in 1974 with an E.A.R. written and approved in 1975.
- C. Status of existing habitat - Most of Block I has been recently harvested under the Bryants Landing Sale. Blocks II-V are all in a similar mature age class (36-46 years old) and will require harvest at five year intervals during this rotation period. Full age class regulation will not be achieved until the end of the next rotation period (2053).

Stands 7 and 8 should be considered for conversion from red pine to jack pine following their scheduled harvest. If an effective means of treating oak sprouts is developed, Stands 11, 13, and 15 should also be considered for inclusion as Critical Habitat.

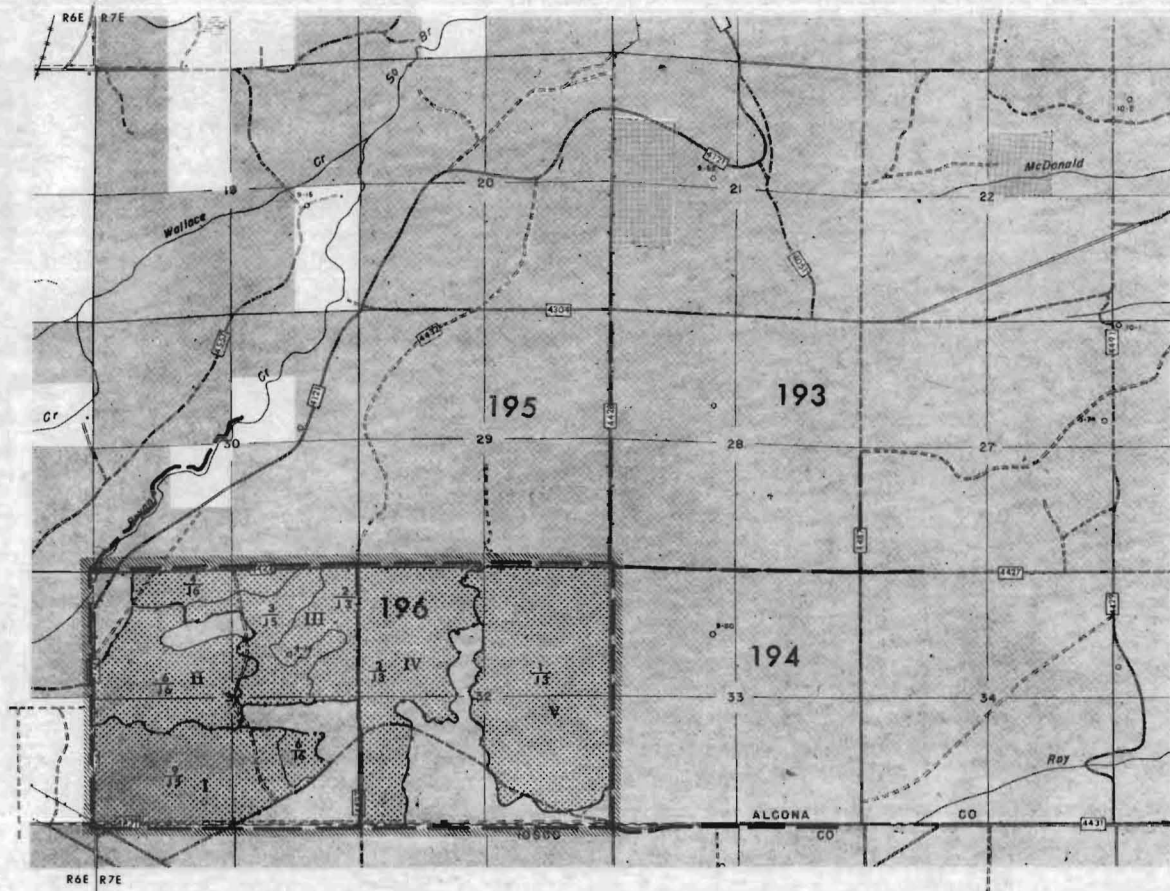
- D. Planned or existing timber sales - Most of Block I was recently harvested under the Bryants Landing Sale (Leroy Conley - 12/31/78). There are no additional sales planned for this Unit through FY 1982.

II. Known or Potential Human Activity

- A. Developments - A telephone line follows FR 4127, along the west and north boundaries of this Unit. There are no other known developments in this Unit.
- B. Known or potential historic sites - There are no known historical sites in this Unit.
- C. Special uses - Other than the normal dispersed recreational activities associated with the area, there are no known special uses in this Unit.

UNIT VI
PINE RIVER AREA
KIRTLAND'S WARBLER MANAGEMENT PLAN

ALCONA COUNTY, MICHIGAN
 T26N. R7E
 1979



LEGEND

- UNIT BOUNDARY
- RANGER DISTRICT BOUNDARY
- COMPARTMENT BOUNDARY
- 622** COMPARTMENT NUMBER
- BLOCK BOUNDARY
- IV** BLOCK NUMBER
- STAND BOUNDARY
- STAND NUMBER
- TIMBER TYPE-SIZE-DENSITY
- NATIONAL FOREST OWNERSHIP
- CRITICAL HABITAT
- POTENTIAL ACQUISITION
- MAIN HIGHWAY
- ALL WEATHER OR SECONDARY ROAD
- DEVELOPED ROUTE
- UNDEVELOPED ROUTE
- US ROUTE
- STATE ROUTE
- COUNTY ROUTE
- FOREST ROUTE

SCALE



HABITAT MANAGEMENT PRESCRIPTION

UNIT: PINE RIVER UNIT VI

CUTTING BLOCK: I

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
196	9	208	J0	1979-83	(1)	Final Harvest
	(Part) 6	21	J6		51	Final Harvest
	TOTAL =	229				

COMMENTS: Stand 9 was recently harvested under the Bryant's Landing Sale. This stand is scheduled for burning in FY 1979. The age in parenthesis represents the age of the stand in 1983 if burned and planted by 1982. The portion of Stand 6 within this Block should be harvested, burned and regenerated as soon as possible (to minimize size differences in the regeneration).

UNIT: PINE RIVER UNIT VI

CUTTING BLOCK: II

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
196	(Part) 6	124	J6	1984-88	56	Final Harvest
	TOTAL =	124				

COMMENTS:

HABITAT MANAGEMENT PRESCRIPTION

UNIT: PINE RIVER UNIT VI

CUTTING BLOCK: III

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
196	(Part) 2	70	J3	1989-93	51	
	3	82	J5		64	Final Harvest-Deferred
	4	45	J6		54	Final Harvest-Deferred
	TOTAL =	197				

COMMENTS:

UNIT: PINE RIVER UNIT VI

CUTTING BLOCK: IV

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
196	(Part) 2	193	J3	1994-98	56	
	TOTAL =	193				

COMMENTS:

HABITAT MANAGEMENT PRESCRIPTION

UNIT: PINE RIVER UNIT VI

CUTTING BLOCK: V

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
196	1	292	J3	1999-2003	61	
	TOTAL =	292				

COMMENTS:

PINE RIVER UNIT VII

I. Unit Description

- A. Compartments involved and acreage of critical habitat - Compartments 1 and 2 are included within this Unit. A total of 1,367 acres has been identified as critical habitat in this Unit.
- B. Complex needs - Both compartments have recently been examined and have approved E.A.R.'s completed in 1976.
- C. Status of existing habitat - Almost all of the habitat in this Unit is in the 40-50 year age class. The only habitat in the early regeneration stages (approx. 100 acres) is located in Block V. Blocks III, IV, and V will probably require harvest prior to the prescribed treatment dates but should be deferred toward the target dates for as long as possible.
- Approximately 700 acres within this Unit are planted to red pine and have conversion potential. The need for this acreage should be evaluated when these plantations are to be regenerated.
- D. Planned or existing timber sales - Under the Doe Road Sale (Schultz Woodland Co. - 12/01/75) approximately 100 acres of habitat was recently harvested in Block V. A sale is also planned for Compartments 1 and 2 during FY 1983.

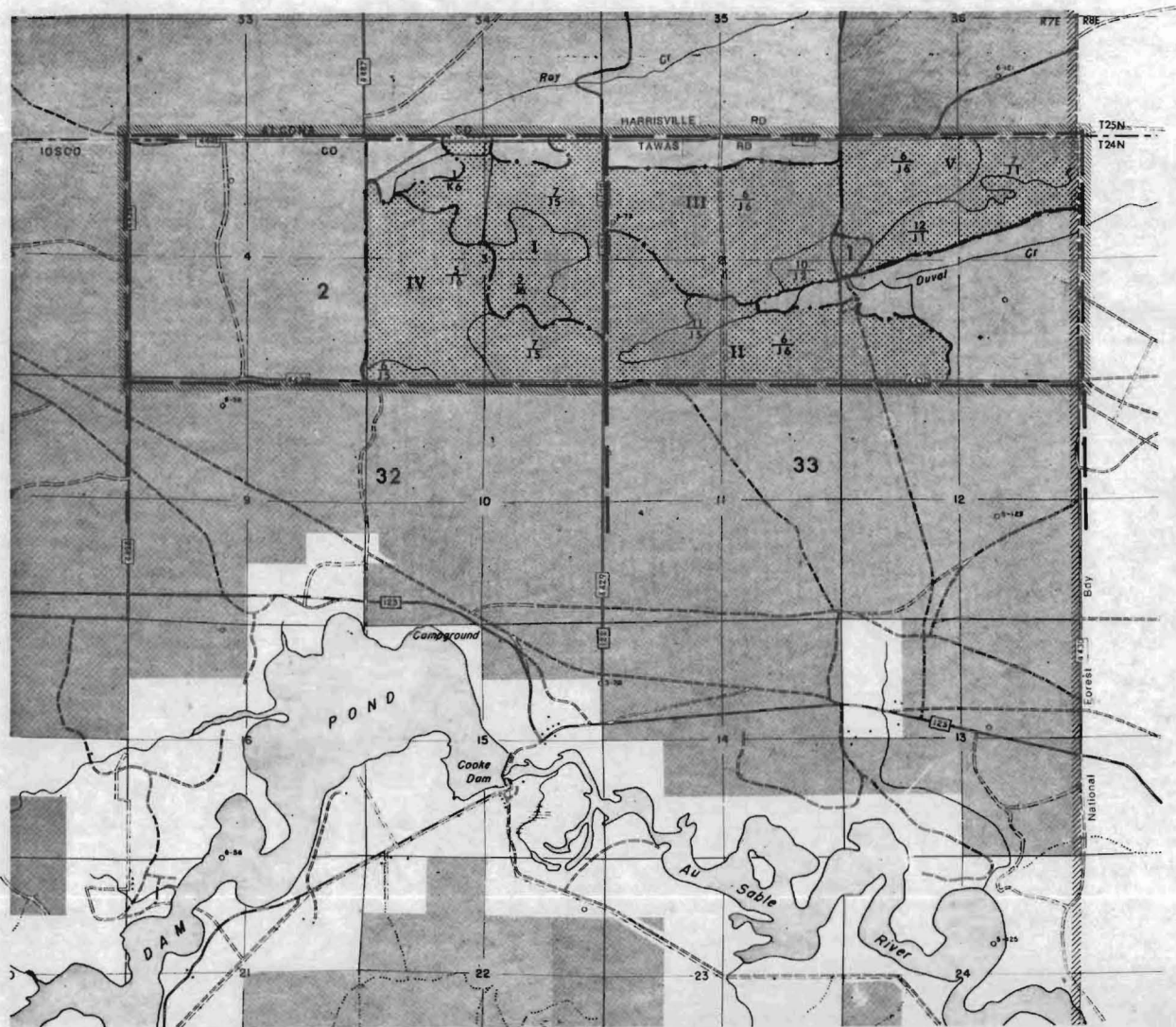
II. Known or Potential Human Activity

- A. Developments - A Consumers Power transmission line runs adjacent to Warbler habitat (in a north-south direction) along the National Forest boundary line.
- B. Known or potential historic sites - An old World War II bombing range is located adjacent to Warbler habitat in the SE-1/4 of Section 1, T24N, R7E.
- C. Special uses - The Wurtsmith Air Force Base is nearby and there is a considerable amount of low-flying, loud air traffic over the area.

















UNIT VII
PINE RIVER AREA
KIRTLAND'S WARBLER MANAGEMENT PLAN

10800 COUNTY MICH.
T24N. R7E

1979



LEGEND

-  UNIT BOUNDARY
-  RANGER DISTRICT BOUNDARY
-  COMPARTMENT BOUNDARY
- 622** COMPARTMENT NUMBER
-  BLOCK BOUNDARY
- IV** BLOCK NUMBER
-  STAND BOUNDARY
- 4** STAND NUMBER
- 4**/**16** TIMBER TYPE-SIZE-DENSITY
-  NATIONAL FOREST OWNERSHIP
-  CRITICAL HABITAT
-  POTENTIAL ACQUISITION
-  MAIN HIGHWAY
-  ALL WEATHER OR SECONDARY ROAD
-  DEVELOPED ROUTE
-  UNDEVELOPED ROUTE
-  US ROUTE
-  STATE ROUTE
-  COUNTY ROUTE
-  FOREST ROUTE

SCALE

0 1/2 1 mile

HABITAT MANAGEMENT PRESCRIPTION

UNIT: PINE RIVER UNIT VII

CUTTING BLOCK: I

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
2	(Part) 1	48	K6	1979-88	69*	Final Harvest (35 acres)
	(Part) 5	67	J6		53	Final Harvest (159 acres)
	(Part) 7	122	J5		53	Final Harvest (122 acres)
	TOTAL =	237				

COMMENTS: Portions of Stands 1, 5, and 7 were identified for final harvest in the E.A.R. for Compartment 2.

The sale of this timber volume is planned for FY 1983.

UNIT: PINE RIVER UNIT VII

CUTTING BLOCK: II

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
1	(Part) 6	204	J6	1989-98	62	Final Harvest (112 Acres)
	11	35	J5		69*	Final Harvest
	TOTAL =	239				

COMMENTS: Stand 11 and a portion of Stand 6 are scheduled to be included in a timber sale planned for FY 1983. The harvest of these stands should be deferred until the prescribed harvest period (1989-98).

HABITAT MANAGEMENT PRESCRIPTION

UNIT: PINE RIVER UNIT VII

CUTTING BLOCK: III

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
1	(Part) 6	276	J6	1999-2008	72*	Final Harvest (Part)
	(Part) 10	29	J2		59	
	TOTAL =	305				

COMMENTS: The portion of Stand 6 within this Block may require harvest prior to the proposed treatment date.

UNIT: PINE RIVER UNIT VII

CUTTING BLOCK: IV

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
2	(Part) 5	211	J6	2009-18	83*	Final Harvest (139 acres)
	(Part) 7	83	J5		83*	Final Harvest (122 acres)
	6	11	J5		92*	Final Harvest
	TOTAL =	305				

COMMENTS: Portions of Stands 5 and 7, and Stand 6 were identified for final harvest in the E.A.R. for Compartment 2.

The sale of this timber volume is planned for FY 1983. If possible, the timber harvest activities in this Block should be deferred as long as possible toward the prescribed treatment period (2009-18).

HABITAT MANAGEMENT PRESCRIPTION

UNIT: PINE RIVER UNIT VII

CUTTING BLOCK: V

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
1	(Part) 6	126	J6	2019-28	92* (40)	Final Harvest (Part)
	7	59	J5		101* (40)	Final Harvest (Part)
	12	96	J1		0 (40)	Seed tree cut
	TOTAL	281				

COMMENTS: Stand 12 (96 acres) was recently harvested under the Doe Road Sale. The stand was layed out as a seed tree cut and should be burned as soon as possible. Stocking surveys should be conducted three years and five years after the burn to determine if there is adequate natural regeneration for Kirtland's Warbler habitat. If stocking is inadequate, the stand should be fill-in planted or machine planted with jack pine seedlings to attain the desired density of approximately 1,000 trees/acre. The ages in parenthesis represent the age of the stands in 2028 if burned and regenerated by 1988.

The remaining portion of Stand 6 and 7 within Block I (185 acres) should be final harvested, burned, and regenerated prior to 1988.

PINE RIVER UNIT VIII

I. Unit Description

- A. Compartments involved and acreage of critical habitat - Compartments 3, 4, and 31 are included within this Unit. A total of 1,576 acres has been identified as Critical Habitat in this Unit.
- B. Complex needs - All three compartments have had recent field examination and E.A.R.'s approved since 1974.
- C. Status of existing habitat - Most of the Warbler habitat in this Unit is presently in the 40 to 50 year age class, making the goal of age class regulation more difficult to achieve. The need for several pre-commercial cuts has been identified. Due to this relatively even-aged mature condition, the Blocks in this Unit will initially be harvested at five year intervals. Full age class regulation will not be achieved until the end of the next rotation period.

In Block I, 90 acres has recently been harvested and is planned for regeneration in the near future. The remaining Blocks fit fairly well into the prescribed accelerated cutting schedule for this Unit.

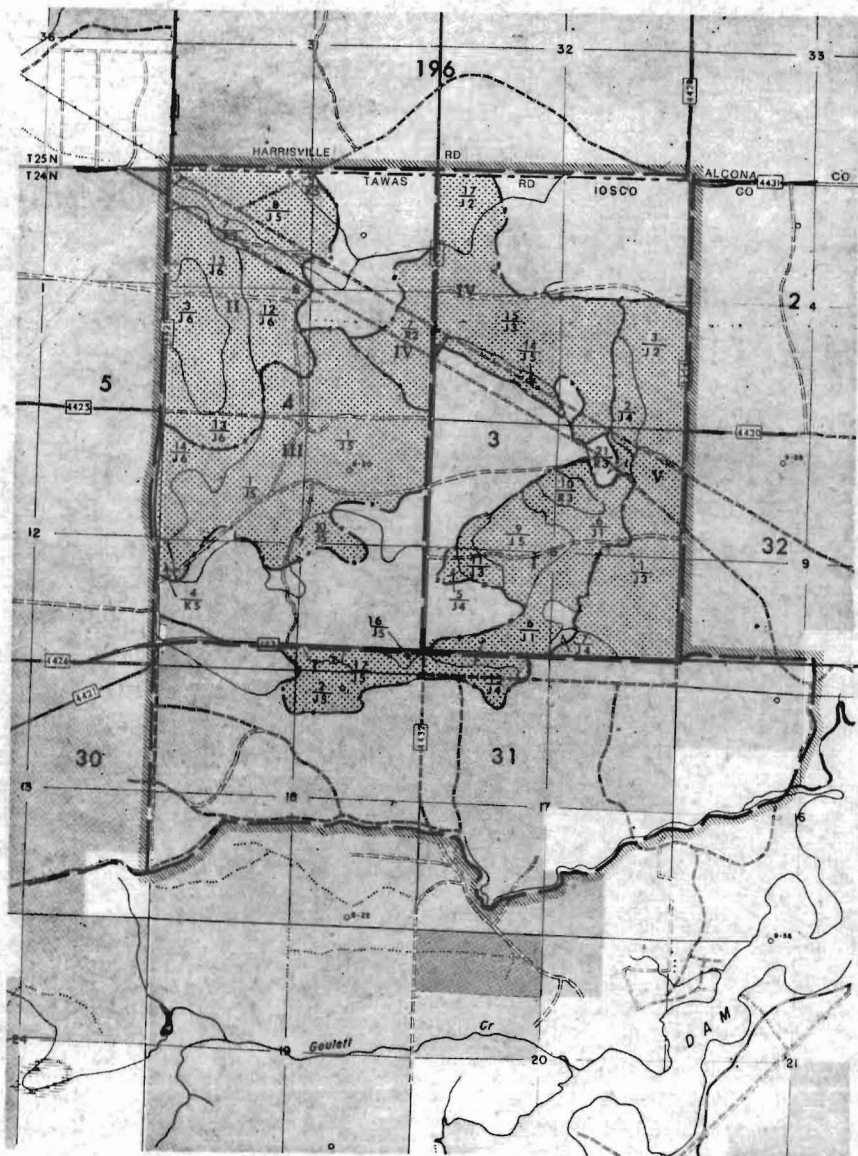
There is a substantial amount of acreage that has potential for type conversion in Compartments 3 and 4. The goal of converting some of the existing "Y" and "R" types would be to eventually create an additional management Unit within these compartments. When a "Y" or "R" stand is to be regenerated, its value as potential habitat should be considered.

- D. Planned or existing timber sales - Under the Doe Road Sale (Schultz Woodland Co., -12/01/75), 90 acres has recently been harvested in Block I. In addition, the Deer Road Sale (Donald Schrade - 9/08/78) will create 65 acres of potential habitat in the southern portion of Block I. A sale is also planned in Compartments 3 and 4 during FY 1982.

II. Known or Potential Human Activity

- A. Developments - There are no known structural developments in this Unit.

- B. Known or potential historic sites - An old railroad landing site is located in the NW-1/4 of Section 6, T24N, R7E. An archaeological investigation should be made prior to treating this habitat (Block II on Unit map). In association with the landing, an old railroad grade runs diagonally through Compartments 3 and 4.
- C. Special uses - Other than the normal dispersed recreational activities, there are no known special uses within this Unit.



UNIT VIII
PINE RIVER AREA
KIRTLAND'S WARBLER MANAGEMENT PLAN

IOSCO COUNTY, MICH.

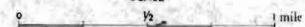
T24N. R7E

1979

LEGEND

- UNIT BOUNDARY
- RANGER DISTRICT BOUNDARY
- COMPARTMENT BOUNDARY
- 622** COMPARTMENT NUMBER
- BLOCK BOUNDARY
- IV** BLOCK NUMBER
- STAND BOUNDARY
- $\frac{A}{J6}$ STAND NUMBER
- NATIONAL FOREST OWNERSHIP
- CRITICAL HABITAT
- POTENTIAL ACQUISITION
- MAIN HIGHWAY
- ALL WEATHER OR SECONDARY ROAD
- DEVELOPED ROUTE
- UNDEVELOPED ROUTE
- US ROUTE
- STATE ROUTE
- COUNTY ROUTE
- FOREST ROUTE

SCALE



HABITAT MANAGEMENT PRESCRIPTION

UNIT: PINE RIVER UNIT VIII

CUTTING BLOCK: I

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
3	(Part) 5	8	J4	1979-83	57	Final Harvest
	6	90	J1		(3)	Seed tree cut
	9	54	J5		55	
	(Part) 10	20	R3		25	
	11	19	J3		33	
31	1	17	J5		56	Overstory removal
	(Part) 2	65	J5		55	Final Harvest
	15	20	J5		56	
	16	7	J5		55	
	17	8	J5		55	
TOTAL =		308				

COMMENTS: Stand 6 (Compartment 3) was recently harvested under the Doe Road Sale. Most of the stand was harvested as a seed tree cut. The area cut (approximately 100 acres) is too small and irregularly shaped for good Warbler habitat and will make management difficult. The remaining stands in Block I (Compartments 3 and 31) should be harvested and regenerated as soon as possible to coordinate with the development of potential habitat in Stand 6. If possible, a prescribed burn should be conducted in Stand 6. The amount of natural regeneration should be higher in the northern portion of the stand. The seed trees have been removed in the southern portion of the stand, making machine planting the probable method of regeneration. A stocking survey should be conducted three years after the burn to determine if fill-in planting is necessary. Stand 11 and a portion of Stand 10 (Compartment 3) could be deferred from harvest until the next rotation period, if desirable.

In Compartment 31, Stand 1 has been designated for overstory removal and Stand 2 for final harvest under the Deer Road Sale. Stands 15, 16, and 17 should be harvested at the end of this 5 years to increase the value of this area for Warbler management.

HABITAT MANAGEMENT PRESCRIPTION

UNIT: PINE RIVER UNIT VIII

CUTTING BLOCK: II

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
4	(Part) 3	70	J6	1984-88	51	
	7	32	R2		33	
	8	90	J5		66	Final Harvest
	12	63	J6		51	Final Harvest
	13	105	J6		51	Final Harvest
	TOTAL =	360				

COMMENTS: The E.A.R. for Compartment 4 has identified Stands 8, 12, and 13 for final harvest. The timber volume in these stands is planned for sale in FY 1982.

The long, narrow arm of Stand 7 (extending to the northwest) has been included as Warbler habitat. This immature red pine stand (R2) separates Stand 8 from the habitat to the south and will require pre-commercial harvest at the prescribed treatment date.

UNIT: PINE RIVER UNIT VIII

CUTTING BLOCK: III

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
4	(Part) 1	312	J5	1989-93	56	
	(Part) 4	8	K5		93*	Final Harvest
	(Part) 10	21	J5		56	Final Harvest
	14	52	J6		56	
	TOTAL =	393				

COMMENTS: Stands 4 and 10 were identified for final harvest in the E.A.R. for Compartment 4. The timber volume in these stands is scheduled to be sold in FY 1982, but should be deferred until the prescribed harvest period (if possible).

HABITAT MANAGEMENT PRESCRIPTION

UNIT: PINE RIVER UNIT VIII

CUTTING BLOCK: IV

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
3	14	23	J3	1994-98	73*	Final Harvest
	15	158	J3		61	
	17	34	J2		61	
4	(Part) 7	68	R2		43	
	TOTAL =	283				

COMMENTS: This Block should be held as long as possible toward the prescribed harvest date. If desirable, Stand 7 (an R2 plantation) could be deferred from treatment until the end of the next rotation period (2053).

UNIT: PINE RIVER UNIT VIII

CUTTING BLOCK: V

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
3	1	126	J3	1999-2003	58	
	2	24	J4		77	Final Harvest
	3	73	J2		66	
	(Part) 7	9	J4		74*	Final Harvest
	TOTAL =	232				

COMMENTS: Stands 2 and 7 apparently have inadequate stocking in the understory. The management prescription calls for final harvest and natural regeneration through roller chopping. This treatment should be changed to the standard Warbler habitat management techniques and should be deferred to include the surrounding stands at the prescribed treatment dates. The sale that is planned for this area in FY 1982 should be deferred.

PINE RIVER UNIT IX

I. Unit Description

- A. Compartments involved and acreage of critical habitat - Compartments 5, 7, and 30 are included within this Unit. A total of 1,782 acres has been identified as Critical Habitat.
- B. Complex needs - All three compartments have had recent field examination and have approved E.A.R.'s completed since 1976.
- C. Status of existing habitat - Most of the timber in this Unit is presently in the 38 to 46 year age class. There is no jack pine habitat in the early regeneration stages within this Unit. A total of 324 acres is scheduled for harvest (in Block I) during this 5 year period. Due to the relatively even-age mature condition of the remaining Blocks, an accelerated harvest at five year intervals will be necessary during this rotation period.

Most of the red pine in this Unit could be converted into suitable nesting habitat. Compartment 6 also has extensive areas that could be managed for Warblers. This acreage is not currently needed, but conversion should be considered when these plantations are to be regenerated.

In Compartment 5, there is a private 100 foot right-of-way (13.4 acres) that passes through the middle of critical Warbler habitat in Block I. This strip poses several management problems and decreases the quality of the adjacent habitat. Efforts should be made to determine ownership and acquire this tract if possible.

- D. Planned or existing timber sales - The Deer Road Sale (Don Schrade - 9/08/78) will harvest 25 acres of potential habitat in Stands 12 and 19 of Compartment 30 (Blocks II and V).

A total of 310 acres is scheduled for final harvest in Block I under the Bryant's Landing Sale, scheduled to be sold in FY 1979.

II. Known or Potential Human Activity

- A. Developments - Seasonal residences are located on private lands approximately 1/4 mile east and north of Warbler habitat in T24N, R6E, Section 3, NW 1/4. State highway 65 runs adjacent to Warbler habitat in Compartment 7. In addition, Bissonette Road (an all weather road) passes through the length of the Warbler habitat in Compartment 30.

- B. Known or potential historic sites - There are no known historical sites in this Unit.
- C. Special uses - Other than the normal dispersed recreational activities associated with the area, there are no known special uses in this Unit.

HABITAT MANAGEMENT PRESCRIPTION

UNIT: PINE RIVER UNIT IX

CUTTING BLOCK: I

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
5	1	6	J5	1979-83	68 (3)	Final Harvest
	2	5	J2		28 (3)	
	3	3	00		--	
	4	54	J6		47	Final Harvest
	10	256	J5		51	Final Harvest
	11	16	J2		23	
	TOTAL =	340				

COMMENTS: Stands 1 and 2 have recently been harvested (1978) through a small sale. Stands 4 and 10 have been identified for final harvest under the Bryant's Landing Sale, scheduled to be sold during FY 1979. Stand 11 has been deferred from treatment until mature. The planned timber harvest in this Block will create 324 acres of potential habitat after burning and regeneration during this 5 year period.

HABITAT MANAGEMENT PRESCRIPTION

UNIT: PINE RIVER UNIT IX

CUTTING BLOCK: II

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
5	12	130	J5	1984-88	52	
	13	8	J4		52	
	19	38	J5		52	
	20	25	J5		65	Final Harvest
30	(Part) 11	250	J3		49	Overstory removal
	12	6	J5		--	
	30	2	00		--	
	31	4	00		--	
	TOTAL =	469				

COMMENTS: Stand 12 (Compartment 30) has been scheduled for an overstory removal under the Deer Road Sale. Stand 20 (Compartment 5) has been designated for final harvest but has not been incorporated into a sale to date (December, 1978). This stand should be deferred and included with the harvest of the surrounding stands at the prescribed treatment date.

This Block, considerably larger than most, is somewhat divided by a non-Warbler habitat area. This will significantly reduce the visual impact that would normally be associated with a Block of this size.

HABITAT MANAGEMENT PRESCRIPTION

UNIT: PINE RIVER UNIT IX

CUTTING BLOCK: III

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
7	6	59	J5	1989-93	53	
	9	218	J5		56	
	10	27	J5		73*	
	11	38	J5		53	
	TOTAL =	342				

COMMENTS: Stand 10 should be deferred as long as possible to complement the planned timber harvesting in the remaining portion of the Block.

UNIT: PINE RIVER UNIT IX

CUTTING BLOCK: IV

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
7	12	34	J3	1994-98	58	
	13	84	J3		58	
	14	49	J6		60	
	15	123	J3		61	
	16	78	J6		55	
	TOTAL =	368				

COMMENTS:

HABITAT MANAGEMENT PRESCRIPTION

UNIT: PINE RIVER UNIT IX

CUTTING BLOCK: V

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
30	10	52	J3	1999-2003	53	
	(Part) 11	92	J3		64	
	18	100	J2		65	
	19	19	J5		(15)	Final Harvest
	28	6	00			
	TOTAL =	269				

COMMENTS: Stand 19 has been scheduled for a final harvest under the Deer Road Sale. The age in parenthesis represents the age of the stand if regenerated by 1988. The remaining stands in this Block should be deferred toward the target harvest period between 1999-2003.

PINE RIVER UNIT X

I. Unit Description

- A. Compartments involved and acreage of critical habitat - Compartments 32 and 33 are included within this Unit. A total of 1,283 acres has been identified as Critical Habitat in this Unit.
- B. Complex needs - Both compartments have recently been examined and have approved E.A.R.'s completed in 1975.
- C. Status of existing habitat - With the exception of Block V, most of the habitat in this Unit is in the 40-45 year age class. A total of 261 acres in Block V was recently harvested and should be regenerated by 1980. Blocks I, II, and III fit fairly well into the proposed harvest schedule. Approximately half of the acreage in Block IV will require harvest prior to the prescribed treatment date.

Type conversion opportunities are very limited. Oak sprouting will be a problem in the proposed habitat and would be a difficult obstacle for conversion of the adjacent K and Y types.

- D. Planned or existing timber sales - Under the Doe Road Sale (Schultz Woodland Co. - 12/01/75), 260 acres (stand 5) of habitat was harvested in Compartment 33. The Kobes Road Sale, planned for FY 1980, will have very little impact on the identified Warbler habitat in Compartment 32. There are no other sales planned for this Unit through FY 1983.

II. Known or Potential Human Activity

- A. Developments - Private residences are located within a 1/4 mile south of Critical Habitat in T24N, R7E, Section 9, SE SE, Section 10, SW SW, and Section 13, NW NW. In addition, a Consumer's Power transmission line is located adjacent to Warbler habitat in Compartment 33. the line runs north and south along the east side of Section 12.
- B. Known or potential historic sites - An old railroad grade runs diagonally through Compartment 32 and along the southern edge of Warbler habitat in Compartment 33. There is also an old bombing range (WWII) located immediately north of this Unit in T24N, R7E, Section 1, SE 1/4.

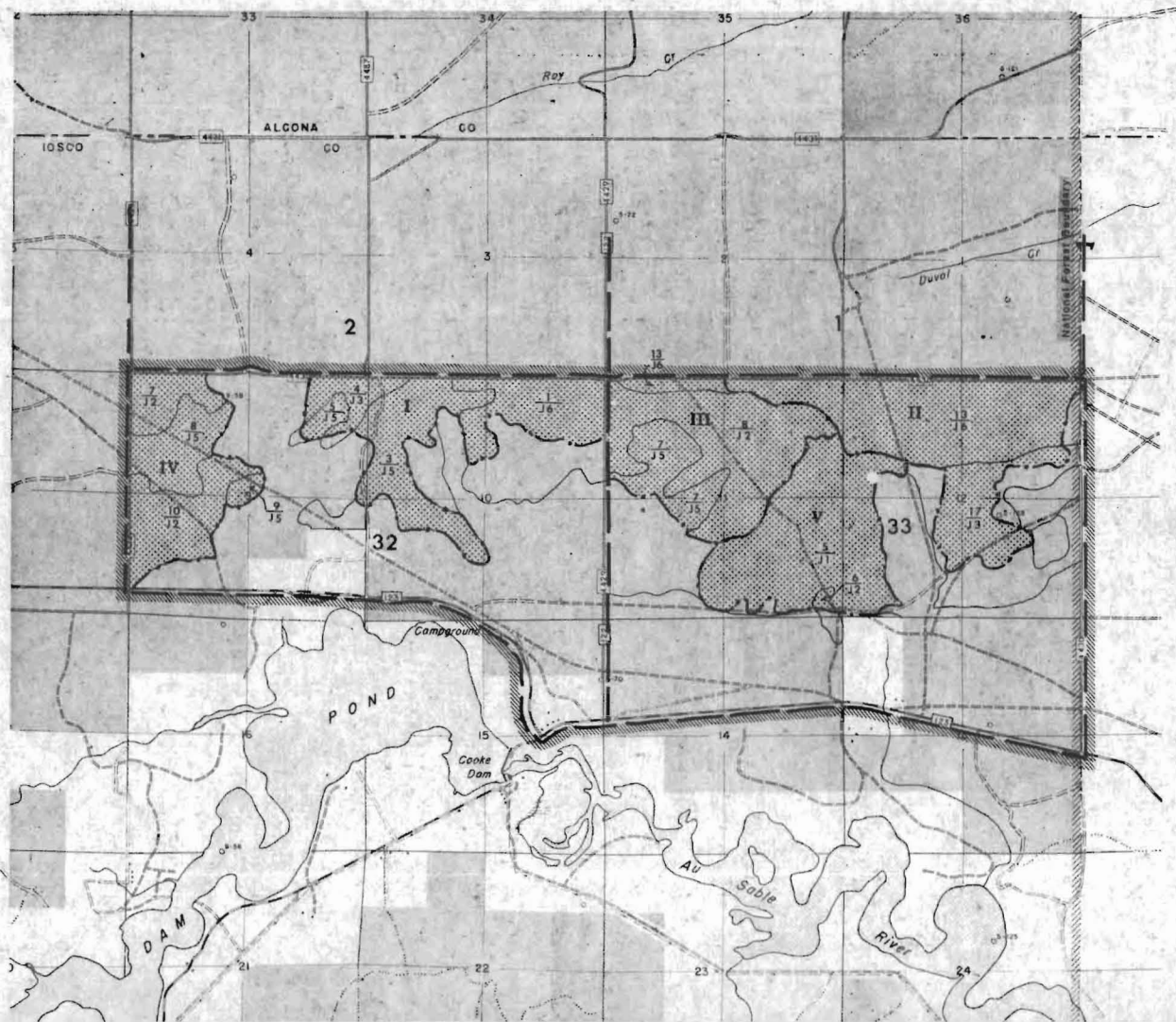
- C. Special use - The Wurtsmith Air Force Base is nearby and there is a considerable amount of low-flying, loud air traffic over the area.

Consumers Power Company has a special use permit for a powerline right-of-way in Compartments 32 and 33. They have approval for a powersite in Section 10, SW SE and SE SW, in Compartment 32. To date, the powersite has not been developed.

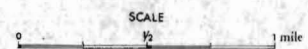
UNIT X
PINE RIVER AREA
KIRTLAND'S WARBLER MANAGEMENT PLAN

IOSCO COUNTY MICH.
T24N. R7E

1979



- LEGEND**
- UNIT BOUNDARY
 - RANGER DISTRICT BOUNDARY
 - COMPARTMENT BOUNDARY
 - COMPARTMENT BOUNDARY
 - 622** COMPARTMENT NUMBER
 - BLOCK BOUNDARY
 - IV** BLOCK NUMBER
 - STAND BOUNDARY
 - STAND NUMBER
 - TIMBER TYPE-SIZE-DENSITY
 - NATIONAL FOREST OWNERSHIP
 - CRITICAL HABITAT
 - POTENTIAL ACQUISITION
 - MAIN HIGHWAY
 - ALL WEATHER OR SECONDARY ROAD
 - DEVELOPED ROUTE
 - UNDEVELOPED ROUTE
 - US ROUTE
 - STATE ROUTE
 - COUNTY ROUTE
 - FOREST ROUTE



R7E R8E

HABITAT MANAGEMENT PRESCRIPTION

UNIT: PINE RIVER UNIT X

CUTTING BLOCK: I

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
32	(Part) 1	78	J6	1979-88	52	Final Harvest (Part)
	(Part) 3	128	J5		52	Final Harvest (Part)
	(Part) 4	24	J3		44	
	(Part) 5	9	J5		50	
	TOTAL =	239				

COMMENTS: Portions of Stands 1 and 3 are identified for final harvest in the E.A.R. for Compartment 32. To date, these stands have not been included in an active timber sale or in the District sales plan (through 1983). The portions of Stands 1, 3, 4, and 5 identified as critical Warbler habitat should be harvested prior to 1988.

UNIT: PINE RIVER UNIT X

CUTTING BLOCK: II

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
33	13	243	J6	1989-98	60	
	(Part) 17	84	J3		50	
	TOTAL =	327				

COMMENTS:

HABITAT MANAGEMENT PRESCRIPTION

UNIT: PINE RIVER UNIT X

CUTTING BLOCK: III

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
33	(Part) 7	58	J5	1999-2008	74*	
	8	206	J2		71*	
	TOTAL = 264					

COMMENTS: The habitat in this Block may require harvest before the prescribed treatment date.

UNIT: PINE RIVER UNIT X

CUTTING BLOCK: IV

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
32	7	33	J2	2009-18	62	
	8	63	J5		86*	
	9	9	J5		86*	
	10	82	J2		62	
	TOTAL = 187					

COMMENTS: Stands 8 and 9 will require harvest prior to the prescribed treatment date. However, these stands should be deferred as long as possible to minimize the age variation with the remaining habitat in the Block.

HABITAT MANAGEMENT PRESCRIPTION

UNIT: PINE RIVER UNIT X

CUTTING BLOCK: V

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
33	5	261	J1	2019-28	(47)	Seed tree cut
	(Part) 6	5	J2		80*	
	TOTAL =	266				

COMMENTS: Stand 5 was recently harvested under the Doe Road Sale. A seed tree cut was made in this stand and the eastern half of the stand subsequently burned during the summer of 1978. The rest of this stand should be burned in 1980. Stocking surveys should be conducted in 1983 and 1985 to determine how much natural regeneration is present. If stocking levels are not adequate for Warbler management (75% +), the stand should be fill-in planted to the desired stocking density. The age in parenthesis represents the age of the stand in 2028 if regenerated by 1981.

TAWAS KIRTLAND'S WARBLER MANAGEMENT AREA

Compartments - 68, 74, 75, 79, 80, 81, 91, 93, 94, 96, 97, 124, 125, 130, 132, 139, 140, 141, 144, 145, 146, 147, 148, 154, 156, and 158 - Tawas Ranger District

I. Area Description

- A. General location and background information - The Tawas KWMA is scattered throughout 26 compartments with a distance of approximately 20 miles from west to east and 9 miles north to south. The Area is limited to the north by the AuSable River and to the west, south, and east by changes in soils and timber types. According to the 1942 soils map available for Iosco County, Grayling sand is the predominant soil type within the Tawas KWMA. The fragmented nature of the Units and Blocks of Warbler habitat in this Area is due to: (1) subtle soil changes that were probably not detected by the relatively broad soil survey that was conducted at the time, (2) large acreages of potential habitat that were converted to red pine during the C.C.C. days and during the 1960's era, and (3) substantial amounts of hardwoods (mostly low site northern pin oak) that are intermixed with the existing jack pine on a number of sites. Even though many of these stands were on Grayling sand, they were excluded from Warbler habitat designation because it was felt that hardwood competition was at a level that would have been difficult to control.

Presently (1978) there are only two singing males in the entire Tawas KWMA. There is, however, a substantial amount of habitat that has been just recently harvested. Portions have been planted and the rest has been designated for planting in the near future. Kirtland's warblers should begin to occupy these blocks in 8 to 10 years (by 1988). In addition, there are several tracts in this Area that appear to be at a suitable growth stage for Warbler occupancy at the present time. These tracts will be censused annually for at least the next five years.

Five Management Units have been identified in the Tawas KWMA. A total of 5,832 acres has been identified as Critical Habitat within this Area. Ideally, five Management Blocks (comprising approximately 1,160 acres) should be harvested and regenerated during each ten year period.

- B. Land ownership patterns - Directly resulting from the unusually scattered nature of the Tawas KWMA, there is a substantial amount of private land ownership near, and adjacent to, proposed Warbler habitat. Some of these tracts are undeveloped, but a number support seasonal residences (see Area map). The Oscoda Unit is the exception. A subdivision of year-around residences is situated approximately 1/2 mile east of Warbler habitat. In addition, the combined Oscoda Schools are located within 1/4 mile north of Warbler habitat, on the National Forest lands (under special use). A total of 160 acres of these private lands have potential for Warbler management and are proposed for acquisition (see Area map).
- C. Status of other resources - Visual impact will be of major concern primarily where Warbler habitat is adjacent to River Road (Oscoda Unit) and Monument Road (Silver Creek and Monument Road Units). The remaining Critical Habitat in this Area is primarily interlaced with infrequently traveled secondary routes where visual impact will be of lesser concern.

Subsurface oil, gas, and mineral rights within the Tawas KWMA are reserved by the Federal government, the State of Michigan, and a number of private individuals. No problems are anticipated in coordinating our management on lands where the State holds the mineral rights. At this time, there is very little interest in subsurface mineral development in the Area. Any future subsurface leasing or development should be closely coordinated with the Kirtland's Warbler Habitat Management Plan.

This Area supports the typical forms of dispersed recreational use found throughout the Forest. ORV riding is probably the most prevalent form of recreation in the Area. Conflicts will hopefully be minimal with Warbler management through appropriate signing and road closures. Deer hunting and blueberry picking are also popular seasonal pursuits.

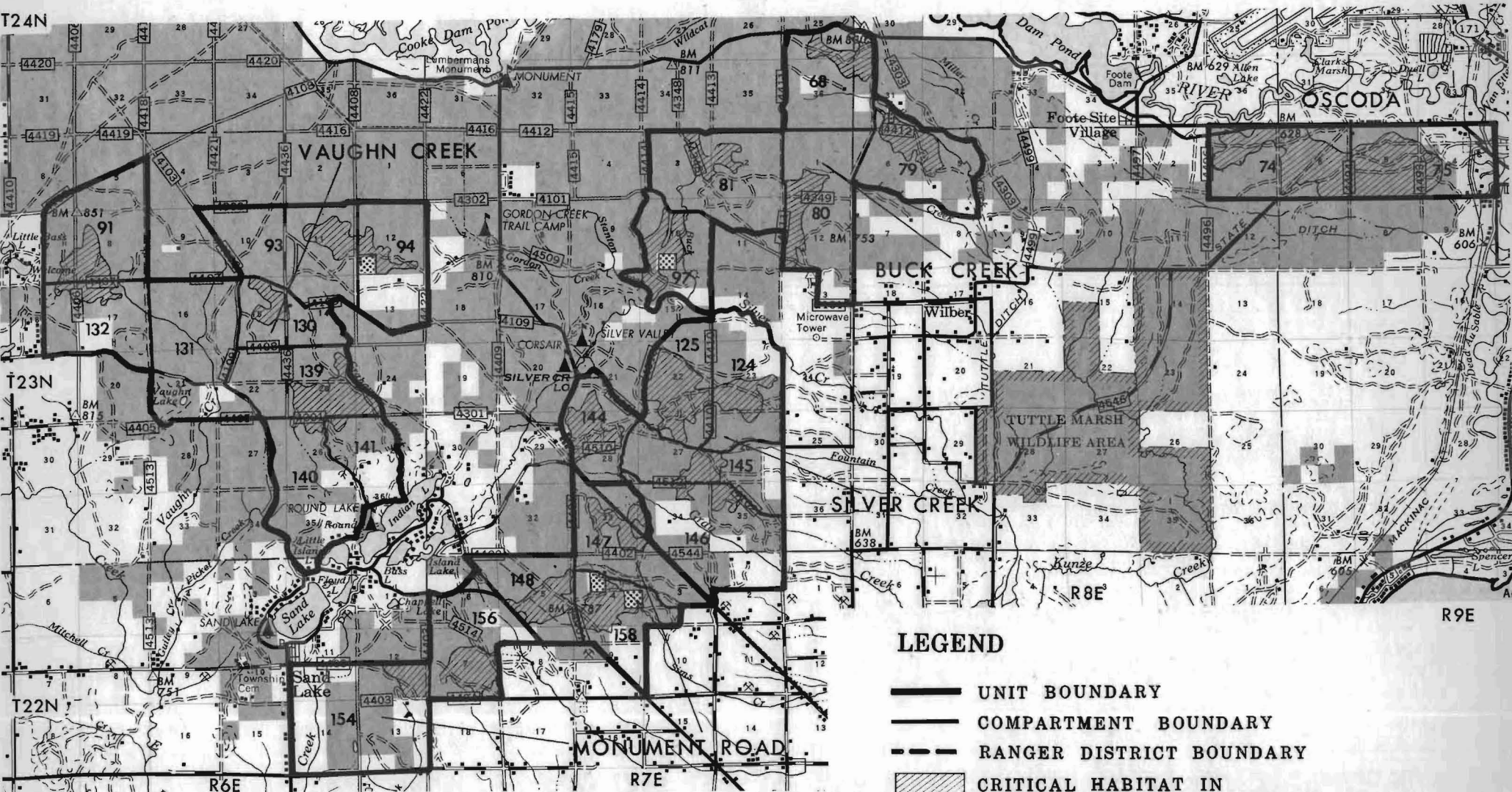
The Michigan Shore-to-Shore Riding and Hiking Trail passes through the Area. The route may require relocation in the future if adjacent habitat becomes occupied by nesting Warblers.

- D. Kirtland's Warbler nesting history in areas - Warblers have previously been found in a number of sections within the Tawas KWMA. Most of the known nesting activity occurred during the 1951 and 1961 censuses. There have been only three singing males censused in the Area since 1971. Census data show the following dates of occupancy and the number of birds in each section when these data were available.






TOWN	RANGE	SECTION	1951	1961	1971	1972	1973	1974	1975	1976	1977	1978	1979
22N	6E	6	?	?	0	0	0	0	0	0	0	0	0
		7	?	?	0	0	0	0	0	0	0	0	0
		12	?	1	0	0	0	0	0	0	0	0	0
22N	7E	5	?	?	0	0	0	0	0	0	0	0	0
		6	?	?	1	0	0	0	0	0	0	0	0
23N	6E	1	?	?	0	0	0	0	0	0	0	0	0
		5	?	?	0	0	0	0	0	0	0	0	0
		8	?	?	0	0	0	0	0	0	0	0	0
		9	?	?	0	0	0	0	0	0	0	0	0
		12	?	?	0	0	0	0	0	0	0	0	0
23N	7E	5	?	?	0	0	0	0	0	0	0	0	
23N	7E	7	?	?	0	0	0	0	0	0	0	0	0
		20			0	0	0	0	0	0	0	2	1
23N	8E	1		4	0	0	0	0	0	0	0	0	0
23N	9E	4		3	0	0	0	0	0	0	0	0	0
		5		11	0	0	0	0	0	0	0	0	0
		6		9	0	0	0	0	0	0	0	0	0
		7		2	0	0	0	0	0	0	0	0	0
24N	7E	32	?	?	0	0	0	0	0	0	0	0	0
		33	?	?	0	0	0	0	0	0	0	0	0

X = birds present
0 = birds absent

HURON-MANISTEE NATIONAL FOREST
KIRTLAND'S WARBLER MANAGEMENT AREA
TAWAS
IOSCO COUNTY, MICH.
 1978



LEGEND

-  UNIT BOUNDARY
 -  COMPARTMENT BOUNDARY
 -  RANGER DISTRICT BOUNDARY
 -  CRITICAL HABITAT IN NATIONAL FOREST OWNERSHIP
 -  POTENTIAL HABITAT IN PRIVATE OWNERSHIP
- SCALE 1/2"=1 MILE

BUCK CREEK UNIT

I. Unit Description

- A. Compartments involved and acreage of critical habitat - Compartments 68, 79, 80, 81, 96, and 97 are included within this Unit. A total of 1,175 acres has been identified as Critical Habitat in this Unit.
- B. Complex needs - Compartment 68 was field examined in 1973 with an E.A.R. prepared and approved in 1974. Compartments 80 and 81 were examined in 1976 with E.A.R.'s approved in 1977. Compartment 96 was field examined in 1977 with no approved E.A.R. available at this time (March, 1979). Compartments 79 and 97 have no recent Complex information.
- C. Status of existing habitat - Warbler habitat in this Unit is scattered throughout six different compartments. There is a distance of three miles between the distal Blocks of potential habitat in this Unit (Blocks III and IV). Most of the Warbler habitat in this Unit is in the 6-30 year age class. Portions of Blocks III and IV (Compartments 79, 96, and 97) have potential for Warbler occupancy at the present time. Block V is approaching the size class necessary for nesting but the existing stocking levels may be too low. Most of the timber in Block I (Compartment 80) is scheduled to be sold in FY 1979. Overall, the existing age classes in this Unit fit fairly well into the proposed treatment schedules (see Habitat Management Prescription).
- D. Planned or existing timber sales - The No Name Sale and the Indian Creek Sale are scheduled to be sold in FY 1979. Both of these sales are in Compartment 80 and will affect Warbler habitat in Block I. There are no other planned sales in this Unit through FY 1983.

II. Known or Potential Human Activity



















- A. Developments - Most of the land base in this Unit is in National Forest ownership. Seasonal residences are located on several private parcels within 1/4 mile north and south of the habitat in Compartment 79 (Block III, see Unit map). A high-voltage powerline runs adjacent to Warbler habitat in Compartment 78 (Block II) and is approximately 1/8 mile west of habitat in Compartment 79 (Block III). There are no other known structural developments in this Unit.

- B. Known or potential historic sites - There are no known historical sites in this Unit.
- C. Special uses - As stated previously, a right-of-way has been issued to Consumers Power Company for a high voltage powerline in this Unit. Other than the normal dispersed recreational activities associated with the area, there are no known special uses in this Unit.

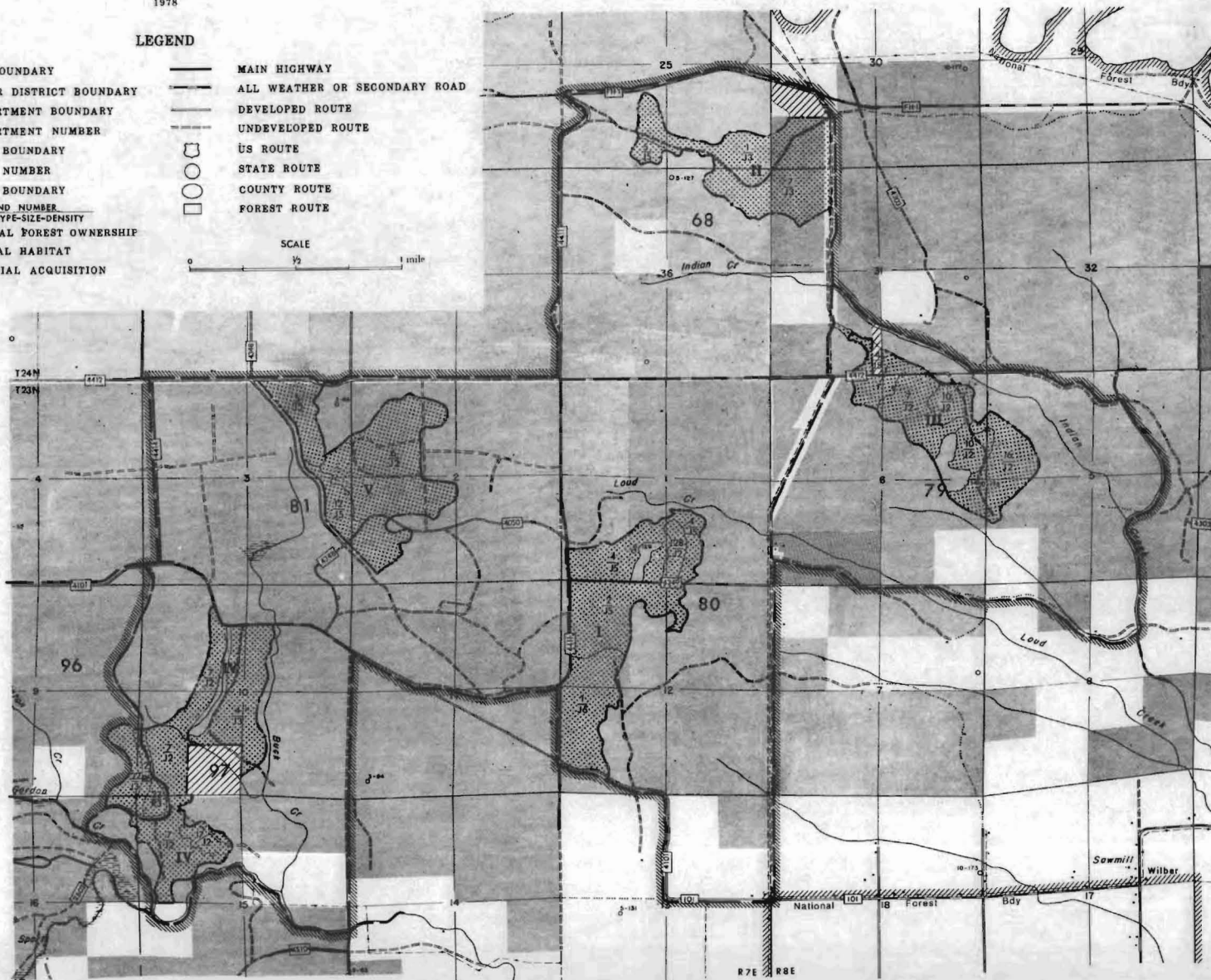
BUCK CREEK UNIT
TAWAS AREA

KIRTLAND'S WARBLER HABITAT PLAN
IOSCO COUNTY, MICHIGAN
T23 & 24N, R7 & 8E
1978

LEGEND

	UNIT BOUNDARY		MAIN HIGHWAY
	RANGER DISTRICT BOUNDARY		ALL WEATHER OR SECONDARY ROAD
	COMPARTMENT BOUNDARY		DEVELOPED ROUTE
622	COMPARTMENT NUMBER		UNDEVELOPED ROUTE
	BLOCK BOUNDARY		US ROUTE
IV	BLOCK NUMBER		STATE ROUTE
	STAND BOUNDARY		COUNTY ROUTE
4/16	STAND NUMBER		FOREST ROUTE
	TIMBER TYPE-SIZE-DENSITY		
	NATIONAL FOREST OWNERSHIP		
	CRITICAL HABITAT		
	POTENTIAL ACQUISITION		

SCALE
0 1/2 1 mile



HABITAT MANAGEMENT PRESCRIPTION

UNIT: BUCK CREEK

CUTTING BLOCK: I

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
80	1	80	J6	1979-88	66	Final Harvest
	(Part) 2	80	J5		60	
	4	80	J5		63	Final Harvest
	28	14	J2		38	
	TOTAL =	254				

COMMENTS: Stand 1 has been designated for final harvest under the No Name Sale, scheduled to be sold in FY 1979. Stand 4 is scheduled for final harvest under the Indian Creek Sale, also planned for sale in FY 1979. These sales will create two separate 80 acre tracts of potential habitat. The portion of Stand 2 identified as critical Warbler habitat should be harvested as soon as possible to consolidate these two separate stands into a manageable Block of Warbler habitat. Oak sprouting will probably be a problem in Stands 2 and 4, making the use of summer prescribed burning a necessity. If desirable, Stand 28 could be deferred until merchantable.

UNIT: BUCK CREEK

CUTTING BLOCK: II

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
68	1	87	J3	1989-98	50	
	5	11	J5		50	
	7	98	J3		50	
	TOTAL =	196				

COMMENTS: Portions of Stands 1 and 7 have a fairly strong oak component present. Summer burning will probably be a necessary site preparation technique prior to regeneration of this Block.

HABITAT MANAGEMENT PRESCRIPTION

UNIT: BUCK CREEK

CUTTING BLOCK: III

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
79	4	45	J5	1999-2008	93*	
	7	63	J2		40 (approx)	
	10	42	J2		40 (approx)	
	16	67	J2		40 (approx)	
	TOTAL = 217					

COMMENTS: Stands 7, 10, and 16 were harvested in 1969 or 1970. Portions of the harvested area were roller chopped in 1971. The resulting jack pine regeneration varies from medium to heavy stocking. Portions of the Block appear to have potential for Warbler occupancy at the present time. The remnant mature overstory is quite heavy in sections of this Block. Removing some of this overstory would probably increase the desirability of this area (for Warbler nesting) by providing a more wide open, single-aged stand. This Block should be censused annually through at least 1985.

Stand 4 will require harvest prior to the prescribed treatment date. Stands 7 and 16 will probably be at a merchantable size class at the prescribed time of treatment.

UNIT: BUCK CREEK

CUTTING BLOCK: IV

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
97	(Part) 4	73	(J3)J2	2009-18	54	
	7	106	(J3)J2		50	
	17	15	J2		60 (approx)	
96	23	13	R3		51	
	(Part) 21	10	R6		88	
	(Part) 22	24	J3		53	
	TOTAL = 241					

COMMENTS: Most of the habitat in this Block was final harvested between 1964 and 1966. Red pine was planted in the northern portion of Stand 7 in 1964. The southern portion of Stand 7 was planted in red pine in 1967. Survival of the red pine varies. Natural jack pine regeneration appears to be predominant in this well-stocked mixed stand. Stand 4 was final harvested in 1964. This stand is presently well-stocked with naturally regenerated jack pine with some red pine regeneration scattered throughout the stand (possibly fill-in planted).

Most of the red pine and jack pine regeneration appears to be suitable for Warbler occupancy at this time. This Block should be censused annually through at least 1983.

HABITAT MANAGEMENT PRESCRIPTION

UNIT: BUCK CREEK

CUTTING BLOCK: V

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
81	5	46	J2	2019-28	75*	
	6	192	J2		56	
	12	26	J5		108*	Final Harvest-Deferred Aesthetics
	TOTAL =	264				

COMMENTS: Stands 12 and 5 will require harvest prior to the prescribed treatment date. Most of the acreage in this Block (192 acres-Stand 6) will be reaching the economic rotation age at the prescribed treatment date. The jack pine regeneration in Stand 6 will soon be reaching the size class suitable for Warbler nesting (6-18' tall). The stocking level appears to be a little sparse for Warbler occupancy. This stand should be censused annually, however, through 1988.

MONUMENT ROAD UNIT

I. Unit Description

- A. Compartments involved and acreage of critical habitat - Warbler habitat in this Unit is scattered over Compartments 144, 147, 148, 154, 156, and 158. A total of 1,043 acres has been identified as Critical Habitat in this Unit.
- B. Complex needs - At the present time (December 1978) approved E.A.R.'s are available for Compartments 144, 148, 154, 156, and 158. Compartment 147 has no approved E.A.R., with field work scheduled for 1978.
- C. Status of existing habitat - There are two predominant age classes of jack pine evident in this Unit. A total of 664 acres (64Δ) of the Critical Habitat in this Unit is in the 38-46 year age class. The other major age class is represented by jack pine regeneration in the 0-5 year category. A total of 280 acres (26Δ) is in this early regeneration stage.
- The presence of these two distinct age classes will make conversion to the desired age class distribution difficult. Several Blocks will not reach this goal until the next rotation period. The proposed management prescription for this Unit entails deferring several stands beyond the economic rotation age and a few pre-commercial cuts.
- D. Planned or existing timber sales - Under the Plank Road Sale (Delbert Kirby, 3/25/74), habitat in Block II has recently been final harvested. There are no additional sales planned for this Unit through 1983.

II. Known or Potential Human Activity

- A. Developments - Several seasonal residences are situated on private lands adjacent to critical Warbler habitat. The legal descriptions for these residences are: T22N, R7E, Section 4, NE SE and SE NW. Private residences are also located 1/2 mile south of Critical Habitat in T22N, R7E, Section 9, NE 1/4.

Monument Road, a paved highway, bisects a portion of the habitat in Compartment 147 of this Unit. A buried telephone cable is located within the right-of-way of this highway.

















- B. Known or potential historic sites - There are no known historical sites in this Unit.
- C. Special uses - The Michigan Shore-to-Shore Hiking and Riding Trail traverses Compartments 144, 147, and 158 (see Unit map). If Blocks III or V become occupied by nesting Kirtland's Warblers, rerouting of this trail may be necessary.

MONUMENT ROAD UNIT
TAWAS AREA
KIRTLAND'S WARBLER MANAGEMENT PLAN

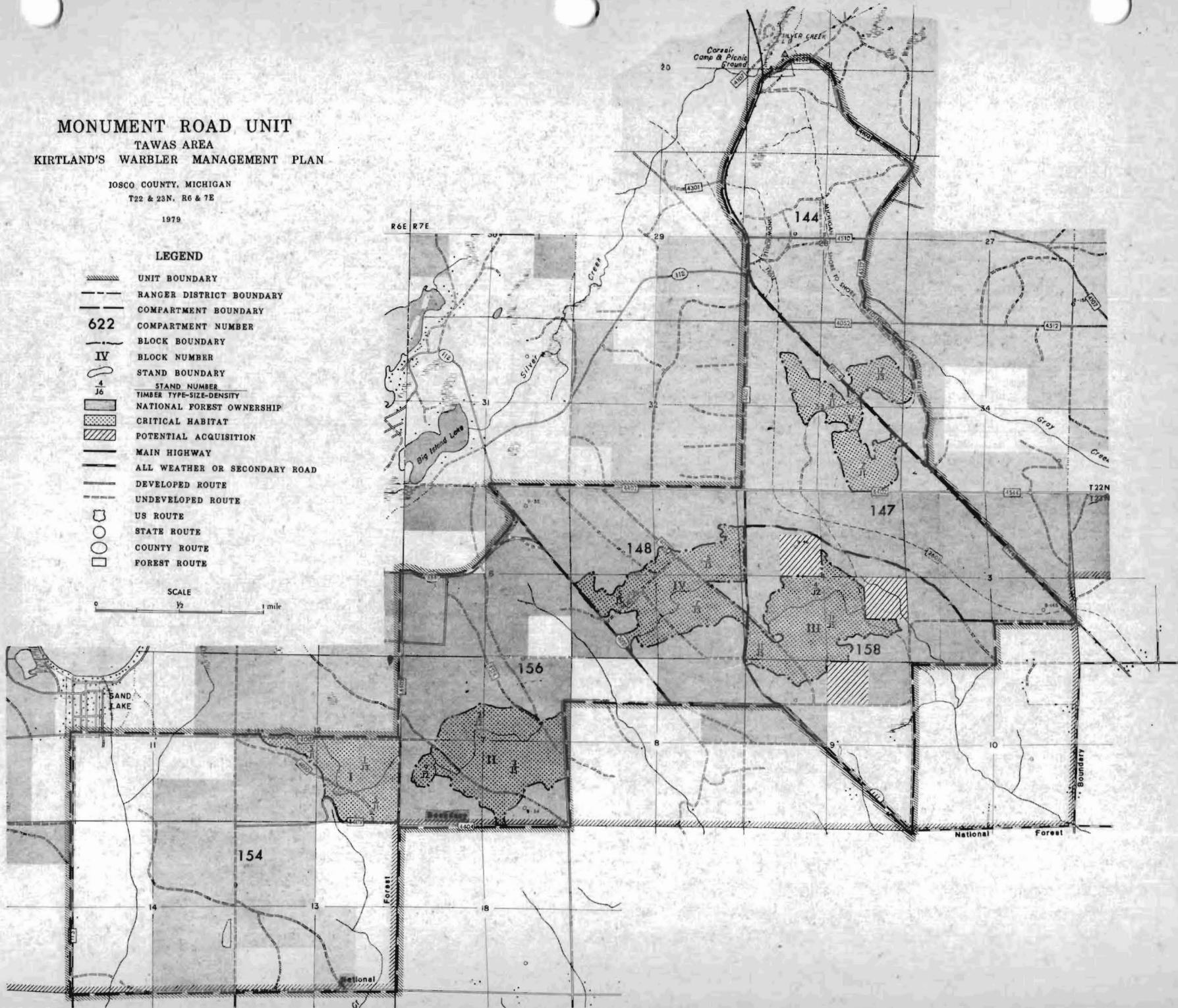
IOSCO COUNTY, MICHIGAN
 T22 & 23N, R6 & 7E

1979

LEGEND

-  UNIT BOUNDARY
-  RANGER DISTRICT BOUNDARY
-  COMPARTMENT BOUNDARY
- 622** COMPARTMENT NUMBER
-  BLOCK BOUNDARY
- IV** BLOCK NUMBER
-  STAND BOUNDARY
-  STAND NUMBER
-  TIMBER TYPE-SIZE-DENSITY
-  NATIONAL FOREST OWNERSHIP
-  CRITICAL HABITAT
-  POTENTIAL ACQUISITION
-  MAIN HIGHWAY
-  ALL WEATHER OR SECONDARY ROAD
-  DEVELOPED ROUTE
-  UNDEVELOPED ROUTE
-  US ROUTE
-  STATE ROUTE
-  COUNTY ROUTE
-  FOREST ROUTE

SCALE
 0 1/2 1 mile



HABITAT MANAGEMENT PRESCRIPTION

UNIT: MONUMENT ROAD

CUTTING BLOCK: I

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
154	1	72	J3	1979-88	54	
	5	90	J1		(8)	Direct seed to jack pine
	TOTAL =	162				

COMMENTS: The size of this Block (162 acres) is less than optimal but should be sufficient for Kirtland's Warbler nesting. The southern portion of Stand 5 was recently final harvested under the Davison Road Sale. The prescription in the E.A.R. calls for machine scalping and seeding to jack pine. This should be changed to site preparation by summer burning (to remove sprouting oak) followed by planting jack pine seedlings at the suggested rate of 1000 trees/acre. The age in parenthesis represents the age of the stand in 1988 if burned and planted by 1980.

Stand 1 is just approaching merchantability. The stand is predominantly jack pine with a fair mixture of red pine poles (more than the 10 square feet basal area indicated in the complex data). This stand and the remaining portion of Stand 5 should be final harvested, burned, and regenerated at the end of this 10 year period. The ages of the regenerating jack pine in these two stands may vary from 5-10 years depending on when the prescribed treatments are completed.

UNIT: MONUMENT ROAD

CUTTING BLOCK: II

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
156	2	86	J2	1989-98	22	
	3	153	J5		65	
	9	13	J2		38	
	TOTAL =	252				

COMMENTS: Stand 2 was recently final harvested under the Plank Road Sale (Delbert Kirby-3/25/74). The remaining advanced regeneration is 6 to 10 feet tall. Portions of this existing regeneration may presently be dense enough for Warbler nesting. If desirable, the harvest of Stand 9 could be deferred until merchantable.

HABITAT MANAGEMENT PRESCRIPTION

UNIT: MONUMENT ROAD

CUTTING BLOCK: III

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
158	4	60	J2	1999-2008	68*	
	11	165	J5		76*	
	TOTAL =	225				

COMMENTS: Stands 4 and 11 may require harvest prior to the prescribed treatment date.

UNIT: MONUMENT ROAD

CUTTING BLOCK: IV

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
148	5	155	J3	2009-18	78*	
	7	59	J3		78*	
	TOTAL =	214				

COMMENTS: Stands 5 and 7 should be held as long as possible toward the prescribed harvest date.

HABITAT MANAGEMENT PRESCRIPTION

UNIT: MONUMENT ROAD

CUTTING BLOCK: V

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
144	17	56	J1	2019-28	55	
147	4	67	J1		(48)	
	7	67	J0		50	
	TOTAL =	190				

COMMENTS: Stand 17 (Compartment 144) was fill-in planted with jack pine during the spring of 1978. The stocking level will hopefully be adequate in this stand for Warbler nesting.

Stands 4 and 7 (Compartment 147) were recently harvested under the Davison Road Sale. Prescribed burning has been completed in both stands and Stand 7 was planted to jack pine during the fall of 1977. Stand 4 will require some residual stem removal prior to planting. The age in parenthesis represents the age of Stand 4 in 2028 if planted by 1980. Upon completion of planting, Block V will form 190 acres of potential Warbler nesting habitat during this 10 year period.

OSCODA UNIT

I. Unit Description

- A. Compartments involved and acreage of critical habitat - Compartments 74 and 75 are included within this Unit. A total of 1,294 acres has been identified as Critical Habitat in this Unit.
- B. Complex needs - Both compartments have recent complex data with E.A.R.'s approved in 1976.
- C. Status of existing habitat - Most of the timber within this Unit is in the 30 to 35 year age class and is the result of the old Oscoda Burn. This single age class will create some management problems. Most of Block I is being treated pre-commercially. Timber loss will be minimal due to the "dog-hair" nature of the stands and an infestation of jack pine budworm. With the exception of Block V, the remaining blocks fit fairly well into the proposed treatment schedule (see Habitat Management Prescription).
- Blocks II, III, IV, and a portion of V are primarily a J3 type that have been thinned by roller chopping in six foot widths. The habitat is somewhat unusual in that there is a considerable amount of sheep laurel in the understory. Normally this type of understory is not conducive to Kirtland's warbler nesting. Documented historic nesting of the Warbler in this understory type (within the old Oscoda burn) was the basis for inclusion.
- D. Planned or existing timber sales - There are no existing or planned timber sales in this Unit through FY 1983. The Knute Road Sale (recently closed), final harvested scattered stands in Blocks I and V.

II. Known or Potential Human Activity

- A. Developments - There is a considerable amount of human development immediately north and east of the habitat in this Unit. The Oscoda Junior and Senior High Schools are located within 1/4 mile north of Block I in T23N, R9E, Section 5, NW and Section 6, NE SE. There is also a subdivision with private residences within 1/4 mile north and east of Block I in T23N, R9E, Section 4, NW NW and NE NW. Several baseball diamonds and a football field are located in Section 4, SE NW.

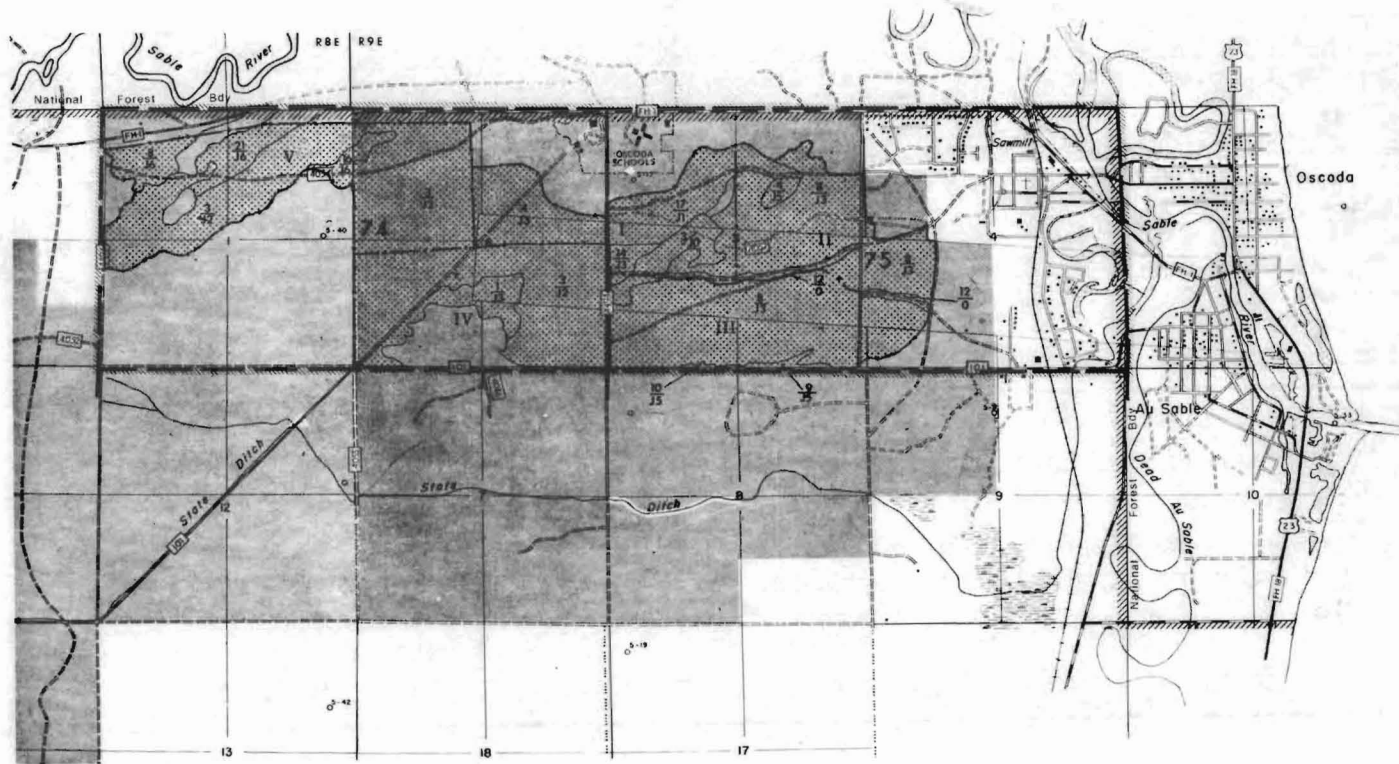
Paved highways form the northern and southern boundaries of the Unit. The highway to the north (River Road) is heavily used by sight-seers and other recreationists and would be an area where visual impacts of Warbler management would be of concern. The highway on the southern boundary of the Unit (Old U.S. 23) also receives considerable use, probably more by local residents.

A natural gas pipeline right-of-way exists along the northern boundary of Sections 6 and 1. A pumping station is located in the NE NW of Section 6.




















- B. Known or potential historic sites - There are no known historical sites in this Unit.
- C. Special uses - The habitat in this Unit is presently utilized extensively by snowmobilers and other O.R.V. enthusiasts. Most of this activity appears to be limited to the existing trails. As the Warbler habitat in this Unit becomes occupied, closure of these roads and trails will be necessary during the time period between May 1 and August 15.

OSCODA UNIT
TAWAS AREA

KIRTLAND'S WARBLER HABITAT PLAN
OSCODA COUNTY, MICHIGAN
T23N, R8 & 9E
1978



LEGEND

	UNIT BOUNDARY		MAIN HIGHWAY
	RANGER DISTRICT BOUNDARY		ALL WEATHER OR SECONDARY ROAD
	COMPARTMENT BOUNDARY		DEVELOPED ROUTE
622	COMPARTMENT NUMBER		UNDEVELOPED ROUTE
	BLOCK BOUNDARY		US ROUTE
IV	BLOCK NUMBER		STATE ROUTE
	STAND BOUNDARY		COUNTY ROUTE
	STAND NUMBER		FOREST ROUTE
	TIMBER TYPE-SIZE-DENSITY		
	NATIONAL FOREST OWNERSHIP		
	CRITICAL HABITAT		
	POTENTIAL ACQUISITION		
	FOREST SERVICE BOUNDARY		

SCALE
0 1/2 1 mile

HABITAT MANAGEMENT PRESCRIPTION

UNIT: OSCODA UNIT

CUTTING BLOCK: I

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
74	4	66	J3	1979-88	(8)	Regenerate to jack pine
75	(Part) 3	27	J0		(8)	Final Harvest
	(Part) 8	19	J3		33 (8)	
	14	10	J3		33 (8)	
	(Part) 17	64	J1		33 (8)	Burn and plant jack pine
	TOTAL =	186				

COMMENTS: Stand 4 was burned during the summer of 1978. The remaining stands in this Block should be burned as soon as possible and the entire Block planted to jack pine. This will create the initial block of potential habitat (186 acres) in this Unit. The ages in parenthesis represent the age of the stands in this Block in 1988, if burned and regenerated by 1980.

UNIT: OSCODA UNIT

CUTTING BLOCK: II

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
75	4	7	J5	1989-98	(18)	Final Harvest
	(Part) 8	232	J3		53	
	(Part) 17	10	J1		53	
	TOTAL =	249				

COMMENTS: Stand 4 was recently final harvested. The age in parenthesis represents the age of the stand in 1998 if regenerated by 1980.

HABITAT MANAGEMENT PRESCRIPTION

UNIT: OSCODA UNIT

CUTTING BLOCK: III

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
75	(Part) 3	9	J5	1999-2008	(28)	Final Harvest
	(Part) 8	195	J3		63	
	9	12	J5		(28)	Final Harvest
	10	3	J5		(28)	Final Harvest
	TOTAL	- 219				

COMMENTS: Final harvest was recently completed in Stands 9 and 10. The ages in parenthesis represent the ages of the stands in 2008 if regenerated by 1980.

UNIT: OSCODA UNIT

CUTTING BLOCK: IV

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
74	1	45	J3	2009-18	69*	
	(Part) 3	220	J3		72*	
	TOTAL =	265				

COMMENTS:

HABITAT MANAGEMENT PRESCRIPTION

UNIT: OSCODA UNIT

CUTTING BLOCK: V

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
74	(Part) 3	285	J2	2019-28	82*	
	8	46	J6		(48)	Final Harvest
	16	13	J6		(48)	Final Harvest
	21	31	J6		(48)	Final Harvest
	TOTAL =	375				

COMMENTS: The portion of Stand 3 in this Block should be held as long as possible toward the prescribed harvest date. Final harvest has recently been completed in Stands 8, 16, and 21. The ages in parenthesis represent the ages of the stands in 2028 if regenerated by 1980.

SILVER CREEK UNIT

I. Unit Description

- A. Compartments involved and acreage of critical habitat - Warbler habitat in this Unit is scattered over Compartments 124, 125, 144, 145, and 146. A total of 1,207 acres has been identified as Critical Habitat in this Unit.
- B. Complex needs - As of this date (December 1978), Compartments 124, and 145 have no recent field data or approved E.A.R.'s. Compartments 144 and 146 have recent field data (inventory compartments) but do not have approved E.A.R.'s. Compartment 125 has recent complex data and an E.A.R. approved in 1976.
- C. Status of existing habitat - Habitat in Blocks I, III (portion), and V will be regenerated to jack pine during this 10 year period. The remaining stands in this Unit fit fairly well into the prescribed harvest schedule. Full age class regulation in this Unit will not be achieved until the end of the next rotation period.

Most of the habitat in this Unit has a fairly heavy stocking of oak (15-20 square feet B.A.) mixed in with the existing jack pine. The oak component should be reduced or discouraged whenever possible through summer burning or other appropriate management techniques.

- D. Planned or existing timber sales - Under the Short Road Sale (closed-1978), final harvest was completed in Block V and a portion of Block IV (Compartment 125). The Gray Creek Sale planned for sale in FY 1979, is scheduled to final harvest approximately half of the Warbler habitat in Block I (Compartment 146).

II. Known or Potential Human Activity

- A. Developments - A seasonal residence is located adjacent to Warbler habitat in Block V. The legal description of the site is T23N, R7E, Section 29, SE NE. Other residences are located approximately one half mile south and north of the Unit (see Area Map).

Monument Road, a paved highway used frequently by tourists, runs adjacent to identified Warbler habitat in Compartment 144 (Block III). The Silver Creek Warehouse and Campground are located approximately one half mile north of the habitat in Compartment 144.

- B. Known or potential historic sites - There are no known historical sites in this Unit.
- C. Special uses - The Michigan Shore-to-Shore Riding and Hiking Trail presently passes through Warbler habitat in Compartment 144 (Block III). In the future, this trail may require rerouting if the adjacent habitat is occupied by nesting Warblers.


















There is a substantial amount of use by O.R.V. enthusiasts throughout the Unit. As habitat becomes occupied by nesting Warblers, this use should be restricted during the seasonal time period between May 1 and August 15.



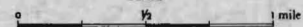
SILVER CREEK UNIT
TAWAS AREA
KIRTLAND'S WARBLER MANAGEMENT PLAN

IOSCO COUNTY, MICH.
 T22 & 23N. R1E
 1979

LEGEND

-  UNIT BOUNDARY
-  RANGER DISTRICT BOUNDARY
-  COMPARTMENT BOUNDARY
- 622** COMPARTMENT NUMBER
-  BLOCK BOUNDARY
- IV** BLOCK NUMBER
-  STAND BOUNDARY
-  STAND NUMBER
-  NATIONAL FOREST OWNERSHIP
-  CRITICAL HABITAT
-  POTENTIAL ACQUISITION
-  MAIN HIGHWAY
-  ALL WEATHER OR SECONDARY ROAD
-  DEVELOPED ROUTE
-  UNDEVELOPED ROUTE
-  US ROUTE
-  STATE ROUTE
-  COUNTY ROUTE
-  FOREST ROUTE

SCALE



HABITAT MANAGEMENT PRESCRIPTION

UNIT: SILVER CREEK

CUTTING BLOCK: I

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
145	6	72	J6	1979-88	80*	
	7	78	J0		11	
146	1	93	J5		83*	Final Harvest
	11	43	J5		86*	Final Harvest
	TOTAL =	286				

COMMENTS: Stand 7 (Compartment 145) was burned and planted to jack pine during the fall of 1977. Stands 1 and 11 (Compartment 146) have been designated for final harvest under the Gray Creek Sale, to be sold in FY 1979. Stand 6 (Compartment 145) should also be final harvested during this 10 year period. All prescribed burning should be conducted during the summer period.

UNIT: SILVER CREEK

CUTTING BLOCK: II

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
124	7	108	J2	1989-98	DATA NOT AVAILABLE	
	10	15	J1			
	11	31	J3			
	14	31	J1			
	TOTAL -	185				

COMMENTS: Presently, there is very little stand data available for this Compartment. It appears, however, that Stand 7 will be merchantable by the prescribed harvest date. The remaining stands should be deferred until they reach a commercial size class. Age class regulation will not be accomplished in this Block until the end of the next rotation period.

HABITAT MANAGEMENT PRESCRIPTION

UNIT: SILVER CREEK

CUTTING BLOCK: III

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
144	11	127	J2	1999-2008	68	
	18	162	J1		30	
	TOTAL =	289				

COMMENTS: Stand 18 was final harvested and later roller chopped to encourage natural regeneration of jack pine and oak. The stocking that resulted from this treatment was not adequate. The stand was then fill-in planted (by hand) in the spring of 1978. Preliminary indications show that this planting will probably have poor survival. Stocking surveys should be made (in FY 1979) to determine if additional planting (or possibly burning and planting) is necessary. Future planting should attain the necessary stocking density suitable for Kirtland's Warbler nesting (approx. 1,000 trees/acre). The remaining portion of this Block should be harvested at the prescribed treatment date.

UNIT: SILVER CREEK

CUTTING BLOCK: IV

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
125	4	115	J3	2009-18	64	
	5	8	J5		40	
	9	58	J5		40	
	TOTAL =	181				

COMMENTS: Stands 5 and 9 have been final harvested under the Short Road Sale. Both stands have been machine planted to jack pine (in 1977) without prescribed burning for site preparation. Both areas have a considerable amount of slash remaining which may decrease their value for Warbler nesting.

HABITAT MANAGEMENT PRESCRIPTION

UNIT: SILVER CREEK

CUTTING BLOCK: V

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
125	1	182	J1	2019-28	(48)	Final Harvest
	13	46	J1		(48)	Final Harvest
	14	38	J1		(48)	Final Harvest
	TOTAL =	266				

COMMENTS: All of the habitat in Block V has recently been final harvested under the Short Road Sale. Due to the substantial amount of oak present in this Block, prescribed burning (during the summer months) should definitely be utilized for site preparation prior to the planting of jack pine. The ages in parenthesis represent the age of the stands in 2028 if burned and regenerated by 1980.

VAUGHN CREEK UNIT

I. Unit Description

- A. Compartments involved and acreage of critical habitat - Compartments 91, 93, 94, 130, 132, 139, 140, and 141 are included within this Unit. A total of 1,113 acres has been identified as Critical Habitat in this Unit.
- B. Complex needs - Compartments 91, 93, 132, 139, 140, and 141 have no recent compartment examination field data or approved E.A.R.'s. Recent complex and E.A.R.'s have been completed in Compartments 94 and 130.
- C. Status of existing habitat - The habitat in this Unit is quite scattered, with a distance between the distal management Blocks of approximately five miles. Most of the habitat in this Unit is in the 0-30 year age class. As a result, full age class regulation will not be achieved in this Unit until at least the end of the next rotation period.

A portion of Block I and all of Block V have recently been harvested and should provide potential nesting habitat in approximately 10 years. The understory in both of these Blocks is primarily sheep laurel with patches of blueberry, sand cherry, wire grass, etc. Although atypical, Warblers were known to nest in sheep laurel within the Oscoda Unit during the early 1960's.

Portions of Blocks III and V have regenerating jack pine that appears to be suitable for Warbler nesting at the present time (see Habitat Management Prescription).

- D. Planned or existing timber sales - There is presently an active timber sale in Compartment 139 (Curtis Road Sale, Glawe, Inc. - 2/08/77), that has harvested timber in Blocks I and V of this Unit. There are no planned sales (through 1983) that will affect Warbler habitat in this Unit.

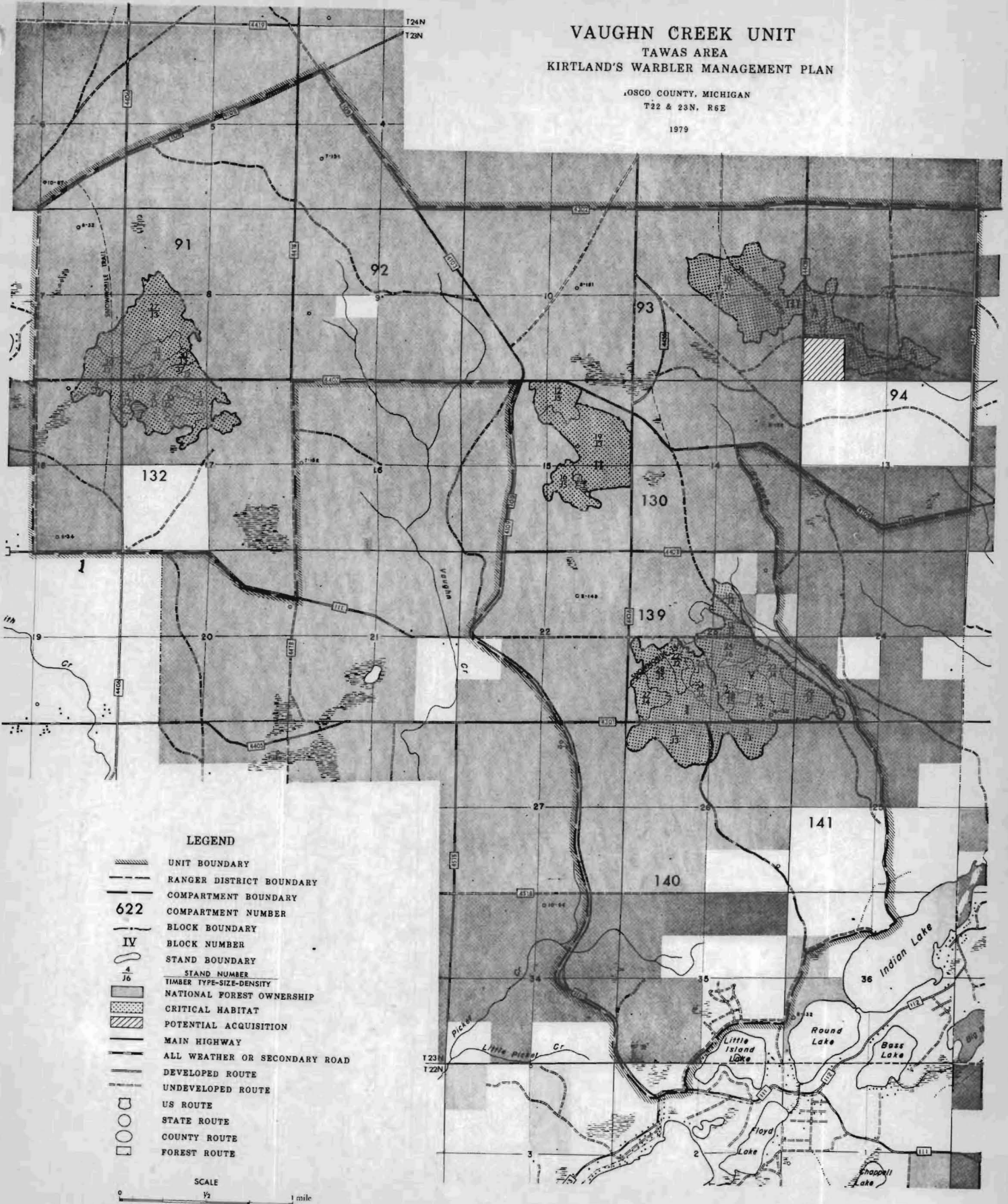
II. Known or Potential Human Activity

- A. Developments - There are several hunting cabins located on private lands immediately south and east of the habitat in Compartment 94. Seasonal residences are also located on Welcome Lake, approximately 1/2 mile west of Warbler habitat in Compartment 91.
- B. Known or potential historical sites - There are no known historical sites in this Unit.
- C. Special uses - Other than the typical dispersed recreation in the area, there are no known special uses in this Unit.





















VAUGHN CREEK UNIT
TAWAS AREA
KIRTLAND'S WARBLER MANAGEMENT PLAN

OSCO COUNTY, MICHIGAN
T22 & 23N, R6E

1979



LEGEND

-  UNIT BOUNDARY
-  RANGER DISTRICT BOUNDARY
-  COMPARTMENT BOUNDARY
- 622**
 COMPARTMENT NUMBER
-  BLOCK BOUNDARY
- IV**
 BLOCK NUMBER
-  STAND BOUNDARY
- A**
J6
 STAND NUMBER
-  TIMBER TYPE-SIZE-DENSITY
-  NATIONAL FOREST OWNERSHIP
-  CRITICAL HABITAT
-  POTENTIAL ACQUISITION
-  MAIN HIGHWAY
-  ALL WEATHER OR SECONDARY ROAD
-  DEVELOPED ROUTE
-  UNDEVELOPED ROUTE
-  US ROUTE
-  STATE ROUTE
-  COUNTY ROUTE
-  FOREST ROUTE

SCALE

0 1/2 1 mile

HABITAT MANAGEMENT PRESCRIPTION

UNIT: VAUGHN CREEK

CUTTING BLOCK: I

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
139	22	13	J0	1979-88	(8)	
	(Part) 24	21	J0		(8)	
	25	15	J0		(8)	
	27	19	J0		(8)	
	(Part) 28	56	J0		(8)	
	30	7	J0		(8)	
140	(Part) 1	60	J3		20	
141	(Part) 3	32	J3		20	
	TOTAL =	223				

COMMENTS: A seed tree cut was recently completed in Stands 22, 24, 25, 27, 28, and 30 (Compartment 139) under the Curtis Road Sale. This cutting has created an area of 131 acres within this Block that is scheduled for burning and natural regeneration. Stocking surveys should be made three years and five years after the burn. If natural regeneration is inadequate, this area should be planted with jack pine seedlings at the optimal density for Warbler nesting.

The remaining habitat in Block I (Compartment 140 and 141) is presently reaching the desirable growth stage for nesting Warblers and should be checked annually for occupancy. Treatment of this habitat should be deferred until the next rotation period (2038).

HABITAT MANAGEMENT PRESCRIPTION

UNIT: VAUGHN CREEK

CUTTING BLOCK: II

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
130	(Part) 19	133	J3	1989-98	48	
	12	19	J5		(10)	Final Harvest
	16	16	J5		(10)	Final Harvest
	TOTAL =	165				

COMMENTS: Most of this Block (Stand 19) appears to have had a removal cut within the past 10 years. Apparently the merchantable jack pine was removed leaving the existing advanced jack pine regeneration. The present stand is a mixture of the remnant jack pine regeneration (approximately 20 feet tall - a J2 type) with scattered 30 to 50 year old oak and red pine. This stand may be deferred for an additional 10 years if not merchantable by the prescribed harvest date.

Stands 12 and 16 are scheduled for final harvest during this 10 year period. The ages in parenthesis are the ages of these stands in 1998 if harvested and regenerated by 1988.

This Block is somewhat smaller than desirable and also has a fairly heavy stocking of oak (approximately 20 square feet B.A.). Efforts should be made during regeneration to discourage the oak through summer burning and other appropriate management techniques.

HABITAT MANAGEMENT PRESCRIPTION

UNIT: VAUGHN CREEK

CUTTING BLOCK: III

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
93	10	143	J2	1999-2008	42	
94	2	10	J2		75*	
	3	21	J2		75*	
	6	28	J4		75*	Final Harvest-deferred
	7	27	J1		31	
	TOTAL =	229				

COMMENTS: Recent compartment examination data are not available for Compartment 93 at this time. Under the old records, Stand 10 is listed as a J1 type that is presently 28 years old. After inspection of the stand, it appears to be a well-stocked mixed stand of planted red pine and natural jack pine regeneration. Most of the regeneration is 6-8 feet tall (approximately 10-12 years old) and appears to have potential for Warbler occupancy at the present time. This stand should be checked for Warbler nesting on an annual basis for the next 10 years.

The potential for occupancy should be increased significantly if most of the residual stems in the overstory are removed. This should be considered a high priority T.S.I. project. Stand 10 will not be merchantable by the prescribed harvest date and will probably require deferral for an additional 10 years.

Stands 2, 3, and 6 (Compartment 94) will probably require harvest prior to the proposed treatment date. Age class regulation will not be achieved in this Block until the end of the next rotation period.

HABITAT MANAGEMENT PRESCRIPTION

UNIT: VAUGHN CREEK

CUTTING BLOCK: IV

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
91	27	94	J3	2009-18	50	
	30	48	J3		50	
	31	24	J2		APP. 65*	
	37	10	J2		APP. 65*	
132	3	105	J2		52	
	4	6	J2		APP. 60*	
	10	15	J2		APP. 60*	
	TOTAL =	302				

COMMENTS: Recent compartment examination data are not available for Compartments 91 and 132 at this time. Ages for most of the stands listed are estimates.

Stands 27 and 30 (approximately 142 acres) were final harvested and roller chopped in 1968 or 1969. Jack pine cones were scattered throughout the area after the chopping was completed. The resulting stand is presently a well-stocked J3 type 6-8 feet tall. This area appears to have good potential for Warbler occupancy and should be checked annually through 1988.

The mature jack pine was also harvested from the rest of the stands within this Block at approximately the same time. These stands, however, were not roller chopped and the advanced jack pine regeneration remains. Presently most of the area has approximately 15-20 year old jack pine regeneration in moderate stocking levels. There is also a substantial amount of remnant oak overstory. Summer burning will be necessary during regeneration of these stands

HABITAT MANAGEMENT PRESCRIPTION

UNIT: VAUGHN CREEK

CUTTING BLOCK: V

COMP.	STAND	ACRES	CURRENT TSD	HARVEST PERIOD	MAXIMUM AGE AT TIME OF TREATMENT	EXISTING PRESCRIPTION IN EAR (IF ANY)
139	(Part) 10	17	J4	2019-28	?	
	13	16			?	
	(Part) 23	19	J0		(48)	
	(Part) 24	73	J0		(48)	
	(Part) 28	15	J0		(48)	
	(Part) 29	54	J0		(48)	
	TOTAL =	194				

COMMENTS: The entire area except Stands 10 and 13, within this Block was recently harvested (a seed tree cut) under the Curtis Road Sale. This cutting has created an area of 194 acres that is scheduled for burning and natural regeneration. A stocking survey should be made three years after the burn. If natural regeneration is inadequate, this Block should be planted with jack pine seedlings at the optimal density for Warbler nesting. The ages in parenthesis represent the age of the stands in 2028 if burned and regenerated by 1980.

HABITAT MANAGEMENT SCHEDULE

State of Michigan

(pages 385 - 801)

This portion of Management Plan is available from the
Michigan Department of Natural Resources.

PLAN REVISION AND UPDATE

I. Introduction

The Kirtland's Warbler Habitat Management Plan is a guide. The cutting and treatment schedule has been designed to put warbler habitat management on an area regulation basis. The ages and densities of the present stands have been carefully considered to avoid as much loss in commercial pulpwood production as possible in the first rotation.

It is designed to provide, on a continuing basis, possible nesting habitat for the Kirtland's Warbler. If the schedule is followed, it will provide, in perpetuity, a continuous flow of suitable sized jack pine within each warbler Management Unit.

However, future changes in values, numbers of Kirtland's warblers, knowledge of nesting habitat requirements, management techniques, ownership patterns, and jack pine age distribution due to wildfire, jack pine budworm damage, windthrow and other unforeseeable occurrences, require flexibility in the Plan.

II. General Decennial Revision

The Plan is to undergo scrutiny for general revision every ten years. Each warbler Management Unit shall be examined for possible changes. The primary people responsible for review of the Plan are the biologist in charge of endangered species and, in the case of State Forest lands, the district planner. This revision should be carried out at the beginning of each decade, for example 1990, 2000, etc. In the case of the Forest Service, revision of this Plan should occur concurrent with the periodic revision of the Forest Land Management Plan.

III. Revision After Unplanned Changes in Management Units

The Plan is designed to provide a continuous supply of habitat suitable for nesting within each Management Unit. However, unforeseen circumstances are likely to interfere with the scheduled area regulation. Such circumstance may be wildfire, windthrow and insect damage. In order to keep the Plan functioning in an area regulation mode, it is essential that provision be made for bringing an affected Management Unit back to area regulation.

Listed below is a set of guidelines to be followed to achieve area regulation following some event which has caused the loss of area regulation.

1. The primary objective is to provide a continuous supply of habitat suitable for Kirtland's warbler nesting within each Management Unit.

2. Area regulation will be on a Management Unit basis.
3. The Management Unit(s) affected will be assigned a new treatment schedule within one (1) year of the event which caused a change in jack pine age distribution.
4. Any Management Unit which has at least one Cutting Block which has had an age class change in at least 30 percent of the Block must be considered for rescheduling.
5. Where more than one Management Unit is affected, the scheduling may involve the changing of existing Management Unit boundaries; however, such changes should be made only to prevent significant loss of a continuous supply of habitat or to prevent significant loss of timber, which might occur if the Unit boundaries were not changed.
6. Each Management Unit will contain five (5) Cutting Blocks where enough suitable potential habitat exists to afford five Blocks.
7. Cutting Blocks are to be 200 to 320 acres in size. Occasional exceptions are permitted in size if need be, but in no case will a Cutting Block be permitted to be less than eighty (80) acres.
8. Cutting Blocks are to be at least one-quarter (1/4) mile wide.
9. Cutting Blocks are not to be designed so as to have paved roads or heavily traveled gravel roads running through them.
10. As much as possible, boundaries of Cutting Blocks are to be natural (streams, lakes, non-habitat types) or follow easily recognizable man-made factors (survey section, quarter or eighth lines, roads).
11. Management Unit boundaries should not cross administrative unit boundaries.
12. Stands may be scheduled for cutting or treatment featuring either the overstory or understory with maximum timber production the determinant, within the framework of achieving the primary objective.
13. A Management Unit will be entered every ten (10) years with treatment being carried out in a new Cutting Block at each entry. When the full complement of five (5) Blocks has been entered, the first Block in the series will be re-entered.

14. In developing the cutting schedule, consider these social factors:

- a. settlements; subdivisions
- b. historic sites
- c. recreational use
 - camp and picnic sites
 - Off-road vehicle (ORV) use
 - formal, informal
 - dedicated trails
- d. mineral rights
- e. oil and gas wells and rights-of-way
- f. influence zones
- g. special uses

15. Cutting Blocks are to be drawn so as to 1) maximize habitat over the long term, 2) provide a continuous supply of nestable-aged jack pine, and 3) maximize timber production given 1 and 2 above.

16. Maximization of timber production means striving to achieve, on a continuous basis, the greatest volume of timber in a forty-five (45) to fifty (50) year rotation.

DEFINITION AND LIST OF
CRITICAL HABITAT
for the
KIRTLAND'S WARBLER

CRITICAL HABITAT - DEFINITION

Section 7 of the Endangered Species Act of 1973 (P.L. 93-205) directs that all Federal departments and agencies shall insure that actions authorized, funded, or carried out by them do not result in the destruction or modification of habitat of Endangered or Threatened species, which is determined by the Secretary of the Interior (or Commerce) to be critical.

The Endangered Species Act of 1973 defines "Critical Habitat" as:

- (5) (A) The term "Critical Habitat" for a threatened or endangered species means -
- (i) the specific areas within the geographical area occupied by the species, at the time it is listed in accordance with the provisions of section 4 of this Act, on which are found those physical or biological features (I) essential to the conservation of the species and (II) which may require special management considerations or protection; and
 - (ii) specific areas outside the geographical area occupied by the species at the time it is listed in accordance with the provisions of section 4 of this Act, upon a determination by the Secretary that such areas are essential for the conservation of the species.
- (B) Critical habitat may be established for those species now listed as threatened or endangered species for which no critical habit has heretofore been established as set forth in subparagraph (A) of this paragraph.

The Kirtland's Warbler has been listed under provisions of Sec. 4 of this Act:

SEC. 4. (a) GENERAL. - (1) The Secretary shall by regulation determine whether any species is an endangered species or a threatened species because of any of the following factors:

- (1) the present or threatened destruction, modification, or curtailment of its habitat or range;
- (2) overutilization for commercial, sporting, scientific, or educational purposes;
- (3) disease or predation;
- (4) the inadequacy of existing regulation mechanisms; or
- (5) other natural or manmade factors affecting its continued existence.

DESCRIPTION OF CRITICAL HABITAT

The Kirtland's Warbler does not adapt to a variety of environmental conditions. Its requirements for breeding habitat are quite specific, so exact that its numbers will probably always be limited. The essence of its habitat is the jack pine forest. For this reason it is often called the Jack Pine Warbler. However, its habitat is more than just jack pine. The bird requires certain exacting conditions for nesting. Almost without exception, it is found only in extensive, homogenous stands of young jack pine located on some of the poorest soils in Michigan.

The plant community attractive to this warbler developed in the past from repeated and extensive forest fires. Historically, wildfires have been the most important factor in the establishment of natural jack pine. These fires played an important role in past survival of the warbler, since under natural conditions suitable habitat was produced only by forest fires. With the advent of fire protection there was a drastic decline of such suitable habitat. Nesting habitat generally consists of young jack pine stands between 5 and 20 feet in height. Dense stands with the pines in close juxtaposition yet interspersed with small openings are best, the pattern which often results from forest fires. Such cover is not attractive to other species of wildlife, resulting in less competition than might otherwise be expected. A breeding pair of warblers requires about 30 acres of this type for their nesting territory.

The low-growing, sparse vegetation that occurs in association with the young "Christmas tree"-size jack pine on the relatively level sandy outwash plains is an important component of the habitat necessary for the warblers. The delicate combination of conditions required exist for a relatively short period of time, lasting only 10-15 years before it is no longer acceptable.

Habitat for the Kirtland's Warbler is considered critical where its destruction, disturbance, modification, or subjection to human activity might be expected to result in a further reduction in numbers of this species, or in a reduction in its potential for expansion or recovery. Critical habitat is defined to mean areas that are presently occupied by nesting pairs, and areas that can be expected to be utilized at some future time. The designation of such potential nesting areas is essential because the birds' occupancy of any tract is temporary, extending through only one early stage of the jack pine growth cycle.

Potential habitat consists of those stands of jack pine that, through management, will provide acceptable habitat at some future date. Such stands can be managed for eventual harvest of the timber resource, with

economical harvest at 45 - 50 years of age. Since the warbler occupies a tract for only about 12 years within this age span, to achieve a stable population of 1,000 pairs will require 36-40,000 acres of nesting habitat at all times. To meet an objective of a sustained supply of nesting habitat sufficient to support 1,000 pairs will require the designation of some 130,000 acres as critical habitat.

The criteria used for designation of critical habitat include:

1. Soil type - Grayling sand and closely associated soil types.
2. Forest cover currently in jack pine, and where management for jack pine is feasible. Areas may contain a limited oak component. Habitat with significant levels of non-characteristic vegetative types (aspen, willow, cherry, etc.) was excluded.
3. Areas currently occupied or previously used by the species.
4. Tracts of about 320 acres or larger, preferably where five or more of them lie within two miles of each other. Tracts less than 320 acres, but not less than 80 acres, where they occur in close proximity to the larger tracts.
5. Lands preferably in public ownership (state or national forests).
6. Limited development potential or where development could be controlled.
7. Relatively level topography.

Critical Habitat - Listing

The Secretary of Interior, after consultation with the Michigan Department of Natural Resources, U.S. Forest Service, and other conservation organizations and knowledgeable groups aware of the needs of this species, proposes that the following Michigan lands be designated "critical" for the survival of the Kirtland's Warbler (Dendroica kirtlandii). These lands comprise the important breeding habitat of the Kirtland's Warbler and are considered essential for the species' survival. Any proposal for a change in use or modification of these lands must be carefully evaluated for impact on the Kirtland's Warbler. Land management within these areas should be in concurrence with the official Recovery Plan for the Kirtland's Warbler drafted by

the Kirtland's Warbler Recovery Team the Habitat Management Plan approved by the Forest Service and Michigan Department of Natural Resources.

The following described lands comprise approximately 127,630 acres within Alcona, Clare, Crawford, Iosco, Kalkaska, Montmorency, Ogemaw, Oscoda, Otsego, Presque Isle, and Roscommon counties, Michigan, are public lands under the jurisdiction of the Forest Service, U.S. Department of Agriculture or the State of Michigan.

The attached maps show the approximate location of the critical habitat. Detailed maps are available, and on file with the Secretary of Interior, Director, Michigan Department of Natural Resources and Forest Supervisor, Huron-Manistee National Forest.

(State-Owned Land)

KIRTLAND'S WARBLER
CRITICAL HABITAT IN MICHIGAN

<u>County</u>	<u>Area</u>	<u>Township</u>	<u>Range</u>	<u>Section</u>	<u>Subsection</u>
Clare	Leota	20N	5W	2	N $\frac{1}{2}$
				2	N $\frac{1}{2}$ of SW $\frac{1}{4}$
				2	SW $\frac{1}{4}$ of SW $\frac{1}{4}$
				3	E $\frac{1}{2}$ of E $\frac{1}{2}$
				6	S $\frac{1}{2}$ of NW $\frac{1}{4}$
				6	N $\frac{1}{2}$ of SW $\frac{1}{4}$
				7	SW $\frac{1}{4}$ of NE $\frac{1}{4}$
				7	W $\frac{1}{2}$ of SE $\frac{1}{4}$
				7	E $\frac{1}{2}$ of SW $\frac{1}{4}$
				7	SW $\frac{1}{4}$ of SW $\frac{1}{4}$
				8	E $\frac{1}{2}$
				8	SW $\frac{1}{4}$
				9	S $\frac{1}{2}$
				9	NW $\frac{1}{4}$
				10	W $\frac{1}{2}$ of SW $\frac{1}{4}$
				14	N $\frac{1}{2}$
				18	SW $\frac{1}{4}$
				18	W $\frac{1}{2}$ of SE $\frac{1}{4}$
				21	N $\frac{1}{2}$
				29	SW $\frac{1}{4}$
30	SW $\frac{1}{4}$				
30	E $\frac{1}{2}$ of SE $\frac{1}{4}$				
30	SW $\frac{1}{4}$ of SE $\frac{1}{4}$				
31	N $\frac{1}{2}$				
32	NW $\frac{1}{4}$ of NW $\frac{1}{4}$				
Clare	Leota	20N	6W	13	N $\frac{1}{2}$
				13	SW $\frac{1}{4}$
				13	NW $\frac{1}{4}$ of SE $\frac{1}{4}$
				14	SW $\frac{1}{4}$
				24	W $\frac{1}{2}$
				25	W $\frac{1}{2}$ of NW $\frac{1}{4}$
				35	E $\frac{1}{2}$ of NE $\frac{1}{4}$
36	NW $\frac{1}{4}$				
Crawford	Lovells	28N	1W	2	E $\frac{1}{2}$
				2	E $\frac{1}{2}$ of W $\frac{1}{2}$
				2	W $\frac{1}{2}$ of SW $\frac{1}{4}$
				2	SW $\frac{1}{4}$ of NW $\frac{1}{4}$
				3	S $\frac{1}{2}$ of NE $\frac{1}{4}$
				3	E $\frac{1}{2}$ of SW $\frac{1}{4}$
				3	SE $\frac{1}{4}$
				4	N $\frac{1}{2}$
				4	SW $\frac{1}{4}$
				4	N $\frac{1}{2}$ of SE $\frac{1}{4}$
				4	SW $\frac{1}{4}$ of SE $\frac{1}{4}$
				5	all
6	E $\frac{1}{2}$				
6	E $\frac{1}{2}$ of SW $\frac{1}{4}$				
6	SE $\frac{1}{4}$ of NW $\frac{1}{4}$				

<u>County</u>	<u>Area</u>	<u>Township</u>	<u>Range</u>	<u>Section</u>	<u>Subsection</u>
Crawford	Lovells	28N	1W	7	E $\frac{1}{2}$
				7	E $\frac{1}{2}$ of W $\frac{1}{2}$
				8	all
				10	E $\frac{1}{2}$
				10	SW $\frac{1}{4}$
				11	W $\frac{1}{2}$
				11	NW $\frac{1}{4}$ of NE $\frac{1}{4}$
				13	SW $\frac{1}{4}$
				13	SW $\frac{1}{4}$ of NW $\frac{1}{4}$
				14	W $\frac{1}{2}$
				14	S $\frac{1}{2}$ of SE $\frac{1}{4}$
				14	NE $\frac{1}{4}$ of SE $\frac{1}{4}$
				14	SE $\frac{1}{4}$ of NE $\frac{1}{4}$
				15	N $\frac{1}{2}$
				15	N $\frac{1}{2}$ of S $\frac{1}{2}$
				15	S $\frac{1}{2}$ of SE $\frac{1}{4}$
				17	S $\frac{1}{2}$
				17	E $\frac{1}{2}$ of NW $\frac{1}{4}$
				17	NE $\frac{1}{4}$
				20	W $\frac{1}{2}$ of NE $\frac{1}{4}$
				20	E $\frac{1}{2}$ of NW $\frac{1}{4}$
				22	E $\frac{1}{2}$
				23	N $\frac{1}{2}$
				23	N $\frac{1}{2}$ of S $\frac{1}{2}$
				23	S $\frac{1}{2}$ of SW $\frac{1}{4}$
				23	SW $\frac{1}{4}$ of SE $\frac{1}{4}$
				24	W $\frac{1}{2}$
24	W $\frac{1}{2}$ of SE $\frac{1}{4}$				
27	NE $\frac{1}{4}$				
27	N $\frac{1}{2}$ of SE $\frac{1}{4}$				
27	SE $\frac{1}{4}$ of SE $\frac{1}{4}$				
Crawford	Lovells	28N	2W	1	SE $\frac{1}{4}$ of SE $\frac{1}{4}$
				12	E $\frac{1}{2}$ of E $\frac{1}{2}$
Crawford	Military	27N	2W	7	SE $\frac{1}{4}$
				8	all
				9	W $\frac{1}{2}$
				9	SW $\frac{1}{4}$ of SE $\frac{1}{4}$
				19	NW $\frac{1}{4}$ of SW $\frac{1}{4}$
				19	SW $\frac{1}{4}$ of NW $\frac{1}{4}$
				20	SW $\frac{1}{4}$ of NW $\frac{1}{4}$
20	NW $\frac{1}{4}$ of SW $\frac{1}{4}$				
Crawford	North Branch	27N	1W	4	N $\frac{1}{2}$
				4	SE $\frac{1}{4}$
				4	E $\frac{1}{2}$ of SW $\frac{1}{4}$
				4	NW $\frac{1}{4}$ of SW $\frac{1}{4}$
				9	E $\frac{1}{2}$
				10	W $\frac{1}{2}$ of W $\frac{1}{2}$
				10	SE $\frac{1}{4}$ of SW $\frac{1}{4}$
				15	N $\frac{1}{2}$ of NW $\frac{1}{4}$
24	S $\frac{1}{2}$				

<u>County</u>	<u>Area</u>	<u>Township</u>	<u>Range</u>	<u>Section</u>	<u>Subsection</u>
Crawford	North Branch	27N	1W	26	E $\frac{1}{2}$ of E $\frac{1}{2}$
				26	W $\frac{1}{2}$ of SE $\frac{1}{4}$
				26	E $\frac{1}{2}$ of SW $\frac{1}{4}$
				26	SW $\frac{1}{4}$ of NE $\frac{1}{4}$
Crawford**	Pere Cheney	25N	2W	5	N $\frac{1}{2}$
				5	N $\frac{1}{2}$ of SW $\frac{1}{4}$
				5	E $\frac{1}{2}$ of SE $\frac{1}{4}$
				6	NE $\frac{1}{4}$
				6	SW $\frac{1}{4}$
				6	SW $\frac{1}{4}$ of NW $\frac{1}{4}$
				7	N $\frac{1}{2}$ of NW $\frac{1}{4}$
7	SW $\frac{1}{4}$ of NW $\frac{1}{4}$				
Crawford	Pere Cheney	25N	3W	1	N $\frac{1}{2}$
				1	N $\frac{1}{2}$ of SE $\frac{1}{4}$
				1	SE $\frac{1}{4}$ of SE $\frac{1}{4}$
				1	E $\frac{1}{2}$ of SW $\frac{1}{4}$
				1	SW $\frac{1}{4}$ of SW $\frac{1}{4}$
				2	S $\frac{1}{2}$
				2	NW $\frac{1}{4}$
				2	SW $\frac{1}{4}$ of NE $\frac{1}{4}$
				12	N $\frac{1}{2}$ of N $\frac{1}{2}$
				12	SE $\frac{1}{4}$ of NE $\frac{1}{4}$
Crawford**	Pere Cheney	26N	2W	30	SE $\frac{1}{4}$
				30	E $\frac{1}{2}$ of NW $\frac{1}{4}$
				30	N $\frac{1}{2}$ of SW $\frac{1}{4}$
				30	SW $\frac{1}{4}$ of SW $\frac{1}{4}$
Crawford	Staley Lake	26N	3W	2	all
				14	W $\frac{1}{2}$
				14	W $\frac{1}{2}$ of SE $\frac{1}{4}$
				15	NE $\frac{1}{4}$
				15	E $\frac{1}{2}$ of NW $\frac{1}{4}$
				15	N $\frac{1}{2}$ of SE $\frac{1}{4}$
				15	NE $\frac{1}{4}$ of SW $\frac{1}{4}$
				21	NE $\frac{1}{4}$
				21	NE $\frac{1}{4}$ of NW $\frac{1}{4}$
				21	N $\frac{1}{2}$ of SE $\frac{1}{4}$
				23	E $\frac{1}{2}$
				24	SW $\frac{1}{4}$
				25	NW $\frac{1}{4}$
26	N $\frac{1}{2}$				
33	SE $\frac{1}{4}$				
34	SW $\frac{1}{4}$				

** These descriptions are at present (June, 1979) under U. S. Forest Service ownership and management. However, a land exchange is pending with these parcels to become under state ownership and management in the near future.

<u>County</u>	<u>Area</u>	<u>Township</u>	<u>Range</u>	<u>Section</u>	<u>Subsection</u>
Crawford	Fletcher Road	25N	4W	7	W $\frac{1}{2}$ of E $\frac{1}{2}$
				7	E $\frac{1}{2}$ of NW $\frac{1}{4}$
				7	NE $\frac{1}{4}$ of SW $\frac{1}{4}$
				7	E $\frac{1}{2}$ of SE $\frac{1}{4}$
				7	SE $\frac{1}{4}$ of NE $\frac{1}{4}$
				18	SW $\frac{1}{4}$
				18	S $\frac{1}{2}$ of NW $\frac{1}{4}$
				18	NW $\frac{1}{4}$ of SE $\frac{1}{4}$
				18	SW $\frac{1}{4}$ of NE $\frac{1}{4}$
				19	all
				30	N $\frac{1}{2}$
				30	N $\frac{1}{2}$ of SW $\frac{1}{4}$
				31	W $\frac{1}{2}$ of NW $\frac{1}{4}$
Crawford	Manistee River	27N	4W	5	W $\frac{1}{2}$ of SE $\frac{1}{4}$
				5	E $\frac{1}{2}$ of SW $\frac{1}{4}$
				6	E $\frac{1}{2}$
				7	W $\frac{1}{2}$ of SW $\frac{1}{4}$
				7	SE $\frac{1}{4}$ of SW $\frac{1}{4}$
				8	W $\frac{1}{2}$ of E $\frac{1}{2}$
				8	SW $\frac{1}{4}$
				8	E $\frac{1}{2}$ of NW $\frac{1}{4}$

<u>County</u>	<u>Area</u>	<u>Township</u>	<u>Range</u>	<u>Section</u>	<u>Subsection</u>
Crawford	Manistee River	27N	4W	8	SW $\frac{1}{4}$ of NW $\frac{1}{4}$
				18	W $\frac{1}{2}$
				19	W $\frac{1}{2}$
				19	W $\frac{1}{2}$ of SE $\frac{1}{4}$
				28	S $\frac{1}{2}$ of NW $\frac{1}{4}$
				28	N $\frac{1}{2}$ of SW $\frac{1}{4}$
				28	SW $\frac{1}{4}$ of SW $\frac{1}{4}$
				29	SE $\frac{1}{4}$
				29	SE $\frac{1}{4}$ of NE $\frac{1}{4}$
				29	S $\frac{1}{2}$ of SW $\frac{1}{4}$
				29	NE $\frac{1}{4}$ of SW $\frac{1}{4}$
				30	N $\frac{1}{2}$
				30	W $\frac{1}{2}$ of SE $\frac{1}{4}$
				30	SW $\frac{1}{4}$
Kalkaska	Fletcher Road	25N	5W	13	S $\frac{1}{2}$ of S $\frac{1}{2}$
				13	N $\frac{1}{2}$ of SE $\frac{1}{4}$
				13	NE $\frac{1}{4}$ of SW $\frac{1}{4}$
				22	E $\frac{1}{2}$ of SW $\frac{1}{4}$
				22	W $\frac{1}{2}$ of SE $\frac{1}{4}$
				23	E $\frac{1}{2}$
				23	SW $\frac{1}{4}$
				23	S $\frac{1}{2}$ of NW $\frac{1}{4}$
				24	all
				25	N $\frac{1}{2}$
				25	SE $\frac{1}{4}$
				25	N $\frac{1}{2}$ of SW $\frac{1}{4}$
				26	N $\frac{1}{2}$
				26	N $\frac{1}{2}$ of S $\frac{1}{2}$
				27	NE $\frac{1}{4}$
				27	E $\frac{1}{2}$ of NW $\frac{1}{4}$
27	N $\frac{1}{2}$ of SE $\frac{1}{4}$				
27	NE $\frac{1}{4}$ of SW $\frac{1}{4}$				
Kalkaska	Manistee River	27N	5W	12	SE $\frac{1}{4}$
				12	S $\frac{1}{2}$ of NE $\frac{1}{4}$
				12	NW $\frac{1}{4}$ of NE $\frac{1}{4}$
				12	NW $\frac{1}{4}$
				12	NW $\frac{1}{4}$ of SW $\frac{1}{4}$
				12	E $\frac{1}{2}$ of SW $\frac{1}{4}$
				13	E $\frac{1}{2}$
				13	E $\frac{1}{2}$ of NW $\frac{1}{4}$
				13	NE $\frac{1}{4}$ of SW $\frac{1}{4}$
				18	E $\frac{1}{2}$ of E $\frac{1}{2}$
18	W $\frac{1}{2}$ of NE $\frac{1}{4}$				
Kalkaska	Sharon	25N	6W	2	E $\frac{1}{2}$
				2	S $\frac{1}{2}$ of NW $\frac{1}{4}$
				2	SW $\frac{1}{4}$
				3	SE $\frac{1}{4}$
				3	S $\frac{1}{2}$ of NE $\frac{1}{4}$
				3	NE $\frac{1}{4}$ of NE $\frac{1}{4}$

<u>County</u>	<u>Area</u>	<u>Township</u>	<u>Range</u>	<u>Section</u>	<u>Subsection</u>
Kalkaska	Sharon	25N	6W	8	SE $\frac{1}{4}$
				8	E $\frac{1}{2}$ of SW $\frac{1}{4}$
				8	NW $\frac{1}{4}$ of SW $\frac{1}{4}$
				12	NW $\frac{1}{4}$
				12	N $\frac{1}{2}$ of SW $\frac{1}{4}$
				13	N $\frac{1}{2}$ of SW $\frac{1}{4}$
				13	SW $\frac{1}{4}$ of SW $\frac{1}{4}$
				14	S $\frac{1}{2}$
				14	S $\frac{1}{2}$ of NW $\frac{1}{4}$
				14	NE $\frac{1}{4}$ of NW $\frac{1}{4}$
				14	W $\frac{1}{2}$ of NE $\frac{1}{4}$
				15	S $\frac{1}{2}$
				15	S $\frac{1}{2}$ of N $\frac{1}{2}$
				17	all
				18	E $\frac{1}{2}$ of E $\frac{1}{2}$
				19	S $\frac{1}{2}$
				19	NE $\frac{1}{4}$
				19	SE $\frac{1}{4}$ of NW $\frac{1}{4}$
				20	N $\frac{1}{2}$
				20	N $\frac{1}{2}$ of SW $\frac{1}{4}$
				21	N $\frac{1}{2}$
21	N $\frac{1}{2}$ of SW $\frac{1}{4}$				
Kalkaska	Sharon	26N	6W	35	SW $\frac{1}{4}$
Montmorency	Clear Lake-Tomahawk Creek	32N	2E	2	W $\frac{1}{2}$
				2	W $\frac{1}{2}$ of SE $\frac{1}{4}$
				3	S $\frac{1}{2}$
				3	E $\frac{1}{2}$ of NW $\frac{1}{4}$
				3	NE $\frac{1}{4}$
				4	E $\frac{1}{2}$ of W $\frac{1}{2}$
				4	W $\frac{1}{2}$ of E $\frac{1}{2}$
				4	E $\frac{1}{2}$ of SE $\frac{1}{4}$
				9	S $\frac{1}{2}$
				9	NE $\frac{1}{4}$
				9	E $\frac{1}{2}$ of NW $\frac{1}{4}$
				9	SW $\frac{1}{4}$ of NW $\frac{1}{4}$
				10	W $\frac{1}{2}$ of W $\frac{1}{2}$
				10	E $\frac{1}{2}$ of NW $\frac{1}{4}$
				10	W $\frac{1}{2}$ of NE $\frac{1}{4}$
				10	NE $\frac{1}{4}$ of SW $\frac{1}{4}$
				11	E $\frac{1}{2}$
				11	E $\frac{1}{2}$ of NW $\frac{1}{4}$
14	NW $\frac{1}{4}$ of NE $\frac{1}{4}$				
14	NE $\frac{1}{4}$ of NW $\frac{1}{4}$				
15	S $\frac{1}{2}$				
15	NW $\frac{1}{4}$ of NE $\frac{1}{4}$				
15	S $\frac{1}{2}$ of NE $\frac{1}{4}$				
15	NW $\frac{1}{4}$				
16	S $\frac{1}{2}$				
16	S $\frac{1}{2}$ of N $\frac{1}{2}$				

<u>County</u>	<u>Area</u>	<u>Township</u>	<u>Range</u>	<u>Section</u>	<u>Subsection</u>
Montmorency	Clear Lake-Tomahawk Creek	32N	2E	16	N $\frac{1}{2}$ of NE $\frac{1}{4}$
				16	NE $\frac{1}{4}$ of NW $\frac{1}{4}$
				21	N $\frac{1}{2}$
				21	SE $\frac{1}{4}$
				21	N $\frac{1}{2}$ of SW $\frac{1}{4}$
				21	SE $\frac{1}{4}$ of SW $\frac{1}{4}$
				22	N $\frac{1}{2}$
				22	SW $\frac{1}{4}$
				22	W $\frac{1}{2}$ of SE $\frac{1}{4}$
				22	NE $\frac{1}{4}$ of SE $\frac{1}{4}$
				27	W $\frac{1}{2}$ of E $\frac{1}{2}$
				27	N $\frac{1}{2}$ of NW $\frac{1}{4}$
				27	SE $\frac{1}{4}$ of NW $\frac{1}{4}$
				27	NE $\frac{1}{4}$ of SW $\frac{1}{4}$
				28	NE $\frac{1}{4}$ of NE $\frac{1}{4}$
				28	W $\frac{1}{2}$ of W $\frac{1}{2}$
				28	E $\frac{1}{2}$ of SW $\frac{1}{4}$
				28	SE $\frac{1}{4}$ of NW $\frac{1}{4}$
33	N $\frac{1}{2}$ of NW $\frac{1}{4}$				
33	SE $\frac{1}{4}$ of NW $\frac{1}{4}$				
Ogemaw	Damon	23N	2E	5	SW $\frac{1}{4}$
				5	W $\frac{1}{2}$ of SE $\frac{1}{4}$
				5	SE $\frac{1}{4}$ of SE $\frac{1}{4}$
				5	W $\frac{1}{2}$ of NW $\frac{1}{4}$
				5	NE $\frac{1}{4}$ of NW $\frac{1}{4}$
6	E $\frac{1}{2}$ of NE $\frac{1}{4}$				
Ogemaw	Damon	24N	1E	1	W $\frac{1}{2}$
				2	SW $\frac{1}{4}$
				2	S $\frac{1}{2}$ of NW $\frac{1}{4}$
				2	N $\frac{1}{2}$ of SE $\frac{1}{4}$
				2	E $\frac{1}{2}$ of NE $\frac{1}{4}$
				2	SW $\frac{1}{4}$ of NE $\frac{1}{4}$
				2	SW $\frac{1}{4}$ of SE $\frac{1}{4}$
				3	SE $\frac{1}{4}$
				4	all
				5	NE $\frac{1}{4}$
				5	E $\frac{1}{2}$ of NW $\frac{1}{4}$
				5	SW $\frac{1}{4}$
				5	S $\frac{1}{2}$ of SE $\frac{1}{4}$
				7	E $\frac{1}{2}$
				8	all
9	all				
10	all				
11	all				
12	S $\frac{1}{2}$ of NW $\frac{1}{4}$				
12	N $\frac{1}{2}$ of SW $\frac{1}{4}$				
12	SE $\frac{1}{4}$ of SW $\frac{1}{4}$				
12	E $\frac{1}{2}$ of NE $\frac{1}{4}$				
12	NW $\frac{1}{4}$ of NE $\frac{1}{4}$				

Kirtland's Warbler Critical Habitat in Michigan

<u>County</u>	<u>Area</u>	<u>Township</u>	<u>Range</u>	<u>Section</u>	<u>Subsection</u>
Ogemaw	Damon	24N	1E	13	S $\frac{1}{2}$
				13	S $\frac{1}{2}$ of N $\frac{1}{2}$
				13	N $\frac{1}{2}$ of NW $\frac{1}{4}$
				14	E $\frac{1}{2}$ of NW $\frac{1}{4}$
				14	N $\frac{1}{2}$ of SW $\frac{1}{4}$
				14	SE $\frac{1}{4}$ of SW $\frac{1}{4}$
				15	all of SW $\frac{1}{4}$
				16	all of SE $\frac{1}{4}$
				17	S $\frac{1}{2}$ of SE $\frac{1}{4}$
				17	N $\frac{1}{2}$ of NE $\frac{1}{4}$
				17	SW $\frac{1}{4}$ of NE $\frac{1}{4}$
				18	SE $\frac{1}{4}$
				18	S $\frac{1}{2}$ of NE $\frac{1}{4}$
				19	NE $\frac{1}{4}$ of NE $\frac{1}{4}$
				19	S $\frac{1}{2}$ of NE $\frac{1}{4}$
				19	N $\frac{1}{2}$ of SE $\frac{1}{4}$
				20	S $\frac{1}{2}$ of SW $\frac{1}{4}$
				20	NE $\frac{1}{4}$
				20	W $\frac{1}{2}$ of NW $\frac{1}{4}$
				21	all
				22	all
				23	all
				24	all
				25	all
				26	S $\frac{1}{2}$
				26	NE $\frac{1}{4}$
				27	all
				28	N $\frac{1}{2}$
				28	N $\frac{1}{2}$ of S $\frac{1}{2}$
				28	SE $\frac{1}{4}$ of SE $\frac{1}{4}$
				29	N $\frac{1}{2}$
				34	N $\frac{1}{2}$ of S $\frac{1}{2}$
				34	S $\frac{1}{2}$ of N $\frac{1}{2}$
				34	NE $\frac{1}{4}$ of NE $\frac{1}{4}$
				34	N $\frac{1}{2}$ of NW $\frac{1}{4}$
				35	NE $\frac{1}{4}$
				35	N $\frac{1}{2}$ of SE $\frac{1}{4}$
				36	N $\frac{1}{2}$ of N $\frac{1}{2}$
				36	S $\frac{1}{2}$ of NW $\frac{1}{4}$
				36	NW $\frac{1}{4}$ of SW $\frac{1}{4}$
Ogemaw	Damon	24N	2E	3	NW $\frac{1}{4}$ of NW $\frac{1}{4}$
				4	N $\frac{1}{2}$
				4	N $\frac{1}{2}$ of SE $\frac{1}{4}$
				4	NE $\frac{1}{4}$ of SW $\frac{1}{4}$
				5	NW $\frac{1}{4}$
				5	W $\frac{1}{2}$ of NE $\frac{1}{4}$
				5	N $\frac{1}{2}$ of SE $\frac{1}{4}$
				5	SE $\frac{1}{4}$ of NE $\frac{1}{4}$

Kirtland's Warbler Critical Habitat in Michigan

Page 8

<u>County</u>	<u>Area</u>	<u>Township</u>	<u>Range</u>	<u>Section</u>	<u>Subsection</u>
Ogemaw	Damon	24N	2E	6	NE $\frac{1}{4}$
				6	SW $\frac{1}{4}$
				6	W $\frac{1}{2}$ of NW $\frac{1}{4}$
				6	N $\frac{1}{2}$ of SE $\frac{1}{4}$
				7	N $\frac{1}{2}$
				17	SW $\frac{1}{4}$
				17	S $\frac{1}{2}$ of NW $\frac{1}{4}$
				18	W $\frac{1}{2}$
				19	NW $\frac{1}{4}$
				19	S $\frac{1}{2}$
				19	SE $\frac{1}{4}$ of NE $\frac{1}{4}$
				29	SW $\frac{1}{4}$
				29	SW $\frac{1}{4}$ of SE $\frac{1}{4}$
				30	S $\frac{1}{2}$
				30	NW $\frac{1}{4}$
				31	W $\frac{1}{2}$ of NW $\frac{1}{4}$
				32	N $\frac{1}{2}$
				32	N $\frac{1}{2}$ of SW $\frac{1}{4}$
				32	NW $\frac{1}{4}$ of SE $\frac{1}{4}$
				32	SW $\frac{1}{4}$ of SW $\frac{1}{4}$
Ogemaw	Ogemaw Refuge	23N	1E	4	S $\frac{1}{2}$ of S $\frac{1}{2}$
				4	N $\frac{1}{2}$ of SE $\frac{1}{4}$
				4	NE $\frac{1}{4}$ of SW $\frac{1}{4}$
				5	S $\frac{1}{2}$
				5	NW $\frac{1}{4}$
				5	SW $\frac{1}{4}$ of NE $\frac{1}{4}$
				6	all
				7	N $\frac{1}{2}$ of NE $\frac{1}{4}$
				7	SE $\frac{1}{4}$ of NE $\frac{1}{4}$
				7	NE $\frac{1}{4}$ of SE $\frac{1}{4}$
				8	N $\frac{1}{2}$
				8	N $\frac{1}{2}$ of S $\frac{1}{2}$
				8	SE $\frac{1}{4}$ of SE $\frac{1}{4}$
				9	N $\frac{1}{2}$
				9	SW $\frac{1}{4}$
				9	N $\frac{1}{2}$ of SE $\frac{1}{4}$
				15	NW $\frac{1}{4}$
				15	N $\frac{1}{2}$ of NE $\frac{1}{4}$
				16	E $\frac{1}{2}$ of E $\frac{1}{2}$
				16	W $\frac{1}{2}$ of W $\frac{1}{2}$
16	E $\frac{1}{2}$ of NW $\frac{1}{4}$				
16	W $\frac{1}{2}$ of NE $\frac{1}{4}$				
17	NE $\frac{1}{4}$				
17	SW $\frac{1}{4}$				
17	SW $\frac{1}{4}$ of NW $\frac{1}{4}$				
18	S $\frac{1}{2}$				
18	S $\frac{1}{2}$ of N $\frac{1}{2}$				
19	E $\frac{1}{2}$				
19	SW $\frac{1}{4}$				

<u>County</u>	<u>Area</u>	<u>Township</u>	<u>Range</u>	<u>Section</u>	<u>Subsection</u>
Ogemaw	Ogemaw Refuge	23N	1E	20	SW $\frac{1}{4}$
				20	NE $\frac{1}{4}$
				20	S $\frac{1}{2}$ of NW $\frac{1}{4}$
				20	NE $\frac{1}{4}$ of NW $\frac{1}{4}$
				21	W $\frac{1}{2}$ of NW $\frac{1}{4}$
				21	N $\frac{1}{2}$ of SW $\frac{1}{4}$
				21	SE $\frac{1}{4}$ of SW $\frac{1}{4}$
				21	W $\frac{1}{2}$ of SE $\frac{1}{4}$
				21	SE $\frac{1}{4}$ of SE $\frac{1}{4}$
				28	SW $\frac{1}{4}$
				28	SW $\frac{1}{4}$ of SE $\frac{1}{4}$
				29	N $\frac{1}{2}$
				29	SE $\frac{1}{4}$
				29	W $\frac{1}{2}$ of SW $\frac{1}{4}$
				30	N $\frac{1}{2}$
				30	N $\frac{1}{2}$ of S $\frac{1}{2}$
				30	SW $\frac{1}{4}$ of SW $\frac{1}{4}$
				30	S $\frac{1}{2}$ of SE $\frac{1}{4}$
				31	NE $\frac{1}{4}$ of NE $\frac{1}{4}$
				32	N $\frac{1}{2}$
33	NW $\frac{1}{4}$				
33	W $\frac{1}{2}$ of NE $\frac{1}{4}$				
33	SE $\frac{1}{4}$ of NE $\frac{1}{4}$				
Ogemaw	Ogemaw Refuge	24N	1E	31	SW $\frac{1}{4}$
				31	SW $\frac{1}{4}$ of SE $\frac{1}{4}$
Oscoda	Big Creek	27N	1E	5	N $\frac{1}{2}$
				5	SW $\frac{1}{4}$ of SW $\frac{1}{4}$
				6	E $\frac{1}{2}$
				7	NE $\frac{1}{4}$
8	NW $\frac{1}{4}$ of NW $\frac{1}{4}$				
Oscoda	Big Creek	28N	1E	7	S $\frac{1}{2}$
				7	S $\frac{1}{2}$ of N $\frac{1}{2}$
				18	N $\frac{1}{2}$ of NW $\frac{1}{4}$
				18	NW $\frac{1}{4}$ of NE $\frac{1}{4}$
				20	NW $\frac{1}{4}$
				20	N $\frac{1}{2}$ of SW $\frac{1}{4}$
				30	W $\frac{1}{2}$ of SE $\frac{1}{4}$
				30	SW $\frac{1}{4}$ of NE $\frac{1}{4}$
				30	E $\frac{1}{2}$ of SW $\frac{1}{4}$
				30	NW $\frac{1}{4}$
				30	NW $\frac{1}{4}$ of SW $\frac{1}{4}$
				31	E $\frac{1}{2}$ of W $\frac{1}{2}$
				31	W $\frac{1}{2}$ of E $\frac{1}{2}$
				31	NW $\frac{1}{4}$ of SW $\frac{1}{4}$
				31	SW $\frac{1}{4}$ of NW $\frac{1}{4}$
				31	NE $\frac{1}{4}$ of NE $\frac{1}{4}$
				31	SE $\frac{1}{4}$ of SE $\frac{1}{4}$
				32	W $\frac{1}{2}$
				32	W $\frac{1}{2}$ of SE $\frac{1}{4}$
				32	SE $\frac{1}{4}$ of SE $\frac{1}{4}$

<u>County</u>	<u>Area</u>	<u>Township</u>	<u>Range</u>	<u>Section</u>	<u>Subsection</u>
Oscoda	Muskrat Lake	27N	1E	1	S $\frac{1}{2}$
				1	S $\frac{1}{2}$ of N $\frac{1}{2}$
				2	E $\frac{1}{2}$ of SE $\frac{1}{4}$
				2	SW $\frac{1}{4}$ of SE $\frac{1}{4}$
				11	S $\frac{1}{2}$ of SE $\frac{1}{4}$
				11	NW $\frac{1}{4}$ of SE $\frac{1}{4}$
				11	E $\frac{1}{2}$ of SW $\frac{1}{4}$
				12	all
				13	N $\frac{1}{2}$
				13	N $\frac{1}{2}$ of S $\frac{1}{2}$
				13	S $\frac{1}{2}$ of SW $\frac{1}{4}$
				14	S $\frac{1}{2}$
				14	S $\frac{1}{2}$ of N $\frac{1}{2}$
				14	NE $\frac{1}{4}$ of NW $\frac{1}{4}$
				14	N $\frac{1}{2}$ of NE $\frac{1}{4}$
				15	SE $\frac{1}{4}$
				15	S $\frac{1}{2}$ of N $\frac{1}{2}$
				15	NW $\frac{1}{4}$ of SW $\frac{1}{4}$
				15	NE $\frac{1}{4}$ of SW $\frac{1}{4}$
				15	SE $\frac{1}{4}$ of SW $\frac{1}{4}$
				22	S $\frac{1}{2}$ of SW $\frac{1}{4}$
				22	NE $\frac{1}{4}$ of NW $\frac{1}{4}$
				22	N $\frac{1}{2}$ of NE $\frac{1}{4}$
				22	N $\frac{1}{2}$ of S $\frac{1}{2}$
				22	S $\frac{1}{2}$ of N $\frac{1}{2}$
				23	N $\frac{1}{2}$
				23	W $\frac{1}{2}$ of SE $\frac{1}{4}$
				24	NW $\frac{1}{4}$
24	NE $\frac{1}{4}$ of SW $\frac{1}{4}$				
24	NW $\frac{1}{4}$ of SE $\frac{1}{4}$				
24	SW $\frac{1}{4}$ of NE $\frac{1}{4}$				
Oscoda	Muskrat Lake	27N	2E	6	SW $\frac{1}{4}$
				7	SE $\frac{1}{4}$ of SE $\frac{1}{4}$
				7	W $\frac{1}{2}$
				7	W $\frac{1}{2}$ of E $\frac{1}{2}$
				7	SW $\frac{1}{4}$
				7	SE $\frac{1}{4}$ of SE $\frac{1}{4}$
18	N $\frac{1}{2}$				
Oscoda	Warbler Monument	26N	1E	5	N $\frac{1}{2}$ of NW $\frac{1}{4}$
				5	SW $\frac{1}{4}$ of NW $\frac{1}{4}$
Oscoda	Warbler Monument	27N	1E	31	E $\frac{1}{2}$
				32	SE $\frac{1}{4}$
				32	SW $\frac{1}{4}$ of NE $\frac{1}{4}$
				32	SE $\frac{1}{4}$ of NW $\frac{1}{4}$

<u>County</u>	<u>Area</u>	<u>Township</u>	<u>Range</u>	<u>Section</u>	<u>Subsection</u>
Otsego	Crapo Lake	29N	1W	20	E $\frac{1}{2}$
				21	a11
				22	W $\frac{1}{2}$
				27	W $\frac{1}{2}$
				27	SW $\frac{1}{4}$ of NE $\frac{1}{4}$
				27	SW $\frac{1}{4}$ of SE $\frac{1}{4}$
				28	E $\frac{1}{2}$
				28	E $\frac{1}{2}$ of W $\frac{1}{2}$
				28	SW $\frac{1}{4}$ of SW $\frac{1}{4}$
				29	SW $\frac{1}{4}$
				29	W $\frac{1}{2}$ of SE $\frac{1}{4}$
				32	W $\frac{1}{2}$
				32	W $\frac{1}{2}$ of E $\frac{1}{2}$
				34	W $\frac{1}{2}$
36	S $\frac{1}{2}$				
Presque Isle	Clear Lake-Tomahawk Creek	33N	2E	28	SE $\frac{1}{4}$
				28	S $\frac{1}{2}$ of NE $\frac{1}{4}$
				28	E $\frac{1}{2}$ of SW $\frac{1}{4}$
				33	E $\frac{1}{2}$ of W $\frac{1}{2}$
				33	W $\frac{1}{2}$ of E $\frac{1}{2}$
				33	E $\frac{1}{2}$ of SE $\frac{1}{4}$
				35	NE $\frac{1}{4}$
				35	NE $\frac{1}{4}$ of NW $\frac{1}{4}$
				35	NE $\frac{1}{4}$ of SE $\frac{1}{4}$
				36	W $\frac{1}{2}$ of W $\frac{1}{2}$
				36	SE $\frac{1}{4}$ of NW $\frac{1}{4}$
				36	E $\frac{1}{2}$ of SW $\frac{1}{4}$
				36	N $\frac{1}{2}$ of SE $\frac{1}{4}$
36	S $\frac{1}{2}$ of NE $\frac{1}{4}$				
Presque Isle	Clear Lake-Tomahawk Creek	33N	3E	30	S $\frac{1}{2}$
				30	S $\frac{1}{2}$ of NW $\frac{1}{4}$
				30	SW $\frac{1}{4}$ of NE $\frac{1}{4}$
				31	E $\frac{1}{2}$
31	E $\frac{1}{2}$ of NW $\frac{1}{4}$				
Roscommon	St. Helen	23N	1W	1	S $\frac{1}{2}$
				1	S $\frac{1}{2}$ of N $\frac{1}{2}$
				1	N $\frac{1}{2}$ of NW $\frac{1}{4}$
				1	NE $\frac{1}{4}$ of NE $\frac{1}{4}$
				2	SE $\frac{1}{4}$
				2	S $\frac{1}{2}$ of SW $\frac{1}{4}$
				3	NW $\frac{1}{4}$
				3	SE $\frac{1}{4}$
				3	N $\frac{1}{2}$ of SW $\frac{1}{4}$
				3	S $\frac{1}{2}$ of NE $\frac{1}{4}$
				10	NE $\frac{1}{4}$
11	N $\frac{1}{2}$				
11	N $\frac{1}{2}$ of S $\frac{1}{2}$				

<u>County</u>	<u>Area</u>	<u>Township</u>	<u>Range</u>	<u>Section</u>	<u>Subsection</u>
Roscommon	St. Helen	23N	1W	12	NW $\frac{1}{4}$
				12	N $\frac{1}{2}$ of NE $\frac{1}{4}$
				12	SW $\frac{1}{4}$
				12	N $\frac{1}{2}$ of SE $\frac{1}{4}$
				12	SW $\frac{1}{4}$ of NE $\frac{1}{4}$
				13	SE $\frac{1}{4}$
				13	SE $\frac{1}{4}$ of SW $\frac{1}{4}$
				24	E $\frac{1}{2}$
				24	E $\frac{1}{2}$ of NW $\frac{1}{4}$
				25	N $\frac{1}{2}$ of NE $\frac{1}{4}$
26	E $\frac{1}{2}$				
26	E $\frac{1}{2}$ of SW $\frac{1}{4}$				

(Federal Ownership)

KIRTLAND'S WARBLER
CRITICAL HABITAT IN MICHIGAN

County	Management Area	Township	Range	Section	Subsection
Alcona	McKinley	26N	5E	6	N $\frac{1}{2}$ of NE $\frac{1}{4}$; S $\frac{1}{2}$ of SE $\frac{1}{4}$; W $\frac{1}{2}$
				7	E $\frac{1}{2}$; E $\frac{1}{2}$ of SW $\frac{1}{4}$; E $\frac{1}{2}$ of NW $\frac{1}{4}$
				8	SE $\frac{1}{4}$ of SE $\frac{1}{4}$; W $\frac{1}{2}$ of SE $\frac{1}{4}$; SW $\frac{1}{4}$; E $\frac{1}{2}$ of NW $\frac{1}{4}$; SW $\frac{1}{4}$ of NW $\frac{1}{4}$
				9	SW $\frac{1}{4}$ of SW $\frac{1}{4}$
				15	S $\frac{1}{2}$ of SW $\frac{1}{4}$; NW $\frac{1}{4}$ of SW $\frac{1}{4}$
				16	SW $\frac{1}{4}$ of NE $\frac{1}{4}$; NW $\frac{1}{4}$ of NE $\frac{1}{4}$; S $\frac{1}{2}$; NW $\frac{1}{4}$
				17	E $\frac{1}{2}$; E $\frac{1}{2}$ of SW $\frac{1}{4}$; NW $\frac{1}{4}$ of SW $\frac{1}{4}$; NW $\frac{1}{4}$
				18	E $\frac{1}{2}$; N $\frac{1}{2}$ of SW $\frac{1}{4}$; NW $\frac{1}{4}$
				20	E $\frac{1}{2}$ of NE $\frac{1}{4}$; NW $\frac{1}{4}$ of NE $\frac{1}{4}$
				21	E $\frac{1}{2}$; NE $\frac{1}{4}$ of SW $\frac{1}{4}$; NW $\frac{1}{4}$
				22	W $\frac{1}{2}$ of SE $\frac{1}{4}$; W $\frac{1}{2}$
				27	N $\frac{1}{2}$ of NW $\frac{1}{4}$
				28	N $\frac{1}{2}$ of NE $\frac{1}{4}$
Alcona	McKinley	27N	5E	31	SW $\frac{1}{4}$
Alcona	Pine River	25N	7E	9	SE $\frac{1}{4}$ of SE $\frac{1}{4}$
10				S $\frac{1}{2}$	
14				W $\frac{1}{2}$ of SE $\frac{1}{4}$; SW $\frac{1}{4}$; S $\frac{1}{2}$ of NW $\frac{1}{4}$	
15				ALL	
16				SE $\frac{1}{4}$	
20				E $\frac{1}{2}$; E $\frac{1}{2}$ of SW $\frac{1}{4}$; SW $\frac{1}{4}$ of SW $\frac{1}{4}$; SE $\frac{1}{4}$ of NW $\frac{1}{4}$	
21				E $\frac{1}{2}$; SW $\frac{1}{4}$; S $\frac{1}{2}$ of NW $\frac{1}{4}$	
22				ALL	
23				NW $\frac{1}{4}$ of NE $\frac{1}{4}$; S $\frac{1}{2}$ of SE $\frac{1}{4}$; N $\frac{1}{2}$ of NW $\frac{1}{4}$; SW $\frac{1}{4}$ of NW $\frac{1}{4}$	
25				S $\frac{1}{2}$ of NE $\frac{1}{4}$; NW $\frac{1}{4}$ of NE $\frac{1}{4}$; NW $\frac{1}{4}$ of SE $\frac{1}{4}$; W $\frac{1}{2}$	
26				ALL	
27				ALL	
28				N $\frac{1}{2}$; N $\frac{1}{2}$ of SE $\frac{1}{4}$; SE $\frac{1}{4}$ of SE $\frac{1}{4}$; SW $\frac{1}{4}$	
29				ALL	
30				E $\frac{1}{2}$ of NE $\frac{1}{4}$; SE $\frac{1}{4}$; S $\frac{1}{2}$ of SW $\frac{1}{4}$	
31				ALL	
32				E $\frac{1}{2}$; N $\frac{1}{2}$ of SW $\frac{1}{4}$; SW $\frac{1}{4}$ of SW $\frac{1}{4}$; NW $\frac{1}{4}$	
33	E $\frac{1}{2}$; E $\frac{1}{2}$ of SW $\frac{1}{4}$; NW $\frac{1}{4}$ of SW $\frac{1}{4}$; NW $\frac{1}{4}$				
34	N $\frac{1}{2}$ of NE $\frac{1}{4}$; SW $\frac{1}{4}$ of NE $\frac{1}{4}$; N $\frac{1}{2}$ of SW $\frac{1}{4}$; SW $\frac{1}{4}$ of SW $\frac{1}{4}$; NW $\frac{1}{4}$				
35	N $\frac{1}{2}$ of NE $\frac{1}{4}$; E $\frac{1}{2}$ of NW $\frac{1}{4}$; NW $\frac{1}{4}$ of NW $\frac{1}{4}$				
36	NW $\frac{1}{4}$ of NW $\frac{1}{4}$				

County	Management Area	Township	Range	Section	Subsection
Crawford	Eldorado	25N	1W	8	E $\frac{1}{2}$ of SE $\frac{1}{4}$
				9	E $\frac{1}{2}$ of SE $\frac{1}{4}$; SE $\frac{1}{4}$ of SW $\frac{1}{4}$; W $\frac{1}{2}$ of SW $\frac{1}{4}$
				10	E $\frac{1}{2}$; SW $\frac{1}{4}$; E $\frac{1}{2}$ of NW $\frac{1}{4}$
				11	SW $\frac{1}{4}$ of NE $\frac{1}{4}$; E $\frac{1}{2}$ of SE $\frac{1}{4}$; NW $\frac{1}{4}$ of SE $\frac{1}{4}$; W $\frac{1}{2}$ of SW $\frac{1}{4}$; NW $\frac{1}{4}$
				12	S $\frac{1}{2}$
				13	E $\frac{1}{2}$; E $\frac{1}{2}$ of SW $\frac{1}{4}$; SW $\frac{1}{4}$ of SW $\frac{1}{4}$; NW $\frac{1}{4}$
				14	SW $\frac{1}{4}$; E $\frac{1}{2}$ of NW $\frac{1}{4}$; SW $\frac{1}{4}$ of NW $\frac{1}{4}$
				15	ALL
				16	ALL
				17	E $\frac{1}{2}$ of NE $\frac{1}{4}$; SE $\frac{1}{4}$
				20	NE $\frac{1}{4}$; S $\frac{1}{2}$ of SE $\frac{1}{4}$; E $\frac{1}{2}$ of NW $\frac{1}{4}$; SW $\frac{1}{4}$ of NW $\frac{1}{4}$
				21	SE $\frac{1}{4}$ of NE $\frac{1}{4}$; SE $\frac{1}{4}$; S $\frac{1}{2}$ of SW $\frac{1}{4}$; NW $\frac{1}{4}$ of NW $\frac{1}{4}$
				22	ALL
				23	NE $\frac{1}{4}$; SW $\frac{1}{4}$ of SE $\frac{1}{4}$; SW $\frac{1}{4}$; NW $\frac{1}{4}$
				24	ALL
29	W $\frac{1}{2}$ of NE $\frac{1}{4}$				
Crawford	Pere Cheney	25N	2W	4	E $\frac{1}{2}$
				9	E $\frac{1}{2}$; SW $\frac{1}{4}$; S $\frac{1}{2}$ of NW $\frac{1}{4}$; NE $\frac{1}{4}$ of NW $\frac{1}{4}$
				10	W $\frac{1}{2}$ of NE $\frac{1}{4}$; N $\frac{1}{2}$ of SW $\frac{1}{4}$; NW $\frac{1}{4}$
Crawford	Pere Cheney	26N	2W	27	W $\frac{1}{2}$ of SW $\frac{1}{4}$; SE $\frac{1}{4}$ of SW $\frac{1}{4}$; S $\frac{1}{2}$ of SE $\frac{1}{4}$
				28	SE $\frac{1}{4}$; E $\frac{1}{2}$ of SW $\frac{1}{4}$
				33	E $\frac{1}{2}$; E $\frac{1}{2}$ of SW $\frac{1}{4}$; SW $\frac{1}{4}$ of SW $\frac{1}{4}$
				34	NE $\frac{1}{4}$ of NE $\frac{1}{4}$; W $\frac{1}{2}$ of NE $\frac{1}{4}$; N $\frac{1}{2}$ of NW $\frac{1}{4}$
Iosco	Pine River	24N	6E	1	E $\frac{1}{2}$ of NE $\frac{1}{4}$; S $\frac{1}{2}$
				3	S $\frac{1}{2}$ of SW $\frac{1}{4}$; NW $\frac{1}{4}$ of SW $\frac{1}{4}$
				10	ALL
				12	NE $\frac{1}{4}$; E $\frac{1}{2}$ of SE $\frac{1}{4}$; NW $\frac{1}{4}$ of SE $\frac{1}{4}$
				13	NE $\frac{1}{4}$; NW $\frac{1}{4}$ of SE $\frac{1}{4}$; N $\frac{1}{2}$ of SW $\frac{1}{4}$; NW $\frac{1}{4}$
14	NE $\frac{1}{4}$; N $\frac{1}{2}$ of SE $\frac{1}{4}$; E $\frac{1}{2}$ of NW $\frac{1}{4}$				
Iosco	Pine River	24N	7E	1	NE $\frac{1}{4}$; SE $\frac{1}{4}$ of SW $\frac{1}{4}$; W $\frac{1}{2}$ of SW $\frac{1}{4}$; NW $\frac{1}{4}$
				2	ALL
				3	ALL
				5	S $\frac{1}{2}$; W $\frac{1}{2}$ of NW $\frac{1}{4}$
				6	SE $\frac{1}{4}$ of NE $\frac{1}{4}$; W $\frac{1}{2}$ of NE $\frac{1}{4}$; S $\frac{1}{2}$; NW $\frac{1}{4}$
				7	NE $\frac{1}{4}$; NW $\frac{1}{4}$ of SE $\frac{1}{4}$; S $\frac{1}{2}$ of SE $\frac{1}{4}$; N $\frac{1}{2}$ of SW $\frac{1}{4}$; NW $\frac{1}{4}$
				8	E $\frac{1}{2}$; SW $\frac{1}{4}$; E $\frac{1}{2}$ of NW $\frac{1}{4}$; SW $\frac{1}{4}$ of NW $\frac{1}{4}$
				9	NE $\frac{1}{4}$; W $\frac{1}{2}$
				10	NE $\frac{1}{4}$; N $\frac{1}{2}$ of SW $\frac{1}{4}$; NW $\frac{1}{4}$
				11	E $\frac{1}{2}$; E $\frac{1}{2}$ of SW $\frac{1}{4}$; NW $\frac{1}{4}$
				12	NE $\frac{1}{4}$; N $\frac{1}{2}$ of SE $\frac{1}{4}$; W $\frac{1}{2}$
				17	N $\frac{1}{2}$ of NW $\frac{1}{4}$
				18	N $\frac{1}{2}$ of NE $\frac{1}{4}$; NE $\frac{1}{4}$ of NW $\frac{1}{4}$

<u>County</u>	<u>Management Area</u>	<u>Township</u>	<u>Range</u>	<u>Section</u>	<u>Subsection</u>		
Iosco	Tawas	22N	6E	12	NE $\frac{1}{4}$; N $\frac{1}{2}$ of SW $\frac{1}{4}$		
				22N	7E	4	SW $\frac{1}{4}$ of NE $\frac{1}{4}$; SE $\frac{1}{4}$ of SE $\frac{1}{4}$; W $\frac{1}{2}$ of SE $\frac{1}{4}$; SW $\frac{1}{4}$
						5	E $\frac{1}{2}$ of NE $\frac{1}{4}$; SW $\frac{1}{4}$ of NE $\frac{1}{4}$; SE $\frac{1}{4}$; E $\frac{1}{2}$ of SW $\frac{1}{4}$; NW $\frac{1}{4}$ of SW $\frac{1}{4}$; SE $\frac{1}{4}$ of NW $\frac{1}{4}$
						7	S $\frac{1}{2}$ of NE $\frac{1}{4}$; SE $\frac{1}{4}$; SW $\frac{1}{4}$; S $\frac{1}{2}$ of NW $\frac{1}{4}$
Iosco	Tawas	23N	6E	7	E $\frac{1}{2}$ of SE $\frac{1}{4}$		
				8	S $\frac{1}{2}$ of NW $\frac{1}{4}$; SW $\frac{1}{4}$		
				11	SE $\frac{1}{4}$ of NE $\frac{1}{4}$; W $\frac{1}{2}$ of NE $\frac{1}{4}$; N $\frac{1}{2}$ of SE $\frac{1}{4}$; SW $\frac{1}{4}$ of SE $\frac{1}{4}$		
				12	SW $\frac{1}{4}$ of SE $\frac{1}{4}$; E $\frac{1}{2}$ of SW $\frac{1}{4}$; NW $\frac{1}{4}$ of SW $\frac{1}{4}$; SW $\frac{1}{4}$ of NW $\frac{1}{4}$		
				15	NE $\frac{1}{4}$; N $\frac{1}{2}$ of SE $\frac{1}{4}$; NE $\frac{1}{4}$ of NW $\frac{1}{4}$		
				17	W $\frac{1}{2}$ of NE $\frac{1}{4}$; NW $\frac{1}{4}$		
				18	N $\frac{1}{2}$ of NE $\frac{1}{4}$		
				23	W $\frac{1}{2}$ of NE $\frac{1}{4}$; SE $\frac{1}{4}$; SW $\frac{1}{4}$		
				24	W $\frac{1}{2}$ of SW $\frac{1}{4}$		
				26	N $\frac{1}{2}$ of NE $\frac{1}{4}$; N $\frac{1}{2}$ of NW $\frac{1}{4}$		
Iosco	Tawas	23N	7E	1	W $\frac{1}{2}$ of SE $\frac{1}{4}$; E $\frac{1}{2}$ of SW $\frac{1}{4}$; SW $\frac{1}{4}$ of SW $\frac{1}{4}$		
				2	W $\frac{1}{2}$		
				3	N $\frac{1}{2}$ of NE $\frac{1}{4}$; SE $\frac{1}{4}$ of NE $\frac{1}{4}$; E $\frac{1}{2}$ of SE $\frac{1}{4}$		
				10	W $\frac{1}{2}$ of NE $\frac{1}{4}$; W $\frac{1}{2}$ of SE $\frac{1}{4}$; W $\frac{1}{2}$ of SW $\frac{1}{4}$; NE $\frac{1}{4}$ of SW $\frac{1}{4}$; E $\frac{1}{2}$ of NW $\frac{1}{4}$		
				12	NW $\frac{1}{4}$ of NE $\frac{1}{4}$; W $\frac{1}{2}$ of SW $\frac{1}{4}$; NW $\frac{1}{4}$		
				15	NW $\frac{1}{4}$		
				21	E $\frac{1}{2}$ of SW $\frac{1}{4}$; SW $\frac{1}{4}$ of SW $\frac{1}{4}$		
				22	SE $\frac{1}{4}$ of NE $\frac{1}{4}$; W $\frac{1}{2}$ of NE $\frac{1}{4}$; S $\frac{1}{2}$; NW $\frac{1}{4}$		
				23	N $\frac{1}{2}$ of SE $\frac{1}{4}$; SW $\frac{1}{4}$ of SE $\frac{1}{4}$; SW $\frac{1}{4}$		
				26	NW $\frac{1}{4}$ of NE $\frac{1}{4}$; N $\frac{1}{2}$ of SW $\frac{1}{4}$; SW $\frac{1}{4}$ of SW $\frac{1}{4}$; NE $\frac{1}{4}$ of NW $\frac{1}{4}$		
				27	W $\frac{1}{2}$ of NE $\frac{1}{4}$; E $\frac{1}{2}$ of SE $\frac{1}{4}$; SW $\frac{1}{4}$ of SE $\frac{1}{4}$; E $\frac{1}{2}$ of NW $\frac{1}{4}$		
				28	NE $\frac{1}{4}$; N $\frac{1}{2}$ of SW $\frac{1}{4}$; NW $\frac{1}{4}$		
				29	NE $\frac{1}{4}$ of NE $\frac{1}{4}$		
				33	E $\frac{1}{2}$ of NE $\frac{1}{4}$; SW $\frac{1}{4}$ of NE $\frac{1}{4}$; SE $\frac{1}{4}$; NE $\frac{1}{4}$ of SW $\frac{1}{4}$; E $\frac{1}{2}$ of NW $\frac{1}{4}$		
				34	NW $\frac{1}{4}$ of NE $\frac{1}{4}$; NE $\frac{1}{4}$ of NW $\frac{1}{4}$; SW $\frac{1}{4}$ of NW $\frac{1}{4}$		
				35	NW $\frac{1}{4}$		
Iosco	Tawas	23N	8E	1	NE $\frac{1}{4}$; N $\frac{1}{2}$ of SW $\frac{1}{4}$; NW $\frac{1}{4}$		
				5	NW $\frac{1}{4}$ of SW $\frac{1}{4}$; W $\frac{1}{2}$ of NW $\frac{1}{4}$		
				6	NE $\frac{1}{4}$; NE $\frac{1}{4}$ of SE $\frac{1}{4}$; NE $\frac{1}{4}$ of NW $\frac{1}{4}$		
Iosco	Tawas	23N	9E	4	N $\frac{1}{2}$ of SW $\frac{1}{4}$; SW $\frac{1}{4}$ of SW $\frac{1}{4}$; SW $\frac{1}{4}$ of NW $\frac{1}{4}$		
				5	E $\frac{1}{2}$; SW $\frac{1}{4}$; E $\frac{1}{2}$ of NW $\frac{1}{4}$; SW $\frac{1}{4}$ of NW $\frac{1}{4}$		
				6	S $\frac{1}{2}$ of NE $\frac{1}{4}$; NW $\frac{1}{4}$ of NE $\frac{1}{4}$; S $\frac{1}{2}$; NW $\frac{1}{4}$		
Iosco	Tawas	24N	7E	25	S $\frac{1}{2}$ of SE $\frac{1}{4}$; E $\frac{1}{2}$ of SW $\frac{1}{4}$		
				36	N $\frac{1}{2}$ of NE $\frac{1}{4}$		

County	Management Area	Township	Range	Section	Subsection
Iosco	Tawas	24N	8E	30	SW $\frac{1}{4}$ of SW $\frac{1}{4}$
				31	SW $\frac{1}{4}$ of SE $\frac{1}{4}$; SE $\frac{1}{4}$ of SW $\frac{1}{4}$; W $\frac{1}{2}$ of NW $\frac{1}{4}$
Oscoda	Big Creek	25N	1E	10	S $\frac{1}{2}$ of NE $\frac{1}{4}$; SE $\frac{1}{4}$; SW $\frac{1}{4}$; SE $\frac{1}{4}$ of NW $\frac{1}{4}$
				11	E $\frac{1}{2}$ of NE $\frac{1}{4}$; SW $\frac{1}{4}$ of NE $\frac{1}{4}$; NE $\frac{1}{4}$ of SE $\frac{1}{4}$; W $\frac{1}{2}$ of SE $\frac{1}{4}$; SW $\frac{1}{4}$; SW $\frac{1}{4}$ of NW $\frac{1}{4}$
				12	S $\frac{1}{2}$ of SE $\frac{1}{4}$; NW $\frac{1}{4}$ of SE $\frac{1}{4}$; SW $\frac{1}{4}$; NW $\frac{1}{4}$
				13	ALL
				14	NE $\frac{1}{4}$; E $\frac{1}{2}$ of SE $\frac{1}{4}$; NW $\frac{1}{4}$ of SE $\frac{1}{4}$; S $\frac{1}{2}$ of SW $\frac{1}{4}$; NW $\frac{1}{4}$ of SW $\frac{1}{4}$
				15	E $\frac{1}{2}$; NE $\frac{1}{4}$ of NW $\frac{1}{4}$
				22	NW $\frac{1}{4}$ of NE $\frac{1}{4}$; SE $\frac{1}{4}$ of NE $\frac{1}{4}$; NE $\frac{1}{4}$ of SE $\frac{1}{4}$
				23	ALL
				24	ALL
				25	ALL
				26	NE $\frac{1}{4}$; N $\frac{1}{2}$ of SE $\frac{1}{4}$; NE $\frac{1}{4}$ of NW $\frac{1}{4}$
				27	SE $\frac{1}{4}$ of SE $\frac{1}{4}$
				34	E $\frac{1}{2}$; SW $\frac{1}{4}$; E $\frac{1}{2}$ of NW $\frac{1}{4}$; NW $\frac{1}{4}$ of NW $\frac{1}{4}$
				36	NE $\frac{1}{4}$; E $\frac{1}{2}$ of SE $\frac{1}{4}$; NW $\frac{1}{4}$ of SE $\frac{1}{4}$; E $\frac{1}{2}$ of SW $\frac{1}{4}$; NW $\frac{1}{4}$
Oscoda	Big Creek	25N	2E	17	SW $\frac{1}{4}$; S $\frac{1}{2}$ of NW $\frac{1}{4}$
				18	ALL
				19	ALL
				20	NE $\frac{1}{4}$; E $\frac{1}{2}$ of SE $\frac{1}{4}$; W $\frac{1}{2}$
				28	E $\frac{1}{2}$; SW $\frac{1}{4}$; N $\frac{1}{2}$ of NW $\frac{1}{4}$
				30	ALL
				32	E $\frac{1}{2}$ of NE $\frac{1}{4}$; SW $\frac{1}{4}$ of NE $\frac{1}{4}$; SE $\frac{1}{4}$; E $\frac{1}{2}$ of SW $\frac{1}{4}$; NW $\frac{1}{4}$ of SW $\frac{1}{4}$; S $\frac{1}{2}$ of NW $\frac{1}{4}$
				33	W $\frac{1}{2}$ of SW $\frac{1}{4}$
Oscoda	Mack Lake	25N	2E	11	S $\frac{1}{2}$ of NE $\frac{1}{4}$; SE $\frac{1}{4}$; NE $\frac{1}{4}$ of SW $\frac{1}{4}$; W $\frac{1}{2}$ of SW $\frac{1}{4}$; S $\frac{1}{2}$ of NW $\frac{1}{4}$
				12	NE $\frac{1}{4}$; N $\frac{1}{2}$ of SE $\frac{1}{4}$; N $\frac{1}{2}$ of SW $\frac{1}{4}$; SW $\frac{1}{4}$ of SW $\frac{1}{4}$; E $\frac{1}{2}$ of NW $\frac{1}{4}$; SW $\frac{1}{4}$ of NW $\frac{1}{4}$
Oscoda	Mack Lake	25N	3E	1	ALL
				2	ALL
				3	ALL
				4	E $\frac{1}{2}$; E $\frac{1}{2}$ of SW $\frac{1}{4}$; NW $\frac{1}{4}$
				5	N $\frac{1}{2}$
				7	SE $\frac{1}{4}$ of NE $\frac{1}{4}$; E $\frac{1}{2}$ of SE $\frac{1}{4}$; NW $\frac{1}{4}$ of SE $\frac{1}{4}$; N $\frac{1}{2}$ of SW $\frac{1}{4}$; NW $\frac{1}{4}$
				8	SE $\frac{1}{4}$ of NE $\frac{1}{4}$; W $\frac{1}{2}$ of NE $\frac{1}{4}$; N $\frac{1}{2}$ of SE $\frac{1}{4}$; NW $\frac{1}{4}$
				9	SW $\frac{1}{4}$ of NW $\frac{1}{4}$
				10	NE $\frac{1}{4}$; E $\frac{1}{2}$ of SE $\frac{1}{4}$
				11	ALL
				12	ALL
				13	NE $\frac{1}{4}$; E $\frac{1}{2}$ of SE $\frac{1}{4}$; N $\frac{1}{2}$ of NW $\frac{1}{4}$
				14	ALL
				15	ALL
				16	ALL

<u>County</u>	<u>Management Area</u>	<u>Township</u>	<u>Range</u>	<u>Section</u>	<u>Subsection</u>				
Oscoda	Mack Lake	25N	3E	20	E $\frac{1}{2}$; NW $\frac{1}{4}$				
				21	ALL				
				22	ALL				
				23	NE $\frac{1}{4}$; NE $\frac{1}{4}$ of SE $\frac{1}{4}$; N $\frac{1}{2}$ of NW $\frac{1}{4}$				
				28	E $\frac{1}{2}$; NW $\frac{1}{4}$				
29	NE $\frac{1}{4}$; NE $\frac{1}{4}$ of SE $\frac{1}{4}$; E $\frac{1}{2}$; NW $\frac{1}{4}$								
Oscoda	Mack Lake	25N	4E	6	ALL				
				7	NW $\frac{1}{4}$ of SW $\frac{1}{4}$; W $\frac{1}{2}$ of NW $\frac{1}{4}$				
				18	SE $\frac{1}{4}$; S $\frac{1}{2}$ of SW $\frac{1}{4}$				
				19	NE $\frac{1}{4}$; N $\frac{1}{2}$ of SE $\frac{1}{4}$; N $\frac{1}{2}$ of SW $\frac{1}{4}$; NW $\frac{1}{4}$				
Oscoda	McKinley	26N	3E	1	NE $\frac{1}{4}$ of NE $\frac{1}{4}$; S $\frac{1}{2}$ of NE $\frac{1}{4}$; S $\frac{1}{2}$; SE $\frac{1}{4}$ of NW $\frac{1}{4}$; W $\frac{1}{2}$ of NW $\frac{1}{4}$				
				2	W $\frac{1}{2}$				
				3	S $\frac{1}{2}$; NW $\frac{1}{4}$				
				4	NE $\frac{1}{4}$; NW $\frac{1}{4}$ of SE $\frac{1}{4}$; N $\frac{1}{2}$ of SW $\frac{1}{4}$; NW $\frac{1}{4}$				
				5	NE $\frac{1}{4}$; NW $\frac{1}{4}$ of SE $\frac{1}{4}$; NE $\frac{1}{4}$ of SW $\frac{1}{4}$				
Oscoda	McKinley	26N	4E	1	S $\frac{1}{2}$ of SW $\frac{1}{4}$; NW $\frac{1}{4}$ of NW $\frac{1}{4}$				
				2	SW $\frac{1}{4}$ of NE $\frac{1}{4}$; S $\frac{1}{2}$; S $\frac{1}{2}$ of NW $\frac{1}{4}$; NW $\frac{1}{4}$ of NW $\frac{1}{4}$				
				3	ALL				
				6	W $\frac{1}{2}$ of SW $\frac{1}{4}$; W $\frac{1}{2}$ of NW $\frac{1}{4}$				
				7	NW $\frac{1}{4}$ of NW $\frac{1}{4}$				
				8	NE $\frac{1}{4}$ of NE $\frac{1}{4}$				
				9	N $\frac{1}{2}$				
				10	N $\frac{1}{2}$				
				11	ALL				
				12	SE $\frac{1}{4}$ of NE $\frac{1}{4}$; W $\frac{1}{2}$ of NE $\frac{1}{4}$; S $\frac{1}{2}$; NW $\frac{1}{4}$				
				13	NE $\frac{1}{4}$; N $\frac{1}{2}$ of SE $\frac{1}{4}$; N $\frac{1}{2}$ of SW $\frac{1}{4}$; NW $\frac{1}{4}$				
				14	NE $\frac{1}{4}$; N $\frac{1}{2}$ of SE $\frac{1}{4}$; E $\frac{1}{2}$ of NW $\frac{1}{4}$; NW $\frac{1}{4}$ of NW $\frac{1}{4}$				
				Oscoda	McKinley	27N	4E	25	E $\frac{1}{2}$; E $\frac{1}{2}$ of SW $\frac{1}{4}$; NW $\frac{1}{4}$ of SW $\frac{1}{4}$; SE $\frac{1}{4}$ of NW $\frac{1}{4}$
								36	ALL

DESIRABLE HABITAT FOR ACQUISITION

Attempts will be made to purchase the following private land inholdings within critical habitat provided owners wish to sell, funds are available for such purchases, and the parcels can be obtained at fair market value. No condemnation proceedings are envisioned.

A. STATE LIST

<u>County</u>	<u>Management Area</u>	<u>Description</u>	<u>Acres</u>
Clare	Leota	T20N R5W, Sec 3 SW $\frac{1}{4}$ of NE $\frac{1}{4}$	40
Clare	Leota	T20N R5W, Sec 3 NW $\frac{1}{4}$ of SE $\frac{1}{4}$	40
Clare	Leota	T20N R5W, Sec 6 SW $\frac{1}{4}$ of NE $\frac{1}{4}$	40
Clare	Leota	T20N R5W, Sec 6 NW $\frac{1}{4}$ of SE $\frac{1}{4}$	40
Clare	Leota	T20N R5W, Sec 9 NE $\frac{1}{4}$	160
Clare	Leota	T20N R5W, Sec 17 SE $\frac{1}{4}$ of NW $\frac{1}{4}$	40
Clare	Leota	T20N R5W, Sec 18 NW $\frac{1}{4}$	160
Clare	Leota	T20N R5W, Sec 22 NW $\frac{1}{4}$ of NE $\frac{1}{4}$	40
Clare	Leota	T20N R5W, Sec 30 E $\frac{1}{2}$ of NW $\frac{1}{4}$	80
Clare	Leota	T20N R5W, Sec 30 SW $\frac{1}{4}$ of NE $\frac{1}{4}$	40
Clare	Leota	T20N R5W, Sec 30 NW $\frac{1}{4}$ of SE $\frac{1}{4}$	40
Clare	Leota	T20N R6W, Sec 13 E $\frac{1}{2}$ of SE $\frac{1}{4}$	80
Clare	Leota	T20N R6W, Sec 13 SW $\frac{1}{4}$ of SE $\frac{1}{4}$	40
Clare	Leota	T20N R6W, Sec 14 SE $\frac{1}{4}$	160
Clare	Leota	T20N R6W, Sec 23 NE $\frac{1}{4}$	160
Clare	Leota	T20N R6W, Sec 23 E $\frac{1}{2}$ of SE $\frac{1}{4}$	80
Clare	Leota	T20N R6W, Sec 23 E $\frac{1}{2}$ of NW $\frac{1}{4}$	80
Clare	Leota	T20N R6W, Sec 24 NW $\frac{1}{4}$ of NE $\frac{1}{4}$	40
Clare	Leota	T20N R6W, Sec 35 SW $\frac{1}{4}$ of NE $\frac{1}{4}$	40
Clare	Leota	T20N R6W, Sec 35 SE $\frac{1}{4}$ of NW $\frac{1}{4}$	40
Clare	Leota	T20N R6W, Sec 35 NE $\frac{1}{4}$ of SW $\frac{1}{4}$	40
Clare	Leota	T20N R6W, Sec 35 NW $\frac{1}{4}$ of SE $\frac{1}{4}$	40
Crawford	Lovells	T28N R1W, Sec 13 NW $\frac{1}{4}$ of NE $\frac{1}{4}$	40
Crawford	North Branch	T27N R1W, Sec 28 NW $\frac{1}{4}$	160
Crawford	Pere Cheney	T25N R2W, Sec 5 NW $\frac{1}{4}$ of SE $\frac{1}{4}$	40
Crawford	Pere Cheney	T25N R2W, Sec 6 N $\frac{1}{2}$ of SE $\frac{1}{4}$	80
Crawford	Pere Cheney	T25N R2W, Sec 6 SE $\frac{1}{4}$ of NW $\frac{1}{4}$	40
Crawford	Pere Cheney	T25N R3W, Sec 1 SW $\frac{1}{4}$ of SE $\frac{1}{4}$	40
Crawford	Pere Cheney	T25N R3W, Sec 1 NW $\frac{1}{4}$ of SW $\frac{1}{4}$	40
Crawford	Pere Cheney	T25N R3W, Sec 1 N $\frac{1}{2}$ of SW $\frac{1}{4}$ of SW $\frac{1}{4}$	20
Crawford	Pere Cheney	T26N R2W, Sec 32 NE $\frac{1}{4}$	160
Crawford	Pere Cheney	T26N R2W, Sec 32 SE $\frac{1}{4}$ of SW $\frac{1}{4}$	40
Crawford	Staley Lake	T26N R3W, Sec 1 SW $\frac{1}{4}$	160
Crawford	Staley Lake	T26N R3W, Sec 34 SE $\frac{1}{4}$	160
Kalkaska	Fletcher Road	T25N R5W, Sec 22 E $\frac{1}{2}$ of SE $\frac{1}{4}$	80
Kalkaska	Sharon	T25N R6W, Sec 8 SW $\frac{1}{4}$ of SW $\frac{1}{4}$	40
Kalkaska	Sharon	T26N R6W, Sec 35 SE $\frac{1}{4}$	160
Montmorency	(Clear Lake- (Tomahawk Creek	T32N R2E, Sec 12 NW $\frac{1}{4}$ of SW $\frac{1}{4}$	40
Ogemaw	Damon	T23N R2E, Sec 6 SW $\frac{1}{4}$ of NE $\frac{1}{4}$	40
Ogemaw	Damon	T24N R1E, Sec 1 NE $\frac{1}{4}$	160
Ogemaw	Damon	T24N R1E, Sec 3 N $\frac{1}{2}$	320
Ogemaw	Damon	T24N R1E, Sec 3 SW $\frac{1}{4}$	160
Ogemaw	Damon	T24N R1E, Sec 5 N $\frac{1}{2}$ of SE $\frac{1}{4}$	80

<u>County</u>	<u>Management Area</u>	<u>Description</u>	<u>Acres</u>
Ogemaw	Damon	T24N R1E, Sec 5 SW $\frac{1}{4}$ of NW $\frac{1}{4}$	40
Ogemaw	Damon	T24N R1E, Sec 13 N $\frac{1}{2}$ of NE $\frac{1}{4}$	80
Ogemaw	Damon	T24N R1E, Sec 14 NW $\frac{1}{4}$	160
Ogemaw	Damon	T24N R1E, Sec 14 SW $\frac{1}{4}$ of SW $\frac{1}{4}$	40
Ogemaw	Damon	T24N R1E, Sec 15 N $\frac{1}{2}$ of N $\frac{1}{2}$ of SW $\frac{1}{4}$	40
Ogemaw	Damon	T24N R1E, Sec 17 NW $\frac{1}{4}$	160
Ogemaw	Damon	T24N R1E, Sec 17 SE $\frac{1}{4}$ of NE $\frac{1}{4}$	40
Ogemaw	Damon	T24N R1E, Sec 18 N $\frac{1}{2}$ of NE $\frac{1}{4}$	80
Ogemaw	Damon	T24N R1E, Sec 20 E $\frac{1}{2}$ of NW $\frac{1}{4}$	80
Ogemaw	Damon	T24N R1E, Sec 26 NW $\frac{1}{4}$	160
Ogemaw	Damon	T24N R1E, Sec 34 NW $\frac{1}{4}$ of NE $\frac{1}{4}$	40
Ogemaw	Damon	T24N R1E, Sec 34 N $\frac{1}{2}$ of SW $\frac{1}{4}$ of NE $\frac{1}{4}$	20
Ogemaw	Damon	T24N R1E, Sec 35 NW $\frac{1}{4}$	160
Ogemaw	Damon	T24N R1E, Sec 36 S $\frac{1}{2}$ of NE $\frac{1}{4}$	80
Ogemaw	Damon	T24N R2E, Sec 3 SW $\frac{1}{4}$ of NW $\frac{1}{4}$	40
Ogemaw	Damon	T24N R2E, Sec 3 SW $\frac{1}{4}$	160
Ogemaw	Damon	T24N R2E, Sec 6 E $\frac{1}{2}$ of NW $\frac{1}{4}$	80
Ogemaw	Damon	T24N R2E, Sec 18 S $\frac{1}{2}$ of NE $\frac{1}{4}$	80
Ogemaw	Damon	T24N R2E, Sec 18 SE $\frac{1}{4}$	160
Ogemaw	Damon	T24N R2E, Sec 29 W $\frac{1}{2}$ of NW $\frac{1}{4}$	80
Ogemaw	Damon	T24N R2E, Sec 30 NE $\frac{1}{4}$	160
Ogemaw	Damon	T24N R2E, Sec 31 NE $\frac{1}{4}$	160
Ogemaw	Damon	T24N R2E, Sec 31 E $\frac{1}{2}$ of NW $\frac{1}{4}$	80
Ogemaw	Damon	T24N R2E, Sec 32 SE $\frac{1}{4}$ of SW $\frac{1}{4}$	40
Ogemaw	Ogemaw Refuge	T23N R1E, Sec 17 SE $\frac{1}{4}$	160
Ogemaw	Ogemaw Refuge	T23N R1E, Sec 19 NW $\frac{1}{4}$	160
Ogemaw	Ogemaw Refuge	T23N R1E, Sec 20 NW $\frac{1}{4}$ of NW $\frac{1}{4}$	40
Ogemaw	Ogemaw Refuge	T23N R1E, Sec 20 W $\frac{1}{2}$ of SE $\frac{1}{4}$	80
Ogemaw	Ogemaw Refuge	T23N R1E, Sec 29 E $\frac{1}{2}$ of SW $\frac{1}{4}$	80
Ogemaw	Ogemaw Refuge	T23N R1E, Sec 32 NE $\frac{1}{4}$ of NE $\frac{1}{4}$ - part	21
Oscoda	Big Creek	T27N R1E, Sec 5 NW $\frac{1}{4}$ of SW $\frac{1}{4}$	40
Oscoda	Big Creek	T27N R1E, Sec 6 W $\frac{1}{2}$	260
Oscoda	Big Creek	T27N R1E, Sec 7 NW $\frac{1}{4}$	160
Oscoda	Big Creek	T28N R1E, Sec 18 SW $\frac{1}{4}$ of NE $\frac{1}{4}$	40
Oscoda	Big Creek	T28N R1E, Sec 29 SW $\frac{1}{4}$ of SW $\frac{1}{4}$ - part	14
Oscoda	Big Creek	T28N R1E, Sec 30 SE $\frac{1}{4}$ of SE $\frac{1}{4}$ & part of NE $\frac{1}{4}$ of SE $\frac{1}{4}$	46
Oscoda	Big Creek	T28N R1E, Sec 31 SE $\frac{1}{4}$ of NE $\frac{1}{4}$	40
Oscoda	Big Creek	T28N R1E, Sec 31 NE $\frac{1}{4}$ of SE $\frac{1}{4}$	40
Oscoda	Muskrat Lake	T27N R1E, Sec 13 SW $\frac{1}{4}$ of SE $\frac{1}{4}$	40
Oscoda	Muskrat Lake	T27N R1E, Sec 23 E $\frac{1}{2}$ of SW $\frac{1}{4}$	80
Oscoda	Muskrat Lake	T27N R1E, Sec 23 NE $\frac{1}{4}$ of SE $\frac{1}{4}$	40
Oscoda	Warbler Monument	T26N R1E, Sec 5 N $\frac{1}{2}$ of NE $\frac{1}{4}$	80
Oscoda	Warbler Monument	T27N R1E, Sec 31 E $\frac{1}{2}$ of SW $\frac{1}{4}$	80
Oscoda	Warbler Monument	T27N R1E, Sec 31 SE $\frac{1}{4}$ of NW $\frac{1}{4}$	40
Oscoda	Warbler Monument	T27N R1E, Sec 32 SW $\frac{1}{4}$	160
Otsego	Crapo Lake	T29N R1W, Sec 16 E $\frac{1}{2}$ of SW $\frac{1}{4}$	80
Roscommon	St. Heilen	T23N R1W, Sec 24 E $\frac{1}{2}$ of SW $\frac{1}{4}$	80

TOTAL 7,661

B. FEDERAL LIST

<u>County</u>	<u>Management Area</u>	<u>Description</u>	<u>Acres</u>
Alcona	McKinley	T26N R5E, Sec 21 W $\frac{1}{2}$ of SW $\frac{1}{4}$	80
Alcona	McKinley	T26N R5E, Sec 21 SE $\frac{1}{4}$ of SW $\frac{1}{4}$	40
Alcona	McKinley	T26N R5E, Sec 28 W $\frac{1}{2}$ of NW $\frac{1}{4}$	80
Alcona	McKinley	T26N R5E, Sec 28 SW $\frac{1}{4}$ of NE $\frac{1}{4}$	40
Alcona	McKinley	T27N R5E, Sec 31 SW $\frac{1}{4}$ of NW $\frac{1}{4}$	42
Crawford	Eldorado	T25N R1W, Sec 11 E $\frac{1}{2}$ of SW $\frac{1}{4}$	80
Crawford	Pere Cheney	T25N R2W, Sec 16 N $\frac{1}{2}$ of NE $\frac{1}{4}$	80
Crawford	Pere Cheney	T26N R2W, Sec 34 SW $\frac{1}{4}$ of SW $\frac{1}{4}$	40
Iosco	Tawas	T22N R7E, Sec 4 SE $\frac{1}{4}$ of NW $\frac{1}{4}$	40
Iosco	Tawas	T22N R7E, Sec 4 NE $\frac{1}{4}$ of SE $\frac{1}{4}$	40
Iosco	Tawas	T23N R6E, Sec 12 SW $\frac{1}{4}$ of SW $\frac{1}{4}$	40
Iosco	Tawas	T23N R7E, Sec 10 SE $\frac{1}{4}$ of SW $\frac{1}{4}$	40
Oscoda	Big Creek	T25N R1E, Sec 11 SE $\frac{1}{4}$ of SE $\frac{1}{4}$	40
Oscoda	Big Creek	T25N R1E, Sec 11 SE $\frac{1}{4}$ of NW $\frac{1}{4}$	40
Oscoda	Big Creek	T25N R1E, Sec 26 SE $\frac{1}{4}$ of NW $\frac{1}{4}$	40
Oscoda	Big Creek	T25N R2E, Sec 20 W $\frac{1}{2}$ of SE $\frac{1}{4}$	80
Oscoda	Big Creek	T25N R2E, Sec 32 N $\frac{1}{2}$ of NW $\frac{1}{4}$	80
Oscoda	Mack Lake	T25N R3E, Sec 4 NW $\frac{1}{4}$ of SW $\frac{1}{4}$	40
Oscoda	Mack Lake	T25N R3E, Sec 4 Lot 2	35
Oscoda	Mack Lake	T25N R3E, Sec 5 S $\frac{1}{2}$	320
Oscoda	Mack Lake	T25N R3E, Sec 8 SW $\frac{1}{4}$	150
Oscoda	McKinley	T26N R3E, Sec 2 N $\frac{1}{2}$ of SE $\frac{1}{4}$	80
Oscoda	McKinley	T26N R3E, Sec 3 W $\frac{1}{2}$ of NE $\frac{1}{4}$	80
Oscoda	McKinley	T26N R3E, Sec 3 NE $\frac{1}{4}$ of NE $\frac{1}{4}$	40
Oscoda	McKinley	T26N R3E, Sec 3 W $\frac{1}{2}$ of SE $\frac{1}{4}$ of NE $\frac{1}{4}$	20
Oscoda	McKinley	T26N R3E, Sec 12 N $\frac{1}{2}$ of N $\frac{1}{2}$	160

TOTAL----- 1,807 Acres