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DEPARTMENT OF NATURAL RESOURCES

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 MICHIGAN DEPARTMENT OF NATURAL RESOURCES

TO: Jeff Olson, Investment Analyst, Forest Management Division

FROM: Jerry Weinrich, Endangered Species/Wild Turkey Biologist,
 Wildlife Division

SUBJECT: Kirtland's Warbler Habitat Use and Warbler Habitat Regeneration
 Schemes

Attached please find information on habitat acreage and occupation by Kirtland's warblers for three wildfire areas. Note that none of these areas has yet gone out of production, but this information should provide an idea of recent densities in wildfire areas. I am still putting together data for plantations.

Also attached is a list of a number of methods of treatment for regenerating Kirtland's warbler habitat - many of which have yet to be tried, especially in this area. Nels Johnson, I, and others, have discussed these options and we agree on the indicated potential for utilization by Kirtland's warblers (percentage estimate). These estimates of potential for maximal use by Kirtland's warblers take into account the following factors: likelihood for regeneration of jackpine; density, spatial distribution, and uniformity of height of resulting jack pine regeneration; ground cover; potential for parasitism and predation of warblers, and "intensity" (potential nesting density), and duration of use by warblers. Note that wildfires in fully-stocked mature stands equate to 100% utilization by warblers - we feel that other regeneration techniques will probably only approach the level of desirability of stands so regenerated.

Please call me if you have questions on specifications for these treatments.

Jerry

JW;yc



AREA

Muskrat Lake: Burned 1964; 701 acres

History of Kirtland's Use

1972 =	6	singing	males
1973 =	12	"	"
1974 =	16	"	"
1975 =	21	"	"
1976 =	17	"	"
1977 =	29	"	"
1978 =	26	"	"
1979 =	39	"	"

Damon: Burned 1966; 1596 acres

History of Kirtland's Use

1974 =	none	located	but	some	were	probably	present
1975 =	20	singing	males				
1976 =	21	"	"				
1977 =	46	"	"				
1978 =	27	"	"				
1979 =	29	"	"				

Fletcher: Burned 1968; 2091 acres

History of Kirtland's Use

1975 =	3	singing	males
1976 =	8	"	"
1977 =	11	"	"
1978 =	16	"	"
1979 =	21	"	"

JW:leg
2/19/80

POTENTIAL FOR CREATION OF
KIRTLAND'S WARBLER HABITAT

TREATMENT

Clearcut only	15%
Clearcut and prescribed burn	5%
Clearcut and plant	80%
Clearcut, prescribed burn and plant	95%
Clearcut and seed ($\frac{1}{2}$ lb/A)	10%
Clearcut and seed (1 lb/A)	12%
Clearcut, burn and seed ($\frac{1}{2}$ lb/A)	35%
Clearcut, burn and seed (1 lb/A)	50%
Seed tree cut (cut 2 chain strip, leave 3 chain strip), seed tree removal 10 years later	5%
Same as above but remove seed trees in four years	8%
Strip cut as above, scarify cut strips with rolling chopper, remove seed trees in four years	15%
Strip cut as above and prescribe burn (done with wildfire at Muskrat Lake)	85%
Clearcut and roller chop	20%
Clearcut, roller chop and seed	30%
Clearcut, scarify with Canada disc	17%
Clearcut, Canada disc and seed	30%
Scattered seed tree cut only (leave 15 trees per acre) seed trees removed in 10 years	25%
Same as above (leave 25 trees per acre)	35%
Same as above (leave 100 trees per acre)	5%
Same as above (but remove seed trees in 4 years)(leave 15 trees per acre)	25%
Same as above (leave 25 trees per acre)	40%
Same as above (leave 100 trees per acre)	60%
Scattered seed tree cut (leave 15 trees/acre), roller chop and remove seed trees in 4 years	40%
Same as above but leave 25 trees per acre	50%
Same as above but leave 100 trees per acre	75%
Scattered seed tree cut (leave 15 trees per acre), scarify with Canada disc, remove seed trees in 4 years	35%
Same as above but leave 25 seed trees per acre	40%
Same as above but leave 100 seed trees per acre	65%
Scattered seed tree cut (leave 15 trees per acre), burn to kill seed trees	20%
Same as above but leave 25 seed trees per acre	40%
Same as above but leave 100 seed trees per acre	80%
Same as above but leave 200 seed trees per acre	95%
Scattered seed tree cut (leave 15 trees per acre), burn to kill seed trees, seed once at $\frac{1}{2}$ lb/acre	25%
Same as above but seed once at 1 lb/acre	30%
Same as above but seed twice at $\frac{1}{2}$ lb/acre	35%
Same as above but seed twice at 1 lb/acre	40%
Scattered seed tree cut (leave 25 trees per acre), burn to kill seed trees and seed once at $\frac{1}{2}$ lb/acre	50%
Same as above but seed once at 1 lb/acre	60%
Same as above but seed twice at $\frac{1}{2}$ lb/acre	65%
Same as above but seed twice at 1 lb/acre	70%
Scattered seed tree cut (leave 100 trees/acre), burn to kill seed trees, seed once at $\frac{1}{2}$ lb/acre	95%
Same as above but seed once at 1 lb/acre	95%
Same as above but seed twice at $\frac{1}{2}$ lb/acre	95%
Same as above but seed twice at 1 lb/acre	95%

TREATMENT - Cont'd.

POTENTIAL FOR CREATION OF
KIRTLAND'S WARELER HABITAT

Scattered seed tree cut (leave 200 trees/acre), burn to KILL SEED TREES AND SEED ONCE AT ½ LB/ACRE	98%
Same as above but seed once at 1 lb/acre	98%
Same as above but seed twice at ½ lb/acre	98%
Same as above but seed twice at 1 lb/acre	98%
Scattered seed tree cut (leave 15 trees/acre) and burn to <u>not</u> kill seed trees, remove seed trees in 4 years	40%
Same as above but leave 25 seed trees/acre	50%
Same as above but leave 100 seed trees/acre	75%
Clearcut except leave clumps of 30 to 50 seed trees equivalent to 15 trees/acre and burn to kill seed trees	25%
Same as above but leave seed trees equivalent to 25 trees/acre	55%
Same as above but leave seed trees equivalent to 100 trees/acre	90%
Cut 1 chain strip, leave 1 chain strip, burn to kill seed trees	95%
Cut 2 chain strip, leave 1 chain strip, burn to kill seed trees	80%
Prescribed burn fully-stocked mature stand	99%
Prescribed burn fully-stocked immature stand(30 years old)	40%
Same as above but seed aerially within 1 week of burning at ½ lb/acre one time	60%
Same as above but seed at 1 lb/acre one time	65%
Same as above but seed twice at ½ lb/acre within 3 weeks of burning	70%
Wildfire in fully-stocked, mature stands	100%

JW/leg
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