



## GLADWIN FOREST MANAGEMENT UNIT COMPARTMENT REVIEW PRESENTATION

**COMPARTMENT # 11 ENTRY YEAR: 2009**

**Compartment Acreage: 1482 County: Clare**

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**Revision Date:** May 16, 2007; October 22, 2007

**Stand Examiner:** Tim Gallagher

**Legal Description:** T20N – R5W: Sections: 15, 16, 17 & 18.

**RMU (if applicable):**

### **Management Goals:**

The entire compartment is in the heart of the “Leota Kirtland Warbler Management Area” (LKWMA) which is dominated by large contiguous blocks of even age jack pine management areas that are designed to produce nesting habitat for the Kirtland Warbler. The entire LKWMA has special resource management direction as a “Dedicated Species Recovery Area” and has been dedicated as a High Conservation Value Area (HCVA). The entire compartment has been coded as stand condition eight to reflect the designation as an HCVA. Leota KW management Block 117 is located within the compartment, and is scheduled for final harvest and replanting to jack pine for KW nesting habitat this rotation. It will be necessary to defer treatment (for block 117) within the ten year entry period as the target planting date is 2019. It will be necessary to hold the entire block and place on the 2015 timber sale “plan of work”. There are 254 acres prescribed for final harvest and replanting within block 117. Stands 34 and 37 are both within the block boundary. However, both stands have been excluded from treatment as they are both too young. There is also several gas wells typed as G within the block. Approximately 80% of the forest types are upland red and jack pine stands. The remaining 20% of the forest types include lowland brush along the Cranberry Creek Corridor and true lowland hardwood types within the Muskegon River Floodplain.

### **Soil and Topography:**

The area varies from well drained Grayling sands in the outwash plains to poorly drained mucky Lupton-Markey soils as you enter the Muskegon River Floodplain and the Cranberry Creek Corridor. The terrain varies from nearly level to the steep banks that lead down into the floodplain of the Muskegon River and Cranberry Creek.

### **Ownership Patterns, Development, and Land Use in and Around the Compartment:**

The state land occurs in large contiguous blocks. Private in-holdings are mostly comprised of large (40 plus acres) forested blocks with single absentee ownerships. There is no evidence of any forest management activities on the private holdings. Rainbow Bend Subdivision is located in the center of the compartment (Section 16) along the Muskegon River. This is a small subdivision made up of both homes for permanent residents and seasonal use cottages that concentrates use on the land and along the river. The town of Leota is directly adjacent to the north east corner of the compartment.

There are two parcels in U.S. Fish and Wildlife Service ownership within the compartment:

1) NW1/4: section 18. 160 acres.

2) SENW: section 17. 40 acres.

(Neither parcel was included in this year of entry inventory)

### **Unique, Natural Features:**

This area has a variety of rare species that could be or are present including; Secretive Locust, Kirtland Warbler, Red-legged Spittle Bug, Red Shouldered Hawk, Eastern Box Turtle, Goshawk, Bald Eagle, Osprey, Great Blue Heron, Wood Turtle and Blanding's Turtle. There is also potential for Beak Grass, Broad-leafed Puccoon in stands along the Muskegon River, and dry prairie plants in the grassy openings.

### **Archeological, Historical, and Cultural Features:**

There is one documented site within the compartment.

### **Special Management Designations or Considerations:**

The entire compartment is within the Leota Kirtland Warbler Management Area and has special resource management direction as a "Dedicated Species Recovery Area". Therefore the entire compartment has been dedicated as a High Conservation Value Area (HCVA). The entire compartment has been coded as stand condition eight to reflect the designation as a HCVA. Leota KW management Block 117 is located within the compartment.

### **Watershed and Fisheries Considerations:**

Cranberry Creek flows into the Muskegon River ¼ mile south of the compartment. Both of these water-ways are within the compartment. Cranberry Creek is a designated trout stream and should be treated as a cold water fishery. Cranberry Creek is in a valley and has a natural buffer of lowland brush, lowland timber types and marsh directly adjacent to its banks; the river corridor should be considered sensitive wetland. The Muskegon River, a warm water fishery and a major Michigan watershed has a natural corridor (floodplain) of lowland swamp hardwood along most of the water course and should be considered a sensitive area for timber harvest purposes. Upland/High bank areas along the river should also be considered sensitive. The Muskegon River Floodplain and associated bottomlands are seasonally flooded.

### **Wildlife Habitat Considerations:**

Many of the pine stands harvested and replanted to Jack Pine in 1997 and 1998 are now actively producing Kirtland Warblers – particularly Section 18. Section 17 currently has stands that should start to be occupied within the next two – four years.

The establishment of young Jack Pine stands/habitat is the key value of management for this compartment. Kirtland Warblers, the focus species, has increased from a "historical presence only" to 147 singing males during the 2007 spring survey.

Large young Jack Pine stands function to benefit wildlife species other than the above targeted Kirtland's Warbler. The Hermit Thrush, Nashville and Yellow Throated Warblers, Morning Doves, Snowshoe Hare, Eastern Cottontail and Whitetail Deer are commonly observed within the managed Jack Pine plantings. Depending upon the species, wildlife use varies both seasonally and with the age of any given stand. In most situations, planted Jack Pine stands are intermixed with a considerable volume of cherry and oak cover types.

**Mineral Resource and Development Concerns and/or Restrictions:**

Much of the compartment lies within the Cranberry Gas Storage Field. Numerous gas wells, pipelines and access roads are scattered over much of the compartment. Many of the pipelines, access roads, and gas well sites are under long term lease agreements with Consumers Energy.

Surface sediments consist of glacial outwash sand and gravel and postglacial alluvium. The glacial drift thickness varies between 400 and 600 feet. Beneath the glacial drift are the Pennsylvanian Saginaw and Grand River Formations. The Saginaw Formation is used for clay/shale in other areas of the State. A gravel pit is located in Section 4 and there may be some gravel potential. Cranberry Lake Field is located in this Compartment and most lands are leased for existing gas storage and some for existing oil and gas development. Portions of Section 16 and 17 have been nominated for the November 2007 oil & gas lease auction.

**Vehicle Access:**

Access to most of the compartment is good via the county road system and state two tracks that are in place.

**Survey Needs:**

None

**Recreational Facilities and Opportunities:**

The Fir Farm Snowmobile Trail is located in sections 15 and 16. The trail is presently closed due to the closing of the Fir Farm Bridge one mile south of the compartment. The area receives moderate hunting pressure, most of which is deer hunters. Moderate fishing occurs on Cranberry Creek and the Muskegon River. Canoe traffic on the Muskegon River can be heavy on weekends during the summer.

District Recreation personal has advised that the Fir Farm Snowmobile Trail and associated bridge will *likely* re-open this winter (2007-2008 season). The bridge has been deemed unsafe for heavy groomers-but lighter sleds can pass over the bridge. The intent is to sign the bridge with weight restriction signs, and have the heavy groomer's by-pass the bridge using county roads to gain access to both sides of the bridge and continue grooming the trail. (Currently there is a berm restricting ANY access the plan is to remove the berm after hunting season to again promote the snowmobile program.)

**Fire Protection:**

Large contiguous blocks of explosive jack pine fuels exist, causing this area to be vulnerable to wildfire of catastrophic proportions. This area is prime for potential fire control problems. Oak mortality has added high levels of dead woody material near the ground. If ignited, this dead wood will carry higher levels of heat up into the ladder fuels, thus torching and crown fires are more likely to develop. Some natural fuel breaks exist, but it is doubtful that a full fledged jack pine fire would be halted by anything less than some of the wide sections of swamp hardwood that exist along the Muskegon River Corridor. The threat of loss of life due to being trapped by a wildfire is a concern in the Rainbow Bend Subdivision since the two escape routes lead right through dense jack pine fuels. The Natural Gas Storage Field and pipelines add additional challenges for fire control forces.

**Additional Compartment Information:**

There are several timber harvests that will affect the snowmobile trail. If forest products are to be trucked out on the trail in winter months, snow cover must be maintained on the trail. In many areas the snowmobile trail is the only way out with forest products. Visual management is a concern within this compartment as the town of Leota is directly adjacent to stand 7 which is prescribed for final harvest and replanting to red pine. Consider leaving a buffer along the north end of stand 7 and also along the township hall, park and baseball field.

**\*\*\*\* Cover type details, proposed treatments and stands designated as FDF are listed in the attached reports:**

**Cover Type by Age Class**

**Cover Type by Management Objective**

**Compartment Volume Summary**

**Proposed Treatments – No Limiting Factors**

**Proposed Treatments – With Limiting Factors**

**\*\*\*\* The following information is displayed on the attached compartment maps:**

**Base feature information, stand numbers, cover types**

**Proposed treatments**

**Proposed road access system**

**Suggested potential old growth**

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Michigan Department of Natural Resources - Operations Inventory System  
Individual Compartment Report

AUSABLE STATE FOREST

GLADWIN FOREST MGT UNIT

CLARE COUNTY

COMPARTMENT: 11

Table 3

(acres shown in boxes)

STAND AGE CLASS

COVER TYPE	Not Coded	0-9	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100-109	110-119	120-129	130-139	140-149	150-159	All Aged	Total
Aspen			27	5															32
Bog or Marsh	4																		4
Cedar												14							14
Grass	35																		35
Jack Pine		80	119				34	87	10										330
Lowlnd Brush	41																		41
Marsh	7																		7
Oak									74	45	21	12							152
Red Pine		33	94	51		10	23		379			22	1						613
Swamp Hrdwds								28	34	33	32	68						16	211
Upland Hdwds								6											6
Water	4																		4
White Pine				28										5					33
<b>Total</b>	<b>91</b>	<b>113</b>	<b>240</b>	<b>84</b>		<b>10</b>	<b>57</b>	<b>121</b>	<b>497</b>	<b>78</b>	<b>53</b>	<b>116</b>	<b>1</b>	<b>5</b>				<b>16</b>	<b>1482</b>

AUSABLE STATE FOREST

GLADWIN FOREST MGT UNIT

CLARE COUNTY

COMPARTMENT: 11

Table 3A

(acres shown in boxes)

MANAGEMENT OBJECTIVE TYPE

COVER TYPE	A	S	V	C	G	H	J	I	L	P	N	Q	X	O	B	R	K	Y	F	E	T	D	U	M	Z	W	Total	
A Aspen	32																										32	
V Bog or Marsh			4																								4	
C Cedar				14																							14	
G Grass					35																						35	
J Jack Pine							288									42											330	
L Lowlnd Brush									41																		41	
N Marsh											7																7	
O Oak							38							96	18												152	
R Red Pine							127									486											613	
E Swamp Hrdwds																				211							211	
M Upland Hdwds																								6		6		
Z Water																									4	4		
W White Pine																										33	33	
<b>Total</b>	<b>32</b>		<b>4</b>	<b>14</b>	<b>35</b>		<b>453</b>		<b>41</b>		<b>7</b>			<b>96</b>	<b>546</b>					<b>211</b>					<b>6</b>	<b>4</b>	<b>33</b>	<b>1482</b>

AUSABLE STATE FOREST

GLADWIN FOREST MGT UNIT

CLARE COUNTY

COMPARTMENT: 11

**Table 10 - COMPARTMENT VOLUME SUMMARY - ALL STANDS**

COMPARTMENT SUMMARY			
TOTAL VOLUME		CUT VOLUME	
Hardwood	3846 Cds	Hardwood	1148 Cds
Hardwood	1332 Mbf	Hardwood	550 Mbf
Softwood	11239 Cds	Softwood	7554 Cds
Softwood	2397 Mbf	Softwood	1248 Mbf
Sum TotVol	22543 Cds	Sum CutVol	12298 Cds
<b>Total Cmpt Acres</b>		Acres Proposed For Cut.....	517
1482			

**GLADWIN FOREST MGT UNIT**

**Proposed Treatments  
With NO Limiting Factors**

**Compartment: 11**

**Entry Year: 2009**

Stand	Cover Type	Acres	Age	Site Index	Mgt Obj	Condition	Method Cut	Harvest Priority	Cultural Need	FDF Status
1	R6	5	71	48	red pine	old growth (potential or actual)	final harvest	1	planting	
<p>comnts Fmd : Mixed red pine, jack pine, and oak stand. Density by species varies. Final harvest and replant red pine, preparing stand for future buffer for stand 2 that is being managed for red pine poles. Slight hill on east end of stand. Mark to leave red pine and oak to meet retention guidelines, possible to leave very SE corner of stand uncut to meet retention guidelines. The entire compartment is in the "Leota Kirtland Warbler Management Area" (LKWMA). The entire LKWMA has special resource management direction as a "Dedicated Species Recovery Area" and has been dedicated as a "High Conservation Value Area" (HCVA). The entire compartment has been coded as stand condition eight to reflect the HCVA designation. (1999 Comments: Hold for ten years, then do a clearcut.)</p>										
2	R9	41	71	55	red pine	old growth (potential or actual)	thinning	1		prescribed for fdf treatment
<p>comnts Fmd : All jack pine, oak and marked red pine removed in 2000. A great deal of time was invested in marking rows for loggability in 2000. Excellent quality timber. Reduce red pine residual to 120 BA/AC. Thinning from below will not do this stand justice. Remove all damaged trees, dominate and codominate trees to reach desired BA/AC. Leave scattered oak dead and alive. The entire compartment is in the "Leota Kirtland Warbler Management Area" (LKWMA). The entire LKWMA has special resource management direction as a "Dedicated Species Recovery Area" and has been dedicated as a "High Conservation Value Area" (HCVA). The entire compartment has been coded as stand condition eight to reflect the HCVA designation. (1999 Comments: Qualifies as an FDF Stand. Natural Gas Storage Injection pipelines. Stand may have Utility Poles? Old hand planting, vague row delineation E/W. Some very nice Quality timber. Possibly take some rows out for the first cutting in this stand.)</p>										
7	R6	29	72	48	red pine	old growth (potential or actual)	final harvest	1	planting	
<p>comnts Fmd : Hand planted to red pine and jack pine in 1938. Final harvest and replant red pine. Stay away from steep bank at west north west corner of stand. Stand borders the town of Leota, township hall and baseball fields at north end. Need to consider visual at north end of stand. Possible to leave pockets of red pine at north end of stand to meet retention guidelines. The entire compartment is in the "Leota Kirtland Warbler Management Area" (LKWMA). The entire LKWMA has special resource management direction as a "Dedicated Species Recovery Area" and has been dedicated as a "High Conservation Value Area" (HCVA). The entire compartment has been coded as stand condition eight to reflect the HCVA designation. (1999 Comments: Some mortality in the oak, but not much. Hold this for 10 years.)</p>										
8	J6	42	64	42	red pine	old growth (potential or actual)	final harvest	1	planting	
<p>comnts Fmd : Mixed jack pine, red pine and oak stand. Planted in 1940 jack pine and oak showing signs of decline, red pine doing much better than the jack pine. Final harvest and replant red pine. Mark a mix of oak and red pine to leave to meet retention guidelines. The entire compartment is in the "Leota Kirtland Warbler Management Area" (LKWMA). The entire LKWMA has special resource management direction as a "Dedicated Species Recovery Area" and has been dedicated as a "High Conservation Value Area" (HCVA). The entire compartment has been coded as stand condition eight to reflect the HCVA designation.</p>										
9	R6	15	52	54	red pine	old growth (potential or actual)	thinning	1		stand with fdf potential
<p>comnts Fmd : Decent red pine, third row thinned in 1991, maintain as a plantation. Individually tree mark to reduce residual BA/AC to 110 BA/AC. The entire compartment is in the "Leota Kirtland Warbler Management Area" (LKWMA). The entire LKWMA has special resource management direction as a "Dedicated Species Recovery Area" and has been dedicated as a "High Conservation Value Area" (HCVA). The entire compartment has been coded as stand condition eight to reflect the HCVA designation. (1999 Comments: NAT GAS STORAGE INJ SITE &amp; PIPELINES HERE)</p>										
10	O6	27	79	50	oak	old growth (potential or actual)	final harvest	1	natural regeneration	
<p>comnts Fmd : Final harvest, leave all red and white pine for visual and retention. Mark to leave oak in clumps to meet retention guidelines. May need to interplant red pine to maintain full stocking. All the pine is located at the south end of stand along road. Very little white pine. Scattered pockets of jack pine, lots of dead oak both standing and down. The entire compartment is in the "Leota Kirtland Warbler Management Area" (LKWMA). The entire LKWMA has special resource management direction as a "Dedicated Species Recovery Area" and has been dedicated as a "High Conservation Value Area" (HCVA). The entire compartment has been coded as stand condition eight to reflect the HCVA designation. (1997 comments: This one will hold for 10 years yet. Only a trace of mortality, nothing to be concerned about. It is mainly a polesize stand of jack pine and oak. 1988 notes: TRACES OF GYPSY MOTH)</p>										

**GLADWIN FOREST MGT UNIT**

**Proposed Treatments  
With NO Limiting Factors**

**Compartment: 11**

**Entry Year: 2009**

Stand	Cover Type	Acres	Age	Site Index	Mgt Obj	Condition	Method Cut	Harvest Priority	Cultural Need	FDf Status
17	R9	22	101	47	red pine	old growth (potential or actual)	final harvest	1	planting	
<p>comnts Fmd : Final harvest and replant red pine. Mark to leave a mix of red pine and oak to leave to meet retention guidelines. Regen will be a mix of red pine, oak and jack pine. Mixed stand red pine, oak and jack pine. Little to no understory. Dead oak salvage in 2002. Open grown big timber, oak is on the rapid decline. The entire compartment is in the "Leota Kirtland Warbler Management Area" (LKWMA). The entire LKWMA has special resource management direction as a "Dedicated Species Recovery Area" and has been dedicated as a "High Conservation Value Area" (HCVA). The entire compartment has been coded as stand condition eight to reflect the HCVA designation. (1999 Comments: Natural Gas Storage Injection Site #342 is located in this stand along with some related pipelines. An overhead power line easement bisects this stand. The red pine in this stand is 50 years old (examined 1997) and 50 feet tall. Lots of dead oak especially west of the power line, more jack pine east of power line. Could go in and do a salvage cut on the dead oak, but overall this is a low priority cut. Looking along the overhead power line - there is a good number of trees that should be removed in order to lessen the chance of them coming down on the lines in the future and creating a fire)</p>										
24	O5	21	88	46	oak	old growth (potential or actual)	final harvest	1	natural regeneration	
<p>comnts Fmd : Final harvest 4" spec to stimulate and release understory, leave all white pine. J3 / J2, W1, O1 understory. Oak salvage cut here in 2003. Mark to leave oak to meet retention guidelines. May need to interplant red pine to maintain full stocking. The entire compartment is in the "Leota Kirtland Warbler Management Area" (LKWMA). The entire LKWMA has special resource management direction as a "Dedicated Species Recovery Area" and has been dedicated as a "High Conservation Value Area" (HCVA). The entire compartment has been coded as stand condition eight to reflect the HCVA designation. (1999 Comments: Not a good site, some WP saplings and a trace of JP, otherwise not much of a stand. I would leave it go another 10 years, then assess it again. 1988 notes: Previous cut was remove all except oak)</p>										
30	R6	35	68	42	jack pine	old growth (potential or actual)	final harvest	1	planting	
<p>comnts Fmd : Due to a recent update in the Leota Kirtland Warbler plan final harvest and replant jack pine for KW habitat. Follow retention guidelines as they pertain to KW harvests. Stand is within KW block 117. Defer treatment to the 2015 plan-of-work, target plant year is 2019. The entire compartment is in the "Leota Kirtland Warbler Management Area" (LKWMA). The entire LKWMA has special resource management direction as a "Dedicated Species Recovery Area" and has been dedicated as a "High Conservation Value Area" (HCVA). The entire compartment has been coded as stand condition eight to reflect the HCVA designation. (1999 Comments: Some areas are heavy to RP others heavy to JP. Natural Gas Storage Injection Site #415 is located at the edge of this stand. Consider clearcutting in 10 years)</p>										
31	J6	5	57	45	jack pine	old growth (potential or actual)	final harvest	1	planting	
<p>comnts Fmd : Due to a recent update in the Leota Kirtland Warbler plan final harvest and replant jack pine for KW habitat. Follow retention guidelines as they pertain to KW harvests. Stand is within KW block 117. Defer treatment to the 2015 plan-of-work, target plant year is 2019. The entire compartment is in the "Leota Kirtland Warbler Management Area" (LKWMA). The entire LKWMA has special resource management direction as a "Dedicated Species Recovery Area" and has been dedicated as a "High Conservation Value Area" (HCVA). The entire compartment has been coded as stand condition eight to reflect the HCVA designation. (1999 Comments: Natural Gas Storage Injection Site #946 is located at the North end of this stand. Injection Site at the South end is #706)</p>										
32	R9	7	72	55	jack pine	old growth (potential or actual)	final harvest	1	planting	
<p>comnts Fmd : Due to a recent update in the Leota Kirtland Warbler plan final harvest and replant jack pine for KW habitat. Follow retention guidelines as they pertain to KW harvests. Stand is within KW block 117. Defer treatment to the 2015 plan-of-work, target plant year is 2019. All jack pine and marked red pine removed in 2000. Stand is at desired BA for red pine sawlogs. Excellent quality timber. The entire compartment is in the "Leota Kirtland Warbler Management Area" (LKWMA). The entire LKWMA has special resource management direction as a "Dedicated Species Recovery Area" and has been dedicated as a "High Conservation Value Area" (HCVA). The entire compartment has been coded as stand condition eight to reflect the HCVA designation. (1999 Comments: Planted in 1937. Some N/S rows can be distinguished. It is a small stand and would be nice to keep it in a condition other than clearcut. Perhaps we can remove a few rows when we treat some of the adjacent stands. Cut every fourth row)</p>										

Stand	Cover Type	Acres	Age	Site Index	Mgt Obj	Condition	Method Cut	Harvest Priority	Cultural Need	FDf Status
33	R6	19	72	40	jack pine	old growth (potential or actual)	final harvest	1	planting	
<p>comnts Fmd : Due to a recent update in the Leota Kirtland Warbler plan final harvest and replant jack pine for KW habitat. Follow retention guidelines as they pertain to KW harvests. Stand is within KW block 117. Defer treatment to the 2015 plan-of-work, target plant year is 2019. Mixed red pine, jack pine and oak stand. The entire compartment is in the "Leota Kirtland Warbler Management Area" (LKWMA). The entire LKWMA has special resource management direction as a "Dedicated Species Recovery Area" and has been dedicated as a "High Conservation Value Area" (HCVA). The entire compartment has been coded as stand condition eight to reflect the HCVA designation. (1999 Comments: This stand was cut in 1961 - apparently all the Red Pine was left at that time. This stand can wait another 20 years before we need to do any further treatments. Some small DBH Jack Pine is coming along too. ADJACENT TO NATURAL GAS PIPELINE)</p>										
35	J6	29	55	49	jack pine	old growth (potential or actual)	final harvest	1	planting	
<p>comnts Fmd : Due to a recent update in the Leota Kirtland Warbler plan final harvest and replant jack pine for KW habitat. Follow retention guidelines as they pertain to KW harvests. Stand is within KW block 117. Defer treatment to the 2015 plan-of-work, target plant year is 2019. Almost pure jack pine. The entire compartment is in the "Leota Kirtland Warbler Management Area" (LKWMA). The entire LKWMA has special resource management direction as a "Dedicated Species Recovery Area" and has been dedicated as a "High Conservation Value Area" (HCVA). The entire compartment has been coded as stand condition eight to reflect the HCVA designation. (1999 Comments: Natural Gas Storage Injection Sites #706 is located at the NorthEast side of this stand. Injection site #416 is located at the South end of this stand. This timber is relatively young yet and should hold for 10-20 years.)</p>										
36	R6	42	72	47	jack pine	old growth (potential or actual)	final harvest	1	planting	
<p>comnts Fmd : Due to a recent update in the Leota Kirtland Warbler plan final harvest and replant jack pine for KW habitat. Follow retention guidelines as they pertain to KW harvests. Stand is within KW block 117. Defer treatment to the 2015 plan-of-work, target plant year is 2019. Old 1937 hand planting. Rows are indistinguishable, jack pine is on rapid decline. The entire compartment is in the "Leota Kirtland Warbler Management Area" (LKWMA). The entire LKWMA has special resource management direction as a "Dedicated Species Recovery Area" and has been dedicated as a "High Conservation Value Area" (HCVA). The entire compartment has been coded as stand condition eight to reflect the HCVA designation. (1999 Comments: Gas Well (Mammoth State Summerfield A-1 the owner is Eldon Binkwell 517 539 2021) with pipelines leading North along the surface of the ground and some storage tanks. A Natural Gas Storage Injection Site #244 is located in the center of the stand with related pipelines and service roads. Some areas appear to be more Jack Pine than Red Pine especially near the well site and the injection site. Part of this stand could be clearcut in 10-20 years with heavier Red Pine areas left to grow. There was a partial cut here in 1963 that may account for this appearance.)</p>										
38	J6	10	73	49	jack pine	old growth (potential or actual)	final harvest	1	planting	
<p>comnts Fmd : Due to a recent update in the Leota Kirtland Warbler plan final harvest and replant jack pine for KW habitat. Follow retention guidelines as they pertain to KW harvests. Stand is within KW block 117. Defer treatment to the 2015 plan-of-work, target plant year is 2019. The entire compartment is in the "Leota Kirtland Warbler Management Area" (LKWMA). The entire LKWMA has special resource management direction as a "Dedicated Species Recovery Area" and has been dedicated as a "High Conservation Value Area" (HCVA). The entire compartment has been coded as stand condition eight to reflect the HCVA designation. (1999 Comments: Quite a variety of timber species, size classes and densities. Old 1937 planting could have had a lot of competition that caused the present appearance. There is a lot of White Pine coming in especially near the Creek Corridor.)</p>										
39	O9	12	101	47	oak	old growth (potential or actual)	final harvest	1		
<p>comnts Fmd : Final harvest and manage for oak regeneration. Leave all scattered red pine, white pine and marked scattered oak wolf trees to retain to meet retention guidelines. Oak appears to be on the decline. May need to interplant red pine to maintain full stocking. A mix of natural and interplanted regeneration is acceptable. Only a trace of white pine within stand. The entire compartment is in the "Leota Kirtland Warbler Management Area" (LKWMA). The entire LKWMA has special resource management direction as a "Dedicated Species Recovery Area" and has been dedicated as a "High Conservation Value Area" (HCVA). The entire compartment has been coded as stand condition eight to reflect the HCVA designation.</p>										
40	J6	45	65	46	jack pine	old growth (potential or actual)	final harvest	1		
<p>comnts Fmd : Due to a recent update in the Leota Kirtland Warbler plan final harvest and replant jack pine for KW habitat. Follow retention guidelines as they pertain to KW harvests. Stand is within KW block 117. Defer treatment to the 2015 plan-of-work, target plant year is 2019. The entire compartment is in the "Leota Kirtland Warbler Management Area" (LKWMA). The entire LKWMA has special resource management direction as a "Dedicated Species Recovery Area" and has been dedicated as a "High Conservation Value Area" (HCVA). The entire compartment has been coded as stand condition eight to reflect the HCVA designation.</p>										

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With NO Limiting Factors**

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43	O6	38	77	46	jack pine	old growth (potential or actual)	final harvest	1	planting	
<p>comnts Fmd : Due to a recent update in the Leota Kirtland Warbler plan final harvest and replant jack pine for KW habitat. Follow retention guidelines as they pertain to KW harvests. Stand is within KW block 117. Defer treatment to the 2015 plan-of-work, target plant year is 2019. Poor quality northern pin oak with younger jack pine mixed in. Jack pine is moving from the understory to poles. The entire compartment is in the "Leota Kirtland Warbler Management Area" (LKWMA). The entire LKWMA has special resource management direction as a "Dedicated Species Recovery Area" and has been dedicated as a "High Conservation Value Area" (HCVA). The entire compartment has been coded as stand condition eight to reflect the HCVA designation. (1999 Comments: Oak/Jack Pine stand. The Jack Pine is in the understory. Hold for at least 10 years.)</p>										
45	R9	16	72	47	jack pine	old growth (potential or actual)	final harvest	1	planting	
<p>comnts Fmd : Due to a recent update in the Leota Kirtland Warbler plan final harvest and replant jack pine for KW habitat. Follow retention guidelines as they pertain to KW harvests. Stand is within KW block 117. Defer treatment to the 2015 plan-of-work, target plant year is 2019. Stand 48 was split. This new stand is the north 1/2 of stand 48. Both are within KW management block 117, I am proposing to withdraw stand 48 from the KW block. This stand would stay within the block. The entire compartment is in the "Leota Kirtland Warbler Management Area" (LKWMA). The entire LKWMA has special resource management direction as a "Dedicated Species Recovery Area" and has been dedicated as a "High Conservation Value Area" (HCVA). The entire compartment has been coded as stand condition eight to reflect the HCVA designation.</p>										
48	R9	31	72	47	red pine	old growth (potential or actual)	thinning	1		
<p>comnts Fmd : Stand is currently within KW block 117. Stand should be removed from KW block 117. Stand changes as you move south towards the Muskegon River. The elevation drops as you move south, both gradually and in steps. More hardwood species mixed in as you move south (oak, aspen and birch). Remove all jack pine and mark to remove red pine to reduce red pine BA down to 90. Do not remove all the mixed hard woods. Rows are indistinguishable, old 1938 hand planting. Rows will need to be laid out in order to make the stand operable. (Held local meeting at unit to discuss this proposal; Dick Shellenbarger is to field check stand) The entire compartment is in the "Leota Kirtland Warbler Management Area" (LKWMA). The entire LKWMA has special resource management direction as a "Dedicated Species Recovery Area" and has been dedicated as a "High Conservation Value Area" (HCVA). The entire compartment has been coded as stand condition eight to reflect the HCVA designation.</p>										
53	O5	18	85	46	red pine	old growth (potential or actual)	final harvest	1	planting	
<p>comnts Fmd : Oak is on rapid decline. Final harvest and interplant red pine to maintain full stocking. Mark pockets of oak to leave to meet retention guidelines. Density varies. Overall this is a poor open site. The entire compartment is in the "Leota Kirtland Warbler Management Area" (LKWMA). The entire LKWMA has special resource management direction as a "Dedicated Species Recovery Area" and has been dedicated as a "High Conservation Value Area" (HCVA). The entire compartment has been coded as stand condition eight to reflect the HCVA designation. (1999 Comments: Oak and young Jack Pine. Will hold at least 10 more years.)</p>										
58	R6	8	52	43	jack pine	old growth (potential or actual)	final harvest	1	planting	
<p>comnts Fmd : Due to a recent update in the Leota Kirtland Warbler plan final harvest and replant jack pine for KW habitat. Follow retention guidelines as they pertain to KW harvests. Stand is within KW block 117. Defer treatment to the 2015 plan-of-work, target plant year is 2019. Small diameter / short trees. The entire compartment is in the "Leota Kirtland Warbler Management Area" (LKWMA). The entire LKWMA has special resource management direction as a "Dedicated Species Recovery Area" and has been dedicated as a "High Conservation Value Area" (HCVA). The entire compartment has been coded as stand condition eight to reflect the HCVA designation. (1999 Comments: PLANTED IN 1958.)</p>										

**Total Acres..... 517**

**Proposed Treatments  
With Limiting Factors**

**Compartment: 11**

**Entry Year: 2009**

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<b>Stand</b>	<b>Cover Type</b>	<b>Acres</b>	<b>Age</b>	<b>Site Index</b>	<b>Mgt Obj</b>	<b>Condition</b>	<b>Method Cut</b>	<b>Harvest Priority</b>	<b>Cultural Need</b>	<b>FD Status</b>
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TREATMENT LIMITING FACTORS:

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**Total Acres..... 0**

