GLADWIN FOREST MANAGEMENT UNIT
COMPARTMENT REVIEW PRESENTATION

COMPARTMENT # 9 ENTRY YEAR: 2014

Compartment Acreage: 6783 County: Clare

Revision Date: June 1, 2012; June 20, 2012

Stand Examiner: Tim Gallagher, Forest Technician and Blair Tweedale, Forester

Legal Description: T20N – R5W: Sections: 2 – 10 & 15 – 20
T20N – R6W: Sections: 1, 13, 14, & 23 – 26

RMU (if applicable): N/A

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). Leota KW management Blocks 113, 114, 115, 116, 117 and 118 are all within the compartment. Three of these blocks have proposed treatments this YOE and are as follows:

- Block 114 - POW 2014 - Natural Regeneration – Acres 260
- Block 115 – POW 2014 – Natural Regeneration _ Acres 348
- Block 117 – POW 2018 – Plant Year 2021 – Acres 260

Many of the red pine stands that have been thinned in the past 10 to 20 years have a very dense oak under-story. The under-story is the direct result of the harvests in the past, in several of these stands it has been proposed to manage for the oak under-story.

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, the Clam 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, Clam River and Cranberry Creek.

Ownership Patterns, Development, and Land Use in and Around the Compartment: The state land in this compartment is spread out over 22 sections and occurs in large contiguous blocks. Private in-holdings are mostly comprised of large (40 plus acres) forested blocks with single absentee ownerships. There is little 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 state land and along the river. The town of Leota is directly adjacent to the east end of the compartment.

There are several U.S. Fish and Wildlife Service parcels within the compartment.

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 are six documented sites 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).

Watershed and Fisheries Considerations: Cranberry Creek and the Clam River flow into the Muskegon River within the compartment. Cranberry Creek and the Clam River are both designated trout streams and should be treated as cold water fisheries. Cranberry Creek and the Clam River are in valleys and have a natural buffer of lowland brush, lowland timber types and marsh directly adjacent to its banks; these river corridors 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: Timber harvest and planting prescriptions are heavily influenced by the needs of the endangered species the Kirkland's Warbler. Jack Pine stands in this compartment will be managed to provide suitable habitat for the warblers. A Kirkland's Warbler management plan exists outlining a cutting rotation for this compartment. Some game species that use this compartment include white-tailed deer, black bear, ruffed grouse and wild turkey. Many other wildlife species likely to use this compartment include upland sandpiper, common nighthawk, brown thrasher and eastern hognose snake.

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 and ice-contact outwash sand & gravel. The glacial drift thickness varies between 400 and 800 feet. Beneath the glacial drift are the Pennsylvanian Saginaw and Grand River Formations. The Saginaw Formation is used for brick making in other areas of the State. Gravel pits are located in Section 4, and potential appears to be good, especially the uplands. Cranberry Lake Field lies within the Compartment. The field produced from five formations and now is a gas storage field and also is in secondary recovery operations. The entire compartment is under lease for oil and gas production and/or gas storage operations.

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 Leota ORV trail is located within the compartment. The area receives moderate hunting pressure, most of which is deer hunters. Moderate fishing occurs on Cranberry Creek, Clam River and the Muskegon River. Canoe traffic on the Muskegon River can be heavy on weekends during the summer.

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. The Natural Gas Storage Field and pipelines add additional challenges for fire control forces.

Additional Compartment Information: Three separate fuel breaks have been proposed this YOE and are as follows:

- Muskegon Fuel break – POW 2014 – Acres 130
- Pigeon Fuel break – POW 2014 – Acres 100
- Jackson Fuel break – POW 2014 – Acres 20

The proposed fuel breaks have been designed to meet three functional objectives; 1) Management of fuels. 2) Barrens habitat. 3) Visual corridors.

Table 1 – Total Acres by Cover Type and Age Class

Gladwin Mgt. Unit **Compartment 009 Year of Entry 2014**

Blair TWEEDALE : Examiner

Age Class

	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 +	Uneven Age	Total
Aspen	33	43	123	0	0	0	0	0	41	0	0	0	0	0	**241**
Bog	18	0	0	0	0	0	0	0	0	0	0	0	0	0	**18**
Herbaceous Openland	91	0	0	0	0	0	0	0	0	0	0	0	0	0	**91**
Jack Pine	251	1533	395	440	182	162	589	137	0	74	0	0	0	0	**3763**
Lowland Conifers	0	0	0	0	0	0	0	0	34	0	20	0	10	0	**64**
Lowland Deciduous	0	11	0	0	0	10	0	117	52	145	91	0	0	0	**426**
Lowland Mixed Forest	0	0	18	0	0	0	0	0	0	0	34	0	0	0	**52**
Lowland Shrub	272	0	0	0	0	0	0	0	0	0	0	0	0	0	**272**
Marsh	45	0	0	0	0	0	0	0	0	0	0	0	0	0	**45**
Mixed Upland Deciduous	0	0	0	0	0	0	36	0	0	0	0	0	0	0	**36**
Natural Mixed Pines	0	28	0	0	0	0	51	115	0	31	0	0	0	0	**225**
Northern Hardwood	0	23	0	0	0	0	0	13	0	0	0	0	0	0	**36**
Oak	38	41	51	0	0	0	0	0	52	73	0	0	0	0	**255**
Planted Mixed Pines	0	0	71	0	0	0	0	0	0	0	0	0	0	0	**71**
Red Pine	0	0	0	0	0	38	265	694	0	0	0	0	0	0	**997**
Upland Mixed Forest	0	0	0	0	0	0	0	36	0	0	0	0	0	0	**36**
Water	83	0	0	0	0	0	0	0	0	0	0	0	0	0	**83**
White Pine	0	0	0	45	0	0	0	0	0	26	0	0	0	0	**71**
Total	**832**	**1679**	**659**	**485**	**182**	**211**	**941**	**1112**	**178**	**349**	**145**	**0**	**10**	**0**	**6783**

Table 2 – Proposed Treatment Summaries

Gladwin Mgt. Unit
Year of Entry 2014

Compartment 009
Total Compartment Acres: 6783

Acres by Treatment Type

Commercial Harvest - 1762	Site Prep - 0	Tree Planting - 0	Prescribed Burn - 0	Other - 0
Habitat Cut - 0	Opening Maintenance - 0	Tree Seeding - 0	Pesticide - 0	

Cover Type by Harvest Method

	Clearcut	Selection	Seed Tree	Shelterwood	Thinning	Other - Specify	Total Acres
Aspen	41	0	0	0	0	0	**41**
Jack Pine	868	0	211	0	0	0	**1079**
Natural Mixed Pines	31	0	109	0	0	0	**140**
Northern Hardwood	0	13	0	0	0	0	**13**
Oak	75	12	0	0	0	0	**87**
Red Pine	103	0	0	197	103	0	**403**
Total	**1118**	**25**	**320**	**197**	**103**	**0**	**1762**

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
9	73009009-Cut	5.7	42110 - Planted Red Pine	High Density Pole	52	200+	Harvest	Systematic Thinning	42110 - Planted Red Pine	Cmpt. Review Proposal

Prescription Specs: Thin red pine to 110 - 140 BA/AC. Remove all jack pine.

Other Comments: Planted red pine. Stand is within the Cranberry Gas Storage Field; pipelines, wells and service roads are within the area.

Next Steps: Monitor residual red pine as to how it reacts to thinning.

Proposed Start Date: 10/01/2013

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
11	73009011-Cut	31.4	42290 - Natural Mixed Pine	High Density Pole	98	51-80	Harvest	Clearcut with Reserves	42290 - Natural Mixed Pine	Cmpt. Review Proposal

Prescription Specs: Clear cut with reserves 2" spec. Leave all white pine, red pine and mark scattered wind firm oak to leave. Manage for a mix of natural regeneration jack pine, oak and white pine.

Other Comments: Mixed pine stand with some oak. Stand is within the Cranberry Gas Storage Field; pipelines, wells and service roads are within the area. Stand is falling apart, Lots of diversity. Stand could be left for buffer between jack pine regen and Cranberry Creek. However there is a high amount of dead/dying timber.

Next Steps: Monitor natural regeneration until adequate regeneration is achieved. A mix of jack pine, mixed oak and white pine regeneration is acceptable. Interplant red pine to maintain full stocking if needed.

Proposed Start Date: 10/01/2013

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
21	73009021-Cut	25.9	42220 - Natural Jack Pine	High Density Pole	98		Harvest	Clearcut with Reserves	42220 - Natural Jack Pine	Cmpt. Review Proposal

Prescription Specs: Clear cut with reserves 2" spec. Leave all white pine, red pine and mark scattered wind firm oak to leave. Manage for a mix of natural regeneration jack pine, oak and white pine.

Other Comments: Old jack pine stand with oak. Stand is within the Cranberry Gas Storage Field; pipelines, wells and service roads are within the area.

Next Steps: Monitor natural regeneration until adequate regeneration is achieved. A mix of jack pine, mixed oak and white pine regeneration is acceptable. Interplant red pine to maintain full stocking if needed.

Proposed Start Date: 10/01/2013

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
22	73009022-Cut	16.3	42220 - Natural Jack Pine	High Density Pole	50		Harvest	Clearcut with Reserves	42110 - Planted Red Pine	Cmpt. Review Proposal

Prescription Specs: Clear cut with reserves followed by planting red pine. Leave scattered mature red pine and mixed oak to meet retention guidelines. Require chip harvest.

Other Comments: Stand is within LKW block 115. Jack pine stand with scattered red pine, white pine and oak. Red pine is found in northern portion of stand. Stand is within the Cranberry Gas Storage Field; pipelines, wells and service roads are within the area.

Next Steps: Following harvest trench and plant red pine.

Proposed Start Date: 10/01/2013

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
27	73009027-Cut	31.3	4134 - Aspen, Spruce/Fir	High Density Pole	84	1-50	Harvest	Clearcut with Reserves	4139 - Aspen, Mixed Deciduous	Cmpt. Review Proposal

Prescription Specs: Clear cut with reserves 2" spec. Manage for a mix of natural regen aspen and red maple. Leave all white pine, red pine, oak and mark scattered wind firm maple to leave.

Other Comments: Stand is dominated by quaking aspen, red maple and balsam fir. Scattered oak of all size classes. Mostly an upland stand, with pockets of low wet soils. Aspen and balam have reached maturity. Deer browse present through out stand on oak less than 2' ft. Large CWD through out entire stand (aspen/balsam)

Next Steps: Monitor natural regeneration until adequate regeneration is achieved. A mix of aspen, red maple, white pine, balsam fir and oak regeneration is acceptable.

Proposed Start Date: 10/01/2013

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
30	73009030-Cut	31.5	42220 - Natural Jack Pine	High Density Pole	50		Harvest	Clearcut with Reserves	42110 - Planted Red Pine	Cmpt. Review Proposal

Prescription Specs: Clear cut with reserves followed by trenching and planting red pine. Leave scattered wind firm oak and red pine to meet retention guidelines. Require chip harvest.

Other Comments: Stand is within LKW block 115. Natural mixed pine stand with some oak mixed in. Jack pine age varies from 50 - 67. Most of the jack pine is in the 50 yr age class. Species composition remains comparable through out stand. Stand is within the Cranberry Gas Storage Field; pipelines, wells and service roads are within the area.

Next Steps: Following harvest trench and plant red pine.

Proposed Start Date: 10/01/2013

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
45	73009045_MF B-Cut	33.6	42220 - Natural Jack Pine	High Density Pole	65		Harvest	Seed Tree with Reserves	3302 - Low Density Conifer Trees	Cmpt. Review Proposal

Prescription Specs: Create and maintain as fuelbreak stand. Seed tree with reserves 2" spec all jack pine. Leave all red pine and oak. Require chip harvest. Fuel break treatment will be on the 2018 POW.

Other Comments: Stand is within LKW block 115. Stand is within the Cranberry Gas Storage Field; pipelines, wells and service roads are within the area.

Next Steps: Following harvest create and maintain as fuel break stand.

Proposed Start Date: 10/01/2017

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
47	73009047_MF B-Cut	46.9	42110 - Planted Red Pine	High Density Pole	65	111-140	Harvest	Shelter Wood with Reserves	3302 - Low Density Conifer Trees	Cmpt. Review Proposal

Prescription Specs: Create and maintain as fuelbreak stand. Shelterwood with reserves 2" spec. Leave 50 BA/AC of wind firm red pine. Require chip harvest. Fuel break treatment will be on the 2018 POW.

Other Comments: Stand is within LKW block 115. Stand is within the Cranberry Gas Storage Field; pipelines, wells and service roads are within the area.

Next Steps: Following harvest create and maintain as fuel break stand.

Proposed Start Date: 10/01/2017

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
53	73009053-Cut	100.0	42220 - Natural Jack Pine	High Density Pole	60		Harvest	Clearcut with Reserves	42220 - Natural Jack Pine	Cmpt. Review Proposal

Prescription Specs: Clear cut with reserves manage for natural regeneration for KW habitat. Leave scattered red pine. Follow retention guidelines as they pertain to KW harvests. Stand is within LKW block 115. 2014 POW. Sale specs need to include specs that ensure the best possible chance for natural regeneration. (Leave tops, late summer harvest, post harvest scarification).

Other Comments: Stand is within LKW block 115. Storm damage present in stand. Somewhat variable diameters in the jack pine (3-12 inches). Jack pine dominated stand with scattered oak. Stand is within the Cranberry Gas Storage Field; pipelines, wells and service roads are within the area.

Next Steps: Monitor natural regeneration until adequate regeneration is achieved. Plant jack pine if natural regen fails to produce suitable KW habitat. Target plant year would be 2021.

Proposed Start Date: 10/01/2013

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
57	73009057-Cut	9.4	4130 - Aspen	Medium Density Pole	80		Harvest	Clearcut with Reserves	4139 - Aspen, Mixed Deciduous	Cmpt. Review Proposal

Prescription Specs: Clear cut with reserves 2" spec. Leave scattered wind firm oak to meet retention guidlines.

Other Comments:

Next Steps: Monitor natural regeneration until adequate regeneration is achieved. A mix of sapen, red maple and mixed oak regeneration is acceptable.

Proposed Start Date: 10/01/2013

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
59	73009059_KW-Cut	70.1	42220 - Natural Jack Pine	High Density Pole	43		Harvest	Clearcut with Reserves	42120 - Planted Jack Pine	Cmpt. Review Proposal

Prescription Specs: Clear cut with reserves manage for natural regeneration for KW habitat. Leave scattered red pine. Follow retention guidelines as they pertain to KW harvests. Stand is within LKW block 115. 2014 POW. Sale specs need to include specs that ensure the best possible chance for natural regeneration. (Leave tops, late summer harvest, post harvest scarification).

Other Comments: Stand is within LKW block 115. Stand is within the Cranberry Gas Storage Field; pipelines, wells and service roads are within the area.

Next Steps: Monitor natural regeneration until adequate regeneration is achieved. Plant jack pine if natural regen fails to produce suitable KW habitat. Target plant year would be 2021.

Proposed Start Date: 10/01/2013

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
59	73009059_MFB-Cut	25.8	42220 - Natural Jack Pine	High Density Pole	43		Harvest	Seed Tree with Reserves	3302 - Low Density Conifer Trees	Cmpt. Review Proposal

Prescription Specs: Create and maintain as fuelbreak stand. Seed tree with reserves 2" spec all jack pine. Leave all red pine and oak. Require chip harvest. Fuel break treatment will be on the 2018 POW.

Other Comments: Stand is within LKW block 115. Stand is within the Cranberry Gas Storage Field; pipelines, wells and service roads are within the area.

Next Steps: Following harvest create and maintain as fuel break stand.

Proposed Start Date: 10/01/2017

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
61	73009061-Cut	37.2	42110 - Planted Red Pine	High Density Pole	77	111-140	Harvest	Clearcut with Reserves	42120 - Planted Jack Pine	Cmpt. Review Proposal

Prescription Specs: Clear cut with reserves followed by planting jack pine for KW habitat. Leave scattered red pine. Leave two to three trees per acre favoring red pine of average diameter and greater, leave trees should be left individually and in small groups. Follow retention guidelines as they pertain to KW harvests. Stand is within LKW block 117. Defer treatment to the 2018 plan-of-work, target plant year is 2021.

Other Comments: Stand is within LKW block 117 - 2018 POW - target plant year 2021. Old 1937 hand planting. Rows are indistinguishable; jack pine is on decline. Stand is within the Cranberry Gas Storage Field; pipelines, wells and service roads are within the area.

Next Steps: Following harvest trench and plant jack pine for KW habitat.

Proposed Start Date: 10/01/2017

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
64	73009064_KW-Cut	71.8	42220 - Natural Jack Pine	High Density Pole	74		Harvest	Clearcut with Reserves	42220 - Natural Jack Pine	Cmpt. Review Proposal

Prescription Specs: Clear cut with reserves manage for natural regeneration for KW habitat. Leave scattered red pine. Follow retention guidelines as they pertain to KW harvests. Stand is within LKW block 115. 2014 POW. Sale specs need to include specs that ensure the best possible chance for natural regeneration. (Leave tops, late summer harvest, post harvest scarification).

Other Comments: Stand is within LKW block 115. Natural jack pine stand with oak and red pine present. Stand is within the Cranberry Gas Storage Field; pipelines, wells and service roads are within the area.

Next Steps: Monitor natural regeneration until adequate regeneration is achieved. Plant jack pine if natural regen fails to produce suitable KW habitat. Target plant year would be 2021.

Proposed Start Date: 10/01/2013

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
64	73009064_MFB-Cut	18.0	42220 - Natural Jack Pine	High Density Pole	74		Harvest	Seed Tree with Reserves	3302 - Low Density Conifer Trees	Cmpt. Review Proposal

Prescription Specs: Create and maintain as fuelbreak stand. Seed tree with reserves 2" spec all jack pine. Leave all red pine and oak. Require chip harvest. Fuel break treatment will be on the 2018 POW.

Other Comments: Stand is within LKW block 115. Natural jack pine stand with oak and red pine present. Stand is within the Cranberry Gas Storage Field; pipelines, wells and service roads are within the area.

Next Steps: Following harvest create and maintain as fuel break stand.

Proposed Start Date: 10/01/2017

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
65	73009065-Cut	47.2	42220 - Natural Jack Pine	High Density Pole	70	81-110	Harvest	Clearcut with Reserves	42120 - Planted Jack Pine	Cmpt. Review Proposal

Prescription Specs: Clear cut with reserves followed by planting jack pine for KW habitat. Leave scattered red pine. Leave two to three trees per acre favoring red pine of average diameter and greater, leave trees should be left individually and in small groups. Follow retention guidelines as they pertain to KW harvests. Stand is within LKW block 117. Defer treatment to the 2018 plan-of-work, target plant year is 2021.

Other Comments: Stand is within LKW block 117 - 2018 POW - target plant year 2021. Stand is within the Cranberry Gas Storage Field; pipelines, wells and service roads are within the area. Jack pine is mature and at risk of blowdown and/or bud worm. Oak is already in decline. Some nice red pine mixed in mainly in a narrow strip along the north edge of stand. To confirm age I cored two jack pine trees and got 65 - 70 years old.

Next Steps: Following harvest trench and plant jack pine for KW habitat.

Proposed Start Date: 10/01/2017

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
68	73009068-Cut	29.4	42220 - Natural Jack Pine	High Density Pole	33		Harvest	Clearcut with Reserves	3302 - Low Density Conifer Trees	Cmpt. Review Proposal

Prescription Specs: Create and maintain as fuelbreak stand. Clear cut with reserves 2" spec. Require chip harvest. Leave all oak and red pine. Fuel break treatment will be on the 2018 POW.

Other Comments: Stand is within LKW block 115. Stand is within the Cranberry Gas Storage Field; pipelines, wells and service roads are within the area.

Next Steps: Following harvest create and maintain as fuel break stand.

Proposed Start Date: 10/01/2017

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
69	73009069-Cut	19.0	42110 - Planted Red Pine	High Density Pole	77	171-200	Harvest	Clearcut with Reserves	42120 - Planted Jack Pine	Cmpt. Review Proposal

Prescription Specs: Clear cut with reserves followed by planting jack pine for KW habitat. Leave scattered red pine. Leave two to three trees per acre favoring red pine of average diameter and greater, leave trees should be left individually and in small groups. Follow retention guidelines as they pertain to KW harvests. Stand is within LKW block 117. Defer treatment to the 2018 plan-of-work, target plant year is 2021.

Other Comments: Stand is within LKW block 117 - 2018 POW - target plant year 2021. Old 1937 hand planting. Rows are indistinguishable; jack pine is on decline. Stand is within the Cranberry Gas Storage Field; pipelines, wells and service roads are within the area.

Next Steps: Following harvest trench and plant jack pine for KW habitat.

Proposed Start Date: 10/01/2017

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
72	73009072-Cut	5.1	42110 - Planted Red Pine	High Density Pole	77	141-170	Harvest	Shelter Wood with Reserves	4122 - Oak, Pine	Cmpt. Review Proposal

Prescription Specs: Shelterwood to release and establish a mix of natural regen of oak, white pine and jack pine. Remove all jack pine and oak, reduce red pine residual down to 50 BA/AC. Red pine density varies, in some places not much red pine will need marking to hit the desired residual. Address retention along slope leading down to the Cranberry Creek flood plain and leaving scattered large wolfy oak.

Other Comments: Old 1938 hand planting. Rows are indistinguishable; jack pine is on decline. Stand is within the Cranberry Gas Storage Field; pipelines, wells and service roads are within the area.

Next Steps: Monitor natural regeneration until adequate regeneration is achieved. A mix of oak/pine regeneration is acceptable. Interplant red pine to maintain full stocking if needed.

Proposed Start Date: 10/01/2013

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
76	73009076-Cut	24.9	42110 - Planted Red Pine	High Density Pole	77	111-140	Harvest	Shelter Wood with Reserves	4122 - Oak, Pine	Cmpt. Review Proposal

Prescription Specs: Shelterwood to release and establish a mix of natural regen of oak, white pine and jack pine. Remove all jack pine and oak, reduce red pine residual down to 50 BA/AC. Red pine density varies, in some places not much red pine will need marking to hit the desired residual. Address retention along slope leading down to the Muskegon River flood plain and leaving scattered large wolfy oak.

Other Comments: Old 1938 hand planting. Rows are indistinguishable; jack pine is on decline. Stand is within the Cranberry Gas Storage Field; pipelines, wells and service roads are within the area. Very visable stand, Otter Drive bi-sects stand. Part off stand is a long/skinny arm pniched between KW block 117 and the Muskegon River flood plain with Otter Drive down the middle.

Next Steps: Monitor natural regeneration until adequate regeneration is achieved. A mix of oak/pine regeneration is acceptable. Interplant red pine to maintain full stocking if needed.

Proposed Start Date: 10/01/2013

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
77	73009077-Cut	39.7	4122 - Oak, Pine	High Density Pole	88	51-80	Harvest	Clearcut with Reserves	42120 - Planted Jack Pine	Cmpt. Review Proposal

Prescription Specs: Clear cut with reserves followed by planting jack pine for KW habitat. Leave scattered red pine. Leave two to three trees per acre favoring red pine of average diameter and greater, leave trees should be left individually and in small groups. Follow retention guidelines as they pertain to KW harvests. Stand is within LKW block 117. Defer treatment to the 2018 plan-of-work, target plant year is 2021.

Other Comments: Stand is within LKW block 117 - 2018 POW - target plant year 2021. Stand is within the Cranberry Gas Storage Field; pipelines, wells and service roads are within the area. N. pine oak/ jack pine stand, poor quality oak. jack pine appears to be younger than the oak however, both jack pine and oak are on the delcline on this very well drained site. Not much in the understory J1/O1 at best.

Next Steps: Following harvest trench and plant jack pine for KW habitat.

Proposed Start Date: 10/01/2017

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
78	73009078-Cut	5.7	42110 - Planted Red Pine	High Density Log	77	111-140	Harvest	Clearcut with Reserves	42120 - Planted Jack Pine	Cmpt. Review Proposal

Prescription Specs: Clear cut with reserves followed by planting jack pine for KW habitat. Leave scattered red pine. Leave two to three trees per acre favoring red pine of average diameter and greater, leave trees should be left individually and in small groups. Follow retention guidelines as they pertain to KW harvests. Stand is within LKW block 117. Defer treatment to the 2018 plan-of-work, target plant year is 2021.

Other Comments: Stand is within LKW block 117 - 2018 POW - target plant year 2021. Old 1937 hand planting. Rows are indistinguishable; jack pine is on decline. Stand is within the Cranberry Gas Storage Field; pipelines, wells and service roads are within the area. All jack pine and marked red pine were removed in 2000. North/south rows were created. At desired BA for red pine sawlogs, high quality red pine.

Next Steps: Following harvest trench and plant jack pine for KW habitat.

Proposed Start Date: 10/01/2017

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
80	73009080-Cut	12.9	4119 - Mixed Northern Hardwoods	High Density Pole	73	81-110	Harvest	Single Tree Selection	4119 - Mixed Northern Hardwoods	Cmpt. Review Proposal

Prescription Specs: Mixed deciduous stand with a few scattered red and white pin. A lowland draw runs through the stand with a few cedars present. Low levels of regeneration in the understory.

Other Comments: Selection harvest reduce residual BA/AC down to 60 to 80 sq, ft. Do not eliminate any one species.

Next Steps: Monitor natural regeneration until adequate regeneration is achieved. A mix of mixed oak and red maple regeneration is acceptable.

Proposed Start Date: 10/01/2013

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
81	73009081-Cut	35.0	42220 - Natural Jack Pine	High Density Pole	60	81-110	Harvest	Clearcut with Reserves	42120 - Planted Jack Pine	Cmpt. Review Proposal

Prescription Specs: Clear cut with reserves followed by planting jack pine for KW habitat. Leave scattered red pine. Leave two to three trees per acre favoring red pine of average diameter and greater, leave trees should be left individually and in small groups. Follow retention guidelines as they pertain to KW harvests. Stand is within LKW block 117. Defer treatment to the 2018 plan-of-work, target plant year is 2021.

Other Comments: Stand is within LKW block 117 - 2018 POW - target plant year 2021. Almost a pure jack pine stand, not much in the understory O1/J1 at best. Jack pine is OK but at the age of decline and budworm risk. Stand is within the Cranberry Gas Storage Field; pipelines, wells and service roads are within the area.

Next Steps: Following harvest trench and plant jack pine for KW habitat.

Proposed Start Date: 10/01/2017

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
83	73009083-Cut	5.1	42120 - Planted Jack Pine	High Density Pole	62	1-50	Harvest	Clearcut with Reserves	42120 - Planted Jack Pine	Cmpt. Review Proposal

Prescription Specs: Clear cut with reserves followed by planting jack pine for KW habitat. Leave scattered red pine. Leave two to three trees per acre favoring red pine of average diameter and greater, leave trees should be left individually and in small groups. Follow retention guidelines as they pertain to KW harvests. Stand is within LKW block 117. Defer treatment to the 2018 plan-of-work, target plant year is 2021.

Other Comments: Stand is within LKW block 117 - 2018 POW - target plant year 2021. Old 1937 hand planting. Stand is within the Cranberry Gas Storage Field; pipelines, wells and service roads are within the area.

Next Steps: Following harvest trench and plant jack pine for KW habitat.

Proposed Start Date: 10/01/2017

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
86	73009086-Cut	7.9	42110 - Planted Red Pine	High Density Pole	59	171-200	Harvest	Clearcut with Reserves	42120 - Planted Jack Pine	Cmpt. Review Proposal

Prescription Specs: Clear cut with reserves followed by planting jack pine for KW habitat. Leave scattered red pine. Leave two to three trees per acre favoring red pine of average diameter and greater, leave trees should be left individually and in small groups. Follow retention guidelines as they pertain to KW harvests. Stand is within LKW block 117. Defer treatment to the 2018 plan-of-work, target plant year is 2021.

Other Comments: Stand is within LKW block 117 - 2018 POW - target plant year 2021. Stand is within the Cranberry Gas Storage Field; pipelines, wells and service roads are within the area. Planted in 1958, never been thinned yet. Small diameter and short.

Next Steps: Following harvest trench and plant jack pine for KW habitat.

Proposed Start Date: 10/01/2017

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
87	73009087-Cut	12.0	4123 - Red Oak	High Density Pole	88	111-140	Harvest	Single Tree Selection	4123 - Red Oak	Cmpt. Review Proposal

Prescription Specs: Selection harvest reduce residual BA/AC down to 60 to 80 sq, ft. Do not eliminate any one species.

Other Comments: Age was taken on a 12.6 in red oak, 87 feet total height. Diameters vary in renge. Some 26"+ oak scattered throughout stand.

Next Steps: Monitor natural regeneration until adequate regeneration is achieved. A mix of mixed oak and red maple regeneration is acceptable.

Proposed Start Date: 10/01/2013

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
89	73009089_JF B-Cut	10.3	42110 - Planted Red Pine	High Density Log	73	141-170	Harvest	Shelter Wood with Reserves	3302 - Low Density Conifer Trees	Cmpt. Review Proposal

Prescription Specs: Create and maintain as fuelbreak stand. Shelterwood with reserves 2" spec. Leave 50 BA/AC of wind firm red pine. Require chip harvest.

Other Comments: Stand is within LKW block 117 - 2018 POW - target plant year 2021. Old 1937 hand planting. Rows are indistinguishable; jack pine is on decline. Stand is within the Cranberry Gas Storage Field; pipelines, wells and service roads are within the area.

Next Steps: Following harvest create and maintain as fuel break stand.

Proposed Start Date: 10/01/2013

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
89	73009089_KW -Cut	18.3	42110 - Planted Red Pine	High Density Log	73	141-170	Harvest	Clearcut with Reserves	42120 - Planted Jack Pine	Cmpt. Review Proposal

Prescription Specs: Clear cut with reserves followed by planting jack pine for KW habitat. Leave scattered red pine. Leave two to three trees per acre favoring red pine of average diameter and greater, leave trees should be left individually and in small groups. Follow retention guidelines as they pertain to KW harvests. Stand is within LKW block 117. Defer treatment to the 2018 plan-of-work, target plant year is 2021.

Other Comments: Stand is within LKW block 117 - 2018 POW - target plant year 2021. Old 1937 hand planting. Rows are indistinguishable; jack pine is on decline. Stand is within the Cranberry Gas Storage Field; pipelines, wells and service roads are within the area.

Next Steps: Following harvest trench and plant jack pine for KW habitat.

Proposed Start Date: 10/01/2017

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
90	73009090-Cut	39.1	42110 - Planted Red Pine	High Density Log	74	81-110	Harvest	Shelter Wood with Reserves	42221 - Natural Jack Pine, Mixed Deciduous	Cmpt. Review Proposal

Prescription Specs: Shelterwood, leave 30 to 40 BA/AC of red pine. Manage for a mix of natural regeneration of mixed oak and jack pine. Stand is within LKW block 115. 2014 POW.

Other Comments: Stand is within LKW block 114. Shelterwood harvest in 2009. All jack pine, oak and marked red pine were cut. Red pine residual is 80 BA/AC. Oak understory just starting to come in. Stand is within the Cranberry Gas Storage Field; pipelines, wells and service roads are within the area.

Next Steps: Monitor natural regeneration until adequate regeneration is achieved. A mix of jack pine and oak regeneration is acceptable. Plant jack pine if natural regen fails to produce suitable KW habitat. Target plant year would be 2021.

Proposed Start Date: 10/01/2013

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
92	73009092_KW -Cut	226.6	42220 - Natural Jack Pine	High Density Pole	63	51-80	Harvest	Clearcut with Reserves	42220 - Natural Jack Pine	Cmpt. Review Proposal

Prescription Specs: Clear cut with reserves manage for natural regeneration for KW habitat. Leave scattered red pine. Follow retention guidelines as they pertain to KW harvests. Stand is within LKW block 114. 2014 POW. Sale specs need to include specs that ensure the best possible chance for natural regeneration. (Leave tops, late summer harvest, post harvest scarification). Plant jack pine if natural regen fails to produce suitable KW habitat. Target plant year would be 2021.

Other Comments: Stand is within LKW block 114. Jack pine is broke up in areas, creating stand gaps with high amounts of regeneration. Stand is within the Cranberry Gas Storage Field; pipelines, wells and service roads are within the area.

Next Steps: Monitor natural regeneration until adequate regeneration is achieved. Plant jack pine if natural regen fails to produce suitable KW habitat. Target plant year would be 2021.

Proposed Start Date: 10/01/2013

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
92	73009092_MF B-Cut	54.5	42220 - Natural Jack Pine	High Density Pole	63	51-80	Harvest	Seed Tree with Reserves	3302 - Low Density Conifer Trees	Cmpt. Review Proposal

Prescription Specs: Create and maintain as fuelbreak stand. Seed tree with reserves 2" spec all jack pine. Leave all red pine and oak. Require chip harvest. Fuel break treatment will be on the 2018 POW.

Other Comments: Stand is within LKW block 114. Jack pine is broke up in areas, creating stand gaps with high amounts of regeneration. Stand is within the Cranberry Gas Storage Field; pipelines, wells and service roads are within the area.

Next Steps: Following harvest create and maintain as fuel break stand.

Proposed Start Date: 10/01/2017

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
93	73009093_OP-Cut	15.0	4122 - Oak, Pine	Medium Density Pole	90	51-80	Harvest	Clearcut with Reserves	42111 - Planted Red Pine, Mixed Deciduous	Cmpt. Review Proposal

Prescription Specs: Clear cut with reserves followed by inter planting to red pine. FTP # C73-869.

Other Comments: Stand is part of sold timber sale, under contract. Otter Pines; 73-001-09-01. Northern pin oak, jack pine mix. Oak salvage in 2005. Oak and jack pine are both poor.

Next Steps: Following harvest interplant red pine. FTP # C73-869 has been submitted.

Proposed Start Date: 10/01/2008

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
94	73009094_KW-Cut	14.9	42110 - Planted Red Pine	High Density Log	77	141-170	Harvest	Clearcut with Reserves	42120 - Planted Jack Pine	Cmpt. Review Proposal

Prescription Specs: Clear cut with reserves followed by planting jack pine for KW habitat. Leave scattered red pine. Leave two to three trees per acre favoring red pine of average diameter and greater, leave trees should be left individually and in small groups. Follow retention guidelines as they pertain to KW harvests. Stand is within LKW block 117. Defer treatment to the 2018 plan-of-work, target plant year is 2021.

Other Comments: Stand is within LKW block 117 - 2018 POW - target plant year 2021. Old 1937 hand planting. Rows are indistinguishable; jack pine is on decline. Stand is within the Cranberry Gas Storage Field; pipelines, wells and service roads are within the area.

Next Steps: Following harvest trench and plant jack pine for KW habitat.

Proposed Start Date: 10/01/2017

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
94	73009094_OP-Cut	30.6	42110 - Planted Red Pine	High Density Log	77	141-170	Harvest	Crown Thinning	42110 - Planted Red Pine	Cmpt. Review Proposal

Prescription Specs: Stand is part of sold timber sale, under contract. Otter Pines; 73-001-09-01. Removing all jack pine and reducing residual red pine down to 72 BA/AC.

Other Comments: Stand changes as you move south towards the river. The elevation drops as you move towards the river both gradually and in steps. Old 1937 hand planting. Rows are indistinguishable; jack pine is on decline. Stand is within the Cranberry Gas Storage Field; pipelines, wells and service roads are within the area.

Next Steps:

Proposed Start Date: 10/01/2008

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
95	73009095-Cut	113.9	42220 - Natural Jack Pine	High Density Pole	65	51-80	Harvest	Clearcut with Reserves	42121 - Planted Jack Pine, Mixed Deciduous	Cmpt. Review Proposal

Prescription Specs: Clear cut with reserves, 2" spec. To meet retention guidelines leave scattered red pine, scattered white pine and scattered northern pin oak. Residual reserves should be 5 to 10 BA/AC. Reserves should be both scattered and in small groups.

Other Comments: Recentley aquired from Consumers Energy. Past inventory has age of jack pine at 35 to 45, this did not seem correct. Recent core samples has the age of the jack pine consistantley at 60 to 70 years. Stand is within LKW block 118 that was planted in 1997. This stand will not hold until block 118 rolls around again. Understory varies from O3 to O1/W2/W4. Scattered areas in which the white pine understory is or very near pole size. Scattered (10 BA/AC) of large DBH northern pin oak 100 + years old. The white pine understory is denser along the west end of stand (creeping out of the Clam River flood plain). Stand is within the Cranberry Gas Storage Field; pipelines, wells and service roads are within the area.

Next Steps: Following harvest monitor natural regeneration until adequate regeneration is achieved. A mix of natural regeneraion is acceptable; jack pine, oak, white pine and red pine. Trench and plant jack pine if natural regen fails to produce acceptable regeneration after 4 years.

Proposed Start Date: 10/01/2013

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
113	73009113-Cut	79.4	42220 - Natural Jack Pine	High Density Pole	54		Harvest	Seed Tree with Reserves	4122 - Oak, Pine	Cmpt. Review Proposal

Prescription Specs: Seed tree harvest with reserves to promote, establish and release a mixed oak/pine understory gradually converting the stand to a natural mixed oak/pine stand. Leave all red pine and mixed oak.

Other Comments: Jack pine is variable in diameter due to wind damage and canopy gap creation. Private property borders this stand on 3 sides. Jack pine is on the decline.

Next Steps: Monitor natural regeneration until adequate regeneration is achieved. A mix of natural oak, red pine, jack pine and white pine regeneration is acceptable. Interplant red pine to maintain full stocking if needed.

Proposed Start Date: 10/01/2013

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
118	73009118-Cut	16.6	42220 - Natural Jack Pine	High Density Pole	61	81-110	Harvest	Clearcut with Reserves	4122 - Oak, Pine	Cmpt. Review Proposal

Prescription Specs: Clear cut with reserves 2" spec to promote, release and establish a oak understory. Leave scattered mature oak to meet retention guidelines. The Leota ORV trail runs through a portion of this stand, use the VMS trail protection spec in the timber sale contract to protect the trail during harvest operations. Also do not leave any jack pine trees or dead trees within 70 feet of the trail, any jack pine trees with trail signs should be cut above the sign leaving a post.

Other Comments: Jack pine stand with mature mixed oak mixed in as well. Jack pine is on decline. Nice oak understory.

Next Steps: Monitor natural regeneration until adequate regeneration is achieved. A mix of jack pine, mixed oak and white pine regeneration is acceptable. Interplant red pine to maintain full stocking if needed.

Proposed Start Date: 10/01/2013

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
119	73009119_PF B-Cut	30.2	42220 - Natural Jack Pine	High Density Pole	39		Harvest	Clearcut with Reserves	3302 - Low Density Conifer Trees	Cmpt. Review Proposal

Prescription Specs: Create and maintain as fuelbreak stand. Clear cut with reserves 2" spec. Require chip harvest. Leave all oak and red pine. (Pigeon fuel break) 2014 POW. The Leota ORV trail runs through a portion of this stand, use the VMS trail protection spec in the timber sale contract to protect the trail during harvest operations. Also do not leave any jack pine trees or dead trees within 70 feet of the trail, any jack pine trees with trail signs should be cut above the sign leaving a post.

Other Comments:

Next Steps: Following harvest create and maintain as fuel break stand.

Proposed Start Date: 10/01/2013

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
121	73009121_PF B-Cut	66.3	42110 - Planted Red Pine	High Density Pole	60	81-110	Harvest	Crown Thinning	3302 - Low Density Conifer Trees	Cmpt. Review Proposal

Prescription Specs: Create and maintain as fuelbreak stand. Crown thinning leave 50 to 70 BA/AC of wind firm red pine. Require chip harvest. (Pigeon fuel break) 2014 POW. May take two timber harvests to get to desired BA/AC.
The Leota ORV trail runs through a portion of this stand, use the VMS trail protection spec in the timber sale contract to protect the trail during harvest operations. Also do not leave any jack pine trees or dead trees within 70 feet of the trail, any jack pine trees with trail signs should be cut above the sign leaving a post.

Other Comments: Red pine plantation. Thinned twice.

Next Steps: Following harvest create and maintain as fuel break stand.

Proposed Start Date: 10/01/2013

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
123	73009123-Cut	20.1	4122 - Oak, Pine	Medium Density Pole	93	51-80	Harvest	Clearcut with Reserves	42111 - Planted Red Pine, Mixed Deciduous	Cmpt. Review Proposal

Prescription Specs: Clear cut with reserves followed by inter planting to red pine. Leaving all white pine (mostly saps) and 28 green painted oak trees.

Other Comments: Stand is part of sold timber sale, under contract. Otter Pines; 73-001-09-01. Northern pin oak, jack pine mix. Oak salvage in 2005.

Next Steps: Following harvest interplant red pine.

Proposed Start Date: 10/01/2008

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
135	73009135-Cut	48.1	42220 - Natural Jack Pine	High Density Pole	90	81-110	Harvest	Clearcut with Reserves	42250 - Pine, Oak	Cmpt. Review Proposal

Prescription Specs: Clear cut with reserves 2" spec. Mnage for a mix of natural regen jack pine and mixed oak. Leave all oak and white pine to meet retention guidelines. The Leota ORV trail runs through a portion of this stand, use the VMS trail protection spec in the timber sale contract to protect the trail during harvest operations. Also do not leave any jack pine trees or dead trees within 70 feet of the trail, any jack pine trees with trail signs should be cut above the sign leaving a post.

Other Comments: Nautural jack pine with scattered mixed oak and white pine.

Next Steps: Monitor natural regeneration until adequate regeneration is achieved. A mix of jack pine, mixed oak and white pine regeneration is acceptable. Interplant red pine to maintain full stocking if needed.

Proposed Start Date: 10/01/2013

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
146	73009146-Cut	15.7	42210 - Natural Red Pine	High Density Pole	70	111-140	Harvest	Shelter Wood with Reserves	4122 - Oak, Pine	Cmpt. Review Proposal

Prescription Specs: Shelterwood to promote a mix of natural regen of mixed oak / mixed pine. Remove all jack pine and oak, reduce red pine residual down to 40 to 60 BA/AC. Red pine density varies. Address retention by leaving scattered large wolfy oak and the red pine residual. Gradually converting stand to a natural oak/pine mixture

Other Comments: The stand was set up for harvest in 1996 but it was not cut. The jack pine is declining. Stand is within the Cranberry Gas Storage Field; pipelines, wells and service roads are within the area.

Next Steps: Monitor natural regeneration until adequate regeneration is achieved. A mix of natural oak/pine regeneration is acceptable. Interplant red pine to maintain full stocking if needed.

Proposed Start Date: 10/01/2013

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
147	73009147-Cut	108.6	42290 - Natural Mixed Pine	High Density Log	76	141-170	Harvest	Seed Tree with Reserves	4122 - Oak, Pine	Cmpt. Review Proposal

Prescription Specs: Seed tree harvest to promote, establish and release a mixed oak/pine understory gradually converting the stand to a natural mixed oak/pine stand. Mark 10 to 40 BA/AC of red pine to leave and leave all red pine and white pine 4" inches DBH and less. The residual red pine would not be harvested later. Address retention with the red pine residual and mark to leave scattered mature oak and white pine.

Other Comments: The stand was set up for harvest in 1996 but it was not cut. The overstory is declining, especially the jack pine. Stand is within the Cranberry Gas Storage Field; pipelines, wells and service roads are within the area. Survey corners?

Next Steps: Monitor natural regeneration until adequate regeneration is achieved. A mix of natural oak/pine regeneration is acceptable. Interplant red pine to maintain full stocking if needed.

Proposed Start Date: 10/01/2013

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
148	73009148-Cut	39.5	42210 - Natural Red Pine	High Density Pole	74	141-170	Harvest	Shelter Wood with Reserves	4122 - Oak, Pine	Cmpt. Review Proposal

Prescription Specs: Shelterwood to promote a mix of natural regen of mixed oak / mixed pine. Remove all jack pine and oak, reduce red pine residual down to 40 to 60 BA/AC. Red pine density varies. Address retention by leaving scattered large wolfy oak and the red pine residual. Gradually converting stand to a natural oak/pine mixture

Other Comments: The stand was set up for harvest in 1996 but it was not cut. The stand is denser in the northern 2/3. This area is heavier to red pine and oak. The southern 1/3 has more oak; jack, red, and white pines in it. Stand is within the Cranberry Gas Storage Field; pipelines, wells and service roads are within the area. Survey corners?

Next Steps: Monitor natural regeneration until adequate regeneration is achieved. A mix of natural oak/pine regeneration is acceptable. Interplant red pine to maintain full stocking if needed.

Proposed Start Date: 10/01/2013

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
149	73009149-Cut	15.9	42110 - Planted Red Pine	High Density Log	75	141-170	Harvest	Shelter Wood with Reserves	4122 - Oak, Pine	Cmpt. Review Proposal

Prescription Specs: Shelterwood to release and establish a mix of natural regen of oak, white pine and jack pine. Remove all jack pine and oak, reduce red pine residual down to 50 BA/AC. Red pine density varies, in some places not much red pine will need marking to hit the desired residual. Address retention along slope leading down to the Cranberry Creek flood plain and leaving scattered large wolfy oak. Treat with stand 72.

Other Comments: The terrain is fairly level, but starts to slope going east. There is a significant drop just before the L-type to the east. Stand is within the Cranberry Gas Storage Field; pipelines, wells and service roads are within the area. Survey corners?

Next Steps: Monitor natural regeneration until adequate regeneration is achieved. A mix of natural oak/pine regeneration is acceptable. Interplant red pine to maintain full stocking if needed.

Proposed Start Date: 10/01/2013

Total Treatment Acreage Proposed: 1762.4

Table 4 -- Treatments Prescribed with a Limiting Factor

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
			#Error							

Prescription Specs:

Other Comment:

Next Steps:

Proposed Start Date: #Error

Limiting Factor and No Treatment Reason

Total Treatment Acreage Proposed: **0**

Data updated before 10:00 AM

Out of YOE -- Treatments
Prescribed with No Limiting Factor

Year of Entry: 2014

Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
73010274-Cut	26.5	42260 - Natural Pine, Mixed Deciduous	High Density Log	105		Harvest	Clearcut with Reserves	42110 - Planted Red Pine	Cmpt. Review Proposal

Prescription Specs: The stand is to be harvested as a 2" spec final harvest. The retention should be focused along the snowmobile trail.

Other Comments:

Next Steps: After the harvest replant the stand to red pine, expand the unplanted area around the Leota Weather Station.

Proposed Start Date: 10/01/2009

Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
73010290-Cut	17.1	42110 - Planted Red Pine	High Density Pole	56		Harvest	Systematic Thinning	42110 - Planted Red Pine	Cmpt. Review Proposal

Prescription Specs: The stand needs to be thinned by a systematic thinning individual tree marking taking the residual BA down to 110.

Other Comments:

Next Steps:

Proposed Start Date: 10/01/2009

Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
73010295-Cut	28.0	4122 - Oak, Pine	High Density Pole	83		Harvest	Clearcut with Reserves	4129 - Mixed Oak	Cmpt. Review Proposal

Prescription Specs: The stand should be harvested as a 2" spec final harvest. The harvest should retain all red and white pine as well as marked oak for retention. This retention should be focused along the snowmobile trail.

Other Comments:

Next Steps: After the stand is harvested interplant with red pine.

Proposed Start Date: 10/01/2009

Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
73010296-Cut	39.4	42260 - Natural Pine, Mixed Deciduous	High Density Pole	68		Harvest	Clearcut with Reserves	42111 - Planted Red Pine, Mixed Deciduous	Cmpt. Review Proposal

Prescription Specs: The stand is to be harvested as a 2" spec final harvest. The retention should be a mixture of individually mark oak and pine. The retention should be concentrated along the snowmobile trail.

Other Comments:

Next Steps: After the stand is harvested plant to red pine.

Proposed Start Date: 10/01/2009

Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
73010299-Cut	15.5	4122 - Oak, Pine	High Density Log	105		Harvest	Clearcut with Reserves	42111 - Planted Red Pine, Mixed Deciduous	Cmpt. Review Proposal

Prescription Specs: The stand is to be harvested to 2" DBH but do not cut any red or white pine. Focus any addition retention to the area along the snowmobile trail.

Other Comments:

Next Steps: After harvest interplant red pine this will lead to a mixed oak/pine stand.

Proposed Start Date: 10/01/2009

Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
73010308-Cut	21.7	42211 - Natural Red Pine, Mixed Deciduous	High Density Pole	73		Harvest	Clearcut with Reserves	42110 - Planted Red Pine	Cmpt. Review Proposal

Prescription Specs: The stand is to be final harvested to 2" DBH. The retention should be placed along the Township property for visual consideration. In addition the boundary should be marked along the top of the bluff that overlooks the Muskegon River Food plain

Other Comments:

Next Steps: After harvest replant the stand to red pine.

Proposed Start Date: 10/01/2009

Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
73010310-Cut	6.8	42211 - Natural Red Pine, Mixed Deciduous	High Density Pole	73		Harvest	Clearcut with Reserves	42110 - Planted Red Pine	Cmpt. Review Proposal

Prescription Specs: Harvest the stand as a 2" spec final harvest. The retention should be placed to address visual concerns.

Other Comments:

Next Steps: After the harvest plant the stand to red pine.

Proposed Start Date: 10/01/2009

Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
73010312-Cut	34.7	42110 - Planted Red Pine	High Density Log	73		Harvest	Systematic Thinning	42110 - Planted Red Pine	Cmpt. Review Proposal

Prescription Specs: The stand is to be harvested as a thinning taking the BA down to around 120 sq ft. Concentrated the removal on damaged trees and leave the scattered live and dead oak. Focus the retention along the snowmobile trail.

Other Comments:

Next Steps:

Proposed Start Date: 10/01/2009

Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
73010314-Cut	9.2	42140 - Planted Mixed Pine	High Density Pole	73		Harvest	Clearcut with Reserves	42110 - Planted Red Pine	Cmpt. Review Proposal

Prescription Specs: The stand should be final harvest the stand to 2" DBH. The stand should have red pine and oak marked to met retention or leave the SE corner of the stand for retention.

Other Comments:

Next Steps: After the stand is harvested replant the stand to red pine.

Proposed Start Date: 10/01/2009

73010323-Cut	160.2	42220 - Natural Jack Pine	High Density Pole	63		Harvest	Clearcut with Reserves	42120 - Planted Jack Pine	Cmpt. Review Proposal

Prescription Specs: This stand is in an established KW Block. Harvest the stand as a 2" clearcut. The retention should be left in strip going from the southwest to northeast and should be approximatly 33' wide. These strips are being left to simulate fire skips.

Other Comments:

Next Steps: After the harvest trench and replant to jack pine.

Proposed Start Date: 10/01/2009

73010324-Cut	34.3	42220 - Natural Jack Pine	High Density Pole	59		Harvest	Clearcut with Reserves	42120 - Planted Jack Pine	Cmpt. Review Proposal

Prescription Specs: This stand is in an established KW Block. Harvest the stand as a 2" DBH final harvest. The retention in the stand should be left in strip going from the southwest to northeast going through the entire block. These strips should be approximately 33' wide.

Other Comments:

Next Steps: After the harvest trench and plant jack pine.

Proposed Start Date: 10/01/2009

73010325-Cut	86.7	42221 - Natural Jack Pine, Mixed Deciduous	High Density Pole	59		Harvest	Clearcut with Reserves	42120 - Planted Jack Pine	Cmpt. Review Proposal

Prescription Specs: This stand is in an established KW Block. Harvest the stand as a 2" DBH final harvest. The retention in the stand should be left in strip going from the southwest to northeast going through the entire block. These strips should be approximately 33' wide.

Other Comments:

Next Steps: After the harvest trench and plant jack pine

Proposed Start Date: 10/01/2009

Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
73010334-Cut	7.3	42121 - Planted Jack Pine, Mixed Deciduous	High Density Pole	72		Harvest	Clearcut with Reserves	42120 - Planted Jack Pine	Cmpt. Review Proposal

Prescription Specs: The stand is to be harvested as a 2" Spec final harvest.

Other Comments:

Next Steps: After the harvest replant the stand to jack pine.

Proposed Start Date: 10/01/2006

73010336-Cut	32.5	4122 - Oak, Pine	High Density Log	94		Harvest	Clearcut with Reserves	4121 - Oak, Aspen	Cmpt. Review Proposal

Prescription Specs: Harvest the stand as a 2" spec, except for oak which is to be cut to 4" DBH and white pine to be cut to 6" DBH. In addition mark some trees for retention

Other Comments:

Next Steps: The stand is expected to regenerate to a mixture of aspen, oak, maple, and jack pine.

Proposed Start Date: 10/01/2006

73010338-Cut	86.7	42290 - Natural Mixed Pine	High Density Pole	74		Harvest	Clearcut with Reserves	42120 - Planted Jack Pine	Cmpt. Review Proposal

Prescription Specs: This stand is in an established KW Block. Harvest the stand as a 2" DBH final harvest. The retention in the stand should be left in strip going from the southwest to northeast going through the entire block. These strips should be approximately 33' wide.

Other Comments:

Next Steps: After the harvest trench and plant jack pine for KW.

Proposed Start Date: 10/01/2009

73010344-Cut	22.8	4125 - Black, N. Pin Oak	High Density Pole	96		Harvest	Clearcut with Reserves	4121 - Oak, Aspen	Cmpt. Review Proposal

Prescription Specs: Harvest the stand as a 2" spec final harvest, except the oak which is to be cut to 4" DBH. In addition, do not harvest any white and red pine.

Other Comments:

Next Steps: The stand is expected to regenerate to a mixture of oak and aspen.

Proposed Start Date: 10/01/2006

Out of YOE -- Treatments
Prescribed with No Limiting Factor

Year of Entry: 2014

Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
73010420-Cut	1.5	42220 - Natural Jack Pine	High Density Pole	66		Harvest	Clearcut with Reserves	42120 - Planted Jack Pine	Cmpt. Review Proposal - Incomplete

Prescription Specs: The stand should be harvested as a 2" spec final harvest. The retention should be kept in a small patch.

Other Comments:

Next Steps: The stand is to be replanted to jack pine after it is harvested.

Proposed Start Date: 10/01/2012

Total Treatment Acreage Proposed: 630.9

Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
2	4130 - Aspen	High Density Sapling	33.3	4		Clear cut 2007. Aspen regen with red maple and oak mixed in.
3	4126 - White, Black, N. Pin Oak	High Density Pole	5.8	92	81-110	Mixed oak stand with aspen and red pmaple. Oak diameters very.
4	42110 - Planted Red Pine	High Density Pole	14.8	61	111-140	Red pine stand thinned in 1996.
5	4130 - Aspen	High Density Sapling	26.2	26		Clear cut 1986. Aspen regen with oak through out.
6	42220 - Natural Jack Pine	High Density Sapling	38.0	16		Natural jack pine regen with scattered oak.
7	42110 - Planted Red Pine	High Density Pole	7.3	78	51-80	Planted red pine. Has been thinned heavy allowing jack pine and oak to become established. Stand acts as buffer and corridor between Cranberry Creek/floodplain and KW cut to the south.
8	42120 - Planted Jack Pine	High Density Sapling	154.3	5		Clear cut and planted to jack pine in 2007. KW habitat planted in opposing weave pattern. LKW block 116.
9	42110 - Planted Red Pine	High Density Pole	5.7	52	200+	Planted red pine. Stand is within the Cranberry Gas Storage Field; pipelines, wells and service roads are within the area.
11	42290 - Natural Mixed Pine	High Density Pole	31.4	98	51-80	Mixed pine stand with some oak. Stand is within the Cranberry Gas Storage Field; pipelines, wells and service roads are within the area.
12	42200 - Natural White Pine	High Density Pole	25.7	90	51-80	White pine dominated stand with scattered oak and aspen. White pine is most prevelant at all stand layers. Pockets of stand are dominated by red maple.
14	42120 - Planted Jack Pine	High Density Sapling	64.8	24		Clear cut and planted to jack pine in 1988. KW habitat planted in opposing weave pattern. LKW block 118
15	42120 - Planted Jack Pine	High Density Sapling	8.9	15		Clear cut and planted to jack pine in 1997. KW habitat planted in opposing weave pattern. LKW block 118
17	42220 - Natural Jack Pine	High Density Pole	27.2	15		Jack pine dominated stand with scattered red pine and mixed oak.
18	42110 - Planted Red Pine	High Density Log	40.1	68	51-80	Red pine stand with natural jack pine and oak in the understory. Jack pine and oak were harvested in 1996.
21	42220 - Natural Jack Pine	High Density Pole	25.9	98		Old jack pine stand with oak. Stand is within the Cranberry Gas Storage Field; pipelines, wells and service roads are within the area.

Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
22	42220 - Natural Jack Pine	High Density Pole	16.3	50		Stand is within LKW block 115. Jack pine stand with scattered red pine, white pine and oak. Red pine is found in northern portion of stand. Stand is within the Cranberry Gas Storage Field; pipelines, wells and service roads are within the area.
23	42120 - Planted Jack Pine	High Density Sapling	229.8	13		Clear cut and planted to jack pine in 1997. KW habitat planted in opposing weave pattern. LKW block 118.
24	42110 - Planted Red Pine	High Density Log	19.7	73	51-80	Planted red pine stand. Oak and jack pine are rgenerating in the understory.
25	42120 - Planted Jack Pine	High Density Sapling	218.5	26		Clear cut and planted to jack pine in 1986. KW habitat planted in opposing weave pattern. LKW block 115.
26	42120 - Planted Jack Pine	High Density Sapling	96.8	5		Clear cut and planted to jack pine in 2007. KW habitat planted in opposing weave pattern. LKW block 116.
27	4134 - Aspen, Spruce/Fir	High Density Pole	31.3	84	1-50	Stand is dominated by quaking aspen, red maple and balsam fir. Scattered oak of all size classes. Mostly an upland stand, with pockets of low wet soils. Aspen and balam have reached maturity. Deer browse present through out stand on oak less than 2' ft. Large CWD through out entire stand (aspen/balsam)
30	42220 - Natural Jack Pine	High Density Pole	66.6	50		Stand is within LKW block 115. Natural mixed pine stand with some oak mixed in. Jack pine age varies from 50 - 67. Most of the jack pine is in the 50 yr age class. Species composition remains comparable through out stand. Stand is within the Cranberry Gas Storage Field; pipelines, wells and service roads are within the area.
31	42110 - Planted Red Pine	High Density Pole	24.6	57	111-140	Red pine plantation. First time 3rd row thinned in 2008. All scattered oak was left.
32	42220 - Natural Jack Pine	High Density Pole	82.0	49		Jack pine dominated stand with a white pine component at all levels. Stand is within LKW block 115. Stand is within the Cranberry Gas Storage Field; pipelines, wells and service roads are within the area.
33	42260 - Natural Pine, Mixed Deciduous	High Density Pole	51.3	61	1-50	White pine dominated stand with mixed deciduous scattered throughout stand, mainly located in gaps in the canopy. There are cut stumps present in the areas dominated by maple regeneration. Evidence of a partial harvest are present dating back 10-15 years ago.
34	6117 - Lowland Deciduous, Mixed Coniferous	High Density Pole	10.4	55		
35	4130 - Aspen	High Density Pole	15.1	25		Aspen dominated stand with log size pine scattered throughout. Majority of pine is located on west edge of stand along the cranberry creekflooedplain. Some lowland pockets can be found within stand boudary.

Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
37	42120 - Planted Jack Pine	Medium Density	32.9	15		Jack pine planted area with oak regeneration throughout.
38	42120 - Planted Jack Pine	High Density Sapling	932.6	13		Clear cut and planted to jack pine in 1997. KW habitat planted in opposing weave pattern. LKW block 118.
40	42220 - Natural Jack Pine	High Density Sapling	11.0	16		Stand is within LKW block 115. Clear cut 1996 natural regen.
41	42120 - Planted Jack Pine	High Density Sapling	32.6	12		Clear cut and planted to jack pine in 2000. Buffer was left along Cranberry Creek. Not planted in oppossing weave pattern. Uncut area at NW corner of stand was left out of sale to protect foundation.
42	4199 - Other Mixed Upland Deciduous	Medium Density Pole	36.3	62	1-50	Mixed stand mainly composed of oak and maple. Mainly upland gorund, with lowland areas in the southern portion of stand. Stand has evidence of partial harvest sometime within the past 20 years. Advanced aspen regeneration pockets are present throughout the stand.
44	4130 - Aspen	High Density Sapling	43.3	16		Stand was harvested in 1996.
45	42220 - Natural Jack Pine	High Density Pole	33.6	65		Stand is within LKW block 115. Stand is within the Cranberry Gas Storage Field; pipelines, wells and service roads are within the area.
47	42110 - Planted Red Pine	High Density Pole	46.9	65	111-140	Stand is within LKW block 115. Good red pine ground. Stand is within the Cranberry Gas Storage Field; pipelines, wells and service roads are within the area.
51	42120 - Planted Jack Pine	High Density Sapling	24.4	12		Clear cut and planted to jack pine in 2000. Buffer was left along Cranberry Creek. Not planted in oppossing weave pattern. Stand is within LKW block 117.
52	42140 - Planted Mixed Pine	High Density Sapling	70.9	22		Clear cut and planted to red pine in 1990. A fair amount of natural jack pine and northern pin oak mixed in as well. Stand is within LKW block 117. Inclusion of small pocket of mature timber at north end of stand. Inclusion is a mix of natural red pine, jack pine and northern pin oak. (jp 50%, rp 40%, npo 10%)
53	42220 - Natural Jack Pine	High Density Pole	100.0	60		Stand is within LKW block 115. Storm damage present in stand. Somewhat variable diameters in the jack pine (3-12 inches). Jack pine dominated stand with scattered oak. Stand is within the Cranberry Gas Storage Field; pipelines, wells and service roads are within the area.
55	6119 - Mixed Lowland Deciduous Forest	Medium Density Pole	26.4	78		Muskegon River flood plain stand, down over a bank. Seasonally flooded. Wet mucky soils.
57	4130 - Aspen	Medium Density Pole	9.4	80		

Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
58	4130 - Aspen	High Density Pole	17.3	25		
59	42220 - Natural Jack Pine	High Density Pole	95.8	43		Stand is within LKW block 115. Stand is within the Cranberry Gas Storage Field; pipelines, wells and service roads are within the area.
61	42110 - Planted Red Pine	High Density Pole	37.2	77	111-140	Stand is within LKW block 117 - 2018 POW - target plant year 2021. Old 1937 hand planting. Rows are indistinguishable; jack pine is on decline. Stand is within the Cranberry Gas Storage Field; pipelines, wells and service roads are within the area.
62	4121 - Oak, Aspen	High Density Sapling	29.7	25		Mixed aspen-oak stand.
63	42220 - Natural Jack Pine	High Density Pole	4.4	45	1-50	Small pocket of jack pine left on back side of private line (house) when LKW block 118 was cut.
64	42220 - Natural Jack Pine	High Density Pole	89.8	74		Stand is within LKW block 115. Good red pine ground. Natural jack pine stand with oak and red pine present. Stand is within the Cranberry Gas Storage Field; pipelines, wells and service roads are within the area.
65	42220 - Natural Jack Pine	High Density Pole	47.2	70	81-110	Stand is within LKW block 117 - 2018 POW - target plant year 2021. Stand is within the Cranberry Gas Storage Field; pipelines, wells and service roads are within the area. Jack pine is mature and at risk of blowdown and/or bud worm. Oak is already in decline. Some nice red pine mixed in mainly in a narrow strip along the north edge of stand. To confirm age I cored two jack pine trees and got 65 - 70 years old.
66	4125 - Black, N. Pin Oak	High Density Sapling	41.4	15		Mixed oak, aspen, cherry, and pine stand.
67	42110 - Planted Red Pine	High Density Log	46.5	75	81-110	Planted red pine stand with scattered oak. Stand gaps have high density of jack pine regeneration. Oak regeneration found throughout.
68	42220 - Natural Jack Pine	High Density Pole	29.4	33		Stand is within LKW block 115. Stand is within the Cranberry Gas Storage Field; pipelines, wells and service roads are within the area.
69	42110 - Planted Red Pine	High Density Pole	19.0	77	171-200	Stand is within LKW block 117 - 2018 POW - target plant year 2021. Old 1937 hand planting. Rows are indistinguishable; jack pine is on decline. Stand is within the Cranberry Gas Storage Field; pipelines, wells and service roads are within the area.
70	6117 - Lowland Deciduous, Mixed Coniferous	High Density Log	3.5	75		Steep slope leading down to Muskegon River flood plain. Narrow stand between PVT and large KW block, the KW harvest went up to the drop off.
72	42110 - Planted Red Pine	High Density Pole	5.1	77	141-170	Old 1938 hand planting. Rows are indistinguishable; jack pine is on decline. Stand is within the Cranberry Gas Storage Field; pipelines, wells and service roads are within the area.

Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
73	42120 - Planted Jack Pine	High Density Sapling	9.5	10		Stand is within LKW block 117. Clear cut and planted to jack pine in 2000. Not planted in opposing weave pattern.
74	42110 - Planted Red Pine	High Density Log	61.7	75	51-80	
75	42120 - Planted Jack Pine	High Density Pole	30.5	23		Stand is within LKW block 115. Stand is within the Cranberry Gas Storage Field; pipelines, wells and service roads are within the area.
76	42110 - Planted Red Pine	High Density Pole	24.9	77	111-140	Old 1938 hand planting. Rows are indistinguishable; jack pine is on decline. Stand is within the Cranberry Gas Storage Field; pipelines, wells and service roads are within the area. Very visable stand, Otter Drive bi-sects stand. Part off stand is a long/skinny arm pniched between KW block 117 and the Muskegon River flood plain with Otter Drive down the middle.
77	4122 - Oak, Pine	High Density Pole	39.7	88	51-80	Stand is within LKW block 117 - 2018 POW - target plant year 2021. Stand is within the Cranberry Gas Storage Field; pipelines, wells and service roads are within the area.N. pine oak/ jack pine stand, poor quality oak. jack pine appears to be younger than the oak however, both jack pine and oak are on the delcline on this very well drained site. Not much in the understory J1/O1 at best.
78	42110 - Planted Red Pine	High Density Log	5.7	77	111-140	Stand is within LKW block 117 - 2018 POW - target plant year 2021. Old 1937 hand planting. Rows are indistinguishable; jack pine is on decline. Stand is within the Cranberry Gas Storage Field; pipelines, wells and service roads are within the area. All jack pine and marked red pine were removed in 2000. North/south rows were created. At desired BA for red pine sawlogs, high quality red pine.
79	4131 - Aspen, Oak	High Density Pole	59.8	23		
80	4119 - Mixed Northern Hardwoods	High Density Pole	12.9	73	81-110	Mixed deciduous stand with a few scattered red and white pin. A lowland draw runs through the stand with a few cedars present. Low levels of regeneration in the understory.
81	42220 - Natural Jack Pine	High Density Pole	35.0	60	81-110	Stand is within LKW block 117 - 2018 POW - target plant year 2021. Almost a pure jack pine stand, not much in the understory O1/J1 at best. Jack pine is OK but at the age of decline and budworm risk. Stand is within the Cranberry Gas Storage Field; pipelines, wells and service roads are within the area.
82	42220 - Natural Jack Pine	High Density Pole	3.7	63	1-50	Small narrow strip between PVT and LKW block 118. Stand is the start of the drop off down to the Muskegon River flood plain.
83	42120 - Planted Jack Pine	High Density Pole	5.1	62	1-50	Stand is within LKW block 117 - 2018 POW - target plant year 2021. Old 1937 hand planting. Stand is within the Cranberry Gas Storage Field; pipelines, wells and service roads are within the area.
85	6128 - Lowland Coniferous, Mixed Deciduous	High Density Pole	20.3	109		Muskegon River flood plain stand, down over a bank. Seasonally flooded. Wet mucky soils.

Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
86	42110 - Planted Red Pine	High Density Pole	7.9	59	171-200	Stand is within LKW block 117 - 2018 POW - target plant year 2021. Stand is within the Cranberry Gas Storage Field; pipelines, wells and service roads are within the area. Planted in 1958, never been thinned yet. Small diameter and short.
87	4123 - Red Oak	High Density Pole	12.0	88	111-140	Age was taken on a 12.6 in red oak, 87 feet total height. Diameters vary in renge. Some 26"+ oak scattered throughout stand.
88	4310 - Pine, Oak Mix	High Density Pole	36.3	75	51-80	
89	42110 - Planted Red Pine	High Density Log	28.6	73	141-170	Stand is within LKW block 117 - 2018 POW - target plant year 2021. Old 1937 hand planting. Rows are indistinguishable; jack pine is on decline. Stand is within the Cranberry Gas Storage Field; pipelines, wells and service roads are within the area.
90	42110 - Planted Red Pine	High Density Log	39.1	74	81-110	Stand is within LKW block 114. Shelterwood harvest in 2009. All jack pine, oak and marked red pine were cut. Red pine residual is 80 BA/AC. Oak understory just starting to come in. Stand is within the Cranberry Gas Storage Field; pipelines, wells and service roads are within the area.
91	6127 - Lowland Pine	High Density Pole	13.5	80		Muskegon River flood plain stand, down over a bank. Seasonally flooded. Wet mucky soils. Access issue, only access is across private.
92	42220 - Natural Jack Pine	High Density Pole	281.1	63	51-80	Stand is within LKW block 114. Jack pine is broke up in areas, creating stand gaps with high amounts of regeneration. Stand is within the Cranberry Gas Storage Field; pipelines, wells and service roads are within the area.
93	4122 - Oak, Pine	Medium Density Pole	15.0	90	51-80	Stand is part of sold timber sale, under contract. Otter Pines; 73-001-09-01. Northern pin oak, jack pine mix. Oak salvage in 2005. Oak and jack pine are both poor.
94	42110 - Planted Red Pine	High Density Log	45.5	77	141-170	Split stand into two treatments. 1/3 of stand (north of Otter Drive) is within LKW block 117 - 2018 POW - target plant year 2021. Old 1937 hand planting. Rows are indistinguishable; jack pine is on decline. Stand is within the Cranberry Gas Storage Field; pipelines, wells and service roads are within the area. South 2/3 of stand is part of sold timber sale, under contract. Otter Pines; 73-001-09-01. In sold contract part of stand, removing all jack pine and reducing residual red pine down to 72 BA/AC. Stand changes as you move south towards the river. The elevation drops as you move towards the river both gradually and in steps.

Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
95	42220 - Natural Jack Pine	High Density Pole	113.9	65	51-80	Recentley aquired from Consumers Energy. Past inventory has age of jack pine at 35 to 45, this did not seem correct. Recent core samples has the age of the jack pine consistantley at 60 to 70 years. Stand is within LKW block 118 that was planted in 1997. This stand will not hold until block 118 rolls around again. Understory varies from O3 to O1/W2/W4. Scattered areas in which the white pine understory is or very near pole size. Scattered (10 BA/AC) of large DBH northern pin oak 100 + years old. The white pine understory is denser along the west end of stand (creeping out of the Clam River flood plain). Stand is within the Cranberry Gas Storage Field; pipelines, wells and service roads are within the area.
96	6117 - Lowland Deciduous, Mixed Coniferous	High Density Pole	40.1	92		Muskegon River flood plain stand, down over a bank. Seasonally flooded. Wet mucky soils. Areas of open water and tag alder.
97	4131 - Aspen, Oak	High Density Sapling	5.0	23		Aspen habitat cut 1989. Decent regen.
98	6119 - Mixed Lowland Deciduous Forest	High Density Pole	22.4	80		Muskegon River flood plain stand, down over a bank. Seasonally flooded. Wet mucky soils.
100	6139 - Mixed Lowland Forest	High Density Log	33.7	108		Stand is down over a bank in the Clam River floodplain. Stand is a mix of pine areas and lowland hardwood areas with tag alder mixed in. Some larger diameter white pine and red pine.
101	42110 - Planted Red Pine	High Density Log	42.6	74	51-80	
102	6117 - Lowland Deciduous, Mixed Coniferous	Medium Density Pole	17.2	104		Muskegon River flood plain stand, down over a bank. Seasonally flooded. Wet mucky soils. Mix of swamp hardwood, small red pine pocket, old oxbows, lowland brush, cedar and balsam. Small red pine pocket is 118 yrs old as per past inventory.
103	42200 - Natural White Pine	High Density Pole	9.6	35	51-80	Most of stand is the slope leading down to the Muskegon River flood plain. All upland species however most of the stand is the slope between LKW block 118 and the flood plain. Stand is converting to white pine.
104	6119 - Mixed Lowland Deciduous Forest	High Density Log	8.1	80		Muskegon River flood plain stand, down over a bank. Seasonally flooded. Wet mucky soils.
105	42250 - Pine, Oak	High Density Sapling	27.5	16		Clear cut in 1996 all white pine left. Residual white pine is 35 to 40 yrs old, 10 to 20 BA/AC of white pine poles. 1996 harvest has produced a nice mix of natural regen jack pine, oak and white pine.
106	42200 - Natural White Pine	High Density Pole	35.7	35	51-80	All but white pine harvested in 1995. 50 to 60 BA/AC of residual white pine in the 6" to 8" DBH class. Harvest has produced a nice mix of natural regen. Nice understory of oak/white pine. Residual white pine poles are 30 to 35 yrs old.

Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
107	42110 - Planted Red Pine	High Density Log	71.9	78	81-110	Fire scares present in southern portion of stand. All jack pine and oak were removed from stand in 1996. Red pine density is variable. Well established jack pine/oak understory is a direct result of partial harvest in the past.
108	6117 - Lowland Deciduous, Mixed Coniferous	Medium Density	11.3	14		Muskegon River flood plain, down over a bank, wet mucky soils. Some type of treatment in the past. There is an old dug road road down over the bank into this stand. Possible habitat cut in the past.
110	6119 - Mixed Lowland Deciduous Forest	High Density Pole	24.1	75		Muskegon River flood plain stand, down over a bank. Seasonally flooded. Wet mucky soils. The Clam River and Muskegon River come together along this stand. Stand is mostly under water today
111	42120 - Planted Jack Pine	High Density Sapling	49.1	22		Clear cut and planted to jack pine in 1990. Several rows of red pine planted along south edge of stand for visual along adjacent subdivision.
113	42220 - Natural Jack Pine	High Density Pole	79.4	54		
114	42110 - Planted Red Pine	High Density Log	150.5	78	81-110	Nice red pine with large amount of oak in the understory. Deer browse is present. Evidence of fire in southwest portion of stand. All jack pine, oak and marked red pine were cut in 2008. Red pine residual is at 100 BA/AC. Well established oak understory is a direct result of the 2008 partial harvest. Stand is within the Cranberry Gas Storage Field; pipelines, wells and service roads are within the area.
115	4119 - Mixed Northern Hardwoods	Medium Density	22.9	16		
116	42110 - Planted Red Pine	High Density Log	17.7	75	111-140	Partial harvest last year of entry.
117	42290 - Natural Mixed Pine	High Density Pole	10.0	75	111-140	Narrow strip of upland timber between steep bank of the Muskegon River flood plain and intensley managed timber to the north. Stand was coded as O6 in the past, most of the oak has died off. Stand has converted to white pine/red pine. Dense W3/W4 understory. Scattered pockets of pole/sawlog red pine, the red pine is spill over planting from red pine stand to the north. Stand varies in species and density. Scatered red pine was planted in 1937. Removed some dead oak under misc. wood permit in 2007.
118	42220 - Natural Jack Pine	High Density Pole	16.6	61	81-110	
119	42220 - Natural Jack Pine	High Density Pole	30.2	39		
120	42220 - Natural Jack Pine	High Density Pole	22.3	22		
121	42110 - Planted Red Pine	High Density Pole	162.9	60	81-110	Red pine plantation.

Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
122	6117 - Lowland Deciduous, Mixed Coniferous	High Density Log	20.1	82		Muskegon River flood plain stand, down over a bank. Seasonally flooded. Wet mucky soils. Beaver activity.
123	4122 - Oak, Pine	Medium Density Pole	20.1	93	51-80	Stand is part of sold timber sale, under contract. Otter Pines; 73-001-09-01. Northern pin oak, jack pine mix. Oak salvage in 2005.
125	6127 - Lowland Pine	High Density Log	9.8	127	1-50	Muskegon River flood plain, down over a bank, wet mucky soils. Some big diameter white pine. Pockets of lowland hardwood, swamp conifer and cedar. Pretty wet stand.
126	6128 - Lowland Coniferous, Mixed Deciduous	High Density Log	20.5	87		Muskegon River flood plain, down over a bank, wet mucky soils.
127	4122 - Oak, Pine	High Density Pole	31.9	90	51-80	Northern pin oak stand converting to white pine. Heavy understory of white pine W3/W5. Any type of treatment in this stand would damage a high % of the white pine understory. Scattered big diameter white pine and red pine.
128	6131 - Hemlock, White Pine, Maple, Birch	High Density Pole	18.2	25		Winter deer range cut was done in 1987. Appears to have a mix of pole size red maple, spruce, fir, and white pine regeneration.
129	42221 - Natural Jack Pine, Mixed Deciduous	Medium Density Pole	71.3	14		Mix of natural regen jack pine, mixed oak, white pine with trace amounts of aspen and cherry. Scattered mature jack pine, white pine and mixed oak were left when cut. Stand is within LKW block 113.
130	6117 - Lowland Deciduous, Mixed Coniferous	Medium Density Pole	62.9	72		Muskegon River flood plain stand, down over a bank. Seasonally flooded. Wet mucky soils.
132	6113 - Lowland Maple	High Density Log	36.6	105		Muskegon River flood plain stand, down over a bank. Seasonally flooded. Wet mucky soils.
134	6119 - Mixed Lowland Deciduous Forest	High Density Pole	1.0	82		Muskegon River flood plain, down over a bank, wet mucky soils. Very small stand, surrounded by water, no access.
135	42220 - Natural Jack Pine	High Density Pole	48.1	90	81-110	Nautural jack pine with scattered mixed oak and white pine. Stand is within LKW block 113.
136	4125 - Black, N. Pin Oak	Medium Density	38.1	3	1-50	Seed tree harvest in 2009. Harvest has produced a nice O3 understory. Leave seed trees.
137	42120 - Planted Jack Pine	High Density Sapling	380.3	31		Stand is within LKW block 113. Clear cut and planted to jack pine in 1981 following large wildfire. KW habitat planted in opposing weave pattern. Stand includes areas that the fire skipped these skips contain older jack pine, red pine and white pine.
138	6117 - Lowland Deciduous, Mixed Coniferous	High Density Pole	37.2	107		Muskegon River flood plain stand, down over a bank. Seasonally flooded. Wet mucky soils.

Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
139	6117 - Lowland Deciduous, Mixed Coniferous	High Density Pole	105.2	97		Muskegon River flood plain stand, down over a bank. Seasonally flooded. Wet mucky soils.
141	4125 - Black, N. Pin Oak	Medium Density	21.3	24		Semi open oak regen with scattered jack pine and red pine mixed in. Clear cut 1988.
144	42120 - Planted Jack Pine	High Density Sapling	9.9	22		Clear cut and planted to jack pine in 1990. Mixed oak and red maple natural regen mixed in as well.
145	42120 - Planted Jack Pine	High Density Sapling	114.2	18		The stand was harvested in 1995. It was later planted for Kirtland's warbler using an opposing weave pattern. The amount of galling is low as well as weevil attacks. The oak stump sprouts are scattered through out the stand.
146	42210 - Natural Red Pine	High Density Pole	15.7	70	111-140	The stand was set up for harvest in 1996 but it was not cut. The jack pine is declining. Stand is within the Cranberry Gas Storage Field; pipelines, wells and service roads are within the area.
147	42290 - Natural Mixed Pine	High Density Log	105.0	76	141-170	The stand was set up for harvest in 1996 but it was not cut. The overstory is declining, especially the jack pine. The stand appears to have a more diverse age class distribution then pre-inventory stand 2. Stand is within the Cranberry Gas Storage Field; pipelines, wells and service roads are within the area. Survey corners?
148	42210 - Natural Red Pine	High Density Pole	39.5	74	141-170	The stand was set up for harvest in 1996 but it was not cut. The stand is denser in the northern 2/3. This area is heavier to red pine and oak. The southern 1/3 has more oak; jack, red, and white pines in it. Stand is within the Cranberry Gas Storage Field; pipelines, wells and service roads are within the area. Survey corners?
149	42110 - Planted Red Pine	High Density Log	15.9	75	141-170	The terrain is fairly level, but starts to slope going east. There is a significant drop just before the L-type to the east. Stand is within the Cranberry Gas Storage Field; pipelines, wells and service roads are within the area. Survey corners?

Stand	Cover Type	Acres	Managed Site	Management Priority (Objective)	General Comments:
1	6239 - Mixed Emergent Wetland	15.9	No	Unspecified	
10	3102 - Grass	4.3	No	Unspecified	Old oil well pad.
13	6225 - Bog	2.5	No	Unspecified	
16	6229 - Mixed lowland shrub	172.0	No	Unspecified	
19	3102 - Grass	7.8	No	Unspecified	Trans Canada Pipeline.
20	6225 - Bog	8.1	No	Unspecified	
28	3102 - Grass	34.6	No	Unspecified	Trans Canada Pipeline.
29	3102 - Grass	1.5	No	Unspecified	Gas well.
36	6233 - Wet Meadow	28.8	No	Unspecified	
39	3102 - Grass	1.1	No	Unspecified	Gas well.
43	6220 - Alder/willow	59.0	No	Unspecified	No treatment. mostly tag alder and willow.
46	3102 - Grass	1.2	No	Unspecified	Gas well.
48	3102 - Grass	1.3	No	Unspecified	Gas well.
49	3102 - Grass	1.6	No	Unspecified	Gas well.
50	50 - Water	47.9	No	Unspecified	
54	6229 - Mixed lowland shrub	30.9	No	Unspecified	Lowland shrub, beaver activity.
56	3102 - Grass	2.2	No	Unspecified	Gas well.
60	3102 - Grass	2.3	No	Unspecified	Old storage tanks.

Stand	Cover Type	Acres	Managed Site	Management Priority (Objective)	General Comments:
71	6220 - Alder/willow	7.6	No	Unspecified	Cranberry Creek flood plain / corridor. Includes flood plain, steep banks, the creek, and buffers left along the creek corridor from adjacent timber sales. Serves as natural filtration strip for the creek.
84	3102 - Grass	3.4	No	Unspecified	Stand is within LKW block 117 - 2015 POW - plant year 2019. Stand is within the Cranberry Gas Storage Field; pipelines, wells and service roads are within the area.
99	50 - Water	4.0	No	Unspecified	Water, oxbow of the Muskegon River
109	6225 - Bog	7.7	No	Unspecified	
112	3102 - Grass	1.2	No	Unspecified	
124	50 - Water	8.4	No	Unspecified	Muskegon River oxbow
131	50 - Water	5.8	No	Unspecified	Muskegon River oxbow
133	50 - Water	2.1	No	Unspecified	Muskegon River oxbow
140	50 - Water	7.9	No	Unspecified	Oxbow.
142	50 - Water	7.3	No	Unspecified	Oxbow.
143	3102 - Grass	21.4	No	Unspecified	Grassy opening with high ORV use. Scattered red pine.
150	3105 - Mixed Upland Herbaceous	3.0	No	Low (NonForested)	This stand is a well site.
151	3105 - Mixed Upland Herbaceous	3.6	No	Low (NonForested)	This stand has high pressure gas pipelines under it.
152	6220 - Alder/willow	2.5	No	Low (NonForested)	Flood plain of the Cranberry creek.

7 – PROPOSED SPECIAL CONSERVATION AREA* (SCA) DETAILS

* This is a partial list of SCAs for this compartment. Not included are those areas identified under other Department initiatives (Natural Rivers, Deer Wintering Areas, etc.). Those will be identified in separate, future map and report products.

Stand	SCA Type	SCA Name	Acres	Comments

8 – DEDICATED CONSERVATION AREA DETAILS

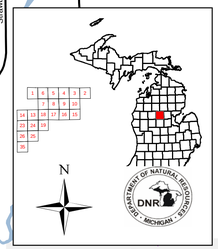
* This is a list of Dedicated Biodiversity Areas for this compartment along with a 1/4 mile buffer surrounding the compartment. Refer to Dedicated Conservation Area Map for areas that the below listed Conservation Areas are located.

ERA = Ecological Reference Area
HCVA = High Conservation Value Area
SCA = Special Conservation Area

Conservation Area	Type	Description
SCA	Cold Water Stream	A coldwater stream has temperature and dissolved oxygen conditions that allow naturally-reproduced or stocked trout populations and those of other coldwater fish species (e.g., slimy sculpin) to persist from year to year. Coldwater streams in Michigan typically provide these conditions due to substantial contributions of groundwater to their stream flows. Such streams are established by Director's action and designated as trout resources by Fisheries Order 210.
HCVA	Designated Critical Habitat	Critical habitat areas are established via a consultative and cooperative process between the DNR and the U.S. Fish and Wildlife service for the recovery of threatened and endangered species, as governed by Part 365, Endangered Species Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, and the Federal Endangered Species Act of 1973. This is an active program, with proposed species plans in various stages of review. As of now only two exist, Kirtland Warbler Habitat and Piping Plover Habitat.

Cover Type & Treatment Map

Compartment: 009
T20N R05W Sec. 2-10, 15-19
T20N R06W Sec. 1, 13, 14, 23, 24, 25, 26, 35
County: Clare
Unit: Gladwin
YOE: 2014
Acres: 6,783 GIS Calculated
Examiner: Tim Gallagher & Blair Tweedale
Map Revised: 6/25/2012
Map Phase: Pre-Review



Stand # 23 — Stocking Density
(412)0 - A7
Level 3 — OI
Level 4 — Code
Cover Type Code

Legend
- Miris Corners
- Corners
- County Paved Roads
- Paved Roads
- County Gravel Roads
- Gravel Roads
- Poor Dirt Roads
- County Poor Dirt Roads
- Trail (Non-Recreation)
- Closed Roads
- Lakes and Rivers
- Pipeline
- Powerline
- ORV Trails
- Snowmobile Trails
- ORV Trail
- Snowmobile Trail
- State Forest Land

Treatments
- Clearcut (w/Reserves, Patch/Strip)
- Seed Tree (w/Reserves)
- Shelter Wood (w/Reserves)
- Thinning (Crown, Low, Systematic)
- Selection (Group, Single Tree)

Forest Stands
Level 3
- 411 - Northern Hardwood
- 412 - Oak Types
- 413 - Aspen Types
- 419 - Mixed Upland Deciduous
- 421 - Planted Pines
- 422 - Natural Pines
- 431 - Upland Mixed Forest
- 611 - Lowland Deciduous Forest
- 612 - Lowland Coniferous Forest
- 613 - Lowland Mixed Forest

Non-Forest Stands
Level 3
- 310 - Herbaceous Openland
- 500 - Water
- 622 - Lowland Shrub
- 623 - Emergent Wetland

1 0.5 0 1 Miles

Stand Boundary Map

Compartment: 009
T20N R05W Sec. 2-10, 15-19
T20N R06W Sec. 1, 13, 14, 23, 24, 25, 26, 35
County: Clare
Unit: Gladwin
YOE: 2014
Acres: 6,783 GIS Calculated
Examiner: Tim Gallagher & Blair Tweedale
Map Revised: 6/25/2012
Map Phase: Pre-Review

Stand # 23 — Stocking Density
(412)0 - A7
Level 3 Level 4 — OI Code
Cover Type Code

Legend

- Miris Corners
- Corners
- County Paved Roads
- Paved Roads
- County Gravel Roads
- Gravel Roads
- Poor Dirt Roads
- County Poor Dirt Roads
- Trail (Non-Recreation)
- Closed Roads
- Stream
- Intermittent Stream
- Pipeline
- Powerline
- ORV Trails
- Snowmobile Trails
- ORV Trail
- Snowmobile Trail
- Stand Boundaries

Forest Stands

Level 3
- 411 - Northern Hardwood
- 412 - Oak Types
- 413 - Aspen Types
- 419 - Mixed Upland Deciduous
- 421 - Planted Pines
- 422 - Natural Pines
- 431 - Upland Mixed Forest
- 611 - Lowland Deciduous Forest
- 612 - Lowland Coniferous Forest
- 613 - Lowland Mixed Forest

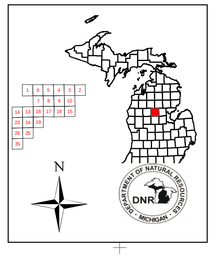
Non-Forest Stands

Level 3
- 310 - Herbaceous Openland
- 500 - Water
- 622 - Lowland Shrub
- 623 - Emergent Wetland

1 0.5 0 1 Miles

Dedicated & Proposed Special Conservation Area Map

Compartment: 009
T20N R05W Sec. 2-10, 15-19
T20N R06W Sec. 1, 13, 14, 23, 24, 25, 26, 35
County: Clare
Unit: Gladwin
YOE: 2014
Acres: 6,783 GIS Calculated
Examiner: Tim Gallagher & Blair Tweedale
Map Revised: 6/25/2012
Map Phase: Pre-Review



Stand # 23 — Stocking Density
(412)0 - A7
Level 3 Cover Type Code — OI Code

Legend

- Miris Corners
- Stand Boundaries

Forest Stands

Level 3

- 411 - Northern Hardwood
- 412 - Oak Types
- 413 - Aspen Types
- 419 - Mixed Upland Deciduous
- 421 - Planted Pines
- 422 - Natural Pines
- 431 - Upland Mixed Forest
- 611 - Lowland Deciduous Forest
- 612 - Lowland Coniferous Forest
- 613 - Lowland Mixed Forest

Non-Forest Stands

Level 3

- 310 - Herbaceous Openland
- 500 - Water
- 622 - Lowland Shrub
- 623 - Emergent Wetland

Dedicated Special Conservation Areas

- Kirtland Warbler Habitat
- Wildlife Management Areas