



# Compartment Review Presentation

Gladwin Forest Management Unit

Compartment 13

Entry Year 2016

Acreage: 2,132

County Clare

Management Area: Upper Muskegon

**Revision Date:** 06/04/2014

**Stand Examiner:** Tim Gallagher

**Legal Description:**

T19N - R06W Sections 1 - 3 & 9 -16

**Identified Planning Goals:**

Follow guidelines set forth in the Regional State Forest Management Plan for the Upper Muskegon Management Area. Monitor and address forest health concerns and issues, balance timber age classes, manage for forest sustainability, provide wildlife habitat and provide forest based recreation. Protect archeological concerns, protect threaten and endangered species.

**Soil and topography:**

The area varies from well drained sands in the jack pine plains to medium drained soils as you move out of the jack pine plains. The terrain is mostly flat with a few rolling hills as you move out of the flat plains. Green Creek is in a valley and there are areas of step banks leading down into the river valley. The major soil types are Rubicon-Crowell-AuGres associations and Menominee – Iosco – Kawkawlin associations.

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

The state land in this compartment is spread out over 11 sections. The state and private lands are intermixed resulting in miles of private property lines. Private holdings are mostly comprised of large forested single holdings with absentee landowners. Some areas of state owned land within the compartment have limited access do to both ownership patterns and topography. Many of the private land owners access their land via state two track roads none of which have easements.

**Unique Natural Features:**

This area has a variety of rare species that could be or are present including; red shouldered hawk, black sandshell, eastern box turtle, wood turtle, goshawk, eagle, great blue heron, loon, wood turtle, eastern massasauga, kirtland's warbler and blanding's turtle. Also potential for floodplain forest, secretive locust in bogs, beak grass, ginseng, andargetoothwort.

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

There are known concerns within the compartment. All proposed management activities have taken these concerns into consideration.

**Special Management Designations or Considerations:**

Continue to manage aspen and jack pine stands to maintain a verity of age classes to enhance deer and grouse habitat.

**Watershed and Fisheries Considerations:**

Green Creek and numerous unnamed creeks flow into the Muskegon River. Green Creek is known to hold some trout and should be treated as a cold water fishery. Green Creek is in a valley and has a natural buffer of lowland brush and marsh directly adjacent to its banks. The Muskegon River 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. There are also many scattered low areas that are seasonally flooded and support populations of waterfowl, great blue herons and many non-game species.

**Wildlife Habitat Considerations:**

This compartment contains a variety of habitat types suitable for many wildlife species. The compartment includes the Green Creek drainage and adjacent lowland complexes. These lowlands support various waterfowl, reptiles, amphibians, and their predators including raccoon, bobcat, mink, and great blue heron. Furbearers including beaver, mink, muskrat, black bear, bobcat, and coyote use the lowlands as corridors as well as year-round habitat. Many bird species stand to benefit from the juxtaposition of lowland and upland habitats present in the compartment. These include common yellowthroat, yellow-rumped warbler, gray catbird, redegied vireo, white-throated sparrow, hermit thrush, red-breasted nuthatch, ruffed grouse, and american woodcock. The compartment is easily accessible to hunters via Lake Station Ave.

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

Surface sediments consist of glacial outwash sand and gravel and postglacial alluvium and coarse-textured till. The glacial drift thickness varies between 400 and 600 feet. Beneath the glacial drift are the Jurassic Red Beds and the Pennsylvanian Saginaw and Grand River Formations. The Saginaw Formation is used for clay/shale in other areas of the State. The nearest gravel pit is located just to the south and there should be potential. Winterfield Field is located in the Compartment. It is a gas storage field and also is in secondary oil recovery operations. Most of the compartment is under lease for gas storage operations.

#### **Vehicle Access:**

Access to most of the compartment is good via the county road system and state forest two tracks that are in place. There are access concerns in sections 11, 12 and 14 due to both ownership patterns and topography. There are numerous service roads that lead to Consumers Energy injection wells, oil wells and pipelines within the compartment.

#### **Survey Needs:**

None needed.

#### **Recreational Facilities and Opportunities:**

No Designated Trails are present within the compartment. However dispersed recreation is likely popular throughout the compartment from the access to water resources and varying cover types. No official facilities. The area receives moderate hunting pressure most of which is deer hunters. Light fishing pressure occurs on Green Creek and the Muskegon River. Moderate dispersed camping occurs mainly during the firearm deer hunting season. Canoe traffic on the Muskegon River can be heavy on weekends during the summer. A private campground and canoe livery is located within the compartment boundaries along the Muskegon River on the north side of M-61.

#### **Fire Protection:**

Some potential for fire occurrence exists due to red pine and jack pine timber types. There are many fire breaks both natural and man made to assist in the control efforts of wildfire. (Example of fuel breaks include; rivers, low areas, roads and pipelines). Michigan Natural Gas Company operates a gas storage field (Cranberry Field) within the compartment which presents safety concerns.

#### **Additional Compartment Information:**

The following reports from the Inventory are attached:

- Total Acres by Cover Type and Age Class**
- Cover Type by Harvest Method**
- Proposed Treatments – No Limiting Factors**
- Proposed Treatments – With Limiting Factors**
- Stand Details (Forested and Nonforested)**
- Dedicated and Proposed Special Conservation Areas**
- Site Condition Details**

The following information is displayed, where pertinent, on the attached compartment maps:

- Base feature information, stand boundaries, cover types, and numbers**
- Proposed treatments**
- Site condition boundaries**
- Details on the road access system**

Report 1 – Total Acres by Cover Type and Age Class



	Age Class													Total	
	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
Aspen	45	105	311	35	0	0	0	0	0	36	0	0	0	0	533
Bog	22	0	0	0	0	0	0	0	0	0	0	0	0	0	22
Cedar	0	0	0	0	0	0	0	0	0	0	39	24	0	0	63
Herbaceous Openland	44	0	0	0	0	0	0	0	0	0	0	0	0	0	44
Jack Pine	20	61	109	0	0	0	0	0	0	0	0	0	0	0	190
Lowland Conifers	0	0	0	0	0	0	0	0	22	0	0	0	0	0	22
Lowland Deciduous	0	0	0	0	0	11	0	5	187	66	36	0	0	0	306
Lowland Shrub	186	0	0	0	0	0	0	0	0	0	0	0	0	0	186
Marsh	128	0	0	0	0	0	0	0	0	0	0	0	0	0	128
Mixed Upland Deciduous	0	0	23	0	0	0	0	0	12	0	0	0	0	0	34
Natural Mixed Pines	0	0	12	0	0	0	10	68	0	0	0	0	0	0	89
Oak	75	18	29	22	0	0	0	8	26	13	0	0	0	0	191
Planted Mixed Pines	0	79	0	0	0	0	0	0	0	0	0	0	0	0	79
Red Pine	0	0	0	0	0	0	124	0	1	0	0	0	0	0	126
Upland Mixed Forest	0	0	0	68	0	0	0	0	11	0	0	0	0	0	80
Water	30	0	0	0	0	0	0	0	0	0	0	0	0	0	30
White Pine	0	0	0	0	0	0	0	9	0	0	0	0	0	0	9
<b>Total</b>	<b>550</b>	<b>264</b>	<b>484</b>	<b>126</b>	<b>0</b>	<b>11</b>	<b>134</b>	<b>90</b>	<b>259</b>	<b>115</b>	<b>75</b>	<b>24</b>	<b>0</b>	<b>0</b>	<b>2132</b>



## Report 2 – Proposed Treatment Summaries

**Gladwin Mgt. Unit**  
**Year of Entry 2016**

**Compartment 013**  
**Total Compartment Acres: 2,132**

### Acres by Treatment Type

Commercial Harvest - 172    Tree Planting - 68    Other - 0  
 Habitat Cut - 0    Opening Maintenance - 0

### Cover Type by Harvest Method

	<i>Clearcut</i>	<i>Selection</i>	<i>Seed Tree</i>	<i>Shelterwood</i>	<i>Thinning</i>	<i>Other - Specify</i>	<i>Total Acres</i>
<b>Natural Pines</b>	68	0	0	0	0	0	<b>68</b>
<b>Oak Types</b>	8	0	0	0	0	0	<b>8</b>
<b>Planted Pines</b>	0	0	0	0	85	0	<b>85</b>
<b>Upland Mixed Forest</b>	0	0	0	11	0	0	<b>11</b>
<b>Total</b>	<b>76</b>	<b>0</b>	<b>0</b>	<b>11</b>	<b>85</b>	<b>0</b>	<b>172</b>

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Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
18 73013018-Cut	74.9	42110 - Planted Red Pine	High Density Pole	60	141-170	Harvest	Low Thinning	42110 - Planted Red Pine	Cmpt. Review Proposal

Prescription Thin. Individual tree mark red pine reducing red pine residual to 120 BA/AC. Leave all scattered oak and jack pine. Jack pine is trace and on the decline, good for habitat, course woody debris, den and nesting trees.

Other Third row thinned in 1997. Nice managable plantation, strait workable rows, good established landing sites.

Next Steps:

Proposed  
Start Date: 10/01/2015

37 73013037-Cut	8.3	4125 - Black, N. Pin Oak	High Density Pole	79	51-80	Harvest	Clearcut with Reserves	4125 - Black, N. Pin Oak	Cmpt. Review Proposal
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Prescription Clear cut with reserves. Leave all white pine and red pine. Mark to leave scattered oak to meet retention guidelines. Leave oak trees will provide mast, diversity, course woody debris and habitat. Manage for a mix of natural regeneration of oak and mixed pine.

Other Mixed oak, jack pine and white pine in understory. Small campsite in stand. Avg quality northern pin oak.

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

Proposed  
Start Date: 10/01/2015

38 73013038-Cut	67.5	42250 - Pine, Oak	High Density Pole	73	81-110	Harvest	Clearcut with Reserves	4211 - Planted Red Pine	Cmpt. Review Proposal
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Prescription Clear cut with reserves followed by trenching and planting red pine. Results will be a mix of planted red pine and natural oak. To meet retention guidelines leave un-cut islands.

Other Mixed jack pine, pin oak and red pine. Red pine under planted in 1959. Survey corners are in for private line work.

Next Steps: Following harvest trench and plant red pine. Monitor regeneration until adequate regeneration is achieved. A mix of planted red pine, natural mixed oak and natural jack pine regeneration is acceptable.

Proposed  
Start Date: 10/01/2015

41 73013041-Cut	11.4	4310 - Pine, Oak Mix	High Density Pole	80	51-80	Harvest	Shelter Wood with Reserves	4122 - Oak, Pine	Cmpt. Review Proposal
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Prescription Shelterwood with reserves. Remove all species except red pine. In areas that have dense red pine mark red pine to cut reducing the red pine residual to 50 BA/AC. Manage for a mix of oak and mixed pine regeneration under the residual red pine. To meet retention guidelines mark to leave scattered oak.

Other Red pine planted in understory in 1959. Survey corners are in for private line work.

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

Proposed  
Start Date: 10/01/2015

**Total Treatment  
Acreage Proposed: 162.2**

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Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
59 73013059-Cut	10.1	42110 - Planted Red Pine	High Density Pole	60	200+	Harvest	Systematic Thinning	4211 - Planted Red Pine	Cmpt. Review Proposal

Prescription Remove every third row.

Specs:

Other Comment: Good quality plantation red pine. Has not yet been thinned. Good strait rows. Remove every third row. It appears that a few of the northern most rows are on private property. The only access is across private property. Corners are in for running private line.

Next Steps:

Proposed Start Date: 10/01/2015

Limiting Factor 2B: Unknown if access through adjacent landowner(s) is possible

**Total Treatment  
Acreage Proposed: 10.1**

## Report 5 – Site Conditions

Gladwin Mgt. Unit  
Tim Gallagher : Examiner

Compartment 013  
Year of Entry 2016

### Availability for Management

Total Acres	Acres		Dominant Site Conditions	No	5B	2H	2G	2F
	Available	Not Available						
511	478	33	Aspen	478		33	0	
63	63		Cedar	63				
190	190	1	Jack Pine	190			1	
21	21		Lowland Aspen/Balsam Poplar	21				
22		22	Lowland Conifers				22	
305	18	287	Lowland Deciduous	18			277	11
34	34	1	Mixed Upland Deciduous	34			1	
89	89		Natural Mixed Pines	89				
191	178	13	Oak	157	21	13	0	
79	79		Planted Mixed Pines	79				
126	126		Red Pine	126				
80	80		Upland Mixed Forest	80				
9	8	1	White Pine	8			1	
1,721	1,364	357	Total Forested Acres	1,342	21	46	301	11
	79%	21%	Relative Percent					

*\*Due to limitations in the current Site Conditions Analysis tool, all nonforested acres are considered available. Future development will enable analysis of nonforested types.*

Site No.	Dominant Site Cond Availability	Dominant Site Condition	Acres	Other Site Condition	Other Site Condition	Other Site Condition	Other Site Condition
005	Not Available	2G: Too wet (sensitive soils, does not include access issues)	24				
<b>Comments:</b> Muskegon River flood plain. Lowland flood plain forest.							
006	Not Available	2G: Too wet (sensitive soils, does not include access issues)	12				
<b>Comments:</b> Muskegon River flood plain. Lowland flood plain forest.							

## Report 5 – Site Conditions

Gladwin Mgt. Unit  
Tim Gallagher : Examiner

Compartment 013  
Year of Entry 2016

007	<b>Not Available</b>	<b>2G: Too wet (sensitive soils, does not include access issues)</b>	13	2H: Blocked by physical obstacle (e.g. upland stand in a lowland area)	
<b>Comments:</b> Muskegon River flood plain. Lowland flood plain forest.					
008	<b>Not Available</b>	<b>2G: Too wet (sensitive soils, does not include access issues)</b>	6	2F: Too steep	
<b>Comments:</b> Muskegon River flood plain. Lowland flood plain forest.					
009	<b>Not Available</b>	<b>2F: Too steep</b>	11	2G: Too wet (sensitive soils, does not include access issues)	
<b>Comments:</b> No treatment. Steep banks leading down to creek/floodplain. Swamp white oak growing in creek flood plain. Steep banks good filtration strip.					
010	<b>Not Available</b>	<b>2H: Blocked by physical obstacle (e.g. upland stand in a lowland area)</b>	13		
<b>Comments:</b> Access is limited from all directions.					
011	<b>Not Available</b>	<b>2H: Blocked by physical obstacle (e.g. upland stand in a lowland area)</b>	8		
<b>Comments:</b> Access concerns. Island of timber surrounded by private ownership and low wet ground.					
012	<b>Not Available</b>	<b>2H: Blocked by physical obstacle (e.g. upland stand in a lowland area)</b>	26		
<b>Comments:</b> Access concerns. Island of timber surrounded by private ownership and low wet ground.					

## Report 5 – Site Conditions

Gladwin Mgt. Unit  
Tim Gallagher : Examiner

Compartment 013  
Year of Entry 2016

013	<b>Available</b>	<b>5B: Maintain for regeneration purposes</b>	21
<b>Comments:</b>			
016	<b>Not Available</b>	<b>2G: Too wet (sensitive soils, does not include access issues)</b>	6
<b>Comments:</b>			
Muskegon River flood plain. Lowland flood plain forest.			
017	<b>Not Available</b>	<b>2G: Too wet (sensitive soils, does not include access issues)</b>	30
<b>Comments:</b>			
Green Creek flood plain. Stand is influenced by beaver activity.			
018	<b>Not Available</b>	<b>2G: Too wet (sensitive soils, does not include access issues)</b>	7
<b>Comments:</b>			
Green Creek flood plain. Stand is influenced by beaver activity.			
019	<b>Not Available</b>	<b>2G: Too wet (sensitive soils, does not include access issues)</b>	20
<b>Comments:</b>			
Low wet site. Dense hardwood/balsam understory some tag alder.			
020	<b>Not Available</b>	<b>2G: Too wet (sensitive soils, does not include access issues)</b>	25
<b>Comments:</b>			
Too wet for commercial harvest. Creek bi-sects stand, areas of marsh grass and tag alder.			

## Report 5 – Site Conditions

Gladwin Mgt. Unit  
Tim Gallagher : Examiner

Compartment 013  
Year of Entry 2016

021	<b>Not Available</b>	<b>2G: Too wet (sensitive soils, does not include access issues)</b>	45	
<b>Comments:</b> Access concerns due to both terrain and ownership. Pockets of very low ground, aspen all but gone. Overall stand is low and wet.				
022	<b>Not Available</b>	<b>2G: Too wet (sensitive soils, does not include access issues)</b>	16	2H: Blocked by physical obstacle (e.g. upland stand in a lowland area)
<b>Comments:</b> Access is limited due to both ownership and terrain. Low wet site.				
023	<b>Not Available</b>	<b>2G: Too wet (sensitive soils, does not include access issues)</b>	16	
<b>Comments:</b> Lowland hardwood. Good wildlife stand. Stand is fairly wet and access is difficult. Stand is surrounded by marsh, lowland timber types and private land.				
024	<b>Not Available</b>	<b>2G: Too wet (sensitive soils, does not include access issues)</b>	28	
<b>Comments:</b> Mostly low wet ground with small narrow ridges of semi upland ground. Access is a concern. I do not beleive the stand would regenerate well if clear cut, pretty wet soils and aspen clones are to few and to small. No treatment lots good things happening within the stand with no treatment.				
025	<b>Not Available</b>	<b>2G: Too wet (sensitive soils, does not include access issues)</b>	53	
<b>Comments:</b> True swamp hardwood stand, areas of standing water. Stand is a drainage. Wet mucky soils.				

**Report 5 – Site Conditions**

Gladwin Mgt. Unit  
 Tim Gallagher : Examiner

Compartment 013  
 Year of Entry 2016

026	Not Available	2G: Too wet (sensitive soils, does not include access issues)	5	
<b>Comments:</b>				
027	Not Available	2G: Too wet (sensitive soils, does not include access issues)	5	
<b>Comments:</b>				
028	Not Available	2G: Too wet (sensitive soils, does not include access issues)	24	2H: Blocked by physical obstacle (e.g. upland stand in a lowland area)
<b>Comments:</b>				
029	Not Available	2H: Blocked by physical obstacle (e.g. upland stand in a lowland area)	3	
<b>Comments:</b>				
030	Not Available	2G: Too wet (sensitive soils, does not include access issues)	24	
<b>Comments:</b>				
031	Available	2B: Unknown if access through adjacent landowner(s) is possible	10	
<b>Comments:</b>				



### Report 6 – 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.

SCA Name	SCA Category	Detail Type	Recommendation	Acres
<b>Comments</b>				



**Report 7 – EXISTING SPECIAL CONSERVATION AREA DETAILS**

\* This is a list of SCA's for this compartment along with a 1/4 mile buffer surrounding the compartment. Refer to the Special Conservation Area Map for locations of the below listed Conservation Areas.

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

Conservation Area	Type	Description
SCA	Archaeological Site	An aquatic or terrestrial area of the State that contains physical remains of human occupation. These are sites of cultural and historical significance that may occur upon terrestrial areas and Great Lakes bottomlands. They include thousands of Native American settlements and burial sites, as well as French and British outposts, nineteenth century logging camps, mines and homesteads. Beneath the waters of the Great Lakes, there are shipwrecks and other remains documenting the maritime trade. Such sites may be identified by Natural heritage data from the State Historic Preservation Office. Proposed treatments in this compartment will be implemented in such a manner as to maintain the integrity of these sites. Due to the sensitive nature of this information, no further detail about location is available.
SCA	Cold Water Lake	A coldwater lake has temperature and dissolved oxygen conditions that allow naturally-reproduced or stocked trout populations and those of other coldwater fish species to persist from year to year. Suitable conditions for coldwater fishes may occur in Michigan lakes if they are relatively deep, have substantial groundwater inflows, or are located in colder (northern) areas of the state. Such lakes are established by Director's action and designated as trout resources by Fisheries Order 200.
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.
SCA	Riparian Area	A transitional area between aquatic and terrestrial ecosystems in which the terrestrial ecosystem influences the aquatic ecosystem and vice-versa. Because of the unique conditions adjacent to lakes, streams and open water wetlands, riparian areas harbor a high diversity of plants and wildlife. Riparian communities are ecologically and socially significant in their effects on water quality and quantity, as well as aesthetics, habitat, bank stability, timber production, and their contribution to overall biodiversity.
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.
ERA	Ecological Reference Areas	Ecological Reference Areas (ERAs) are high quality examples of natural communities that have been identified as Element Occurrences (EOs) by the Michigan Natural Features Inventory (MNFI) within the context of their natural community classification system. Element Occurrences with viability ranks of A (Excellent) or B (Good) and a Global (G) or State (S) element (rarity) ranking of endangered (1), threatened (2), or rare (3) serve as an initial base of ERAs. They may be located upon any ownership in the State. The system is comprised of individual or associations of natural community types that are managed for restoration and maintenance of natural ecological processes and values. The public may submit recommendations for lands as ERAs using the DNR Conservation Area Recommendation Form.



Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
1	42200 - Natural White Pine	High Density Pole	9.0	71	111-140	Parts of stand are on steep slope leading down to the Green Creek flood plain. Adjacent stand to the east is much higher (elevation) than this stand.
2	6117 - Lowland Deciduous, Mixed Coniferous	Low Density Pole	6.9	106		Green Creek flood plain. Stand is influenced by beaver activity.
3	42220 - Natural Jack Pine	Medium Density	21.2	17		Final harvest 1997. Decent natural jack pine regeneration. FTP # C73-651 - replanted / fill in planting to jack pine 5/16/2007.
4	6117 - Lowland Deciduous, Mixed Coniferous	Medium Density Pole	29.3	106		Green Creek flood plain. Stand is influenced by beaver activity.
5	4132 - Aspen, Jack Pine	High Density Sapling	10.0	27		Final harvest 1987. Nice regeneration. A3/Mr1/O1/W1.
6	6119 - Mixed Lowland Deciduous Forest	High Density Log	13.0	96		In Muskegon River flood plain.
7	4122 - Oak, Pine	Medium Density	27.8	6	1-50	Clearcut 2008 - All White Pine left.
8	4125 - Black, N. Pin Oak	High Density Sapling	19.7	27		Clearcut 1987. Good mix of Mr/A/O regeneration. Northern pin oak stump sprouts are main component.
9	4191 - Mixed Upland Deciduous with Conifer	High Density Pole	11.5	84	81-110	Stand is converting to white pine. Dense white pine just reaching pole size under a poor - declining northern pin oak overstory. Inclusion of 4 ac aspen clone at west tip of stand that is 25 yrs old.
10	4132 - Aspen, Jack Pine	High Density Sapling	6.8	27		Clearcut 1987.
11	4122 - Oak, Pine	Medium Density Log	21.3	83	51-80	All aspen, red maple, jack pine and dead oak removed in 1997. Decent mix of regeneration has resulted from harvest. Inclusion of semi low area at south end of stand along county road.
12	4122 - Oak, Pine	Medium Density	13.5	6	1-50	Clearcut 2008 all white pine left.
13	4132 - Aspen, Jack Pine	High Density Pole	10.5	27		Clearcut 1987.
14	4122 - Oak, Pine	Medium Density	9.7	26	1-50	Clearcut 1988. All white pine was left. Mixed regeneration.
15	4126 - White, Black, N. Pin Oak	High Density Pole	4.5	83	81-110	All aspen, red maple, jack pine and dead oak removed in 1997. Decent mix of regeneration has resulted from harvest.
16	42141 - Planted Mixed Pine, Mixed Deciduous	Medium Density	15.3	12		Clearcut 1997. Trenched and hand planted to red pine, May 2002.



	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
18	42110 - Planted Red Pine	High Density Pole	74.9	60	141-170	Third row thinned in 1997. Nice manageable plantation, strait workable rows, good established landing sites.
19	4122 - Oak, Pine	Medium Density	6.2	6		Clearcut 2008. To release O3/W1 understory. All white pine were left.
20	6113 - Lowland Maple	High Density Pole	20.3	84	51-80	Low wet site. Dense hardwood/balsam understory some tag alder.
21	4122 - Oak, Pine	High Density Sapling	1.3	6		Clearcut 2008. To release O3/W1 understory. All white pine was left.
22	6119 - Mixed Lowland Deciduous Forest	Medium Density Pole	10.8	92	51-80	Swamp white oak growing in creek flood plain. Steep banks good filtration strip. Inclusion of two small habitat cuts in flood plain (aspen clones 27 yrs old)
23	6117 - Lowland Deciduous, Mixed Coniferous	High Density Log	6.6	96		Down in the Muskegon River flood plain.
24	42121 - Planted Jack Pine, Mixed Deciduous	High Density Sapling	27.7	12		Clearcut 1997. Trenched and hand planted to jack pine in 2002.
25	42110 - Planted Red Pine	High Density Pole	7.9	60	81-110	Thinned 2008. All mixed oak was left. BA at this time is not high enough to warrant thinning. O3 is getting established in understory.
26	4125 - Black, N. Pin Oak	Medium Density	4.5	6		Clear cut 2008. To release oak and white pine understory.
27	42121 - Planted Jack Pine, Mixed Deciduous	Medium Density	20.0	4		Clear cut 2008. FTP for replanting to jack pine. Planted to jack pine 5/2010, FTP C73-853.
29	42141 - Planted Mixed Pine, Mixed Deciduous	Medium Density	64.1	12		Clear cut 2002. Trenched and seeded to jack pine by Gallatin Oct. 2002.
30	6120 - Lowland Cedar	High Density Pole	9.6	107		Down in the Muskegon River flood plain.
31	4191 - Mixed Upland Deciduous with Conifer	Medium Density	22.5	25	1-50	Overstory oak has been on the decline for at least 15 yrs.. Advanced oak, red maple and aspen regeneration up to 25' tall. Harvesting the sparse poor quality oak would destroy the decent regeneration that is place. Drainage within stand which contains dense ash and red maple whips.
32	6117 - Lowland Deciduous, Mixed Coniferous	High Density Pole	24.7	84	51-80	Low wet site, creek bisects stand.
33	6117 - Lowland Deciduous, Mixed Coniferous	High Density Pole	4.7	74		Mixed stand maple, ash, oak, birch, aspen, pine and fir are all present. Access is limited.



	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
34	6120 - Lowland Cedar	High Density Pole	5.3	107		Creek bisects stand. Some hardwood mixed in.
36	42121 - Planted Jack Pine, Mixed Deciduous	High Density Sapling	12.0	12		Clear cut 1997. Trenched and hand planted to jack pine in 2002.
37	4125 - Black, N. Pin Oak	High Density Pole	8.3	79	51-80	
38	42250 - Pine, Oak	High Density Pole	67.5	73	81-110	Mixed jack pine, pin oak and red pine. Red pine under planted in 1959
39	4125 - Black, N. Pin Oak	Medium Density Pole	12.6	92		Stand varies. Access is limited from all directions.
40	4130 - Aspen	High Density Pole	60.4	27		Clear cut 1987. Several scattered wet marshy areas.
41	4310 - Pine, Oak Mix	High Density Pole	11.4	80	51-80	Red pine planted in understory in 1959. Red pine is reaching pole size.
43	4122 - Oak, Pine	Medium Density	21.7	6		Clear cut 2008 releasing oak and jack pine understory. Stand drops off at west end. Red pine planted along road in 1959.
44	4130 - Aspen	High Density Pole	8.6	25		Clear cut 1989.
46	6119 - Mixed Lowland Deciduous Forest	High Density Pole	11.3	59		Low and wet scattered aspen pockets most of this aspen is very poor. Stand has some upland pockets with oak, birch, aspen and cherry. Access issues.
47	6128 - Lowland Coniferous, Mixed Deciduous	High Density Pole	5.9	85		Muskegon River flood plain. Narrow strip between private and upland managed timber.
50	6117 - Lowland Deciduous, Mixed Coniferous	High Density Pole	45.0	89		Access concerns due to both terrain and ownership. Pockets of very low ground, aspen all but gone. Overall stand is low and wet.
51	4122 - Oak, Pine	High Density Pole	22.3	37	1-50	Clear cut 1977.
52	4122 - Oak, Pine	High Density Sapling	17.9	17		Clear cut 1997. Good oak stump sprouts.
53	6119 - Mixed Lowland Deciduous Forest	High Density Log	23.9	96		In the Muskegon River flood plain. Lowland flood plain forest.
55	4139 - Aspen, Mixed Deciduous	High Density Log	7.6	99		Access concerns. Island of timber surrounded by private ownership and low wet ground.
57	4139 - Aspen, Mixed Deciduous	High Density Log	3.2	99		Access concerns. Island of timber surrounded by private ownership and low wet ground.



Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
58	6120 - Lowland Cedar	High Density Pole	23.9	107		Surrounded by private ownership and low wet ground.
59	42110 - Planted Red Pine	High Density Pole	10.1	60	200+	Good quality plantation red pine. Has not yet been thinned. Good strait rows. Remove every third row. It appears that a few of the northern most rows are on private property. The only access is across private property. Corners are in for running private line.
60	42290 - Natural Mixed Pine	High Density Pole	10.0	69	81-110	Surrounded by low wet ground. Natural mixed pine stand.
61	6117 - Lowland Deciduous, Mixed Coniferous	High Density Pole	16.4	89		Access is limited due to both ownership and terrain. Low wet site.
66	6123 - Lowland Fir	High Density Pole	15.7	86		Lowland hardwood. Good wildlife stand. Stand is fairly wet and access is difficult. Stand is surrounded by marsh, lowland timber types and private land.
67	4311 - Pine, Aspen Mix	High Density Pole	68.2	39	51-80	Clear cut 1975. Stand is variable scattered pockets of R6/W6/J6. Most of stand is upland.
68	4139 - Aspen, Mixed Deciduous	High Density Log	25.5	99		Access concerns. Island of timber surrounded by private ownership and low wet ground.
70	6119 - Mixed Lowland Deciduous Forest	High Density Log	12.1	96		In the Muskegon River flood plain. Lowland flood plain forest.
72	4130 - Aspen	High Density Pole	12.2	26		Clear cut 1988.
73	6113 - Lowland Maple	High Density Pole	28.1	86	81-110	Variable stand. Mostly low wet ground with small narrow ridges of semi upland ground. Access is a concern. Scattered white pine and red pine sawogs, scattered aspen clones, red maple poles, oak regen is also present from saps to poles. I walked all over the place trying to connect and or identify the aspen clones with no luck. I do not believe the stand would regenerate well if clear cut, pretty wet soils and aspen clones are to few and to small. No treatment lots good things happening within the stand with no treatment.
74	4133 - Aspen, Mixed Pine	High Density Pole	58.9	26		Clearcut 1988. Scattered low wet areas. Lower areas have less aspen and more maple and ash. Mixed pine and oak regen as well.
76	42210 - Natural Red Pine	High Density Pole	1.2	80	81-110	Small mixed pine stand. Low wet site. Access is a concern. Aspen and red maple mixed in. Natural stand with some larger diameter red pine.
77	6117 - Lowland Deciduous, Mixed Coniferous	High Density Pole	52.7	82	81-110	True swamp hardwood stand, areas of standing water. Stand is a drainage. Wet mucky soils.
78	42220 - Natural Jack Pine	High Density Sapling	109.3	24		Clear cut 1990. Excellent mix of natural regeneration. Areas of aspen, red maple, oak and white pine regeneration.



Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
80	4133 - Aspen, Mixed Pine	High Density Pole	35.5	39		Clear cut 1975. Stand is variable scattered pockets of R6/W6/J6. Most of stand is upland.
82	4130 - Aspen	High Density Sapling	5.4	19		Clear cut 1995.
83	4130 - Aspen	High Density Pole	21.1	27		Clear cut 1987. Excellent regeneration. Mix of aspen, red maple, oak and white pine. Several small scattered lowland brush pockets.
84	4130 - Aspen	High Density Sapling	16.7	19		Clear cut 1995.
89	4130 - Aspen	High Density Pole	24.8	27		Clear cut 1987. Excellent regeneration. Mix of aspen, red maple, oak and white pine. Several small scattered lowland brush pockets.
90	42290 - Natural Mixed Pine	Medium Density Pole	11.7	28	1-50	Semi open stand that has been filling in with white and jack pine. Age and size of pine vary. Small 2 ac. E6/W7 inclusion at north end of stand.
91	4130 - Aspen	High Density Pole	19.1	27		Clear cut 1987. Excellent regeneration. Mix of aspen, red maple, oak and white pine. Several small scattered lowland brush pockets.
92	4130 - Aspen	High Density Pole	49.3	26		Clear cut 1988.
93	6120 - Lowland Cedar	High Density Pole	24.0	114		Stand varies pockets of hardwood (ash), balsam fir and dead standing timber. Some blow-down mainly along edges. Mucky soil, standing water.
94	4130 - Aspen	High Density Sapling	15.0	19		Clear cut 1995.
95	4130 - Aspen	High Density Pole	2.9	26		Clear cut 1988.
96	4136 - Aspen, Mixed Conifer	High Density Sapling	21.1	17		Clear cut 1997. Balsam fir at north end.
97	4130 - Aspen	High Density Sapling	18.6	6		Clear cut 2008.
99	4130 - Aspen	High Density Pole	6.1	26		Clear cut 1988.
100	4130 - Aspen	High Density Sapling	26.1	6		Clear cut 2008.
102	42110 - Planted Red Pine	High Density Log	31.6	60	111-140	First thinning 1987, second thinning 1997 and third thinning 2008. Good workable rows, highly visible from M-61, up on a hill. Continue to manage stand as a plantation. High quality poles.

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Gladwin Mgt. Unit

Report 8 – Forested Stands

Compartment: 013  
Year of Entry: 2016



Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
103	4130 - Aspen	High Density Sapling	47.2	16		Clear cut 1998.
104	4130 - Aspen	High Density Pole	20.0	28		Clear cut 1986.



Stand	Cover Type	Acres	Managed Site	Management Priority (Objective)	General Comments:
17	6220 - Alder/willow	29.9	No	Unspecified	
28	629 - Mixed non-forested wetland	16.2	No	Unspecified	
35	6225 - Bog	3.9	No	Unspecified	
42	629 - Mixed non-forested wetland	19.1	No	Unspecified	
45	6225 - Bog	3.1	No	Unspecified	
48	629 - Mixed non-forested wetland	46.3	No	Unspecified	
49	3102 - Grass	18.9	No	Unspecified	
54	629 - Mixed non-forested wetland	3.8	No	Unspecified	
56	3102 - Grass	9.5	No	Unspecified	
62	50 - Water	30.3	No	Unspecified	
63	6229 - Mixed lowland shrub	3.4	No	Unspecified	
64	6239 - Mixed Emergent Wetland	41.9	No	Unspecified	
65	629 - Mixed non-forested wetland	20.1	No	Unspecified	
69	6239 - Mixed Emergent Wetland	29.4	No	Unspecified	
71	3102 - Grass	5.7	No	Unspecified	
75	6225 - Bog	2.9	No	Unspecified	
79	6229 - Mixed lowland shrub	21.2	No	Unspecified	
81	3102 - Grass	7.9	No	Unspecified	

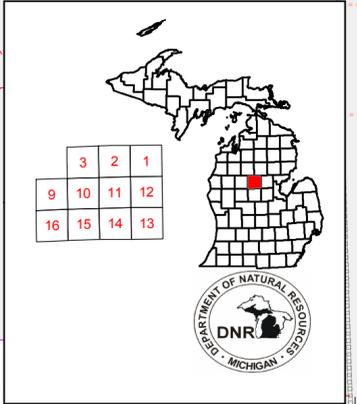


Stand	Cover Type	Acres	Managed Site	Management Priority (Objective)	General Comments:
85	3102 - Grass	1.6	No	Unspecified	
86	6239 - Mixed Emergent Wetland	25.8	No	Unspecified	
87	6229 - Mixed lowland shrub	22.3	No	Unspecified	
88	6220 - Alder/willow	3.3	No	Unspecified	
98	6239 - Mixed Emergent Wetland	31.0	No	Unspecified	
101	6225 - Bog	12.6	No	Unspecified	

# Cover Type & Treatment Map

Compartment: 013  
 T19N R06W  
 01 02 03 09 10 11 12 13 14 15 16  
 County: Clare  
 Unit: Gladwin  
 YOE: 2016  
 Acres: 2,132 GIS Calculated  
 Examiner: Tim Gallagher  
 Map Revised: 05/29/2014  
 Map Phase: Pre-Review

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



**Legend**

- Miris Corners
- Remonumented Section Corners
- PLSS Corner
- Gas Well
- Hunter Walking Trails
- Hunter Walking Trails
- Highway
- County Paved Roads
- Paved Roads
- County Gravel Roads
- Gravel Roads
- Poor Dirt Roads
- County Poor Dirt Roads
- Trail (Non-Recreation)
- Closed Roads
- Pipeline
- Stream
- Intermittent Stream
- Lakes and Rivers
- State Forest Land

**Forest Stands**

**Level 3**

- 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

**Non-Forest Stands**

**Level 3**

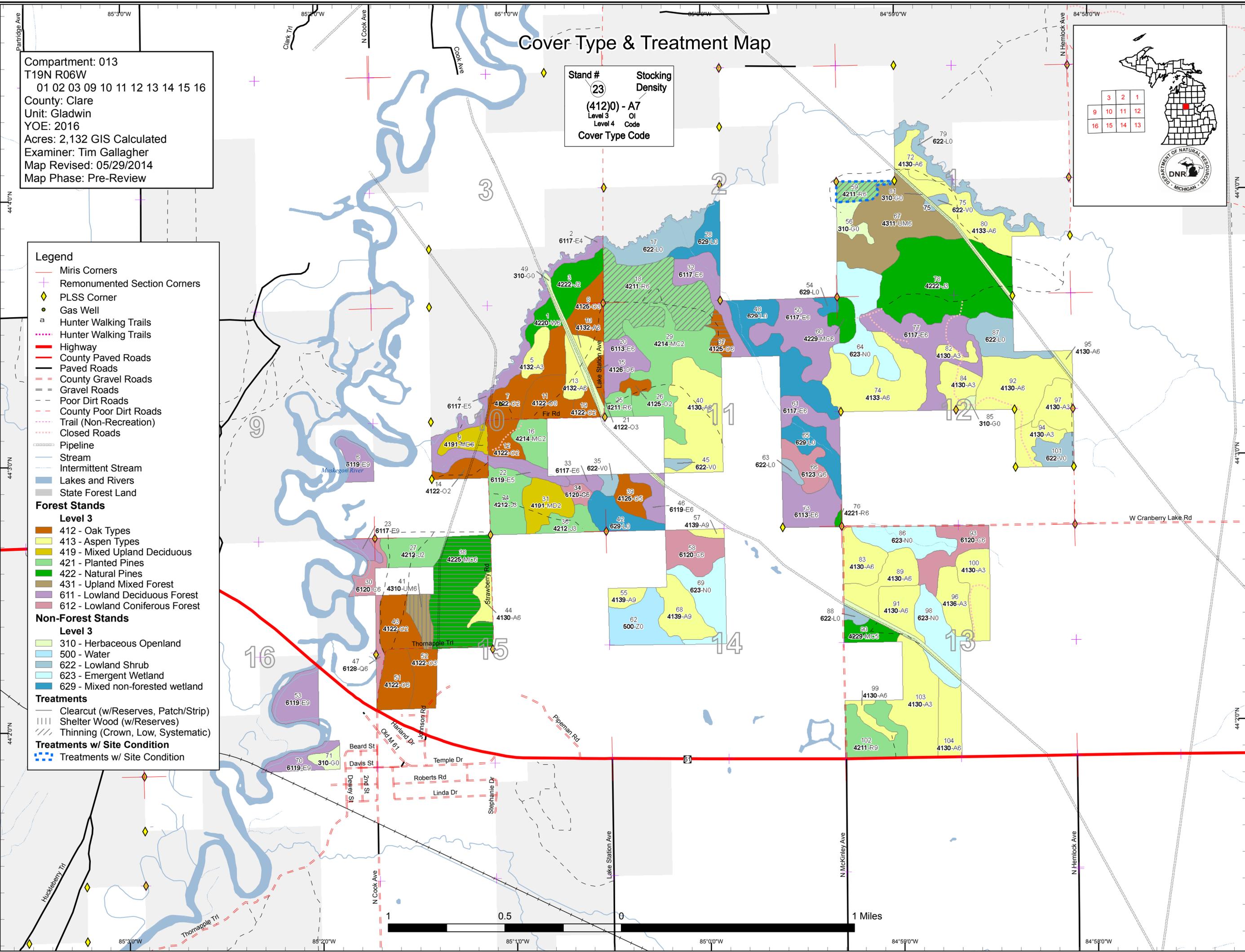
- 310 - Herbaceous Openland
- 500 - Water
- 622 - Lowland Shrub
- 623 - Emergent Wetland
- 629 - Mixed non-forested wetland

**Treatments**

- Clearcut (w/Reserves, Patch/Strip)
- Shelter Wood (w/Reserves)
- Thinning (Crown, Low, Systematic)

**Treatments w/ Site Condition**

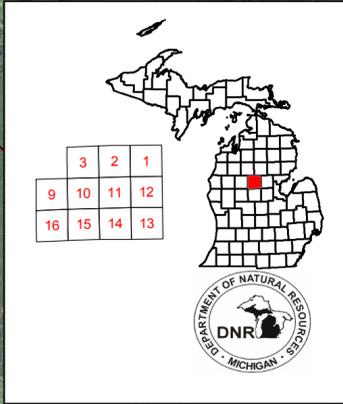
- Treatments w/ Site Condition



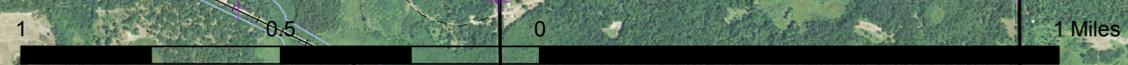
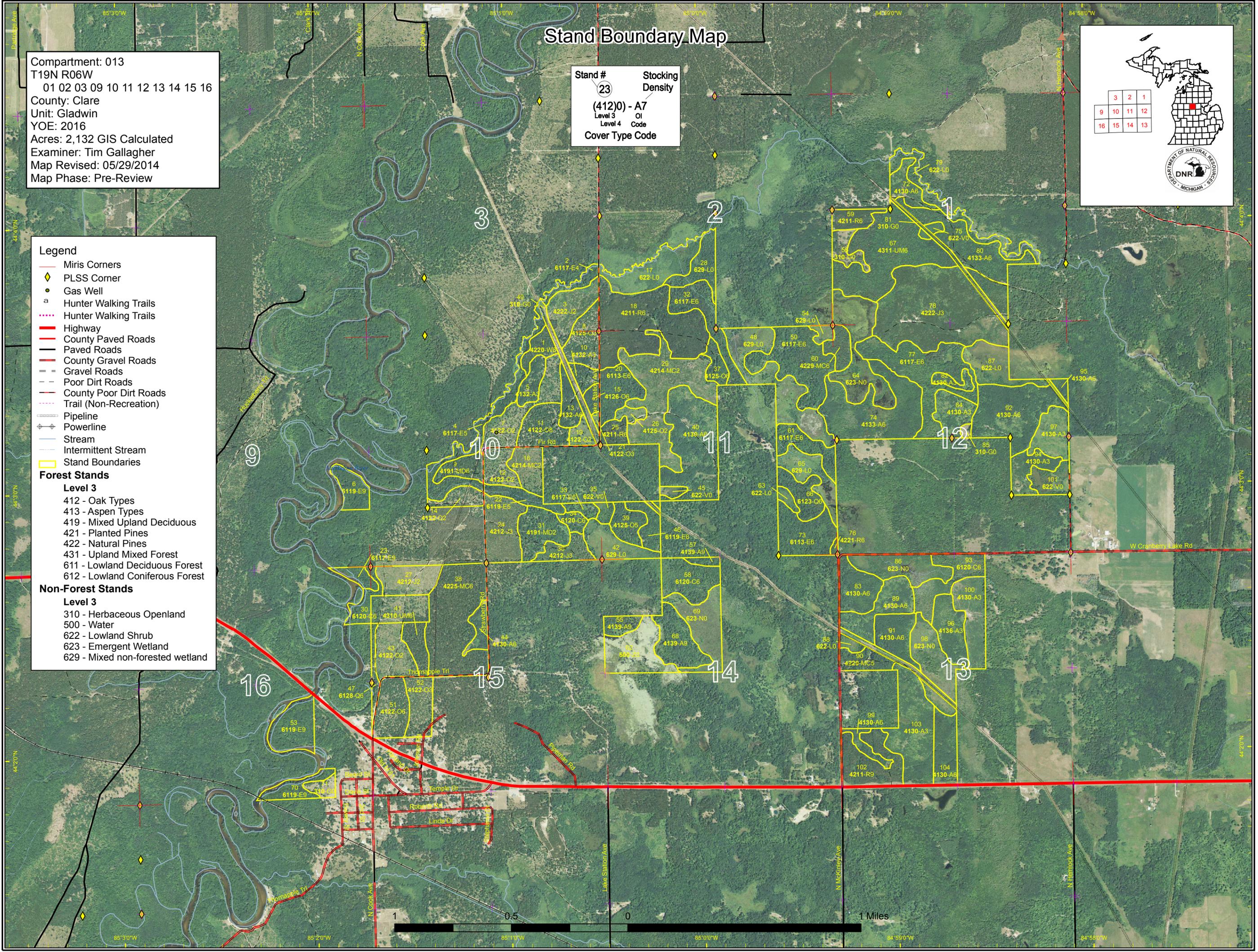
# Stand Boundary Map

Compartment: 013  
 T19N R06W  
 01 02 03 09 10 11 12 13 14 15 16  
 County: Clare  
 Unit: Gladwin  
 YOE: 2016  
 Acres: 2,132 GIS Calculated  
 Examiner: Tim Gallagher  
 Map Revised: 05/29/2014  
 Map Phase: Pre-Review

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



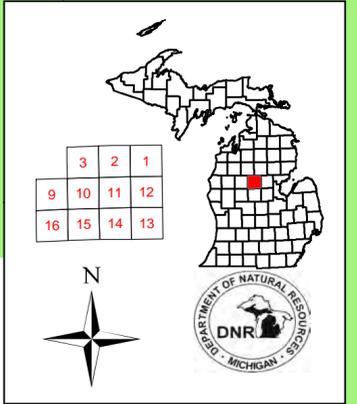
- Legend**
- Miris Corners
  - ◆ PLSS Corner
  - Gas Well
  - Hunter Walking Trails
  - Hunter Walking Trails
  - Highway
  - County Paved Roads
  - Paved Roads
  - County Gravel Roads
  - Gravel Roads
  - Poor Dirt Roads
  - County Poor Dirt Roads
  - Trail (Non-Recreation)
  - Pipeline
  - Powerline
  - Stream
  - Intermittent Stream
  - Stand Boundaries
- Forest Stands**
- Level 3**
- 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
- Non-Forest Stands**
- Level 3**
- 310 - Herbaceous Openland
  - 500 - Water
  - 622 - Lowland Shrub
  - 623 - Emergent Wetland
  - 629 - Mixed non-forested wetland



# Special Conservation Areas & Site Conditions Map

Compartment: 013  
 T19N R06W  
 01 02 03 09 10 11 12 13 14 15 16  
 County: Clare  
 Unit: Gladwin  
 YOE: 2016  
 Acres: 2,132 GIS Calculated  
 Examiner: Tim Gallagher  
 Map Revised: 05/29/2014  
 Map Phase: Pre-Review

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



**Legend**

- Miris Corners
- Stand Boundaries
- Site Condition Available**
  - Available w/ Constraints (Factor - Number)
  - Unavailable (Factor - Number)
- Site Condition Type**
  - Available Factors W/ Constraints**
    - 5B: Retention for regeneration purposes
    - 2B: Unknown if access through adjacent landowner(s) is possible
  - Unavailable Factors**
    - 2F: Too steep
    - 2G: Too wet (sensitive soils, does not include access issues)
    - 2H: Blocked by physical obstacle (e.g. upland stand in a lowland area)
- Dedicated Special Conservation Areas**
  - Cold Water Streams
  - High Priority Trout Stream Buffer
  - Essential Habitat (Kirtland Warbler)
  - Ecological Reference Areas

