



# Compartment Review Presentation

## Cadillac Forest Management Unit

Compartment 96

Entry Year 2016

Acreage: 2,332

County Missaukee

Management Area: Houghton Lake Wetlands

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**Revision Date:** 06/03/2014

**Stand Examiner:** Blair Tweedale

**Legal Description:**

T22N, R5W, Sections 23,24,25,26

**Identified Planning Goals:**

Vegetation management in the Houghton Lake Wetlands Management Area (MA) will provide forest products; maintain or enhance wildlife habitat; protect areas of unique threatened, endangered and special concern species; and provide for forest-based recreational uses. Timber management for this 10-year planning period will focus on balancing the aspen age-class distribution. Wildlife habitat management objectives include perpetuating early-successional communities for species adapted to young forests for hunting and other wildlife-related recreation opportunity. Expected trends within the next decade are the need to continue to balance aspen age-class distributions, an expected increase in recreation pressure and invasive species encroachment.

**Soil and topography:**

Otisco-Roscommon association. Rubicon-Montcalm-Graycalm association. Muskegon River bottom is Lupton-Tawas association.

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

Solid state ownership, with the exception of SWNW, NWSW section 23. Section 26, NESE and N1/2 of SW. These are listed for desirable acquisitions to block in and consolidate. This is one of the compartments that make up the Porter Ranch Wildlife Research Area.

**Unique Natural Features:**

West border is the Muskegon River. Potential for massasauga, wood turtle, spotted turtle, red-shouldered hawk, goshawk, great blue heron rookery, eagle, osprey, Blandings turtle and eastern box turtle. Potential for marsh birds, black tern, common moorhen, yellow rail, least bittern, American bittern and Forsters tern. Potential for ebony boghaunter and secretive locust in bogs.

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

No Archeological, Historical, or Cultural Features known.

**Special Management Designations or Considerations:**

**Watershed and Fisheries Considerations:**

Fisheries Division's Muskegon River Watershed Assessment and Plan recommends protection/restoration of natural vegetation along all water bodies in the watershed. In addition, coldwater streams are limited in this watershed and very important to the overall water quality of the Muskegon River. For coldwater streams, I recommend that all aspen management stands maintain a 300 ft buffer strip to discourage the establishment of beaver dams, due to the detrimental affects of beaver dams on water quality. On all other water bodies, I recommend a 100 ft buffer strip be maintained to provide natural deadwood inputs into the stream and for long-term ecological health of the system. Nellsville Ditch drains most of the area to the Muskegon River. (Richard O'Neal)

**Wildlife Habitat Considerations:**

This compartment contains part of the Houghton Lake State Wildlife Research Area (formerly Porter Ranch Wildlife Research Station). Proposed treatments must take into consideration any potential wildlife research-related concerns. This area is a large wintering complex for deer. Major concerns center on regenerating the jack pine to provide thermal cover and maintaining the blueberry ground cover. The combination of conifer cover, mixed deciduous timber, and blueberry provide valuable habitat for many wildlife species. Mixed habitat types and age classes in the lowland area along the Muskegon River offers valuable habitat and a movement corridor for bobcat, eagle, pileated woodpecker, and other wildlife species. Greater emphasis should be placed on promoting larger stands of older age and mixed age classes to provide diversity in



vertical and horizontal structure in this compartment. Generally, wildlife goals are to maintain lowland conifer and to promote oak and aspen adjacent to lowlands, though the high water table throughout this area presents a challenge in establishing regeneration. Creation of brush piles near lowlands, protection of mast bearing shrubs and provision of coarse woody debris are also desired. Management will also seek to promote emergent wetland types to support numerous wetland birds in this swamp complex where applicable. Featured species of special interest are black bear, deer, snowshoe hare, woodcock and golden-winged warbler. (E. Victory 7/18/14)

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

Surface sediments consist of glacial outwash sand and gravel and postglacial alluvium. The glacial drift thickness varies between 400 and 600 feet. Beneath the glacial drift are the Pennsylvanian Grand River and Saginaw Formations. The Saginaw is quarried for clay/shale in other parts of the State. A gravel pit is located just to the east and potential is considered to be good, especially the upland areas. Enterprise Field is located six miles to the north. The field has produced over 4.7 million BO and 2.3 Bcf gas from the Devonian Richfield Formation. It is in secondary recovery operations currently. There are no current oil and gas leases in the compartment

### **Vehicle Access:**

A forest road access plan is detailed on the compartment map. Identified are state and county roads as well as forest roads and trails under the jurisdiction of the DNR. Also indicated are forest roads and trails under the jurisdiction of the DNR that are proposed for abandonment. These roads were determined to be in excess of the access needs in the area, are a threat to the resources, or are a concern environmentally. Proposed Limited access to most of the compartment.

### **Survey Needs:**

None known.

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

There are approximately 3.5 miles of snowmobile trail (trail 6/7) along the southern & western portions of this compartment. This trail is designated snowmobile only and not designated ORV route during the non-winter season. If this trail is used for hauling timber, encourage scheduling forest treatments during non-winter months to reduce impacts to snowmobile users. Furthermore, appropriate snowmobile trail protection specifications should be used in timber sale contracts that may impact the trail. Dispersed camping, and hunting are common recreational activities throughout this compartment. The Muskegon River offers canoeing and fishing opportunities. (T.M.N. 3/14).

### **Fire Protection:**

This compartment has the potential for large fire growth due to the pine fuels. Access would be difficult in many areas of this compartment due to the seasonally wet soils and lack of good access. Suppression would be limited in these areas. Dispersed camping is a concern with abandoned campfires.

### **Additional Compartment Information:**

None known.

### **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**

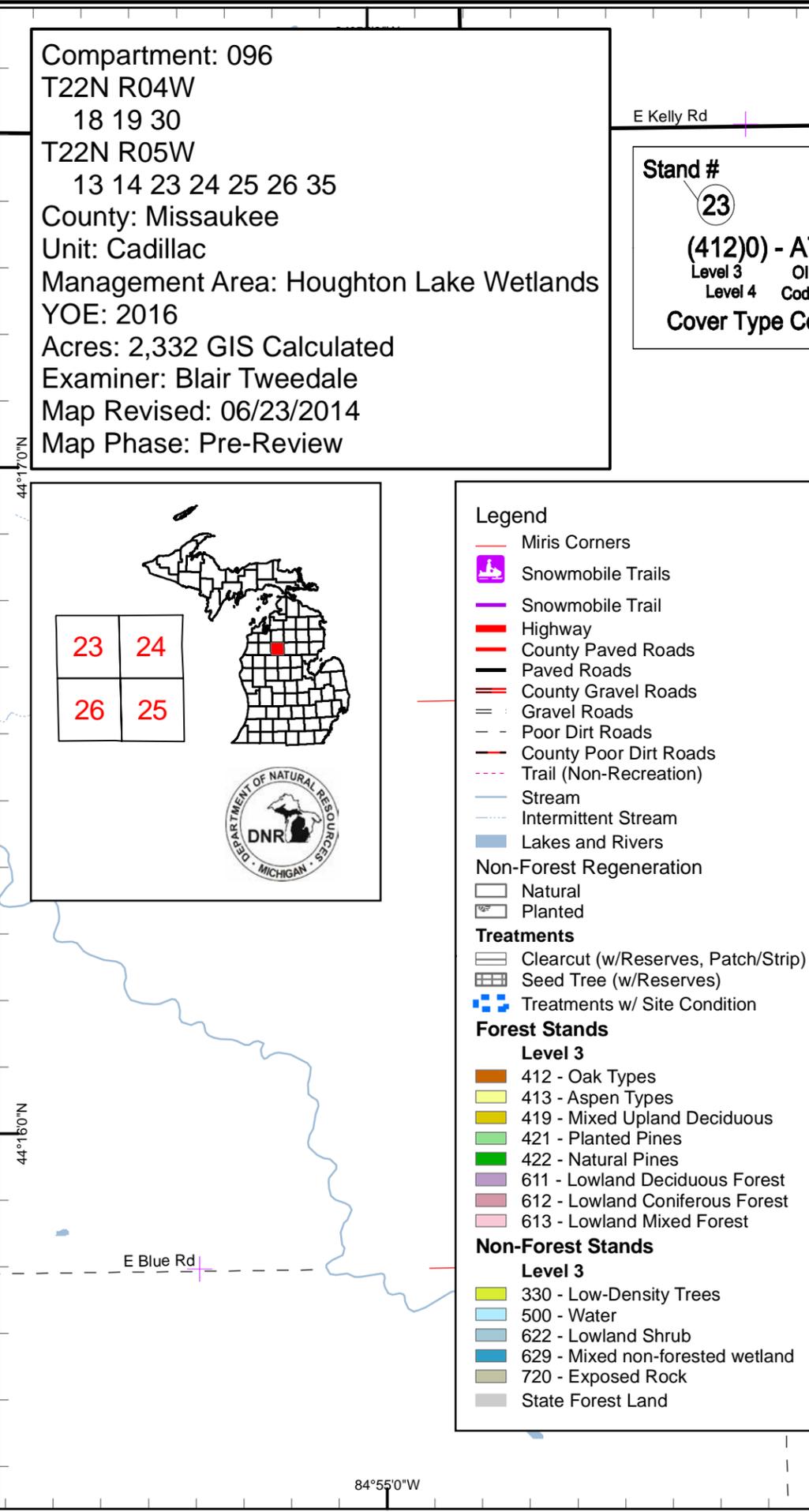
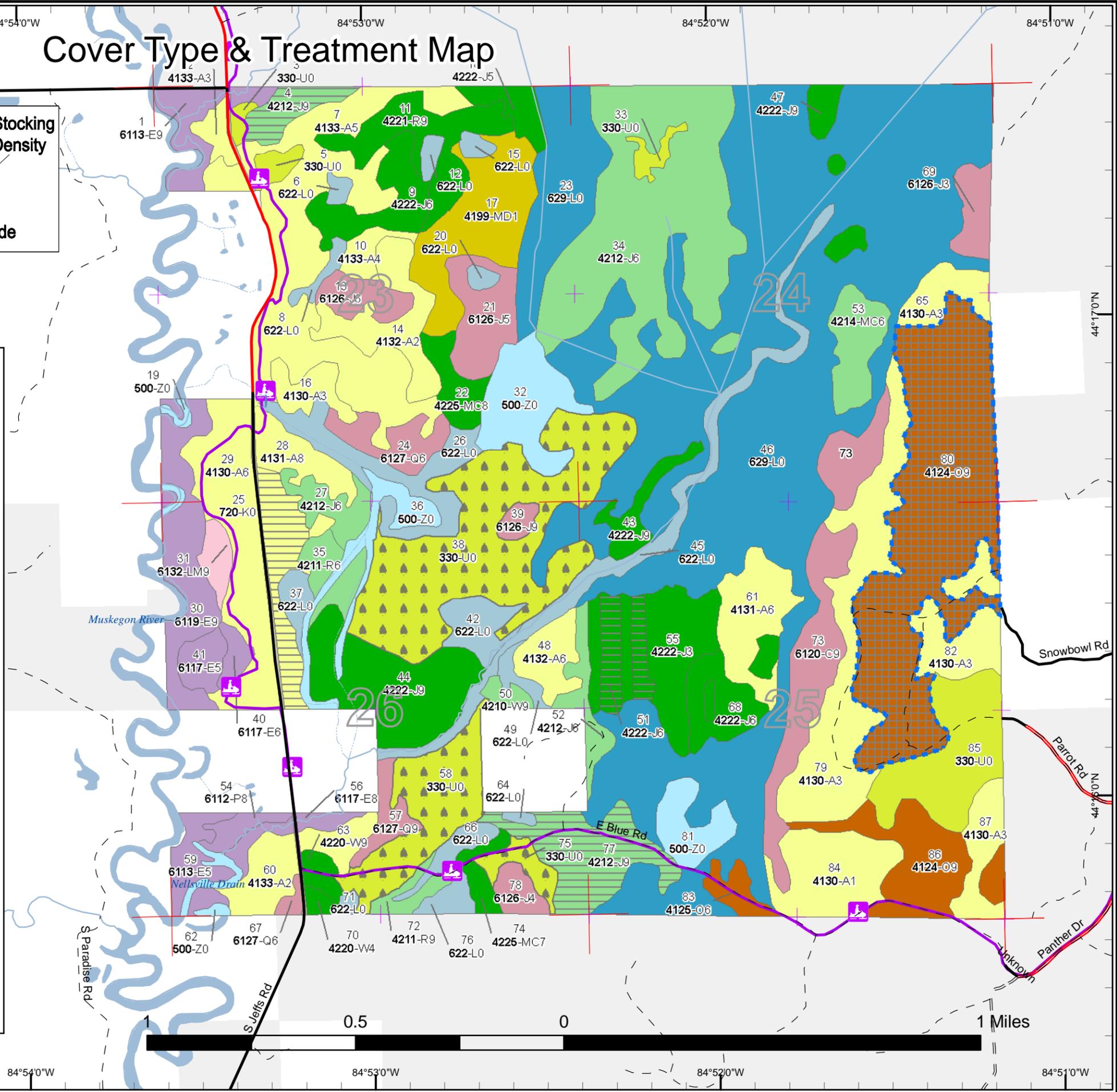
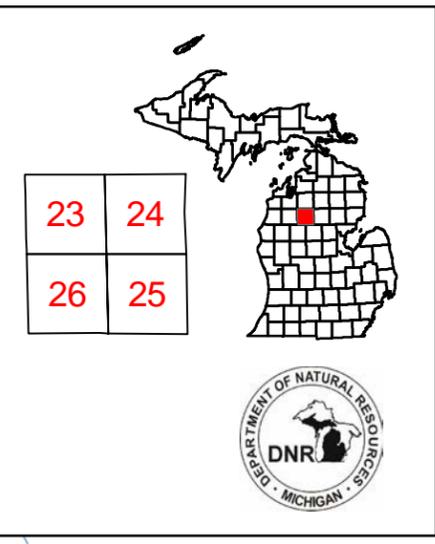


# Cover Type & Treatment Map

Compartment: 096  
 T22N R04W  
 18 19 30  
 T22N R05W  
 13 14 23 24 25 26 35  
 County: Missaukee  
 Unit: Cadillac  
 Management Area: Houghton Lake Wetlands  
 YOE: 2016  
 Acres: 2,332 GIS Calculated  
 Examiner: Blair Tweedale  
 Map Revised: 06/23/2014  
 Map Phase: Pre-Review

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

- Legend**
- Miris Corners
  - Snowmobile Trails
  - Snowmobile Trail
  - Highway
  - County Paved Roads
  - Paved Roads
  - County Gravel Roads
  - Gravel Roads
  - Poor Dirt Roads
  - County Poor Dirt Roads
  - Trail (Non-Recreation)
  - Stream
  - Intermittent Stream
  - Lakes and Rivers
- Non-Forest Regeneration**
- Natural
  - Planted
- Treatments**
- Clearcut (w/Reserves, Patch/Strip)
  - Seed Tree (w/Reserves)
  - Treatments w/ Site Condition
- Forest Stands**
- Level 3**
- 412 - Oak Types
  - 413 - Aspen Types
  - 419 - Mixed Upland Deciduous
  - 421 - Planted Pines
  - 422 - Natural Pines
  - 611 - Lowland Deciduous Forest
  - 612 - Lowland Coniferous Forest
  - 613 - Lowland Mixed Forest
- Non-Forest Stands**
- Level 3**
- 330 - Low-Density Trees
  - 500 - Water
  - 622 - Lowland Shrub
  - 629 - Mixed non-forested wetland
  - 720 - Exposed Rock
  - State Forest Land

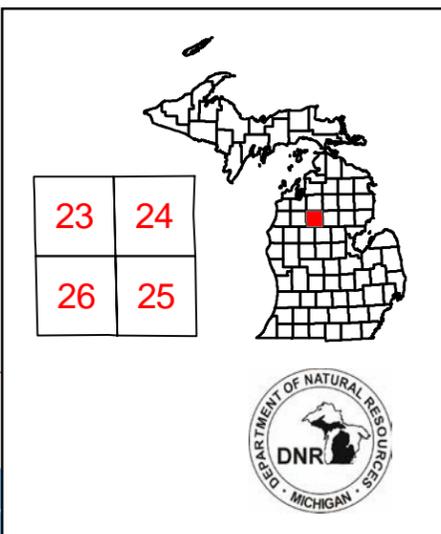




# Special Conservation Areas & Site Conditions Map

Compartment: 096  
 T22N R04W  
 18 19 30  
 T22N R05W  
 13 14 23 24 25 26 35  
 County: Missaukee  
 Unit: Cadillac  
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**Stand #**  
 23  
**Stocking Density**  
 (412)0 - A7  
 Level 3 OI  
 Level 4 Code  
**Cover Type Code**



**Legend**

- Miris Corners
- Stand Boundaries

**Site Condition Type**

**Available Factors W/ Constraints**

- 5B: Retention for regeneration purposes
- 5C: Delay treatment for age/size class diversity or exceptional site quality

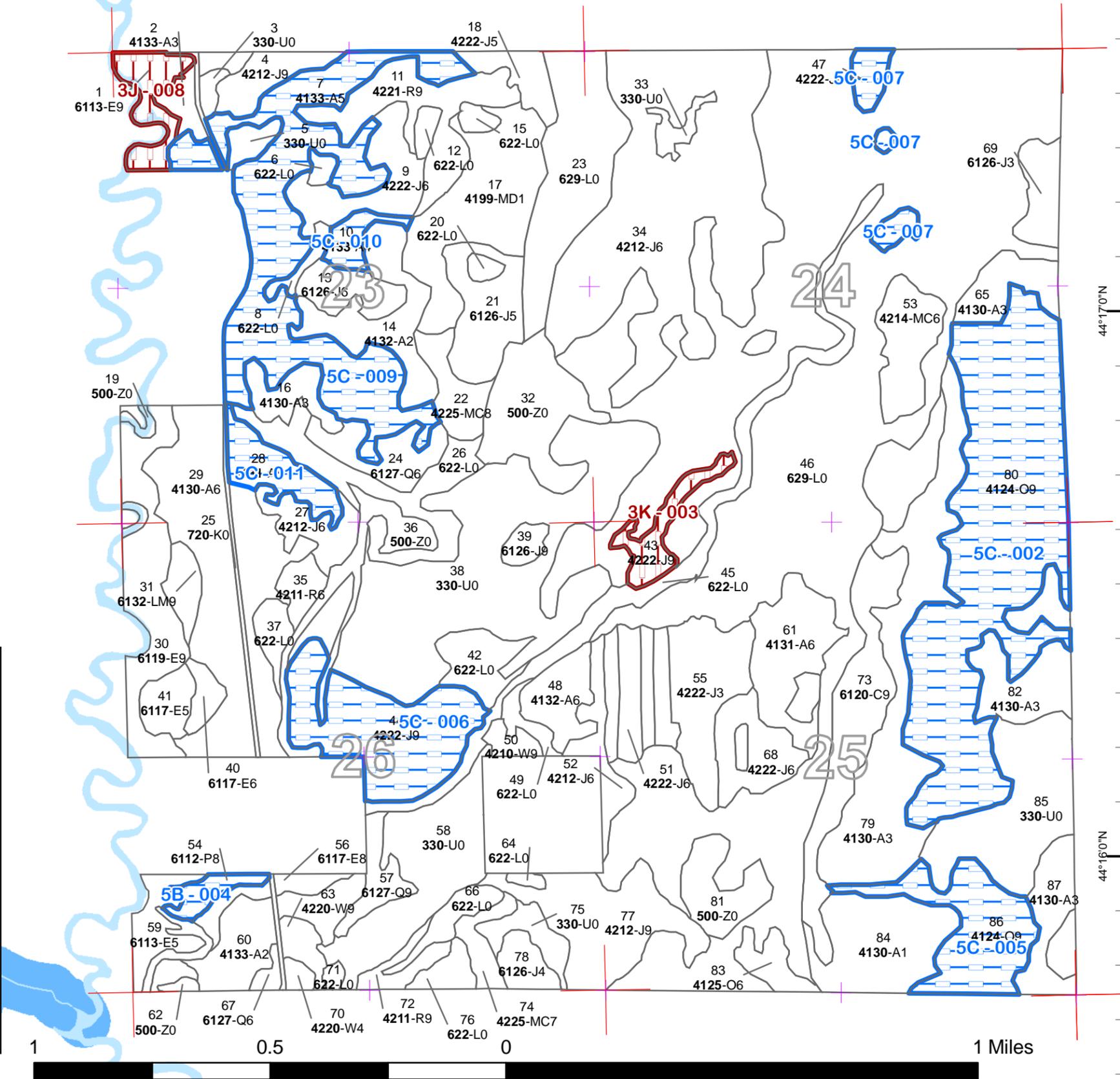
**Unavailable Factors**

- 3J: Water quality / BMPs (stream, river, or lake)
- 3K: Rare or unique landforms

  Available w/ Constraints (Factor - Number)  
  Unavailable (Factor - Number)

**Dedicated Special Conservation Areas**

- Cold Water Streams
- High Priority Trout Stream Buffer





	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 +		Uneten Age
Aspen	10	208	0	0	92	138	7	0	0	0	0	0	0	0	455
Cedar	0	0	0	0	0	0	0	0	52	0	0	0	0	0	52
Exposed Rock	7	0	0	0	0	0	0	0	0	0	0	0	0	0	7
Jack Pine	0	50	0	22	93	206	49	15	0	0	0	0	0	0	435
Low-Density Trees	217	0	0	0	0	0	0	0	0	0	0	0	0	0	217
Lowland Aspen/Balsam Poplar	0	0	0	0	0	0	6	0	0	0	0	0	0	0	6
Lowland Conifers	0	0	0	0	15	0	2	9	0	0	0	0	0	0	26
Lowland Deciduous	0	0	0	9	5	0	37	37	0	0	0	0	0	0	87
Lowland Mixed Forest	0	0	0	0	0	0	0	7	0	0	0	0	0	0	7
Lowland Shrub	636	0	0	0	0	0	0	0	0	0	0	0	0	0	636
Mixed Upland Deciduous	44	0	0	0	0	0	0	0	0	0	0	0	0	0	44
Natural Mixed Pines	0	0	0	0	0	7	0	0	12	0	0	0	0	0	19
Oak	0	0	0	0	0	8	0	0	143	38	0	0	0	0	189
Planted Mixed Pines	0	0	0	0	19	0	0	0	0	0	0	0	0	0	19
Red Pine	0	0	0	0	0	30	12	7	0	0	0	0	0	0	48
Water	72	0	0	0	0	0	0	0	0	0	0	0	0	0	72
White Pine	0	0	0	0	0	4	2	6	0	0	0	0	0	0	12
<b>Total</b>	<b>988</b>	<b>258</b>	<b>0</b>	<b>31</b>	<b>224</b>	<b>392</b>	<b>114</b>	<b>80</b>	<b>207</b>	<b>38</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2332</b>



## Report 2 – Proposed Treatment Summaries

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

**Compartment 096**  
**Total Compartment Acres: 2,332**

### Acres by Treatment Type

Commercial Harvest - 228    Tree Planting - 0    Other - 0  
 Habitat Cut - 0    Opening Maintenance - 0

### Cover Type by Harvest Method

	Clearcut	Selection	Seed Tree	Shelterwood	Thinning	Other - Specify	Total Acres
<b>Aspen Types</b>	22	0	0	0	0	0	22
<b>Natural Pines</b>	15	0	0	0	0	0	15
<b>Oak Types</b>	0	0	143	0	0	0	143
<b>Planted Pines</b>	48	0	0	0	0	0	48
<b>Total</b>	<b>85</b>	<b>0</b>	<b>143</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>228</b>

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Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
4	63096004-Cut	11.2	42120 - Planted Jack Pine	High Density Log	57	81-110	Harvest	Clearcut with Reserves	42221 - Natural Jack Pine, Mixed Deciduous	Cmpt. Review Proposal

Prescription Final harvest with reserves. Frozen winter harvest preferred, dry late summer possible. Protect advanced regeneration. Use snowmobile trail protection specs if/when trail is used or crossed for access.

Other Stand expected to naturally regenerate to a Pine-mixed deciduous stand.  
Comments:

Next  
Steps:

Proposed  
Start Date: 10/01/2015

28	63096028-Cut	22.1	4131 - Aspen, Oak	Medium Density Log	51		Harvest	Clearcut with Reserves	413 - Aspen	Cmpt. Review Proposal
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Prescription Final harvest aspen with retaining oak component. Add grouse brush pile spec.  
Specs:

Other Harvest to balance the aspen age classes in close proximity to Jeffs Road.  
Comments:

Next  
Steps:

Proposed  
Start Date: 10/01/2015

51	63096051-Cut	14.7	42220 - Natural Jack Pine	High Density Pole	74		Harvest	Clearcut with Reserves	4122 - Oak, Pine	Cmpt. Review Proposal
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Prescription Final harvest. Protect advanced oak regeneration. Do not reserve any pine for blowdown purposes.  
Specs:

Other Stand expected to naturally regenerate to a jack pine- oak mix.  
Comments:

Next  
Steps:

Proposed  
Start Date: 10/01/2015

77	63096077-Cut	37.1	42120 - Planted Jack Pine	High Density Log	59		Harvest	Clearcut with Reserves	4222 - Natural Jack Pine	Cmpt. Review Proposal
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Prescription Final harvest. Winter frozen only. Process at the stump, distributing top evenly to maximize cone dispersal. Focus retention along the snowmobile trail. Add trail protection specs.

Other Stand is borderline upland and lowland. Upland in the northern portion of stand. Wind damage present, mainly due to shallow roots, high water table. Desired future condition would be natural regeneration of jack pine with a mix of oak.  
Comments:

Next  
Steps:

Proposed  
Start Date: 10/01/2015

**Total Treatment  
Acreage Proposed: 85.1**

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S t a n d	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
80	63096080-Cut	142.9	4124 - Red with White Oak	High Density Log	86	51-80	Harvest	Seed Tree with Reserves	412 - Oak	Cmpt. Review Proposal

Prescription Thin stand to 20-40 BA to promote regeneration.

Specs:

Other

Comment:

Next

Steps:

Proposed

Start Date: 10/01/2015

Limiting Factor 5C: Delay treatment for age/size class diversity or exceptional site quality

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**Total Treatment  
Acreage Proposed: 142.9**



## Report 5 – Site Conditions

**Cadillac Mgt. Unit**  
**Blair Tweedale : Examiner**

**Compartment 096**  
**Year of Entry 2016**

### Availability for Management

Availability for Management			Dominant Site Conditions					
Total Acres	Acres Available	Acres Not Available		No	5C	5B	3K	3J
454	454		<b>Aspen</b>	334	121			
52	52		<b>Cedar</b>	52				
435	425	11	<b>Jack Pine</b>	366	59		11	
6	6		<b>Lowland Aspen/Balsam Poplar</b>			6		
26	26		<b>Lowland Conifers</b>	26				
87	74	13	<b>Lowland Deciduous</b>	74				13
7	7		<b>Lowland Mixed Forest</b>	7				
44	44		<b>Mixed Upland Deciduous</b>	44				
19	19		<b>Natural Mixed Pines</b>	19				
189	189		<b>Oak</b>	12	177			
19	19		<b>Planted Mixed Pines</b>	19				
48	48		<b>Red Pine</b>	48				
12	12		<b>White Pine</b>	12				
1,399	1,375	24	Total Forested Acres	1,013	356	6	11	13
	98%	2%	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
002	Available	<b>5C: Delay treatment for age/size class diversity or exceptional site quality</b>	143				
<b>Comments:</b> Delay treatment for 10 years due to surrounding cover types and diameter growth							
003	Not Available	<b>3K: Rare or unique landforms</b>	11				
<b>Comments:</b> This is a small island of mature timber located by lowland grasses, jack pine regeneration. Unique feature for this imediate							

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## Report 5 – Site Conditions

Cadillac Mgt. Unit  
Blair Tweedale : Examiner

Compartment 096  
Year of Entry 2016

004	Available	5B: Maintain for regeneration purposes	6	
<b>Comments:</b> Stand is falling apart. Advanced regeneration is abundant.				
005	Available	5C: Delay treatment for age/size class diversity or exceptional site quality	34	
<b>Comments:</b> Hold stand. reevaluate in 10 years				
006	Available	5C: Delay treatment for age/size class diversity or exceptional site quality	49	
<b>Comments:</b> May want to retain for area diversity.				
007	Available	5C: Delay treatment for age/size class diversity or exceptional site quality	10	2G: Too wet (sensitive soils, does not include access issues)
<b>Comments:</b> upland forested island surrounded by lowland grasses and shrubs. retain for diversity. Tough access for low volume of timber.				
008	Not Available	3J: Water quality / BMPs (stream, river, or lake)	13	
<b>Comments:</b> Lowland area within the Muskegon River Floodplain. Current conditions are not favorable for harvest.				
009	Available	5C: Delay treatment for age/size class diversity or exceptional site quality	99	5C: Delay treatment for age/size class diversity or exceptional site quality
<b>Comments:</b> Stand should be delayed. May be harvested with stand 29 next entry to increase marketability. Poor stand.				



# Report 5 – Site Conditions

Cadillac Mgt. Unit  
Blair Tweedale : Examiner

Compartment 096  
Year of Entry 2016

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010	Available	<b>5C: Delay treatment for age/size class diversity or exceptional site quality</b>	7
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**Comments:**

Poor stand. Hold for marketability.

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011	Available	<b>5C: Delay treatment for age/size class diversity or exceptional site quality</b>	15
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**Comments:**

Hold this portion of stand due to low volumes, poor quality, and marketability.

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### 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
Comments				





**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	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.





Stand	Cadillac Mgt. Unit		Report 8 – Forested Stands			Compartment: 096 Year of Entry: 2016
	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
1	6113 - Lowland Maple	High Density Log	15.9	79	81-110	Muskegon river valley. Wet.
2	4133 - Aspen, Mixed Pine	High Density Sapling	5.4	12		
4	42120 - Planted Jack Pine	High Density Log	11.2	57	81-110	Jack pine dominated stand. Scattered windthrow with pockets of heavier damage. Scattered mature white and red pine. Red maple regen. abundant in pockets, and scattered throughout.
7	4133 - Aspen, Mixed Pine	Medium Density Pole	99.0	51		Aspen dominated stand. Low quality and mostly low density with pockets of well stocking with slightly higher elevation. Scattered oak, white pine and red pine. Pocket dominated by red pine. Ground over dominated by laurel.
9	42220 - Natural Jack Pine	High Density Pole	20.9	47	81-110	Jack pine dominated stand with pockets of red pine.
10	4133 - Aspen, Mixed Pine	Low Density Pole	6.5	61		Low density aspen with jack, white and red pine. Red oak also present.
11	42210 - Natural Red Pine	High Density Log	30.0	54	81-110	Stand dominated by red pine with mixed conifer and deciduous throughout.
13	6126 - Lowland Jack Pine	High Density Pole	11.5	41		Low wet jack pine in west. Red pine and jack pine in the east.
14	4132 - Aspen, Jack Pine	Medium Density	26.1	12		Low density jack pine in the north. Aspen dominated regeneration in the south.
16	4130 - Aspen	High Density Sapling	10.4	2		Aspen/ red maple/ oak regen. Scattered oak and pine seedtrees.
17	4199 - Other Mixed Upland Deciduous	Low Density Sapling	44.4	2	1-50	Regenerating stand. Harvested in 2009-2010 (Proter Combo 63-066-06-01). Scattered red pine and mixed oak throughout.
18	42220 - Natural Jack Pine	Medium Density Pole	9.4	54		Jack Pine stand.
21	6126 - Lowland Jack Pine	Medium Density Pole	22.3	38		Lowland jack pine. Younger pockets of jack pine where it is seeding in throughout the bog.
22	42250 - Pine, Oak	Medium Density Log	11.8	86	51-80	Oak pine mix with white pine dominating the understory. Overstory oak is falling out.
24	6127 - Lowland Pine	High Density Pole	15.1	43	51-80	lowland and upland white pine. Variable heights and diameters.
27	42120 - Planted Jack Pine	High Density Pole	12.1	47		Jack pine planted site.



Report 8 – Forested Stands

Compartment: 096  
Year of Entry: 2016



S t a n d	Cadillac Mgt. Unit		Acres	Stand Age	BA Range	General Comments:
	Level 4 Cover Type	Size Density				
28	4131 - Aspen, Oak	Medium Density Log	38.6	51		Aspen and oak stand. Poor quality in northern portion of stand.
29	4130 - Aspen	High Density Pole	51.5	40		Aspen dominated stand with a scattered balsam fir, white pine, oak, and red pine. Heavier pine component in southern portion of stand.
30	6119 - Mixed Lowland Deciduous Forest	High Density Log	36.6	62	81-110	Muskegon river valley. Lowland deciduous stand. Individual species density various throughout stand, due to slight elevation changes.
31	6132 - Mixed Lowland Forest with Cedar	High Density Log	6.9	78		Lowland type. Cedar throughout with mixed conifer and deciduous. Muskegon River flood plain.
34	42120 - Planted Jack Pine	High Density Pole	133.2	56		Planted jack pine stand. Approximately 3 acre pocket of red pine on the western edge. Jack pine is of much poorer quality than the red pine which was planted at the same time.
35	42110 - Planted Red Pine	High Density Pole	11.6	62	111-140	
39	6126 - Lowland Jack Pine	High Density Log	4.2	58		Lowland jack pine pocket.
40	6117 - Lowland Deciduous, Mixed Coniferous	High Density Pole	5.0	42		Lowland aspen covertime with significant amount of balsam fir. Cedar and Hemlock also present.
41	6117 - Lowland Deciduous, Mixed Coniferous	Medium Density Pole	8.5	39		Muskegon river valley. EAB present. Lowland ash, aspen, red maple stand with balsam fir and some cedar. Not full canopy closure due to high water table and dead ash.
43	42220 - Natural Jack Pine	High Density Log	10.7	59		Upland jack pine
44	42220 - Natural Jack Pine	High Density Log	48.8	62	81-110	Natural jack pine stand with pockets dominated by white pine and pockets dominated by red pine. Also, scattered red and white pine throughout. Some canopy gaps within the jack pine, moist likely due to age and high water table. Regeneration is found mainly in pockets.
47	42220 - Natural Jack Pine	High Density Log	10.0	48		Jack pine islands.
48	4132 - Aspen, Jack Pine	High Density Pole	13.8	40		Aspen oak mix. Stand dominated by poor quality aspen that is 40 years old. scattered oak seed trees. Heavier pine edge to the north.
50	42100 - Planted White Pine	High Density Log	4.0	56	111-140	Planted White pine. A few red pine and oak, with traces of black cherry.
51	42220 - Natural Jack Pine	High Density Pole	14.7	74		Jack pine stand. Some wind damage present. Some mortality present. Oak regeneration present.





	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
52	42120 - Planted Jack Pine	High Density Pole	11.1	42		Planted Jack pine with scattered deciduous and coniferous trees. Black cherry present.
53	42140 - Planted Mixed Pine	High Density Pole	18.8	44	1-50	Planted white, red and jack pine stand.
54	6112 - Lowland Aspen	Medium Density Log	5.9	62		Aspen is starting to fall out of the over story. White pine regeneration is thick in the understory. Stand will convert to a pine stand.
55	42220 - Natural Jack Pine	High Density Sapling	39.5	14		Harvested in 1998 (63-067-97-01 Coyote Jack). Strips are dominated by natural jack pine, with variable stocking. Pockets of sparse regeneration, with high stocking present. Eastern harvest are included a low wet pocket, which has low stocking at this time.
56	6117 - Lowland Deciduous, Mixed Coniferous	Medium Density Log	7.5	72	81-110	Creek bottom dominated by red maple. White pine found on edges. EAB present. Dead ash.
57	6127 - Lowland Pine	High Density Log	9.0	74	51-80	White and red pine. White pine dominates stand with scattered single red pine. Red pine Dominated pocket in the eastern portion of stand.
59	6113 - Lowland Maple	Medium Density Pole	13.8	72	51-80	Muskegon river valley. EAB present. Ash is falling out of stand.
60	4133 - Aspen, Mixed Pine	Medium Density	23.8	12	1-50	This stand was thinned in 2000. Currently an aspen/white pine stand stand with variable regeneration present.
61	4131 - Aspen, Oak	High Density Pole	26.9	40		Aspen-oak mix with scattered pine present.
63	42200 - Natural White Pine	High Density Log	5.5	71	81-110	Thinned in 2010. White and red pine dominated stand.
65	4130 - Aspen	High Density Sapling	13.5	12		Natural regen. Looks good. Harvested in fall 2000 (Coyote Aspen 63-039-97-01).
67	6127 - Lowland Pine	High Density Pole	2.2	68	51-80	Lowland conifer stand.
68	42220 - Natural Jack Pine	High Density Pole	20.3	41		Jack pine stand.
69	6126 - Lowland Jack Pine	High Density Sapling	11.0	11		natural regenerating stand. Age is hard to determine do to a lack of cut records, and varying ring counts. Reviewing aerial photos, it has been determined the stand was harvested between 1998-2004.
70	42200 - Natural White Pine	Low Density Pole	2.3	62	1-50	Pine filling in what was once a grassy opening. Canopy cover is on the low end of the 25%-50%.



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Cadillac Mgt. Unit

## Report 8 – Forested Stands

Compartment: 096  
Year of Entry: 2016

	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
72	42110 - Planted Red Pine	High Density Log	6.5	72	81-110	Planted red pine stand. Stand is situated slightly above water table.
73	6120 - Lowland Cedar	High Density Log	52.1	88		Cedar dominated stand. Small pockets of stand dominated by balsam, aspen, or red maple. One pocket dominated by a combination of balsam, aspen and red maple.
74	42250 - Pine, Oak	Low Density Log	7.1	59	1-50	Low stocked stand.
77	42120 - Planted Jack Pine	High Density Log	37.1	59		Planted jack pine stand.
78	6126 - Lowland Jack Pine	Low Density Pole	7.3	41	1-50	Low density jack pine lowland bog type. Canopy closure is in the low end of the 25%-50% range. Southern portion of stand is dominated by white pine on a minor elevation change.
79	4130 - Aspen	High Density Sapling	65.5	12		natural aspen regeneration. Harvested in fall 2000 (Coyote Aspen 63-039-97-01).
80	4124 - Red with White Oak	High Density Log	142.9	86	51-80	Mixed oak stand.
82	4130 - Aspen	High Density Sapling	24.6	12		Harvested in fall 2000 (Coyote Aspen 63-039-97-01).
83	4125 - Black, N. Pin Oak	High Density Pole	7.6	57	51-80	Oak dominated stand with some red maple and aspen.
84	4130 - Aspen	Low Density Sapling	33.4	12		Harvested in fall 2000 (Coyote Aspen 63-039-97-01).
86	4124 - Red with White Oak	High Density Log	38.0	90	51-80	Mixed oak stand with a portion dominated by white pine. Also, white pine scattered throughout.
87	4130 - Aspen	High Density Sapling	15.4	12		Harvested in fall 2000 (Coyote Aspen 63-039-97-01).





Stand	Cover Type	Acres	Managed Site	Management Priority (Objective)	General Comments:
3	3301 - Low Density Deciduous Tree	2.4	No	Low	low shrub opening. Scattered pole size cherry.
5	3302 - Low Density Conifer Trees	4.8	No	Low	Scattered white pine. Dominated by bog laurel.
6	6229 - Mixed lowland shrub	2.2	No	Low	Lowland bog laurel.
8	6229 - Mixed lowland shrub	3.6	No	Unspecified	Lowland bog laurel
12	6229 - Mixed lowland shrub	2.8	No	Unspecified	
15	6229 - Mixed lowland shrub	2.6	No	Unspecified	
19	50 - Water	2.8	No	Low	Muskegon river.
20	6229 - Mixed lowland shrub	2.2	No	Unspecified	Lowland shrub
23	629 - Mixed non-forested wetland	44.3	No	Unspecified	lowland grasses with mixed shrubs
25	720 - Exposed Rock	7.1	No	Low	JEFF'S ROAD
26	6229 - Mixed lowland shrub	28.5	No	Unspecified	mixed lowland grasses and shrubs
32	50 - Water	31.2	No	Unspecified	beaver flooding
33	3302 - Low Density Conifer Trees	4.3	No	Unspecified	Lowland site with sparse jack pine seeding in.
36	50 - Water	17.8	No	Unspecified	water and lowland grasses
37	6229 - Mixed lowland shrub	5.9	No	Low	lowland big laurel dominated non-forested.
38	3303 - Mixed Low Density Trees	112.4	Natural Regen	Upland Mixed Forest	Jack pine, aspen and oak regeneration stand. Regen is 2 years old according to cut records. Jack pine regeneration dominated lower areas. Pockets and aspen regenerations throughout. Residual oak and pine scattered. 2 feet of snow during inventory. Jack pine seedlings appear to be 1-3 feet in height.
42	6229 - Mixed lowland shrub	12.5	No	Unspecified	





Stand	Cover Type	Acres	Managed Site	Management Priority (Objective)	General Comments:
45	6229 - Mixed lowland shrub	33.5	No	Unspecified	water flowage.
46	629 - Mixed non-forested wetland	478.8	No	Low	Dominated by lowland grasses and sedges. Pockets of alder, willow and open water. there is a trace of scattered trees in minor elevation changes.
49	6220 - Alder/willow	4.2	No	Unspecified	Lowland shrub with scattered jack pine
58	3303 - Mixed Low Density Trees	41.0	Natural Regen	Natural Mixed Pines	Harvested area in 2010. Aspen, red maple, and jack pine regeneration already present. Scattered log white and red pine. Scattered pole size white pine.
62	50 - Water	5.1	No	Low	Ox bow in the Muskegon River valley.
64	6229 - Mixed lowland shrub	1.3	No	Low	
66	6229 - Mixed lowland shrub	7.2	No	Low	
71	6229 - Mixed lowland shrub	1.4	No	Unspecified	This is a lowland shrub type.
75	3302 - Low Density Conifer Trees	8.2	Natural Regen	Jack Pine	jack pine regeneration site. Harvested in 2010. Seedling present.
76	6229 - Mixed lowland shrub	5.6	No	Unspecified	
81	50 - Water	15.4	No	Unspecified	
85	3301 - Low Density Deciduous Tree	44.1	Unspecified	Unspecified	Regenerating stand. Red maple, aspen and oak regeneration present.

