

# CADILLAC FOREST MANAGEMENT UNIT



## COMPARTMENT REVIEW PRESENTATION

### COMPARTMENT # 138 ENTRY YEAR: 2011

**Compartment Acreage (GIS Acres): 2129 County: Wexford**

---

**Revision Date: 09/14/2009 2:16 PM**

**Stand Examiner:** Steven Eisele, Forest Technician.

**Legal Description:** T24N, R9W, Sections 21, 22, 23, 24, 25, 27.

**RMU (if applicable):** 237.

**Management Goals:** Maintain species diversity and age classes.

**Soil and Topography:** Montcalm upland soils and Tawas in lowland. Mostly flat with streams and lowland areas.

**Ownership Patterns, Development, and Land Use in and Around the Compartment:** Solid state ownership except for 80 acres in section 23 and 40 acres in section 24. These parcels would both be desirable acquisitions to block in.

**Unique, Natural Features (include only non-site specific and non-sensitive information):** Potential for wood turtle and eastern massasauga. Potential for pine barrens insects: dusted skipper, Great Plains spittlebug, and red-legged spittlebug. Potential for red-shouldered hawk and goshawk. Potential for eagle, osprey, and great blue heron rookery.

**Archeological, Historical, and Cultural Features (include only non-site specific and non-sensitive information):**

**Special Management Designations or Considerations:** Maintain integrity of the streams and corridors along wet areas.

**Watershed and Fisheries Considerations:** Morrisy creek, Golden creek, Chase creek and unnamed tributaries all in compartment and flow north to the Manistee River.

**Wildlife Habitat Considerations:** Priority wildlife species are deer, ruffed grouse, and woodcock. Major management objectives are to maintain a variety of cover types and age classes which favor a variety of game and non-game species. Large portions of this compartment are used as deer wintering areas. (L. Smith, 9/11/09)

**Mineral Resource and Development Concerns and/or Restrictions:** . Sections 21 – 27, T24N-R9W, Wexford Co

Surface sediments consist of coarse-textured till, an end moraine of coarse-textured till and minor glacial outwash sand and gravel and postglacial alluvium. The glacial drift thickness varies between 200 and 600 feet. Beneath the glacial drift is the Mississippian Michigan Formation. The Michigan is quarried for gypsum in other areas of the State. Gravel pits are located in the area and there is potential. This area is located eight miles southeast of the prolific Silurian Guelph (Niagaran) reef trend. Oil and gas has unknown potential in the Compartment and none of the Compartment is currently leased.

**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 new roads or roads recommended for substantial improvement are noted below:

**Survey Needs:**

**Recreational Facilities and Opportunities:** Snowmobile trail, ORV trail, North Country Hiking trail and the Horse trail are all in this compartment. Chase creek, Morrisys creek and Golden creek also run from south to north in this compartment.

**Fire Protection:** There are areas of urban interface within the compartment. Areas of pine are scattered throughout the compartment. Access would be fairly good for suppression equipment. IA is from the Manton FO, and response times should be fairly good.

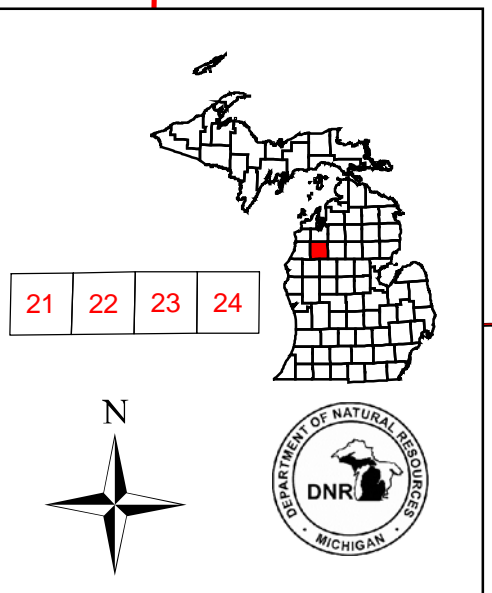
**Additional Compartment Information:**

- **The following 5 reports from the Operations Inventory System (OIPC) are attached:**
  - ◆ **Cover Type by Age Class**
  - ◆ **Cover Type by Management Objective**
  - ◆ **Compartment Volume Summary**
  - ◆ **Proposed Treatments – No Limiting Factors**
  - ◆ **Proposed Treatments – With Limiting Factors**
  
- **The following information is displayed, where pertinent, on the attached compartment maps:**
  - ◆ **Base feature information, stand numbers, cover types**
  - ◆ **Proposed treatments**
  - ◆ **Proposed road access system**
  - ◆ **Suggested potential old growth**

# Cover Type & Treatment Map

**Compartment 138**  
 T24N, R09W, Sec. 21-24  
 County: Wexford  
 Unit: Cadillac  
 YOE: 2011  
 Acres: 2,129 GIS Calculated  
 Stand Examiner: Steve Eisele  
 Map Revised: 9/11/2009  
 Map Phase: Pre-Review

**Stand #**  
 23  
**Stocking Density**  
 (4120) - A7  
 Level 3 OI  
 Level 4 Code  
**Cover Type Code**



**Legend**

- Miris Corners
- Highways
- Paved Road
- Poor Dirt Road
- US Highway
- Intermittent Stream/Drain
- Stream
- Lakes and Rivers
- Trails
- ORV Trails
- ORV Routes
- MCCCT Trails
- Snowmobile Trails
- Horse Trails

**Treatments**

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

**Non-Forest Stands**

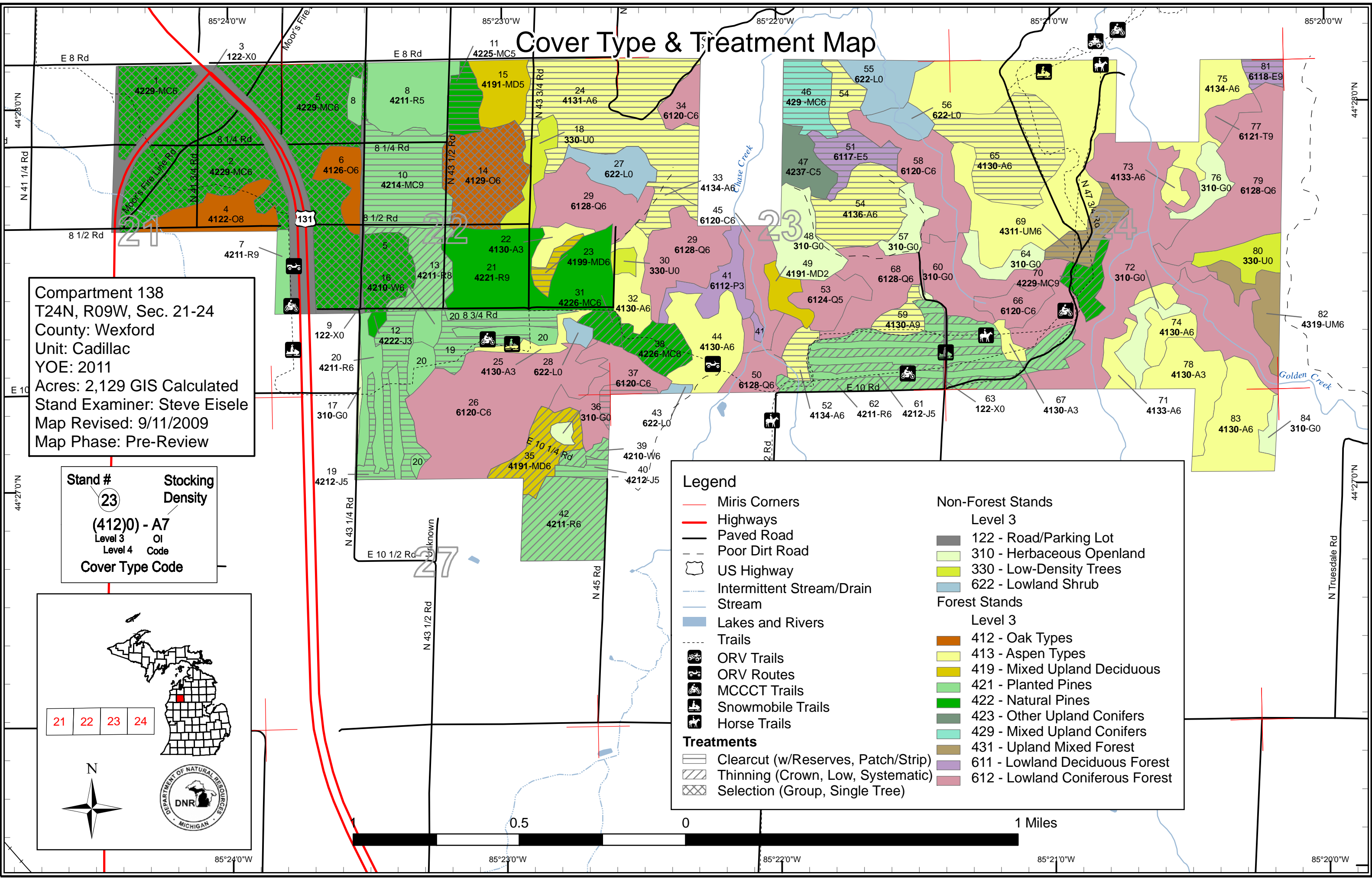
Level 3

- 122 - Road/Parking Lot
- 310 - Herbaceous Openland
- 330 - Low-Density Trees
- 622 - Lowland Shrub

**Forest Stands**

Level 3

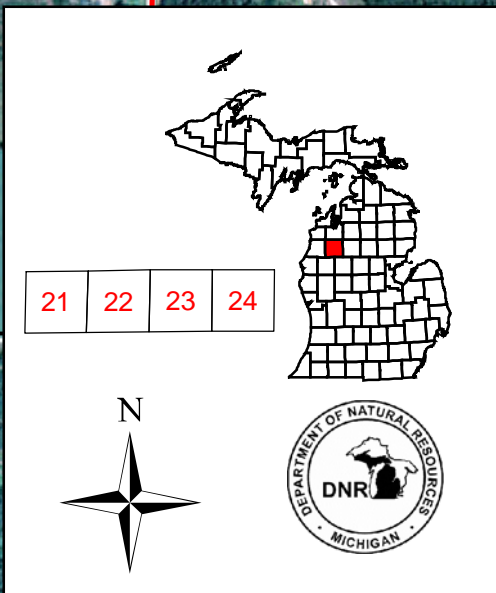
- 412 - Oak Types
- 413 - Aspen Types
- 419 - Mixed Upland Deciduous
- 421 - Planted Pines
- 422 - Natural Pines
- 423 - Other Upland Conifers
- 429 - Mixed Upland Conifers
- 431 - Upland Mixed Forest
- 611 - Lowland Deciduous Forest
- 612 - Lowland Coniferous Forest



# Stand Boundary Map

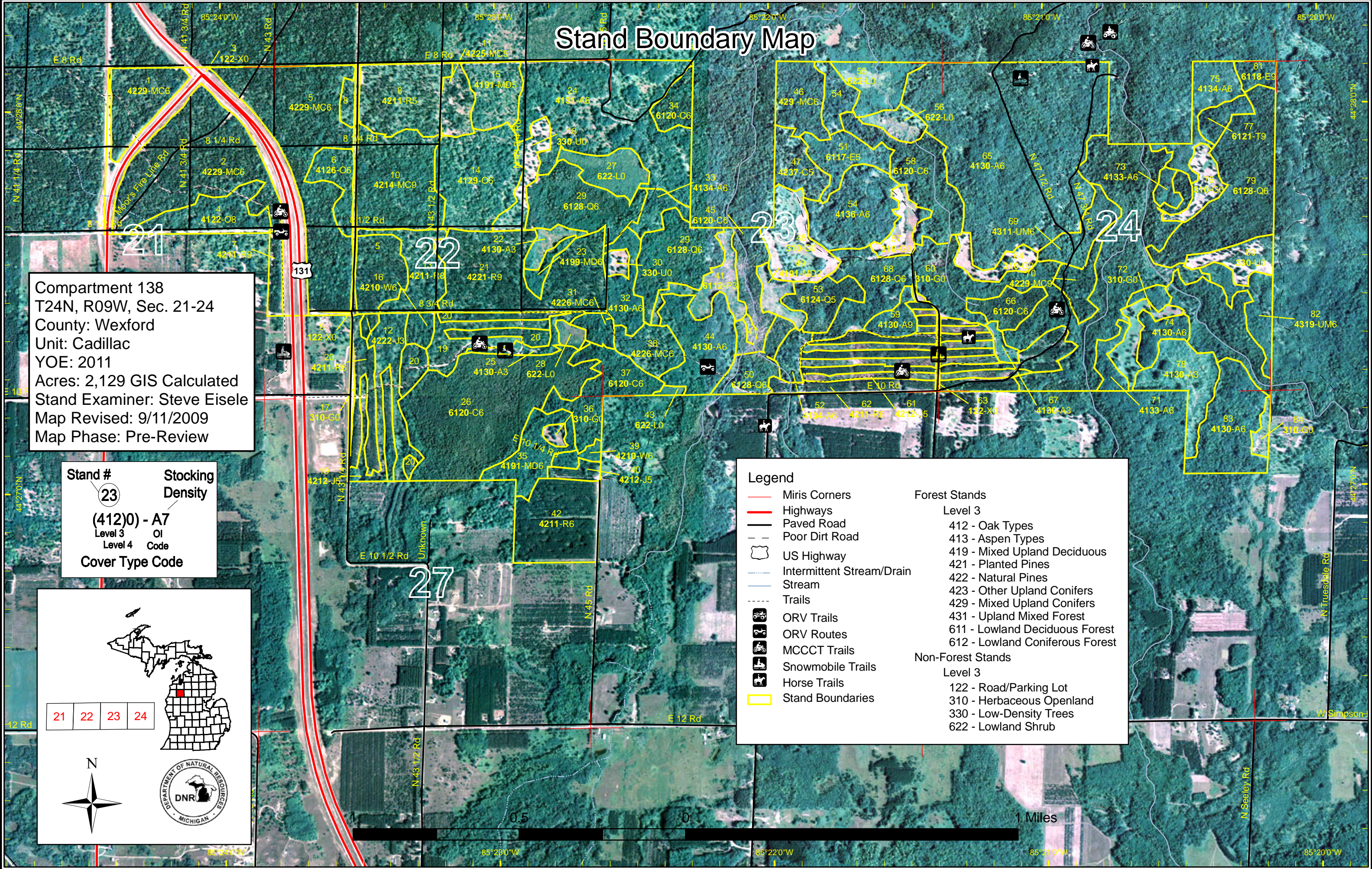
Compartment 138  
 T24N, R09W, Sec. 21-24  
 County: Wexford  
 Unit: Cadillac  
 YOE: 2011  
 Acres: 2,129 GIS Calculated  
 Stand Examiner: Steve Eisele  
 Map Revised: 9/11/2009  
 Map Phase: Pre-Review

**Stand #**  
 23  
**Stocking Density**  
 (4120) - A7  
 Level 3 OI  
 Level 4 Code  
**Cover Type Code**



**Legend**

— Miris Corners	<b>Forest Stands</b>
— Highways	Level 3
— Paved Road	412 - Oak Types
— Poor Dirt Road	413 - Aspen Types
⬭ US Highway	419 - Mixed Upland Deciduous
— Intermittent Stream/Drain	421 - Planted Pines
— Stream	422 - Natural Pines
— Trails	423 - Other Upland Conifers
🏍️ ORV Trails	429 - Mixed Upland Conifers
🏍️ ORV Routes	431 - Upland Mixed Forest
🏍️ MCCCT Trails	611 - Lowland Deciduous Forest
🏍️ Snowmobile Trails	612 - Lowland Coniferous Forest
🏍️ Horse Trails	<b>Non-Forest Stands</b>
🏍️ Stand Boundaries	Level 3
	122 - Road/Parking Lot
	310 - Herbaceous Openland
	330 - Low-Density Trees
	622 - Lowland Shrub

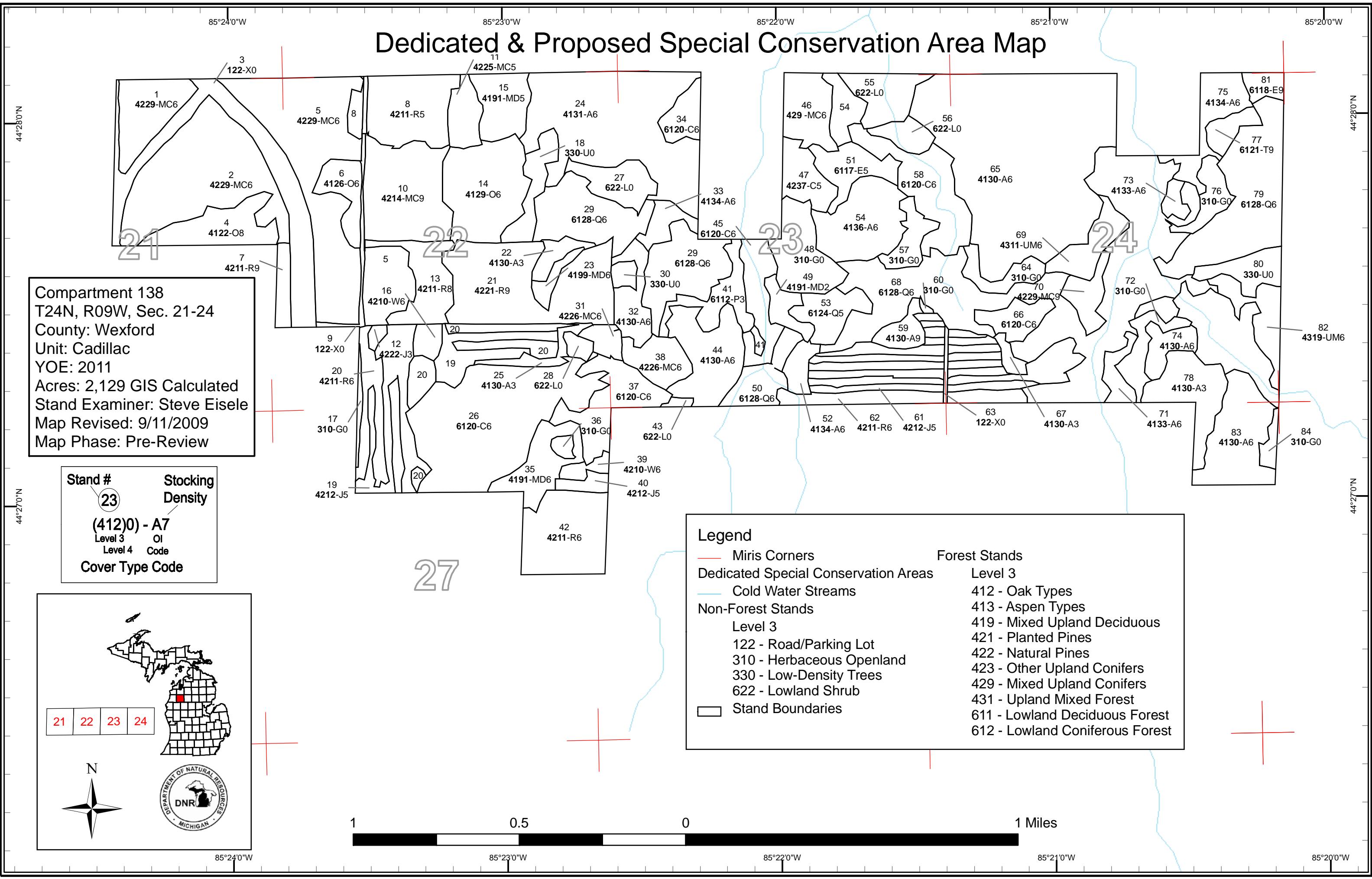
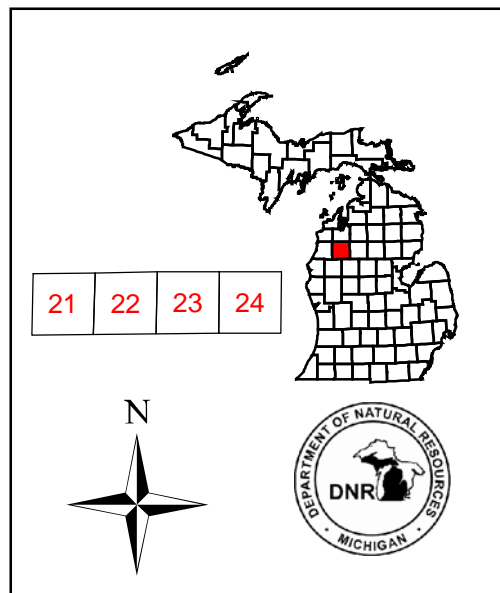


# Dedicated & Proposed Special Conservation Area Map

**Compartment 138**  
 T24N, R09W, Sec. 21-24  
 County: Wexford  
 Unit: Cadillac  
 YOE: 2011  
 Acres: 2,129 GIS Calculated  
 Stand Examiner: Steve Eisele  
 Map Revised: 9/11/2009  
 Map Phase: Pre-Review

Stand #	Stocking Density
23	
(4120) - A7	
Level 3	OI
Level 4	Code
<b>Cover Type Code</b>	

Legend	
	Miris Corners
	Cold Water Streams
	Stand Boundaries
	Dedicated Special Conservation Areas
	Cold Water Streams
	Stand Boundaries
<b>Non-Forest Stands</b>	
Level 3	
122	Road/Parking Lot
310	Herbaceous Openland
330	Low-Density Trees
622	Lowland Shrub
<b>Forest Stands</b>	
Level 3	
412	Oak Types
413	Aspen Types
419	Mixed Upland Deciduous
421	Planted Pines
422	Natural Pines
423	Other Upland Conifers
429	Mixed Upland Conifers
431	Upland Mixed Forest
611	Lowland Deciduous Forest
612	Lowland Coniferous Forest



Cadillac Mgt. Unit

**Covertypes, Acres, and Age summary**  
*(Level 3 Cover Type)*

Compartment 138 Year of Entry 2011

Report Date: 09/14/2009



	Age Class														Total	
	Non-Forested	1-9	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 Types	0	41	0	0	14	234	61	35	8	0	0	0	0	0	99	492
Herbaceous Openland	76	0	0	0	0	0	0	0	0	0	0	0	0	0	0	76
Low-Density Trees	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	30
Lowland Coniferous Forest	0	0	0	0	0	0	0	0	90	134	0	0	0	0	320	544
Lowland Deciduous Forest	0	17	16	0	0	0	0	0	6	0	0	0	0	0	0	40
Lowland Shrub	46	0	0	0	0	0	0	0	0	0	0	0	0	0	0	46
Mixed Upland Conifers	0	0	0	0	0	0	20	0	0	0	0	0	0	0	0	20
Mixed Upland Deciduous	0	8	0	0	0	0	0	0	5	0	0	0	0	0	39	52
Natural Pines	0	0	2	0	0	0	21	0	67	0	0	0	0	0	225	315
Oak Types	0	0	0	0	0	0	0	0	0	23	0	0	0	0	55	78
Other Upland Conifers	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	15
Planted Pines	0	0	0	0	0	53	171	0	0	7	0	0	0	0	105	335
Road/Parking Lot	55	0	0	0	0	0	0	0	0	0	0	0	0	0	0	55
Upland Mixed Forest	0	0	0	0	16	0	15	0	0	0	0	0	0	0	0	31
<b>Total</b>	<b>207</b>	<b>67</b>	<b>18</b>	<b>0</b>	<b>30</b>	<b>287</b>	<b>286</b>	<b>35</b>	<b>176</b>	<b>164</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>859</b>	<b>2129</b>

**PROPOSED TREATMENTS  
NO LIMITING FACTORS**



S  
t  
a  
n  
d

Treatment Name	Acres	Stage1 CoverType	Size Density	Stand Age	Treatment Type	Treatment Method	Cover Type Objective
<b>1 63138001-Cut</b>	24.4	42290 - Natural Mixed Pine	High Density Pole	55	Harvest	Group Selection	Natural Pine, Mixed Deciduous
<p><u>Rev Cmnt:</u> Good subcanopy of oak and pine. Buffer snow trail and highway</p> <p><u>Rev Spec</u> Remove all jack pine aspen and red maple. Mark some oak and red pine to cut. Residual basal area 50 to 60. Have logger scarify</p> <p><u>Next Steps:</u></p>							
<b>2 63138002-Cut</b>	75.0	42290 - Natural Mixed Pine	High Density Pole	55	Harvest	Group Selection	Natural Pine, Mixed Deciduous
<p><u>Rev Cmnt:</u> Have logger scarify ground, no winter cuts. Buffer trail and highway</p> <p><u>Rev Spec</u> Remove all jack pine, aspen and maple. Mark some oak and red pine to cut, leave residual basal area of 50 to 60.</p> <p><u>Next Steps:</u></p>							
<b>5 63138005-Cut</b>	104.0	42290 - Natural Mixed Pine	High Density Pole	55	Harvest	Group Selection	Natural Pine, Mixed Deciduous
<p><u>Rev Cmnt:</u> good subcanopy of oak and pine same as stands 1 and 2 buffer snow trail and highway</p> <p><u>Rev Spec</u> remove all jack pine aspen and red maple Mark some oak and red pine to cut. Leave basal area of 50 to 60 make sure logger scarifies ground</p> <p><u>Next Steps:</u></p>							
<b>10 63138010-Cut</b>	46.4	42140 - Planted Mixed Pine	High Density Log	80	Harvest	Clearcut	Planted Mixed Pine
<p><u>Rev Cmnt:</u> not as many thick red pine areas as adjacent stands thick subcanopy of oak in spots and oak marked green is retention.</p> <p><u>Rev Spec</u> final harvest plant to red pine leave some larger oak may be tough to plant in the thicker subcanopy oak areas</p> <p><u>Next Steps:</u></p>							
<b>11 63138011-Cut</b>	11.4	42250 - Pine, Oak	Medium Density Pole	50	Harvest	Clearcut with Reserves	Pine, Oak
<p><u>Rev Cmnt:</u> scattered oak and jack pine</p> <p><u>Rev Spec</u> remove jack pine over 4 inch dbh and log size white oak</p> <p><u>Next Steps:</u></p>							
<b>13 63138013-Cut</b>	21.6	42110 - Planted Red Pine	Medium Density Log	70	Harvest	Crown Thinning	Planted Red Pine
<p><u>Rev Cmnt:</u> New stand added. thinned last time, hard to tell it was a plantation. good subcanopy of oak</p> <p><u>Rev Spec</u> several options recommend removing sawlog and utility poles diameter cut maybe do a weave planting of red pine. regen from cut is red maple and white oak</p> <p><u>Next Steps:</u></p>							

**PROPOSED TREATMENTS  
NO LIMITING FACTORS**



S  
t  
a  
n  
d

Treatment Name	Acres	Stage1 CoverType	Size Density	Stand Age	Treatment Type	Treatment Method	Cover Type Objective
14 63138014-Cut	42.5	4129 - Mixed Oak	High Density Pole	65	Harvest	Single Tree Selection	Mixed Oak

Rev  
Cmnt: mix of species ok for regen.

Rev  
Spec do a shelterwood cut leave better quality red and white oak

Next  
Steps:

19 63138019-Cut	43.9	42120 - Planted Jack Pine	Medium Density Pole	48	Harvest	Clearcut	Planted Jack Pine
-----------------	------	---------------------------	---------------------	----	---------	----------	-------------------

Rev  
Cmnt: jack pine falling apart over good subcanopy of white oak

Rev  
Spec do an overstory removal of the jack protect established regen

Next  
Steps: Plant to red pine.

23 63138023-Cut	4.9	4199 - Other Mixed Upland Deciduous	High Density Pole	70	Harvest	Clearcut with Reserves	Other Mixed Upland Deciduous
-----------------	-----	-------------------------------------	-------------------	----	---------	------------------------	------------------------------

Rev  
Cmnt: called an upland but wet small acreage

Rev  
Spec do a final harvest leave red oak winter cut

Next  
Steps:

24 63138024-Cut	91.9	4131 - Aspen, Oak	High Density Pole	45	Harvest	Clearcut with Reserves	Aspen, Oak
-----------------	------	-------------------	-------------------	----	---------	------------------------	------------

Rev  
Cmnt:

Rev  
Spec do some patch clear cuts in aspen clone areas leave small diameter oak

Next  
Steps:

31 63138031-Cut	6.0	42260 - Natural Pine, Mixed Deciduous	High Density Pole	50	Harvest	Low Thinning	Natural Pine, Mixed Deciduous
-----------------	-----	---------------------------------------	-------------------	----	---------	--------------	-------------------------------

Rev  
Cmnt:

Rev  
Spec thin white pine remove aspen and maple leave cedar buffer creek, stay out of wet areas

Next  
Steps:

33 63138033-Cut	8.0	4134 - Aspen, Spruce/Fir	High Density Pole	55	Harvest	Clearcut with Reserves	Aspen, Mixed Pine
-----------------	-----	--------------------------	-------------------	----	---------	------------------------	-------------------

Rev  
Cmnt: wet areas

Rev  
Spec final harvest do a winter cut to promote better sprouting expand west into stand 29 along the two track, in the mature aspen area, with no retention.

Next  
Steps:

**PROPOSED TREATMENTS  
NO LIMITING FACTORS**



S t a n d	Treatment Name	Acres	Stage1 CoverType	Size Density	Stand Age	Treatment Type	Treatment Method	Cover Type Objective	Page 3 of 5
35	63138035-Cut	20.2	4191 - Mixed Upland Deciduous with Conifer	High Density Pole	50	Harvest	Low Thinning	Mixed Upland Deciduous with Conifer	
<u>Rev</u> maple sawlogs being cut illegally									
<u>Cmnt:</u>									
<u>Rev</u> thin pine remove all aspen and maple									
<u>Spec</u>									
<u>Next</u>									
<u>Steps:</u>									
38	63138038-Cut	14.6	42260 - Natural Pine, Mixed Deciduous	High Density Pole	58	Harvest	Low Thinning	Natural Pine, Mixed Deciduous	
<u>Rev</u>									
<u>Cmnt:</u>									
<u>Rev</u> final harvest aspen and maple thin pine to about 50/60 ba									
<u>Spec</u>									
<u>Next</u>									
<u>Steps:</u>									
39	63138039-Cut	4.3	42101 - Planted White Pine, Mixed Deciduous	High Density Pole	48	Harvest	Systematic Thinning	Planted White Pine, Mixed Deciduous	
<u>Rev</u>									
<u>Cmnt:</u>									
<u>Rev</u> take two rows leave two rows remove all other species where possible									
<u>Spec</u>									
<u>Next</u>									
<u>Steps:</u>									
40	63138040-Cut	4.6	42120 - Planted Jack Pine	Medium Density Pole	48	Harvest	Clearcut	Planted Jack Pine	
<u>Rev</u> some jack pine regen already started will be left as retention									
<u>Cmnt:</u>									
<u>Rev</u> final harvest natural regen									
<u>Spec</u>									
<u>Next</u>									
<u>Steps:</u>									
42	63138042-Cut	38.5	42110 - Planted Red Pine	High Density Pole	53	Harvest	Systematic Thinning	Planted Red Pine	
<u>Rev</u>									
<u>Cmnt:</u>									
<u>Rev</u> thin out defect to 120 ba									
<u>Spec</u>									
<u>Next</u>									
<u>Steps:</u>									
46	63138046-Cut	19.6	429 - Mixed Upland Conifers	High Density Pole	55	Harvest	Clearcut with Reserves	Mixed Upland Deciduous with Conifer	
<u>Rev</u> very mixed stand with low wet areas									
<u>Cmnt:</u>									
<u>Rev</u> clear cut with reserves leave ba of around 50 in pine areas don't cut cedar									
<u>Spec</u>									
<u>Next</u>									
<u>Steps:</u>									

**PROPOSED TREATMENTS  
NO LIMITING FACTORS**



Stand	Treatment Name	Acres	Stage1 CoverType	Size Density	Stand Age	Treatment Type	Treatment Method	Cover Type Objective	Page 4 of 5
51	63138051-Cut	16.3	6117 - Lowland Deciduous, Mixed Coniferous	Medium Density Pole	13	Harvest	Clearcut	Lowland Deciduous, Mixed Coniferous	
<p><u>Rev</u> <u>Cmnt:</u></p> <p><u>Rev</u> Expand in to stand 58 where possible . Wildlife will habitat cut areas not able to be done commercially <u>Spec</u></p> <p><u>Next</u> <u>Steps:</u></p>									
52	63138052-Cut	7.1	4134 - Aspen, Spruce/Fir	High Density Pole	41	Harvest	Clearcut	Aspen, Spruce/Fir	
<p><u>Rev</u> called upland but has wet areas that will not be cut, these are retention areas. <u>Cmnt:</u></p> <p><u>Rev</u> final harvest <u>Spec</u></p> <p><u>Next</u> <u>Steps:</u></p>									
54	63138054-Cut	42.9	4136 - Aspen, Mixed Conifer	High Density Pole	50	Harvest	Clearcut with Reserves	Aspen, Mixed Deciduous	
<p><u>Rev</u> called an upland but a lot of low wet areas with alder and brush. Wildlife can habitat cut aspen areas that can't be done commercially <u>Cmnt:</u></p> <p><u>Rev</u> final harvest what you can get to, leave cedar <u>Spec</u></p> <p><u>Next</u> <u>Steps:</u></p>									
59	63138059-Cut	8.2	4130 - Aspen	High Density Log	70	Harvest	Clearcut	Aspen	
<p><u>Rev</u> New stand added. variety of diameters mix of bigtooth and quaking. Small acreage no retention for better sprouting. <u>Cmnt:</u></p> <p><u>Rev</u> final harvest <u>Spec</u></p> <p><u>Next</u> <u>Steps:</u></p>									
62	63138062-Cut	56.9	42110 - Planted Red Pine	High Density Pole	57	Harvest	Systematic Thinning	Planted Red Pine	
<p><u>Rev</u> <u>Cmnt:</u></p> <p><u>Rev</u> mark to cut,thin to approximately 120 ba, remove defect <u>Spec</u></p> <p><u>Next</u> <u>Steps:</u></p>									
65	63138065-Cut	53.0	4130 - Aspen	High Density Pole	45	Harvest	Clearcut	Aspen	
<p><u>Rev</u> <u>Cmnt:</u></p> <p><u>Rev</u> Cut approximately 1/3 of stand. Pick out mature areas. No retention in cut areas. <u>Spec</u></p> <p><u>Next</u> <u>Steps:</u></p>									

**PROPOSED TREATMENTS  
NO LIMITING FACTORS**



S  
t  
a  
n  
d

Treatment Name	Acres	Stage1 CoverType	Size Density	Stand Age	Treatment Type	Treatment Method	Cover Type Objective
69 63138069-Cut	14.9	4311 - Pine, Aspen Mix	High Density Pole	50	Harvest	Clearcut with Reserves	Natural Pine, Mixed Deciduous

Rev  
Cmnt:

Rev final harvest leave oak and cedar

Spec

Next

Steps:

70 63138070-Cut	10.7	42290 - Natural Mixed Pine	High Density Log	58	Harvest	Crown Thinning	Natural Mixed Pine
-----------------	------	----------------------------	------------------	----	---------	----------------	--------------------

Rev  
Cmnt:

Rev thin sawlog pine

Spec

Next

Steps:

81 63138081-Cut	5.9	6118 - Lowland Deciduous with Cedar	High Density Log	75	Harvest	Clearcut	Lowland Deciduous, Mixed Coniferous
-----------------	-----	-------------------------------------	------------------	----	---------	----------	-------------------------------------

Rev

Cmnt: May also cut part of stand 79 to the south in the aspen areas.

Rev Wildlife habitat cut mature areas of aspen.

Spec

Next

Steps:

**Total Treatment  
Acreage Proposed: 797.6**

**PROPOSED TREATMENTS  
WITH LIMITING FACTORS**



S  
t  
a  
n  
d

Treatment Name	Acres	Stage1 Cover Type	Size Density	Stand Age	Treatment Type	Treatment Method	Cover Type Objective
37 63138037-Cut	4.4	6120 - Lowland Cedar	High Density Pole	80	Harvest	Patch or Strip Clearcut	Aspen, Cedar

Limiting Factor 2F: Too wet  
and Comment:

Rev wet cedar /fir with creek  
Cmnt:

Rev wildlife to do some habitat cuts in aspen maple areas along private line near survey corner.  
Spec:

Next  
Steps:

No Treatment  
Reason

---

**Total Treatment  
Acreage Proposed:    4.4**



**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.

Inventory Method: IFMAP

Stand	SCA Name	Acres	Comments



**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	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 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.