



# Report 1 – Compartment Review Presentation

## Traverse City Forest Management Unit

Compartment 112

Entry Year 2015

Acreage: 1,615

County Kalkaska

Management Area: Kirtland's Warbler

**Revision Date:** 04/18/2013

**Stand Examiner:** Katie  
Armstrong

### Legal Description:

T27N R5W, Sections 12, 13 and E half of 24

### Identified Planning Goals:

This compartment is part of the Kirtland's Warbler Management Area, which is primarily managed to sustain or develop nesting habitat for the federally endangered Kirtland's warbler (KW). Kirtland's warblers require large, relatively homogenous stands of jack pine with scattered openings. They build ground nests among grasses and low shrubs under jack pine trees about 5-7 feet tall (or 5-8 years old). Historically wildfire and other natural disturbances would have maintained stands of suitable habitat, but manipulation is necessary to do so today. The KW Management Plan identifies a matrix of jack pine stands to be regenerated every decade over a 40-70 year rotation such that suitable nesting habitat will always be available across the landscape. Management of cover types other than jack pine will emphasize stand health, diversity and timber productivity, where appropriate. Wet areas will be excluded or buffered according to best management practices. Upcoming management challenges include regeneration of oak stands, many of which are most likely too old to sprout vigorously, and heavy deer browse levels.

### Soil and topography:

Nearly all of the compartment lies on well-drained Grayling sand with a limited areas of Rubicon and Au Gres sands. The northeast corner of the compartment has some wetland areas with Tawas-Leafriver and Kinross mucks around Goose Creek. Linqvist and Island Lake sands lie upon the rolling hills and ridges of the western part of the compartment. There is at least one kettle-like depression but it does not appear to support standing water.

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

The entire compartment is State land and is surrounded by State land. Section 24 is leased to the Department of Military and Veterans Affairs as part of the Camp Grayling training area. A natural gas pipeline with a relatively wide right-of-way runs north-south through the eastern part of the compartment.

### Unique, Natural Features:

The compartment contains no known element occurrences but it has potential for Kirtland's warbler and eastern Massasauga rattlesnake.

### Archeological, Historical, and Cultural Features:

There are no known archaeological sites within this compartment.

### Special Management Designations or Considerations:

Goose Creek, which flows through the northeastern corner of this compartment, is a designated Wild-Scenic River according to the Upper Manistee Natural Rivers Plan. This includes a native vegetation buffer of 75 feet.

### Watershed and Fisheries Considerations:

Goose Creek, which is a high quality tributary of the Manistee River, is a designated Trout Stream and supports self-sustaining populations of brook and brown trout.

### Wildlife Habitat Considerations:

Much of the compartment is designated Critical Habitat for the Kirtland's warbler. Other Featured Wildlife Species for this MA include: pileated woodpecker, ruffed grouse, snowshoe hare, wild turkey, and white-tailed deer. [Additional text to be added by WLD.]

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

Surface sediments consist of ice-contact and glacial outwash sand and gravel. The glacial drift thickness varies between 400 and 600 feet. Beneath the glacial drift is the Mississippian Coldwater Shale. The Coldwater does not have an economic use. The nearest gravel pit is located two miles to the northeast, but potential is considered good. This area is located south of the Guelph (Niagaran) reef trend and the Antrim Shale gas play and potential is limited. The compartment

is currently leased for oil and gas development for the Collingwood Formation.

#### **Vehicle Access:**

The existing road and trail system is adequate. Berms have been breached in a couple spots so those roads should be re-closed. There is a Director's Order to prohibit use of wheeled vehicles on the pipeline.

#### **Survey Needs:**

There are no additional survey needs at this time.

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

The Michigan Shore-to-Shore equestrian and hiking trail runs east/west, bisecting the northern portion of the compartment. The Kalkaska ORV trail runs through a small portion of sections 12 and 13. Heavy snowmobile traffic utilizes the pipeline corridor. Proposed timber management activities should include trail protection specifications to reduce impacts, as well as serve as an example of how silviculturally sound timber harvesting practices can co-exist, and often improve recreation and hunting experiences for future generations. Treatments proposed directly adjacent to the ORV trail tread should include either a "flush cut" specification or be stumped high enough (3 feet) to avoid being hidden by perennial flora (ferns). Access to Upper Manistee River State Forest Campground is through the northeastern part of this compartment. There are numerous unofficial trails, most likely used by equestrians, between the campground and the area around Goose Creek Flooding. (Submitted by Todd Neiss)

#### **Fire Protection:**

Most of this compartment – and that part of Crawford County between it and the Manistee River – is dominated by large, continuous stands of jack pine. This creates a relatively high risk of wildfire. This risk is somewhat mitigated by the proximity of nearby water sources and good access from M-72. This compartment is within the Forest Resources Division's zone dispatch area, meaning fire crews will likely be stationed nearby during periods of elevated fire danger. Faster response times will help prevent fires that start in this area from developing into large crown fires that would threaten numerous dwellings along the Manistee River. Fire is only of moderate concern in the oak and hardwood areas.

#### **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**

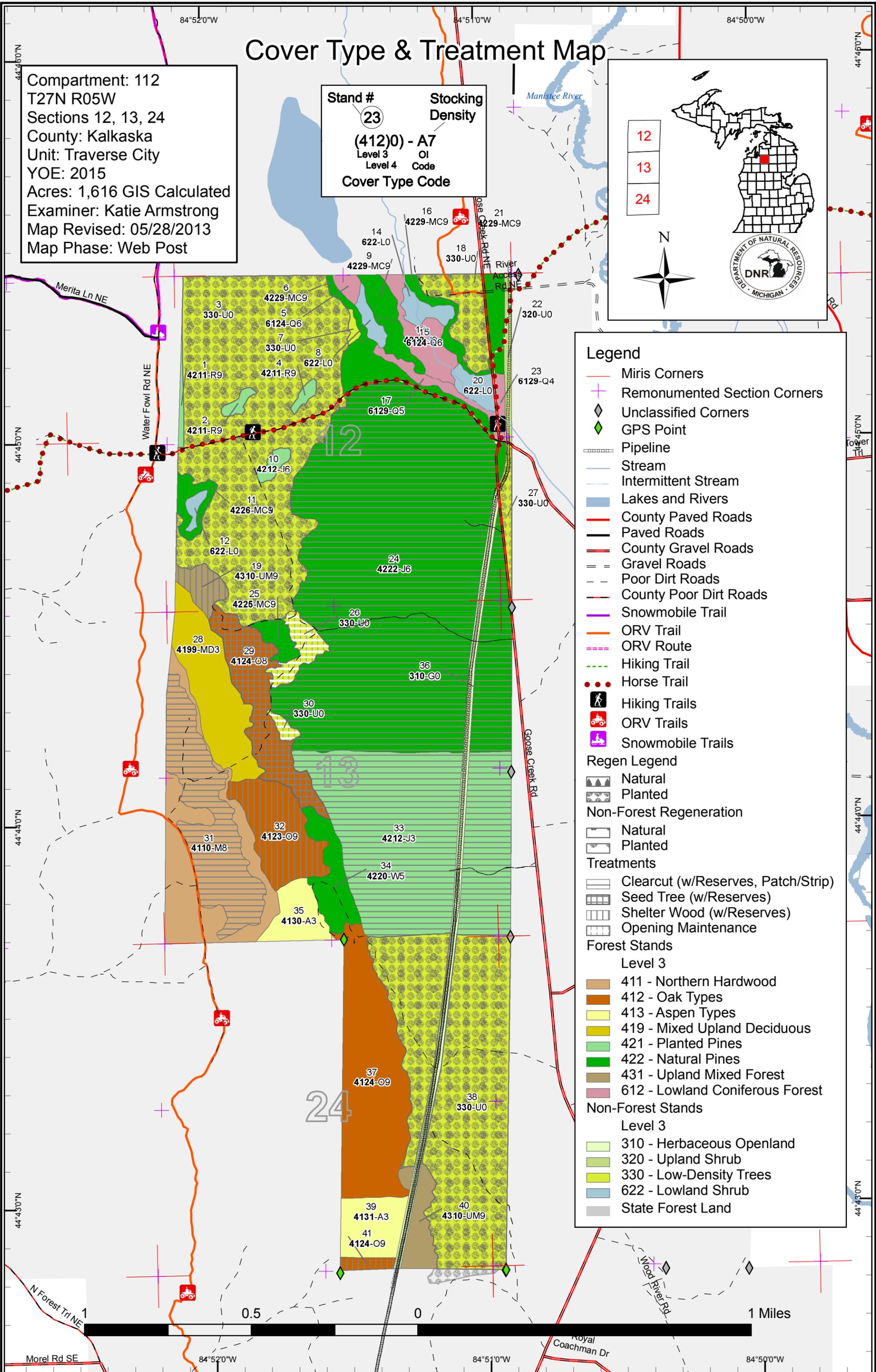
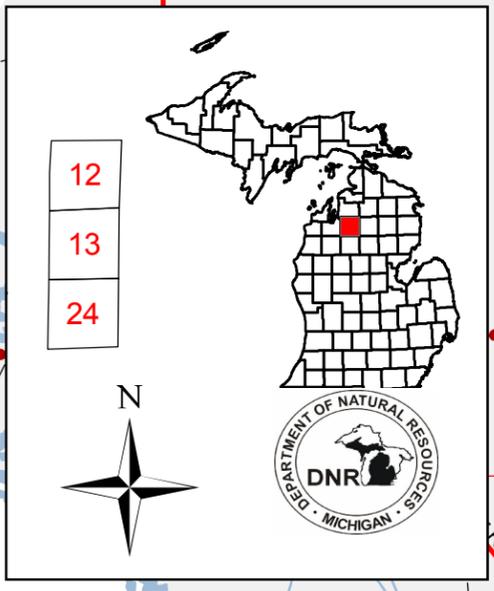
**The following information is displayed, where pertinent, on the attached compartment maps:**

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

# Cover Type & Treatment Map

Compartment: 112  
 T27N R05W  
 Sections 12, 13, 24  
 County: Kalkaska  
 Unit: Traverse City  
 YOE: 2015  
 Acres: 1,616 GIS Calculated  
 Examiner: Katie Armstrong  
 Map Revised: 05/28/2013  
 Map Phase: Web Post

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



### Legend

- Miris Corners
- Remonumented Section Corners
- Unclassified Corners
- GPS Point
- Pipeline
- Stream
- Intermittent Stream
- Lakes and Rivers
- County Paved Roads
- Paved Roads
- County Gravel Roads
- Gravel Roads
- Poor Dirt Roads
- County Poor Dirt Roads
- Snowmobile Trail
- ORV Trail
- ORV Route
- Hiking Trail
- Horse Trail
- Hiking Trails
- ORV Trails
- Snowmobile Trails

### Regen Legend

- Natural
- Planted

### Non-Forest Regeneration

- Natural
- Planted

### Treatments

- Clearcut (w/Reserves, Patch/Strip)
- Seed Tree (w/Reserves)
- Shelter Wood (w/Reserves)
- Opening Maintenance

### Forest Stands

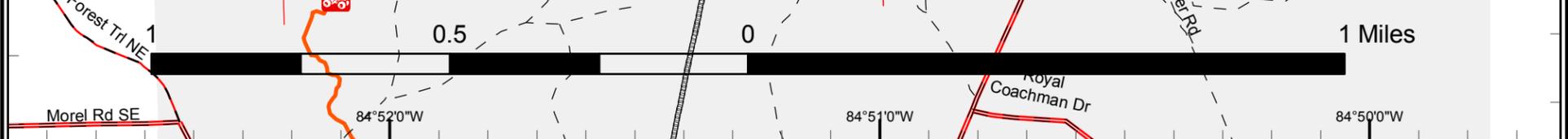
Level 3

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

### Non-Forest Stands

Level 3

- 310 - Herbaceous Openland
- 320 - Upland Shrub
- 330 - Low-Density Trees
- 622 - Lowland Shrub
- State Forest Land

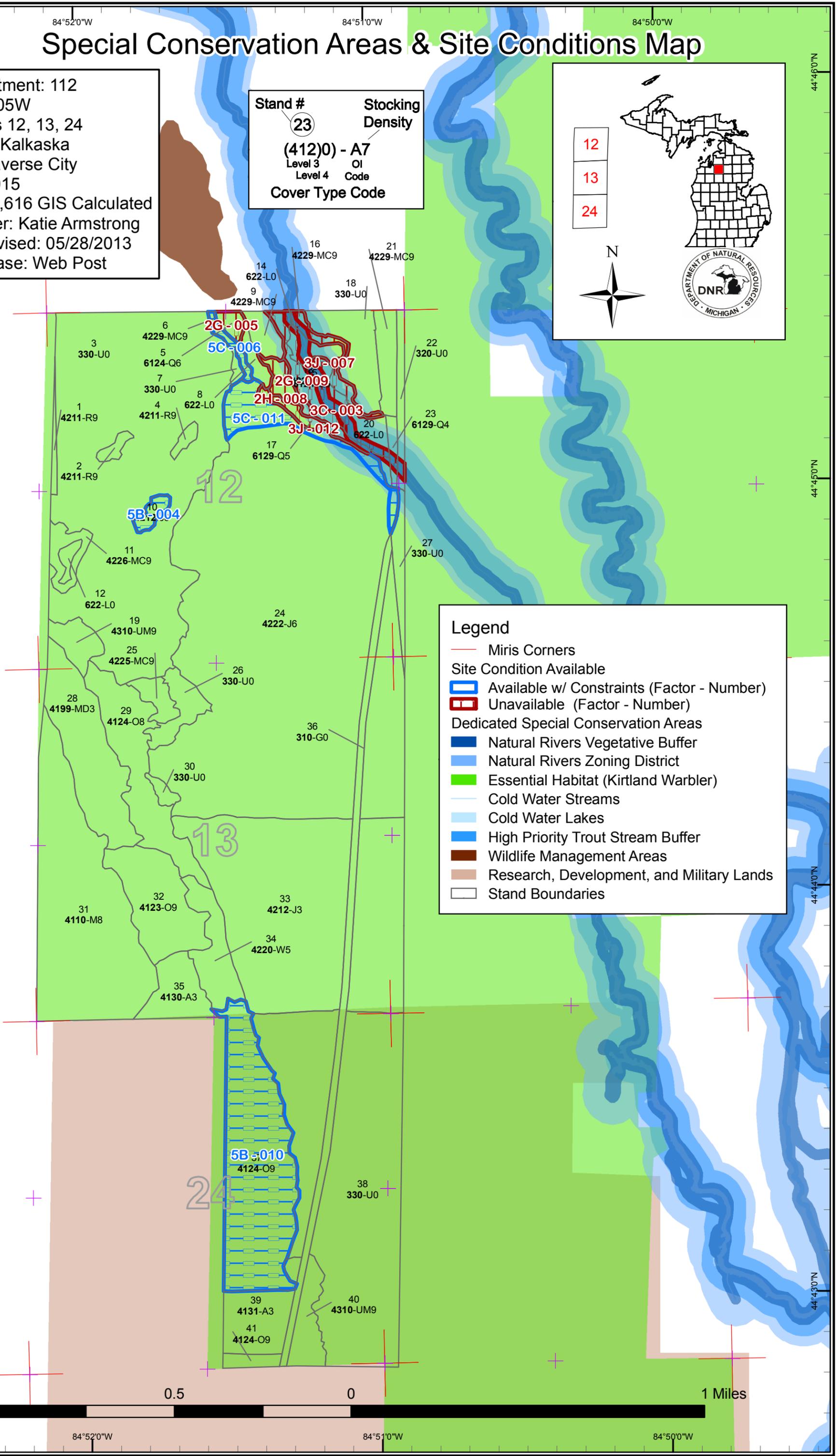
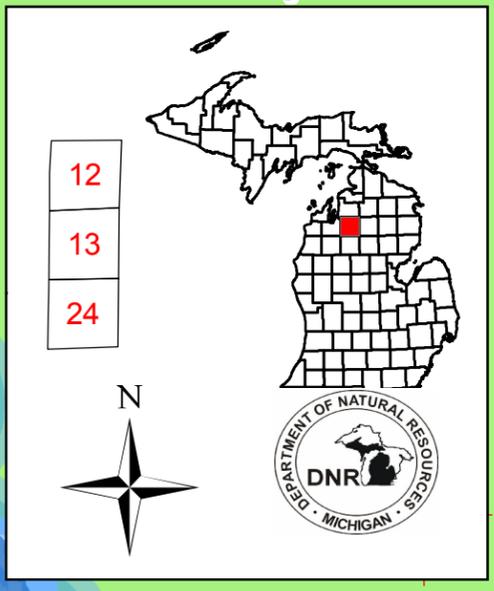




# Special Conservation Areas & Site Conditions Map

Compartment: 112  
 T27N R05W  
 Sections 12, 13, 24  
 County: Kalkaska  
 Unit: Traverse City  
 YOE: 2015  
 Acres: 1,616 GIS Calculated  
 Examiner: Katie Armstrong  
 Map Revised: 05/28/2013  
 Map Phase: Web Post

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



**Legend**

- Miris Corners
- Site Condition Available
  - Available w/ Constraints (Factor - Number)
  - Unavailable (Factor - Number)
- Dedicated Special Conservation Areas
  - Natural Rivers Vegetative Buffer
  - Natural Rivers Zoning District
  - Essential Habitat (Kirtland Warbler)
  - Cold Water Streams
  - Cold Water Lakes
  - High Priority Trout Stream Buffer
  - Wildlife Management Areas
  - Research, Development, and Military Lands
  - Stand Boundaries



84°52'0"W      84°51'0"W      84°50'0"W

44°45'0"N  
44°45'0"N  
44°45'0"N  
44°45'0"N  
44°45'0"N

44°46'0"N  
44°45'0"N  
44°44'0"N  
44°43'0"N

Report 2 – 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	0	0	38	0	0	0	0	0	0	0	0	0	0	0	38
Herbaceous Openland	30	0	0	0	0	0	0	0	0	0	0	0	0	0	30
Jack Pine	0	180	0	0	0	0	430	0	0	0	0	0	0	0	610
Low-Density Trees	473	0	0	0	0	0	0	0	0	0	0	0	0	0	473
Lowland Conifers	0	0	0	0	0	0	0	3	25	0	0	0	0	0	28
Lowland Shrub	20	0	0	0	0	0	0	0	0	0	0	0	0	0	20
Mixed Upland Deciduous	0	0	46	0	0	0	0	0	0	0	0	0	0	0	46
Natural Mixed Pines	0	0	0	0	0	0	6	28	0	7	0	0	0	0	41
Northern Hardwood	0	0	0	0	0	0	0	111	0	0	0	0	0	0	111
Oak	0	0	0	0	0	0	0	40	4	0	36	0	0	84	164
Red Pine	0	0	0	0	0	0	7	0	0	0	0	0	0	0	7
Upland Mixed Forest	0	0	0	0	0	0	0	9	14	0	0	0	0	0	24
Upland Shrub	7	0	0	0	0	0	0	0	0	0	0	0	0	0	7
White Pine	0	0	0	0	19	0	0	0	0	0	0	0	0	0	19
<b>Total</b>	<b>529</b>	<b>180</b>	<b>83</b>	<b>0</b>	<b>19</b>	<b>0</b>	<b>443</b>	<b>191</b>	<b>44</b>	<b>7</b>	<b>36</b>	<b>0</b>	<b>0</b>	<b>84</b>	<b>1616</b>



# Report 3 – Proposed Treatment Summaries

Traverse City Mgt. Unit  
Year of Entry 2015

Compartment 112  
Total Compartment Acres: 1616

### Acres by Treatment Type

Commercial Harvest - 733    Tree Planting - 582    Other - 0  
Habitat Cut - 0    Opening Maintenance - 13

### Cover Type by Harvest Method

	Clearcut	Selection	Seed Tree	Shelterwood	Thinning	Other - Specify	Total Acres
	62	0	0	0	0	0	62
Natural Pines	403	0	0	0	0	0	403
Oak Types	0	0	40	40	0	0	79
Planted Pines	180	0	0	0	0	0	180
Upland Mixed Forest	0	0	0	9	0	0	9
<b>Total</b>	<b>644</b>	<b>0</b>	<b>40</b>	<b>49</b>	<b>0</b>	<b>0</b>	<b>733</b>



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Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
61112_OutOfY OE-Cut	61.7					Harvest	Clearcut with Reserves	4112 - Maple, Beech, Cherry Association	Fld. Tr. Bdy.

Prescription Salvage dead maple and oak, with more than 40% crown mortality.

Specs:

Other Set up and sold as Section 13ish Salvage, 61-066-12-01.

Comments:

Next  
Steps:

Proposed  
Start Date: 09/20/2012

19	61112019- SWCut	9.1	4310 - Pine, Oak Mix	High Density Log	77	81-110	Harvest	Shelter Wood with Reserves	42250 - Pine, Oak	Cmpt. Review Proposal
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Prescription Thin pine and oak to about 50-60 sf to encourage regeneration. Avoid areas of good advanced regeneration. Cut all merchantable aspen. Leave retention along edge of prior clearcut and around camping area.

Specs:

Other

Comments:

Next Regeneration survey at time of next inventory. Acceptable regeneration includes oak, pine and/or aspen.

Steps:

Proposed  
Start Date: 10/01/2014

24	61112024- Clearcut	402.9	42220 - Natural Jack Pine	High Density Pole	60		Harvest	Clearcut	42120 - Planted Jack Pine	Cmpt. Review Proposal
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Prescription Clearcut. Include specs to facilitate replanting.

Specs:

Other

Comments:

Next Replant jack pine per Kirtland warbler management plan.

Steps:

Proposed  
Start Date: 10/01/2017

29	61112029- SeedtreeCut	39.6	4124 - Red with White Oak	Medium Density Log	77	1-50	Harvest	Seed Tree with Reserves	4124 - Red with White Oak	Cmpt. Review Proposal
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Prescription Mark 3-4 oaks per acre to leave, leaving large-crowned oaks which are likely to produce more acorns and trees with good wildlife value. Residual oaks may be in clumps if marking patches is easier. Cut in snow-free season to encourage scarification. Leave pine and avoid areas of advanced regeneration.

Specs:

Other

Comments:

Next Regeneration survey at time of next inventory. Acceptable regeneration includes oak, pine and/or aspen.

Steps:

Proposed  
Start Date: 10/01/2014



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Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
<b>32 61112032-SWCut</b>	35.8	4123 - Red Oak	High Density Log	103	81-110	Harvest	Shelterwood	4123 - Red Oak	Cmpt. Review Proposal

Prescription Shelterwood red oak to approx. 50% crown cover. Leave all white oak, pine and other conifers for diversity. Cut in snow-free season to encourage scarification. Avoid steep slopes, areas of good advanced regeneration and conifer pockets (actual treatment area will be reduced).

Other Comments:

Next Steps: Regeneration survey at time of next inventory. Acceptable regeneration includes oak, pine, red maple and/or aspen.

Proposed Start Date: 10/01/2014

<b>33 61112033-Clearcut</b>	179.5	42120 - Planted Jack Pine	High Density Sapling	16		Harvest	Clearcut	42120 - Planted Jack Pine	Cmpt. Review Proposal
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Prescription Clearcut. Include specs to facilitate replanting.

Other Comments: Sell with Stand 24 to ensure sale to make this small jack pine more marketable.

Next Steps: Replant jack pine per Kirtland's warbler management plan.

Proposed Start Date: 10/01/2017

<b>41 61112041-SWCut</b>	3.9	4124 - Red with White Oak	High Density Log	86	81-110	Harvest	Shelterwood	4124 - Red with White Oak	Cmpt. Review Proposal
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Prescription Shelterwood stand (~50% crown cover) by removing all aspen and red maple and thinning pockets of heaviest oak. Avoid steep slope on east side if inoperable. Cut when good scarification can be achieved.

Other Comments: Delay treatment by one year to combine with treatment from Compartment 116 which is 2016 YOE.

Next Steps: Regeneration survey at time of next inventory. Acceptable regeneration includes oak, pine, red maple and/or aspen.

Proposed Start Date: 10/01/2015

<b>26 NF_61112026-NonFor</b>	10.6	330 - Low-Density Trees				Non-Forest Management	Brush Cutting	3102 - Grass	Cmpt. Review Proposal
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Prescription Opening maintenance

Other Comments:

Next Steps:

Proposed Start Date: Unspecified

<b>30 NF_61112030-NonFor</b>	2.5	330 - Low-Density Trees				Non-Forest Management	Brush Cutting	3102 - Grass	Cmpt. Review Proposal
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Prescription Opening maintenance

Other Comments:

Next Steps:

Proposed Start Date: Unspecified

**Report 4 -- Treatments Prescribed  
with No Limiting Factor**



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Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
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Total Treatment  
Acreage Proposed: 745.6



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

Prescription  
Specs:

Other  
Comment:

Next  
Steps:

Proposed  
Start Date: #Type!

Limiting Factor

**Total Treatment  
Acreage Proposed: 0**

**Report 6 – Out of YOE – Treatments  
Prescribed with No Limiting Factor**

Year of Entry: 2015



Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
28218	5.9	Unspecified				Harvest	Other - Specify in Comments	Unspecified	Cmpt. Review Proposal

Prescription Specs:

Other Comments:

Next Steps:

Proposed Start Date:

28219	7.2	Unspecified				Harvest	Other - Specify in Comments	Unspecified	Cmpt. Review Proposal - Incomplete
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Prescription Specs:

Other Comments:

Next Steps:

Proposed Start Date:

61043_OutOfY OE-Cut	2.1					Harvest	Clearcut with Reserves	4131 - Aspen, Oak	Cmpt. Review Proposal - Incomplete
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Prescription Specs: retain some pine and oak for mast and seed production, Follow WLD guidance for CWD creation. Harvest all stems that are not retained.

Other Comments: New stand should have mix of oak, pine, aspen and maple.

Next Steps:

Proposed Start Date: 09/01/2009

**Total Treatment  
Acreage Proposed: 15.3**

## Report 7 – Site Conditions

Traverse City Mgt. Unit  
Katie Armstrong : Examiner

Compartment 112  
Year of Entry 2015

### Availability for Management

Total Acres	Acres		Dominant Site Conditions	Dominant Site Conditions						
	Available	Not Available		No	5C	5B	3J	3C	2H	2G
38	38		Aspen	38						
610	604	6	Jack Pine	582	18	3			6	
28	4	25	Lowland Conifers	4			7	6		12
46	46		Mixed Upland Deciduous	46						
41	34	7	Natural Mixed Pines	31	3		6	1		
111	111		Northern Hardwood	111						
163	163		Oak	79		84				
7	7		Red Pine	7						
24	24		Upland Mixed Forest	24						
19	19		White Pine	19						
1,085	1,048	37	Total Forested Acres	940	21	87	13	7	6	12
	97%	3%	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
003	Not Available	3C: Designated Quiet Area, Natural Area, or Wilderness	12				
<b>Comments:</b> Goose Creek corridor - 75' buffer per Upper Manistee River Natural Rivers Plan							
004	Available	5B: Retention for regeneration purposes	4				
<b>Comments:</b> Small pocket saved for retention.							
005	Not Available	2G: Too wet (sensitive soils, does not include access issues)	3				
<b>Comments:</b>							

## Report 7 – Site Conditions

Traverse City Mgt. Unit  
Katie Armstrong : Examiner

Compartment 112  
Year of Entry 2015

006	Available	5C: Delay treatment for age/size class diversity or exceptional site quality	3	
<b>Comments:</b> Large adjacent stand was cut in 2009 and planted in 2011. Leave this stand for cover til adjacent stand is a little older.				
007	Not Available	3J: Water quality / BMPs (stream, river, or lake)	8	2G: Too wet (sensitive soils, does not include access issues)
<b>Comments:</b> Parts of 2 stands. Stand 16 is a narrow stand between wet areas along Goose Creek and planted red pine stand to east. Stand 15 is too wet to manage here. Both stands serve as good buffer for Goose Creek.				
008	Not Available	2H: Blocked by physical obstacle (e.g. upland stand in a lowland area)	6	
<b>Comments:</b> Access will be limited by adjacent wet stands and stream crossings but may be possible.				
009	Not Available	2G: Too wet (sensitive soils, does not include access issues)	10	
<b>Comments:</b>				
010	Available	5B: Retention for regeneration purposes	85	
<b>Comments:</b> Shelterwood oak cut, March 2009.				
011	Available	5C: Delay treatment for age/size class diversity or exceptional site quality	18	
<b>Comments:</b>				

**Report 7 – Site Conditions**

Traverse City Mgt. Unit  
Katie Armstrong : Examiner

Compartment 112  
Year of Entry 2015

012	Not Available	3J: Water quality / BMPs (stream, river, or lake)	5
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Comments:



### Report 8 – 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 9 – DEDICATED CONSERVATION AREA DETAILS**

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

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

Conservation Area	Type	Description
SCA	Cold Water Stream	A coldwater stream has temperature and dissolved oxygen conditions that allow naturally-reproduced or stocked trout populations and those of other coldwater fish species (e.g., slimy sculpin) to persist from year to year. Coldwater streams in Michigan typically provide these conditions due to substantial contributions of groundwater to their stream flows. Such streams are established by Director's action and designated as trout resources by Fisheries Order 210.
SCA	Habitat Area	An area that provide some specific need for the life cycle of wildlife species, including State Wildlife Areas and Waterfowl Production Areas, deer wintering complexes in lowland conifer communities, grassland openings and savannas. Habitat areas are distinct from critical habitat designated for recovery of endangered or threatened species (such as Kirtland's warbler or piping plover areas) in that they are more general in nature, are not primarily associated with threatened or endangered species, and are not covered by species recovery plans that are developed in cooperation with Federal agencies.
SCA	Research and Military Areas	These areas provide facilities and lands specifically dedicated for research, or other purposes. They include the 5,847 acre Forest Fire Experiment Station, the 12,000 acre Houghton Lake Wildlife Research Area, the Beaver Islands Archipelago Wildlife Research Area (that includes most of Garden Island, all of High and Hog Islands, all state owned land on Beaver, South Fox and North Fox Islands), the Cusino Wildlife Research Area, the 3,000 acre Hunt Creek Fisheries Research Station, the 125 acre Wyman Nursery, and over 144,000 acres of Military Lands.
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.
HCVA	Natural Rivers	There are two Natural Rivers datasets which are derived from spatial buffers set from an established and approved distance from the river centerlines. The Natural Rivers Zoning District is a 400 foot buffer for most Natural Rivers. The Vegetative Buffer ranges from 25 to 100 feet. To view specific Zoning Districts and Vegetative Buffers for each Natural River see the table located on the I:\Documentation\GDSE data folder.



	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
1	42110 - Planted Red Pine	High Density Log	2.3	65	81-110	Manage with Compartment 111. Thinned in 2004, Sale 61-017-04-01.
2	42110 - Planted Red Pine	High Density Log	2.5	60	51-80	Retention from Sale 61-019-05-01, completed March 2009. Part of stand was burned with surrounding stand during prescribed burn in 2011. Original stand was a mixture of red pine and jack pine planted in the early 1950s.
4	42110 - Planted Red Pine	High Density Log	2.2	60	51-80	Retention from Sale 61-019-05-01, completed March 2009. Part of stand was burned with surrounding stand during prescribed burn in 2011. Southwestern part of stand suffered significant mortality from fire. Original stand was a mixture of red pine and jack pine planted in the early 1950s.
5	6124 - Lowland Spruce-Fir	High Density Pole	3.2	88		Very wet stand with small diameter trees. Not merchantable or operable. Most likely has unmapped stream running through middle.
6	42290 - Natural Mixed Pine	High Density Log	3.1	72	111-140	Transitional stand between upland, planted stand to the west and lowland stands to the east. Moderate slope down to wet stands.
9	42290 - Natural Mixed Pine	High Density Log	6.7	93	51-80	Stand is mostly upland but transitions into wetter types along edges. Only slight (5-6') elevation increase makes this stand drier than adjacent spruce. Good variability among red pine diameters including some large 20"+ trees. Evidence of past fire.
10	42120 - Planted Jack Pine	High Density Pole	3.5	60		Retention from Sale 61-019-05-01, completed March 2009. Original stand was a mixture of red pine and jack pine planted in the early 1950s.
11	42260 - Natural Pine, Mixed Deciduous	High Density Log	7.6	77	81-110	Stand was left to serve as a buffer for wet area in middle. Stand is flat along edges but slopes down toward interior depression. Variable stand, mostly pine with some scattered, large oaks. Younger aspen has filled in canopy gaps and along open edges.
13	42220 - Natural Jack Pine	High Density Log	5.8	68		Variable stand with multiple canopy gaps. Upland stand but drops off into stream corridor or wetter areas on all sides. Mostly jack pine with occasional overstory oak and poor quality aspen. Some jack pine mortality.
15	6124 - Lowland Spruce-Fir	High Density Pole	15.1	88		Goose Creek runs through middle of stand and is wet on either side. Fades into another wet stand containing tributary of Goose Creek. Some log-sized white pine and red pine along edges.
16	42290 - Natural Mixed Pine	High Density Log	6.8	72	141-170	Transition zone between planted red pine to the east and wet stands along Goose Creek to the west. Mostly dry but contains some wet areas (labrador tea). Stand is narrow and should be left untouched as buffer for wet areas.



Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
17	6129 - Mixed Coniferous Lowland Forest	Medium Density Pole	7.0	88		Stream corridor for tributary of Goose Creek. Canopy trees are denser in southeastern part of stand. Northwestern part has only scattered canopy trees with denser alder understory. Pocket of larger red pine and white pine where stand meets Goose Creek Road. Horse trail spur from road to Goose Creek runs through eastern part of stand.
19	4310 - Pine, Oak Mix	High Density Log	9.1	77	81-110	Good diversity in this stand. Contains broad range of pine diameters as well as some large mast-producing oaks. Good balance for all of the jack pine warbler habitat in this compartment.
21	42290 - Natural Mixed Pine	High Density Log	10.3	74	51-80	Variable stand. All jack pine and hardwood was removed in 1996. Some dense pockets of red pine might benefit from thinning but there would not be enough volume to justify a sale. Dense white pine understory in some places. Horse trail and campground access road run through this stand.
23	6129 - Mixed Coniferous Lowland Forest	Low Density Pole	3.1	74		Wet, variable stand. Dense alder understory with only scattered trees. Goose Creek runs through stand. Part of stand south of Goose Creek is more upland and open.
24	42220 - Natural Jack Pine	High Density Pole	420.9	60		Mostly not merchantable (jack pine seems small for its age) but trees are dense so it may at least be worth chipping by 2020. Jack pine diameter ranges from 3-10". Stand north of Waterfowl Road is more diverse, containing the occasional aspen, large red oak, and scattered oak and red maple saplings in the understory. Horse trail runs through stand on Waterfowl Road and horse trail spur leads from road to Goose Creek in northeast corner of stand. Stand contains scattered openings along and north of Waterfowl Road. Two-part stand split by pipeline.
25	42250 - Pine, Oak	High Density Log	6.4	61		Transition zone between flat, pine stands to the east and hillier hardwoods to the west. Moderate hill. Mostly jack pine with a pocket of oak and aspen in the middle.
28	4199 - Other Mixed Upland Deciduous	High Density Sapling	45.7	29		Stand was clearcut in 1984. Mixture of multi-stemmed red maple and oak and aspen. Higher conifer component at north and south ends of stand, including pocket of hemlock on north-facing slope at southern end. Slight slope with east-northeast aspect.
29	4124 - Red with White Oak	Medium Density Log	39.6	77	1-50	Mostly scattered large oak with multiple canopy gaps. Oak is mostly open grown yielding fair to poor quality. Some limbs are starting to die.
31	4110 - Sugar Maple Association	Medium Density Log	111.0	78	51-80	Good quality sugar maple stand. Thinned in May 2007 as Sale 61-046-05-01, Hilltop Hardwood. Previously thinned in 1984. Suffered significant maple and oak mortality after last thinning likely due to a number of factors including stress from drought and forest tent caterpillar after opening canopy. Very dense blackberry in subcanopy. Good sugar maple regeneration, however, especially in large canopy gaps, perhaps sheltered from deer by blackberry. Areas of highest mortality were set up as Section 13ish Salvage, 61-066-12-01, sold but not yet cut. Will remove maple and oak with more than 40% crown mortality. Red maple and cherry were not as affected by stress factors. Large beech seems to be more common at edges of stand but is present in the understory throughout. ORV trail runs through stand.



	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
32	4123 - Red Oak	High Density Log	35.8	103	81-110	Good quality red oak stand with heavy white pine understory, variable in height but mostly 20-30' tall. Contains occasional overstory white pine. Aspen and red maple were removed in 1997. Scattered canopy gaps contain dense red maple regeneration and a few advanced oak saplings. Some patches of aspen regeneration along edges. Pockets of hemlock and other conifers on isolated north-facing slopes of ridge. Treatment was delayed for age/size class diversity at last inventory. Evidence of significant deer population. Moderate slope from east to west. Top of ridge is in stand to the west.
33	42120 - Planted Jack Pine	High Density Sapling	179.5	16		Clearcut in 1988 and planted for kirtland warbler habitat in 1991. Two-part stand split by pipeline.
34	42200 - Natural White Pine	Medium Density Pole	19.0	43		Variable, poor quality stand. Mostly short, limby white pine in overstory. White pine was left as residual when the stand was cut in 1997. Lots of regeneration including some advanced oak. Shrubby red maple. Canopy aspen is at edge of regen gaps.
35	4130 - Aspen	High Density Sapling	16.4	28		Stand was clearcut in 1985. Good regeneration. Mostly aspen with red maple and a few oaks just reaching pole size. White pine is denser at north end of stand. Moderate slope from east to west.
37	4124 - Red with White Oak	High Density Log	84.3	Uneven Age	51-80	Section 24 Oak sale, 61-003-06-01, completed March 2009. Oak was thinned and all red maple and aspen were removed. Treatment continues into adjacent compartment. Good regeneration despite lots of evidence of deer browse and deer activity. Aspen and red maple also removed in 1997. Good quality oak. Red maple understory mostly 5-10' tall. Occasional larger oak in understory. Oak seedlings high density in places but less than 3' tall. Occasional canopy gaps. Some aspen regeneration at north end. Steep slope from east to west in parts along with rolling hills. Top of ridge is just west of stand in adjacent compartment. Bottom of slope, next to planted jack pine stand, was left unthinned and contains slightly more red pine in the overstory. Stumps left as road closures have been inadequate and should be reblocked at the north end and midpoint of east side of stand.
39	4131 - Aspen, Oak	High Density Sapling	21.2	27		Clearcut in 1986 with good regeneration since then. Some oaks are just reaching pole size. Rolling hills with significant slope down to pipeline on east end. Contains scattered pockets of conifers, mostly on steeper slopes. Overgrown 2-track runs through middle of stand.
40	4310 - Pine, Oak Mix	High Density Log	14.4	89	51-80	Mixed oak/pine stand with very heavy white pine understory. White pine in understory ranges from 3-30' in height. No advanced oak regeneration. Red pine is very scattered. The part of the stand west of the pipeline has less pine in the canopy but the oak overstory and white pine understory are similar. BA by species: Pt: Oak, Pine 1: 70, 20 2: 30, 30 3: 30, 50

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Traverse City Mgt. Unit

Report 10 – Forested Stands

Compartment: 112  
Year of Entry: 2015



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	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
41	4124 - Red with White Oak	High Density Log	3.9	86	81-110	Mixed oak and aspen stand, with moderate- to good-quality oak. More aspen at west end of stand. Evidence of past fire. Based on number of bedding spots, deer might pose a regeneration concern. East end of stand is a relatively steep hill down to the pipeline. Part of hill would probably not be operable. BA by species: Pt: Oaks, Aspen, RM, WP [total] 1: 60, 30, 0, 0 [90] 2: 50, 10, 20, 0 [80] 3: 50, 20, 0, 10 [80] 4: 120, 50, 0, 0 [170] 5: 10, 110, 20, 0 [140]

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Stand	Cover Type	Acres	Managed Site	Management Priority (Objective)	General Comments:
3	330 - Low-Density Trees	244.9	Planted	Jack Pine	Cut in 2009. Part of stand north of Waterfowl Road was burned in 2011. Whole stand was trenched in 2011 and planted in April 2012 (jack pine at 1,763 TPA). FTP C62-716. Horse trail runs through stand along Waterfowl Road. Significant advanced oak regeneration along western edge of stand. Numerous snags.
7	330 - Low-Density Trees	1.5	No	Unspecified	Former U0 that is filling in with shrubby cherry and red maple. Contains scattered red pine and jack pine.
8	622 - Lowland Shrub	4.2	No	Unspecified	Very wet. Contains unmapped stream channel. A few scattered tamarack trees.
12	622 - Lowland Shrub	2.3	No	Unspecified	Unusual bowl-shaped depression. No visible standing water in winter but looks like it could hold water at certain times of the year. Little woody vegetation other than scattered jack pine saplings and alder and another unknown shrub. Ground is covered with clumps of matted grass/reed/sedge.
14	622 - Lowland Shrub	6.0	No	Unspecified	Mostly dense tag alder with scattered overstory trees. Tamarack is denser in eastern part of stand. Goose Creek runs through stand. Some evidence of beaver dams in aerial photo.
18	3302 - Low Density Conifer Trees	20.8	Planted	Red Pine	Sale 61-023-05-01, Goose Creek Red Pine, completed 4/2007. Planted 2005, FTP C62-717. Planting continues into compartment to the north. ORV trail runs through stand, partially on two-track and then its own trail.
20	6229 - Mixed lowland shrub	7.3	No	Low (NonForested)	Lowland shrub area just north of Goose Creek. Mostly dense alder with a few scattered trees.
22	320 - Upland Shrub	7.0	No	Unspecified	TransCanada natural gas pipeline. Mostly open with scattered trees. Wet at south end near Goose Creek. Dense alder. Horse trail and campground access run through this stand.
26	330 - Low-Density Trees	10.6	No	Unspecified	Flat terrain. Mostly scattered trees except for one clump of jack pine on eastern side. Could be included with adjacent stand when it is planted for kirtland warbler habitat.
27	3302 - Low Density Conifer Trees	7.4	Planted	Jack Pine	Part of plantation from adjacent compartment/unit. Cut in 2003.
30	330 - Low-Density Trees	2.5	No	Unspecified	Unmaintained opening with scattered trees, mostly jack pine and black cherry. Could be included with adjacent stand when it is planted for kirtland warbler habitat.
36	310 - Herbaceous Openland	29.7	No	Unspecified	TransCanada natural gas pipeline. Mostly herbaceous with some scattered trees.



Stand	Cover Type	Acres	Managed Site	Management Priority (Objective)	General Comments:
38	330 - Low-Density Trees	185.1	Planted	Jack Pine	Eagles & Warblers sale, 61-091-08-01. Trenched and planted to jack pine in May 2011. FTP C62-715. Extends into compartments to south and east. Contains numerous snags. Two-part stand split by pipeline.