



# Compartment Review Presentation

## Traverse City Forest Management Unit

Compartment 61144

Entry Year 2017

Acreage: 1,921

County Kalkaska

Management Area: Manistee River Valley

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**Revision Date:** 2015-05-14

**Stand Examiner:** Kelly Standerfer

**Legal Description:**

T25N- R6W; Sections 22, 23, 24

**Identified Planning Goals:**

Vegetation management in the Manistee River Valley management area (MA) will provide timber products; maintain or enhance wildlife habitat; protect areas of unique character including the Manistee River and its tributaries, a designated natural river; threatened, endangered and special concern species; and provide for forest-based recreational uses. Timber management for this 10-year planning period includes continuing aspen management to maintain early successional habitat for hunting and other wildlife-related recreational opportunities; increasing regeneration of oak; focusing on balancing the red pine age class structure through final harvests and re-planting; and on improving red pine quality through partial harvests. Expected trends within this 10-year planning period are increased recreational pressure, especially on the established trails and along the Manistee River and its tributaries; an increased wildland/urban interface and a need to restore barrens communities through prescribed fire; and invasive plant control.

**Soil and topography:**

The compartment is generally flat with some rolling hills. Soils are mainly Roselawn Sand with patches of Rubican and Grayling Sands.

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

No private lands are within this compartment. Small scattering of private around the compartment mainly single family homes and vacation homes. Land use is mainly hunting.

**Unique Natural Features:**

None

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

None known within compartment.

**Special Management Designations or Considerations:**

This compartment was one of three compartments in a 75% cut special deer management project. In these compartments 75% of the ¼ townships were clearcut and put into seedling – sapling size classes.

**Watershed and Fisheries Considerations:**

**Wildlife Habitat Considerations:**

Key wildlife species to manage for include: American bittern, American woodcock, Beaver, Black bear, Eastern massasauga rattlesnake, Golden-winged warbler, Mallard, Pileated woodpecker, Ruffed grouse, Snowshoe hare, White-tailed deer, and Wood duck.

The primary focus of wildlife habitat management in the Manistee River Valley management area will be to address the habitat requirements identified for the listed featured species. Based on the selected featured species, some of the most significant wildlife management issues in the management area are the maintenance of young forest, large open grassland complexes and marsh/grassland complexes; the retention of large, over-mature trees and snags; and the maintenance and expansion of hard mast and mesic conifer components.

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

Sections 22 - 24, T25N–R6W, Kalkaska County

Surface sediments consist of ice-contact and glacial outwash sand and gravel and postglacial alluvium. The glacial drift thickness varies between 400 and 600 feet. Beneath the glacial drift is the Mississippian Michigan Formation. The Michigan is quarried for gypsum elsewhere in the State. A gravel pit is located three miles to the west, but potential is good. Part of Tiger's Garfield Field is in this Compartment. The Field produces from the Ordovician PdC and may have Devonian

Richfield potential. Approximately one-half of the Compartment is currently leased.

**Vehicle Access:**

The compartment is generally well roaded. No new roads or closures needed.

**Survey Needs:**

None needed.

**Recreational Facilities and Opportunities:**

The Kalkaska ORV Route, designed for 72 inch wide ORV's runs North/South along the very Eastern edge of this compartment. Trail protection considerations outlined in DNR Policy & Procedures 32.22XX (Best Management Practices for Forest and Wildlife Management Adjacent to Recreational Trails) should be adhered to. (T.M.N. 12/10/14)

**Fire Protection:**

DNR Protection is provided by the Kalkaska Field Office. Fire Department protection is from the Garfield Twp. Fire Department. This compartment is in Zone 5, and is a heavy pine area. The potential for large fire is great. Access is good here. Urban Interface is not an issue.

**Additional Compartment Information:**

This compartment is leased to the Military (DMA) under the 20 year lease agreement.

**The following reports from the Inventory are attached:**

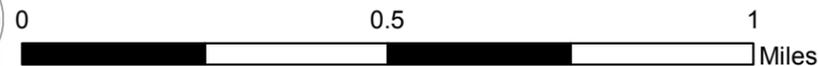
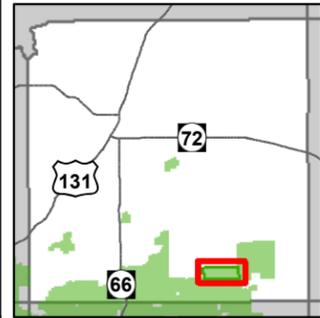
- Total Acres by Cover Type and Age Class**
- Cover Type by Harvest Method**
- Proposed Treatments – No Limiting Factors**
- Proposed Treatments – With Limiting Factors**
- Stand Details (Forested and Nonforested)**
- Dedicated and Proposed Special Conservation Areas**
- Site Condition Details**

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

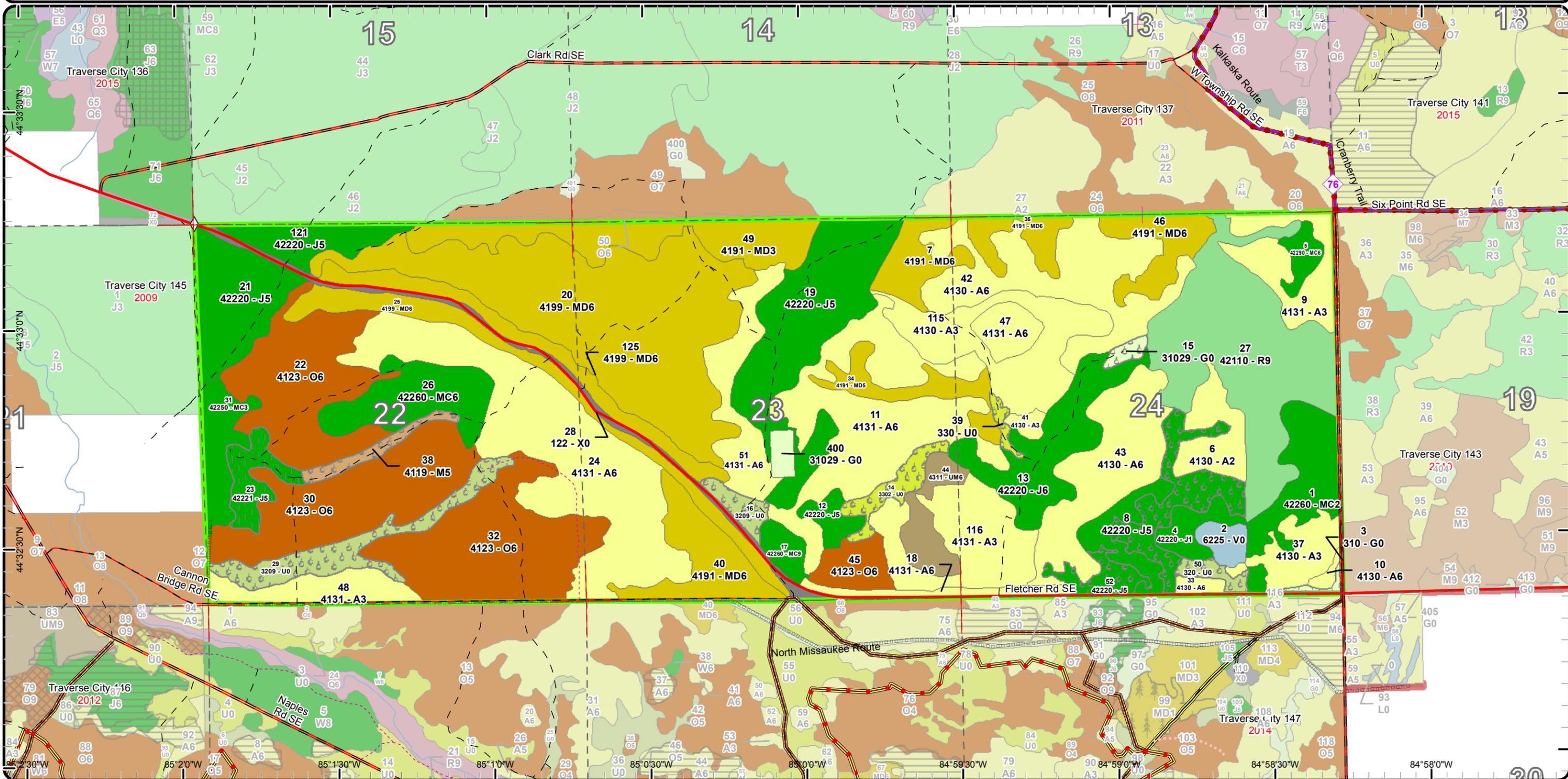
- Base feature information, stand boundaries, cover types, and numbers**
- Proposed treatments**
- Site condition boundaries**
- Details on the road access system**

# Cover Type & Treatments

Compartment: 144  
 T25N R06W 22-24  
 Kalkaska  
 Unit: Traverse City  
 Mgmt Area: Manistee River Valley  
 YOE: 2017  
 Acres: 1921 GIS Calculated  
 Examiner: Kelly Standerfer  
 Map Revised: 6/18/2015  
 Map Phase: Pre-Review

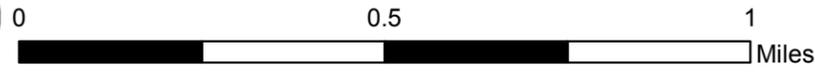
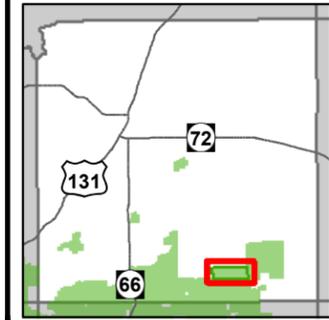


- ✦ Remonumented Section Corners
- ◇ Field Grade GPS Corners
- Miris Corners
- County Paved Roads
- County Gravel Roads
- Gravel Roads
- Poor Dirt Roads
- County Poor Dirt Roads
- Trail (Non-Recreation)
- Closed Roads
- Designated Equestrian Trails
- ORV License & Trail Permit
- ==== Designated ORV Routes
- Snowmobile
- Rivers
- Pipeline
- Treatments
- ▨ Prescribed Burn
- ▨ Opening Maintenance
- Forest Covertype
- 411 - Northern Hardwood
- 412 - Oak Types
- 413 - Aspen
- 419 - Mixed Upland Deciduous
- 421 - Planted Pines
- 422 - Natural Pines
- 430 - Upland Mixed Fores
- Non-Forest Covertype
- 122 - Roads/Parking Lot
- 310 - Herbaceous Openland
- 320 - Upland Shrub
- 330 - Low Density Trees
- 622 - Lowland Shrub

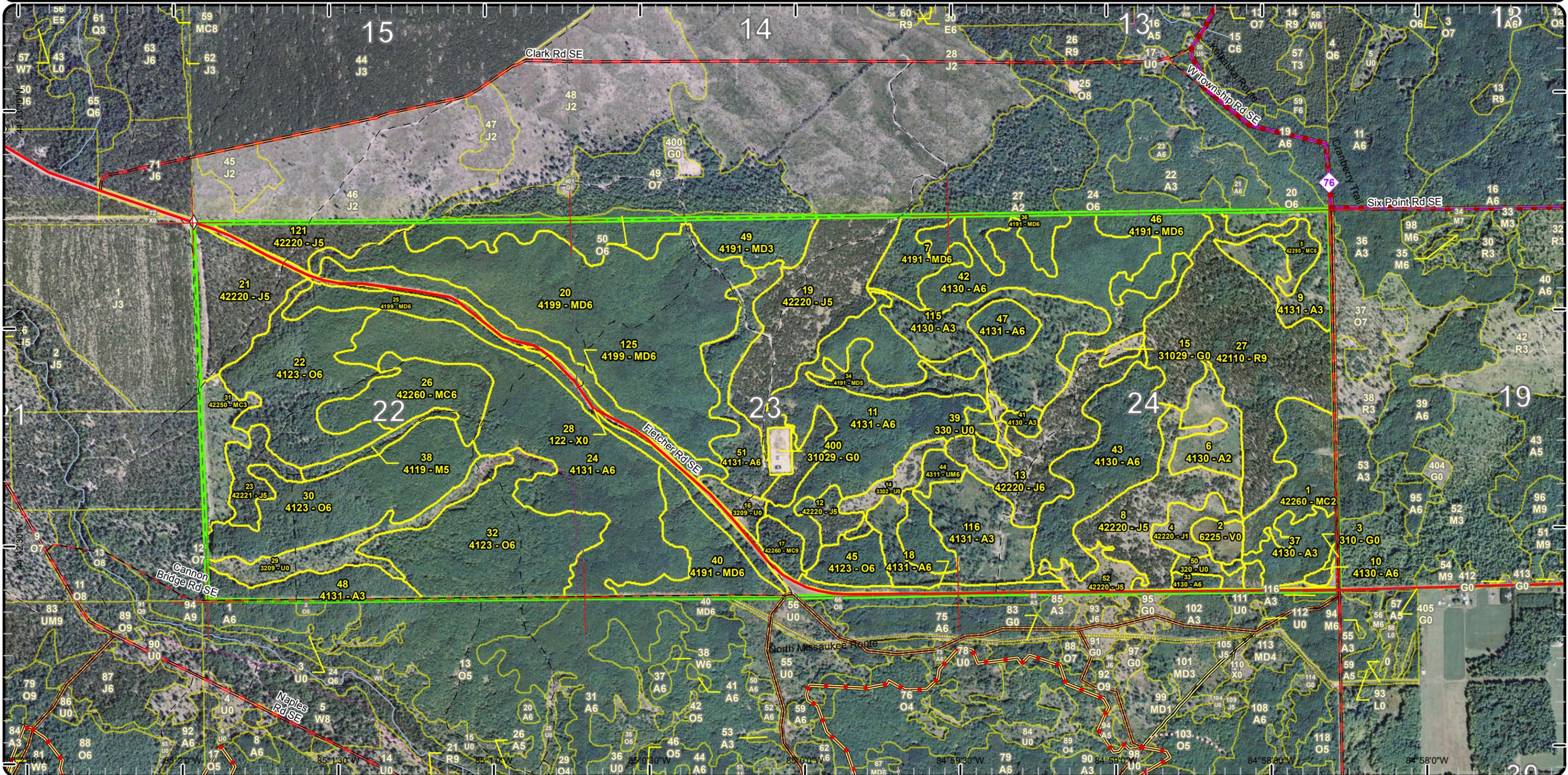


# Stand Boundary Map

Compartment: 144  
 T25N R06W 22-24  
 Kalkaska  
 Unit: Traverse City  
 Mgmt Area: Manistee River Valley  
 YOE: 2017  
 Acres: 1921 GIS Calculated  
 Examiner: Kelly Standerfer  
 Map Revised: 6/15/2015  
 Map Phase: Pre-Review

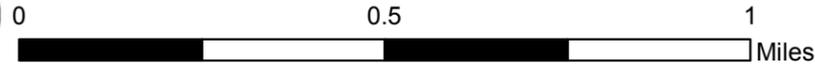
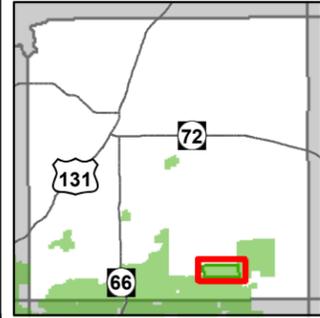


- ✚ Remonumented Section Corners
- ◇ Field Grade GPS Corners
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- County Paved Roads
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  - 421 - Planted Pines
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- Non-Forest Covertypes
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  - 320 - Upland Shrub
  - 330 - Low Density Trees
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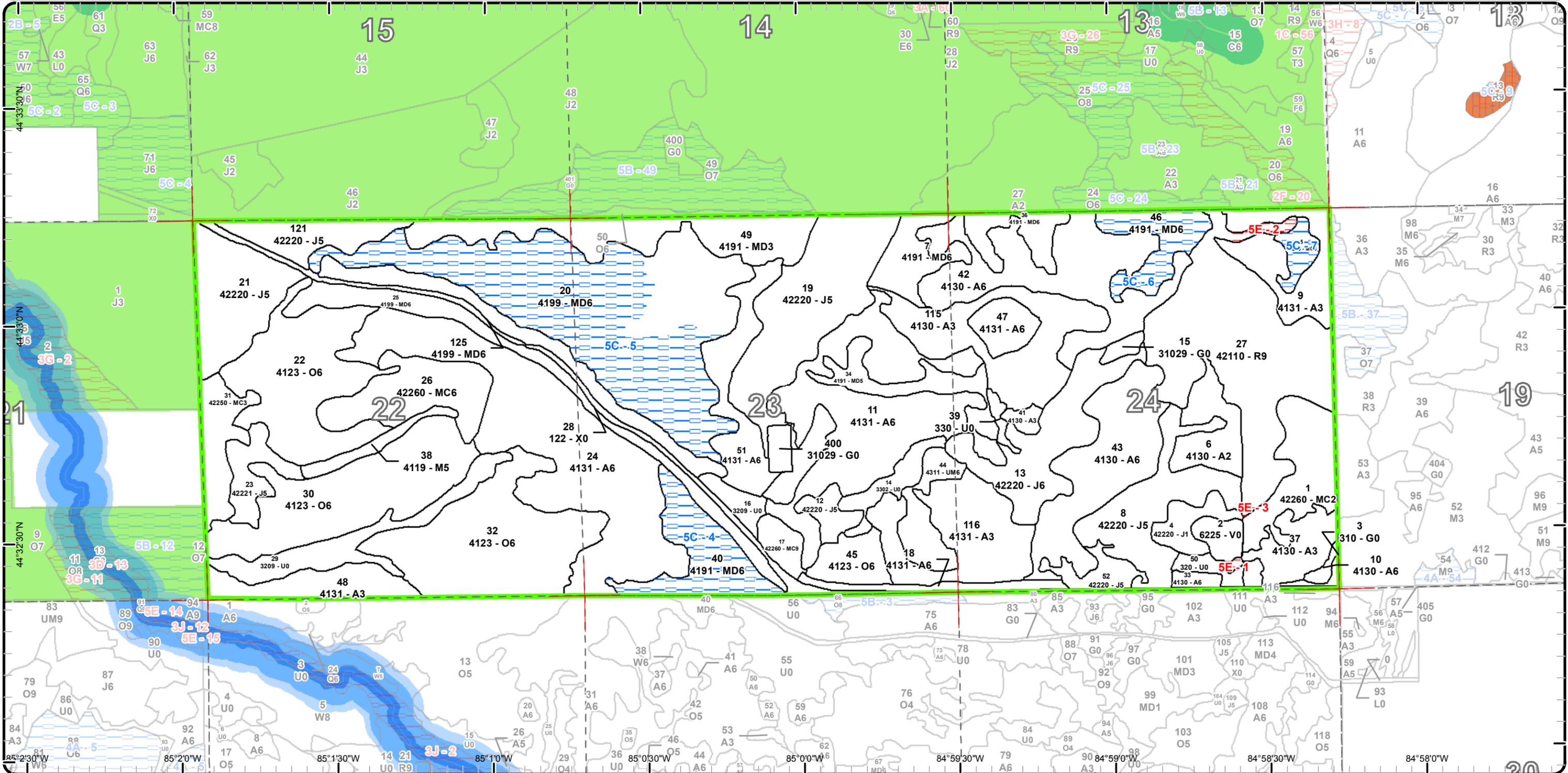


# Special Conservation Areas & Site Conditions Map

Compartment: 144  
 T25N R06W 22-24  
 Kalkaska  
 Unit: Traverse City  
 Mgmt Area: Manistee River Valley  
 YOE: 2017  
 Acres: 1921 GIS Calculated  
 Examiner: Kelly Standerfer  
 Map Revised: 6/15/2015  
 Map Phase: Pre-Review



- Miris Corners
- Stand Boundaries
- Site Condition
- Available w/ Constraints
- Unavailable
- Available Factors W/ Constraints
  - 5C: Delay treatment for age/size class diversity or exceptional site quality
- Unavailable Factors
  - 5E: Long-Term Retention
- Special Conservation Areas
  - Natural Rivers Vegetative Buffer
  - Natural Rivers Zoning District
  - Kirtland Warbler Habitat
  - Cold Water Streams
  - High Priority Trout Stream Buffer
  - Other Habitat Area



Report 1 – Total Acres by Cover Type and Age Class



Age Class

	Non-Forest	0-9	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100-109	110-119	120-129	130-139	140-149	150+	Uneven-Aged	Total
Aspen	0	157	20	0	0	442	0	0	9	0	0	0	0	0	0	0	0	0	628
Bog	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
Herbaceous Openland	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10
Jack Pine	0	12	0	0	16	194	0	65	0	0	0	0	0	0	0	0	0	0	287
Low-Density Trees	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15
Mixed Upland Deciduous	0	0	0	0	0	317	0	22	0	67	0	0	0	0	0	0	0	0	406
Natural Mixed Pines	0	22	36	0	0	46	0	0	0	9	0	0	0	0	0	0	0	0	113
Northern Hardwood	0	0	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	8
Oak	0	0	0	0	0	250	0	0	0	0	0	0	0	0	0	0	0	0	250
Red Pine	0	0	0	0	0	0	0	0	115	0	0	0	0	0	0	0	0	0	115
Upland Mixed Forest	0	0	0	0	0	18	0	0	0	0	0	0	0	0	0	0	0	0	18
Upland Shrub	42	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42
Urban	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24
<b>Total</b>	<b>99</b>	<b>191</b>	<b>56</b>	<b>0</b>	<b>24</b>	<b>1267</b>	<b>0</b>	<b>87</b>	<b>124</b>	<b>76</b>	<b>0</b>	<b>1924</b>							



## Report 2 – Treatment Summary

Traverse City Mgt. Unit  
Year of Entry: 2017

Acres of Harvest

Compartment 144  
Total Compartment Acres: 1,921

Commercial Harvest - 0  
Harvests with Site Condition - 0  
Next Step Harvest - 0  
Habitat Cut - 0

### Cover Type by Harvest Method

	Clearcut	Selection	Patch Clearcut	Seed Tree	Shelterwood	Thinning	Overstory Removal	Salvage	Other	Total Acres
Aspen	132	0	0	0	0	0	0	0	0	132
Jack Pine	65	0	0	0	0	0	0	0	0	65
Mixed Upland Deciduous	38	0	0	62	0	0	0	0	0	100
Red Pine	112	0	0	0	0	0	0	0	0	112
<b>Total</b>	<b>347</b>	<b>0</b>	<b>0</b>	<b>62</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>409</b>

### Proposed and Next Step Treatments by Harvest Method

	Harvest	Site Prep	Planting	Seeding	Burning	Pesticide	Monitoring	Other	Non-Forest Mgt.	Total Acres
Current	409	0	0	0	0	0	0	0	0	409
Next Step	0	288	176	0	0	112	232	0	0	808
<b>Total</b>	<b>409</b>	<b>288</b>	<b>176</b>	<b>0</b>	<b>0</b>	<b>112</b>	<b>232</b>	<b>0</b>	<b>0</b>	<b>1217</b>



S t a n d	Treatment Name	Acres	Stand CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Age Structure	Approval Status
11	61144011-Cut	24.6	4131 - Aspen, Oak	Poletimber Well	41	81-110	Harvest	Clearcut	413 - Aspen	Even-Aged	Draft Proposal

**Habitat Cut: No**

**Site Condition:**

Prescription final harvest now for age class diversity. OK to save some oak and pine but don't save it all. don't leave much so stem density is maximized.  
Specs:

Next Step  
Treatments:

Acceptable any mix of aspen, maple, oak and pine is acceptable. expect this area to fully regenerate without any problems.  
Regen:

Other Old next step comments:  
Comment:

Proposed Start Date: 10/1 /2016

18	61144018-Cut	8.0	4131 - Aspen, Oak	Poletimber Well	77	81-110	Harvest	Clearcut with Retention	4121 - Oak, Aspen	Even-Aged	Draft Proposal
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**Habitat Cut: No**

**Site Condition:**

Prescription final harvest but green tree some oak and pine for retention, seed and structural diversity. Aspen areas are OK to totally clear cut and oak areas  
Specs: will have ~0-30 BA.

Next Step  
Treatments:

Acceptable any mix of oak, maple, aspen or pine is OK post harvest. Aspen areas should regenerate very nicely, oak/maple areas will likely result in nice  
Regen: stump sprouting. if oak areas fail alternate MO would be to interplant with red pine. I expect excellent natural regen.

Other Old next step comments:  
Comment:

Proposed Start Date: 10/1 /2016

20	61144020-Cut	38.4	4199 - Other Mixed Upland Deciduous	Poletimber Well	41	111-140	Harvest	Clearcut	413 - Aspen	Even-Aged	Draft Proposal
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**Habitat Cut: No**

**Site Condition:**

Prescription cut approximately 25% of the stand for age class diversity in this area. NE end is the nicest aspen so focus the harvest in this area. rest will  
Specs: easily hold 10-20 as the bulk of it is bigtooth. Don't save all oak... ok to save some oak and pine via green tree marking but remove the bulk o fit to increase stem density of the aspen covertype.

Next Step  
Treatments:

Acceptable any mix od aspen, oak, maple or pine would be acceptable, expect this area to fully regenerate to aspen.  
Regen:

Other Old next step comments:  
Comment:

Proposed Start Date: 10/1 /2016

21	61144021-Cut	43.2	42220 - Natural Jack Pine	Poletimber Medium	65	51-80	Harvest	Clearcut	4211 - Planted Red Pine	Even-Aged	Draft Proposal
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**Habitat Cut: No**

**Site Condition:**

Prescription Heavy Jack pine area. This area will grow red pine and doesn't fit well into the KW Habitat plan so final harvest and trench and replant to red  
Specs: pine. 2" spec all species. NO RETENTION of jack pine as this will present a jack pine bud worm forest health issue and there are hundreds of acres of jack pine directly adjacent. OK to leave some of the larger oak on the edges of stand for acorn production but minimize scattered trees throughout sale incase the site needs to be sprayed via helicopter. site may need to be roller chopped or sprayed to control vegetation prior to tree planting or released after planting. Chip spec this sale to hopefully minimize jack pine recruitment as well as making the site prep easier.

Next Step SitePrep, Roller Chopping; Planting, Initial Plant  
Treatments:

Acceptable planted red pine with a little oak, jack pine,  
Regen:

Other Old next step comments:  
Comment:

Proposed Start Date: 10/1 /2016



S t a n d	Treatment Name	Acres	Stand CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Age Structure	Approval Status
24	61144024-Cut	60.0	4131 - Aspen, Oak	Poletimber Well	41	111-140	Harvest	Clearcut	413 - Aspen	Even-Aged	Draft Proposal

**Habitat Cut: No**

**Site Condition:**

Prescription Treat 1/4-1/2 of the stand this YOE for age class diversity. cut SE end as this is the larger diameter and nicer stuff. DONT save all oak. ok to  
Specs: save some but not all! OK to save some or all pine, don't leave enough overstory to hinder thick stem density regen.

Next Step  
Treatments:

Acceptable any mix of aspen, maple oak and pine. should regenerate phenomenally.  
Regen:

Other Old next step comments:  
Comment:

Proposed Start Date: 10/1 /2016

25	61144025-Cut	33.9	4199 - Other Mixed Upland Deciduous	Poletimber Well	85	111-140	Harvest	Seed Tree with Retention	412 - Oak Types	Even-Aged	Draft Proposal
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**Habitat Cut: No**

**Site Condition:**

Prescription Final harvest/seed tree the bulk of the stand. Green tree leave some nicer oak and pine. solid oak areas can be left a bit thicker but maple &  
Specs: aspen areas should be more of a final harvest. Power line along road :-/ both this stand and the stand to the north slope down to Fletcher road so will be tricky but looks to be doable. May need to paint out some steeper stuff the slopes directly to the road

Next Step  
Treatments:

Acceptable any mix of oak, maple. pine and aspen. Adjacent clear cuts had very good species diversity and im hoping for the same from this. Aspen clone  
Regen: areas will likely fill in nicely with aspen and the rest should fill in

Other Old next step comments:  
Comment:

Proposed Start Date: 10/1 /2016

27	61144027-Cut	111.6	42110 - Planted Red Pine	Sawtimber Well	77	51-80	Harvest	Clearcut with Retention	4211 - Planted Red Pine	Even-Aged	Draft Proposal
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**Habitat Cut: No**

**Site Condition:**

Prescription Final harvest, roller chop or herbicide if needed, trench and replant to red pine. Excellent red pine ground with a manageable amount of  
Specs: understory of oak and maple. Keep this stand to red pine. keep stumps low and may want to force the chip harvest of tops to minimize site prep complications. OK to leave limbs on site but tops must be chipped for site prep, so say material 2" and larger must be chipped via the timber sale to minimize site prep expense

Next Step SitePrep, Roller Chopping; Pesticide, Aerial; SitePrep, Trenching; Planting, Initial Plant  
Treatments:

Acceptable red pine with some acceptable oak, maple and aspen but hoping to get atleast 80% of the site back to red pine.  
Regen:

Other Old next step comments:  
Comment:

Proposed Start Date: 10/1 /2016

33	61144033-Cut	3.4	4130 - Aspen	Poletimber Well	41	81-110	Harvest	Clearcut with Retention	413 - Aspen	Even-Aged	Draft Proposal
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**Habitat Cut: No**

**Site Condition:**

Prescription save the few red pine and white pine that are present. final harvest but save red and white pine. ok to paint out a sliver along VO @ north end of  
Specs: NE finger. Retention will be the NE sliver along the VO.

Next Step  
Treatments:

Acceptable expect very good aspen regen but any mix of aspen, oak, maple and conifer is acceptable.  
Regen:

Other Old next step comments:  
Comment:

Proposed Start Date: 10/1 /2016



S t a n d	Treatment Name	Acres	Stand CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Age Structure	Approval Status
43	61144043-Cut	35.7	4130 - Aspen	Poletimber Well	41	111-140	Harvest	Clearcut	413 - Aspen	Even-Aged	Draft Proposal

**Habitat Cut: No**

**Site Condition:**

Prescription DONT save all oak to maximize stem density. ok to leave some. North end has red pine and white pine mixed in. south end has jack pine mixed  
Specs: in. Ok to save some or all red and white pine but cut all jack. Possibly cut south 1/3, leave middle 1/3 and cut the north 1/3. save brush piles and/or drumming log cull pieces and snags via timber sale for drumming material and structural diversity.

Next Step  
Treatments:

Acceptable Regen: expect mainly aspen regen but any mix of aspen, oak, maple and conifer is acceptable. don't expect regen to be an issue at all.

Other Comment: Old next step comments:

Proposed Start Date: 10/1 /2016

121	61144121-Cut	21.6	42220 - Natural Jack Pine	Poletimber Medium	65	81-110	Harvest	Clearcut	4211 - Planted Red Pine	Even-Aged	Draft Proposal
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**Habitat Cut: No**

**Site Condition:**

Prescription Chip harvest. plant back to red pine. Final harvest 2" and up. OK to save some oak @ NE end for retention but save no jack pine to minimize bud  
Specs: worm potential. retention may be less than the 3% due to forest health concerns posed by leaving old jack pine. Its not worth the risk to the surrounding acres of young jack pine. site may need to be roller chopped or have a herbicide treatment to increase seedling survival and growth. trench and plant.

Next Step SitePrep, Roller Chopping; Planting, Initial Plant  
Treatments:

Acceptable Regen: red pine mixed with a little oak, maple and aspen is ok.

Other Comment: Old next step comments:

Proposed Start Date: 10/1 /2016

125	61144125-Cut	28.1	4199 - Other Mixed Upland Deciduous	Poletimber Well	85	111-140	Harvest	Seed Tree with Retention	412 - Oak Types	Even-Aged	Draft Proposal
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**Habitat Cut: No**

**Site Condition:**

Prescription Final harvest/seed tree the bulk of the stand. Green tree leave some nicer oak and pine. solid oak areas can be left a bit thicker but maple &  
Specs: aspen areas should be more of a final harvest. Power line along road :-/ both this stand and the stand to the north slope down to Fletcher road so will be tricky but looks to be doable. May need to paint out some steeper stuff the slopes directly to the road

Next Step  
Treatments:

Acceptable Regen: any mix of oak, maple. pine and aspen. Adjacent clear cuts had very good species diversity and im hoping for the same from this. Aspen clone areas will likely fill in nicely with aspen and the rest should fill in nicely with a mix of, oak, maple and pine.

Other Comment: Old next step comments:

Proposed Start Date: 10/1 /2016

**Total Treatment Acreage Proposed: 408.6**

## Report 5 – Site Conditions

Traverse City Mgt. Unit  
 Kelly Standerfer : Examiner

Compartment: 144  
 Year of Entry: 2017

### Dominant Site Conditions

5E	
Aspen	1
Bog	
Herbaceous Openland	
Jack Pine	
Low-Density Trees	
Mixed Upland Deciduous	
Natural Mixed Pines	
Northern Hardwood	
Oak	
Red Pine	4
Upland Mixed Forest	
Upland Shrub	
Urban	
Total Forested Acres	5
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
1	Unavailable	5E: Long-Term Retention	1	Unspecified	Unspecified	Unspecified	Unspecified
<b>Comments:</b>							
2	Unavailable	5E: Long-Term Retention	3	Unspecified	Unspecified	Unspecified	Unspecified
<b>Comments:</b>							
3	Unavailable	5E: Long-Term Retention	1	Unspecified	Unspecified	Unspecified	Unspecified
<b>Comments:</b>							

## Report 5 – Site Conditions

Traverse City Mgt. Unit  
Kelly Standerfer : Examiner

Compartment: 144  
Year of Entry: 2017

4	Available	5C: Delay treatment for age/size class diversity or exceptional site quality	36	Unspecified	Unspecified	Unspecified	Unspecified
<b>Comments:</b>							
5	Available	5C: Delay treatment for age/size class diversity or exceptional site quality	138	Unspecified	Unspecified	Unspecified	Unspecified
<b>Comments:</b> only 41 yrs old... typed out as a MD6 instead of an A6 this round so it meets silv criteria. treating a portion of the stand, hold this for 10-20							
6	Available	5C: Delay treatment for age/size class diversity or exceptional site quality	22	Unspecified	Unspecified	Unspecified	Unspecified
<b>Comments:</b>							
7	Available	5C: Delay treatment for age/size class diversity or exceptional site quality	8	Unspecified	Unspecified	Unspecified	Unspecified
<b>Comments:</b>							

Mgt. Unit

Compartment: #Type!

Year of Entry:



## 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
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Comments

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**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 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	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.



Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
1	42260 - Natural Pine, Mixed Deciduous	Sapling Medium	35.9	17	Immature	Stand is totally filled in, some looks like it was planted with red pine but the bulk of the stand has gone to jack pine and aspen.  OPIC - FMD: SOME SCATTERED RED PINE IN STAND, LEAVE FOR VISUAL. REPLANT TO RED PINE. Sale #82-97. Will plant part of this stand to red pine. Other areas will leave because of heavy aspen production. 2005 comments - J2 R1 A1 O1, stand has planted rp and natural jp, aspen, and oak - this is a good mixed stand
4	42220 - Natural Jack Pine	Sapling Poor	11.6	6	Immature	Filling in with Jack pine pretty good but still mainly rolling and open. looks good  OPIC - FMD: 2010 dah comments: Scattered Pine Sale #063-07. Cut stand size was 9 acres. 3 acres of retention was left. Stand showing pockets of die-off. Possible to include this stand, after harvested, to be burned along with stand # 8
5	42290 - Natural Mixed Pine	Poletimber Well	7.7	41	111-140	Mixed conifer stand, some is pretty small yet but most is pole sized, not very good quality.  OPIC - FMD: MIXED STAND OF RED, JACK & WHITE PINE.
6	4130 - Aspen	Sapling Medium	21.8	3	Immature	Filling in nicely...  OPIC - FMD: 2013 - Cut in the summer of 2012. Tremendouse aspen regeneration. Sale #045-11. 2010 - Hagan - For better age class distribution and more acres for the 2010 YOE, it has been decided to cut this stand a little early. Clearcut with retention. Do not cut oak. 2005 - Stand just converting over from A3.
7	4191 - Mixed Upland Deciduous with Conifer	Poletimber Well	19.2	41	51-80	more open area that was separated out of the aspen to the east, this has more oak, pine and maple mixed in and some open areas.
8	42220 - Natural Jack Pine	Poletimber Medium	45.7	45	1-50	OPIC - FMD: SCATTERED JACK PINE & ASPEN WITHIN U TYPE
9	4131 - Aspen, Oak	Sapling Well	31.0	3	Immature	All oak saved, looks like it will be thick enough to hinder aspen stem density in some areas :-(  OPIC - FMD: 2013 - Tremendous aspen regeneration. Sale #045-11. 2010 - Hagan - For better age class distribution and more acres for the 2010 YOE, it has been decided to cut this stand a little early. Clearcut with retention. Do not cut oak.
10	4130 - Aspen	Poletimber Well	2.4	41	51-80	small aspen stand.
11	4131 - Aspen, Oak	Poletimber Well	96.7	41	81-110	some areas of nice A6 (7-8") but most is pretty small yet. Some more oaky areas as well. stand should hold good 10 yrs. if some acres are needed could cut some of the east end
12	42220 - Natural Jack Pine	Poletimber Medium	8.5	41	1-50	OPIC - FMD: scattered ,A2



	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
13	42220 - Natural Jack Pine	Poletimber Well	46.6	41	51-80	OPIC - FMD: Old FIRE AREA
17	42260 - Natural Pine, Mixed Deciduous	Sawtimber Well	8.5	87	81-110	Thinned last YO. some pretty thick yet. nice mature stand in an overall young compartment. look to thin again in 10 yrs or so.  OPIC - FMD: 2010 dah comments: Scattered Pine Sale #063-07. Selection needed to encourage pine regen. Leave mature look of stand for visual mgt along Fletcher Rd.
18	4131 - Aspen, Oak	Poletimber Well	9.3	77	81-110	Stand left as buffer along Fletcher when they did the larger cut back in the day. stand is mature to over mature in areas. some more oakey and some more aspen. Final harvest but green tree some oak to save and save some or all pine for species diversity. Aspen areas leave nothing oak areas leave 0-30 BA. Lave a little thicker around the camping spot at east end.
19	42220 - Natural Jack Pine	Poletimber Medium	82.1	41	1-50	some 2-3 sticks but a lot is still one stick or smaller. variable stand. should hold OK 10 years. OPIC - FMD: OI Stand Year Origin was 1974
20	4199 - Other Mixed Upland Deciduous	Poletimber Well	175.9	41	111-140	NE end has some nice aspen clones that are ready to go. some areas more oakey maple (O6/M6 and some more A6) west end has some jack pine mixed in as well.  OPIC - FMD: Stand has scattered aspen and oak poles 4-6 inches 1-2 sticks throughout - entire stand nearing A6,O4
21	42220 - Natural Jack Pine	Poletimber Medium	43.2	65	51-80	variable stand. some has quite a bit of oak understory. some is pretty open understory
22	4123 - Red Oak	Poletimber Well	72.2	41	51-80	This area more oak/maple mix with scattered aspen clones and scattered aspen. should hold good 10-20 and will be able to break the stand up then. will try to break up the surrounding aspen types as there are some large stands that resulted from the large "Township cuts. Stand lines are very fuzzy :-/.  OPIC - FMD: Stand has scattered merchantable aspen and oak - 4-6 inches with 1-2 sticks. This stand is converting to a A6-O4, next entry yr stand should be available to break up for age class diversity harvest.
23	42221 - Natural Jack Pine, Mixed Deciduous	Poletimber Medium	16.1	35	Unspecified	pretty sparse open grown jack mixed with cherry, oak and maple. look at in 10-20 for treatment. nice conifer cover area for birds but not the greatest quality trees.
24	4131 - Aspen, Oak	Poletimber Well	133.1	41	111-140	Some more M5/O5/O6 ish and some more A5/A6. mixed stand. nicer aspen seems to be eastern half of stand.  OPIC - FMD: Stand has scattered merchantable aspen and oak - 4-6 inches with 1-2 sticks. This stand is converting to a A6-O4, next entry yr stand should be available to break up for age class diversity harvest.



	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
25	4199 - Other Mixed Upland Deciduous	Poletimber Well	36.1	85	111-140	Stand left back in the day when the larger township cuts were being done. stand slopes down to fletcher road but most looks to be manageable. OPIC - FMD: BUFFER ALONG FLETCHER. Because of terrain all sloping down to the rd. this stand poses a problem when scheduled for a treatment. Traffic, access and visibility will make this stand difficult to harvest. May want to leave this buffer strip.
26	42260 - Natural Pine, Mixed Deciduous	Poletimber Well	38.7	46	81-110	Some thicker areas and some not to thick. Stand edge is very fuzzy...overall stand should hold good 10-20 yrs. red pine is decent quality, white pine is rougher shape. if thinned now smaller stuff would be barely be merchantable. Hold 10-20.  OPIC - FMD: Scattered red and white pine with pockets of aspen- oak
27	42110 - Planted Red Pine	Sawtimber Well	115.4	77	51-80	Nice red pine, some areas have a decent amount of oak regen. Keep this area in red pine, grows very nice red pine and marginal oak. OPIC - FMD: 2010 dah comments: Scattered Pine Sale #063-07. 2005 - stands shows signs of natural rp regen - selection needed to open up stand. MAY WANT TO THIN RED PINE IN AREAS ALSO. Sale #82-97.
30	4123 - Red Oak	Poletimber Well	77.2	41	51-80	This area more oak/maple mix with scattered aspen clones and scattered aspen. should hold good 10-20 and will be able to break the stand up then. will try to break up the surrounding aspen types as there are some large stands that resulted from the large "Township cuts. Stand lines are very fuzzy :- /. OPIC - FMD: Stand has scattered merchantable aspen and oak - 4-6 inches with 1-2 sticks. This stand is converting to a A6-O4, next entry yr stand should be available to break up for age class diversity harvest.
31	42250 - Pine, Oak	Sapling Well	21.7	6	Immature	Stand has regenerated very nicely. Scatted red and white oak left during harvest. Some areas J3 and some O3. Not enough residual oak left to worry about in the future, manage for understory. OPIC - FMD: 2010 dah comments: Scattered Pine Sale #063-07. Understory J1 O1. Leave scattered Oaks
32	4123 - Red Oak	Poletimber Well	85.3	41	81-110	mostly oak but has a mix of maple and aspen mixed throughout. nice species diversity. still pretty small diameters and heights yet. look at in 10-20 yrs for treatment
33	4130 - Aspen	Poletimber Well	4.3	41	81-110	solid aspen for the most part.
34	4191 - Mixed Upland Deciduous with Conifer	Poletimber Medium	20.8	41	1-50	mostly open but some filling in pretty good. ok to keep open if wildlife so chooses, could do it commercially.
36	4191 - Mixed Upland Deciduous with Conifer	Poletimber Well	14.8	41	51-80	Quite a bit of pine mixed throughout. mostly oakey and maple mix but some aspen areas as well. will hold good 10-20.  OPIC - FMD: stand just converted from A3
37	4130 - Aspen	Sapling Well	19.7	17	Immature	OPIC - FMD: Stand was part of a jp-rp final harvest and regenerated to aspen with scattered jp



	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
38	4119 - Mixed Northern Hardwoods	Poletimber Medium	8.0	35	1-50	typed as a U type last time. Some thicker and some less dense mixed deciduous and conifer. If wildlife wants to keep as a long lineal opening it would probably work out nice.
40	4191 - Mixed Upland Deciduous with Conifer	Poletimber Well	35.6	41	111-140	OPIC - FMD: Stand has scattered merchantable aspen and oak - 4-6 inches with 1-2 sticks. This stand is converting to a A6-O4, next entry yr stand should be available to break up for age class diversity harvest.
41	4130 - Aspen	Sapling Well	3.5	41	81-110	stand left out of sale to the north.
42	4130 - Aspen	Poletimber Well	73.8	41	111-140	Part of stand cut early last YOE for age class diversity. OK to cut ~1/2 this YOE for age class diversity if needed. stand will hold fine 10-20 yrs. Hold for now.  OPIC - FMD: stand just converted from A3
43	4130 - Aspen	Poletimber Well	59.1	41	111-140	Nice Aspen for the most part. Larger diameter than most in this compartment. look to treat 1/2-2/3 this YOE for good age class diversity in aspen type.
44	4311 - Pine, Aspen Mix	Poletimber Well	17.9	41	81-110	some pretty thick with white pine, oak and maple but overall most looks to be aspen. look at treating in 10. North end more solid aspen, south 2/3 more the mixed type.
45	4123 - Red Oak	Poletimber Well	14.8	41	1-50	Nice mixed stand which resulted from the large township cut back in the day. Will hold very nicely, look at treating in 10-20 yrs
46	4191 - Mixed Upland Deciduous with Conifer	Poletimber Well	22.1	65	111-140	nice pole sized oak stand mixed with some larger red pine. should hold good 10-20 as needed for habitat and age class diversity in the MA.
47	4131 - Aspen, Oak	Poletimber Well	12.5	41	111-140	
48	4131 - Aspen, Oak	Sapling Well	24.4	41	111-140	OPIC - FMD: Stand has scattered merchantable aspen and oak - 4-6 inches with 1-2 sticks. This stand is converting to a A6-O4, next entry yr stand should be available to break up for age class diversity harvest.
49	4191 - Mixed Upland Deciduous with Conifer	Sapling Well	50.9	41	1-50	North facing slope, smaller stuff than some of the other areas in this age class. look at in 10-20 yrs  OPIC - FMD: Stand has scattered aspen and oak poles 4-6 inches 1-2 sticks throughout - entire stand nearing A6,O4
51	4131 - Aspen, Oak	Poletimber Well	32.0	41	51-80	More open stand some Go some U type and some A5/A6/O5  OPIC - FMD: Stand has scattered aspen and oak poles 4-6 inches 1-2 sticks throughout - entire stand nearing A6,O4
52	42220 - Natural Jack Pine	Poletimber Medium	10.2	45	1-50	OPIC - FMD: SCATTERED JACK PINE & ASPEN WITHIN U TYPE



	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
115	4130 - Aspen	Sapling Well	53.2	4	Immature	<p>All oak left when cut. some aspen regen will likely be hindered by oak in the thicker areas. north narrow finger pushing hard to red maple as side shade and scattered oak are effecting the aspen regen.</p> <p>OPIC - FMD: 2013 - Tremendous aspen reproduction. Sale # 045-11. 2010 - Hagan - Stand originally was stand 15, 455 acres. For better age class distribution and more acres for the 2010 YOY, it was decided to cut 2, 50 acre chunks from this stand - 100 acres. Do not cut oak. Also leave scattered dense pockets of mixed oak, red maple and aspen to meet retention requirements. 2005 - Johnson - Stand just converted from A3.</p>
116	4131 - Aspen, Oak	Sapling Well	50.4	3	Immature	<p>All oak left... pretty thick in some areas. overall A3 but some is more O5 over A3... stems per acre will likely be hindered in some areas due to leaving all the oak. oak looks to be pretty nice quality and should make it till the next rotation of aspen.</p> <p>OPIC - FMD: 2013 - Tremendous aspen reproduction. Sale #045-11. 2010 - Hagan - Stand originally was stand 15, 455 acres. For better age class distribution and more acres for the 2010 YOY, it was decided to cut 2, 50 acre chunks from this stand - 100 acres. Do not cut oak. Also leave scattered dense pockets of mixed oak, red maple and aspen to meet retention requirements. 2005 - Johnson - Stand just converted from A3.</p>
121	42220 - Natural Jack Pine	Poletimber Medium	21.6	65	81-110	<p>Some J3-J5 and some nicer J6. Area surrounded by large jack pine KW management blocks. This stand as well as the stand across the road will be managed for red pine to offset some of the loss of red pine in this MA and the immediately surrounding landscape.</p>
125	4199 - Other Mixed Upland Deciduous	Poletimber Well	30.5	85	111-140	<p>Stand left back in the day when the larger township cuts were done. stand slopes down to fletcher road but most looks to be manageable. save some of the big wolfy oak at east end at bottom of hill and green trees throughout for approximately 3-10% retention, seed and structural diversity.</p>



Stand	Cover Type	Acres	Managed Site	General Comments:
2	6225 - Bog	7.7	No	OPIC - FMD: OI Stand Year Origin was
3	310 - Herbaceous Openland	2.1	No	grassy opening and some is the county road.
14	3302 - Low Density Conifer Trees	11.6	Yes	OPIC - FMD: Stand 14 – 2005 SGG: Hand fell encroaching pine to maintain semi-open habitat. OI Stand Year Origin was 1977
15	31029 - Grass (OI)	3.3	Yes	OPIC - FMD: Stand 400 – 2005 SGG: Burn to promote existing little bluestem and other native herbaceous vegetation. OI Stand Year Origin was will this work???
16	3209 - Upland Shrub (OI)	7.4	No	Scattered black cherry w.pine- juneberry, oak and red maple.
28	122 - Road/Parking Lot	24.4	No	OPIC - FMD: Fletcher Rd.
29	3209 - Upland Shrub (OI)	29.3	No	Scattered mainly cherry with some pine, oak and maple. could keep as opening if wildlife so chooses. OPIC - FMD: scattered black cherry, aspen and white pine
39	330 - Low-Density Trees	2.9	No	Mostly open, scattered jack OPIC - FMD: Old FIRE AREA
50	320 - Upland Shrub	5.4	No	scattered cherry brush for the most part, few trees here and there
400	31029 - Grass (OI)	4.8	No	large well pad, knapweed and dirt