



Compartment Review Presentation

Grayling Forest Management Unit

Compartment 72173

Entry Year 2019

Acreage: 1,401

County Crawford

Management Area: Grayling Ice Contact

Revision Date: 2017-09-05

Stand Examiner: Thomas Barnes

Legal Description:

T28NR4W Sections 28, 29,30 North Frederic Township

Identified Planning Goals:

To maintain species diversity while also addressing sustainability, forest health, productivity, wildlife requirements, aesthetics, best management practices and recreational opportunities throughout the compartment.

Soil and topography:

Topography within this compartment varies from level in the western portions to rolling with some localized areas of steeper terrain present in the east. In terms of land forms present, this compartment consists mainly of upland flats, knolls, small hills and moraine rides dominated by oak, red pine, white pine, aspen and northern hardwoods. There are no lowland areas within the compartment, however directly to the west a spruce/fir/cedar complex dominates the Manistee River corridor. The major soil complex present within this compartment is Rubicon-Kalkaska-Blue Lake Association. This association is found primarily on Broad upland flats, knolls, hills, dissected ridges and side slopes of ridges. Slope ranges from 0-50%. This soil complex is consistently excessively drained with Blue Lake soils considered well drained. The majority of Blue Lake sands within this compartment lie in Section 28. Major management concerns within this soil type association include equipment limitation, seedling mortality and possibility of erosion on steeper slopes.

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

This compartment lies at the southern edge of the Deward Management Area. Because of the many recreational trails that traverse these sections and the compartment's close proximity to the Manistee River, this area is used heavily for recreation of many kinds. Development is minimal in the area because of the high concentration of state ownership in and around the compartment. Surrounding private lands include much of the Manistee River corridor, along with larger parcels to the north and east. Land was added to this compartment after the purchase of the Croft property, in 2003, west of the Manistee River in Section 30. Survey information including set corners and survey records for this compartment is abundant and up to date.

Unique Natural Features:

This compartment is in close proximity to the Manistee River. The Manistee is a State Natural River and a National Wild and Scenic River with many recreational opportunities to be found along its banks and the adjacent forests. Secretive Locust and Massasauga Rattlesnake have been observed in section 30. MNFI have identified the potential for the following sensitive species to occur in the compartment: Hill's pondweed, goshawk, red-shouldered hawk, dusted skipper, loon, and Kirtland's Warbler.

Archeological, Historical, and Cultural Features:

An old borrow pit is present in the NW corner of Section 29.

Special Management Designations or Considerations:

Watershed and Fisheries Considerations:

The Manistee River is located on the far west end of the compartment, traversing private lands. It is a designated Natural River and is also classified as a National Wild and Scenic River. Aside from this, there are no water bodies within this compartment.

Wildlife Habitat Considerations:

This compartment contains a great deal of mast producing oak along with regenerating stands of oak, aspen and northern hardwoods. Numerous species of wildlife, including deer and turkey, use this area and the above mentioned resources heavily as habitat. Fox, coyote, bald eagle, barred owl and red-shouldered hawk were observed while conducting field work in the area. For the above mentioned reasons, all obvious hollow snags and den trees should be reserved when any

management activities take place in the compartment.

Mineral Resource and Development Concerns and/or Restrictions

Sand/gravel pits are not located in the area, but sand and gravel potential is very good on the upland areas in the compartment. Nearly all state mineral interests within the compartment are currently leased and held by production. Only the western edge of the compartment has been developed for Antrim Shale gas to date. There is good potential for additional Antrim Shale gas development in the compartment. Active Guelph (Niagaran) reef production is occurring to the north. The compartment is likely too far south for Niagaran reef potential. There is no metallic mineral potential in this part of the state.

Vehicle Access:

Access to this compartment is from Cameron Bridge Road (E/W) to the north and Manistee River road (N/S) to the west, both of which are county maintained roads. A multitude of 2-tracks traverses the three sections of this compartment as well. Some of these 2-tracks are seasonal roads and are impassable much of the winter.

Survey Needs:

The interface between public and privately owned land within this compartment is clearly marked and identified. The main portions of private land lie in within sections 28 and 30. In section 28, the northern $\frac{1}{2}$ of the section is private and this boundary is clearly marked with $\frac{1}{4}$ corners placed the entire length of the E/W line. There is also a corner at Cameron Bridge Rd. marking the NW section corner. In section 28 there are 2 corners placed along the boundary of private/public land, however the southern corner has not been set.

Recreational Facilities and Opportunities:

Designated Snowmobile trail #79 along with a part of the Frederic ORV Route 50" ATV Trail occur in section 29 and north $\frac{1}{2}$ of section 30. The easy access to Manistee River from county roads offers numerous recreational opportunities for canoeing, kayaking and fly-fishing. A designated foot access site to the river is located off Cameron Bridge Road.

Fire Protection:

The majority of this compartment is comprised of upland deciduous species and fire danger is considered minimal in this area.

Additional Compartment Information:

Numerous recreational opportunities abound in this compartment. Aesthetic consideration should be addressed along roads and trails.

The following reports from the Inventory are attached:

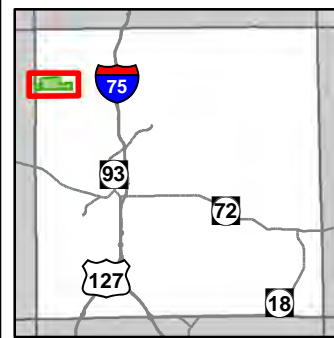
- Total Acres by Cover Type and Age Class**
- Cover Type by Harvest Method**
- Proposed Treatments – No Limiting Factors**
- Proposed Treatments – With Limiting Factors**
- Stand Details (Forested and Nonforested)**
- Dedicated and Proposed Special Conservation Areas**
- Site Condition Details**

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

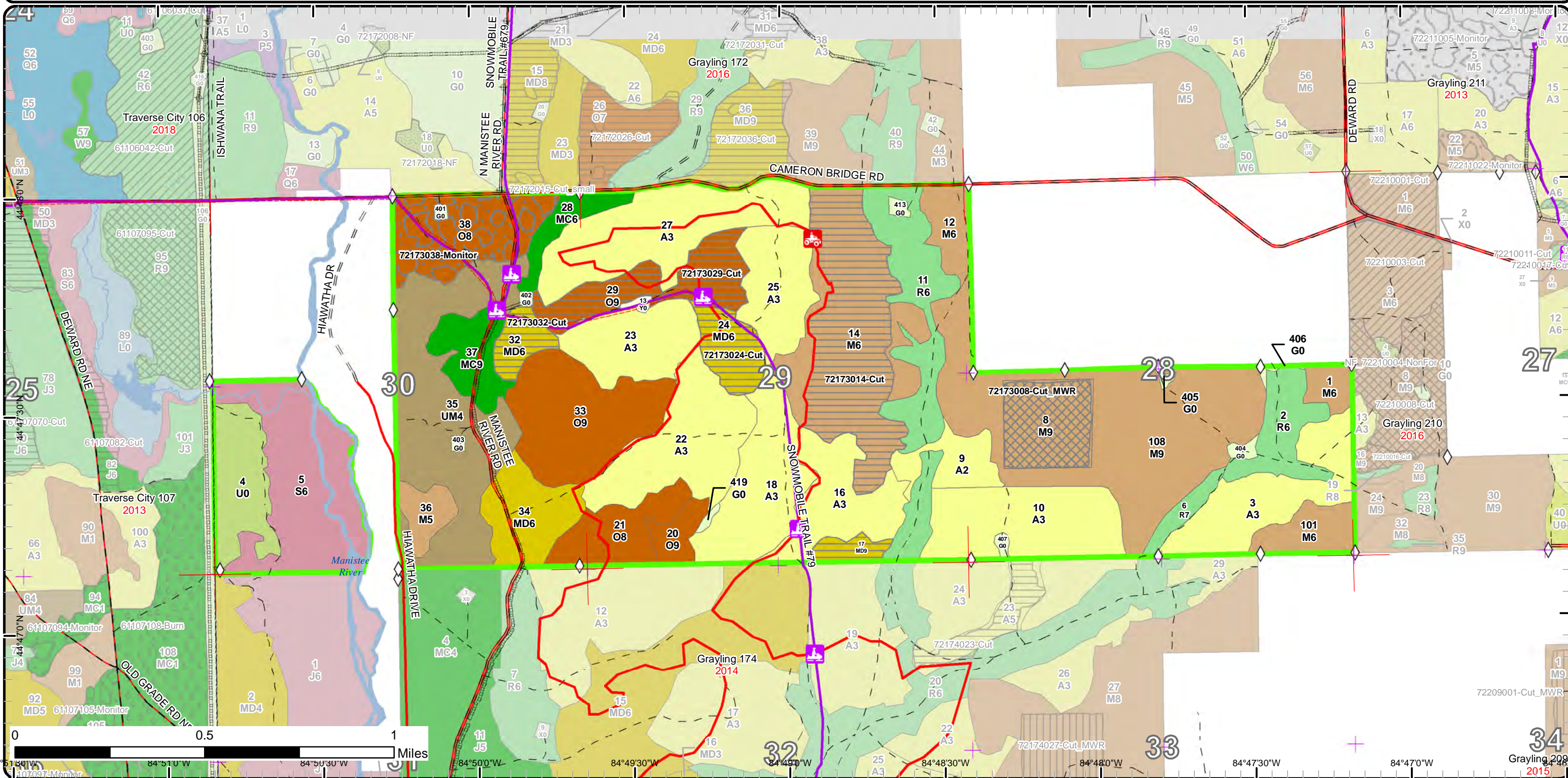
- Base feature information, stand boundaries, cover types, and numbers**
- Proposed treatments**
- Site condition boundaries**
- Details on the road access system**

Cover Type & Treatments Map

Compartment: 173
 T28N, R04W, Sec: 28-30
 County: Crawford
 Unit: Grayling
 Mgmt Area: Grayling Ice Contact
 YOE: 2019
 Acres: 1401.3 GIS Calculated
 Examiner: Thomas Barnes
 Map Revised: 3/5/2018
 Map Phase: Post-Review



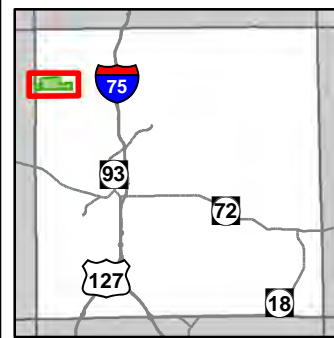
- Miris Corners
- + Remonumented Section Corners
- ◇ Field Grade GPS Corners
- Counties
- ORV Trails
- Snowmobile Trails
- Designated ATV
- - - Designated ORV Route
- Designated Snowmobile Trails
- County Paved Roads
- Paved Roads
- County Gravel Roads
- Gravel Roads
- County Poor Dirt Roads
- Poor Dirt Roads
- Streams
- Lakes and Rivers All
- Pipeline
- Powerline
- Compartment Boundary
- Treatments with Site Conditions
- Selection (Group, Single Tree)
- Clearcut (w/Reserves)
- Regeneration Survey
- 411 - Northern Hardwood
- 412 - Oak Types
- 413 - Aspen
- 419 - Mixed Upland Deciduous
- 421 - Planted Pines
- 422 - Natural Pines
- 430 - Upland Mixed Forest
- 612 - Lowland Coniferous Forest
- 310 - Herbaceous Openland
- 320 - Upland Shrub
- 710 - Sand/Soil
- Lakes



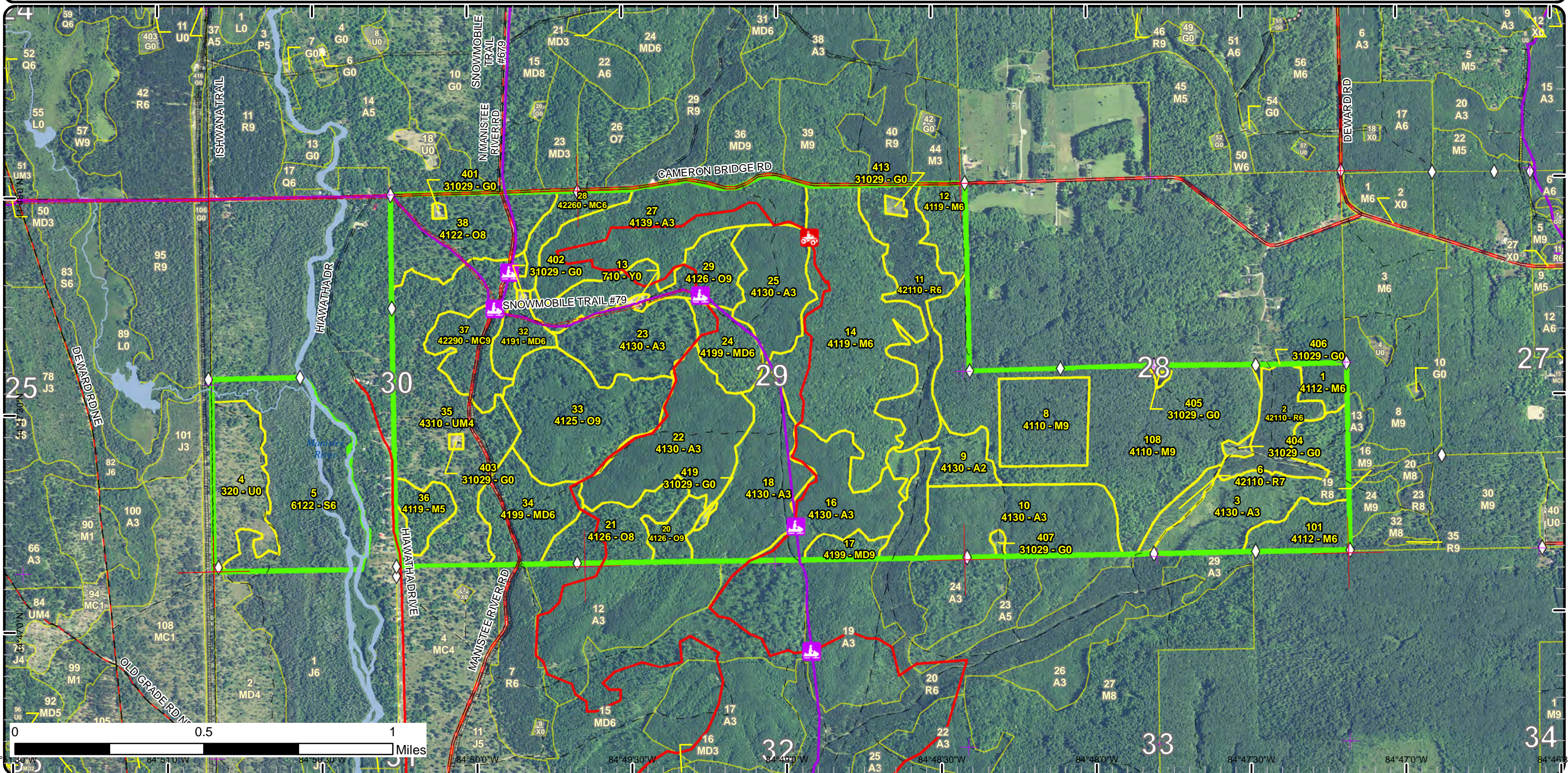
0 0.5 1 Miles
 84°51'30"W 84°51'0"W 84°50'30"W 84°50'0"W 84°49'30"W 84°49'0"W 84°48'30"W 84°48'0"W 84°47'30"W 84°47'0"W
 Grayling 208 2015

Stand Boundary Map

Compartment: 173
 T28N, R04W, Sec: 28-30
 County: Crawford
 Unit: Grayling
 Mgmt Area: Grayling Ice Contact
 YOE: 2019
 Acres: 1401.3 GIS Calculated
 Examiner: Thomas Barnes
 Map Revised: 3/5/2018
 Map Phase: Post-Review

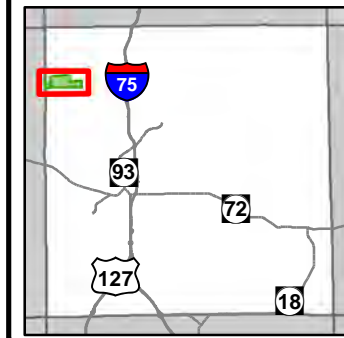


- Miris Corners
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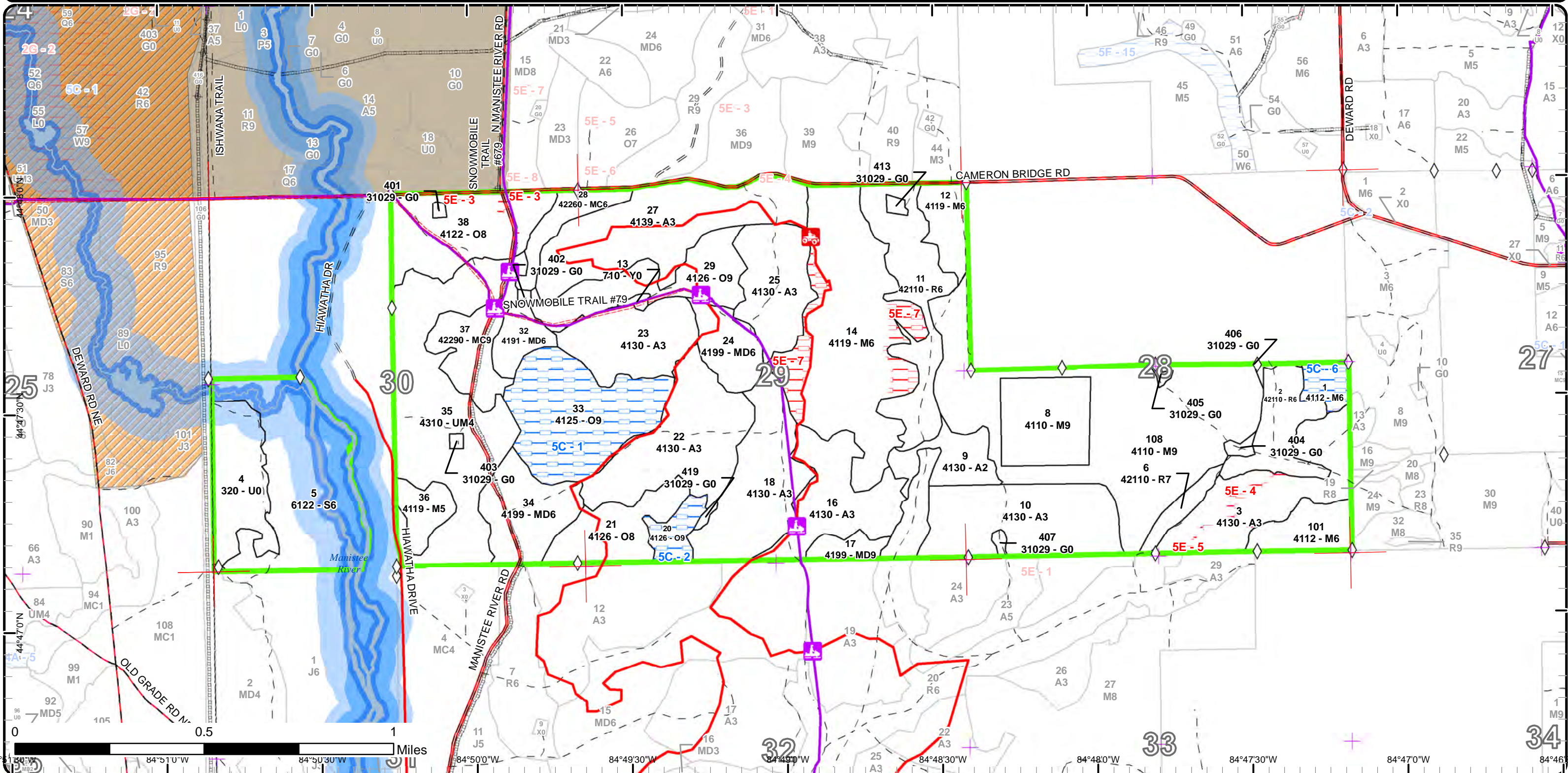


Special Conservation Areas & Site Conditions Map

Compartment: 173
 T28N, R04W, Sec: 28-30
 County: Crawford
 Unit: Grayling
 Mgmt Area: Grayling Ice Contact
 YOE: 2019
 Acres: 1401.3 GIS Calculated
 Examiner: Thomas Barnes
 Map Revised: 3/5/2018
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- County Gravel Roads
- Gravel Roads
- County Poor Dirt Roads
- - Poor Dirt Roads
- Streams
- Lakes and Rivers All
- Pipeline
- Powerline
- Compartment Boundary
- Available w/ Constraints
- - Unavailable
- 5C: Delay treatment for age/size class diversity or exceptional site quality
- 5E: Long-Term Retention
- Stand Boundaries
- Natural Rivers Vegetative Buffer
- Natural Rivers Zoning District
- Eastern Massasauga Managed Land
- Dedicated Management Areas
- Cold Water Streams
- Cold Water Lakes
- High Priority Trout Stream Buffer



0 0.5 1 Miles
 84°51'30"W 84°51'0"W 84°50'30"W 84°50'0"W 84°49'30"W 84°49'0"W 84°48'30"W 84°48'0"W 84°47'30"W 84°47'0"W 84°46'30"W



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	107	127	197	0	0	0	0	0	0	0	0	0	0	0	0	0	0	431
Herbaceous Openland	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11
Lowland Spruce/Fir	0	0	0	0	0	0	0	0	82	0	0	0	0	0	0	0	0	0	82
Mixed Upland Deciduous	0	0	0	0	0	0	0	0	34	40	0	0	0	0	0	0	0	0	74
Natural Mixed Pines	0	0	0	0	0	0	14	0	0	0	23	0	0	0	0	0	0	0	37
Northern Hardwood	0	0	0	0	0	0	0	0	0	57	113	172	0	0	0	0	0	0	341
Oak	0	0	0	0	0	0	0	0	0	38	105	49	0	0	0	0	0	0	192
Red Pine	0	0	0	0	0	0	0	94	0	0	0	0	0	0	0	0	0	0	94
Sand, Soil	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Upland Mixed Forest	0	0	0	0	0	0	0	105	0	0	0	0	0	0	0	0	0	0	105
Upland Shrub	36	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	36
Total	48	107	127	197	0	0	14	199	116	135	241	221	0	0	0	0	0	0	1404



Report 2 – Treatment Summary

Grayling Mgt. Unit

Year of Entry: 2019

Acres of Harvest

Compartment 173

Total Compartment Acres: 1,401

Commercial Harvest - 199
 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
Mixed Upland Deciduous	40	0	0	0	0	0	0	0	0	40
Northern Hardwood	89	33	0	0	0	0	0	0	0	122
Oak	38	0	0	0	0	0	0	0	0	38
Total	167	33	0	0	0	0	0	0	0	199

Proposed and Next Step Treatments by Method

	Harvest	Site Prep	Planting	Seeding	Burning	Pesticide	Monitoring	Other	Non-Forest Mgt.	Total Acres
Current	199	0	0	0	0	49	0	0	0	248
Next Step	0	217	109	0	0	109	416	0	0	851
Total	199	217	109	0	0	109	465	0	0	1098



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
8	72173008-Cut_MWR	32.6	4110 - Sugar Maple Association	Sawtimber Well	100	81-110	Harvest	Single Tree Selection	411 - Northern Hardwood	Uneven-Aged	Field Boundary

Habitat Cut: No

Site Condition:

Prescription Single tree and small group selection. Regeneration gaps will range from single tree to 0.25 acres in size with a target residual basal area of 80
Specs: sq ft/ acre. Leave Tops <8" Diameter.

Next Step Monitoring, Natural Regen (Intermediate)
Treatments:

Acceptable Regen: A diverse mix of northern hardwood species.

Other Comment:

Proposed Start Date: 06/01/2016

14	72173014-Cut	89.0	4119 - Mixed Northern Hardwoods	Poletimber Well	90	111-140	Harvest	Clearcut with Retention	4199 - Other Mixed Upland Deciduous	Even-Aged	Draft Field Boundary
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Habitat Cut: No

Site Condition:

Prescription Final harvest with retention, follow stand retention, woody biomass and Trail BMP guidelines. Retention has already been removed from
Specs: treatment west of ORV trail and east of two lobes. Island retention will be used within stand and large wolfy oaks will be marked to leave. Add snow and orv trail specs. Chipping and low stumps will be required to help aid in planting of red pine in failed areas.

Next Step Monitoring, Natural Regen (Intermediate); SitePrep, Roller Chopping; SitePrep, Trenching; Pesticide, Skidder/Mechanical; Planting,
Treatments: Replant; Monitoring, Artificial Regen(1yr); Monitoring, Artificial Regen(3yr)

Acceptable Regen: Regeneration diversity should be a 50/50 mixture, no more than 50% beech and 50% maple, aspen, birch, oak and other species of medium to well stocked. If this fails then roller chop, herbicide, trench and plant in areas of failed natural regen.

Other Comment: Formal regen survey will be completed by TMS, if this survey shows natural regen failed to meet the 50% mixture of beech to other upland species then failed areas will be prepped for planting to red pine. Red pine will only be a 1 rotation cycle to help reduce beech density. Areas can also be prepped for wildlife division to plant trees more beneficial to wildlife.

Proposed Start Date: 10/01/2018

17	72173017-Cut	7.6	4199 - Other Mixed Upland Deciduous	Sawtimber Well	88	81-110	Harvest	Clearcut	4139 - Aspen, Mixed Deciduous	Even-Aged	Draft Field Boundary
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Habitat Cut: No

Site Condition:

Prescription Final harvest without retention to maximize regeneration of aspen and other species. Include drumming log spec. Chipping is optional.
Specs:

Next Step Monitoring, Natural Regen (Re-Inventory)
Treatments:

Acceptable Regen: Medium to well stocked stand of aspen and mixed hardwoods. Acceptable if poor to medium stocking of same species.

Other Comment:

Proposed Start Date: 10/01/2018

24	72173024-Cut	19.6	4199 - Other Mixed Upland Deciduous	Poletimber Well	86	81-110	Harvest	Clearcut with Retention	4199 - Other Mixed Upland Deciduous	Even-Aged	Draft Field Boundary
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Habitat Cut: No

Site Condition:

Prescription Final harvest with retention, follow stand retention, woody biomass and Trail BMP guidelines. Add snow and orv trail specs. Retention in island
Specs: form. Some retention should go in areas that are to steep for operation. Chipping and low stumps will be required to help aid in planting of red pine in failed areas.

Next Step Monitoring, Natural Regen (Intermediate); SitePrep, Roller Chopping; SitePrep, Trenching; Pesticide, Skidder/Mechanical; Planting, Initial
Treatments: Plant; Monitoring, Artificial Regen(1yr); Monitoring, Artificial Regen(3yr)

Acceptable Regen: Regeneration diversity should be a 50/50 mixture, no more than 50% beech and 50% maple, aspen, birch, oak and other species of medium to well stocked. If this fails then roller chop, herbicide, trench and plant in areas of failed natural regen.

Other Comment: Formal regen survey will be completed by TMS, if this survey shows natural regen failed to meet the 50% mixture of beech to other upland species then failed areas will be prepped for planting to red pine. Red pine will only be a 1 rotation cycle to help reduce beech density. Areas can also be prepped for wildlife division to plant trees more beneficial to wildlife.

Proposed Start Date: 10/01/2018



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
29	72173029-Cut	37.9	4126 - White, Black, N. Pin Oak	Sawtimber Well	88	81-110	Harvest	Clearcut with Retention	4199 - Other Mixed Upland Deciduous	Even-Aged	Draft Field Boundary

Habitat Cut: No

Site Condition:

Prescription Final harvest with retention, follow standard retention, woody biomass and Trail BMP guidelines. Retention in island form and as residual white oak. Leave all white oak. Add trail specs for both snow and orv's.

Next Step Monitoring, Natural Regen (Re-Inventory)
Treatments:

Acceptable Regen: Natural regeneration with a fair to good amount of oak and other associated species meeting medium to well stocked stand. A component of at least 20% oak is the goal.

Other Comment:

Proposed Start Date: 10/01/2018

32	72173032-Cut	12.4	4191 - Mixed Upland Deciduous with Conifer	Poletimber Well	82	81-110	Harvest	Clearcut with Retention	4199 - Other Mixed Upland Deciduous	Even-Aged	Draft Field Boundary
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Habitat Cut: No

Site Condition:

Prescription Final harvest with retention, follow retention and woody biomass guidelines. Chipping is optional. Retention should include at least t 2 islands. Specs: Snowmobile trail spec should also be included. Leave all red pine and any white pine great than 16" DBH.

Next Step Monitoring, Natural Regen (Re-Inventory)
Treatments:

Acceptable Regen: Natural regeneration of mixed upland deciduous species of medium to well stocked stand.

Other Comment:

Proposed Start Date: 10/01/2018

38	72173038-Monitor	48.6	4122 - Oak, Pine	Sawtimber Medium	107	51-80	Monitoring	Natural Regen (Intermediate)	412 - Oak Types	Two-Aged	Draft Field Boundary
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Habitat Cut: No

Site Condition: Long-Term Retention

Prescription Check Regen. Specs:

Next Step Treatments:

Acceptable Regen: Oak

Other Comment: Check date was set for FY 2020 because reinventory check will only be 2 years post harvest.

Proposed Start Date: 10/01/2019

Total Treatment Acreage Proposed: 247.7

Report 4 – Site Conditions

Grayling Mgt. Unit

Thomas Barnes : Examiner

Compartment: 173

Year of Entry: 2019

Availability for Management

Total Acres	Acres Available	Acres Avail		Dominant Site Conditions	5C	5E
		With Condition	Not Available			
431	425	0	6	Aspen		6
11	11	0	0	Herbaceous Openland		
81	81	0	0	Lowland Spruce/Fir		
73	73	0	0	Mixed Upland Deciduous		
37	37	0	0	Natural Mixed Pines		
341	308	9	24	Northern Hardwood	9	24
191	111	76	4	Oak	76	4
94	94	0	0	Red Pine		
1	1	0	0	Sand, Soil		
105	105	0	0	Upland Mixed Forest		
36	36	0	0	Upland Shrub		
1,401	1,282	85	35	Total Forested Acres	85	35
	92%	6%	2%	Relative Percent		

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

Site No.	Dominant Site Cond Availability	Dominant Site Condition	Acres	Other Site Condition	Other Site Condition	Other Site Condition	Other Site Condition
1	Available	5C: Delay treatment for age/size class diversity or exceptional site quality	65	Unspecified	Unspecified	Unspecified	Unspecified
Comments:							
2	Available	5C: Delay treatment for age/size class diversity or exceptional site quality	11	Unspecified	Unspecified	Unspecified	Unspecified
Comments:							

Report 4 – Site Conditions

Grayling Mgt. Unit
Thomas Barnes : Examiner

Compartment: 173
Year of Entry: 2019

3	Unavailable	5E: Long-Term Retention	4	Unspecified	Unspecified	Unspecified	Unspecified
Comments:							
4	Unavailable	5E: Long-Term Retention	3	Unspecified	Unspecified	Unspecified	Unspecified
Comments:							
5	Unavailable	5E: Long-Term Retention	2	Unspecified	Unspecified	Unspecified	Unspecified
Comments:							
6	Available	5C: Delay treatment for age/size class diversity or exceptional site quality	9	Unspecified	Unspecified	Unspecified	Unspecified
Comments:							
7	Unavailable	5E: Long-Term Retention	24	Unspecified	Unspecified	Unspecified	Unspecified
Comments:							

Mgt. Unit

Compartment: #Type!

Year of Entry:



Report 5 – PROPOSED SPECIAL CONSERVATION AREA* (SCA) DETAILS

* This is a partial list of SCAs for this compartment. Not included are those areas identified under other Department initiatives (Natural Rivers, Deer Wintering Areas, etc.). Those will be identified in separate, future map and report products.

SCA Name	SCA Category	Detail Type	Recommendation	Acres
Comments				



Report 6 – EXISTING SPECIAL CONSERVATION AREA DETAILS

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

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

Conservation Area	Type	Description
SCA	Cold Water Lake	A coldwater lake has temperature and dissolved oxygen conditions that allow naturally-reproduced or stocked trout populations and those of other coldwater fish species to persist from year to year. Suitable conditions for coldwater fishes may occur in Michigan lakes if they are relatively deep, have substantial groundwater inflows, or are located in colder (northern) areas of the state. Such lakes are established by Director's action and designated as trout resources by Fisheries Order 200.
SCA	Cold Water Stream	A coldwater stream has temperature and dissolved oxygen conditions that allow naturally-reproduced or stocked trout populations and those of other coldwater fish species (e.g., slimy sculpin) to persist from year to year. Coldwater streams in Michigan typically provide these conditions due to substantial contributions of groundwater to their stream flows. Such streams are established by Director's action and designated as trout resources by Fisheries Order 210.
SCA	Riparian Area	A transitional area between aquatic and terrestrial ecosystems in which the terrestrial ecosystem influences the aquatic ecosystem and vice-versa. Because of the unique conditions adjacent to lakes, streams and open water wetlands, riparian areas harbor a high diversity of plants and wildlife. Riparian communities are ecologically and socially significant in their effects on water quality and quantity, as well as aesthetics, habitat, bank stability, timber production, and their contribution to overall biodiversity.
HCVA	Dedicated Management Areas	Such areas are dedicated by the DNR Director for specific management uses through the promulgation of rules, as governed by Part 5, Department of Natural Resources, of the NREPA (MCL 324.502(2) and 324.504). Section 38 of the Administrative Procedures Act (MCL 24.238) provides for public requests for the promulgation of rules. This is an active program, with one proposed site currently under review by the DNR.
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	4112 - Maple, Beech, Cherry Association	Poletimber Well	8.9	86	111-140	<p>Previous inventory comments still hold true for most part. Cherry is of poor quality with most stems forked. Good pole numbers along with poor log quality. Very park like in underwear most understory stems are medium size saplings. very sparse seedling layer. Three BA swings with At and average of 114.</p> <p>OPIC - FMD: Somewhat low quality stand with areas of potential. Lot's of limb scars on pole-sized sugar/red maple. Scattered nice sawlog sized elm throughout. Lot's of DWD and a great deal of wildlife activity in and around stand. Black cherry is of good quality in stand and is the most abundant species in many areas of the stand. Wait til next YOE to treat and then do a TSI type thinning to favor the better quality sugar maple and black cherry. Understory is relatively open and should provide good raptor feeding grounds. Evidence of nesting in adjacent stands. Trespass at northern edge of stand: a 4-wheeler track comes into stand and ends at a permanent blind built around a couple tree clumps. Most likely coming from one of the landowners to the north. This stand has been separated from the southern portion of stand 1 because it was found that stand 3 actually continues to the eastern edge of the compartment. The area that was previously stand 1, south of stand 3 has been renumbered stand 101. (old)THE FREDERIC LOOP TRAIL ORV ROUTE WAS ABANDONED NORTH OF COUNTY ROAD 612 DURINGTHE SUMMER OF 1999.</p>
2	42110 - Planted Red Pine	Poletimber Well	26.1	60	81-110	<p>Stand thinned in 2011/12. The re are areas where more volume was to ken and these areas are filling wit maple. Understory is well developed maple of greater than 20 t feet. OPIC - FMD: Stand is of better quality than stand 6 to the south. Same age and relatively same location, may have been less quality seed stock, frost damage, etc. Stand was thinned in 2000 and is showing good response to thinning. Could wait another YOE, however by then the hardwood will have basically taken over the understroy and the red pine will be showing signs of crowding. Mark to cut leaving a residual of 110 square ft/acre, or remove 1/3 of overall volume. BA fluctuates throughout stand so attempt to maintain consistency where possible. Thin to remove forked, limby or otherwise poorly formed individuals. There is some porcupine damage throughout stand, so as a result, these areas will be thinned heavier and residual BA will be lower than target.</p> <p>Understroy regeneration will most likely be damaged during harvest operations. All aspen should be designated for harvest. Larger hardwoods could be left for wildlife habitat and mast production. (old comment) Stand was third row thinned the summer of 2000 under contract # 030-99-01, Combined Pine 28 block. 5/3/12 stand treated under Fork In The Red Pine 72-021-09-01.</p>



Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
3	4130 - Aspen	Sapling Well	50.4	7	Immature	<p>Stand was harvested in 2010/11, Red and Sugar maple were left as well as all conifer species, some aspen was marked to leave as well. Majority of maple stems left were on the eastern third of the stand. Good natural regeneration of aspen with some mixture of oak, maple and other hardwood species. Stand was merge with stand 7 as they were treated together. Retention strip of pine between old stand 7 and this stand. OPIC - FMD: (no old comment) Variable quality throughout. Stand seems to transition back and forth between an A6/M6 stand, especially in portion that now splits stand 1 and 101. Edge is mixed where aspen and hardwood stands meet. Mixed hardwood throughout. One finger of red pine in southern portion of stand. This area should be left out of the sale, or specs should designate red pine to be left if it is included. Some ironwood and areas where ironwood regeneration is beginning to become quite thick. Variable density throughout as well, however silviculturally this stand is ready to treat. Some aspen have begun to fall providing good DWD and snags that have remained standing are providing good habitat as well. These snags should remain wherever possible following harvest. Occasional large red pine throughout stand, one was found to hold a fairly good size stick nest. As far as specifics regarding harvest: all aspen should be designated for removal. All white pine, red pine and balsam fir should be left, along with clumps of red and sugar maple. This should provide plenty of residual (>10%) following harvest to meet retention requirements. Some aspen should be marked to leave as well. Focus marking large bigtooth aspen in northern portion of stand which should die standing or may fall to enhance both aspects of wildlife habitat. Per CR- Add to list of leave species scattered clumps. Expand west edge of cut into stand 6 where possible. 5/3/12 stand treated under Fork In The Red Pine 72-021-09-01.</p>
5	6122 - Black Spruce	Poletimber Well	81.5	74	81-110	<p>Stand is a mix of jack Pine along the perimeter and lowland Species as x it drops down to , river. Black spruce looks healthy and there are some pockets of more open areas w/lowland deciduous trees. The re is a presence of cedar. Stand does roll up into the upland and is dominated w/jack pine.</p>
6	42110 - Planted Red Pine	Sawtimber Poor	7.8	60	1-50	<p>stand was treated in 2011/12. Understory coming back heavily to aspen and other deciduous species. Not much her natural red pine regen. OPIC - FMD: Third row thinned the summer of 2000 under contract #030-99-01, Combined Pine 28 block. (new comment) Fair quality red pine stand. After examining both stands 2 & 6, it is quite obvious why these stands are separated. Stand is responding well to thinning in some areas, however in other spots individuals are just beginning to react. Localized areas of porky damage. Understory is very thick to red/sugar maple in areas. Scattered aspen throughout. It was determined at compartment review that this stand should be split using 2-track as dividing line and the stand should be seedtreed on the west side of the 2-track and final harvested on the east. The final harvested portion has been renumbered as stand 7. Stand 6 should be seedtree harvested with reserve areas left for retention and visual properties. Overall BA following harvest should be approximately 20-30 square ft/acre with some areas higher when left as reserve areas. This harvest method will allow significant hardwood/aspen understory to be released while also allowing red pine to naturally regenerate following harvest. Treat stands 6 & 7 together. Wait til next YOE to thin when trees will have put on significant growth and BA will be elevated. (per compartment review on 10/25, original stand 6 was split using 2-track as dividing line and was prescribed for regeneration harvest). 5/3/12 stand treated under Fork In The Red Pine 72-021-09-01.</p>



	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
8	4110 - Sugar Maple Association	Sawtimber Well	34.9	100	81-110	Overall very good quality throughout. Thick understory with lot's of raspberry brambles. Fair amount of DWD, more in areas where material was left following most recent harvest. Understory is heavy to american beech, however areas of sugar maple are common and understory becomes heavier to sugar maple in many places. Stand has a good balance between quality sawlogs, quality poles and "wildlife" den trees. There are also a few somewhat unique species including yellow birch and eastern hemlock. Black cherry is also present in relatively high numbers and is exhibiting some quality. Sugar maple logs are well formed. Stand thinned in fall of 2002. Stand will be ready for another treatment in next YOE.
9	4130 - Aspen	Sapling Medium	18.8	8	Immature	Stand cut in 2009/10. Miscellaneous hardwood species left G residual and scattered throughout stand. stand was extended across stand 11 in order to provide a wildlife corridor connecting Stand 14 & 9. OPIC - FMD: (no old comment) Lot's of white pine in understory, both sapling and pole-sized. Numerous large remnant white pine stumps in understory, especially near areas of thick white pine regeneration. Some aspen beginning to show signs of decline in localized areas, while other areas show aspen to be growing quite well. Overall aspen is variable in size and quality, and some areas of stand may contain lower stocking of aspen. Southern edge of stand contains largest aspen. Scattered large red oak throughout stand, however little to no natural regeneration is occurring in understory. Paper birch is also major component of this stand and is present in numerous size classes. Lot's of snags and DWD and subsequently a great deal of wildlife seem to be using this stand for habitat. Specifics for harvest include; removing all aspen regardless of size, leaving some to meet retention guidelines and also to increase size class diversity and vertical structure. Leave all red oak, paper birch and white pine for seed source and mast production. Following harvest, regeneration should include big tooth aspen, white pine, red maple and american beech. All old white pine stumps should be left for wildlife cover following harvest, wherever possible, as they were being utilized by a number of bird and mammal species during stand examination. Per CR- bridge stands 9 and 14 by final harvesting portion of stand 11. 8/18/10 stand treated under Hill Country Mix 72-019-09-01.
10	4130 - Aspen	Sapling Well	59.7	29	Immature	Very thick with occasional white pine, red oak saplings and red maple, mostly in clumps. Opening at southern edge should provide good landing location should stand be treated in the future. Topography is level/slightly rolling.



S t a n d	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
11	42110 - Planted Red Pine	Poletimber Well	60.2	60	81-110	<p>Stand was thinned in 2009. OPIC - FMD: Descent quality overall. Hardwoods scattered throughout. Some porky damage is present in pockets, some localized areas worse than others. Thick hardwood understory is going to make marking in some areas frustrating to say the least. A few areas where old gas/oil wells have been removed contain very good red pine regeneration. May want to final harvest 3-5 1 acre parcels, variable in size to encourage natural red pine regeneration while diversifying stand. Overall tree form is good with some crooks/forks and otherwise undesirable individuals present. As a whole, this stand is responding well to the thinning completed in 2000. Stand could be held one more YOE, however the BA is relatively high and trees seem to be responding quite well to thinning based on ring analysis, crown closure and leader growth. Harvesting specifics include; mark to cut by thinning from below. Remove approximately 1/3 of the trees present, with some areas being reduced further because of low quality and porcupine damage. Leave all hardwoods for mast, species diversity and vertical structure. Final harvest 3-5 irregularly shaped 1 acre parcels scattered around stand in an attempt to encourage natural red pine regeneration. Encourage operator to scarify these areas as much as possible during harvest operations. (old comment) Third row thinned the summer of 2000 under contract #040-99-01, Cameron Bridge Rd Pine. Per CR- bridge stands 9 and 14 by final harvesting portion of stand 11. 8/18/10 stand treated under Hill Country Mix 72-019-09-01.</p>
12	4119 - Mixed Northern Hardwoods	Poletimber Well	16.1	82	81-110	<p>Mixed hardwood stand with good diversity of species. Overall size is log, however, pole size is also heavily represented. Beech is dominating the understory along with ironwood. At the seedling size there are A T few species represented, they include basswood, oak, maple and beech Old comments still apply. Four BA plots taken with stand average of 95.</p> <p>OPIC - FMD: Lot's of DWD throughout stand. Not great quality overall. Numerous trees that are present have rot/cankers in lower portions, possibly as a result of past grazing? Not sure but these signs may be evidence. Some very nice sawlog sized red oak exist along with descent basswood. Occasional areas of sapling sized regeneration is present along with some small aspen pockets. Incredible variation from this stand to stand 8. Density increases and size slightly decreases along western edge of stand and in southern portions of stand. (old comment) TRAIL ROAD USED BY PRIVATE LANDOWNERS.</p>



	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
14	4119 - Mixed Northern Hardwoods	Poletimber Well	113.2	90	111-140	<p>Mostly made up of sugar and red maple with majority of stems large poles. Quality is variable throughout with localized areas of better quality sugar and red maple. Overall moderate to poor quality throughout with some areas of descent quality. Scattered aspen clones that are declining slightly, somewhat large diameter in aspen species. Red oak are scattered but are of very good quality. There may have been a greater red oak component at some point, however it must have been removed at some point in time. Some remnant stumps still remain. ORV trail spans stand from N/S. BBD is starting to show up in this stand with a small presence of scale on most beech stems. Eight plots were taken using QD, stand BA was 128.</p> <p>OPIC - FMD: Wait til next YOE to treat. Stand would benefit from a TSI type thinning at that point in time. BA could possibly warrant a thinning at this time, however diameter and quality should improve over time and make sale more marketable. Stand that was previously referred to as stand 15 has been included in this stand. It is slightly more open but is consistent with overall species composition of stand 14. A few more areas of ironwood have become established here, along with a slightly greater component of black cherry. (old comment) HARDWOODS SCATTERED WITH OPEN POCKETS. Per CR-bridge stands 9 and 14 by final harvesting portion of stand 11.</p>
16	4130 - Aspen	Sapling Well	41.7	29	Immature	<p>Stand is growing quite well with a high density of stems and good height growth overall. Lot's of red maple clumps scattered throughout stand. A low density of seed origin red and white oak exist, however stumps sprouts are somewhat abundant and should prove to be a component of the future stand. Some sprouts of all species are being browsed.</p>
17	4199 - Other Mixed Upland Deciduous	Sawtimber Well	7.6	88	81-110	<p>Most oak and maples are either double or multi-stemmed clumps of average quality. Heavy to aspen in some spots with large diameter single stemmed oaks, good form, scattered throughout. Some descent advanced oak regeneration exists in understory with other species present including serviceberry, white pine and some scattered witch hazel. Three BA plot were taken stand average was 95. (old comment) SOME LARGE DIAMETER OAKS. MAPLE ARE STUMP SPROUTS.</p>
18	4130 - Aspen	Sapling Well	52.3	18	Immature	<p>Fair amount of red/white oak mixed in. Some white pine scattered throughout. Lot's of american beech with areas where beech area actually the dominant species. Stand clear cut in 2000 under contract #034-99-01, ORV Aspen block</p>
20	4126 - White, Black, N. Pin Oak	Sawtimber Well	10.6	96	51-80	<p>Somewhat open stand. Large oak with a relatively open understory. Some oak regen is present, however it has been browsed heavily and is in poor shape overall. Red/white pine seedlings and poles scattered throughout, fair quality. At the lower end of canopy closure. OPIC - FMD: Remnant white pine and some red pine stumps throughout stand adding some DWD and habitat for some small mammals. One pocket of A6 at southern edge of stand, <than 1 acre in size. Leave stand for size diversity and mast production.</p>



	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
21	4126 - White, Black, N. Pin Oak	Sawtimber Medium	28.8	98	51-80	Stand was cut in 2012. Residua basal area is around 50-55 consisting of hybrid oak and white oak. Residual stems are looking good. Regeneration is mostly Maple clumps 15-20ft tall and aspen. There is also some advanced oak, however, it is being out competed at this time. There is also a nice carpet of oak regen that is that 6-12 inches tall. OPIC - FMD: Pole sized oak stand, however some areas are almost developing into O9 size class. Scattered sawlogs of descent quality. Little regeneration in understory, mixture of O2/M2. Aspen of both pole and sawlog size class are major components of stand. Topography is rolling and ORV trail traverses stand at eastern edge. Mark to leave 50 BA of the best quality oaks for a seed source as well as size class diversity in the future. Focus leaving a mixture of the best formed white and red oak. In some areas where oak is of better quality, leave residual slightly higher to develop and enhance quality within stand. Do not cut red maple regardless of size unless there are areas where red maple residual would be over 50 BA. This should not be the case within this stand. All aspen should be designated for harvest. Some areas are heavier to aspen and therefore upon removal, BA may be slightly lower in these localized areas. Do not cut the few red pine within stand, and protect advanced regeneration wherever possible, of all species. Topography is rolling to steep in some areas. These steep slopes may need to be avoided during harvest to reduce erosion risks. BA and quality somewhat decrease in some areas of valley's in stand. 5/3/12 stand treated under Manistee Oak & Aspen Mix 72-022-09-01.
22	4130 - Aspen	Sapling Well	59.8	28	Immature	High density of stems throughout with hardwood species mixed in. Some oak regeneration here and there. Forest road transects stand from E/W. Lot's of wildlife activity. ORV trail meanders along northern edge of stand.
23	4130 - Aspen	Sapling Well	38.0	7	Immature	Stand harvested in 2011. Stand is coming back nicely with good stem density. Scattered overstory oak and paper birch were left in harvested. Stand passed natural regen survey. 'OPIC - FMD: Fair quality aspen stand. Some areas, mainly at lower elevations on slopes are of less quality. Red maple are in clumps and are of poor quality. Scattered red oak exist throughout with some descent quality, many producing large amounts of mast. Large remnant white pine stumps scattered throughout stand. Maple leaved viburnum in understory on upper reaches of slopes. Mixture of an A6/M6 stand in some areas, however overall the stand typed to be an A6 stand. Lot's of paper birch in stand, some dying/declining. Mark some snags to be cut and laid on the ground to increase DWD. Harvest specifics; remove all aspen and leave majoriy of white birch in pockets. Some birch may need to be removed for operating and to maintain low density to ensure better reproduction of aspen. Leave all oak regardless of form as a seed source and to maintain diversity in stand. Caution should be used on steep slopes during harvest to avoid rutting/erosion problems. Some aspen islands, <1 acre in size should be left scattered throughout stand, no more than 5 acres total. This will again maintain size diversity and also should provide ample retention to meet retention guidelines set forth. Stand is a conglomeration of original stand 23, southern finger of stand 29, western edge of stand 24 and eastern 1/2 of stand 31. These areas typed to be A6 stands and have a very similar composition to that of stand 23, however with some size variation. (old comment) Hold ten years. 5/3/12 stand treated under Manistee Oak & Aspen Mix 72-022-09-01.



	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
24	4199 - Other Mixed Upland Deciduous	Poletimber Well	19.6	86	81-110	Aspen pockets scattered throughout stand. Lot's of DWD and snags. Oak is of fair quality however as a component of the stand it is beginning to naturally fade out in some areas, not much regeneration. Lot's of beech poles/regeneration along with a fair amount of paper birch, both large and small diameter. Red and white pine are of good quality and seem to be moving into stand and developing in the understory and mid canopy levels with some individuals, most likely the seed trees occupying the crown and overstory. Some pockets of white oak saplings exist and seem to be past the point of browsing as the leaders seem to be in good shape. Wait til next year of entry to do a thinning to promote species diversity and enhance pine component in stand.
25	4130 - Aspen	Sapling Well	35.9	28	Immature	High density of stems/acre, fair quality. Other species include red maple, A. beech, R/W oak and a few pine stems. Topography is hilly with slopes toward the west/NW and the general direction of the Manistee River. Forest road runs N/S through stand. Slightly more open at southern edge of stand, just north of snowmobile trail. Most likely an old landing location.
27	4139 - Aspen, Mixed Deciduous	Sapling Well	74.3	18	Immature	Very diverse regeneration including aspen, red maple, red/white oak and a mixture of hardwood species. Bracken fern on ground. Varying topography with some major slopes facing W/NW. Lot's of wildlife activity in stand. Ridge tops have very thick beech regeneration/stump sprouting. Stand cut under contract number 039-99-01, North Slope Aspen Block, spring 2000, cycle trail was remarked. Skid trails on the slopes were water barred with tops and slash.
28	42260 - Natural Pine, Mixed Deciduous	Poletimber Well	13.9	57	81-110	Mixed stand of conifer and oak. Red pine has diversity of DBH's whit rest of stand is primarily log pole. Heavier regeneration alone stand perimeter. Did see a few jack-in-the-pulpit. OPIC - FMD: Very mixed stand with aspen, red maple, red and white oak and red and white pine. Stand barely typed to an R6 stand, however based on red pine regeneration and overall composition, this stand will develop into a low end stocked R6/R9 stand in the future. Lot's of white pine in understory. Some large red and white oak, some have died creating huge snags that are currently being utilized by a number of bird and wildlife species. Some pockets of good white oak regeneration, however not of great quality. Some huge red pine with areas of excellent natural regeneration. Stand combines previous stand 28 with narrow finger of stand 29 that runs along the western/NW edge of stand 27. The edge of this stand is O9 in some areas, however overall it fits into this new stand.
29	4126 - White, Black, N. Pin Oak	Sawtimber Well	37.9	88	81-110	Mixed oak stand with other associated species. Stem quality is fair to good for the most part. Scatter red and white pine. Understory has some oak and maple. Edges has more aspen. Six BA plots were taken with stand average of 98. OPIC - FMD: Narrow stand between snowmobile trail and stand 27. More open in some spots with some pockets of A6, mainly near edges. Fair amount of white/red pine poles throughout. Oak varies in quality greatly. Lot's of turkey activity within stand, large amounts of mast being produced by both red and white oak. ORV and snowmobile trails are affected by this stand. Western part of stand was removed and added to stand 28 as it actually typed to be an R6 stand north of the gas well.



	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
32	4191 - Mixed Upland Deciduous with Conifer	Poletimber Well	12.4	82	81-110	Clumps of red maple, somewhat low BA. BA from data is somewhat misleading as many clumps several merchantable trees. White pine regeneration throughout. Overall pretty low quality and stocking. Leave one more rotation and weigh options on what could be done to improve stand or allow to convert to encroaching white pine type. (old comment) RED MAPLE CLUMPS AND WHITE PINE SAPS.
33	4125 - Black, N. Pin Oak	Sawtimber Well	65.1	94	81-110	Red maple and some beech regeneration via stump spouting. Some oak saplings, however very few seedlings in understory. Some red oak logs are very well formed, white oak is of marginal quality. Grasses, trailing arbutus and wintergreen in understory, along with areas of bracken fern. Stand is doing well and looks healthy, hold for another 10 years. OPIC - FMD: Some areas of stand are much more open and are currently A3 in terms of stocking and are thick, growing well. These areas are most likely due to aspen removal in the most recent thinning of this stand. These openings have created a nice, diverse stand that is providing excellent wildlife habitat. (old comment) Thinned fall 2001 contract #72-035-99 Higher Oak Block.
34	4199 - Other Mixed Upland Deciduous	Poletimber Well	33.6	72	51-80	Low quality stand. ORV trail runs through eastern edge of stand. Scattered sawlog oak, more so in eastern parts of stand and better quality the closer you get to stand 21. Red and white pine are definitely a component. Scattered aspen with some pockets near Manistee river road more heavy. Stand has a few open areas with lower BA along pipeline and manistee river road. Lower quality/less density on west side of road. (old comments) YOUNG RED MAPLE CLUMPS.
35	4310 - Pine, Oak Mix	Poletimber Poor	104.7	61	1-50	Stand is an open grown area with pockets of both hardwoods and pine. Majority of area is scrub cherry. Trees that present are good examples of grown species, no quality. There is one gas well within this stand. OPIC - FMD: Overall stand types to be a U/G type. There are areas of J3/R4/W4 as well as areas of M3-M5, however after doing an inventory, and looking at the merchantability of the timber present, U type is much more appropriate. Lot's of pin cherry along with some poor quality, declining black cherry. Areas of open sand along with grass and lichen as vegetative ground cover. Most species are of poor quality, however red pine is okay, limby. White pine has been hit hard by weevil in most locations, except under shade of adjacent stand 37. (old comment) CHERRY PINE AND MAPLE CLUMPS.
36	4119 - Mixed Northern Hardwoods	Poletimber Medium	12.5	82	51-80	Spare Stand of maple and oak with some scatters pine. old comments explain stand well. OPIC - FMD: Basically a continuation of adjacent u-type, however somehow hardwood/oak somehow got a hold and established, albeit sparse. White, red and jack pine scattered throughout. Grass/lichen on ground. Understory is slowly developing into a W3 and overstory maple is already beginning to decline in some locations. Looks like a SLOW conversion to adjacent U-type, possibly with slightly higher stocking. (old comment) SOME O7.
37	42290 - Natural Mixed Pine	Sawtimber Well	23.3	92	81-110	Lot's of white pine poles with a few pockets and scattered large white pine, some large red pine, well stocked white pine stand. Larger red and white pine along Manistee River rd. Scattered large red oak and some pockets of good white oak regen, some above browse line. Lot's of red maple clumps with more aspen on west side of manistee river rd. A few jack pine poles, heavier in spots.



	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
38	4122 - Oak, Pine	Sawtimber Medium	48.8	107	51-80	Stand harvested in 2015 under contract 72-029-11-01, Camstee Seed Tree. Clump maple and oak sprouting along with some seed origin oak. Oak saplings that were present when cut are growing well. There is a red pine component to this stand. OPIC - FMD: Variable stand, sparse in spots. Heavier to red pine in areas, mostly south of snowmobile trail which transects stand in a W/NW direction. Lot's of wildlife activity, scattered spruce in spots most likely due to stands relatively close proximity to manistee river. Heavy browse on regen, however areas of white oak regeneration has made it above browse line, albeit in poor condition. MIXTURE OF EVERYTHING, MORE OAK SAWLOGS ON NORTH BUT OF POOR QUALITY. It was determined at the pre-review on 8/26/09 that this stand should be treated based on age, SI and oak age class distribution criteria. Treat stand by seed tree harvest with a few retention islands located along Cameron Bridge and Manistee River rd. Aim for 10-30 BA residual. Protect snowmobile trail corridor by marking trees to leave directly adjacent to trail. Retention areas south of trail should incorporate areas that are heavier to red pine. Protect oak regen when possible. Approved at 11-10-09 Compartment Review.
101	4112 - Maple, Beech, Cherry Association	Poletimber Well	18.5	86	81-110	Pole size stand with some log size stems. Similar to g 1 but smaller overall DBH. Better developed understory, however, mostly beech. Three BA swings stand average of 110, but not evenly distributed. Hold another 10 years then treat. OPIC - FMD: Pole stand. Quality is not very good throughout, not as nice as stand 1 which was originally part of this stand. Some scattered aspen with larger diameter/height than adjacent stand 3. Aspen definitely a component of this stand. Overall quality improves as you move further east through stand. Good snags and lot's of DWD. Thin next YOE with stand 1. This stand has been separated from the northern portion of stand 1 because it was found that stand 3 actually continues to the eastern edge of the compartment. This stand area that was previously stand 1, south of stand 3 has been renumbered stand 101. Overall quality is slightly less than that of the northern stand 1. (old)THE FREDERIC LOOP TRAIL ORV ROUTE WAS ABANDONED NORTH OF COUNTY ROAD 612 DURINGTHE SUMMER OF 1999.
108	4110 - Sugar Maple Association	Sawtimber Well	136.9	100	81-110	Overall very good quality throughout. Thick understory with lot's of raspberry brambles. Fair amount of DWD, more in areas where material was left following most recent harvest. Understory is heavy to american beech, however areas of sugar maple are common and understory becomes heavier to sugar maple in many places. Stand has a good balance between quality sawlogs, quality poles and "wildlife" den trees. There are also a few somewhat unique species including yellow birch and eastern hemlock. Black cherry is also present in relatively high numbers and is exhibiting some quality. Sugar maple logs are well formed. Stand thinned in fall of 2002. Stand will be ready for another treatment in next YOE. Stand split off of Stand 8, stand 8 is part of an ongoing hardwood research project.



Stand	Cover Type	Acres	Managed Site	General Comments:
4	320 - Upland Shrub	35.8	No	Mixed open stand with mixed conifers throughout stand. Lot of cherry brush. Kept as upland shrub, no merchantable stems. Open field has several old stumps.
13	710 - Sand, Soil	1.4	No	Lot's of ORV use in this area. Some trails extend quite a ways into surrounding woods. (old comment) Possible deposit site for sand from the Manistee R. sand traps.
401	31029 - Grass (OI)	0.9	No	Gas well at northern edge of stand 38. Dominion, State Frederic VIIA3-30, PMT. 46742, MPSC 5729 Well condition is fair. Lot's of rutting around well head, very sandy. Ground cover includes spotted knapweed and grasses.
402	31029 - Grass (OI)	0.8	No	Gas well at NE corner of stand 35. Dominion, State Frederic VIIB4-30, PMT 46743, MPSC 5730 well condition is good. Some rutting around well head, ground cover includes spotted knapweed with other miscellaneous grasses present. Knapweed heavier in N1/2.
403	31029 - Grass (OI)	0.9	No	Gas well in center of stand 35, just W of Manistee River Rd. Dominion, State Frederic VIIC3-30, PMT. 46745, MPSC 5732 Well condition fair. Rutting around well head, very sandy. Knapweed present, however grasses from adjacent U-type are keeping it from spreading to crazy at this point.
404	31029 - Grass (OI)	2.0	No	Small grassy opening at confluence of red pine and hardwood stand. A few residual trees exist within stand boundary. Roads converge in this stand and then go N/S & E/W.
405	31029 - Grass (OI)	1.2	No	Secluded grassy opening in center of large hardwood stand. Survey corner on northern edge of stand delineating line between state/private. Blue line still remains on line from thinning that occurred in stand 8 and connects corners along that line nicely.
406	31029 - Grass (OI)	1.0	No	Grassy opening at northern edge of stand 6, bordering private property. A few residual tree species including one large hemlock, possibly old witness for nearby corner.
407	31029 - Grass (OI)	1.3	No	Grassy opening at southern edge of stand 10. Fair amount of wildlife activity in this stand. Could provide a good landing area for future harvest of stand 10 when marketable.
413	31029 - Grass (OI)	1.5	No	Grassy opening with some spotted knapweed, however knapweed is being outcompeted in areas by grass and brambles. Some red pine regeneration in stand, however quite sparse, most likely due to past operations, soil compaction, etc. ABANDONED WELL SITE.
419	31029 - Grass (OI)	1.0	No	Gassy opening, possibly somewhat of a frost pocket. No regeneration in opening to speak of, however quite a bit of wildlife activity in and around stand. Secluded opening, no roads to get there. Small campfire looks to be used occasionally in this location.