



Compartment Review Presentation

Grayling Forest Management Unit

Compartment 72209

Entry Year 2025

Acreage: 1,085

County Crawford

Management Area: Kalkaska Sandy Moraines

Stand Examiner: Joan Charlebois

Legal Description:

28N 04W Sections 34, 35, 36

Identified Planning Goals:

To maintain riparian and forest health, structural and species diversity, and overall productivity while providing for sustainable multiple uses.

Soil and topography:

Typical upland soils range in quality from Rubicon and Kalkaska sands to Blue Lake loamy sand, on gently rolling to steep topography. The compartment's lowlands are on mostly Tawas-Lupton mucks.

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

The compartment borders the east side of the Village of Frederic, as well as developed residential areas along Kolka Creek Road, May Lake, and the AuSable River. The east half of the compartment has producing gas wells.

Unique Natural Features:

The mainstream of the AuSable, a designated Natural River, crosses through the west side of the compartment. There is the potential for rare insects to occur in upland openings, and for rare reptiles to occur along the river corridor.

Archeological, Historical, and Cultural Features:

There are known concerns within the compartment. All proposed management activities have taken these concerns into consideration.

Special Management Designations or Considerations:

The AuSable River is a High Conservation Value Area (HCVA), with associated Cold Water Stream and Riparian Special Conservation Areas (SCA).

Watershed and Fisheries Considerations:

The mainstream of the AuSable is a high quality cold water trout stream. May Lake does not have a formal access site but is used locally for warm water sport fishing.

Wildlife Habitat Considerations:

The large upland opening that was part of the former Ward Orchard provides habitat for upland game birds and deer. Remnant apple and pear trees can still be found in that opening. Varying age classes of aspen adjacent to the orchard increase the area's habitat potential.

Mineral Resource and Development Concerns and/or Restrictions

Surface sediments consist of ice-contact and glacial outwash sand and gravel and postglacial alluvium. The glacial drift thickness varies between 400 and 800 feet. Beneath the glacial drift are the Marshall Sandstone and Coldwater Shale. The Marshall was quarried for building stone in the past. The nearest gravel pit is located one mile to the east and potential is thought to be good in the upland areas. One half of the compartment is leased and has been developed for Antrim Shale gas production.

Vehicle Access:

County roads within the compartment include CR 612, Kolka Creek Road, May Lake Road, and Myrtle Street. Forest roads provide additional access.

Survey Needs:

Two DNR survey projects were completed within the compartment in the last 20 years. One corner set in 2003 may have been disturbed during road re-paving.

Recreational Facilities and Opportunities:

A designated snowmobile trail crosses through the compartment and there is a trailhead parking lot off CR 612. The AuSable River and May Lake provide opportunities for fishing, kayaking and canoeing. Dispersed recreation in the uplands includes hiking, hunting, morel gathering, and apple picking.

Fire Protection:

The compartment has multiple water sources available where county roads cross the AuSable River, as well as an informal access point on May Lake.

Additional Compartment Information:

The following reports from the Inventory are attached:

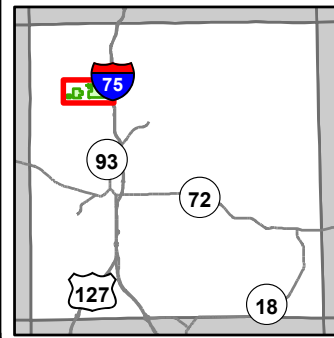
- Total Acres by Cover Type and Age Class**
- Cover Type by Harvest Method**
- Proposed Treatments – No Limiting Factors**
- Proposed Treatments – With Limiting Factors**
- Stand Details (Forested and Nonforested)**
- Dedicated and Proposed Special Conservation Areas**
- Site Condition Details**

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

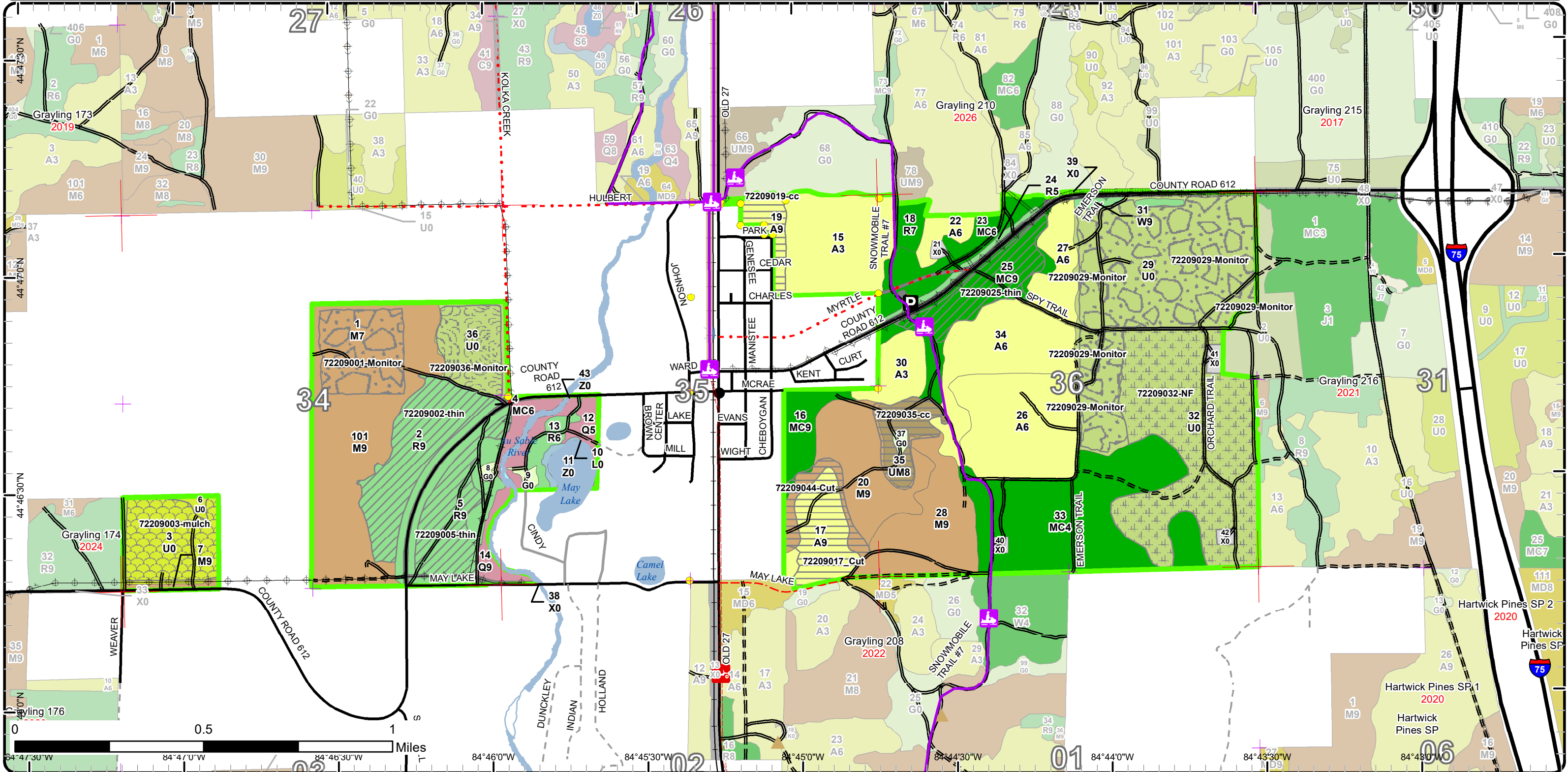
- Base feature information, stand boundaries, cover types, and numbers**
- Proposed treatments**
- Site condition boundaries**
- Details on the road access system**

Cover Type & Treatments Map

Compartment: 209
 T28N R04W 34-36
 County: Crawford
 Unit: Grayling
 Mgmt Area: Kalkaska Sandy
 Moraines
 YOE: 2025
 Acres: 1084.7 GIS Calculated
 Examiner: Joan Charlebois
 Map Revised: 11/28/2023
 Map Phase: Post-Maps

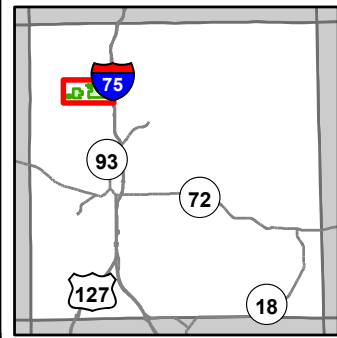


- Miris Corners
- + Remonumented Section Corners
- Survey Grade Corners
- Counties
- DNR - Secondary Forest Road
- DNR - Forest Access Route
- Federal / State Highway
- Federal / State / County - Paved Road
- County - Gravel Road
- County - Dirt Road (Seasonal)
- Private - Paved Road
- Private - Dirt / Gravel Road
- Active Railroads
- ORV Routes
- Snowmobile Trails
- Designated ORV Route
- Designated Snowmobile Trails
- Designated RailTrail
- Berms
- Culvert
- City
- Parking Lot
- * Trailhead
- Lake/Pond
- Perennial River
- Lakes and Rivers
- Pipeline
- Powerline
- Compartment Boundary
- Other Treatment - See Comments
- Clearcut (w/Reserves)
- Thinning (Crown, Low, Systematic)
- Regeneration Survey
- Monitoring
- Site Prep
- 411 - Northern Hardwood
- 413 - Aspen
- 421 - Planted Pines
- 422 - Natural Pines
- 430 - Upland Mixed Forest
- 612 - Lowland Coniferous Forest
- 110 - Low Intensity Urban
- 122 - Roads/Parking Lot
- 310 - Herbaceous Openland
- 320 - Upland Shrub
- 330 - Low Density Trees
- 500 - Water
- 622 - Lowland Shrub

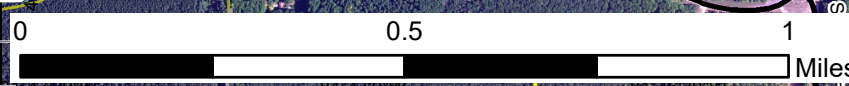
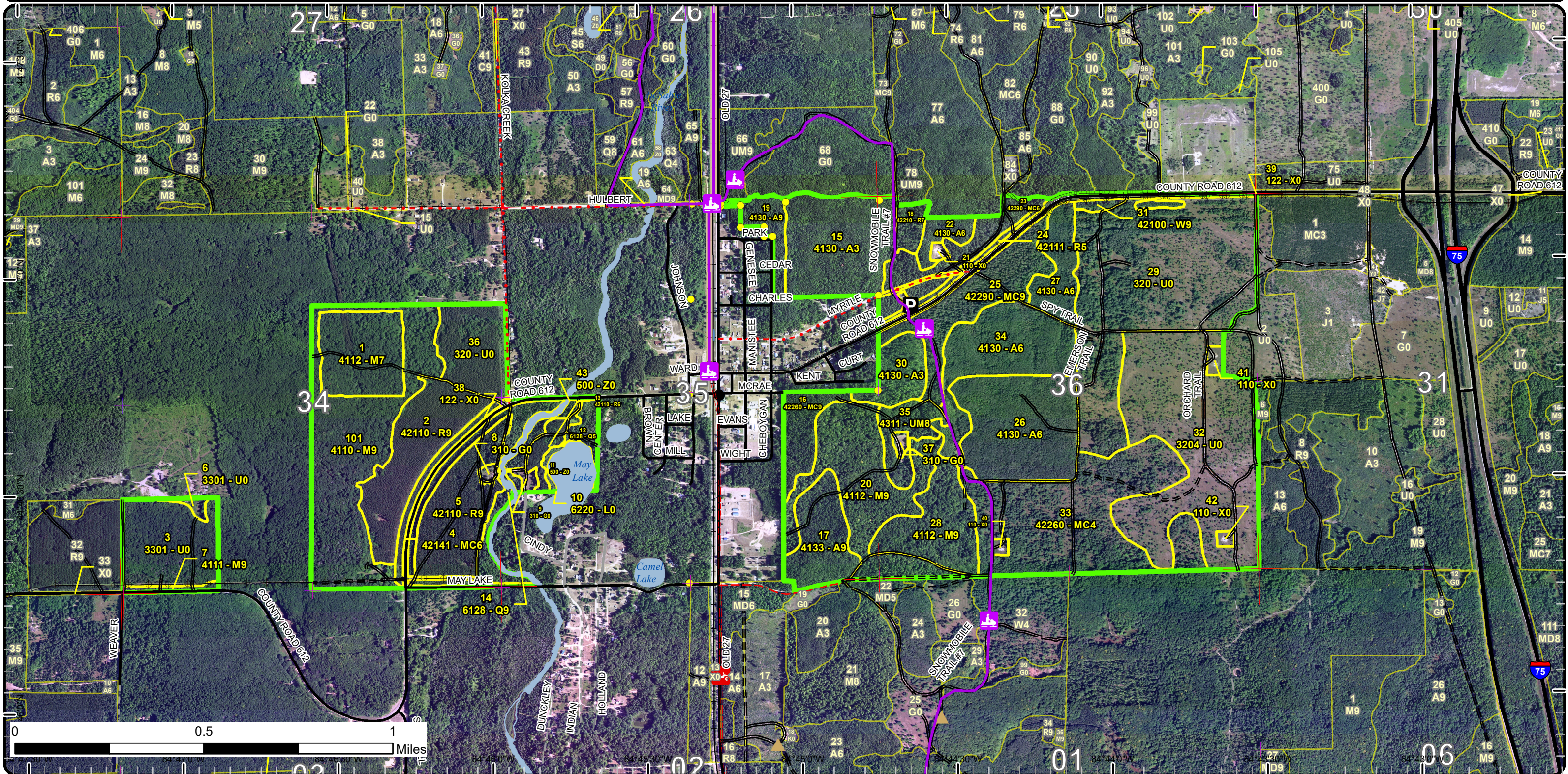


Stand Boundary Map

Compartment: 209
 T28N R04W 34-36
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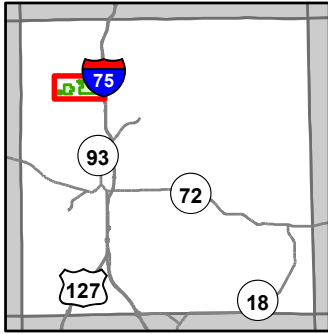


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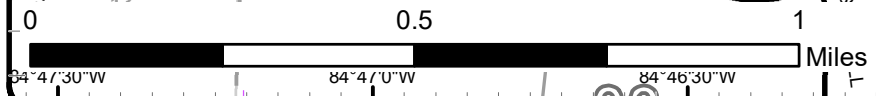
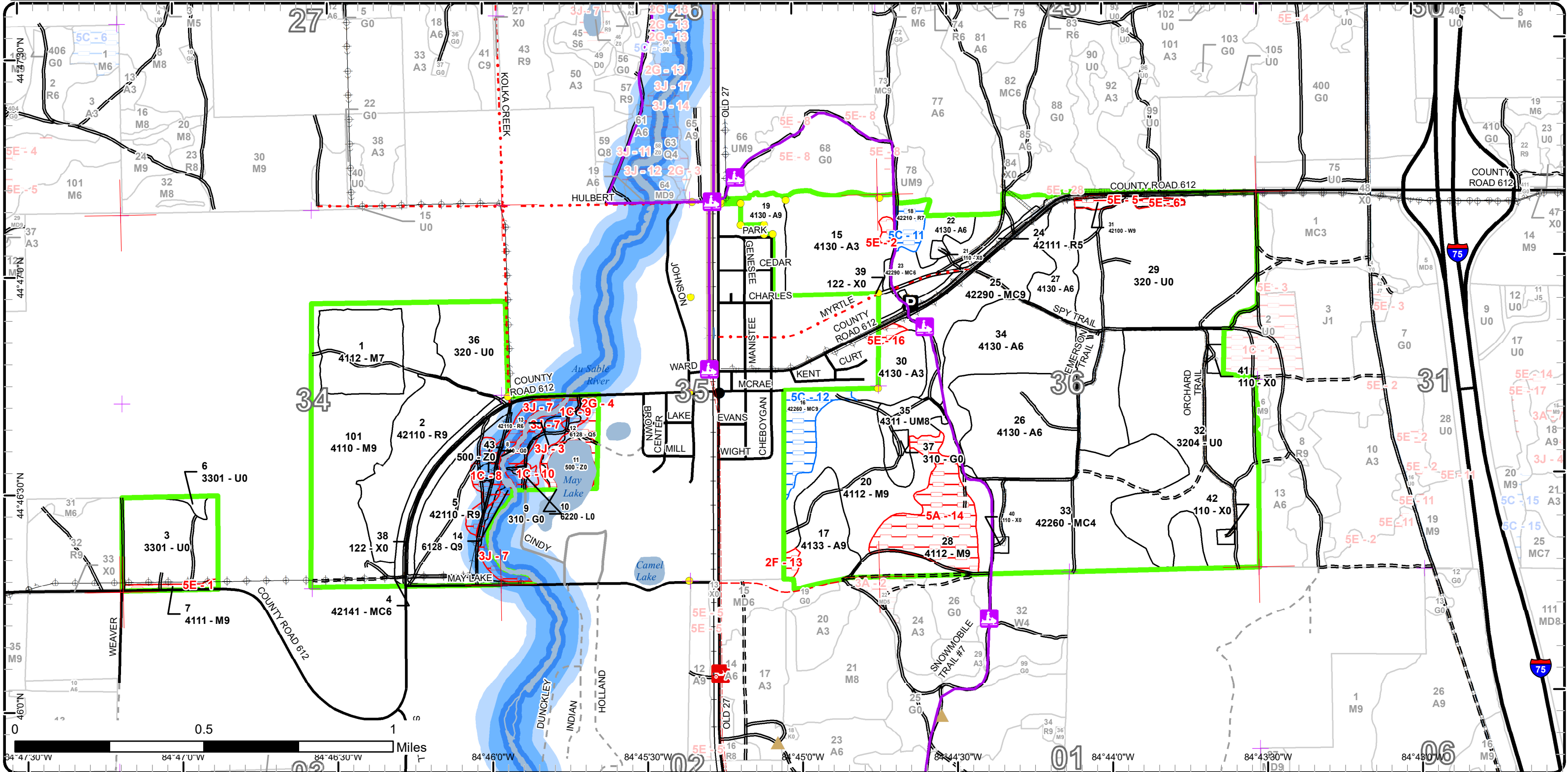


Special Conservation Areas

Compartment: 209
 T28N R04W 34-36
 County: Crawford
 Unit: Grayling
 Mgmt Area: Kalkaska Sandy Moraines
 YOE: 2025
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 Examiner: Joan Charlebois
 Map Revised: 11/28/2023
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- Miris Corners
- + Remonumented Section Corners
- Survey Grade Corners
- Counties
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- Private - Dirt / Gravel Road
- Active Railroads
- ORV Routes
- Snowmobile Trails
- Designated ORV Route
- Designated Snowmobile Trails
- Designated RailTrail
- ▲ Berms
- ⌋ Culvert
- City
- P Parking Lot
- ★ Trailhead
- Lake/Pond
- Perennial River
- Lakes and Rivers
- Pipeline
- Powerline
- Compartment Boundary
- Available w/ Constraints
- 5C: Delay treatment for age/size class diversity or exceptional site quality
- Unavailable
- 1C: Other dept or div proc/practices
- 2F: Too steep
- 2G: Too wet (sensitive soils, does not include access issues)
- 3J: Water quality / BMPs (stream, river, or lake)
- 5A: Not able to obtain desirable regeneration
- 5E: Long-Term Retention
- Stand Boundaries
- Natural Rivers Vegetative Buffer
- Natural Rivers Zoning District
- Cold Water Streams
- High Priority Trout Stream Buffer





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+	Unseen-Aged	Total
Aspen	0	48	15	44	79	0	0	0	0	0	36	0	0	0	0	0	0	0	222
Herbaceous Openland	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
Low-Density Trees	37	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37
Lowland Conifers	0	0	0	0	0	6	18	0	0	0	0	0	0	0	0	0	0	0	24
Lowland Shrub	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Natural Mixed Pines	0	0	0	0	91	0	0	23	35	0	15	0	0	0	0	0	0	0	164
Northern Hardwood	0	0	0	0	0	0	0	0	0	0	92	0	110	0	0	0	0	0	202
Planted Mixed Pines	0	0	0	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15
Red Pine	0	0	0	4	0	0	0	84	0	0	0	6	0	0	0	0	0	0	94
Upland Mixed Forest	0	0	0	0	0	0	14	0	0	0	0	0	0	0	0	0	0	0	14
Upland Shrub	265	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	265
Urban	27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	27
Water	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11
White Pine	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	4
Total	347	48	15	63	170	6	36	107	35	0	143	6	110	0	0	0	0	0	1086



Report 2 – Treatment Summary

Grayling Mgt. Unit

Year of Entry: 2025

Acres of Harvest

Compartment 209

Total Compartment Acres: 1,085

Commercial Harvest - 153
 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	Overshoot Removal	Salvage	Other	Total Acres
Aspen	34	0	0	0	0	0	0	0	0	34
Natural Mixed Pines	0	0	0	0	0	24	0	0	0	24
Northern Hardwood	10	0	0	0	0	0	0	0	0	10
Red Pine	0	0	0	0	0	69	0	0	0	69
Upland Mixed Forest	16	0	0	0	0	0	0	0	0	16
Total	60	0	0	0	0	94	0	0	0	153

Proposed and Next Step Treatments by Method

	Harvest	Site Prep	Planting	Seeding	Burning	Pesticide	Monitoring	Other	Non-Forest Mgt.	Total Acres
Current	153	33	0	0	0	0	169	0	112	466
Next Step	0	81	57	31	0	136	253	79	0	638
Total	153	114	57	31	0	136	422	79	112	1104



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Treatment Name	Acres	Stand CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Age Structure	Habitat Cut
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Approved Treatments:

1	72209001-Monitor	31.4	4112 - Maple, Beech, Cherry Association	Sawtimber Poor	112	1-50	Monitoring	Natural Regen (Intermediate)	411 - Northern Hardwood	Even-Aged	No
<p><u>Prescription</u> MSU will monitor the regen per their research protocols. <u>Specs:</u> <u>Next Step</u> Seeding, Hand Seed <u>Treatments:</u> <u>Acceptable</u> A diverse mix of northern hardwood species. <u>Regen:</u> <u>Other</u> <u>Comment:</u> <u>Site Condition</u> Proposed Start Date: 10/1 /2024</p>											
2	72209002-thin	41.0	42110 - Planted Red Pine	Sawtimber Well	67	171-200	Harvest	Crown Thinning	4211 - Planted Red Pine	Even-Aged	No
<p><u>Prescription</u> Thin to 120 sq. ft. residual. Pre-salvage the two new mortality pockets if indicated by the Forest Health Unit. <u>Specs:</u> <u>Next Step</u> <u>Treatments:</u> <u>Acceptable</u> <u>Regen:</u> <u>Other</u> <u>Comment:</u> <u>Site Condition</u> Proposed Start Date: 10/1 /2024</p>											
3	72209003-mulch	32.6	3301 - Low Density Deciduous Trees	Nonstocked	0	Unspecified	SitePrep	Roller Chopping	4211 - Planted Red Pine	Even-Aged	No
<p><u>Prescription</u> Masticate the site to prepare for trenching. <u>Specs:</u> <u>Next Step</u> Pesticide, Skidder - Release; Other, Pre-Commercial Thinning - Hand; SitePrep, Trenching; Pesticide, Skidder - Site Prep; Monitoring, <u>Treatments:</u> Herbicide Use; Planting, Initial Plant; Monitoring, Artificial Regen(1yr); Monitoring, Artificial Regen(3yr) <u>Acceptable</u> Full stocking in RP <u>Regen:</u> <u>Other</u> Follow MNFI guidance for EO in powerline corridor. <u>Comment:</u> <u>Site Condition</u> Proposed Start Date: 10/1 /2023</p>											



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Treatment Name	Acres	Stand CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Age Structure	Habitat Cut
5 72209005-thin	28.3	42110 - Planted Red Pine	Sawtimber Well	67	141-170	Harvest	Crown Thinning	4211 - Planted Red Pine	Even-Aged	No
<p><u>Prescription</u> Thin to 120 sq. ft. residual. Buffer stand 8 (see SC poly). Thin within the 150-foot Natural Rivers zone if approved by Natural Rivers Program coordinators.</p> <p><u>Specs:</u></p> <p><u>Next Step</u></p> <p><u>Treatments:</u></p> <p><u>Acceptable Regen:</u></p> <p><u>Other Comment:</u></p> <p><u>Site Condition</u></p> <p><u>Proposed Start Date:</u> 10/1 /2024</p>										
17 72209017_Cut	23.6	4133 - Aspen, Mixed Pine	Sawtimber Well	96	111-140	Harvest	Clearcut with Retention	4133 - Aspen, Mixed Pine	Even-Aged	No
<p><u>Prescription</u> Cut stems 2"+ DBH except hemlock, xlog pine, and island retention (exclude the steep hillside above the cemetery). Add drumming log spec. Expand harvest into the adjacent stand 20 where the quality is low. Will need to cut ~1.5 acres of 72208020 in order to run the boundary at the bottom of the hill, along the road. The aspen there has crossed into merchantability. That portion has been merged into this comp.</p> <p><u>Specs:</u></p> <p><u>Next Step</u> Monitoring, Natural Regen (Re-Inventory)</p> <p><u>Treatments:</u></p> <p><u>Acceptable Regen:</u> Moderate stocking in A-M-C</p> <p><u>Other Comment:</u></p> <p><u>Site Condition</u></p> <p><u>Proposed Start Date:</u> 10/1 /2024</p>										
19 72209019-cc	10.4	4130 - Aspen	Sawtimber Well	99	111-140	Harvest	Clearcut	4133 - Aspen, Mixed Pine	Even-Aged	No
<p><u>Prescription</u> Harvest 2"+ DBH except hemlock & xlog pine. Add drumming log spec.</p> <p><u>Specs:</u></p> <p><u>Next Step</u> Monitoring, Natural Regen (Re-Inventory)</p> <p><u>Treatments:</u></p> <p><u>Acceptable Regen:</u> Moderate stocking in A-MC</p> <p><u>Other Comment:</u> Delay treatment to allow for potential management concurrent with adjacent 2026 YOE Comp 210</p> <p><u>Site Condition</u></p> <p><u>Proposed Start Date:</u> 10/1 /2025</p>										
25 72209025-thin	24.3	42290 - Natural Mixed Pine	Sawtimber Well	74	111-140	Harvest	Crown Thinning	42290 - Natural Mixed Pine	Two-Aged	No
<p><u>Prescription</u> Thin to 100 sq. ft., excluding the steep slope in the southwest that was excluded from the previous harvest and other areas such as the south panhandle that have lower initial stocking. Apply snowmobile trail protection specs.</p> <p><u>Specs:</u></p> <p><u>Next Step</u> SitePrep, Roller Chopping; SitePrep, Trenching; Pesticide, Skidder - Site Prep; Planting, Initial Plant; Monitoring, Artificial Regen(1yr);</p> <p><u>Treatments:</u> Monitoring, Artificial Regen(3yr); Monitoring, Herbicide Use; Pesticide, Skidder - Release; Other,</p> <p><u>Acceptable Regen:</u></p> <p><u>Other Comment:</u></p> <p><u>Site Condition</u></p> <p><u>Proposed Start Date:</u> 10/1 /2024</p>										



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Treatment Name	Acres	Stand CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Age Structure	Habitat Cut
29 72209029-Monitor	115.0	320 - Upland Shrub	Nonstocked	0	Unspecified	Monitoring	Artificial Regen(3yr)	4211 - Planted Red Pine	Even-Aged	No
<p><u>Prescription</u></p> <p><u>Specs:</u></p> <p><u>Next Step</u></p> <p><u>Treatments:</u></p> <p><u>Acceptable</u> red pine</p> <p><u>Regen:</u></p> <p><u>Other</u> Percent to Treat = 100%</p> <p><u>Comment:</u></p> <p><u>Site Condition</u></p> <p><u>Proposed Start Date:</u> 10/1 /2023</p>										
32 72209032-NF	111.5	3204 - Mast Producing Shrub	Nonstocked		Unspecified	NonForestMgt	Other - Specify	3204 - Mast Producing Shrub		No
<p><u>Prescription</u> Periodic opening maintenance, as needed, that may include disking, fertilizing, food plot seeding, no-till prairie grass drill seeding, mowing,</p> <p><u>Specs:</u> brushing, pruning, tree and shrub planting, Rx burning and herbicide application.</p> <p><u>Next Step</u></p> <p><u>Treatments:</u></p> <p><u>Acceptable</u></p> <p><u>Regen:</u></p> <p><u>Other</u> See MNFI for areas of concern.</p> <p><u>Comment:</u></p> <p><u>Site Condition</u></p> <p><u>Proposed Start Date:</u> 10/1 /2024</p>										
35 72209035-cc	15.6	4311 - Pine, Aspen Mix	Sawtimber Medium	55	81-110	Harvest	Clearcut	4139 - Aspen, Mixed Deciduous	Even-Aged	No
<p><u>Prescription</u> Harvest 2"+ DBH except protect HM regen. No retention due to small stand size. Expand into poor-quality areas of the adjacent NH stands.</p> <p><u>Specs:</u> Add drumming log spec. Add snowmobile trail protection specs.</p> <p><u>Next Step</u> Monitoring, Natural Regen (Re-Inventory)</p> <p><u>Treatments:</u></p> <p><u>Acceptable</u> Moderate stocking in aspen with lower stocked areas of WP-HM.</p> <p><u>Regen:</u></p> <p><u>Other</u></p> <p><u>Comment:</u></p> <p><u>Site Condition</u></p> <p><u>Proposed Start Date:</u> 10/1 /2024</p>										
36 72209036-Monitor	22.5	320 - Upland Shrub	Nonstocked		Unspecified	Monitoring	Herbicide Use	4211 - Planted Red Pine	Even-Aged	No
<p><u>Prescription</u></p> <p><u>Specs:</u></p> <p><u>Next Step</u> Pesticide, Skidder - Release; Other, Pre-Commercial Thinning - Hand; Monitoring, Artificial Regen(3yr)</p> <p><u>Treatments:</u></p> <p><u>Acceptable</u> Full stocking in planted RP. The use of additional site prep that may include herbicide and roller chopping was approved by variance August 7, 2018.</p> <p><u>Regen:</u></p> <p><u>Other</u> Percent to Treat = 100%</p> <p><u>Comment:</u></p> <p><u>Site Condition</u></p> <p><u>Proposed Start Date:</u> 10/1 /2020</p>										



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Treatment Name	Acres	Stand CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Age Structure	Habitat Cut
20 72209044-Cut	9.9	4112 - Maple, Beech, Cherry Association	Sawtimber Well	95	81-110	Harvest	Clearcut with Retention	4139 - Aspen, Mixed Deciduous	Even-Aged	No
<p><u>Prescription</u> Expand the stand 17 harvest boundary to incorporate adjacent lower quality areas of this stand. In this area, cut stems 2"+ DBH except</p> <p><u>Specs:</u> hemlock & xxlog pine. Add drumming log spec.</p> <p><u>Next Step</u> Monitoring, Natural Regen (Re-Inventory)</p> <p><u>Treatments:</u></p> <p><u>Acceptable</u> Aspen & northern hardwoods at moderate stocking.</p> <p><u>Regen:</u></p> <p><u>Other</u></p> <p><u>Comment:</u></p> <p><u>Site Condition</u></p> <p><u>Proposed Start Date:</u> 10/1 /2024</p>										

Total Treatment 466.1
Acreage Proposed:

Report 4 – Site Conditions

Grayling Mgt. Unit
Joan Charlebois : Examiner

Compartment: 209
Year of Entry: 2025

Availability for Management

Total Acres	Acres Available	Acres Avail		Dominant Site Conditions	Dominant Site Conditions								
		With Condition	Not Available		5C	1C	2F	2G	3A	3J	5A	5E	
222	219	0	3	Aspen			2		0				1
5	1	0	3	Herbaceous Openland		3				0			
37	37	0	0	Low-Density Trees									0
23	3	0	20	Lowland Conifers		1		3		16			
2	0	0	2	Lowland Shrub						2			
163	148	15	1	Natural Mixed Pines	15								1
203	167	0	36	Northern Hardwood	0						33		2
15	15	0	0	Planted Mixed Pines									
94	78	6	10	Red Pine	6	7				3			
14	14	0	0	Upland Mixed Forest									
265	265	0	0	Upland Shrub									0
27	26	0	0	Urban						0			0
11	11	0	0	Water						0			
4	0	0	3	White Pine									3
1,085	985	20	79	Total Forested Acres	20	11	2	3	0	22	33		9
	91%	2%	7%	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	Dominant Site Availability	Dominant Site Condition	Acres	Other Site Condition	Other Site Condition	Other Site Condition	Other Site Condition
1	Unavailable	5E: Long-Term Retention	2	Unspecified	Unspecified	Unspecified	Unspecified	Unspecified
Comments:								
2	Unavailable	5E: Long-Term Retention	1	Unspecified	Unspecified	Unspecified	Unspecified	Unspecified
Comments: Ret island left in stand 15's 2015 YOE harvest.								

Report 4 – Site Conditions

Grayling Mgt. Unit
Joan Charlebois : Examiner

Compartment: 209
Year of Entry: 2025

3	Unavailable	3J: Water quality / BMPs (stream, river, or lake)	4	Unspecified	Unspecified	Unspecified	Unspecified
Comments: May Lake 100 foot RMZ							
4	Unavailable	2G: Too wet (sensitive soils, does not include access issues)	3	Unspecified	Unspecified	Unspecified	Unspecified
Comments:							
5	Unavailable	5E: Long-Term Retention	2	Unspecified	Unspecified	Unspecified	Unspecified
Comments:							
6	Unavailable	5E: Long-Term Retention	2	Unspecified	Unspecified	Unspecified	Unspecified
Comments:							
7	Unavailable	3J: Water quality / BMPs (stream, river, or lake)	18	Unspecified	Unspecified	Unspecified	Unspecified
Comments: AuSable Natural Rivers 150 foot RMZ							
8	Unavailable	1C: Other dept or div proc/practices	8	3J: Water quality / BMPs (stream, river, or lake)	Unspecified	Unspecified	Unspecified
Comments: Part is within the 150 foot Natural Rivers zone.							
9	Unavailable	1C: Other dept or div proc/practices	1	Unspecified	Unspecified	Unspecified	Unspecified
Comments:							

Report 4 – Site Conditions

Grayling Mgt. Unit
Joan Charlebois : Examiner

Compartment: 209
Year of Entry: 2025

10	Unavailable	1C: Other dept or div proc/practices	2	Unspecified	Unspecified	Unspecified	Unspecified
Comments:							
11	Available	5C: Delay treatment for age/size class diversity or exceptional site quality	6	Unspecified	Unspecified	Unspecified	Unspecified
Comments: Shelterwood-seed overstory of xxlog pine.							
12	Available	5C: Delay treatment for age/size class diversity or exceptional site quality	15	Unspecified	Unspecified	Unspecified	Unspecified
Comments: Oversized pine on a hillside.							
13	Unavailable	2F: Too steep	2	5E: Long-Term Retention	Unspecified	Unspecified	Unspecified
Comments: Too steep to operate sidehill or downhill toward the property line. Proposed retention for the draft harvest.							
14	Unavailable	5A: Not able to obtain desirable regeneration	34	Unspecified	Unspecified	Unspecified	Unspecified
Comments: Stocking criteria flagged this stand as an area to address but there isn't consistent quality across the stand to warrant thinning. Understory is heavy to beech regen.							
16	Unavailable	5E: Long-Term Retention	1	Unspecified	Unspecified	Unspecified	Unspecified
Comments: Proposed retention for the draft harvest treatment.							

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
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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 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	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.



Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	Managed Site	General Comments																																																																								
1	4112 - Maple, Beech, Cherry Association	Sawtimber Poor	31.4	112	1-50	N/A	This portion of stand 1 (parent stand now called 101) was shelterwood harvested, by variance, as part of the MWR hardwood research project in Dec 2017 (#011-17), cutting stems 2"+ DBH except green-marked (40 sq. ft. cruised residual). Chipping was required. As part of the continuing research project, the site was herbicided in June 2020 (FTP C72-849) and scarified in Aug 2020. The regeneration will be monitored by MSU for at least five years following treatment. An acre of RP had been planted in the NW in 1956; that plantation patch was part of the shelterwood harvest and has advanced HM regen. Outside of the RP, the HM regen is in the seedling class. Scarified areas are growing over with grass. Hardware cloth stump cages were flattened by the snow. Pagewire fence enclosures held up. Stand age estimate based on the parent stand's current age.																																																																								
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2	42110 - Planted Red Pine	Sawtimber Well	41.0	67	171-200	N/A	RP was planted in 1956. Was row-thinned in 1996 (#045-95), and free thinned in 2007 (#014-05) down to 120 sq ft residual. Previous YOЕ noted pocket mortality, possible bark beetle damage. 2023 re-inv found those pockets to have self-extinguished, but there are two pockets of more recent progressing mortality that will be reported for follow-up. RP growth slowed in the last 10 years to 1-2 mm annual radial increment. Large pulp RM clumps on W edge. Heavy HW understory across most of the stand.																																																																								
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3	3301 - Low Density Deciduous Trees	Nonstocked	35.3	0	Unspecified	411 - Northern Hardwood	NH stand along w/ 2 acres of JP in the SW were final harvested by early 2019 (#034-15), cutting stems 2"+ DBH including ash snags. No retention was specified, but the strip between CR612 & the powerline corridor was excluded. The stand had previously been thinned in 1995 (#053-95) & 1973 (#011-73). Regen failed at reinventory to minimum height and desirable species stocking standards. Localized patches of acceptable regen were found on the perimeter, with the highest concentration of advanced HM sapling cover in the SW where two acres of J9 had been cut. The unshaded HM seedlings were frying in this spring's drought. Widespread cover in rubus and/or BC brush. Uneven spp distribution. See attached regen survey. Almost no stump sprouting from mature cut trees.																																																																								
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4	42141 - Planted Mixed Pine, Mixed Deciduous	Poletimber Well	15.3	25	1-50	N/A	Windbreak (mature planted JP-SP) along CR612 was clearcut in 1996 (#048-95), trenched in 1997, and JP-RP were planted in 1998 (C72-390, JP in the south, RP to north). SP seeded in heavily along the road edge. Stretches of the plantation were outcompeted by deciduous competition. Pockets of short-lived pin cherry are breaking up. Swaths of lilac in the portion west of CR612.																																																																		
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5	42110 - Planted Red Pine	Sawtimber Well	36.3	67	141-170	N/A	RP was planted in two entries (1956 & 1961) in four alternating N-S strips. Was row-thinned in 1996 (#045-95), and free thinned in 2007 (#014-05) down to 120 sq ft residual. Previous YOE noted pocket mortality, possible bark beetle damage; the pockets appear to have self-extinguished. This stand has always been treated in the past along with stand 5. Site quality is not as good as stand 5; RP residual & ave hts lower on this side of CR612. Growth slowed to 2 mm annual radial increment. Full HW understory.																																																																		
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6	3301 - Low Density Deciduous Trees	Nonstocked	1.9	0	Unspecified	No	Old opening that has been slowly filling in with maple, cherry, and RP.																																																																		
7	4111 - S.Maple, Hard Mast Association	Sawtimber Well	2.8	97	81-110	N/A	Portion of stand 3 excluded from the 2015 YOE harvest. Ages drawn from 2005 YOE. Most of the stand is NH with beech regen below; the west end has J8 with HM regen below.																																																																		
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8	310 - Herbaceous Openland	Nonstocked	1.4	0	Unspecified	No	Grassy opening with scattered RP & apple trees, patches of rubus.																																																																		
9	310 - Herbaceous Openland	Nonstocked	1.8	0	Unspecified	No	Grassy opening with mostly perimeter RP & apple trees.																																																																		
10	6220 - Alder/willow	Nonstocked	1.6	0	Unspecified	No	Lowland shrub cover (tag alder, salix, bog birch) with scattered fir, RM, & tamarack, on west edge of May Lake.																																																																		
11	500 - Water	Nonstocked	8.3	0	Unspecified	No	May Lake																																																																		



Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	Managed Site	General Comments
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12 6128 - Lowland Coniferous, Mixed Deciduous Poletimber Medium 5.6 42 111-140 N/A

Fir is filling in as the stand's older components (cedar, overmature fir & aspen) drop out of the canopy. The densest NWC cover is in the stand's E-center. Subcanopy Black Ash is unable to recruit before EAB attacks it. The stand picks up dry to intermediate ground on the west edge & NE of the Lake; the WP & traces of BC & BRO occur there. There are two inclusions of L3: a half-acre in the NE & the narrow strip SE of the Lake.

Canopy Species	% Cover	Size Class	DBH	Age
Balsam Fir	40	Pole/Sapling	6	42
Black Spruce	2	Pole	8	
Northern White Cedar	25	Pole/Log	8	126
White Pine	3	XLog/Log	22	
Quaking Aspen	10	Log/Pole	12	
Tamarack	2	Pole/Log/Sap	7	

Sub-Canopy Species	Density	Avg. Height	Size
Balsam Fir	Medium	Variable	Sapling
Black Ash	Low	Variable	Sapling
Tag Alder	Medium	10 - 20 feet	Tall Shrub
Michigan Holly	Trace	5 - 10 feet	Tall Shrub

13 42110 - Planted Red Pine Poletimber Well 6.7 67 171-200 N/A

RP was planted on 4 acres of the stand in 1956. Was row-thinned in 1996 (#045-95). Three acres of the plantation are overstocked (200+ BA), with very slow growth on codominant stems, and suppressed stems are dying out. The south acre of the plantation didn't establish as well; stocking is lower there (~140 BA) and diameters are larger. Cover in between the plantation patches includes RM, fir, HM, and traces of aspen & WP. The stand boundary picks up an opening in the NE and the two-track road corridor.

Canopy Species	% Cover	Size Class	DBH	Age
Bigtooth Aspen	1	Pole	7	
Balsam Fir	8	Pole/Sapling	6	
Red Pine	80	Pole/Log	9	67
Sugar Maple	1	Log/Pole	14	
Red Maple	10	Log/Pole	12	

Sub-Canopy Species	Density	Avg. Height	Size
Balsam Fir	Low	Variable	Sapling
Apple (spp.)	Trace	10 - 20 feet	Tall Shrub
Black Cherry	Low	Variable	Tall Shrub
Red Maple	Medium	Variable	Sapling
Beech	Low	Variable	Sapling

14 6128 - Lowland Coniferous, Mixed Deciduous Sawtimber Well 17.7 54 81-110 N/A

Long, narrow stand occupies the floodplain and first riser above the river, on ground ranging from year-round saturated to dry uplands. The overmature fir & quaking aspen have been dropping out of the canopy, with fir backfilling those gaps. There are traces of canopy black ash that haven't been impacted by EAB. The stand picks up two acres of NH in the SW, and traces of hemlock in the SE.

Canopy Species	% Cover	Size Class	DBH	Age
Balsam Fir	45	Pole/Sap/Log	7	54
Black Ash	1	Pole	8	
Red Maple	10	Log/Pole	12	
Black Cherry	1	Pole/Log	8	
Yellow Birch	1	Pole/Log	8	
Tamarack	7	Pole/Log/Sap	8	
Black/Red (Hybrid) Oak	1	Log	11	
Balsam Poplar	1	Pole/Sapling	6	
Hemlock	1	Log	15	
Northern White Cedar	20	Log/Pole	11	119
Paper Birch	2	Pole/Log/Sap	6	
Sugar Maple	5	Log	14	

Sub-Canopy Species	Density	Avg. Height	Size
Tag Alder	Medium	10 - 20 feet	Tall Shrub
Beech	Low	5 - 10 feet	Sapling
Willow spp.	Low	10 - 20 feet	Sapling
Choke Cherry	Low	Variable	Tall Shrub
Apple (spp.)	Trace	10 - 20 feet	Tall Shrub
Balsam Fir	Medium	Variable	Sapling
Red Maple	Low	Variable	Sapling
Sugar Maple	Low	5 - 10 feet	Sapling



Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	Managed Site	General Comments	
15	4130 - Aspen	Sapling Well	47.6	5	Immature	N/A	Aspen stand was final harvested w/ retention in 2018 (#040-16), cutting stems 2"+ DBH except green-marked (widely scattered xlog RP-WP), and a retention island by the snow trail. Aspen filled in well, mostly BTA, w/ QA increasing in the SE.	
Canopy Species		% Cover	Size Class	DBH	Age	Sub-Canopy Species		
White Pine		1	XLog/Log/Pole	18		Hazelnut (Beaked)		
Bigtooth Aspen		70	Sapling	1	5	Serviceberry (Juneberry)		
Red Maple		10	Sapling	1	5	Black Cherry		
Bigtooth Aspen		3	Log	10	57	Maple Leaved Viburnum		
Quaking Aspen		10	Sapling	1	5			
Ironwood		1	Sapling	1				
Sugar Maple		5	Sapling	1	5			
16	42260 - Natural Pine, Mixed Deciduous	Sawtimber Well	15.0	95	111-140	N/A	Stand is heavy to oversized WP-RP with a significant deciduous component. The proportion in WP increases moving north, with the densest pocket in the NW. Occupies a hillside that backs up to the developed residential SE edge of the Village of Frederic.	
Canopy Species		% Cover	Size Class	DBH	Age	Sub-Canopy Species		
Red Pine		10	XLog/Log	18		American Fly Honeysuckle		
Red Maple		20	Pole/Log	8		Hazelnut (Beaked)		
Bigtooth Aspen		10	Log	12		Red Maple		
White Pine		50	XLog/Log	22	95	White Pine		
Paper Birch		8	Pole	8		Beech		
Hemlock		2	Log/XLog	15				
17	4133 - Aspen, Mixed Pine	Sawtimber Well	25.3	96	111-140	N/A	Overmature AMC stand on steeply rolling terrain. The WP-RP increases to the N & W. Traces of hemlock scattered across the stand. The stand's south end picks up 1.3 acres of comp 206 stand 20's 40-year old aspen in order to run the boundary at the bottom of the hill along May Lake Rd; that younger inclusion is not reflected in the canopy data.	
Canopy Species		% Cover	Size Class	DBH	Age	Sub-Canopy Species		
Beech		2	Pole/Log	8		Sugar Maple		
Bigtooth Aspen		55	Log/Pole	12	96	Beech		
Red Pine		10	XLog/Log/Pole	18		Hazelnut (Beaked)		
Paper Birch		3	Pole/Log	7		Red Maple		
Red Maple		18	Pole/Log/Sap	7		Ironwood		
White Pine		10	XLog/Log/Pole	20	100			
Sugar Maple		2	Pole/Log	8				
18	42210 - Natural Red Pine	Sawtimber Poor	6.0	109	1-50	N/A	Mixed pine stand was shelterwood harvested in 2009 (#015-05), cutting merch stems except green-marked. Contractor cruised RP-WP residual of 45 sq. ft. Left a sparse canopy of xlog pine above dense regen: A-RM on the flats gives way to WP-RO on the hillside. Stand age is from the 2005 YOE. One RP cored this YOE was 84 yrs old; that may represent a second age class but more trees were not cored to confirm.	
Canopy Species		% Cover	Size Class	DBH	Age	Sub-Canopy Species		
Red Pine		60	XLog/Log	20	109	White Pine		
White Pine		40	XLog	25		Beech		
						Hazelnut (Beaked)		
						Red Maple		
						Red Oak		
						Bigtooth Aspen		



Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	Managed Site	General Comments	
19	4130 - Aspen	Sawtimber Well	10.9	99	111-140	N/A	Overmature aspen with RM and WP-RP (mainly xlog). Deep list of minor species. On rolling terrain. There are small pockets of younger pole aspen and scattered vastly overmature xlog aspen. Full understory cover in varying distribution of WP, maple and beech. Far NW panhandle has a grassy opening inclusion by Old 27.	
Canopy Species		% Cover	Size Class	DBH	Age	Sub-Canopy Species		
Red Oak		1	Log/Pole/XLog	16		Beech		
Paper Birch		2	Pole/Log	8		Low		
Quaking Aspen		1	Pole/Log	9		Variable		
Bigtooth Aspen		66	Log/Pole/XLog	14	99	5 - 10 feet		
Beech		3	Pole/Log	9		Tall Shrub		
Red Maple		15	Pole/Log/Sap	7		Sapling		
Hemlock		1	Log	12		Low		
White Pine		8	XLog/Log/Pole	22		< 5 feet		
Balsam Fir		1	Pole	7		Tall Shrub		
Red Pine		2	XLog/Log	20		Sapling		
20	4112 - Maple, Beech, Cherry Association	Sawtimber Well	55.7	95	81-110	N/A		NH stand on rolling hills was thinned in 2010 (#016-05), cutting marked stems and all aspen, down to a contractor cruised resid of 100 sq ft. Half the volume removed was aspen, the rest was HWs. Stand has a relatively high proportion in RM-beech, unevenly distributed. The RM form leans toward doubles and triples but does occur more as single stems in the center of the stand. BBD impact ranges from fading crowns, to standing dead, to windthrown, with the occasional healthy-looking beech. There is more hemlock by BA than canopy % due to that species' suppressed crown position. Traces of uncut aspen, RO, & WO. Heavy beech understory. Most of the aspen regen is in the SW panhandle where the residual is lower (mostly RM pole clumps there, with top mortality from overexposure). Only a subset of the stand is of a quality to warrant thinning. Age used was from the 2005 YOE.
Canopy Species		% Cover	Size Class	DBH	Age	Sub-Canopy Species		
Beech		18	Log/Pole	12		Beech		
White Pine		2	XLog/Log/Pole	22		Full		
Hemlock		2	Log/Pole/XLog	15		Variable		
Red Pine		1	Log/XLog	16		< 5 feet		
Sugar Maple		46	Log/Pole	12	95	Seeding		
Paper Birch		1	Log/Pole	11		Low		
Red Maple		30	Log/Pole	14		Variable		
						>20 feet		
21	110 - Low Intensity Urban	Nonstocked	1.2		Unspecified		Well Site. Breitburn St. Frederic, A1-36. Steep access road is eroding.	
22	4130 - Aspen	Poletimber Well	7.2	37	51-80	N/A	Mature aspen stand was final harvested in 1986 (#009-86), spec'd to cut merch stems. Regenerated well to aspen with pockets of WP. Residual WP-RP is now saw-sized.	
Canopy Species		% Cover	Size Class	DBH	Age	Sub-Canopy Species		
Paper Birch		1	Pole/Sapling	5		Black Cherry		
White Pine		10	Pole/Sap/Log	7		Low		
Bigtooth Aspen		65	Pole/Sapling	6	37	5 - 10 feet		
Red Maple		10	Sapling/Pole	3	37	Tall Shrub		
Red Pine		5	Log/Pole	12		Low		
Quaking Aspen		9	Pole/Sapling	5	37	Variable		
						Sapling		
						5 - 10 feet		



Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	Managed Site	General Comments				
23	42290 - Natural Mixed Pine	Poletimber Well	22.6	65	81-110	N/A	Widely-scattered xlog WP seeded in the majority pole-small saw WP cover. Small pockets of aspen occur throughout. RP increases moving uphill, ending with patches of dense log-xlog RP in the stand's north end. The RP has representation in both age classes, but the older age was listed for that canopy record in order to reflect the stand's 2nd age. Stand is close to having to be called log overall.				
Canopy Species		% Cover	Size Class	DBH	Age	Sub-Canopy Species		Density	Avg. Height	Size	
Red Pine		25	Log/XLog/Pole	17	116	White Pine		Medium	Variable	Sapling	
Bigtooth Aspen		1	Log/Pole	11		Beech		Low	Variable	Sapling	
Jack Pine		1	Pole	7		Black Cherry		Low	5 - 10 feet	Sapling	
Red Maple		4	Pole	7		Red Maple		Medium	5 - 10 feet	Sapling	
Quaking Aspen		14	Pole/Log	9		Hazelnut (Beaked)		Medium	5 - 10 feet	Tall Shrub	
White Pine		55	Pole/Log/XLog	8	65	Serviceberry (Juneberry)		Low	< 5 feet	Tall Shrub	
24	42111 - Planted Red Pine, Mixed Deciduous	Poletimber Medium	4.0	25	1-50	N/A		Windbreak of mature JP-SP was final harvested in 1996 (#057-95), cutting stems 2"+ DBH. Part of the cut strip's width was trenched in 1997 & planted to RP in 1998 (C72-390). Intact plantation alternates with stretches where the RP was outcompeted by natural regen.			
Canopy Species		% Cover	Size Class	DBH	Age	Sub-Canopy Species			Density	Avg. Height	Size
Red Pine		60	Sapling/Pole	4	25	Choke Cherry			Low	5 - 10 feet	Tall Shrub
Black Cherry		5	Pole/Sapling	5		Serviceberry (Juneberry)			Low	5 - 10 feet	Tall Shrub
Red Oak		1	Pole/Sapling	5		Hazelnut (Beaked)			Low	5 - 10 feet	Tall Shrub
Red Maple		5	Sapling	2	27	Wild Raisin			Trace	5 - 10 feet	Tall Shrub
Scotch Pine		5	Pole/Sapling	6		Black Cherry			Low	5 - 10 feet	Sapling
Jack Pine		5	Pole/Sapling	5							
Quaking Aspen		5	Sapling	3	27						
Bigtooth Aspen		4	Sapling/Pole	3	27						
25	42290 - Natural Mixed Pine	Sawtimber Well	35.3	74	111-140	N/A	Mixed pine stand was thinned in 2009 (#015-05), cutting marked RP-WP, merch aspen, and merch RM except on a 4-acre strip in the NE by stand 27. Contractor cruised RP-WP residuals ranged from 80-100 sq. ft. The steep SW end was excluded from the harvest. Stand has variable species distribution, stocking, & diameters. RP increases toward CR612 and east of Spy Trail. Stand ave diameters and stocking in general increase toward CR612. The south panhandle has lower stocking and mostly WP. 2005 YOE stand age was 87. Ave small saw WP cored 74 yrs. Ave RP cored 100 yrs. There appears to be a second older age class in the WP similar to the RP's. RP has better form than the WP. Epicormic branching on the smaller-diam WP. Some laddering branch mortality in the RP. Scattered dead stems of both spp. Full advanced deciduous understory. Hazelnut subcanopy record was used to also represent the other minor shrubs present (canada fly honeysuckle, maple leaved viburnum, serviceberry, wild raisin, choke cherry). There is a dense strip of younger WP fronting CR612.				
Canopy Species		% Cover	Size Class	DBH	Age	Sub-Canopy Species		Density	Avg. Height	Size	
Red Pine		44	Log/XLog	16	100	Black Cherry		Low	5 - 10 feet	Tall Shrub	
Red Maple		1	Pole/Log	8		Beech		Medium	Variable	Sapling	
White Pine		55	Log/Pole/XLog	14	74	Bigtooth Aspen		Low	>20 feet	Sapling	
						White Pine		Low	Variable	Sapling	
						Quaking Aspen		Low	>20 feet	Sapling	
						Red Maple		Medium	>20 feet	Sapling	
						Sugar Maple		Low	Variable	Sapling	
						Hazelnut (Beaked)		Full	5 - 10 feet	Tall Shrub	



Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	Managed Site	General Comments
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26	4130 - Aspen	Poletimber Well	53.8	36	81-110	N/A	Mature aspen stand was final harvested in 1987 (#049-85), cutting stems 2"+ DBH except for scattered perimeter pine. Regenerated well to aspen with NH components. Some perimeter BTA have moved into the saw class.
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Canopy Species	% Cover	Size Class	DBH	Age	Sub-Canopy Species	Density	Avg. Height	Size
Red Maple	10	Sapling/Pole	4	36	Black Cherry	Medium	5 - 10 feet	Tall Shrub
Quaking Aspen	15	Pole/Sapling	5	36	Serviceberry (Juneberry)	Trace	>20 feet	Tall Shrub
Pin Cherry	1	Sapling	4	36	Sugar Maple	Medium	Variable	Sapling
Paper Birch	1	Pole/Sapling	5	36	Ironwood	Low	Variable	Sapling
Bigtooth Aspen	60	Pole	6	36				
Sugar Maple	10	Sapling	3	36				
Beech	2	Sapling	3					
White Pine	1	Pole	7					

27	4130 - Aspen	Poletimber Well	17.8	36	51-80	N/A	Mature aspen stand was final harvested in 1987 (#049-85), cutting stems 2"+ DBH except for a strip of pine excluded on the east edge. Regenerated well to aspen with minor NH components. Occasional log BTA in the residual pine on the east edge.
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Canopy Species	% Cover	Size Class	DBH	Age	Sub-Canopy Species	Density	Avg. Height	Size
White Pine	6	Log/Pole/XLog	14		White Pine	Low	Variable	Sapling
Bigtooth Aspen	75	Pole/Sapling	6	36	Black Cherry	Low	5 - 10 feet	Tall Shrub
Sugar Maple	2	Sapling	3	36	Red Maple	Low	10 - 20 feet	Sapling
Pin Cherry	1	Pole/Sapling	5	36	Serviceberry (Juneberry)	Trace	>20 feet	Tall Shrub
Red Pine	1	Log/Pole/XLog	14		Maple Leaved Viburnum	Trace	< 5 feet	Tall Shrub
Red Maple	5	Sapling/Pole	4	36	Hazelnut (Beaked)	Low	5 - 10 feet	Tall Shrub
Paper Birch	5	Pole/Sapling	5	36				
Quaking Aspen	5	Pole	6	36				

28	4112 - Maple, Beech, Cherry Association	Sawtimber Well	33.5	96	111-140	N/A	Lower quality NH stand. A minority of the HM-RM are clean-boled; more common are doubles, triples, & poorly-healed branch scars. BBD impact ranges from fading crowns to standing dead and deadfalls. The overmature aspen has been dropping out of the canopy. Second age class present in small pole RM-beech-HM that filled in large gaps around xlog open-grown HM & beech. RM has as much in saw as poles but applied the 2nd age class to the RM canopy record to represent for the other species. RM increases on the lower slopes. Heavy beech understory. Locally full cover in HM regen below the pockets of aspen.
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Canopy Species	% Cover	Size Class	DBH	Age	Sub-Canopy Species	Density	Avg. Height	Size
Quaking Aspen	3	Log/Pole	11	60	Beech	High	Variable	Sapling
White Pine	3	Log/XLog/Pole	16		Ironwood	Low	>20 feet	Sapling
Bigtooth Aspen	6	Log/Pole	13		Sugar Maple	Low	< 5 feet	Seeding
Sugar Maple	70	Log/Pole/XLog	11	96	Sugar Maple	Low	Variable	Sapling
Red Pine	1	Log/XLog	16					
Beech	5	Log/Pole/XLog	12					
Hemlock	1	Pole/Log	8					
Red Maple	10	Pole/Log/Sap	7	61				
Paper Birch	1	Pole/Log	8					



Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	Managed Site	General Comments									
29	320 - Upland Shrub	Nonstocked	127.1	0	Unspecified	4211 - Planted Red Pine	Grown-over portions of the former Deward Orchard were final harvested in 2018 (#044-15) along with strips of planted WP-WS in the north end. Two retention islands were left of the plantation strips. Most of the site was roller-chopped in 2019 (C72-852). Contract trenched May 2020. Contract site prep sprayed June 2021. PRT RP planted May 2022. Ave 772 TPA across the treatment area, ave 918 linear TPA within the trenches. The area could not be uniformly trenched due to protected apple & pear trees scattered throughout. If pear had been available in the species list, it would have been recorded as trace, 10-20 ft tall. Sept 2022 PUER found 80% control of the A & 70% control of the RM-BC, with many skips in the spray pattern needed to protect the apple trees. Yr 1 regen survey Oct 2022 found 842 TPA RP at 95% FTG. Seedlings at re-inventory the following spring were snowload flattened but likely to recover.									
								Sub-Canopy Species	Density	Avg. Height	Size					
								Bigtooth Aspen	Trace	< 5 feet	Sapling					
								Apple (spp.)	Trace	10 - 20 feet	Pole					
								Red Pine	Trace	< 5 feet	Seeding					
								Black Cherry	Trace	< 5 feet	Tall Shrub					
								Quaking Aspen	Trace	5 - 10 feet	Sapling					
								Red Maple	Low	5 - 10 feet	Sapling					
								White Pine	Trace	Variable	Sapling					
								Serviceberry (Juneberry)	Trace	< 5 feet	Tall Shrub					
30	4130 - Aspen	Sapling Well	15.2	14	1-50	N/A	Mature AMC stand was harvested in 2009 (#015-05), cutting only the merch A-RM. The residual WP-RP is mostly in the stand's NW and the residual NH is mostly in the SE. BTA established well except where residual was denser. The HM canopy record also includes the traces of residual RM & beech. 2nd age estimate drawn from the current WP age in adjacent stand 25.									
								Canopy Species	% Cover	Size Class	DBH	Age	Sub-Canopy Species	Density	Avg. Height	Size
								Beech	2	Sapling	2	14	Black Cherry	Low	5 - 10 feet	Sapling
								Ironwood	2	Sapling	2		Beech	Medium	5 - 10 feet	Sapling
								White Pine	15	Log/XLog/Pole	16	74	Sugar Maple	Low	5 - 10 feet	Sapling
								Bigtooth Aspen	60	Sapling	2	14	American Fly Honeysuckle	Low	< 5 feet	Tall Shrub
								Sugar Maple	10	Pole/Log	8					
								Red Maple	10	Sapling	1	14				
								Paper Birch	1	Pole	7					
31	42100 - Planted White Pine	Sawtimber Well	3.5	56	171-200	N/A	Retention islands left within stand 29's harvest in 2018 (#044-15). Strips of WP & WS had been planted in 1967 around scattered xlog WP.									
								Canopy Species	% Cover	Size Class	DBH	Age				
								White Pine	75	Log/Pole/XLog	11	56				
								Quaking Aspen	5	Pole/Log	8					
White Spruce	20	Pole/Log	9	56												
32	3204 - Mast Producing Shrub	Nonstocked	111.8		Unspecified	Managed Opening	Part of the large former Ward Orchard. Sketchy rows of apple and pear trees are still visible, along with colonizing shrub (BC, ground juniper, serviceberry, Ionicera) and tree cover (WP, RP, JP, aspen). Part of the stand was brushed in 2016 (W72-759).									



Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	Managed Site	General Comments
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33	42260 - Natural Pine, Mixed Deciduous	Poletimber Poor	90.6	35	1-50	N/A	<p>Encroaching tree cover on this part of the former Ward Orchard has crossed the forested benchmark. Sketchy rows of apple and pear trees are still visible. Given how this stand established over time, there isn't a bright line between it and the still non-forested part of the orchard (stand 32), nor is there a distinct canopy vs. subcanopy level, or discrete age classes. Open-grown form is common, reducing saw-sized material to oversized pulp.</p> <p>The planted apple and pear trees were considered part of the subcanopy. The pear could not be listed because it wasn't available in the species drop-down. The honeysuckle spp record is for one of the non-native bush honeysuckles. There are some nice pockets of advanced HM regen under the aspen and WP. RP age is from the 2005 YOE. BTA age is from the 1995 YOE.</p>		
Canopy Species	% Cover	Size Class	DBH	Age	Sub-Canopy Species	Density		Avg. Height	Size
Quaking Aspen	7	Pole/Log	9		Serviceberry (Juneberry)	Trace		Variable	Tall Shrub
Black Cherry	10	Pole/Log/Sap	7		White Pine	Low		Variable	Sapling
Red Maple	3	Pole/Sapling	6		Black Cherry	Medium		5 - 10 feet	Tall Shrub
White Pine	50	Pole/Log/XLog	9	35	Autumn Olive	Trace		5 - 10 feet	Tall Shrub
Scotch Pine	1	Pole/Log/Sap	7		Staghorn Sumac	Trace		5 - 10 feet	Tall Shrub
Bigtooth Aspen	10	Log/Pole	12	88	Quaking Aspen	Trace		5 - 10 feet	Sapling
Jack Pine	1	Pole/Log	9		Choke Cherry	Low		Variable	Tall Shrub
Sugar Maple	7	Pole/Sap/Log	5		Common Or Ground Juniper	Low		< 5 feet	Tall Shrub
Red Pine	10	Log/Pole/XLog	16	69	Blackberry/Raspberry	Low		< 5 feet	Tall Shrub
Beech	1	Pole/Sapling	6		Apple (spp.)	Low		10 - 20 feet	Tall Shrub
					Hawthorn (spp.)	Trace		10 - 20 feet	Tall Shrub
					Sugar Maple	Low		Variable	Sapling
					Honeysuckle (spp.)	Trace		5 - 10 feet	Tall Shrub

34	4130 - Aspen	Poletimber Well	44.2	28	51-80	N/A	<p>Mature A-B-M stand was final harvested in 1995 (#049-95), cutting stems 2"+ DBH except a pocket of pine in the NE. Regenerated well to aspen with NH components. Still transitioning into the pole class but enough stems are 5"+ DBH (>30%) that it has to be called pole overall.</p>		
Canopy Species	% Cover	Size Class	DBH	Age	Sub-Canopy Species	Density		Avg. Height	Size
Sugar Maple	10	Sapling	2	28	Serviceberry (Juneberry)	Trace		>20 feet	Tall Shrub
Red Maple	10	Sapling	2	28	Ironwood	Low		10 - 20 feet	Sapling
Quaking Aspen	30	Sapling/Pole	4	28	Sugar Maple	Medium		Variable	Sapling
White Pine	5	Pole/Log/Sap	6		Hazelnut (Beaked)	Low		5 - 10 feet	Tall Shrub
Paper Birch	3	Sapling/Pole	4	28					
Bigtooth Aspen	42	Sapling/Pole	4	28					

35	4311 - Pine, Aspen Mix	Sawtimber Medium	13.7	55	81-110	N/A	<p>Most of the stand was non-forested on the 1938 air photos. Tree cover filled in over time.</p> <p>From west to east, the stand starts with overmature aspen, shifts to mature aspen, then limby open-grown WP, and ends with overmature aspen in the NE. Traces of SP. WP age is from the 1995 YOE. The aspen-dominated cover is at 75-100% canopy closure; the WP is at 25-50%, stand ave's in the high end of 50-75%. Well-established HM regen under the aspen & WP.</p>		
Canopy Species	% Cover	Size Class	DBH	Age	Sub-Canopy Species	Density		Avg. Height	Size
Red Maple	10	Pole/Sapling	6		Sugar Maple	Medium		Variable	Sapling
Beech	3	Pole/Sapling	6		Ironwood	Trace		Variable	Sapling
Sugar Maple	5	Pole/Log	8		Sugar Maple	Medium		< 5 feet	Seeding
Red Pine	1	Log/XLog	16		Beech	Low		Variable	Sapling
Paper Birch	2	Pole	7						
Ironwood	3	Pole	6						
White Pine	40	Log/XLog/Pole	15	55					
Quaking Aspen	5	Log	12						
Red Oak	1	Pole/Sapling	6						
Bigtooth Aspen	30	Log/Pole	12	66					



Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	Managed Site	General Comments									
36	320 - Upland Shrub	Nonstocked	26.5		Unspecified	4211 - Planted Red Pine	RP plantation was final harvested in 2018 (#044-15), leaving an uncut strip along the N & E sides. Additional site prep (herbicide, chopping) was approved by variance August 7, 2018. Was site prep sprayed in June (C72-852) & trenched in July 2019. Planting delayed due to seedling shortage. Second site prep spraying done by WWS contractor in June 2020. Planted 1047 TPA PRT RP in April 2021. FRS Oct 2021 Yr 1 survey: 922 TPA, 79% FTG, 4.5% mortality, with cherry the primary competitor, O-RM secondary. Re-inv spring 2023 found very little yr 2 mortality, robust RP seedlings, but resurging cherry competition. Yr 3 regen survey scheduled for this summer. The uncut strips along the PVT & Kolka Creek Rd have a mix of SP, RM, BC, RP, O, WP, fir and shrub cover.									
								Sub-Canopy Species	Density	Avg. Height	Size					
								Black Cherry	Low	>20 feet	Pole					
								Choke Cherry	Low	< 5 feet	Tall Shrub					
								Red Maple	Low	>20 feet	Pole					
								Black Cherry	Medium	5 - 10 feet	Tall Shrub					
								Red Pine	Low	< 5 feet	Seeding					
								Serviceberry (Juneberry)	Low	5 - 10 feet	Tall Shrub					
Scotch Pine	Low	>20 feet	Pole													
37	310 - Herbaceous Openland	Nonstocked	1.4		Unspecified	No	Remnant of a large former opening visible on the 1938 air photos. A gas well was active here 2 YOEs ago. Grass with encroaching BC, HM, WP, A.									
38	122 - Road/Parking Lot	Nonstocked	8.5	0	Unspecified	No	CR 612 and utility corridors.									
39	122 - Road/Parking Lot	Nonstocked	12.4		Unspecified		Cleared county road and utility corridors and snowmobile trail parking lot.									
40	110 - Low Intensity Urban	Nonstocked	1.2		Unspecified		Well Site Breitburn St. Frederic D2-36.									
41	110 - Low Intensity Urban	Nonstocked	2.1		Unspecified		Pair of well sites: Breitburn St. Frederic B4-36 and B4-36 HDN. Monitoring well on SW corner of well pad.									
42	110 - Low Intensity Urban	Nonstocked	1.2		Unspecified		Well site: Breitburn St. Frederic D4-36.									
43	500 - Water	Nonstocked	3.0	0	Unspecified	No	AuSable River									
101	4110 - Sugar Maple Association	Sawtimber Well	79.3	112	81-110	N/A	NH stand was thinned in 1997 (#066-95), cutting marked trees and all aspen, down to a residual of 80 sq ft. Half of the stand occupies a steep east aspect. Variable species distribution: tree quality & proportion in HM & basswood increase moving uphill to the west; RM increases on the flats to the east (RM quality drops to oversized pulp by the RP plantation, HM quality is poorer there also). The stand picks up two lower-stocked inclusions that experienced more disturbance in the past: 4 acres in the NE that look like they were pastured, and 3 acres in the SE that were used as a target range by the Frederic Boy Scouts through use permits issued between 1956-1961. Those two areas were excluded from the QD cruise. The traces of aspen are mainly in the NE 4 acres; that area also has the best advanced HM regen. Understory across the rest of the stand has full cover in a combination of IW & beech. Traces of canopy hemlock, WP, IW & oak.									
								Canopy Species	% Cover	Size Class	DBH	Age	Sub-Canopy Species	Density	Avg. Height	Size
								Sugar Maple	75	Log/Pole/XLog	13	112	Sugar Maple	Trace	< 5 feet	Seeding
								Red Maple	15	Log/XLog/Pole	14		Ironwood	High	Variable	Sapling
								Black Cherry	1	Log	14		White Pine	Trace	Variable	Sapling
								Basswood	7	Log/XLog	16		Hemlock	Trace	10 - 20 feet	Sapling
								Beech	1	Log/Pole	14		Beech	High	Variable	Sapling
								Yellow Birch	1	Log/Pole	11		Sugar Maple	Low	Variable	Sapling