



# Compartment Review Presentation

## Grayling Forest Management Unit

Compartment 72236

Entry Year 2021

Acreage: 977

County Crawford

Management Area: AuSable Outwash

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**Revision Date:** 2019-08-27

**Stand Examiner:** John St. Pierre

**Legal Description:**

T26N R03W Section 1, 12 and 13

**Identified Planning Goals:**

To maintain forest health, productivity, sustainability, species diversification, and structural diversity throughout the compartment while providing for multiple use and visual management.

**Soil and topography:**

Soil types within the compartment consist mostly of Grayling, Graycalm, and Croswell-AuGres sands on the uplands, and Lupton-Tawas mucks along the Au Sable River. Topography is generally flat north of M-72 East except for the Au Sable River corridor, and it gradually turns to rolling terrain south of M-72 East.

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

About half of the compartment is bounded by private property, while the remainder is bounded by State ownership. The compartment consists of two separate blocks. The smaller block is located north of the Au Sable River in section 1. The larger southern block begins just south of the Au Sable River and is bisected by M-72 East. The compartment contains the Keystone Landing State Forest Campground.

**Unique Natural Features:**

The Au Sable River flows through the compartment in section 12. There is the potential for rare plant and animal species to be associated with the river corridor and upland outwash plains.

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

None known at this time.

**Special Management Designations or Considerations:**

The Au Sable is a designated Natural River and High Conservation Value Area (HCVA). Natural River regulations are applied within the riparian management zone. The Keystone Landing State Forest Campground is a concentrated recreation Special Conservation Area (SCA).

**Watershed and Fisheries Considerations:**

The Au Sable River is a high priority cold-water trout stream.

**Wildlife Habitat Considerations:**

The compartment's diverse mix of upland cover types and the Au Sable's riparian corridor provide habitat for a variety of game and non-game wildlife species.

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

Several active sand/gravel pits exist in this area, and there is good sand & gravel potential within the compartment. There is no current or past oil & gas production in the area and there are no active leases. One test well was drilled about one mile to the southeast in the 1960s and was a dry hole. State mineral rights in the compartment were previously under lease to Marathon, who acquired the leases from Encana, but Marathon has since abandoned its development plans in the state. Oil & gas potential within the compartment is considered low at this time. There is no known metallic mineral potential in this part of the state.

**Vehicle Access:**

The compartment's north block is accessible from North Down River Road, S. Whirlpool Road, and an unnamed forest road that crosses through from compartment 235. The southern block is accessible from county roads including M-72 East, Keystone Landing Road and S. Thendara Road. Elbow Trail, a state forest road, runs north off M-72 and provides access to private residences along the Au Sable River. Best access to the south end of the compartment is by way of forest roads that travel east off Staley Lake Rd.

**Survey Needs:**

None at this time.

**Recreational Facilities and Opportunities:**

Many recreational opportunities exist within this compartment, such as camping, canoe/kayaking, fishing, hunting, and general meandering. The Keystone Landing State Forest Campground is located on the Au Sable River. There is a boating access site west of the campground that provides for carry-in launching only.

**Fire Protection:**

The compartment contains areas of fire prone species such as jack pine and red pine. The road system within the compartment is adequate for fire equipment access into most areas. The nearest water source is the Au Sable River.

**Additional Compartment Information:****The following reports from the Inventory are attached:**

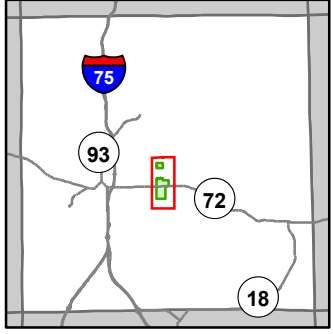
- Total Acres by Cover Type and Age Class**
- Cover Type by Harvest Method**
- Proposed Treatments – No Limiting Factors**
- Proposed Treatments – With Limiting Factors**
- Stand Details (Forested and Nonforested)**
- Dedicated and Proposed Special Conservation Areas**
- Site Condition Details**

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

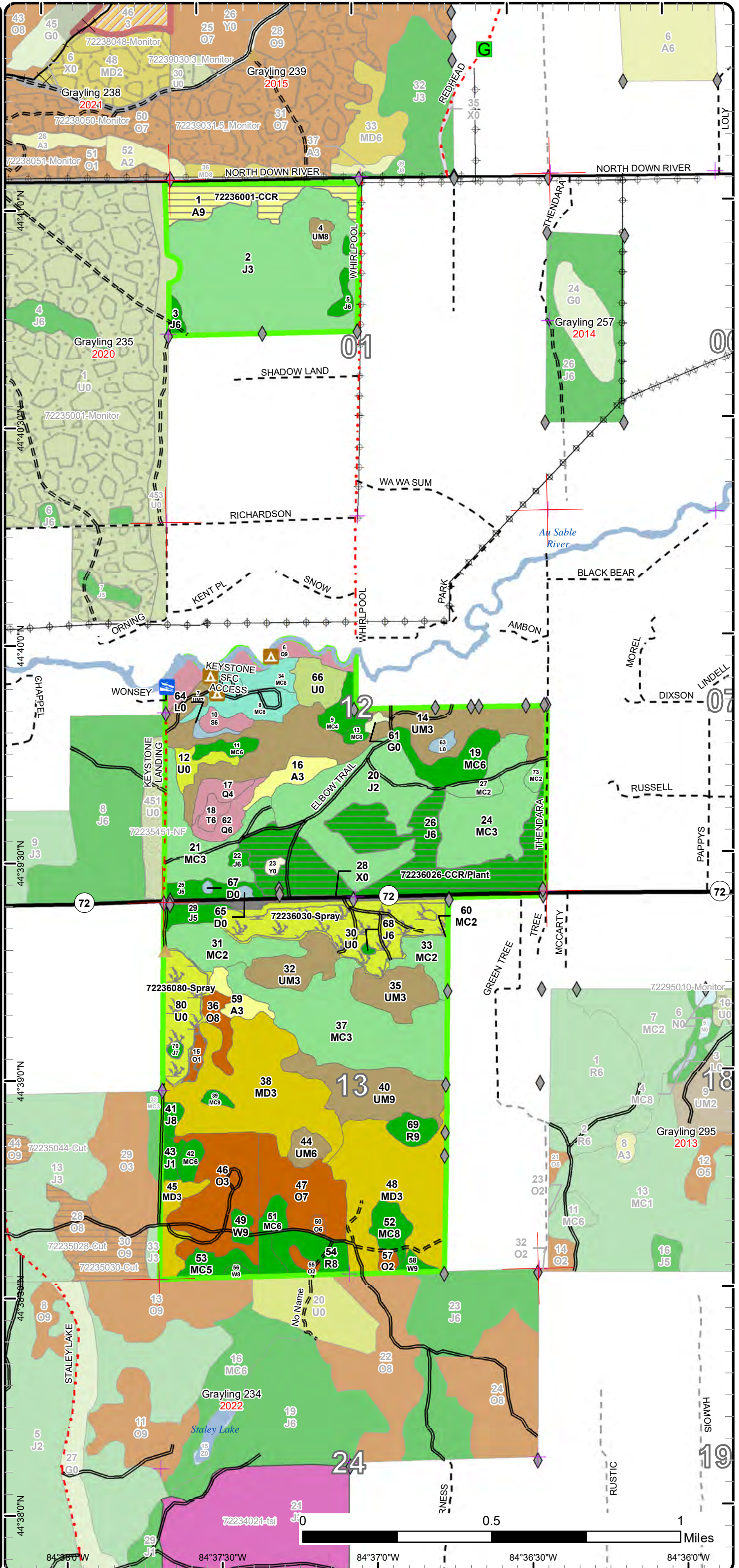
- Base feature information, stand boundaries, cover types, and numbers**
- Proposed treatments**
- Site condition boundaries**
- Details on the road access system**

# Cover Type & Treatments Map

Compartment: 236  
 T26N, R03W, Sec. 1, 12-13  
 County: Crawford  
 Unit: Grayling  
 Mgmt Area: AuSable Outwash  
 YOE: 2021  
 Acres: 977 GIS Calculated  
 Examiner: John St. Pierre  
 Map Revised: 11/27/2019  
 Map Phase: Post-Review

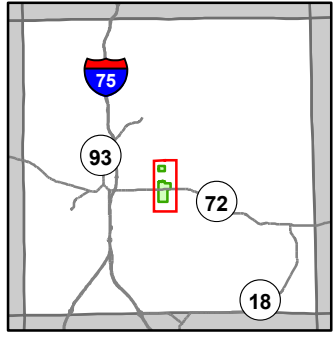


- Miris Corners
- + Remonumented Section Corners
- ◆ Field Grade Corners
- Counties
- DNR - Secondary Forest Road
- DNR - Forest Access Route
- Federal / State Highway
- Federal / State / County - Paved Road
- Federal / State - Dirt / Gravel Road
- County - Gravel Road
- Private - Dirt / Gravel Road
- Lake/Pond
- Perennial River
- Lakes and Rivers
- Berms
- Gate
- Boating Access Site
- Campground
- Powerline
- Compartment Boundary
- Pesticide
- Clearcut (w/Reserves)
- Regeneration Survey
- 412 - Oak Types
- 413 - Aspen
- 419 - Mixed Upland Deciduous
- 421 - Planted Pines
- 422 - Natural Pines
- 429 - Mixed Upland Conifers
- 430 - Upland Mixed Forest
- 612 - Lowland Coniferous Forest
- 122 - Roads/Parking Lot
- 310 - Herbaceous Openland
- 320 - Upland Shrub
- 330 - Low Density Trees
- 622 - Lowland Shrub
- 710 - Sand/Soil

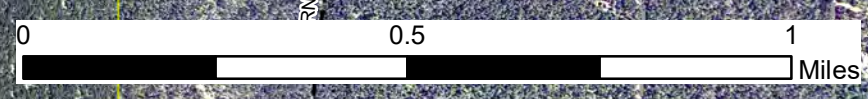
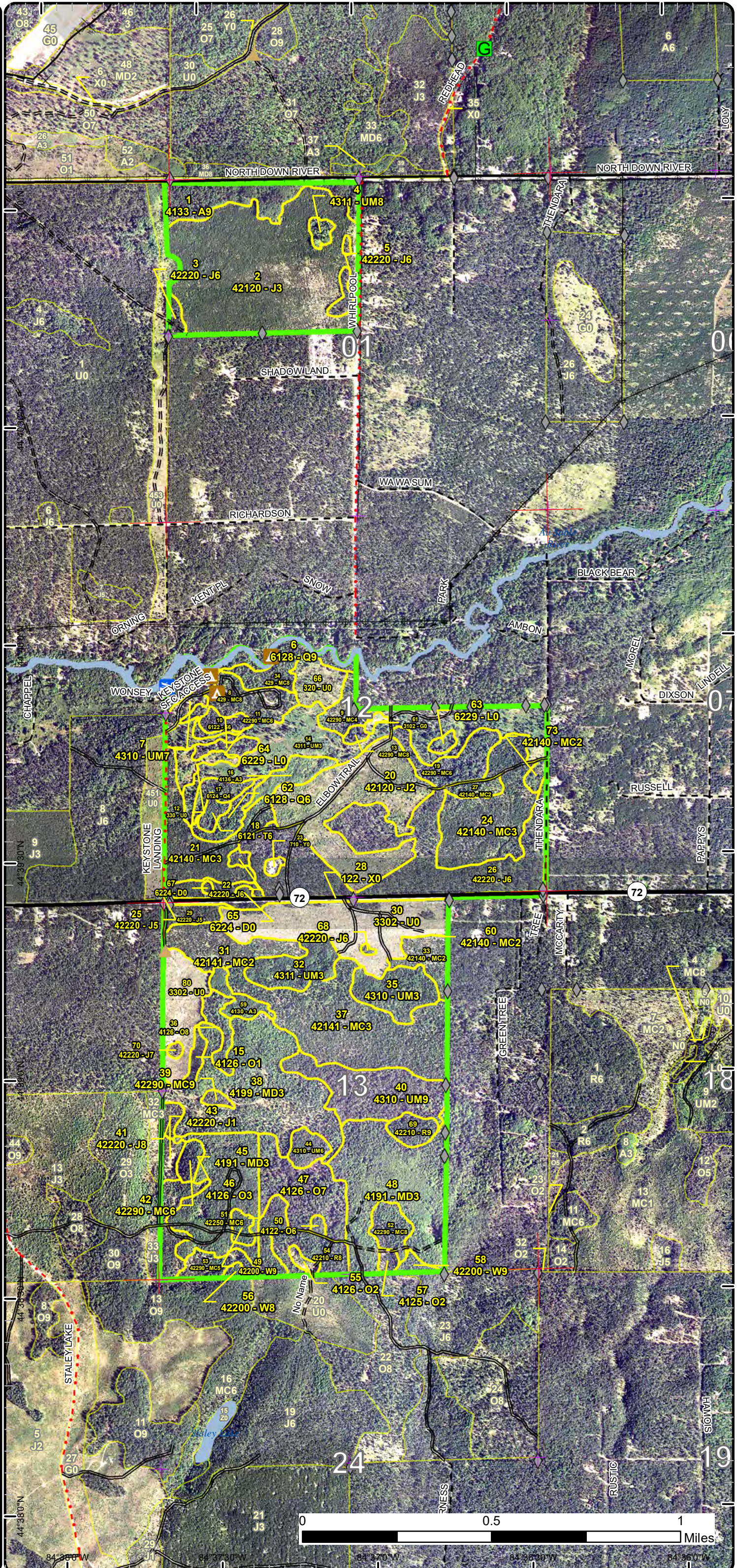


# Stand Boundary Map

Compartment: 236  
 T26N, R03W, Sec. 1, 12-13  
 County: Crawford  
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 Map Revised: 11/27/2019  
 Map Phase: Post-Review



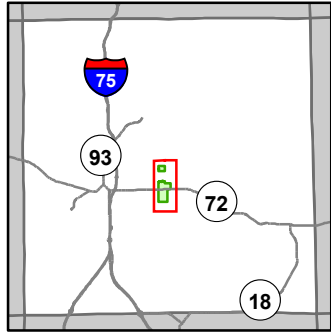
- Miris Corners
- + Remonumented Section Corners
- ◆ Field Grade Corners
- Counties
- DNR - Secondary Forest Road
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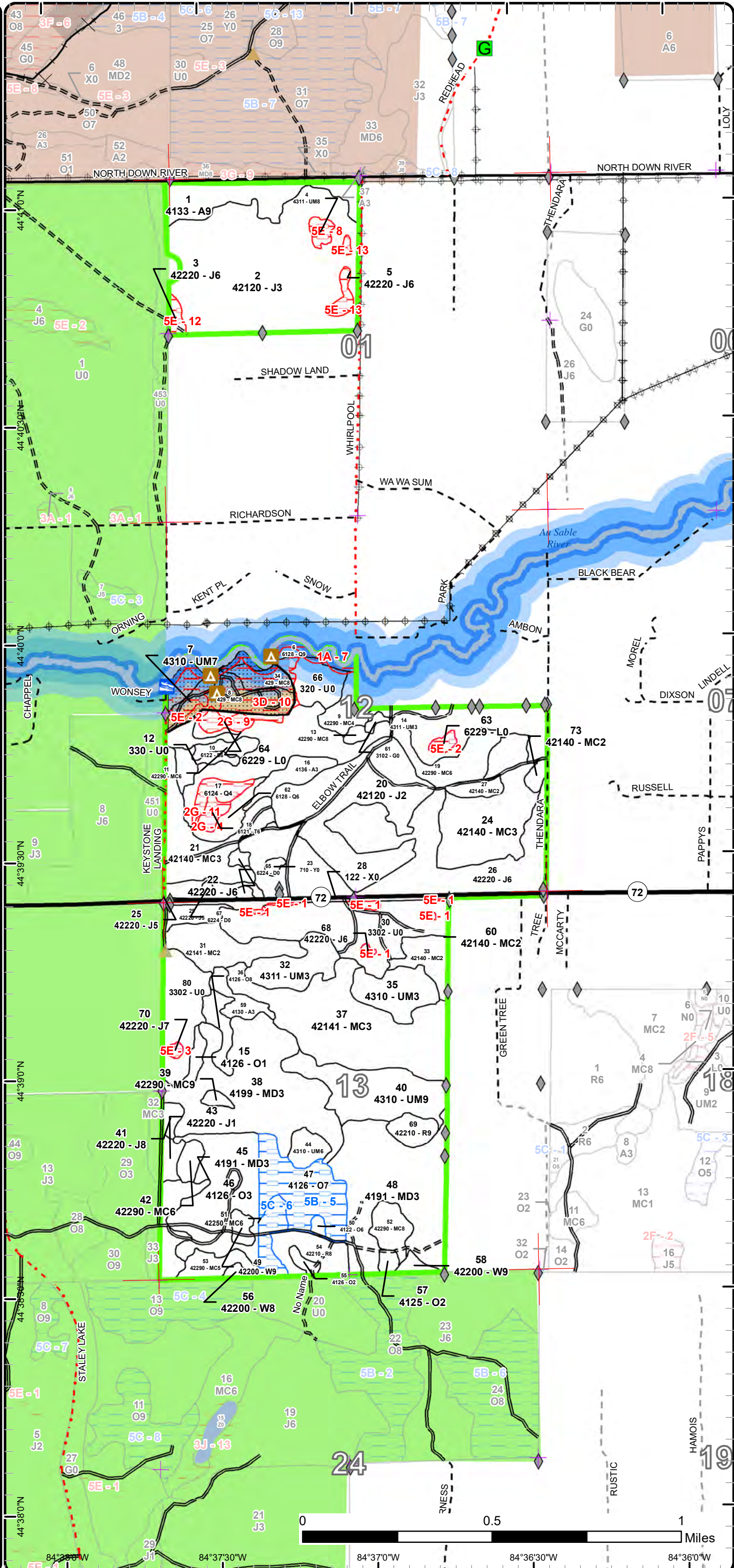
84°38'0"W      84°37'30"W      84°37'0"W      84°36'30"W      84°36'0"W

# Special Conservation Areas

Compartment: 236  
 T26N, R03W, Sec. 1, 12-13  
 County: Crawford  
 Unit: Grayling  
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- Miris Corners
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- DNR - Secondary Forest Road
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- Lake/Pond
- Perennial River
- Lakes and Rivers
- Berms
- Gate
- Boating Access Site
- Campground
- Powerline
- Compartment Boundary
- Available w/ Constraints
- Unavailable
- 5B: Maintain for regeneration purposes
- 5C: Delay treatment for age/size class diversity or exceptional site quality
- 1A: Federal/State/Local Law
- 2G: Too wet (sensitive soils, does not include access issues)
- 3D: Recreational / Scenic values
- 5E: Long-Term Retention
- Stand Boundaries
- SCA
- Natural Rivers Vegetative Buffer
- Natural Rivers Zoning District
- Kirtland Warbler Habitat
- Cold Water Streams
- Cold Water Lakes
- High Priority Trout Stream Buffer
- Research, Development, and Military Lands
- State Forest Campground



Report 1 – Total Acres by Cover Type and Age Class



Age Class

	Non-Forest	0-9	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100-109	110-119	120-129	130-139	140-149	150+	Uneven-Aged	Total
Aspen	0	0	7	6	0	22	0	0	0	0	0	0	0	0	0	0	0	0	35
Herbaceous Openland	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Jack Pine	0	0	149	0	4	7	2	4	75	5	0	0	0	0	0	0	0	0	245
Low-Density Trees	68	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	68
Lowland Conifers	0	0	0	0	0	0	6	5	0	0	0	0	0	14	0	0	0	0	25
Lowland Shrub	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Lowland Spruce/Fir	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	4
Mixed Upland Deciduous	0	0	60	0	64	0	0	0	0	0	0	0	0	0	0	0	0	0	124
Natural Mixed Pines	0	0	0	7	0	7	11	12	13	0	0	0	0	0	0	0	0	2	52
Oak	0	3	4	0	36	0	0	0	0	0	6	24	0	0	0	0	0	1	74
Planted Mixed Pines	0	0	0	151	0	0	0	0	0	0	0	0	0	0	0	0	0	0	151
Red Pine	0	0	0	0	0	0	11	0	6	0	0	0	0	0	0	0	0	0	17
Sand, Soil	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Tamarack	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	3
Treed Bog	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Upland Conifers	0	0	0	0	0	0	0	0	0	0	0	20	0	0	0	0	0	0	20
Upland Mixed Forest	0	59	0	29	0	0	0	34	8	0	0	0	0	0	0	0	0	0	128
Upland Shrub	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9
Urban	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10
White Pine	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	6
<b>Total</b>	<b>93</b>	<b>62</b>	<b>220</b>	<b>193</b>	<b>104</b>	<b>36</b>	<b>30</b>	<b>65</b>	<b>102</b>	<b>5</b>	<b>6</b>	<b>47</b>	<b>0</b>	<b>14</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>977</b>



## Report 2 – Treatment Summary

Grayling Mgt. Unit

Year of Entry: 2021

Acres of Harvest

Compartment 236

Total Compartment Acres: 977

Commercial Harvest - 91  
 Harvests with Site Condition - 0  
 Next Step Harvest - 0  
 Habitat Cut - 0

### Cover Type by Harvest Method

	Clearcut	Selection	Patch Clearcut	Seed Tree	Shelterwood	Thinning	Overstory Removal	Salvage	Other	Total Acres
Aspen	21	0	0	0	0	0	0	0	0	21
Jack Pine	70	0	0	0	0	0	0	0	0	70
<b>Total</b>	<b>91</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>91</b>

### Proposed and Next Step Treatments by Method

	Harvest	Site Prep	Planting	Seeding	Burning	Pesticide	Monitoring	Other	Non-Forest Mgt.	Total Acres
Current	91	0	0	0	0	52	3	0	0	147
Next Step	0	141	141	0	0	211	214	0	0	706
<b>Total</b>	<b>91</b>	<b>141</b>	<b>141</b>	<b>0</b>	<b>0</b>	<b>263</b>	<b>217</b>	<b>0</b>	<b>0</b>	<b>853</b>



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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:**

<b>1</b>	<b>72236001-CCR</b>	21.1	4133 - Aspen, Mixed Pine	Sawtimber Well	45	111-140	Harvest	Clearcut with Retention	4133 - Aspen, Mixed Pine	Even-Aged	No
<p><u>Prescription</u> Clearcut w/Retention.</p> <p><u>Specs:</u></p> <ul style="list-style-type: none"> <li>- Establish three or more smaller island and/or boundary excluded retention pockets. Capture 'clumps' of canopy RP as well as other species representative of the parent stand. Consider visual aesthetics when establishing retention.</li> <li>- Leave incidental white oak and white pine. Residual stems will provide current and future hard mast for wildlife, a current/future seed source, and vertical/structural diversity within the stand.</li> <li>- Protect/exclude legacy trees if present</li> <li>- Protect pine seeds/saps in specs</li> <li>- Use drumming log spec</li> </ul> <p><u>Next Step</u> Monitoring, Natural Regen (Re-Inventory)</p> <p><u>Treatments:</u></p> <p><u>Acceptable Regen:</u> Medium or better stocking level of aspen with components of pine and oak.</p> <p><u>Other Comment:</u></p> <p><u>Site Condition</u></p> <p><u>Proposed Start Date:</u> 10/1 /2020</p>											
<b>15</b>	<b>72236015-Monitor</b>	2.7	4126 - White, Black, N. Pin Oak	Sapling Poor	6	Immature	Monitoring	Natural Regen (Re-Inventory)	4122 - Oak, Pine	Even-Aged	No
<p><u>Prescription</u> This area wasn't trenched/planted with Stand 80 because of its steeper side slope. Assess natural regen during 2029 inventory cycle.</p> <p><u>Specs:</u> Primarily to determine if additional stems grew above browsing pressure. See stand comments regarding assessment during 2019 inventory.</p> <p><u>Next Step</u></p> <p><u>Treatments:</u></p> <p><u>Acceptable Regen:</u> Low, medium, or high stocking of hybrid/n.pin oak and white oak with components of jack pine, white pine, red pine, red maple, and aspen.</p> <p><u>Other Comment:</u> Sale cut summer/fall of 2013 under contract 72-048-11-01. Previous stand was Stand 34.</p> <p><u>Site Condition</u></p> <p><u>Proposed Start Date:</u> 10/1 /2020</p>											
<b>26</b>	<b>72236026-CCR/Plant</b>	70.3	42220 - Natural Jack Pine	Poletimber Well	72	51-80	Harvest	Clearcut with Retention	4211 - Planted Red Pine	Even-Aged	No
<p><u>Prescription</u> Clearcut w/Retention. Use 2" spec.</p> <p><u>Specs:</u></p> <ul style="list-style-type: none"> <li>- Place island and/or boundary excluded retention in strategic areas to alleviate some visual concerns. Ideal locations include but are not limited to; Elbow Trail, S Thendara Rd, and M-72. Capture some oak within retention.</li> <li>- Exclude and protect the 2-U.S. Geological Survey corners located in the southwest, just west of Elbow Trail.</li> <li>- Heavily protect Elbow Trail in specs. The trail provides access to numerous homes located on the Au Sable River.</li> <li>- Use 6" stump height and chipping specs</li> <li>- Protect/exclude legacy trees if present</li> </ul> <p><u>Next Step</u> Pesticide, Skidder - Site Prep; Pesticide, Aerial - Site Prep; SitePrep, Roller Chopping; SitePrep, Trenching; Planting, Initial Plant;</p> <p><u>Treatments:</u> Pesticide, Skidder - Release; Planting, Replant; Monitoring, Artificial Regen(1yr); Monitoring, Artific</p> <p><u>Acceptable Regen:</u> Minimum stocking level of planted red pine with minor inclusions of natural oak and jack pine.</p> <p><u>Other Comment:</u> - Prior to and/or during planting site prep, identify pockets of regenerating oak to exclude from chemical/mechanical treatment. These will supplement original retention.</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
<b>30 72236030-Spray</b>	35.3	3302 - Low Density Conifer Trees	Nonstocked		Unspecified	Pesticide	ERROR	4211 - Planted Red Pine	Even-Aged	No
<p><u>Prescription</u> control deciduous competition</p> <p><u>Specs:</u></p> <p><u>Next Step</u> ; Monitoring, Artificial Regen(3yr)</p> <p><u>Treatments:</u></p> <p><u>Acceptable</u> full stocking in planted RP</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 /2019</p>										
<b>80 72236080-Spray</b>	17.1	3302 - Low Density Conifer Trees	Nonstocked		Unspecified	Pesticide	ERROR	42110 - Planted Red Pine	Even-Aged	No
<p><u>Prescription</u> control deciduous competition</p> <p><u>Specs:</u></p> <p><u>Next Step</u> ; Monitoring, Artificial Regen(3yr)</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 /2019</p>										

**Total Treatment** 146.5  
**Acres Proposed:**

## Report 4 – Site Conditions

Grayling Mgt. Unit  
John St. Pierre : Examiner

Compartment: 236  
Year of Entry: 2021

### Availability for Management

Total Acres	Acres Available	Acres Avail		Acres Not Available		Dominant Site Conditions							
		With Condition				5B	5C	1A	2G	3D	5E		
34	34	0		0	Aspen								
1	1	0		0	Herbaceous Openland								
246	239	0		7	Jack Pine								7
68	61	0		7	Low-Density Trees								7
25	6	0		19	Lowland Conifers			10	5	4			
3	1	0		2	Lowland Shrub								2
4	0	0		4	Lowland Spruce/Fir				4				
124	124	0		0	Mixed Upland Deciduous								
52	44	7		0	Natural Mixed Pines		7	0					
73	49	24		0	Oak	24							
151	151	0		0	Planted Mixed Pines								
16	16	0		0	Red Pine								
1	1	0		0	Sand, Soil								
3	0	0		3	Tamarack				3				
1	1	0		0	Treed Bog								
20	0	0		20	Upland Conifers			1			17		2
129	122	0		7	Upland Mixed Forest			0			4		2
9	9	0		1	Upland Shrub			1			0		
10	10	0		0	Urban								
6	6	0		0	White Pine								
977	876	32		69	Total Forested Acres	24	7	11	12	26			20
	90%	3%		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 Availability	Dominant Site Condition	Acres	Other Site Condition	Other Site Condition	Other Site Condition	Other Site Condition
1	Unavailable	5E: Long-Term Retention	3	Unspecified	Unspecified	Unspecified	Unspecified
<b>Comments:</b> Retention left from harvest #048-11.							

## Report 4 – Site Conditions

Grayling Mgt. Unit  
John St. Pierre : Examiner

Compartment: 236  
Year of Entry: 2021

2	<b>Unavailable</b>	<b>5E: Long-Term Retention</b>	4	3D: Recreational / Scenic values	Unspecified	Unspecified	Unspecified
<b>Comments:</b> Originally part of Stand 14. Captured as boundary excluded retention when that stand was prepped for harvest during '11 YOE (see sale map). In close promixity to Keystone Landings State Forest campground too.							
3	<b>Unavailable</b>	<b>5E: Long-Term Retention</b>	1	Unspecified	Unspecified	Unspecified	Unspecified
<b>Comments:</b> Retention island in #048-11. Small bog surrounded by upland JP.							
4	<b>Unavailable</b>	<b>2G: Too wet (sensitive soils, does not include access issues)</b>	3	Unspecified	Unspecified	Unspecified	Unspecified
<b>Comments:</b> Definitely wet, not sure how those conditions change with the seasons. Very limited merchantibility, small diameters (lots of saps and small poles).							
5	<b>Available</b>	<b>5B: Maintain for regeneration purposes</b>	24	5C: Delay treatment for age/size class diversity or exceptional site quality	Unspecified	Unspecified	Unspecified
<b>Comments:</b> Residual overstory is healthy and isn't inhibiting growth/release of sub-canopy oak. Browse is the inhibiting factor for stems that haven't reached a 'free to grow' stage. If the overstory was removed it would likely result in a loss of oak regen due to stem damage from equipment.							
6	<b>Available</b>	<b>5C: Delay treatment for age/size class diversity or exceptional site quality</b>	7	Unspecified	Unspecified	Unspecified	Unspecified
<b>Comments:</b> Stand is still developing toward being log sized and offers a diverse mix of canopy and sub-can species. Continue to allow the stand to mature.							

## Report 4 – Site Conditions

Grayling Mgt. Unit  
John St. Pierre : Examiner

Compartment: 236  
Year of Entry: 2021

7	<b>Unavailable</b>	<b>1A: Federal/State/Local Law</b>	11	3D: Recreational / Scenic values	2G: Too wet (sensitive soils, does not include access issues)	Unspecified	Unspecified
<p><b>Comments:</b> Natural Rivers Vegetative buffer (100ft off either side) along the south bank of the Au Sable River. Contact the Natural Rivers Specialist for further details. S.C. also captures portions of Keystone Landings State Forest Campground. Also 'Too wet' within the true river corridor itself.</p>							
8	<b>Unavailable</b>	<b>5E: Long-Term Retention</b>	3	Unspecified	Unspecified	Unspecified	Unspecified
<p><b>Comments:</b> Left as a retention island when harvested under sale: 'Whirlpool Jack', 720670101.</p>							
9	<b>Unavailable</b>	<b>2G: Too wet (sensitive soils, does not include access issues)</b>	4	3D: Recreational / Scenic values	Unspecified	Unspecified	Unspecified
<p><b>Comments:</b> Very likely 'Too wet' for operations but could be 'less wet' during extended dry/drought conditions. In close proximity to Keystone Landings State Forest Cmpgrnd.</p>							
10	<b>Unavailable</b>	<b>3D: Recreational / Scenic values</b>	26	2G: Too wet (sensitive soils, does not include access issues)	Unspecified	Unspecified	Unspecified
<p><b>Comments:</b> Encompasses Keystone Landings State Forest Campground. Northern areas within Au Sable River corridor are 'Too wet'.</p>							
11	<b>Unavailable</b>	<b>2G: Too wet (sensitive soils, does not include access issues)</b>	5	Unspecified	Unspecified	Unspecified	Unspecified
<p><b>Comments:</b> Very wet and borderline forested vs. non-forested (limited if any merchantability).</p>							
12	<b>Unavailable</b>	<b>5E: Long-Term Retention</b>	2	Unspecified	Unspecified	Unspecified	Unspecified
<p><b>Comments:</b> Boundary excluded when harvested under sale: 'Whirlpool Jack', 720670101.</p>							

## Report 4 – Site Conditions

Grayling Mgt. Unit  
John St. Pierre : Examiner

Compartment: 236  
Year of Entry: 2021

13	Unavailable	5E: Long-Term Retention	3	3D: Recreational / Scenic values	Unspecified	Unspecified	Unspecified
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**Comments:**

Captured as a 3D S.C. during '09 inventory. Carrying forward as a 5E S.C. for '19 inventory and added a secondary 3D S.C.. Left as 'visual alleviation' when harvested under sale: 'Whirlpool Jack', 720670101.

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
<b>Comments</b>				

**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	Research and Military Areas	These areas provide facilities and lands specifically dedicated for research, or other purposes. They include the 5,847 acre Forest Fire Experiment Station, the 12,000 acre Houghton Lake Wildlife Research Area, the Beaver Islands Archipelago Wildlife Research Area (that includes most of Garden Island, all of High and Hog Islands, all state owned land on Beaver, South Fox and North Fox Islands), the Cusino Wildlife Research Area, the 3,000 acre Hunt Creek Fisheries Research Station, the 125 acre Wyman Nursery, and over 144,000 acres of Military Lands.
SCA	Riparian Area	A transitional area between aquatic and terrestrial ecosystems in which the terrestrial ecosystem influences the aquatic ecosystem and vice-versa. Because of the unique conditions adjacent to lakes, streams and open water wetlands, riparian areas harbor a high diversity of plants and wildlife. Riparian communities are ecologically and socially significant in their effects on water quality and quantity, as well as aesthetics, habitat, bank stability, timber production, and their contribution to overall biodiversity.
HCVA	Designated Critical Habitat	Critical habitat areas are established via a consultative and cooperative process between the DNR and the U.S. Fish and Wildlife service for the recovery of threatened and endangered species, as governed by Part 365, Endangered Species Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, and the Federal Endangered Species Act of 1973. This is an active program, with proposed species plans in various stages of review. As of now only two exist, Kirtland Warbler Habitat and Piping Plover Habitat.
HCVA	Natural Rivers	There are two Natural Rivers datasets which are derived from spatial buffers set from an established and approved distance from the river centerlines. The Natural Rivers Zoning District is a 400 foot buffer for most Natural Rivers. The Vegetative Buffer ranges from 25 to 100 feet. To view specific Zoning Districts and Vegetative Buffers for each Natural River see the table located on the I:\Documentation\GDSE data folder.



Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	Managed Site	General Comments		
1	4133 - Aspen, Mixed Pine	Sawtimber Well	21.5	45	111-140	N/A	Sale permits 33-'65 and 107-'65 suggest stand was cut '65-'66 (only aspen & JP listed in volumes). Some areas a bit more dominated by poles (usually BTA) but log sizes have a slight advantage throughout the stand. QA more common in W1/2, BTA tends to be more common in E1/2. Pockets of canopy RP throughout, scattered individs too. JP clumps/individs also. More XO/NPO in E1/2 (poles and some older/larger stems). A few canopy WO and pole WP present. Some RP DBH's: 17, 20, 19, 10, 17.		
Canopy Species	% Cover	Size Class	DBH	Age	Sub-Canopy Species	Density		Avg. Height	Size
Bigtooth Aspen	38	Pole/Log	9	45	Red Maple	Low		>20 feet	Sapling
Red Pine	12	Log/Pole/XLog	14	65	Quaking Aspen	Low		5 - 10 feet	Sapling
Jack Pine	10	Log/Pole	10		Red Pine	Low		Variable	Sapling
Quaking Aspen	30	Log/Pole	10	56	White Pine	Low		Variable	Sapling
					Jack Pine	Low		Variable	Sapling
					Black Cherry	High		5 - 10 feet	Tall Shrub
					Sweet Fern	Medium		< 5 feet	Tall Shrub
					White Oak	Medium		Variable	Sapling
					Black/Red (Hybrid) Oak	Medium		Variable	Sapling
					Serviceberry (Juneberry)	Low		10 - 20 feet	Tall Shrub
					Hawthorn (spp.)	Trace		5 - 10 feet	Tall Shrub
2	42120 - Planted Jack Pine	Sapling Well	97.4	18	Immature	N/A		Cut '02 (see draft notes), direct seeded w/JP in '02, hand-planted to JP again in '03. JP heights range 10-25', a few stems nearing pole size. XO/NPO regen concentrated in western locations, some in NE, and is scattered throughout too. JP stocking lower in SE areas. Not a wall to wall J3 but current can-closure ranges 75-100 in most areas. Observed more RP and WO volunteers near edge locations. Blk. Cherry scrub shrub common throughout.	
Canopy Species	% Cover	Size Class	DBH	Age	Sub-Canopy Species	Density	Avg. Height		Size
Black/Red (Hybrid) Oak	16	Sapling	3		Common Lowbush Blueberry	Medium	Variable		Tall Shrub
Jack Pine	80	Sapling	3	18	Black Cherry	Medium	Variable		Tall Shrub
3	42220 - Natural Jack Pine	Poletimber Well	2.4	57	51-80	N/A	Boundary excluded area left unharvested when Stand 2 was cut. Some wind-throw JP stems observed. JP is generally small to medium sized poles, larger saps, then scattered logs.		
Canopy Species	% Cover	Size Class	DBH	Age	Sub-Canopy Species	Density		Avg. Height	Size
Jack Pine	93	Pole/Sap/Log	7	57	Jack Pine	Medium		>20 feet	Sapling
					Common Lowbush Blueberry	Medium		< 5 feet	Tall Shrub
					Black Cherry	Medium		Variable	Tall Shrub
					White Pine	Trace		Variable	Sapling
					Black/Red (Hybrid) Oak	Low		Variable	Sapling
					White Oak	Low	10 - 20 feet	Sapling	
4	4311 - Pine, Aspen Mix	Sawtimber Medium	2.5	70	81-110	N/A	Serving as a retention island. QA is tired, some have snagged/fallen out. Raptor nest in a larger QA in N.W.. WO, XO, RP, and some WP is well established in sub-can. Recruiting or ready to recruit in many areas. Can-closure on higher side of 50-75%.		
Canopy Species	% Cover	Size Class	DBH	Age	Sub-Canopy Species	Density		Avg. Height	Size
Quaking Aspen	50	Log/Pole	13	70	Black Cherry	High		Variable	Tall Shrub
Red Pine	17	Log/Pole/XLog	12		White Oak	High		>20 feet	Sapling
Jack Pine	20	Log/Pole	10		Black/Red (Hybrid) Oak	Medium		>20 feet	Sapling
					Jack Pine	Low		Variable	Sapling
					Quaking Aspen	Low		5 - 10 feet	Sapling
					Red Pine	Medium		Variable	Sapling
					White Pine	Low		Variable	Sapling
					Sweet Fern	Medium		< 5 feet	Tall Shrub
					Common Lowbush Blueberry	Medium		< 5 feet	Tall Shrub





Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	Managed Site	General Comments																																														
<b>5</b>	42220 - Natural Jack Pine	Poletimber Well	3.3	70	51-80	N/A	Visual alleviation retention pockets. Established when Stand 2 was harvested a few entries ago. Larger DBH's in southern poly, smaller in northern poly. Timber theft of small diameter, mainly non-merch JP was observed in the small northern polygon. Appeared recent (winter of '19), snowmobile tracks from Stand 5 leading to PVT residence(s) across S. Whirlpool Rd. Gray U.M. advised me to make a note about this in stand comments.																																														
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<b>6</b>	6128 - Lowland Coniferous, Mixed Deciduous	Sawtimber Well	14.0	127	81-110	N/A	Lowland riv.corridor along AuSable. Prominent downslope along entire southern bound. Downslope captures many of the trace upland species (XO, WO, BTA, JP). True lowland portion 'swings' between specie dominance. NWC dominant areas, BlkSprc areas, clumps of RP, and scat relic WP all common. Intermitt seep fed stream in west, just north of access road to Keystone S.F.C.. Larch component strongest west of this stream. Variable can-closure, not wall to wall stocked with logs, can-closure on low end of 75-100%. HEAVILY used deer corridor (so didn't see much regen, other than BF). Trace PB and BAM.																																														
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<b>7</b>	4310 - Pine, Oak Mix	Sawtimber Poor	4.7	60	1-50	N/A	Area surrounding entrance drive to Keystone State Forest Campground. Clumps of trees, individuals, and non-forested openings all present. JP and XO/NPO most prevelant. Scattering of remaining species. JP and oak saps common/clumpy in areas. BF makes a decent showing (P/S/L). Trace canopy BlkSprc, BTA, and a touch of RM. Can-closure variable but would fit into higher side of 25-50 if all trees were 'smushed' together.																																														
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Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	Managed Site	General Comments
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<b>8</b>	429 - Mixed Upland Conifers	Sawtimber Medium	13.8	102	51-80	N/A	
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Canopy Species	% Cover	Size Class	DBH	Age
Black/Red (Hybrid) Oak	16	Log/XLog/Pole	15	
Balsam Fir	12	Pole/Log	8	
Red Pine	40	Log/XLog/Pole	16	102
Jack Pine	10	Pole/Log	9	
Quaking Aspen	6	Pole/Log	9	

Sub-Canopy Species	Density	Avg. Height	Size
Red Maple	Low	>20 feet	Sapling
Balsam Fir	Medium	Variable	Sapling
White Pine	Low	Variable	Sapling
Red Pine	Low	Variable	Sapling
Jack Pine	Low	Variable	Sapling
Black Cherry	High	10 - 20 feet	Tall Shrub
Quaking Aspen	Low	>20 feet	Sapling
Black/Red (Hybrid) Oak	High	Variable	Sapling
White Oak	Trace	Variable	Sapling
Hawthorn (spp.)	Trace	5 - 10 feet	Tall Shrub
Black Spruce	Low	10 - 20 feet	Sapling
Black/Red (Hybrid) Oak	High	< 5 feet	Seeding

Stand encompasses Keystone Landing State Forest Campground. Variable BA's and can-closure, lower end of 50-75% about average when log sizes selected as dominant. All size classes present and generally well represented. RP, XO/NPO most common log/xlog specie, some scat WP on perimeter locales. A lot of poles/saps throughout. Guessing fire/disturbance happened in past to create the different ages/size classes (campers too). Anything =< than browse height is hit hard. SW area (1.5ac) was split/merged into this stand. Formally part of Stand 14 and coded as excluded retention on the sale map for #720491101. Planning/Inventory specialist advised me to carry forward this 5E S.C..

<b>9</b>	42290 - Natural Mixed Pine	Poletimber Poor	6.9	25	1-50	N/A	
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Canopy Species	% Cover	Size Class	DBH	Age
Black/Red (Hybrid) Oak	8	Pole/Log	8	
Balsam Fir	20	Pole/Log/Sap	6	
White Pine	30	Pole/Log	8	
Jack Pine	35	Pole	7	25

Sub-Canopy Species	Density	Avg. Height	Size
White Pine	Trace	5 - 10 feet	Sapling
Jack Pine	Low	Variable	Sapling
Black Cherry	High	Variable	Tall Shrub
Red Maple	Low	Variable	Sapling
Black/Red (Hybrid) Oak	Medium	Variable	Sapling
White Oak	Trace	Variable	Sapling
Balsam Fir	Low	10 - 20 feet	Sapling
Quaking Aspen	Medium	10 - 20 feet	Sapling
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Common Lowbush Blueberry	High	< 5 feet	Tall Shrub
Hawthorn (spp.)	Low	< 5 feet	Tall Shrub
Sweet Fern	Medium	< 5 feet	Tall Shrub

N/S plow line is the western boundary. Barnes vaguely remembers a fire in Stand 66, fire origin prob from Keystone CmpGrnd. See harvest history in 'draft notes'. This stand is a MC4/5/6 depending on locale. Scattered clumps/individ poles and some logs. Perimeter locales 'mix' with adjacent stand/specie types. Primarily Blk.Chrry shrub in sub-can with grass, blueberry, sweet fern, then smaller components of sap XO/NPO, QA, etc. Trace RM poles.



Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	Managed Site	General Comments																																																																								
<b>10</b>	6122 - Black Spruce	Poletimber Well	3.8	62	51-80	N/A	Primarily spruce and larch. JP used to be a bigger component, many now snagged out. Decent sub-can sap/seed mix of BlkSprc, larch, and fir. Some WP and RP saps on east end. Believe the floor to be moss covered, could see it showing through snow in areas. This stand is bordered on south and west with lowland tag alder shrub. Fairly good growth rings on the 7.1" BlkSprc I cored. A lot of mid 50's/early 60yr old trees in the general area. Thinking a fire came through/restarted areas back then.																																																																								
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<b>11</b>	42290 - Natural Mixed Pine	Poletimber Well	3.7	57	51-80	N/A	West 1/2 more of a J/MC6, pole sizes more common w/scat logs. East 1/2 has greater species diversity, more log/xlog sizes, but poles still more common. Variable can-closure throughout, low end of 75-100% seemed average. Some natural JP mortality occurring (the larger stems). Similar to surrounding areas, think fire came through 55-60yrs ago. Didn't consume the scattered large RP and XO/NPO, but restarted the rest. 14" RP I cored had very impressive growth rings (56yr old). East 1/2 was formally part of Stand 14.																																																																								
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<b>12</b>	330 - Low-Density Trees	Nonstocked	4.9		Unspecified	No	Borderline Forested/Non-Forested. Prominent clumps of sap/pole/some log mixing of JP, WP, RP, QA, and XO/NPO. Most species are 'stubby'/open grown. Outside of the tree clumps is a mix of BlkChrry shrub, brush, grasses, fern, etc.. Woody and non-woody plants encroaching from most directions.																																																																								
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13	42290 - Natural Mixed Pine	Sawtimber Medium	1.5	70	81-110	N/A	Harvest history listed below in 'draft notes'. This stand could be typed out several ways? Had a tough time, a good 'field trip' for foresters stand. Calling log size dominant (avg log-legacy DBH present). Canopy has a lighter stocking of avg, xlog/relic, and some legacy WP/RP (2-37" WP's). Logs are overtop a doghair thick sub-can of mainly S/P BF, S/P/L WP, and some clone QA. Scattering of a few other species in sub-can. Believe the stand sits close to water table, may explain dense/good growth (16" RP=70yrs) and scat tag. Prob holds water seasonally, then dries. Calling uneven-aged in an attempt to capture what I was seeing and explain the data collected.																																																																				
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14	4311 - Pine, Aspen Mix	Sapling Well	59.0	5	1-50	N/A	'LOWLAND A HABITAT IMPROVEMENT' #720491101. Closed May '15, left all RP, WP, BF, and Larch. Residual avg. of 'leave' species is quite variable depending upon location (0-70+ BA). Didn't break out the areas that could prob be MC7/8 covertypes (most east of Cheviot Trl.). Felt a better task for next cycle, once aspen regen has done a better job staking its claim. Regen (mainly QA saps & BlkChrry shrub) is doing quite well in most areas, yet stocking is variable (low end 75-100% seemed avg. all together). QA saps range 5-20ft tall. Low/wet with tag present (central & eastern areas). Trace larch, JP, and spruce left. Couldn't fit WP, BF, JP saps into canopy list, placed them in sub-can. Like the diversity the residual 'no cut' trees are providing. Passing the regen Rx.																																																																				
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15	4126 - White, Black, N. Pin Oak	Sapling Poor	2.7	6	Immature	N/A	Previous Comments: Pursue formal road closure through director's order upon completion of sale. Sale cut summer/fall of 2013 under contract 72-048-11-01. Cultivation update: this portion of stand 80 was not trenched or planted. Need to update the regen management objective. JSP '19 Comment: ~25-50% of the XO/NPO and WO saps are greater than 3ft. Percent depends on location. Can-closure on high end of 25-50%. Captured oak less than 3ft as seeds but these are really only seedling size/height because of browse pressure. A lot of regen right at or slightly taller than 3ft but browsed. JP volunteers scattered about. Stand resides on a west facing slope. Humans not driving upslope where they used to (no fresh sign of ORV's anyhow). Also didn't see any fresh ORV sign on the trail that runs the top of the slope.																																																																				
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16	4136 - Aspen, Mixed Conifer	Sapling Well	7.3	14	Immature	N/A	Cut in '05 (see draft notes). QA saps doing well, canopy pretty tight throughout. A few 'open' areas, think these were JP/WP pockets prior to harvest (some JP/WP saps in those openings). Looks like all sub-mech conifer was spec'd out. Scat WP, BF, BlkSprc poles dotted around. Some minor wet/soft areas, mainly on north boundary. BlkChrry sap/shrub keeping right up with QA. Calling these 'shrub' based upon their poor form/growth elsewhere in this comp. Some may shake out to merchantable condition in the future.																																																																				
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<b>17</b>	6124 - Lowland Spruce-Fir	Poletimber Poor	5.0	60	1-50	N/A	Hodge podge. Harvest in Stand 14 ('11YOE) ran line up to the northern boundary of this stand. So there's a 'vein' of transitional ground species on that boundary (RP, WP, JP, BF, etc.). South of that the stand transitions into 'Full' tag alder with scat lowland conifer/decid species. Most of the few larch were snagged out. West end picks up again to being more forested, but still plenty of alder. Variable can-closure, 0-100%. If all tree species were 'smushed' together, would call overall can-closure on higher side of 25-50%. Stand was non-forested last round of inventory, and forested prior to that....																																																																														
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<b>18</b>	6121 - Tamarack	Poletimber Well	2.9	101	51-80	N/A	A bit shocked at the age difference of Larch in this stand and the BlkSprc in neighboring Stand 62 (101 v 57yrs). And average DBH's are reliable smaller within this stand (than Std62). Larch a bit more dominant than BlkSprc. That's about it for species until you near perimeter locales. DBH's right on P/S slash S/P borderline. Hard to tell how wet the stand is, foot of snow still present when visited. Could see moss in exposed areas. Generally good seed and advanced BlkSprc regen.																																																																														
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<b>19</b>	42290 - Natural Mixed Pine	Poletimber Well	13.1	70	51-80	N/A	Small stand with 3-4 personalities. Slim western 'tail' mainly log size JP, QA, WP, a few RP, 50-75% can-closure. Central locales in a slight depression, appear to move/hold water seasonally. Prominent WP S/P pocket in center, some BlkSprc too. Eastern area variable between WP P/L, closed canopy, then opens up in area featuring QA, WP, some flamed out JP. Northern 'lump' has more species mixing (RP, XO/NPO, QA, and WP)/increased log sizes. 35" & 42" WP observed, Full/High WP saps, decent BlkSprc regen. Moving toward future WP dominance.																																																																														
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<b>20</b>	42120 - Planted Jack Pine	Sapling Medium	52.3	15	Immature	N/A	Planted to JP in May '06 (see draft notes for history). JP saps looked pretty healthy overall. Southern 'boot' and some NE areas had much better stocking, were taller (~10-20ft), and wouldn't hesitate to call a J3. Areas along Elbow Trail (especially north of) had poor stocking and JP were shorter (~6-15ft). Much more shrub cherry where lighter stocked. XO/NPO sprouts up above JP canopy in many areas (poofs on imagery). Calling overall stocking 50-75%.																																									
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<b>21</b>	42140 - Planted Mixed Pine	Sapling Well	25.8	24	Immature	N/A	Harvested ~'92-94 (see draft notes). Unable to locate planting record in files. Previous examiner stated planted to RP in '94 then JP in '95 for the other stands involved in same sale. Some pole sizes beginning to emerge. Variable heights, ~20ft seemed about average. XO/NPO regen mixed in throughout. Various species mixing in along perimeter locations.																																									
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<b>22</b>	42220 - Natural Jack Pine	Poletimber Well	1.4	41	51-80	N/A	A younger and smaller diameter JP stand than its current neighbor to the east. Clean sub-canopy.																																									
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<b>23</b>	710 - Sand, Soil	Nonstocked	1.2		Unspecified	No	Sand bowl with JP poles scattered about. ORV's using as a sand riddled race pit. Didn't look torn up but was still 75% snow covered when visited.																																									
<b>24</b>	42140 - Planted Mixed Pine	Sapling Well	35.5	24	Immature	N/A	Farrer '09: Stand was planted to Red pine in 1994 and then planted to Jack pine in 1995. Jack pine dominating. JSP '19: Harvested ~'92-'94 (see draft notes). Variable canopy closure throughout. Right on the line between 50-75% and 75-100%. Low end of the latter seemed average. A few scattered residual JP poles that avoided the saw are present. Most 'poofs' on imagery are broad canopy S/P XO/NPO stump-sprouts that overtop JP/RP in areas.																																									
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<b>25</b>	42220 - Natural Jack Pine	Poletimber Medium	5.5	48	1-50	N/A	Harvested ~'92-'94 (see draft notes). Finding the cut history answered the questions I had about what happened here. J5 in west, more reliable J6 in east. Western area has clumps of JP poles then swathes of sapling JP/XO/NPO. JP and Oak regen ranges high to full throughout (generally >20ft). 2-3 rows of planted RP along M72 are lumped into this stand. 4-BA swings ranged 20-60. Variable can-closure when poles selected as dominant. Higher end of 50-75% appeared to be a good fit.																																									
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<b>26</b>	42220 - Natural Jack Pine	Poletimber Well	70.7	72	51-80	N/A	Farrel '09: Stand was part of a much larger stand the previous inventory, but was broken up do to visual management concern along M-72 East.JSP '19: Toggles between J6 to lower stocked J9 throughout. Sub-can and canopy JP saps common. Many JP stems nearly 10". Poles still more prevalent overall. Scattered XO/NPO in canopy, some WO and natural RP too. Natural RP had impressive growth rings (15.3"=72yrs). 2-3 rows of planted RP along M72 are lumped into this stand. WO/XO/NPO regen throughout, thick in areas, seeds heavily browsed. Some JP natural mortality/blowdown occurring, as well as XO/NPO.																																																															
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<b>27</b>	42140 - Planted Mixed Pine	Sapling Medium	4.0	24	1-50	N/A	Farrer '09: Stand was planted to Red pine in 1994 and than planted to Jack pine in 1995. Jack pine dominating.JSP '19: Harvested ~92-'94 (see draft notes). Obviously trenced and planted. Unclear if planted stock failed or if intentionally planted at a lower stocking (to appear nature near Elbow Tri)?. Now a mixture of natural and planted species with variable can-closure throughout. Natural WP short/bushy and P to Log. Scat natural JP poles in clumps & individs.																																																															
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<b>28</b>	122 - Road/Parking Lot	Nonstocked	9.6		Unspecified	No	East M-72 and a 'sliver of S. Thendara Rd. The 'lump' area on M-72 was used as a paved 'go-around' while a section was being removed and repaired. Only found this out after having 'Michigan Best Available' natural color turned on. Pavement was removed and the area re-seeded after road work completion.																																																															
<b>29</b>	42220 - Natural Jack Pine	Poletimber Medium	5.2	84	1-50	N/A	Harvested ~'92-'94 (see draft notes). Finding the cut history answered the questions I had about what happened here. W1/2 is a low stocking of JP, smaller poles, with XO/NPO/JP saps filling in canopy gaps. Stocking of JP poles increases in E1/2, not a wall to wall J6 though. Still a lot of XO/NPO and some JP saps in E1/2. Overall can-closure averages 50-75%. Ages were surprising, the two small pole JP's cored showed heavy suppression. One during the better part of its early life, the other later on. JP stems still healthy, smaller DBH, short heights, and limited merch (1-2 sticks). Lumped the 2-3 rows of planted RP along M72 into this stand. Allow stand to mature.																																																															
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<b>30</b>	3302 - Low Density Conifer Trees	Nonstocked	43.5		Unspecified	4211 - Planted Red Pine	Stand harvested in summer/fall of 2013. "Jack pine along 72 east" 72-048-11-01. FTP C72-736 trenced 2015, herbicided 2016. Variance approved to change M.O. to RP. Planted to RP in May 2017. June 2018 Yr 1 survey found 780 RP & 1,437 J-O-C tpa.																																																															
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<b>31</b>	42141 - Planted Mixed Pine, Mixed Deciduous	Sapling Medium	17.2	24	Immature	N/A	Harvested ~'92-'94 (see draft notes). Planted RP/JP mixed with XO/NPO and sap/shrub BlkCherry. Variable stocking (50-100%). High side of 50-75% appeared average. Looking like it'll reach 75-100% throughout as it develops. Some poles starting to emerge. Looks younger (is shorter/has smaller DBH's) than neighboring stands 32, 35, and 37. Fairly clean sub-can when compared to its surrounding siblings, some XO/NPO seeds present.																																																															
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<b>32</b>	4311 - Pine, Aspen Mix	Sapling Well	13.7	24	1-50	N/A	Harvested ~'92-'94 (see draft notes). Planted RP and JP stand w/a strong aspen component. BTA is clonal and present in specific 0.5-1+ acre clumps. QA is generally scattered, is present in a couple clones. BTA larger DBH (less competition where it's growing), QA smaller. RP transitioning/has transitioned to smaller pole sizes where free to grow. JP generally lagging behind. Species dominance depends on locale, can-closure pretty reliable between 75-100%. Looks older (is taller/has larger DBH's) than neighboring stands 31 and 33.																																																															
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<b>33</b>	42140 - Planted Mixed Pine	Sapling Medium	8.8	24	Immature	N/A	Harvested ~'92-'94 (see draft notes). Variable planted RP/JP stocking/canopy closure. Stocking seemed a bit higher in the south, and decreases as you move north. Diameters were 3.5" and/or less for most stems measured. A few pole sizes beginning to emerge. Everything here is a bit 'stubby/open-grown'. Scattered XO/NPO in the canopy and sub-can, cherry mixing in too. Looks younger (is shorter/has smaller DBH's) than neighboring stands 32, 35, and 37.																																																															
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<b>34</b>	429 - Mixed Upland Conifers	Sawtimber Medium	6.5	100	111-140	N/A	Eyeballs say pole stand, math says log. 5 of 5 swings had >30% BA of 'in' log size trees (couple swings@40-50% log BA). Dense sub-can, mainly S/P BF, but RM and BTA S/P common too. Because calling log size dominant, and those aren't heavily stocked in the canopy, can-closure is on higher side of 50-75%. JP, XO/NPO, RP and WP generally occupy a super-canopy position, overtop the poles/saps trying to chase them down. BF showed impressive growth rings. Wonder if area burned ~60yrs ago, leaving the now super-cans and spurring on BF regen. Borders Keystone S.F.C.. Lots of deer transitioning through this stand (so no regen <5ft present).																																																															
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<b>35</b>	4310 - Pine, Oak Mix	Sapling Well	14.8	24	1-50	N/A	Harvested ~'92-'94 (see draft notes). Nearly a 4-way tie for species dominance. Planted RP and JP, then filthy with natural XO/NPO and sap/shrub BlkCherry. Many more pole sized trees here than in neighboring planted stands 31 and 33. Overall a good/diverse mix, but unlikely to yield RP power poles in the future (and that's ok). Observed a sub-acre seasonally wet/low pocket dominated by sap/pole BlkCherry (in central/SW). Wasn't trenched/planted.																																																															
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Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	Managed Site	General Comments				
<b>36</b>	4126 - White, Black, N. Pin Oak	Sawtimber Medium	6.1	96	81-110	N/A	Two different stands, not quite different enough per mapping standards to split. Would've split the stand if larger. South 1/2 is a terrific mix of WO, WP, RP, with lesser components of XO/NPO and RM. South 1/2 is in a slight depression (with better soils) and high end of 75-100% can-closure. WP saps common in south as are poles of all species. North 1/2 starts sloping down toward poorer soils. Canopy opens (50-75%), RP, WP, WO less prevalent, canopy RM, BTA, JP, XO/NPO increase, and higher stocking of WO in sub-can (because less can-closure). Put it all together and calling can-closure at high end of 50-75%. Even-aged in appearance, 2-aged after you start coring.				
Canopy Species		% Cover	Size Class	DBH	Age	Sub-Canopy Species		Density	Avg. Height	Size	
White Oak		54	Log/Pole/XLog	10	96	Common Lowbush Blueberry		Low	< 5 feet	Tall Shrub	
Bigtooth Aspen		6	Log/XLog	13		White Oak		Medium	Variable	Sapling	
Black/Red (Hybrid) Oak		10	Pole/Log	9		Black/Red (Hybrid) Oak		Low	Variable	Sapling	
White Pine		15	Log/Pole	11		Red Pine		Trace	10 - 20 feet	Sapling	
Red Pine		8	Log/Pole	12	69	White Pine		Medium	Variable	Sapling	
						Red Maple		Low	>20 feet	Sapling	
						Jack Pine		Trace	>20 feet	Sapling	
						White Oak		Medium	< 5 feet	Seeding	
<b>37</b>	42141 - Planted Mixed Pine, Mixed Deciduous	Sapling Well	57.6	24	1-50	N/A		Harvested ~'92-'94 (see draft notes). Planted RP and JP w/a healthy component of XO/NPO. Some sap/pole BIKCherry mixing in with canopy. Variable stocking/can-closure, but is closing up in most areas I traveled. Low end of 75-100% seemed average. Quite a bit of sub-can oak seeds/short saps, many heavily browsed. Some areas prone to pole sizes, plenty of larger sap sizes present. Looks older (is taller/has larger DBH's) than neighboring stands 31 and 33.			
Canopy Species		% Cover	Size Class	DBH	Age	Sub-Canopy Species			Density	Avg. Height	Size
Black/Red (Hybrid) Oak		26	Sapling/Pole	4		Common Lowbush Blueberry			Medium	< 5 feet	Tall Shrub
Red Pine		36	Sapling/Pole	4	24	White Oak			Low	5 - 10 feet	Sapling
Jack Pine		26	Sapling/Pole	4		White Oak			Low	< 5 feet	Seeding
Black Cherry		8	Sapling/Pole	4		Black/Red (Hybrid) Oak			Medium	< 5 feet	Seeding
						Black Cherry			Medium	Variable	Tall Shrub
<b>38</b>	4199 - Other Mixed Upland Deciduous	Sapling Well	60.1	17	1-50	N/A	- MiFI wouldn't allow correct depiction of size classes in this 2-aged stand (couldn't represent poles). Residual 'no-cut' trees from the Rx that took place here in '02 (see draft notes) should be captured in the canopy as: WP 12" L/P, WO 8" P/L, JP 7" P, RP 8" P/L.- Variable species dominance and stocking. Northern areas hold most of the sapsapen (mainly BTA), 75-100% closure, yet still a strong component of WO/XO/NPO. Placed sap oak in sub-can list to represent it's presence below and in the canopy where aspen tends to dominate. Southern portions primarily oak (a lot of WO), areas of 50-75% closure, and scattered clumps of pine saps (WP, JP, some RP). Hard to find a 'non-desirable' species in this stand. Scattered 'no-cut' residuals throughout. Didn't observe residual mortality where I traveled. WO core (7.8"=83yrs) showed a welcome release after harvest timeframe. Stump-sprout saplings (WO, XO, RM, etc) are generally 1" or larger DBH than the 'naturally seeded in' saps. All the regen (stmpsprouts and from seed) is quite impressive, especially WO. Even pine saps seeded in below some residualleave trees. Species still competing for space, can-closure on low end of 75-100% as a whole.				
Canopy Species		% Cover	Size Class	DBH	Age	Sub-Canopy Species		Density	Avg. Height	Size	
White Oak		28	Sapling	2	17	Black/Red (Hybrid) Oak		Medium	Variable	Sapling	
Bigtooth Aspen		25	Sapling	2		Black/Red (Hybrid) Oak		Medium	< 5 feet	Seeding	
Black/Red (Hybrid) Oak		15	Sapling	2		Common Lowbush Blueberry		Medium	< 5 feet	Tall Shrub	
						Sweet Fern		Medium	< 5 feet	Tall Shrub	
						White Oak		Medium	< 5 feet	Seeding	
						White Oak		Medium	Variable	Sapling	



Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	Managed Site	General Comments				
<b>39</b>	42290 - Natural Mixed Pine	Sawtimber Well	1.6	67	81-110	N/A	RP or JP dominated depending on location. The 14.9" RP cored aged 54yrs, had off the chart growth rings, and half-doubted my ring count afterwards. Previous inventory had 52yrs for RP, so that's reassuring. JP cored (9.9") had a double pith, made aging tough (why I cored the RP), and aged ~67yrs. Scattered WO, XO/NPO L/P, WP, and a handful of RM/BTA in canopy. Old path of some sort cuts E/W through the stand. Can-closure on lower end of 75-100%. Heavy oak regen in sub-can, taller where canopy gaps present.				
Canopy Species		% Cover	Size Class	DBH	Age	Sub-Canopy Species		Density	Avg. Height	Size	
White Oak		7	Log/Pole	10		Jack Pine		Low	Variable	Sapling	
Red Pine		36	Log/Pole	14	54	Common Lowbush Blueberry		Medium	< 5 feet	Tall Shrub	
Jack Pine		42	Pole/Log	9	67	White Oak		High	Variable	Sapling	
Black/Red (Hybrid) Oak		7	Log/Pole	12		Black/Red (Hybrid) Oak		High	Variable	Sapling	
						Red Pine		Low	Variable	Sapling	
						White Pine		Low	Variable	Sapling	
						White Oak		Medium	< 5 feet	Seeding	
<b>40</b>	4310 - Pine, Oak Mix	Sawtimber Well	28.7	68	51-80	N/A	Thoroughly mixed yet a bit segregated. Can-closure 50-75% in east, holds the small amount of BTA/RM. Can-closure lower end of 75-100% in remainder of stand. Central area mainly dominated by P/L to L/P JP. Western area has majority of P/L to L/P WO and higher stocking of RP. XO/NPO fairly consistent throughout, as are WO/RP. A few WP present. Log sizes more common but not well stocked, plenty of poles. BA-swings ranged 40-110 (70-80 most common). WO/XO regen layer is notable. Distinct seed layer (browsed) and advanced sap layer present.				
Canopy Species		% Cover	Size Class	DBH	Age	Sub-Canopy Species		Density	Avg. Height	Size	
White Oak		15	Log/Pole	10		Common Lowbush Blueberry		Medium	< 5 feet	Tall Shrub	
Black/Red (Hybrid) Oak		22	Log/Pole/XLog	13		Black/Red (Hybrid) Oak		High	10 - 20 feet	Sapling	
Red Pine		18	Log/Pole/XLog	13	73	White Oak		High	10 - 20 feet	Sapling	
Jack Pine		35	Pole/Log	9	68	Jack Pine		Low	Variable	Sapling	
						Red Pine		Low	Variable	Sapling	
						White Pine		Low	Variable	Sapling	
						Black/Red (Hybrid) Oak		Medium	< 5 feet	Seeding	
						White Oak		Medium	< 5 feet	Seeding	
						Red Maple		Trace	>20 feet	Sapling	
<b>41</b>	42220 - Natural Jack Pine	Sawtimber Medium	2.6	64	51-80	N/A		Natural JP, more log dominated in north (10-12") and more poles in south (7-9"). Stocking isn't 'wall to wall' and can-closure is a bit open in areas. Selected high end of 50-75% can-closure as a whole. Oak regen, mainly XO/NPO, is heavier/high in north, tapers off a bit in south (tighter can-closure). Oak saps at or below browse height are taking a beating. Some JP stems on the ground (wind throw) and a few w/canopy dieback. Stand as a whole appeared healthy.			
Canopy Species		% Cover	Size Class	DBH	Age	Sub-Canopy Species			Density	Avg. Height	Size
Black/Red (Hybrid) Oak		10	Log/Pole	10		Jack Pine			Medium	>20 feet	Sapling
Jack Pine		84	Log/Pole	10	64	Black/Red (Hybrid) Oak			High	Variable	Sapling
						White Oak			Medium	Variable	Sapling
						White Pine			Low	Variable	Sapling
						Bigtooth Aspen			Trace	>20 feet	Sapling
						White Oak			Low	< 5 feet	Seeding
						Sweet Fern			Medium	< 5 feet	Tall Shrub
						Common Lowbush Blueberry			Medium	< 5 feet	Tall Shrub



Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	Managed Site	General Comments				
<b>42</b>	42290 - Natural Mixed Pine	Poletimber Well	3.6	60	81-110	N/A	Was part of '83-'86 'Block 196' sale but appears to of been left uncut. Mixed stand (mainly pole with some logs) where WP tends to be most common. South end has more of the 'mix', RP, WO, some very short/shrubby XO/NPO. Western boundary holds most of the canopy JP. WP heaviest in north. Likely 2-aged but didn't core any WO. Previous inventory captured stand as 'Too steep'. It is somewhat steep, measured 40% slope with clinometer in a southern location. West facing slope, slopes down east to west. Slopes dissipate in north. Followed Bobcat tracks in snow while conducting exam.				
Canopy Species		% Cover	Size Class	DBH	Age	Sub-Canopy Species		Density	Avg. Height	Size	
Red Pine		8	Pole/Log	9		Black/Red (Hybrid) Oak		Low	10 - 20 feet	Sapling	
Jack Pine		12	Pole/Log	8		White Pine		High	Variable	Sapling	
White Pine		55	Pole/Log/Sap	8	60	Red Pine		Trace	Variable	Sapling	
White Oak		20	Log/Pole	10		Jack Pine		Low	Variable	Sapling	
						White Oak		Low	Variable	Sapling	
						White Oak		Low	< 5 feet	Seeding	
						Sweet Fern		Medium	< 5 feet	Tall Shrub	
						Common Lowbush Blueberry		Medium	< 5 feet	Tall Shrub	
<b>43</b>	42220 - Natural Jack Pine	Sapling Poor	3.6	30	Immature	N/A	Apparently part of the harvest that rolled through ~'83-'86 (see draft notes). A stubby JP stand. Area north of the prominent opening is more sap than pole JP and generally 75-100% closure. Perimeter of opening and south of has more open-grown pole JP, saps still common, and varies from 25-75% closure. High-end of 25-50% can-closure when all trees are 'smushed' into one pile. All sides of this stand slope down into the nearly non-forested 'bowl'.				
Canopy Species		% Cover	Size Class	DBH	Age	Sub-Canopy Species		Density	Avg. Height	Size	
Jack Pine		85	Sapling/Pole	4	30	Black/Red (Hybrid) Oak		Low	< 5 feet	Seeding	
White Pine		6	Sapling/Pole	4		White Oak		Trace	< 5 feet	Seeding	
Black/Red (Hybrid) Oak		6	Sapling	2		Black Cherry		Trace	10 - 20 feet	Tall Shrub	
						Sedges		Medium	Unspecified	Non-Wood	
						Common Lowbush Blueberry		Medium	< 5 feet	Tall Shrub	
<b>44</b>	4310 - Pine, Oak Mix	Poletimber Well	5.3	74	111-140	N/A	Stand is a top a slight gradient that slopes downward south to north. A mix of all sizes, sap to log (couple xlogs and saw one legacy WP). Perimeter locations tended to hold more of the log sized stems, interior more P/S/L dominant. High to full sub-can of WP, quite a few of these mixing into canopy positions. WO and scattered RP, XO/NPO are common components. Some BTA in east/SE. Could be captured as a lower stocked log stand, felt pole sizes were more common. Moving toward WP dominance w/decid component. BA variable depending on locale.				
Canopy Species		% Cover	Size Class	DBH	Age	Sub-Canopy Species		Density	Avg. Height	Size	
White Oak		25	Pole/Log	8	98	White Pine		Full	>20 feet	Sapling	
Black/Red (Hybrid) Oak		15	Log/Pole	10		Common Lowbush Blueberry		Medium	< 5 feet	Tall Shrub	
White Pine		44	Pole/Sap/Log	8	74	White Oak		Low	>20 feet	Sapling	
Red Pine		6	Log/Pole	12	76	Red Maple		Low	>20 feet	Sapling	
						Black/Red (Hybrid) Oak		Low	>20 feet	Sapling	
						Red Pine		Low	>20 feet	Sapling	
						Sweet Fern		Low	< 5 feet	Tall Shrub	
<b>45</b>	4191 - Mixed Upland Deciduous with Conifer	Sapling Well	9.8	37	1-50	N/A	Harvested ~'83-'86 (see draft notes). This stand has strong components of WP and JP (WP older than other species). More WP north of 2-track, more JP south of 2-track. Cored a 10.4" RP (~38yrs) that was the same age as 3.5" WO (=37yrs). Like surrounding stands, WO and XO/NPO saps are prolific. Stump-sprout stems usually 1" or larger DBH than 'from seed' saps. Pole sizes beginning to and/or have emerged in areas. A good mixture of desirable regen and residual 'no-cut' species.				
Canopy Species		% Cover	Size Class	DBH	Age	Sub-Canopy Species		Density	Avg. Height	Size	
White Oak		28	Sapling/Pole	4	37	Common Lowbush Blueberry		Medium	< 5 feet	Tall Shrub	
Black/Red (Hybrid) Oak		28	Sapling/Pole	4		White Oak		Medium	< 5 feet	Seeding	
White Pine		15	Pole/Log/Sap	8	65	Black/Red (Hybrid) Oak		Medium	< 5 feet	Seeding	
Red Pine		8	Log/Pole	10	38	Sweet Fern		Medium	< 5 feet	Tall Shrub	
Jack Pine		15	Pole/Sapling	5							



Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	Managed Site	General Comments			
<b>46</b>	4126 - White, Black, N. Pin Oak	Sapling Well	35.5	38	1-50	N/A	Harvested '83-'86 (see draft notes). Scattered uncut pine throughout. Now strongly dominated by WO and XO/NPO saps/some poles. Some scattered BTA clone pockets observed. Some of the L/P and P/L RP (cored a 9.7" RP in Std45=38yrs) is the same age as the oak regen. Stump-sprout stems are 1" or larger DBH than 'from seed' saps. Pole sizes beginning to emerge throughout the stand (mainly on stump-sprts stems). Seeds listed in sub-can are only seed size/height because of relentless browse pressure. Two 'depressions' observed. One in north populated by stubby JP, the other in south that's more of a small opening. Heavier L/P WP component in extreme SE.			
Canopy Species	% Cover	Size Class	DBH	Age	Sub-Canopy Species	Density		Avg. Height	Size	
Red Maple	7	Sapling/Pole	3		White Oak	Medium		< 5 feet	Seeding	
White Oak	35	Sapling/Pole	3	38	Black/Red (Hybrid) Oak	Medium		< 5 feet	Seeding	
Bigtooth Aspen	12	Sapling/Pole	4		White Pine	Trace		< 5 feet	Seeding	
White Pine	10	Pole/Log/Sap	9	65	Sweet Fern	Medium		< 5 feet	Tall Shrub	
Black/Red (Hybrid) Oak	28	Sapling/Pole	4		Common Lowbush Blueberry	Medium		< 5 feet	Tall Shrub	
<b>47</b>	4126 - White, Black, N. Pin Oak	Sawtimber Poor	24.4	103	1-50	N/A		Oak shelterwood, cut '05 (see draft notes), residual averaged 30-50BA. Residual trees along the areas I traveled were healthy. Canopy WO generally smaller (DBH) than XO/NPO and the limited number of N.Red Oak. WO saps tend to dominate, high to full stocking in most areas, and averaged 10-20ft (some +/- though). Same story for XO/NPO saps. Dense oak seed layer too. Pretty sure these are only seed sized because they weren't able to escape browse pressure. This ground enjoys growing its oak.		
Canopy Species	% Cover	Size Class	DBH	Age	Sub-Canopy Species	Density			Avg. Height	Size
Red Oak	10	Log/Pole/XLog	12		Red Maple	Low			>20 feet	Sapling
White Oak	44	Log/Pole	10	103	White Pine	Low	Variable		Sapling	
Black/Red (Hybrid) Oak	30	Log/Pole/XLog	11		Red Pine	Low	Variable		Sapling	
White Pine	8	Pole/Log	8		Wintergreen	Low	< 5 feet		Tall Shrub	
					Common Lowbush Blueberry	Medium	< 5 feet		Tall Shrub	
					Bigtooth Aspen	Trace	>20 feet		Sapling	
					White Oak	High	10 - 20 feet		Sapling	
					Sweet Fern	Medium	< 5 feet		Tall Shrub	
					Black/Red (Hybrid) Oak	High	10 - 20 feet		Sapling	
					White Oak	High	< 5 feet		Seeding	
					Black/Red (Hybrid) Oak	High	< 5 feet		Seeding	
					Jack Pine	Trace	5 - 10 feet		Sapling	
<b>48</b>	4191 - Mixed Upland Deciduous with Conifer	Sapling Well	54.0	35	51-80	N/A	Cut between '82-'86 (see draft notes). Some uncut inclusions on the perimeter, generally dominated by oak (L/P), and pine (L/P) to a lesser extent. RP and WP were left when harvested. Residual (supercan) BA is 0-30 (50-100 in dense areas), except in the unharvested portions on perimeter where BAs range 60-120. Saps just beginning to move toward pole sizes, 10-50BA merchantable in areas. Burn scars are present on old stumps. Trace black cherry in SW. Sub-can is lightly stocked by WO/XO/NPO and WP saps. Stand has an an oak-pine barren 'feel' to it (where fire has been excluded). Sap/pole canopy species varies, dominated by BTA in the center of the stand and XO/NPO elsewhere. RM is present, more common with aspen. RP and WP densities vary, clumpy in spots and absent in others. Few jack pine in southwest and again in northeast. Scattered XLog RP in east. Few log BTA in NE. Log oak, red maple, and bigtooth in canopy are residual (2nd age). Main canopy is Sapling/Pole. Changes in topography throughout the stand, mostly gentle and moderate terrain. SE contains a bowl with some steeper slopes and a non-forested opening at the bottom. Flattest portions of stand (central and east central) are dominated by BTA and some RM.  Sub-acre opening in SE at the bottom of a bowl populated with WP (P/L/S), JP (S/P), and some RP (L/P) and oak saps.			
Canopy Species	% Cover	Size Class	DBH	Age	Sub-Canopy Species	Density		Avg. Height	Size	
White Oak	25	Sapling/Pole/Log	4	36	Red Maple	Trace		Variable	Sapling	
Bigtooth Aspen	26	Sapling/Pole/Log	4	35	Witch Hazel	Low		5 - 10 feet	Tall Shrub	
Black/Red (Hybrid) Oak	20	Sapling/Pole/Log	4		Common Lowbush Blueberry	Medium		< 5 feet	Tall Shrub	
White Pine	10	Log/Pole	12		White Oak	Medium		Variable	Sapling	
Red Pine	10	Log/Pole/XLog	12	63	White Pine	Low		< 5 feet	Seeding	
Red Maple	8	Sapling/Pole/Log	3		Black/Red (Hybrid) Oak	Low		Variable	Sapling	



Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	Managed Site	General Comments		
<b>49</b>	42200 - Natural White Pine	Sawtimber Well	2.9	66	111-140	N/A	White pine, smaller log dominant. Plenty of WP poles present. Removal Rx went through this stand ~83-86 (see draft notes). Like Stand 56, the race for light has vertically trained the stump-sprout WO and XO/NPO very well. The sap/pole oak 'mingles' with WP (and some RP) in the canopy. Looking like oak should convert to nearly all pole sizes fairly soon. Deciduous prevalence increases in northern. A good 'pile' of WP that currently belongs to Stand 46 'blurs' where stand boundaries could be drawn in the SE of this stand.		
Canopy Species	% Cover	Size Class	DBH	Age	Sub-Canopy Species	Density		Avg. Height	Size
White Pine	76	Log/Pole	10	66	White Pine	Medium		Variable	Sapling
Red Pine	8	Log/Pole	10	58	Common Lowbush Blueberry	Medium		Variable	Tall Shrub
White Oak	8	Sapling/Pole	4	38	Black/Red (Hybrid) Oak	Medium		Variable	Sapling
Black/Red (Hybrid) Oak	8	Sapling/Pole	4		White Oak	Medium	Variable	Sapling	
<b>50</b>	4122 - Oak, Pine	Poletimber Well	1.1	120	111-140	N/A	Pole/log overtop a Full sub-can of WP sap/some poles. Fair amount of the sub-can WP is mixing in with the canopy. Log sizes not uncommon, especially along the perimeter. WO is generally pole or small log yet a good 100+ years old (cored a 6" and 9.5", rings to tight on the 6" to read). All kinds of ages in this stand.		
Canopy Species	% Cover	Size Class	DBH	Age	Sub-Canopy Species	Density		Avg. Height	Size
White Oak	42	Pole/Log	8	120	White Pine	Full		>20 feet	Sapling
Black/Red (Hybrid) Oak	22	Pole/Log/XLog	9	98	Red Maple	Low		>20 feet	Sapling
White Pine	25	Pole/Sap/Log	6		White Oak	Low		>20 feet	Sapling
					Red Pine	Trace		>20 feet	Sapling
					White Oak	Low		< 5 feet	Seeding
					Common Lowbush Blueberry	Low		< 5 feet	Tall Shrub
<b>51</b>	42250 - Pine, Oak	Poletimber Well	7.4	68	111-140	N/A	Even-aged appearance, but the white oak cored (11.4"=~123yrs) was significantly older than WP (10.7"=68yrs) and RP (10.1=60yrs). These are the three dominant species and felt it reasonable to call the stand 2-aged. Pole sizes more prevalent, but logs are common. Log trees most abundant around 2-track that splits the stand. Slight slopes at north and south ends. WP pole/sap component (and some JP) increases pretty quick in extreme south. An interesting little stand to walk.		
Canopy Species	% Cover	Size Class	DBH	Age	Sub-Canopy Species	Density		Avg. Height	Size
White Oak	25	Log/Pole	10	123	White Pine	Medium		Variable	Sapling
Black/Red (Hybrid) Oak	10	Pole/Log	9		Common Lowbush Blueberry	High		< 5 feet	Tall Shrub
White Pine	32	Pole/Log/XLog	8	68	White Oak	Medium		Variable	Sapling
Red Pine	28	Pole/Log/XLog	9	60	Sweet Fern	Medium		< 5 feet	Tall Shrub
					White Oak	Medium		< 5 feet	Seeding
					Red Pine	Low		Variable	Sapling
					Black/Red (Hybrid) Oak	Low		Variable	Sapling
					Red Maple	Low		Variable	Sapling
<b>52</b>	42290 - Natural Mixed Pine	Sawtimber Medium	7.3	58	51-80	N/A	This area was part of '82-'86 harvest (see draft notes). Residual RP and WP density meets criteria for its own stand. This is a highly productive natural red and white pine stand with variable diameters and densities. BAs range 40-100, commonly 50-90. Jack pine in confined to the southern portion of the stand. Few XLog RP, saw one XLog WP. Sap/pole understorey is beginning to mix in with canopy, but the two are still stratified.		
Canopy Species	% Cover	Size Class	DBH	Age	Sub-Canopy Species	Density		Avg. Height	Size
Jack Pine	13	Pole/Sap/Log	6		White Pine	Low		Variable	Sapling
White Pine	35	Log/Pole/XLog	10		Common Lowbush Blueberry	Low		Variable	Tall Shrub
Red Pine	45	Log/Pole/XLog	12	58	White Oak	Medium		Variable	Sapling
					Red Maple	Trace		>20 feet	Sapling
					Black/Red (Hybrid) Oak	Medium	Variable	Sapling	



Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	Managed Site	General Comments		
<b>53</b>	42290 - Natural Mixed Pine	Poletimber Medium	6.7	44	1-50	N/A	Apparently part of sale that took place '83-'86 (see draft notes). Looks like it could be planted (especially the WP). It's close to being a 50/50 mix of JP/WP. JP still mainly larger sap/small pole size. WP is generally the reverse. Scattered log/larger log WP present too (10.0" WP=67yrs). Very clean sub-can, did see old stumps (cut by man). Variable can-closure with numerous small grassy openings throughout. Much of stand is in a sand bowl/depression or sloping down into it. Was easy to get turned around in this small stand. Might be a stretch to call 2-aged.		
Canopy Species	% Cover	Size Class	DBH	Age	Sub-Canopy Species	Density		Avg. Height	Size
Jack Pine	45	Sapling/Pole	4	44	Bearberry	Medium		< 5 feet	Tall Shrub
White Pine	42	Pole/Sap/Log	7	67	Common Lowbush Blueberry	Medium		< 5 feet	Tall Shrub
					Black/Red (Hybrid) Oak	Low		< 5 feet	Seeding
					White Oak	Low		< 5 feet	Seeding
					Sedges	High		Unspecified	Non-Wood
<b>54</b>	42210 - Natural Red Pine	Sawtimber Medium	10.8	56	51-80	N/A	Has all the traits of a natural RP stand; wide variations in DBH (sap to xlog), variable stocking (0-110+ BA), no rows, etc. Removal harvest in '04, left all RP. High to full stocking of oak saps (a lot of WO). Saplings are the dominant canopy in areas devoid of RP (on east boundary and south of Stand 50). Components of WP, RP, RM, and JP saps present and vary from Trc-Med depending upon locale. Dense oak saps stole my pen twice. RP overstory looks healthy.		
Canopy Species	% Cover	Size Class	DBH	Age	Sub-Canopy Species	Density		Avg. Height	Size
Red Pine	90	Log/Pole/XLog	11	56	Red Maple	Medium		>20 feet	Sapling
					White Oak	Full		Variable	Sapling
					Common Lowbush Blueberry	Medium		< 5 feet	Tall Shrub
					Black/Red (Hybrid) Oak	High		Variable	Sapling
					White Pine	Medium		Variable	Sapling
					Red Pine	Medium		>20 feet	Sapling
					Jack Pine	Low		Variable	Sapling
					White Oak	High		< 5 feet	Seeding
					Black/Red (Hybrid) Oak	Medium	< 5 feet	Seeding	
<b>55</b>	4126 - White, Black, N. Pin Oak	Sapling Medium	1.9	15	Immature	N/A	Stand is in a bowl/depression. Cut in '04, typed as a J5 before harvest (see draft notes). WO and XO/NPO saps are dominant, variable stocking, but all together fits into 50-75% can-closure. Some of the sap/pole WP and RP present pre-dates the harvest (larger DBH than the sap oak). Perimeter locales pick-up a few residuals from Stand 54.		
Canopy Species	% Cover	Size Class	DBH	Age	Sub-Canopy Species	Density		Avg. Height	Size
Black/Red (Hybrid) Oak	41	Sapling	2		White Oak	Medium		< 5 feet	Seeding
Jack Pine	6	Sapling	3		Black/Red (Hybrid) Oak	Medium		< 5 feet	Seeding
White Pine	8	Sapling/Pole	3		Sweet Fern	Medium		< 5 feet	Tall Shrub
White Oak	41	Sapling	2	15	Common Lowbush Blueberry	Medium		< 5 feet	Tall Shrub
<b>56</b>	42200 - Natural White Pine	Sawtimber Medium	1.4	67	51-80	N/A	Removal harvest went through this stand ~'83-'86 (see draft notes). WP (L/P and P/L) occupies the 'dominant' canopy positions. Stump-sprout oak and red maple have had good vertical training and 'mingle' with WP in the canopy. Saps listed in sub-can not quite at a 'mingle' status. Most of the oak is just about pole and/or is pole sized. Felt not quite enough yet to list as pole dominant (soon). Can-closure on high-end of 50-75% and/or low end of 75-100% (should close in by '29).		
Canopy Species	% Cover	Size Class	DBH	Age	Sub-Canopy Species	Density		Avg. Height	Size
White Oak	10	Sapling/Pole	4	38	Common Lowbush Blueberry	Medium		< 5 feet	Tall Shrub
Black/Red (Hybrid) Oak	10	Sapling/Pole	4		Black/Red (Hybrid) Oak	Low		Variable	Sapling
White Pine	68	Log/Pole	10	67	White Oak	Low		Variable	Sapling
					Red Maple	Medium	>20 feet	Sapling	
<b>57</b>	4125 - Black, N. Pin Oak	Sapling Medium	1.9	15	Immature	N/A	Cut in '04, typed as a J5 before harvest (see draft notes). Clearcut resulted in a fairly XO/NPO dominated stand with inclusions of WO, RM, and pine. JP is slow to keep up with oak and will likely end up suppressed except where open grown. West half of stand is very open with scattered oak and pine. Trace residual pole WO, XO/NPO on south and SE perimeter; trace residual JP/WP (pole) in west.		
Canopy Species	% Cover	Size Class	DBH	Age	Sub-Canopy Species	Density		Avg. Height	Size
Black/Red (Hybrid) Oak	90	Sapling/Pole	2	15	White Pine	Trace		< 5 feet	Seeding
					Black/Red (Hybrid) Oak	High		< 5 feet	Seeding
					Jack Pine	Low		5 - 10 feet	Sapling
					White Oak	Low	Variable	Sapling	



Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	Managed Site	General Comments		
<b>58</b>	42200 - Natural White Pine	Sawtimber Well	2.2	64	81-110	N/A	Part of '82-'86 harvest (see draft notes). The treatment released a lot of the white pine. Sapling/pole white pine is mixing in with log canopy. Trace scattered bigtooth saplings in canopy, but not enough to warrant a percentage. Shown in subcanopy. Various ages, 37-68, not including XLog ages.		
Canopy Species	% Cover	Size Class	DBH	Age	Sub-Canopy Species	Density		Avg. Height	Size
White Oak	15	Pole/Sap/Log	6	40	White Pine	Low		Variable	Sapling
Black/Red (Hybrid) Oak	10	Pole/Sapling	6		Common Lowbush Blueberry	Low		< 5 feet	Tall Shrub
White Pine	65	Log/Pole/XLog	10	64	Black/Red (Hybrid) Oak	Medium		>20 feet	Sapling
Red Pine	7	Log/Pole/XLog	12	75	White Oak	Medium		Variable	Sapling
					Red Maple	Low	>20 feet	Sapling	
					Bigtooth Aspen	Trace	>20 feet	Sapling	
<b>59</b>	4130 - Aspen	Sapling Well	5.8	26	1-50	N/A	Harvested ~'92-'94 (see draft notes). Tough to grow RP/JP below aspen. Planted to RP (and I think some JP) in '95. Looks like JP gave up a while ago. RP still holding on in areas. Some RP in mid-canopy positions w/aspen. Other RP languishing in sub-can. Higher oak component in south, some QA in north. Aspen in transition/has transitioned to small pole sizes (sap/poles in south, more poles in north). DBH's right on larger sap size as whole. Aspen colonized trenches in areas, leading to a planted/row appearance of aspen in spots.		
Canopy Species	% Cover	Size Class	DBH	Age	Sub-Canopy Species	Density		Avg. Height	Size
Bigtooth Aspen	60	Sapling/Pole	4	26	Common Lowbush Blueberry	Low		< 5 feet	Tall Shrub
Black/Red (Hybrid) Oak	6	Sapling	3		Black Cherry	Low		Variable	Tall Shrub
Red Pine	10	Sapling/Pole	4	26	Red Pine	Medium		10 - 20 feet	Sapling
Red Maple	6	Sapling	3		Jack Pine	Low		Variable	Sapling
White Oak	8	Sapling	2						
<b>60</b>	42140 - Planted Mixed Pine	Sapling Medium	0.0	24	Immature	N/A	Harvested ~'92-'94 (see draft notes). Variable planted RP/JP stocking/canopy closure. Stocking seemed a bit higher in the south, and decreases as you move north. Diameters were 3.5" and/or less for most stems measured. A few pole sizes beginning to emerge. Everything here is a bit 'stubby/open-grown'. Scattered XO/NPO in the canopy and sub-can, cherry mixing in too. Looks younger (is shorter/has smaller DBH's) than neighboring stands 32, 35, and 37.		
Canopy Species	% Cover	Size Class	DBH	Age	Sub-Canopy Species	Density		Avg. Height	Size
Black/Red (Hybrid) Oak	10	Sapling	3		Common Lowbush Blueberry	Medium		< 5 feet	Tall Shrub
Red Pine	45	Sapling	3	24	Sweet Fern	Medium		< 5 feet	Tall Shrub
Jack Pine	35	Sapling	3		Black/Red (Hybrid) Oak	Low		< 5 feet	Seeding
					Black Cherry	Medium	Variable	Tall Shrub	
<b>61</b>	3102 - Grass	Nonstocked	1.0	0	Unspecified	Managed Opening	Landing when Stand 14 was harvested during '11 YOE. Now planted with 3-fenced in apple trees and 2-unknown deceased trees in a protective plastic sleeve. Might be other trees planted here? Still pretty well snow covered when I visited. "Your hunter dollars at work" sign present too.		
<b>62</b>	6128 - Lowland Coniferous, Mixed Deciduous	Poletimber Well	5.9	57	81-110	N/A	Mixed lowland stand, primarily dominated by BlkSprc with a strong component of RM. Larch common in the western 'hook' and along perimeter of Stand 18. Scattered PB, QA, and a handful of NWC/WP. Far NE portion has a strong BF component, and some WP. Good stocking of sap/seed BlkSprc in sub-can. Hard to tell how wet the site actually is, still a good foot of snow when visited. Could see moss in exposed areas. Growth rings on the 7' BS cored were quite impressive. Similar age & notable growth as surrounding stands. Fire ~55-60yrs ago?		
Canopy Species	% Cover	Size Class	DBH	Age	Sub-Canopy Species	Density		Avg. Height	Size
Red Maple	30	Log/Pole/XLog	10		Quaking Aspen	Low		< 5 feet	Sapling
Balsam Fir	10	Pole/Sapling	7		Balsam Fir	High		>20 feet	Sapling
Black Spruce	33	Pole/Sap/Log	7	57	Tag Alder	Medium		5 - 10 feet	Tall Shrub
Tamarack	10	Pole/Log/Sap	7		Black Spruce	High		>20 feet	Sapling
					Red Maple	Medium		>20 feet	Sapling
					Black Spruce	Medium		< 5 feet	Seeding
					Balsam Fir	Medium	< 5 feet	Seeding	



Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	Managed Site	General Comments					
63	6229 - Mixed lowland shrub	Nonstocked	1.7	0	Unspecified	No	Shown as island retention on the sale map for 'LOWLAND A HABITAT IMPROVEMENT' #720491101 when Stand 14 was prepped for harvest during '11 YOE. Wasn't reshaped/captured as retention after prep was completed. Mainly tag alder, Nannyberry with some scattered WP (L/P/XL), QA (L), and spruce near the perimeter. Spoke w/Planning and Inventory Specialist about whether or not to carry forward as 5E (since it's not representative of the parent stand prior to harvest). Instructed to capture/carry forward for certification purposes.					
64	6229 - Mixed lowland shrub	Nonstocked	1.3	0	Unspecified	No	Mixed lowland tag alder with scattered spruce, fir, tamarack, and a few other. Borderline forested/non-forested. Snow covered when visited.					
65	6224 - Treed Bog	Nonstocked	0.8	0	Unspecified	No	A lot of leather leaf in the boggiest areas. Clump of conifer (saps/poles/logs) close to M72. Could see Larch, RP, WP, Spruce, Fir, JP. Scat individs too. JP lines all but the southern perimeter. Powerline and pole end just west of this feature.					
66	320 - Upland Shrub	Nonstocked	9.1	0	Unspecified	No	Charred living and dead/down remains present, old plow line is majority of the boundary for this stand. Barnes vaguely remembers a fire here, fire origin prob from Keystone CmpGrnd. See harvest history in 'draft notes'. A couple scattered forested clumps/individ present (mainly pole JP, some BF, XO/NPO, WP). Perimeter locales 'mix' with adjacent stand/specie types. Primarily Blk.Chrry shrub in sub-can with grass, blueberry, sweet fern, then smaller components of sap XO/NPO, QA, etc. Trace RM poles.					
								Sub-Canopy Species	Density	Avg. Height	Size	
								Black Cherry	High	Variable	Tall Shrub	
								Jack Pine	Low	>20 feet	Pole	
								Balsam Fir	Low	>20 feet	Sapling	
								Common Lowbush Blueberry	Medium	< 5 feet	Tall Shrub	
Sweet Fern	Medium	< 5 feet	Tall Shrub									
67	6224 - Treed Bog	Nonstocked	0.5	0	Unspecified	No	A lot of leather leaf. Clumps of conifer (saps/poles/logs). Could see RP, WP, Spruce, Fir, JP. Scat individs too. JP and XO/NPO line the					
68	42220 - Natural Jack Pine	Poletimber Well	0.5	66	51-80	N/A	Boundary excluded/visual alleviation and island retention for the sale that occurred within Stand 30. Stuck my head into the south central island and north center exclusion along M-72. Boundary exclusions along M-72 include 2-3 rows of planted RP.					
								Canopy Species	% Cover	Size Class	DBH	Age
								Jack Pine	70	Pole/Log	9	66
								Red Pine	20	Log/Pole	14	
Black/Red (Hybrid) Oak	8	Log/Pole	11									
69	42210 - Natural Red Pine	Sawtimber Well	5.5	70	81-110	N/A	Natural RP by all appearances. Didn't observe evidence of recent management (stumps). However, the removal type harvest that went through Stand 48 dipped into southern areas of this stand. Heavy sap/pole deciduous 'flush' along that line. Southern boundary is also 'transitional' and is dotted with WP, WO, JP, RP, etc. before the core RP area of this stand begins. Perimeter locales hold most of the low% canopy species. Interior RP-BA ranged 90, 110, 130, BA-swings near perimeter were lower (20BA of RP). A couple 'platy' barked xlog RP present.					
								Sub-Canopy Species	Density	Avg. Height	Size	
								Common Lowbush Blueberry	Medium	< 5 feet	Tall Shrub	
								White Oak	Medium	Variable	Sapling	
								Black/Red (Hybrid) Oak	Medium	Variable	Sapling	
								Bigtooth Aspen	Low	>20 feet	Sapling	
								Black/Red (Hybrid) Oak	Low	>20 feet	Pole	
								Red Pine	Low	>20 feet	Sapling	
								White Pine	Low	Variable	Sapling	
								White Oak	Medium	< 5 feet	Seeding	
Canopy Species	% Cover	Size Class	DBH	Age								
Red Pine	85	Log/Pole/XLog	13	70								





Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	Managed Site	General Comments																																													
<b>70</b>	42220 - Natural Jack Pine	Sawtimber Poor	0.9	75	1-50	N/A	<p>Captured as retention when (formally Std34) this stand was harvested. Decided to map and visit. JP (and a few RP/NPO/XO) lined upland perimeter that leads quickly down into a non-forested, seasonally wet depression. Depression was holding water when I visited, was also populated with dead JP saps. Some leatherleaf on mid-slope positions. Could be called non-forested and/or the forested perimeter could be a ring of J9.</p>																																													
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<b>73</b>	42140 - Planted Mixed Pine	Sapling Medium	2.2	24	1-50	N/A	<p>Farrer '09: Stand was planted to Red pine in 1994 and than planted to Jack pine in 1995. Jack pine dominating. JSP '19: Harvested ~92-'94 (see draft notes). Obviously trenced and planted. Unclear if planted stock failed or if intentionally planted at a lower stocking (to appear nature near Elbow Trl)?. Now a mixture of natural and planted species with variable can-closure throughout. Natural WP short/bushy and P to Log. Scat natural JP poles in clumps &amp; individs.</p>																																													
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<b>80</b>	3302 - Low Density Conifer Trees	Nonstocked	19.7		Unspecified	4211 - Planted Red Pine	<p>Pursue formal road closure through director's order upon completion of sale. Sale cut summer/fall of 2013 under contract 72-048-11-01. Retention island left in south end. C72-736 trenched in 2015. On 2016 herbicide completion report, but acreage not comprehensive. Planted to RP May 2017. June 2018 Yr 1 survey found 780 RP &amp; 1,437 J-O-C tpa.</p>																																													
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