



# Compartment Review Presentation

## Crystal Falls Forest Management Unit

Compartment 120

Entry Year 2016

Acreage: 1,737

County Iron

Management Area: Amasa Plains

**Revision Date:** 07/24/2014

**Stand Examiner:** Ed Rice

### Legal Description:

T44N R33W sec 2, 3 T45N R33W sec 34, 35

### Identified Planning Goals:

Optimize sustainable timber production while enhancing and protecting wildlife habitat. Continue to sustainably balance the aspen age class acres. Get the hardwood stands on a 20 year alternating cutting cycle towards regulation. Protect the riparian areas and transition zones during management activity.

### Soil and topography:

Soils consist of very fine sandy loams in much of the aspen forest type, silt loams in the northern hardwood types to muck soils in the lowlands and bogs. Topography ranges from flat to rolling hills, with some short, steep hills present.

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

The compartment is contiguous in state ownership. Industrial forest borders the compartment along the north east side while private lands border the western edge. Active forest management has occurred and will continue within and surrounding the compartment. Deer hunting by far dominates the recreational use patterns.

### Unique Natural Features:

No Unique Natural Features known.

### 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:

None identified

### Watershed and Fisheries Considerations:

The Hemlock River, tributaries and small seeps all lend to the river classed as a cold water trout stream. Any aspen management will require a 300 foot buffer. Other forest types should follow BMPs to preserve the watershed characteristics.

### Wildlife Habitat Considerations:

Deer are using areas of the compartment as winter cover, noticeably so along and adjacent to the Hemlock River and any lowland conifer stands. Wolves also use the compartment and the surrounding area. Only a small portion in the south east end of the compartment falls within the identified deer wintering area GDSE layer. However, the entire compartment is heavily utilized as a deer wintering area as evidenced by actual observed winter deer use. Upland conifers should be promoted and lowland conifer stands should be maintained and enhanced to continue providing good winter cover.

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

Surface sediments consist of peat and muck, coarse-textured till and an end moraine of coarse-textured till. There is insufficient data to determine the glacial drift thickness. The Precambrian Hemlock Formation subcrops below the glacial drift. The Hemlock does not have a current economic use. Abandoned iron mines are located one mile to the southwest. This compartment was previously leased for metallic exploration and potential may exist. The nearest gravel pit is one mile to the north, but there should be some potential in the compartment. There is no economic oil and gas production in the UP.

### Vehicle Access:

Access poor to fair. There are roads but many are impassable to automobile traffic during the non winter months. Access along the southern edge of the compartment is good with the DNR Road being a quality gravel road.

### Survey Needs:

T45N R33W sec 34: S 1/16, SW 1/16, W 1/16, center 1/4, N 1/16, NE 1/16, witness corner to N 1/16 sec 34, 35. T44N

**Recreational Facilities and Opportunities:**

Snowmobile trail 111

**Fire Protection:**

Much of the area is not prone to carrying a high intensity forest fire. The fuel types consist of aspen, northern hardwoods and swamp/bog. There are areas in section 34 however that could sustain a high intensity fire given the spruce/fir fuel type and the large amounts of spruce/fir ladder fuel windthrow. These fire prone areas are not extensive in acreage however. Water sources are abundant with the Hemlock River and multiple creeks adjacent to the compartment. Access into the interior of the compartment is fair for equipment. Access into section 34 is good with multiple roads present.

**Additional Compartment Information:**

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

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

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

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

# Cover Type & Treatment Map

Compartment: 120  
 T44N R33W Sections 2, 3  
 T45N R33W Sections 34, 35  
 County: Iron  
 Unit: Crystal Falls  
 Management Area: Amasa Plains  
 YOE: 2016  
 Acres: 1,737 GIS Calculated  
 Examiner: Ed Rice  
 Map Revised: 08/27/2014  
 Map Phase: Pre-Review

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

**Legend**

- Miris Corners
- + Remonumented Section Corners
- ◆ PLSS Corner
- ▲ Berms
- ⊗ Bridges
- 🏠 Cabin
- ⚡ Mining
- 🚙 Snowmobile Trails
- 🛣 Highway
- 🛣 County Paved Roads
- 🛣 Paved Roads
- 🛣 County Gravel Roads
- 🛣 Gravel Roads
- 🛣 Poor Dirt Roads
- 🛣 County Poor Dirt Roads
- 🛣 Trail (Non-Recreation)
- 🚂 Railroads
- 🚙 Snowmobile Trail
- 🌊 Stream
- 🌊 Intermittent Stream
- 🌊 Lakes and Rivers
- 🌊 State Forest Land

**Treatments**

- ▬ Clearcut (w/Reserves, Patch/Strip)
- ▨ Shelter Wood (w/Reserves)

**Forest Stands**

**Level 3**

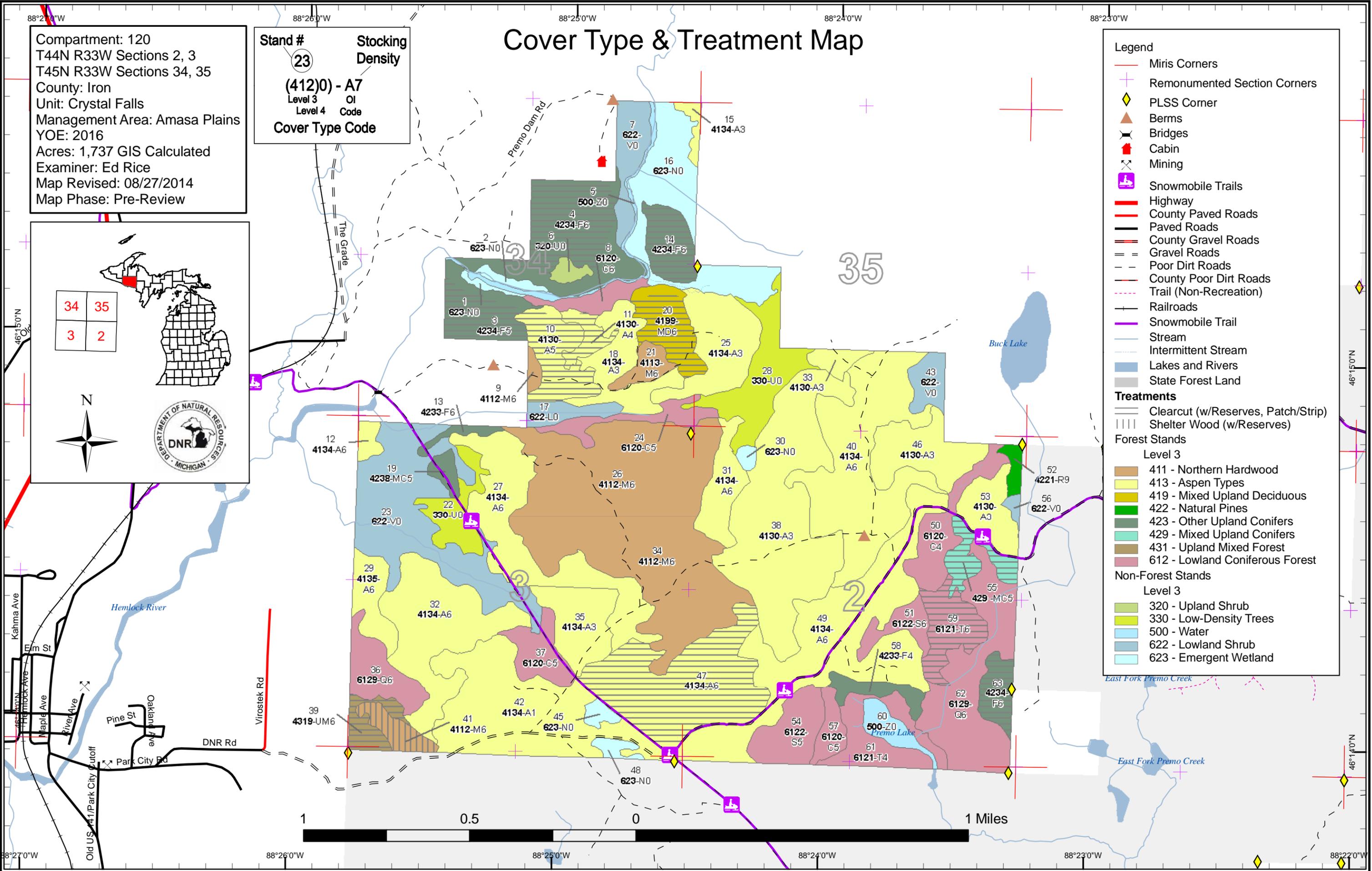
- 411 - Northern Hardwood
- 413 - Aspen Types
- 419 - Mixed Upland Deciduous
- 422 - Natural Pines
- 423 - Other Upland Conifers
- 429 - Mixed Upland Conifers
- 431 - Upland Mixed Forest
- 612 - Lowland Coniferous Forest

**Non-Forest Stands**

**Level 3**

- 320 - Upland Shrub
- 330 - Low-Density Trees
- 500 - Water
- 622 - Lowland Shrub
- 623 - Emergent Wetland

34 35  
3 2



Compartment: 120  
 T44N R33W Sections 2, 3  
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 YOE: 2016  
 Acres: 1,737 GIS Calculated  
 Examiner: Ed Rice  
 Map Revised: 08/27/2014  
 Map Phase: Pre-Review

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

# Stand Boundary Map

**Legend**

- Miris Corners
- ⊕ Remonumented Section Corners
- ◆ PLSS Corner
- ▲ Berms
- ⊗ Bridges
- 🏠 Cabin
- ⚡ Mining
- 🛷 Snowmobile Trails
- 🛣 Highway
- County Paved Roads
- Paved Roads
- County Gravel Roads
- Gravel Roads
- Poor Dirt Roads
- County Poor Dirt Roads
- ⋯ Trail (Non-Recreation)
- Railroads
- 🛷 Snowmobile Trail
- Stream
- Intermittent Stream
- 🟡 Stand Boundaries

**Forest Stands**

**Level 3**

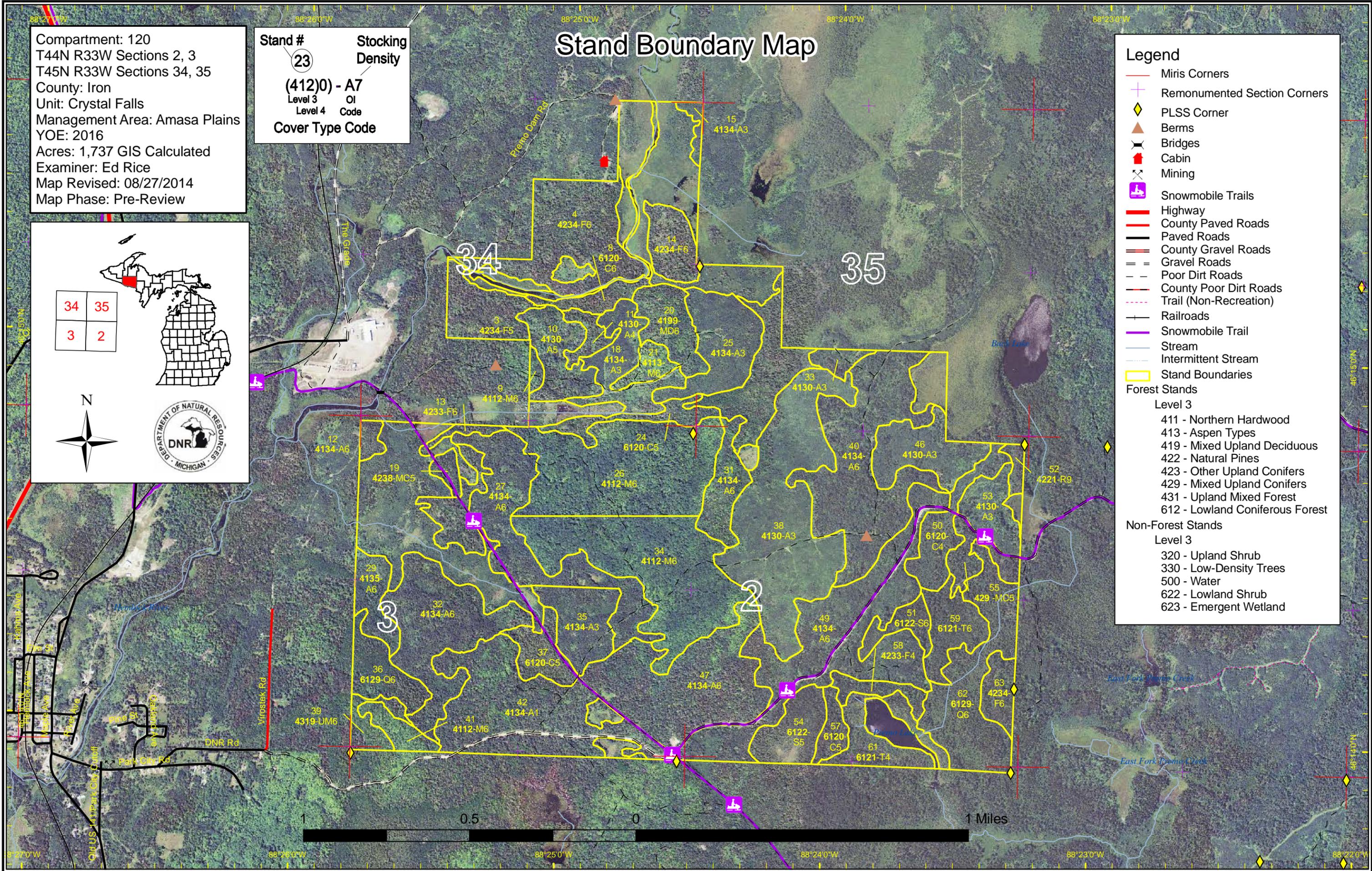
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34 35  
 3 2





Report 1 – Total Acres by Cover Type and Age Class



	Age Class														Total
	0-9	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100-109	110-119	120 +	Uneven Age	
Aspen	200	122	31	130	240	0	117	0	0	0	0	0	0	0	839
Bog	112	0	0	0	0	0	0	0	0	0	0	0	0	0	112
Cedar	0	0	0	0	0	0	0	0	10	14	0	39	9	0	72
Low-Density Trees	53	0	0	0	0	0	0	0	0	0	0	0	0	0	53
Lowland Conifers	0	0	0	0	0	0	21	61	0	0	0	0	0	0	82
Lowland Shrub	9	0	0	0	0	0	0	0	0	0	0	0	0	0	9
Lowland Spruce/Fir	0	0	0	0	0	33	0	0	0	0	0	0	0	0	33
Marsh	66	0	0	0	0	0	0	0	0	0	0	0	0	0	66
Mixed Upland Deciduous	0	0	0	0	0	0	23	0	0	0	0	0	0	0	23
Northern Hardwood	0	0	0	0	0	8	13	193	0	0	0	0	0	0	215
Red Pine	0	0	0	0	0	0	0	4	0	0	0	0	0	0	4
Tamarack	0	0	0	0	0	48	0	0	0	0	0	0	0	0	48
Upland Conifers	0	0	0	5	0	0	0	14	0	0	0	0	0	0	19
Upland Mixed Forest	0	0	0	0	0	10	0	0	0	0	0	0	0	0	10
Upland Shrub	4	0	0	0	0	0	0	0	0	0	0	0	0	0	4
Upland Spruce/Fir	0	0	0	10	64	25	31	0	0	0	0	0	0	0	130
Water	18	0	0	0	0	0	0	0	0	0	0	0	0	0	18
<b>Total</b>	<b>462</b>	<b>122</b>	<b>31</b>	<b>144</b>	<b>304</b>	<b>125</b>	<b>204</b>	<b>273</b>	<b>10</b>	<b>14</b>	<b>0</b>	<b>39</b>	<b>9</b>	<b>0</b>	<b>1737</b>



## Report 2 – Proposed Treatment Summaries

**Crystal Falls Mgt. Unit**  
**Year of Entry 2016**

**Compartment 120**  
**Total Compartment Acres: 1,737**

### Acres by Treatment Type

Commercial Harvest - 283    Tree Planting - 0    Other - 0  
 Habitat Cut - 0    Opening Maintenance - 0

### Cover Type by Harvest Method

	Clearcut	Selection	Seed Tree	Shelterwood	Thinning	Other - Specify	Total Acres
<b>Aspen Types</b>	115	0	0	0	0	0	115
<b>Lowland Coniferous Forest</b>	22	0	0	0	0	0	22
<b>Mixed Upland Conifers</b>	14	0	0	0	0	0	14
<b>Mixed Upland Deciduous</b>	20	0	0	0	0	0	20
<b>Northern Hardwood</b>	0	0	0	10	0	0	10
<b>Other Upland Conifers</b>	92	0	0	0	0	0	92
<b>Upland Mixed Forest</b>	10	0	0	0	0	0	10
<b>Total</b>	<b>273</b>	<b>0</b>	<b>0</b>	<b>10</b>	<b>0</b>	<b>0</b>	<b>283</b>



Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
3	12120003-Cut	19.6	42340 - Upland Spruce/Fir	Medium Density Pole	50		Harvest	Clearcut with Reserves	4134 - Aspen, Spruce/Fir	Cmpt. Review Proposal
<p><u>Prescription</u> cut merchantable aspen and r maple. cut spruce/fir with a stump diameter larger than 6". leave cedar, birch, cherry and pine. protect residual conifers and buffer any lowland/vernal pond areas. MO is aspen and spruce/fir. buffer Hemlock River 300'</p> <p>heavy wintering deer use nearer to Hemlock River.</p> <p><u>Other Comments:</u> older aspen windthrow throughout. heavy fir throughout. fairly open understory excepting hazel growth</p> <p><u>Next Steps:</u> monitor regen in next inventory cycle</p> <p><u>Proposed Start Date:</u> 10/01/2015</p>										
4	12120004-Cut_exp-0	41.3	42340 - Upland Spruce/Fir	High Density Pole	45		Harvest	Clearcut with Reserves	4134 - Aspen, Spruce/Fir	Cmpt. Review Proposal
<p><u>Prescription</u> cut merchantable aspen and r maple. remove fir/spruce with a stump diameter larger than 6". leave w pine, w birch and associated cedar. leave b cherry component, 1/ acre. reserve the lowland inclusion located in N center of stand from harvest. buffer Hemlock R. 300'. MO is aspen, spruce/fir. *surrounded by PVT land, will need access.</p> <p><u>Other Comments:</u> thick fir poletimber with aspen 14" dbh. widley scattered w pine 18-20". small, scattered pockets of high ground tag alder. lowland inclusion strip in N center of stand having cedar, alder, b ash and balm. small pockets of natural A3 from windthrow openings. moderate SBW damage on spruce/fir - little mortality to date. widely scattered wintering deer sign - closer to River showed more signs of deer use.</p> <p><u>Next Steps:</u> monitor regen in next inventory cycle</p> <p><u>Proposed Start Date:</u> 10/01/2015</p>										
10	12120010-Cut	25.1	4130 - Aspen	Medium Density Pole	64		Harvest	Clearcut with Reserves	4134 - Aspen, Spruce/Fir	Cmpt. Review Proposal
<p><u>Prescription</u> *stand examiner recommends holding until 2026 YOE to avoid exceeding allowable cut in this area, TMS overuled so harvest occurring in 2016 YOE</p> <p>remove merchantable aspen and r maple. cut spruce/fir greater than 6" stump diameter. leave w birch, w pine and r pine. protect residual conifers. buffer any lowland inclusions/spring run off ponds. Hemlock River cold water trout stream - buffer 300'</p> <p><u>Other Comments:</u> fairly open undestory with log sized w spruce - for the most part dead SBW</p> <p><u>Next Steps:</u> monitor regen in next inventory cycle</p> <p><u>Proposed Start Date:</u> 10/01/2015</p>										
11	12120011-Cut	7.3	4130 - Aspen	Low Density Pole	64		Harvest	Clearcut	4134 - Aspen, Spruce/Fir	Cmpt. Review Proposal
<p><u>Prescription</u> cut merchantable aspen and r maple if present. cut spruce/fir with a stump diameter larger than 6". leave w birch, w pine, r pine. protect understory fir. MO is aspen, spruce/fir. buffer Hemlock River 300'</p> <p><u>Other Comments:</u> canopy fairly open. Aspen 8 - 12" dbh, 4 - 6 sticks tall. fir mainly in understory. w spruce for the most part is gone to SBW</p> <p><u>Next Steps:</u> monitor regen in next inventory cycle</p> <p><u>Proposed Start Date:</u> 10/01/2015</p>										



S t a n d	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
14	12120014-Cut	18.7	42340 - Upland Spruce/Fir	High Density Pole	62	1-50	Harvest	Clearcut with Reserves	42290 - Natural Mixed Pine	Cmpt. Review Proposal
<p><u>Prescription</u> cut merchantable aspen, tamarack, spruce/fir. leave b cherry, w birch, w pine and r pine. MO is w pine/r pine, spruce/fir. access can be from the south - no new roads, skid trail only. stream buffers needed for bmp recommendations where appropriate. 300 foot buffer not needed for beaver/trout stream management due to conifer objective</p> <p><u>Specs:</u></p> <p><u>Other</u> stand is well over mature - very high incidence of windthrow on older spruce/fir. scattered w pine throughout. aspen has mainly fallen out of the stand - E edge of stand has higher stocking of aspen and larger tamarack component. pockets of natural A3 from windthrow. very little sign of deer use - few pellets or trails</p> <p><u>Comments:</u></p> <p><u>Next</u> scarify to mineral soil, monitor for successful conifer regen</p> <p><u>Steps:</u></p> <p><u>Proposed</u></p> <p><u>Start Date:</u> 10/01/2015</p>										
20	12120020-Cut	20.1	4199 - Other Mixed Upland Deciduous	High Density Pole	67	51-80	Harvest	Clearcut with Reserves	4191 - Mixed Upland Deciduous with Conifer	Cmpt. Review Proposal
<p><u>Prescription</u> cut merchantable aspen, r maple. spruce/fir with a stump diameter larger than 6". leave w birch, pine, y birch, b cherry and cedar if present. protect residual small conifers. reserve b ash swale from cut. MO aspen, r maple and conifer</p> <p><u>Specs:</u></p> <p>300 foot buffer to Hemlock R.</p> <p><u>Other</u> aspen 10 - 12" dbh. low quality r maple. B ash swale runs N through center of stand - wet. high stocking of fir in N end. small low ground</p> <p><u>Comments:</u> inclusions holding spring melt water.</p> <p><u>Next</u> monitor regen in next inventory cycle</p> <p><u>Steps:</u></p> <p><u>Proposed</u></p> <p><u>Start Date:</u> 10/01/2015</p>										
39	12120039-Cut	10.2	4319 - Mixed Upland Forest	High Density Pole	51	1-50	Harvest	Clearcut with Reserves	4191 - Mixed Upland Deciduous with Conifer	Cmpt. Review Proposal
<p><u>Prescription</u> cut merchantable r maple and aspen. cut spruce/fir with a stump diameter larger than 6". leave cherry, birch, pine, cedar, hemlock - exclude from harvest the areas of cedar/hemlock, notably in NW of stand. MO r maple, fir, aspen.</p> <p><u>Specs:</u></p> <p><u>Other</u> spruce/fir showing fairly heavy SBW. r maple very low quality. small incidence of y birch. small pockets of cedar/hemlock in NW end. early winter deer use for feed source - cut expected to provide additional feed from heavy r maple sprouting</p> <p><u>Comments:</u></p> <p><u>Next</u> scarify and monitor for conifer regen</p> <p><u>Steps:</u></p> <p><u>Proposed</u></p> <p><u>Start Date:</u> 10/01/2015</p>										
41	12120041-Cut	10.0	4112 - Maple, Beech, Cherry Association	High Density Pole	67	81-110	Harvest	Shelterwood	411 - Northern Hardwood	Cmpt. Review Proposal
<p><u>Prescription</u> shelterwood to 40 - 50 BA, remove r maple, target for residual good quality h maple and all y birch. cut spruce/fir with a stump diameter larger than 8". protect advanced maple regen. MO maple</p> <p><u>Specs:</u></p> <p><u>Other</u> very low quality r maple with associated fir. E end holds more r maple and h maple. rock outcrop throughout</p> <p><u>Comments:</u></p> <p><u>Next</u> monitor in next inventory cycle for regen</p> <p><u>Steps:</u></p> <p><u>Proposed</u></p> <p><u>Start Date:</u> 10/01/2015</p>										



S t a n d	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
47	12120047-Cut	82.6	4134 - Aspen, Spruce/Fir	High Density Pole	62		Harvest	Clearcut with Reserves	4136 - Aspen, Mixed Conifer	Cmpt. Review Proposal
<p><u>Prescription</u> cut merchantable aspen, maple and j pine if present. cut spruce/fir with a stump diameter larger than 6". leave birch, w pine, r pine, oak. good <u>Specs:</u> potential for underplanting w pine. MO aspen/spruce/fir/pine</p> <p>*stand examiner recommended cutting the E 1/2 of stand to remain within allowable cut in this area and to avoid large expanse of 1 - 3 year old aspen. TMS overuled and prescribed cut.</p> <p><u>Other</u> aspen 8 - 14" dbh with conks prevalent. low quality r maple throughout. areas with higher stocking spruce/fir. dense h maple saplings in W <u>Comments:</u> center of stand</p> <p><u>Next</u> underplant w pine. monitor regen in next inventory cycle <u>Steps:</u></p> <p><u>Proposed</u> <u>Start Date:</u> 10/01/2015</p>										
55	12120055-Cut	13.8	429 - Mixed Upland Conifers	Medium Density Pole	70		Harvest	Clearcut with Reserves	42380 - Non Pine Upland Conifer, Mixed Deciduous	Cmpt. Review Proposal
<p><u>Prescription</u> cut merchantable aspen, maple, w birch. cut spruce/fir with a stump diameter larger than 6". leave 1 - 2/acre w birch if healthy trees can be <u>Specs:</u> found. leave cedar, w pine, r pine if found. reserve lowland inclusions from harvest. protect advanced r maple saplings. MO spruce/fir, birch/aspen. scarify</p> <p><u>Other</u> good spruce poletimber. large amounts of windthrow. large w pine scattered throughout 26 - 30" dbh. S end has short finger ridges extending <u>Comments:</u> into adjacent swamp. good amounts of r maple saplings along S end. small lowland inclusions. E end has higher stocking of large aspen 12 - 16" dbh. heavily used by wintering deer as food source - r maple heavily browsed/large amounts of pellets</p> <p><u>Next</u> scarify. monitor for conifer regen <u>Steps:</u></p> <p><u>Proposed</u> <u>Start Date:</u> 10/01/2015</p>										
59	12120059-Cut	22.1	6121 - Tamarack	High Density Pole	59		Harvest	Clearcut with Reserves	6123 - Lowland Fir	Cmpt. Review Proposal
<p><u>Prescription</u> cut merchantable tamarack and b spruce. leave cedar and birch. leave buffers around higher ground "island" inclusions. MO tamarack <u>Specs:</u></p> <p><u>Other</u> well formed tamarack with good diameters 6 - 10" dbh, 12" diameters in S end. winter deer use of high ground islands <u>Comments:</u></p> <p><u>Next</u> monitor next inventory cycle for regen <u>Steps:</u></p> <p><u>Proposed</u> <u>Start Date:</u> 10/01/2015</p>										
63	12120063-Cut	12.4	42340 - Upland Spruce/Fir	High Density Pole	60		Harvest	Clearcut with Reserves	42380 - Non Pine Upland Conifer, Mixed Deciduous	Cmpt. Review Proposal
<p><u>Prescription</u> cut merchantable aspen, r maple, w birch. leave scattered w birch 1-2/acre. cut spruce/fir with a 6" stump diameter and larger. leave small 30 - <u>Specs:</u> 50' diameter clumps of spruce spaced every 2 - 3 chains for seed. leave pine, cedar, cherry. reserve from harvest any small lowland inclusions and buffer slightly. MO spruce/fir, aspen</p> <p><u>Other</u> aspen 8 - 16" dbh in severe decline. heavy windthrow on fir upland b spruce 4 - 5 sticks. small fir 1 - 3" dbh heavily growing in natural canopy <u>Comments:</u> gaps</p> <p><u>Next</u> monitor next inventory cycle for regen <u>Steps:</u></p> <p><u>Proposed</u> <u>Start Date:</u> 10/01/2015</p>										

**Total Treatment  
Acreage Proposed: 283.0**



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

Prescription  
Specs:

Other  
Comment:

Next  
Steps:

Proposed  
Start Date: #Type!

Limiting Factor

**Total Treatment**  
**Acreage Proposed: 0.0**

**Availability for Management**

Total Acres	Acres Available	Acres Not Available	Dominant Site Conditions	No
838	838		Aspen	838
72	72		Cedar	72
82	82		Lowland Conifers	82
33	33		Lowland Spruce/Fir	33
23	23		Mixed Upland Deciduous	23
215	215		Northern Hardwood	215
4	4		Red Pine	4
48	48		Tamarack	48
19	19		Upland Conifers	19
10	10		Upland Mixed Forest	10
130	130		Upland Spruce/Fir	130
1,475	1,475		Total Forested Acres	1,475
	100%		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.*



### Report 6 – PROPOSED SPECIAL CONSERVATION AREA\* (SCA) DETAILS

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

SCA Name	SCA Category	Detail Type	Recommendation	Acres
<b>Comments</b>				

**Report 7 – EXISTING SPECIAL CONSERVATION AREA DETAILS**

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

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

<b>Conservation Area</b>	<b>Type</b>	<b>Description</b>
SCA	Archaeological Site	An aquatic or terrestrial area of the State that contains physical remains of human occupation. These are sites of cultural and historical significance that may occur upon terrestrial areas and Great Lakes bottomlands. They include thousands of Native American settlements and burial sites, as well as French and British outposts, nineteenth century logging camps, mines and homesteads. Beneath the waters of the Great Lakes, there are shipwrecks and other remains documenting the maritime trade. Such sites may be identified by Natural heritage data from the State Historic Preservation Office. Proposed treatments in this compartment will be implemented in such a manner as to maintain the integrity of these sites. Due to the sensitive nature of this information, no further detail about location is available.
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	Habitat Area	An area that provide some specific need for the life cycle of wildlife species, including State Wildlife Areas and Waterfowl Production Areas, deer wintering complexes in lowland conifer communities, grassland openings and savannas. Habitat areas are distinct from critical habitat designated for recovery of endangered or threatened species (such as Kirtland's warbler or piping plover areas) in that they are more general in nature, are not primarily associated with threatened or endangered species, and are not covered by species recovery plans that are developed in cooperation with Federal agencies.
SCA	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.



Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
3	42340 - Upland Spruce/Fir	Medium Density Pole	25.5	50		older aspen windthrow throughout. heavy fir throughout. fairly open understory excepting hazel growth
4	42340 - Upland Spruce/Fir	High Density Pole	60.4	45		thick fir poletimber with aspen 14" dbh. widely scattered w pine 18-20". small, scattered pockets of high ground tag alder. lowland inclusion strip in N center of stand having cedar, alder, b ash and balm. small pockets of natural A3 from windthrow openings. moderate SBW damage on spruce/fir - little mortality to date.
8	6120 - Lowland Cedar	High Density Pole	10.0	85		sloping to river, rock with broken boulders. good closed cedar canopy
9	4112 - Maple, Beech, Cherry Association	High Density Pole	2.8	65	51-80	fair quality maple. steep hills
10	4130 - Aspen	Medium Density Pole	26.1	64		fairly open undestory with log sized w spruce - for the most part dead SBW
11	4130 - Aspen	Low Density Pole	7.9	64		canopy fairly open. Aspen 8 - 12" dbh, 4 - 6 sticks tall. fir mainly in understory. w spruce for the most part is gone to SBW
12	4134 - Aspen, Spruce/Fir	High Density Pole	4.6	37		sale cut in past when swamp was dry. isolated small diameter poletimber.
13	42330 - Upland Fir	High Density Pole	4.0	43		mixed stand. fir 3 - 10" dbh with scattered aspen. stand a borderline of upland/lowland. scattered tag alder
14	42340 - Upland Spruce/Fir	High Density Pole	18.7	62	1-50	stand is well over mature - very high incidence of windthrow on older spruce/fir. scattered w pine throughout. aspen has mainly fallen out of the stand - E edge of stand has higher stocking of aspen and larger tamarack component. pockets of natural A3 from windthrow.
15	4134 - Aspen, Spruce/Fir	High Density Sapling	3.9	21		access through pvt lands
18	4134 - Aspen, Spruce/Fir	High Density Sapling	29.0	15		aspen 16 - 20' tall. E end aspen not as successfully regenerated along edges - more fir. very widely scattered w pine
19	42380 - Non Pine Upland Conifer, Mixed Deciduous	Medium Density Pole	5.2	34		stand cut previously. tamarack 3 - 4" dbh, fir slightly older due to saplings at time of past cut - now small poletimber 4 - 8" dbh. W of road/snowmobile trail heavier to aspen
20	4199 - Other Mixed Upland Deciduous	High Density Pole	22.7	67	51-80	aspen 10 - 12" dbh. low quality r maple. B ash swale runs N through center of stand - wet. high stocking of fir in N end. small low ground inclusions holding spring melt water.
21	4113 - R.Maple, Conifer	High Density Pole	8.5	59	51-80	thick fir understory. low quality r maple 8 - 14" dbh. E end higher stocking of h maple, M6. W end r maple/fir



Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
24	6120 - Lowland Cedar	Medium Density Pole	13.7	92		old windthrow mixed with cedar, tag alder, and young fir. sparse tree cover in areas
25	4134 - Aspen, Spruce/Fir	High Density Sapling	36.6	15		scattered fir poletimber 5 - 6" dbh. pockets of conifer scattered throughout. good aspen regeneration
26	4112 - Maple, Beech, Cherry Association	High Density Pole	97.0	72	81-110	h maple fair to poor form throughout - epicormic branching and defect prevalent. good h maple saplings 6 -12' tall. r maple is overall very poor quality. N edge in transition to swamp has 30 yr old aspen along edge A5F4M3. far NE end has higher stocking of M3 with scattered r maple poletimber. pockets of very highly stocked h maple saplings in S of stand and slightly better quality on timber. very widely scattered high ground cedar.
27	4134 - Aspen, Spruce/Fir	High Density Pole	62.8	47		good aspen 7 - 9" dbh with scattered 10" trees. good distribution of fir throughout. spruce is about gone to SBW. low quality r maple. mixed areas of near 100% stocking of aspen to aspen/fir mix. small hazel opening inclusions. heavy h maple saplings in N end along adjacent M6 stand. small lowland inclusions in S central with alder/willow - seasonally flooded
29	4135 - Aspen, Cedar	High Density Pole	16.4	35		upland aspen/fir mixed with lowland b ash/alder. fir 4 - 6" dbh with understory of 1 - 3". b ash 2 - 6" dbh, aspen 2 - 3 sticks
31	4134 - Aspen, Spruce/Fir	High Density Pole	19.9	45		aspen 6 - 8" dbh with scattered 9 - 10" trees. much of area has heavy component of M3 h maple saplings. good mix of spruce/fir
32	4134 - Aspen, Spruce/Fir	High Density Pole	64.3	43		aspen 4 - 7" dbh with scattered 10" trees. dense fir 3 - 6" dbh. scattered cherry and w pine. small inclusions of alder with low stocked b spruce.
33	4130 - Aspen	High Density Sapling	6.4	15		old gravel pit within stand - good gravel
34	4112 - Maple, Beech, Cherry Association	High Density Pole	96.5	72	81-110	h maple fair to poor form throughout - epicormic branching and defect prevalent. good h maple saplings 6 -12' tall. r maple is overall very poor quality. pockets of very highly stocked h maple saplings in S of stand and slightly better quality on timber. very widely scattered high ground cedar.
35	4134 - Aspen, Spruce/Fir	High Density Sapling	27.2	26		aspen 2 - 5" with widely scattered 6" trees. stand just on edge of sapling/poletimber size. associated fir throughout with areas of dense pockets.
36	6129 - Mixed Coniferous Lowland Forest	High Density Pole	20.9	67		N end heavier to b ash. E end higher stocking of b spruce and tamarack
37	6120 - Lowland Cedar	Medium Density Pole	16.6	110		thick tag alder understory. cedar 6 - 14" dbh. w birch scattered throughout. areas of well stocked cedar transitions to more open areas with heavy alder. higher stocking of tamarack in E end along snowmobile trail.
38	4130 - Aspen	High Density Sapling	112.4	7		good aspen regeneration 8 - 10' tall



	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
39	4319 - Mixed Upland Forest	High Density Pole	10.2	51	1-50	spruce/fir showing fairly heavy SBW. r maple very low quality. small incidence of y birch. small pockets of cedar/hemlock in NW end.
40	4134 - Aspen, Spruce/Fir	High Density Pole	92.6	45		aspen 7 - 12" dbh with pockets of naturally regenerating aspen saplings. thick hazel. scattered cherry. larger w spruce is hit hard by SBW. scattered older aged aspen with runs of smaller poletimber. areas dense to fir saplings F3. small inclusions of dense h maple saplings
41	4112 - Maple, Beech, Cherry Association	High Density Pole	10.0	67	81-110	very low quality r maple with associated fir. rock outcrop throughout
42	4134 - Aspen, Spruce/Fir	Low Density Sapling	87.1	1		in process of regenerating aspen. fir sapling clumps left throughout. cherry saplings/poletimber. aspen is 3 - 5' tall. r maple stump sprouts heavily browsed. lowland inclusions scattered throughout - reserved from recent cut.
46	4130 - Aspen	High Density Sapling	30.7	15		good mix of aspen saplings and conifer
47	4134 - Aspen, Spruce/Fir	High Density Pole	82.6	62		aspen 8 - 14" dbh with conks prevalent. low quality r maple throughout. areas with higher stocking spruce/fir. dense h maple saplings in W center of stand
49	4134 - Aspen, Spruce/Fir	High Density Pole	108.6	37		aspen 6 - 8" dbh with scattered 10" trees. fir throughout. r maple very low quality. w pine prevalent in E end. good distribution of spruce/fir throughout.
50	6120 - Lowland Cedar	Low Density Pole	22.5	110		areas fairly open with thick alder. seasonally ponded. intermittant drainage runs S through stand. S end heavier to tamarack/ b spruce
51	6122 - Black Spruce	High Density Pole	10.9	53		good mix lowland conifer. b spruce 4 - 8" dbh. slightly drier lowland type - little spring run off ponded water
52	42210 - Natural Red Pine	High Density Log	4.3	72	111-140	well formed r pine sawtimber. areas thicker to fir/r maple in understory. scattered w birch. stand is entirely on steep hill and ridges.
53	4130 - Aspen	High Density Sapling	19.2	16		aspen 20 - 25' tall with r maple saplings. thick hazel/raspberry in areas. spruce/fir saplings throughout
54	6122 - Black Spruce	Medium Density Pole	22.5	59		bog b spruce - shorter 3 stick club topped trees with more open canopy. open bog inclusion along S edge - swamp grass, leatherleaf, lab tea, bog rosemary. poorer site - high water table, stunted trees non productive forest land.  N end of stand better quality b spruce - true quality b spruce swamp - nearly closed canopy with sphagnum and good poletimber 4 - 8" dbh. widely scattered 12" trees.



Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
55	429 - Mixed Upland Conifers	Medium Density Pole	13.8	70		good spruce poletimber. large amounts of windthrow. large w pine scattered throughout 26 - 30" dbh. S end has short finger ridges extending into adjacent swamp. good amounts of r maple saplings along S end. small lowland inclusions. E end has higher stocking of large aspen 12 - 16" dbh
57	6120 - Lowland Cedar	Medium Density Pole	9.0	120		larger cedar with tag alder. b spruce, tamarack component, drainage running S
58	42330 - Upland Fir	Low Density Pole	9.5	36		fairly open fir 6 - 12" dbh. low quality r maple 12" and larger. scattered upland cedar. appears aspen was cut out of stand in the past and a well stocked conifer component was left. appears to have shaded out aspen regen in the past. areas now dense to fir F6F3. w pine prevalent in W end
59	6121 - Tamarack	High Density Pole	22.1	59		well formed tamarack with good diameters 6 - 10" dbh, 12" diameters in S end.
61	6121 - Tamarack	Low Density Pole	25.6	56		conifer swamp along edge of Premo Lake. heavy leatherleaf/swamp grass immediate to lake edge. very wet - some tamarack/ b spruce mortality to shallow organic soil to water
62	6129 - Mixed Coniferous Lowland Forest	High Density Pole	61.3	77		very wet - standing water. heavier stocking to cedar along W end. S end higher % of tamarack groves with heavy alder between. drainage/small creek runs through center of stand - running SSW into Premo Lake
63	42340 - Upland Spruce/Fir	High Density Pole	12.4	60		aspen 8 - 16" dbh in severe decline. heavy windthrow on fir upland b spruce 4 - 5 sticks. small fir 1 - 3" dbh heavily growing in natural canopy gaps



Stand	Cover Type	Acres	Managed Site	Management Priority (Objective)	General Comments:
1	6233 - Wet Meadow	2.0	No	Unspecified	open swamp grass meadow with willow/tag alder
2	6233 - Wet Meadow	3.6	No	Unspecified	swamp grass edges with alder/willow. old beaver meadow
5	50 - Water	7.9	No	Unspecified	Hemlock River
6	320 - Upland Shrub	3.9	No	Unspecified	semi open upland. scattered b cherry with open grown, limby spruce/fir. scattered pockets of natural A3
7	6225 - Bog	17.9	No	Unspecified	open leather leaf bog - scattered small b spruce saplings. N end has small high ground inclusion with A3 - aspen 8 - 10' tall and associated spruce/fir saplings.
16	6233 - Wet Meadow	50.6	No	Unspecified	wide open marsh - swamp grass with water and tag alder throughout. series of old beaver flowages. Hemlock R flows through
17	622 - Lowland Shrub	9.3	No	Unspecified	old beaver flowage - swamp grass, alder, dead flooded snags and water - creek course
22	3302 - Low Density Conifer Trees	17.9	No	Unspecified	scattered cedar groves 8 - 14" dbh with tamarack. heavy windthrow - sparse trees. very heavy tag alder component. very wet
23	6225 - Bog	81.7	No	Unspecified	tag alder with cattail/water openings. fir saplings throughout with scattered tamarack and w pine saplings.
28	3302 - Low Density Conifer Trees	35.3	Unspecified	Unspecified	Balm has mainly fallen out of stand - heavy old windthrow throughout. thick alder/Balm saplings with fir. scattered groves of tamarack, extremely wet.  winter deer use.
30	6233 - Wet Meadow	2.3	No	Unspecified	swamp grass opening - old beaver meadow. scattered alder, ringed with spruce/fir
43	6225 - Bog	10.4	Unspecified	Unspecified	
45	623 - Emergent Wetland	3.7	Unspecified	Unspecified	lowland/vernal inclusions within previous clear cut - swamp grass - seasonally flooded. good buffers applied during cut, residual aspen/fir at edges
48	623 - Emergent Wetland	3.8	Unspecified	Unspecified	lowland/vernal inclusions within previous clear cut - swamp grass - seasonally flooded. good buffers applied during cut, residual aspen/fir at edges



Stand	Cover Type	Acres	Managed Site	Management Priority (Objective)	General Comments:
56	6225 - Bog	2.0	No	Unspecified	open leatherleaf bog and swamp grass. seasonally flooded. widely scattered b spruce, tamarack and w pine saplings. winterberry at edges
60	50 - Water	9.7	Unspecified	Unspecified	Premo Lake - bog lake