



Compartment Review Presentation

Crystal Falls Forest Management Unit

Compartment 77

Entry Year 2016

Acreage: 1,068

County Dickinson

Management Area: Groveland

Revision Date: 07/25/2014

Stand Examiner: Andy Church

Legal Description:

T41N R29W Sec. 13-15

Identified Planning Goals:

Optimize sustainable timber production while enhancing and protecting wildlife habitat. Protect riparian areas during management activity implementing the Best Management Practices guidelines.

Soil and topography:

This compartment is mostly upland on fine sandy loams. Small areas of lowland Cathro mucks are represented near West Branch of Sturgeon River. The terrain is rolling hills.

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

Private landownership is located within and around entire compartment. Hunting, fishing, and dispersed camping are the major land use patterns.

Unique Natural Features:

West Branch of Sturgeon River

Archeological, Historical, and Cultural Features:

No Archeological, Historical, or Cultural Features known.

Special Management Designations or Considerations:

West Branch of Sturgeon River is a designated cold water stream.

Watershed and Fisheries Considerations:

Protect water quality for all bodies of water, including the West Branch of Sturgeon River. Implement buffer protections following best management practice guidelines along watercourses.

Wildlife Habitat Considerations:

Encouragement and promotion of mesic conifers such as hemlock and white pine would be advantageous to restore the historic deer wintering complex in the western portion of this compartment and also provide the life requisites for a number of game and nongame species. Later seral stages are also lacking in this compartment and should be encouraged for those species requiring this habitat. Age class diversity in the aspen stands should be increased to provide habitat for grouse, woodcock, deer, bear and turkey.

Mineral Resource and Development Concerns and/or Restrictions

Surface sediments consist of thin to discontinuous medium-textured till and glacial outwash sand and gravel and postglacial alluvium over bedrock. There is insufficient data to determine the glacial drift thickness. The Cambrian Munising Group and the Precambrian Michigamme Formation outcrop beneath the glacial drift. There is not a current economic use for these rocks. The Groveland iron mine is located approximately three miles to the northwest. Part of this compartment was previously leased for metallic exploration and potential may still exist. Gravel pits are located in the area and there may be some potential. There is no economic oil and gas production in the UP.

Vehicle Access:

Access is excellent. The Calumet Mine Road and Merriman Truck Trail are classified as seasonal county roads and are the main access points to this compartment. The Eastern block is accessed through private land.

Survey Needs:

Several survey requests are needed.

Recreational Facilities and Opportunities:

None.

Fire Protection:

Fire response will be from the Norway or Crystal Falls DNR stations.

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

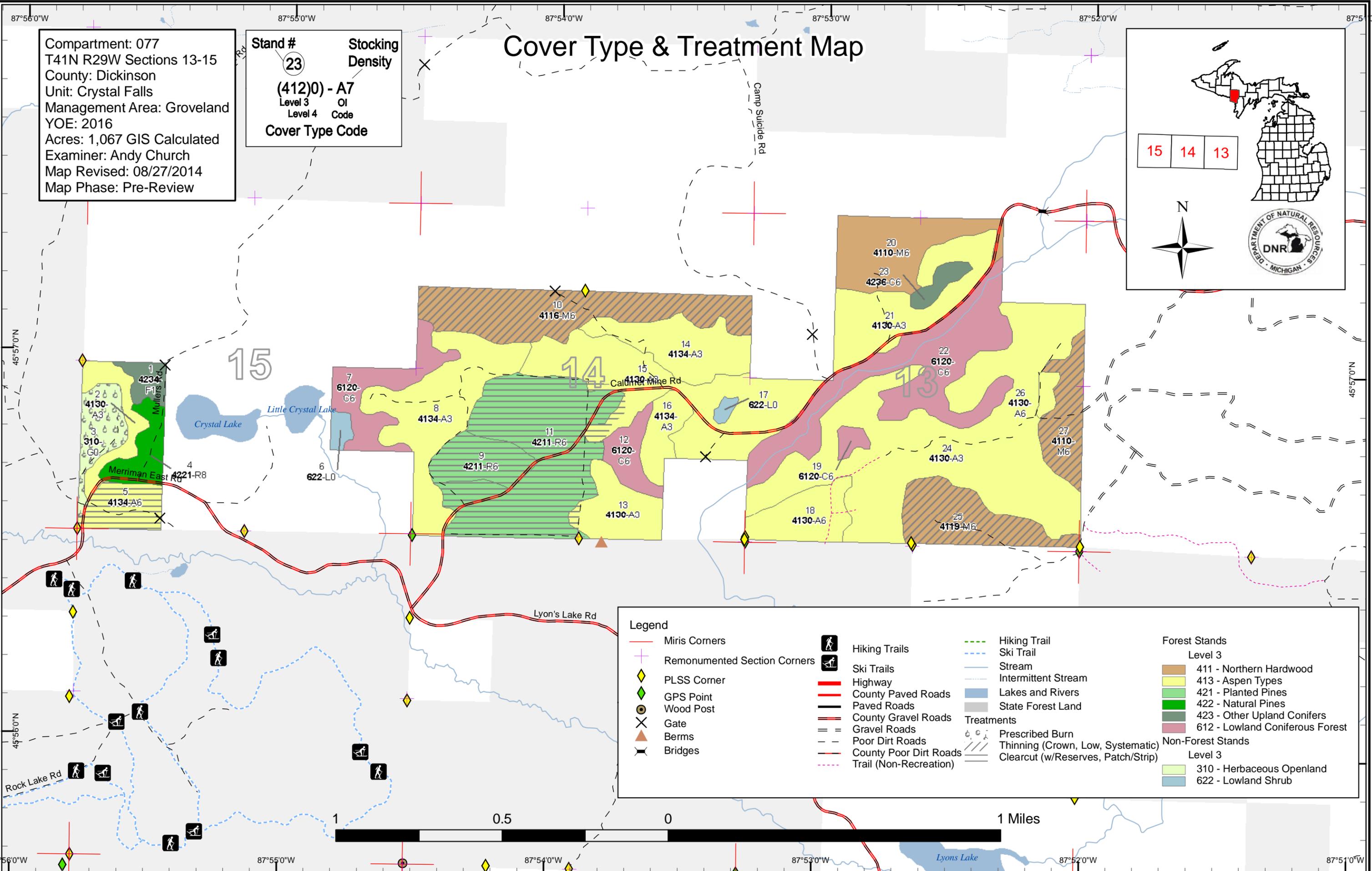
Compartment: 077
 T41N R29W Sections 13-15
 County: Dickinson
 Unit: Crystal Falls
 Management Area: Groveland
 YOE: 2016
 Acres: 1,067 GIS Calculated
 Examiner: Andy Church
 Map Revised: 08/27/2014
 Map Phase: Pre-Review

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

15 14 13

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DEPARTMENT OF NATURAL RESOURCES
DNR
MICHIGAN



Legend

—+— Miris Corners	🚶 Hiking Trails	--- Hiking Trail	Forest Stands Level 3
—+— Remonumented Section Corners	🚶 Ski Trails	--- Ski Trail	
◆ PLSS Corner	🚶 Highway	— Stream	■ 411 - Northern Hardwood
◆ GPS Point	🚶 County Paved Roads	--- Intermittent Stream	■ 413 - Aspen Types
⊙ Wood Post	🚶 Paved Roads	■ Lakes and Rivers	■ 421 - Planted Pines
⊗ Gate	🚶 County Gravel Roads	■ State Forest Land	■ 422 - Natural Pines
▲ Berms	🚶 Gravel Roads	Treatments	■ 423 - Other Upland Conifers
⊗ Bridges	🚶 Poor Dirt Roads	🔥 Prescribed Burn	■ 612 - Lowland Coniferous Forest
	🚶 County Poor Dirt Roads	🌲 Thinning (Crown, Low, Systematic)	Non-Forest Stands Level 3
	🚶 Trail (Non-Recreation)	🌲 Clearcut (w/Reserves, Patch/Strip)	■ 310 - Herbaceous Openland
			■ 622 - Lowland Shrub



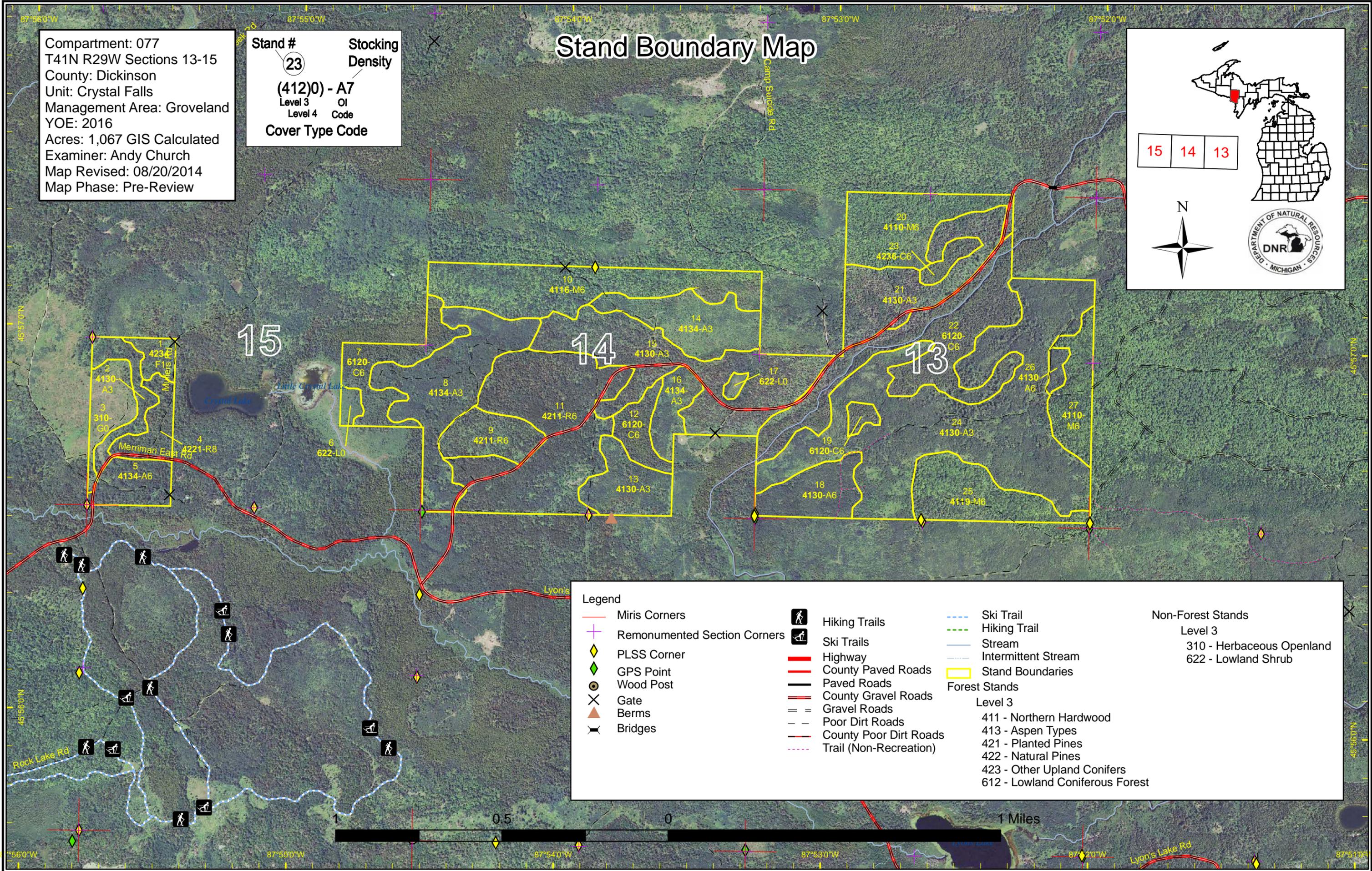
Stand Boundary Map

Compartment: 077
 T41N R29W Sections 13-15
 County: Dickinson
 Unit: Crystal Falls
 Management Area: Groveland
 YOE: 2016
 Acres: 1,067 GIS Calculated
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Legend

—+— Miris Corners	Hiking Trails	--- Ski Trail	Non-Forest Stands Level 3 310 - Herbaceous Openland 622 - Lowland Shrub
+ Remonumented Section Corners	Ski Trails	--- Hiking Trail	
◆ PLSS Corner	Highway	— Stream	Forest Stands Level 3 411 - Northern Hardwood 413 - Aspen Types 421 - Planted Pines 422 - Natural Pines 423 - Other Upland Conifers 612 - Lowland Coniferous Forest
◆ GPS Point	County Paved Roads	--- Intermittent Stream	
● Wood Post	Paved Roads	Stand Boundaries	
× Gate	County Gravel Roads		
▲ Berms	Gravel Roads		
⊗ Bridges	Poor Dirt Roads		
	County Poor Dirt Roads		
	Trail (Non-Recreation)		



Special Conservation Areas & Site Conditions Map

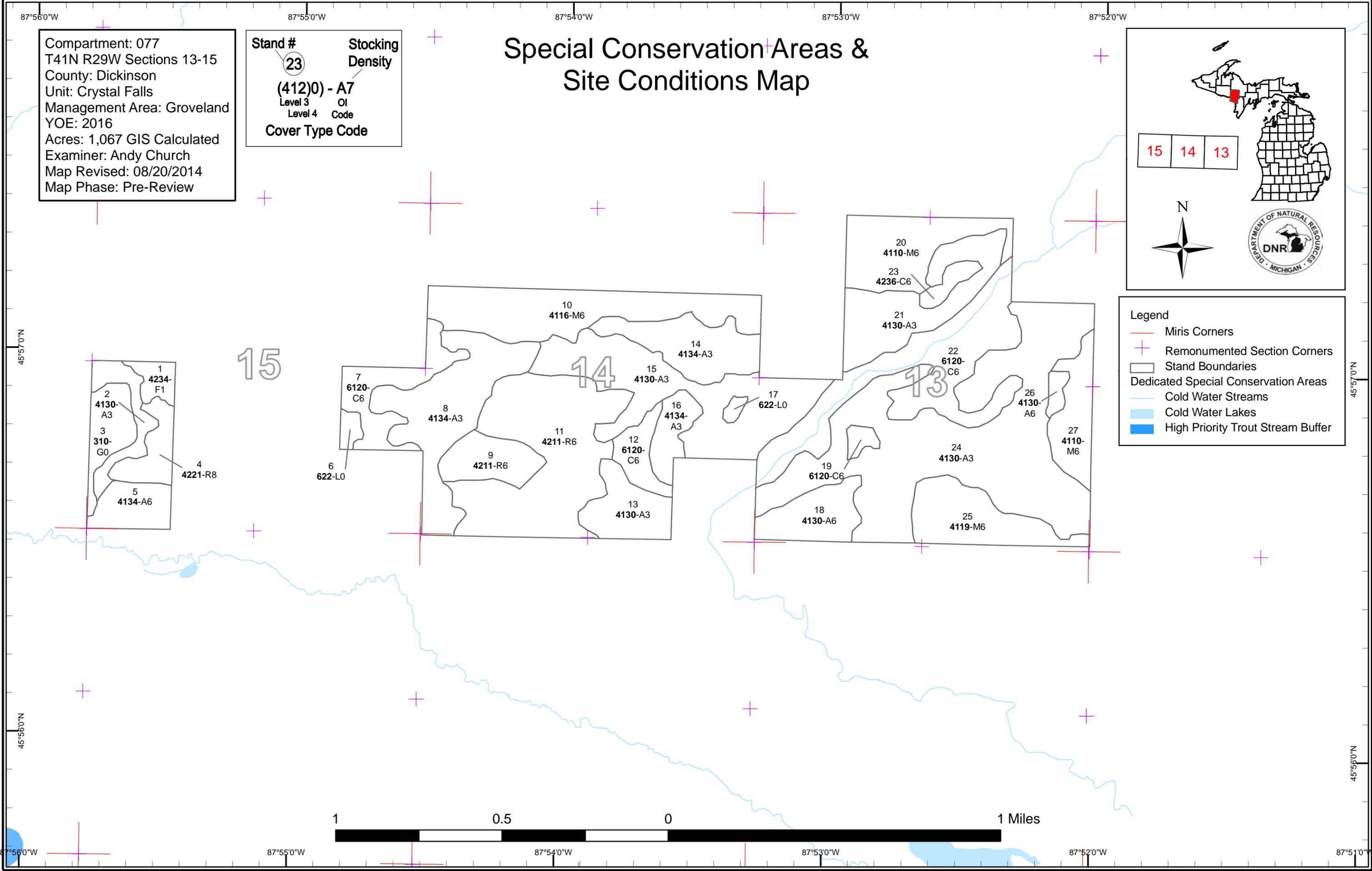
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- Legend**
- Miris Corners
 - + Remonumented Section Corners
 - Stand Boundaries
 - Dedicated Special Conservation Areas
 - Cold Water Streams
 - Cold Water Lakes
 - High Priority Trout Stream Buffer



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	142	65	297	31	0	20	0	0	0	0	0	0	0	0	556
Cedar	0	0	0	0	0	0	0	0	36	107	0	0	0	0	143
Herbaceous Openland	20	0	0	0	0	0	0	0	0	0	0	0	0	0	20
Lowland Shrub	7	0	0	0	0	0	0	0	0	0	0	0	0	0	7
Northern Hardwood	0	0	0	0	0	0	0	0	187	0	0	0	0	0	187
Red Pine	0	0	0	0	130	0	0	17	0	0	0	0	0	0	147
Upland Spruce/Fir	0	9	0	0	0	0	0	0	0	0	0	0	0	0	9
Total	169	74	297	31	130	20	0	17	224	107	0	0	0	0	1067



Report 2 – Proposed Treatment Summaries

Crystal Falls Mgt. Unit
Year of Entry 2016

Compartment 077
Total Compartment Acres: 1,068

Acres by Treatment Type

Commercial Harvest - 296 Tree Planting - 136 Other - 20
 Habitat Cut - 0 Opening Maintenance - 0

Cover Type by Harvest Method

	Clearcut	Selection	Seed Tree	Shelterwood	Thinning	Other - Specify	Total Acres
Aspen Types	20	0	0	0	0	0	20
Northern Hardwood	0	0	0	140	0	0	140
Planted Pines	136	0	0	0	0	0	136
Total	156	0	0	140	0	0	296



S t a n d	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
5	12077005-Cut	19.8	4134 - Aspen, Spruce/Fir	High Density Pole	58		Harvest	Clearcut with Reserves	413 - Aspen	Cmpt. Review Proposal
<u>Prescription</u> Final Harvest using 2" spec. Leave all Cedar, Hemlock and Pine. Exclude wet areas. <u>Specs:</u> ACCEPTABLE ALTERNATIVE REGEN: Spruce/Fir/Pine RETENTION: Cedar, Pine, wet areas <u>Other</u> Stocking levels and ages vary greatly. Wet swale running through middle of stand. Large supercanopy pines found throughout. Good conifer <u>Comments:</u> ground i.e. spruce/fir/pine. Survey needed. <u>Next</u> Scarification to promote conifer regen per WLD request <u>Steps:</u> <u>Proposed</u> <u>Start Date:</u> 10/01/2015										
9	12077009-Cut	23.3	42110 - Planted Red Pine	High Density Pole	42	51-80	Harvest	Clearcut	4211 - Planted Red Pine	Cmpt. Review Proposal
<u>Prescription</u> Start plantation over using proper site prep and spacing. <u>Specs:</u> Final Harvest using 2 inch spec. RETENTION: Island retention positioned on edge to avoid herbicides <u>Other</u> This plantation is of poor quality because is was not planted properly. Spacing is not optimum and no herbicides were originally used. As a <u>Comments:</u> result, Aspen overtopped the planted Red Pine and suppressed the plantation. The Aspen was harvested 2007 in an attempt to release the suppressed Red Pine. This harvest resulted in a 2 age stand. Site index is higher on the Red Pine when compared to the Aspen within stand. <u>Next</u> Herbicide, trench, plant to Red Pine. WLD to plant Oak within plantation. <u>Steps:</u> <u>Proposed</u> <u>Start Date:</u> 10/01/2015										
10	12077010-Cut	73.1	4116 - Mixed N. Hardwood - Aspen	High Density Pole	81	111-140	Harvest	Low Thinning	411 - Northern Hardwood	Cmpt. Review Proposal
<u>Prescription</u> Thin targeting 70-90 RBA discriminating against any trees in decline. <u>Specs:</u> Leave all Cedar, Hemlock, Oak if found. <u>Other</u> Ash and Aspen regen on edges and in openings. Dieback evident in stand. Far Eastern portion of stand is Cedar/Fir/Spruce. <u>Comments:</u> <u>Next</u> <u>Steps:</u> <u>Proposed</u> <u>Start Date:</u> 10/01/2015										
11	12077011-Cut	112.6	42111 - Planted Red Pine, Mixed Deciduous	High Density Pole	42	141-170	Harvest	Clearcut	4211 - Planted Red Pine	Cmpt. Review Proposal
<u>Prescription</u> Starting plantation over using proper site prep and spacing techniques. <u>Specs:</u> Final Harvest using 2 inch spec. Mark to leave some large remnant Pines. RETENTION: Island retention on edge to avoid herbicides <u>Other</u> This Red Pine plantation is of poor quality because is was not planted properly. Spacing is not optimum and no herbicides were originally used. <u>Comments:</u> As a result, other species are currently suppressing portions of this Red Pine plantation. Remnant Pine and Spruce found mostly in Northern reaches of stand. The Spruce/Fir in this stand was heavily defoliated by Spruce budworm in 2012. Some mortality evident. Site index is higher on the Red Pine when compared to the Aspen within stand. <u>Next</u> Herbicide, trench, plant to Red Pine. WLD to plant Oak in plantation. <u>Steps:</u> <u>Proposed</u> <u>Start Date:</u> 10/01/2015										



Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
25	12077025-Cut	40.7	4119 - Mixed Northern Hardwoods	High Density Pole	82	111-140	Harvest	Low Thinning	411 - Northern Hardwood	Cmpt. Review Proposal

Prescription Thin targeting 70-90 RBA. Leave all Hemlock, Cedar, Pine.

Specs:

Other Hemlock pocket along North line.

Comments:

Next Steps:

Proposed

Start Date: 10/01/2015

27	12077027-Cut	26.4	4110 - Sugar Maple Association	High Density Pole	84	111-140	Harvest	Low Thinning	411 - Northern Hardwood	Cmpt. Review Proposal
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Prescription Thin targeting 70-90 RBA. Leave all Cedar, Hemlock, Pine if found.

Specs:

Other Some ravines are present on South side of stand. Survey needed.

Comments:

Next Steps:

Proposed

Start Date: 10/01/2015

3	NF_12077003-Burn	19.6	3102 - Grass				Prescribed Burn	Unspecified	3102 - Grass	Cmpt. Review Proposal
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Prescription Opening Maintenance

Specs:

Other Burn with proper conditions

Comments:

Next Steps:

Proposed

Start Date: Unspecified

**Total Treatment
Acreage Proposed: 315.6**

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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

Report 5 – Site Conditions

Crystal Falls Mgt. Unit

Andy Church : Examiner

Compartment 077

Year of Entry 2016

Availability for Management

Total Acres	Acres Available	Acres Not Available	Dominant Site Conditions	No
556	556		Aspen	556
143	143		Cedar	143
187	187		Northern Hardwood	187
147	147		Red Pine	147
9	9		Upland Spruce/Fir	9
1,041	1,041		Total Forested Acres	1,041
	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
Comments				



Report 7 – EXISTING SPECIAL CONSERVATION AREA DETAILS

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

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

Conservation Area	Type	Description
SCA	Cold Water 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.



Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
1	42340 - Upland Spruce/Fir	Low Density Sapling	8.6	10		This was once a grassy opening. Now it is filling in with conifer trees naturally.
2	4130 - Aspen	High Density Sapling	15.9	28		Starting to reach merchantability size. Ground wet in some portions of stand. Supercanopy Pines found throughout.
4	42210 - Natural Red Pine	Medium Density Log	16.7	76	1-50	Very diverse stand. Understory varies in densities and species. Where overstory BA is low, thick understory of Spruce/Fir/Aspen. Where overstory BA is high, more hazel in understory.
5	4134 - Aspen, Spruce/Fir	High Density Pole	19.8	58		Stocking levels and ages vary greatly. Wet swale running through middle of stand. Large supercanopy pines found throughout. Good conifer ground i.e. spruce/fir/pine. Survey needed.
7	6120 - Lowland Cedar	High Density Pole	29.5	84		
8	4134 - Aspen, Spruce/Fir	High Density Sapling	69.3	27		Stand starting to reach merchantability. Scattered supercanopy pines mixed throughout. Black Ash and Tamarack in wetter areas of stand.
9	42110 - Planted Red Pine	High Density Pole	23.3	42	51-80	This plantation is of poor quality because it was not planted properly. Spacing is not optimum and no herbicides were originally used. As a result, Aspen overtopped the planted Red Pine and suppressed the plantation. The Aspen was harvested 2007 in an attempt to release the suppressed Red Pine. This harvest resulted in a 2 age stand. The current planted Red Pine overstory (that was once suppressed by Aspen) is 35 years older than the currently being suppressed Aspen understory.
10	4116 - Mixed N. Hardwood - Aspen	High Density Pole	73.1	81	111-140	Ash and Aspen regen on edges and in openings. Dieback evident in stand. Far Eastern portion of stand is Cedar/Fir/Spruce.
11	42111 - Planted Red Pine, Mixed Deciduous	High Density Pole	106.6	42	141-170	This Red Pine plantation is of poor quality because it was not planted properly. Spacing is not optimum and no herbicides were originally used. As a result, other species are currently suppressing portions of this Red Pine plantation. Remnant Pine and Spruce found mostly in Northern reaches of stand. The Spruce/Fir in this stand was heavily defoliated by Spruce budworm in 2012. Some mortality evident.
12	6120 - Lowland Cedar	High Density Pole	14.7	91		More Spruce/Fir/Tamarack to North, more Cedar to South.
13	4130 - Aspen	High Density Sapling	27.2	18		Scattered supercanopy of Spruce/Fir/Maple left over from last harvest.
14	4134 - Aspen, Spruce/Fir	High Density Sapling	38.2	15		Supercanopy Maple and Pine mixed throughout

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Crystal Falls Mgt. Unit

Report 8 – Forested Stands

Compartment: 077
Year of Entry: 2016

	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
15	4130 - Aspen	High Density Sapling	91.8	1		Pockets of advanced Spruce/Fir/Aspen regen within stand. Scattered supercanopy Pine mixed throughout. Stand harvested 2013 due to outbreak of Spruce Budworm. Management objective was Spruce/Fir type with acceptable alternative regen of Aspen.
16	4134 - Aspen, Spruce/Fir	High Density Sapling	15.6	27		Starting to reach merchantability
18	4130 - Aspen	High Density Pole	27.0	34		Stand starting to reach merchantability size
19	6120 - Lowland Cedar	High Density Pole	4.3	94		
20	4110 - Sugar Maple Association	High Density Pole	46.8	81	81-110	Ash and Aspen present in openings.
21	4130 - Aspen	High Density Sapling	50.6	1		Pockets of advanced Spruce/Fir/Aspen regen within stand. Scattered supercanopy Pine and Cedar mixed throughout. Stand harvested 2013 due to outbreak of Spruce Budworm. Management objective was Spruce/Fir type with acceptable alternative regen of Aspen.
22	6120 - Lowland Cedar	High Density Pole	87.6	94		Within riparian management zone of West Branch of Sturgeon River.
23	42360 - Upland Cedar	High Density Pole	7.0	88		
24	4130 - Aspen	High Density Sapling	196.3	24		Pockets of merchantable Pine/Hemlock/Cedar too small to meet minimum mapping standards located throughout.
25	4119 - Mixed Northern Hardwoods	High Density Pole	40.7	82	111-140	Hemlock pocket along North line.
26	4130 - Aspen	High Density Pole	4.2	34		Stand starting to reach merchantability size
27	4110 - Sugar Maple Association	High Density Pole	26.4	84	111-140	Some ravines are present on South side of stand.



Stand	Cover Type	Acres	Managed Site	Management Priority (Objective)	General Comments:
3	3102 - Grass	19.6	No	Unspecified	
6	6229 - Mixed lowland shrub	4.2	No	Unspecified	
17	6229 - Mixed lowland shrub	2.3	No	Unspecified	