



Compartment Review Presentation

Crystal Falls Forest Management Unit

Compartment 12080

Entry Year 2021

Acreage: 1,904

County Dickinson

Management Area: Groveland

Revision Date: 2019-08-04

Stand Examiner: Deb Goupell

Legal Description:

T41N R30W Sec 24

T41N R29W Sec 9,16-21

Identified Planning Goals:

Optimize sustainable timber production, enhance wildlife habitat and protect riparian areas.

Soil and topography:

Pemene fine sandy loam and Mancelona loamy sands which are well to excessively well drained soils. There is some rolling topography in this compartment, particularly on the west side.

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

Mostly contiguous State land within compartment boundaries. South Mine Pond with boat launch is located nearby.

Unique Natural Features:

Archeological, Historical, and Cultural Features:

None noted in database.

Special Management Designations or Considerations:

North half of this compartment is still listed as Groveland Mine Flooding State Wildlife Management Area in database. This designation was given in error and is in the process of being removed.

Watershed and Fisheries Considerations:

This compartment contains Mitchell Creek (and tributaries), Pine Creek, and Steel Creek. All are designated Type 1 trout streams less than 50' in width. 300' buffers are recommended for these waterbodies susceptible to Aspen regeneration. For areas not susceptible to Aspen regeneration, 100' plus 5' per 1% increase in slope; buffers are recommended to protect these areas in accordance with Best Management Practices.

Wildlife Habitat Considerations:

This Compartment is part of the Groveland MA with black bear, blackburnian warbler, northern goshawk and deer as featured species. Currently identified as conditional deeryard, this area comprised a portion of the historic Camp Suicide Deeryard. Functional cover and mast production is of primary importance to wildlife in this area. Eagles, ospreys and loons inhabit the area and use super canopy pine for nesting and roosting. This compartment does contain State Game Purchased parcels. This compartment has newly delineated boundaries including parts of other compartments.

Mineral Resource and Development Concerns and/or Restrictions

Active sand/gravel pits are located to the southwest, but the closest is more than three miles away. There may be some potential for gravel within the compartment but there is abundant clay in the glacial sediments in this area and bedrock is near the surface. The abandoned Groveland iron mine is located two miles to the north. There has been additional iron ore exploration in the area of the compartment but no development. There has been metallic mineral leasing in the area in the past, and there may still be some potential. Saucon Minerals have active non-metallic mineral leases for areas of the former Groveland Mine waste tailings to extract residual mineral value while performing reclamation of the abandoned mine site. However, since obtaining the leases in 2014, they have yet to perform any work on the premises. There is no known potential for economic hydrocarbon production in the UP. The state does not own all mineral rights within the compartment. Because the mineral estate is the dominant estate, reasonable access to the surface must be provided to private owners if they choose to explore or develop their mineral rights.

Vehicle Access:

Fairly good two-tracks access most of the compartment.

Survey Needs:

A couple corners will be needed.

Recreational Facilities and Opportunities:

Snowmobile trail goes directly through center of compartment. There is a boat launch on South Groveland Mine Pond just to the northwest. Heavy ATV use on existing roads.

Fire Protection:

Felch and Norway fire protection area.

Additional Compartment Information:

The following reports from the Inventory are attached:

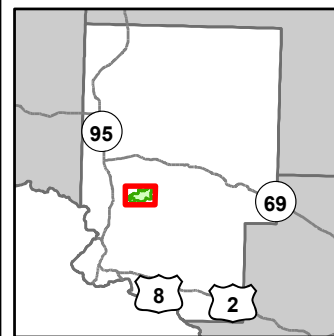
- Total Acres by Cover Type and Age Class**
- Cover Type by Harvest Method**
- Proposed Treatments – No Limiting Factors**
- Proposed Treatments – With Limiting Factors**
- Stand Details (Forested and Nonforested)**
- Dedicated and Proposed Special Conservation Areas**
- Site Condition Details**

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

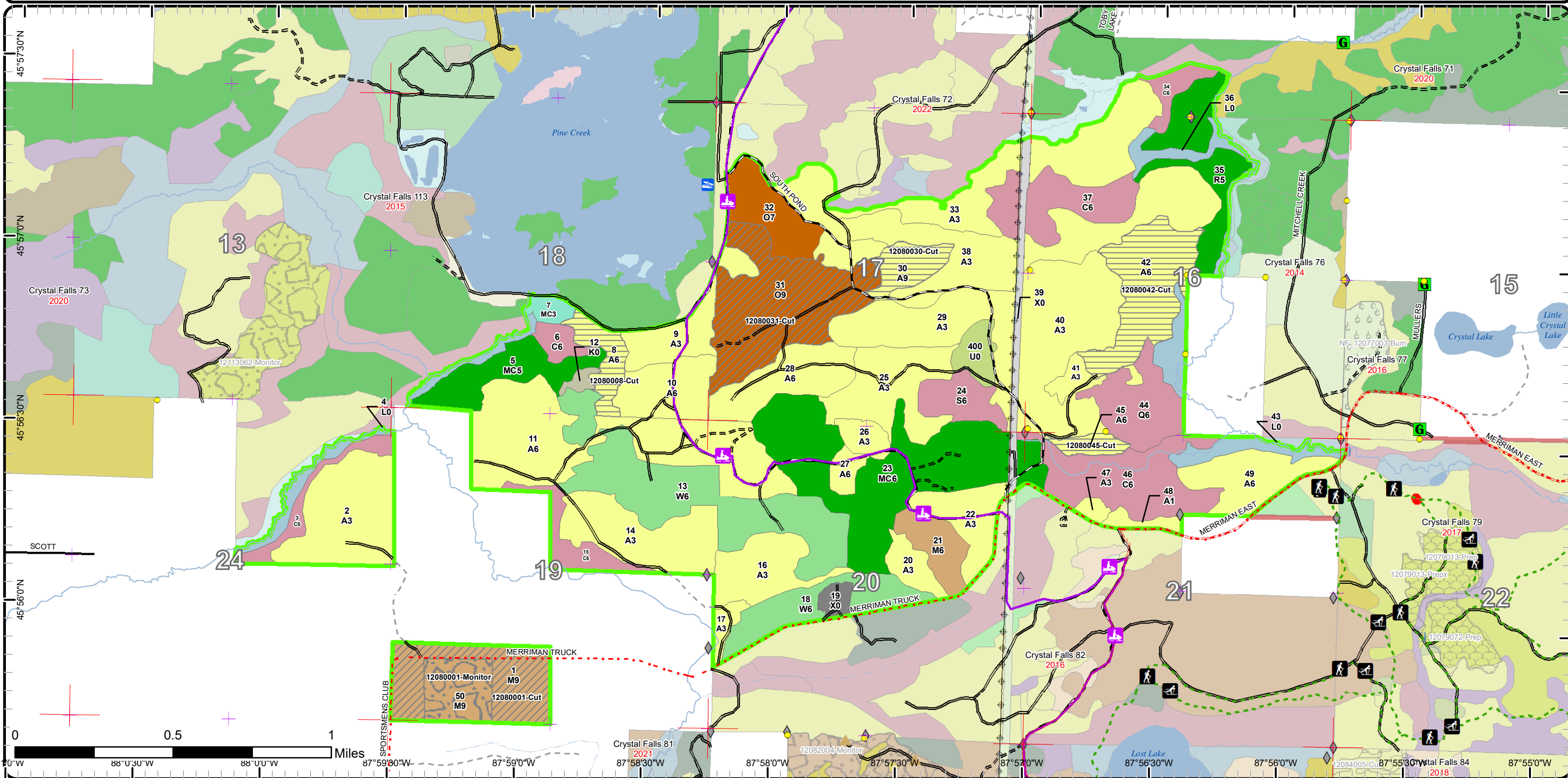
- Base feature information, stand boundaries, cover types, and numbers**
- Proposed treatments**
- Site condition boundaries**
- Details on the road access system**

Cover Type & Treatments Map

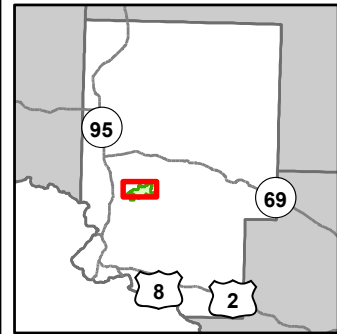
Compartment: 80
 T41N, R29W, Sec. 9, 16-21
 T41N, R30W, Sec. 24
 County: Dickinson
 Unit: Crystal Falls
 Mgmt Area: Groveland
 YOE: 2021
 Acres: 1,904 GIS Calculated
 Examiner: Deb Goupell
 Map Revised: 1/27/2020
 Map Phase: Post-Review



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|--|--|---|---|
| <ul style="list-style-type: none"> — Miris Corners — Remonumented Section Corners ● Survey Grade Corners ◆ Field Grade Corners --- Counties — DNR - Primary Forest Road — DNR - Secondary Forest Road — DNR - Forest Access Route - - - County - Gravel Road - - - Private - Dirt / Gravel Road 🚶 Hiking Trails 🏂 Ski Trails | <ul style="list-style-type: none"> 🚙 Snowmobile Trails — Designated Hiking Trails — Designated Bicycle Trails — Designated Ski Trails — Designated ORV Route — Designated Snowmobile Trails ▲ Berms 🚪 Gate 🚤 Boating Access Site 🌉 Culvert 🅑 Parking Lot 🛑 Sign ✳ Trailhead | <ul style="list-style-type: none"> — Intermittent Stream — Island in Lake or River — Lake/Pond — Perennial River — Lakes and Rivers ⚡ Powerline ▭ Compartment Boundary ▭ Clearcut (w/Reserves) ▨ Thinning (Crown, Low, Systematic) 🌲 Regeneration Survey 🌲 411 - Northern Hardwood 🌲 412 - Oak Types 🌲 413 - Aspen 🌲 421 - Planted Pines 🌲 422 - Natural Pines | <ul style="list-style-type: none"> 🌲 429 - Mixed Upland Conifers 🌲 612 - Lowland Coniferous Forest 🏠 110 - Low Intensity Urban 🚗 122 - Roads/Parking Lot 🌲 320 - Upland Shrub 🌲 622 - Lowland Shrub 🪨 720 - Exposed Rock |
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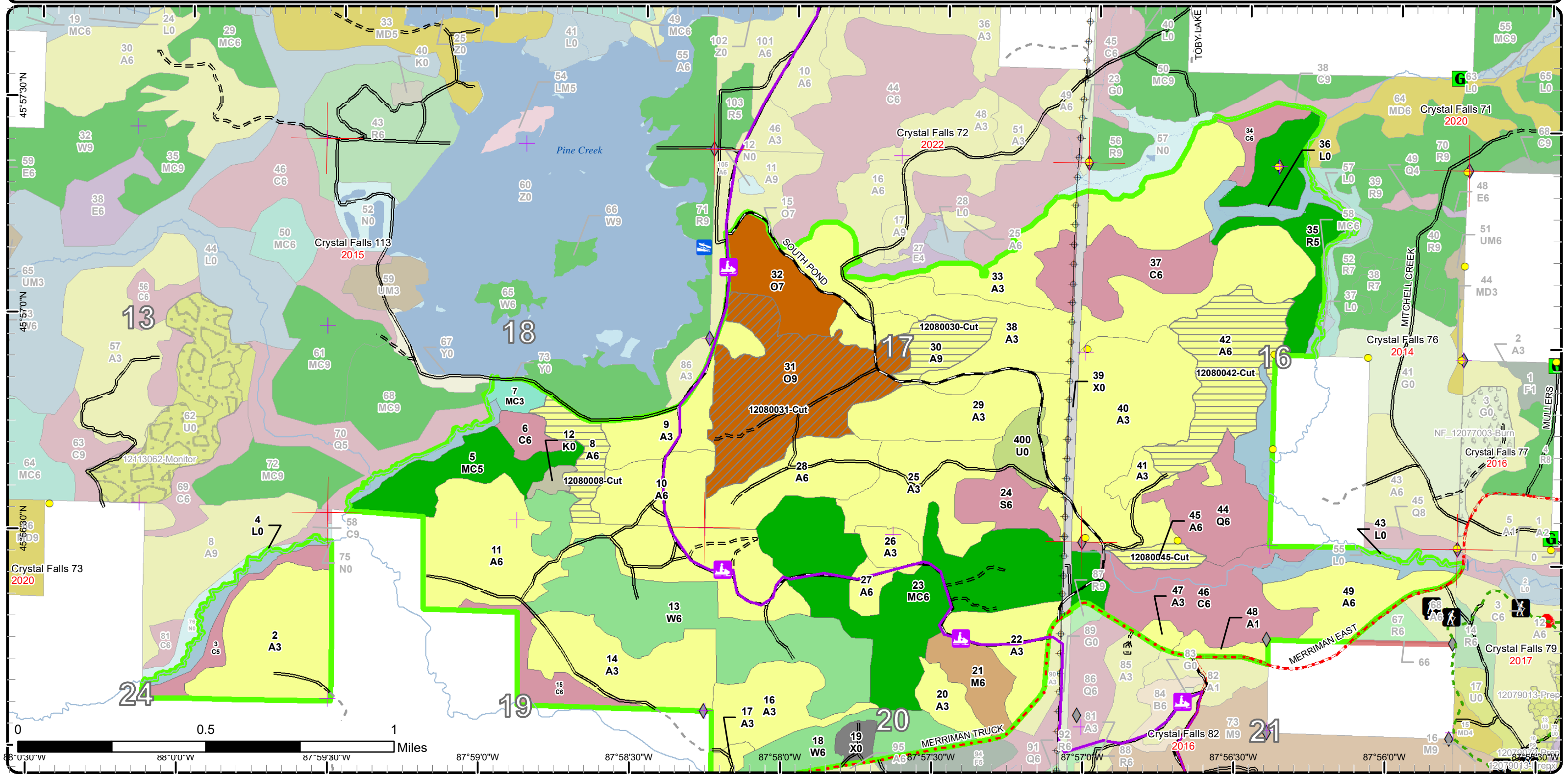


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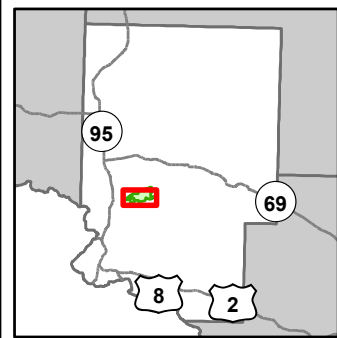
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- - - Private - Dirt / Gravel Road
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- 🎿 Ski Trails
- 🏠 Snowmobile Trails
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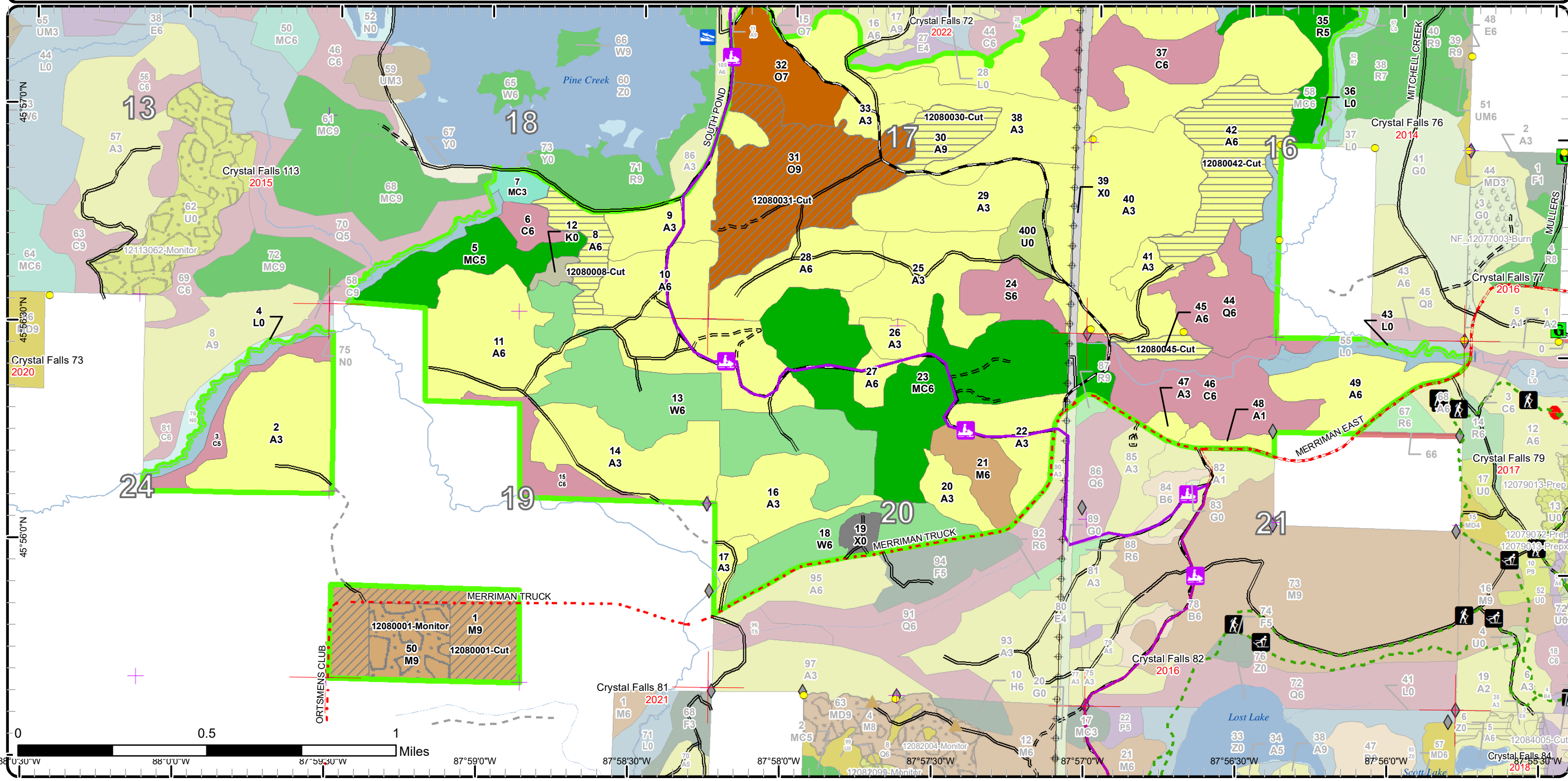


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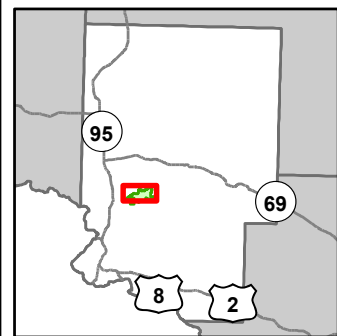


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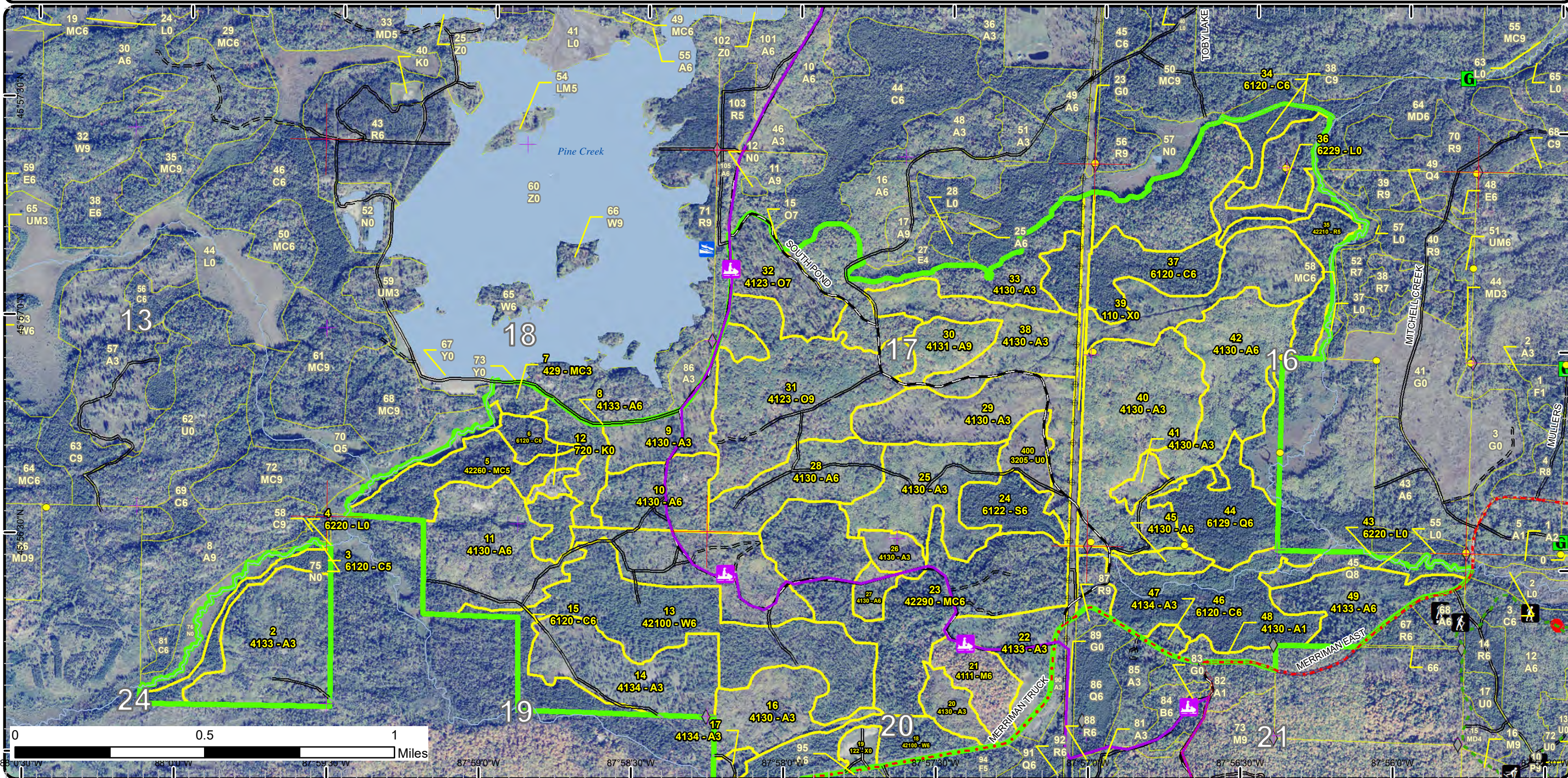


Stand Boundary Map

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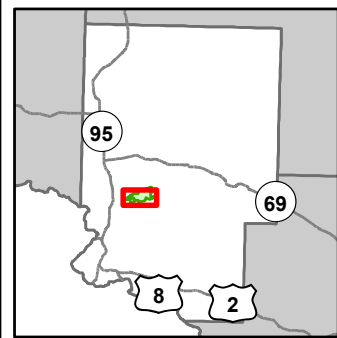


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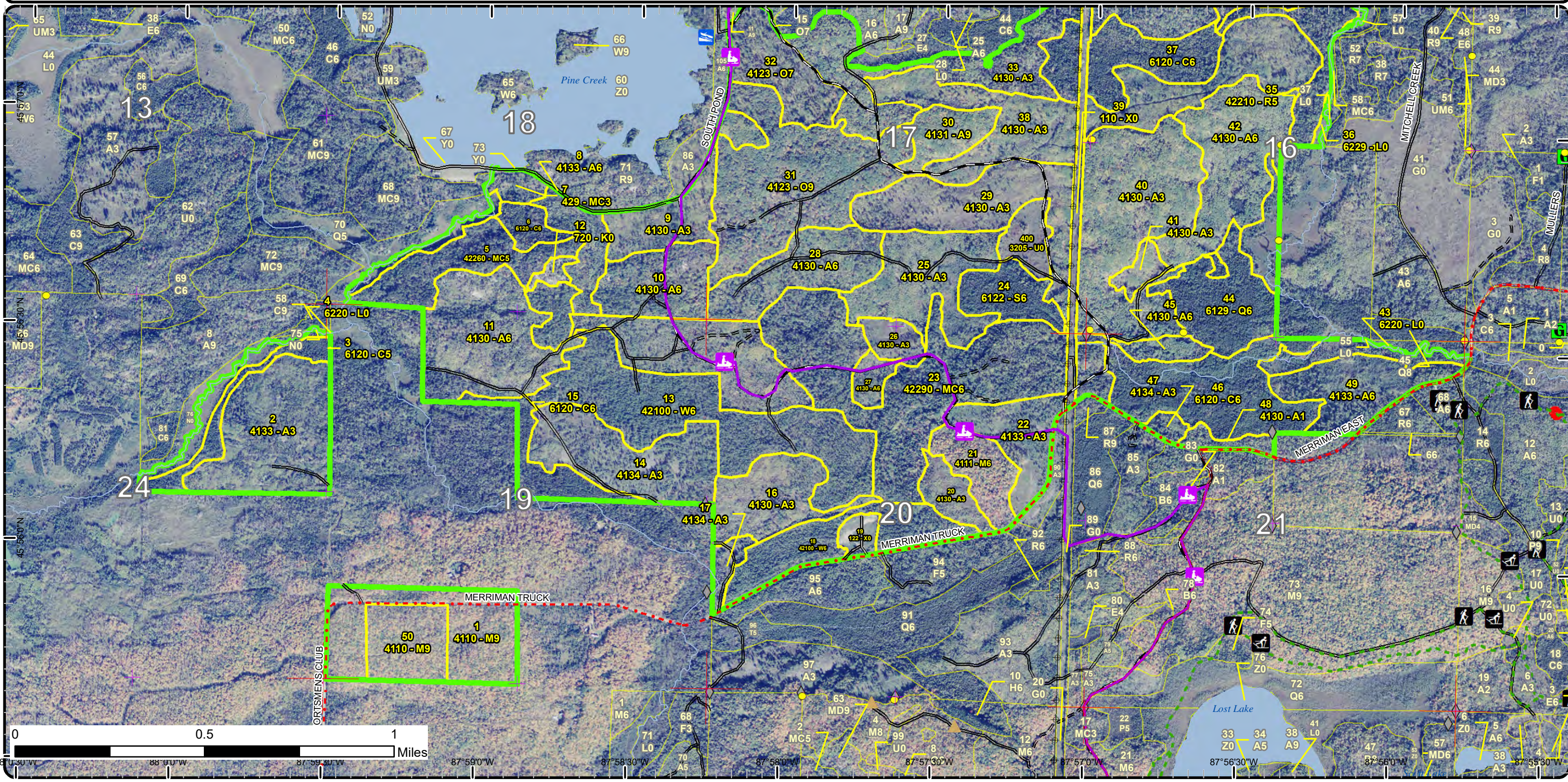


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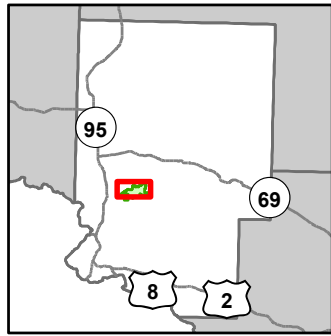


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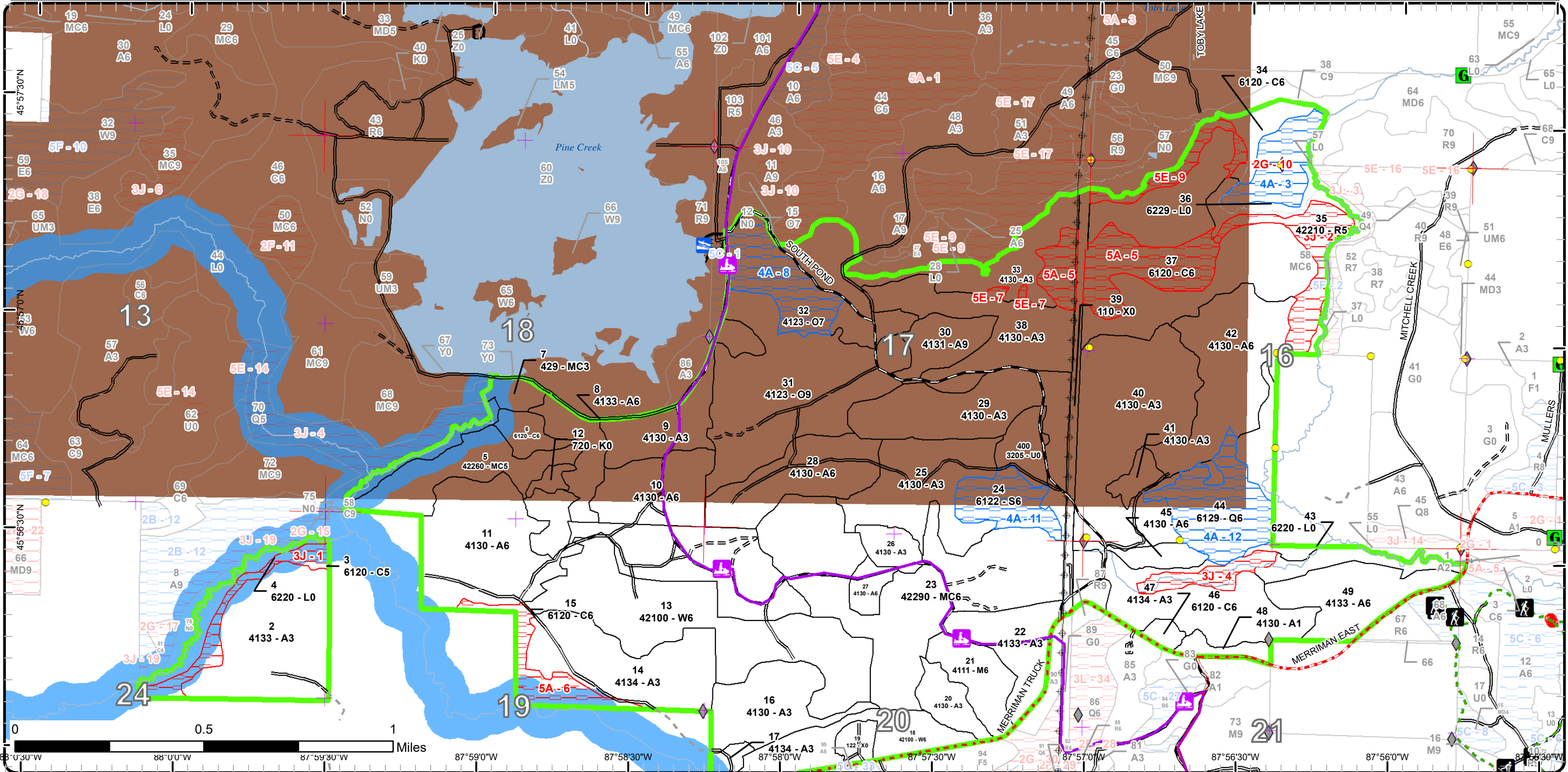


Special Conservation Areas & Site Conditions Map

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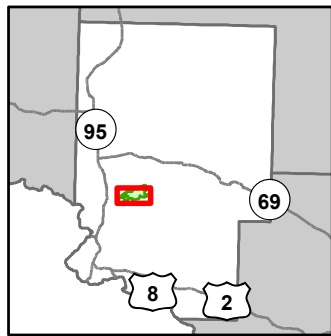


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- Available w/ Constraints
- Unavailable
- 4A: No Markets Available for these Forest Products
- 2G: Too wet (sensitive soils, does not include access issues)
- 3J: Water quality / BMPs (stream, river, or lake)
- 5A: Not able to obtain desirable regeneration
- 5E: Long-Term Retention
- Stand Boundaries
- SCA
- Cold Water Streams
- Cold Water Lakes
- High Priority Trout Stream Buffer
- Wildlife Management Areas

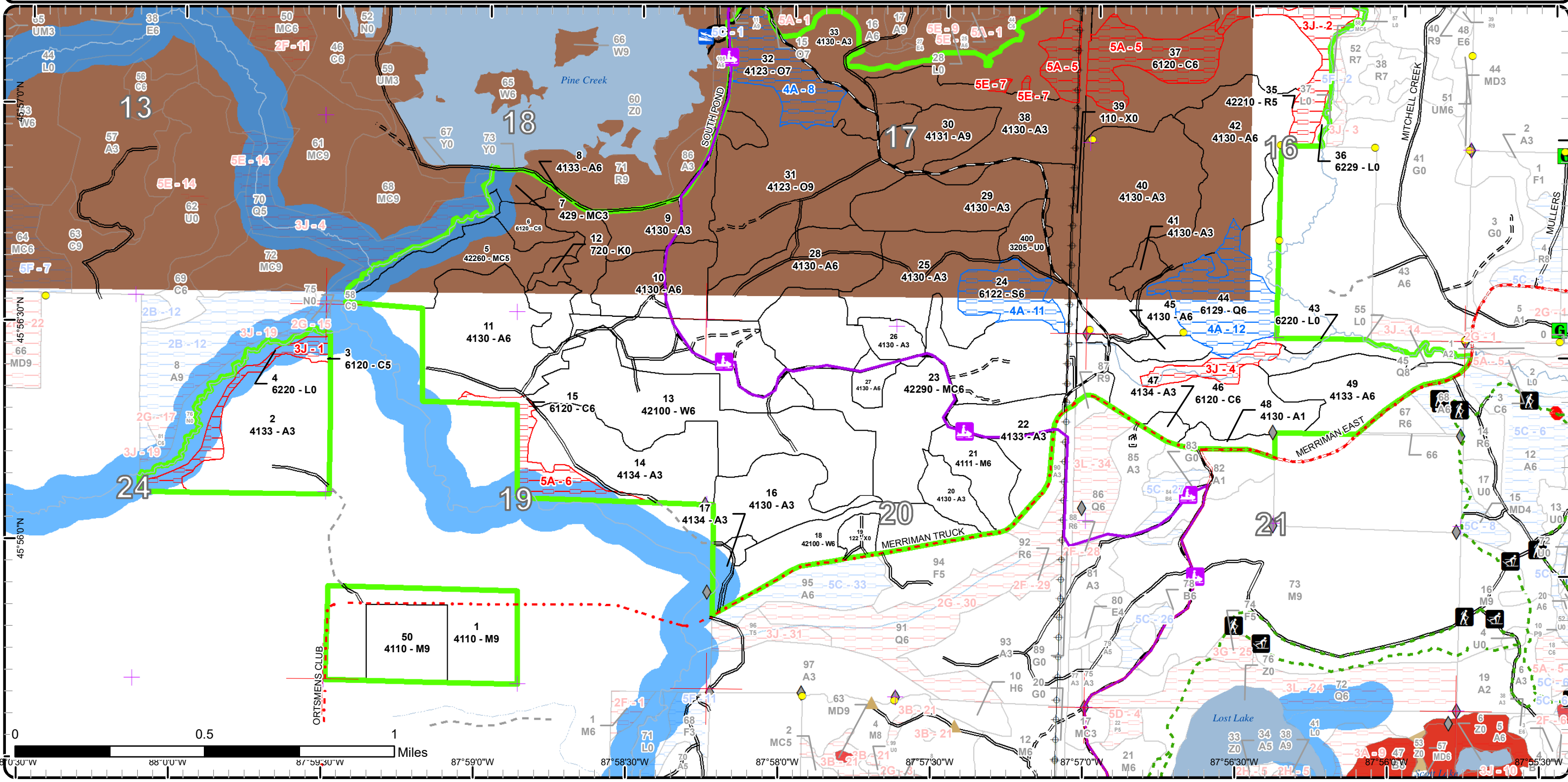


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|--|--|--|--|



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	309	181	209	200	60	45	0	0	0	0	0	0	0	0	0	0	0	1004
Cedar	0	0	0	0	0	0	0	0	0	19	21	77	42	0	0	0	0	0	159
Exposed Rock	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
Lowland Conifers	0	0	0	0	0	0	0	0	0	0	38	0	0	0	0	0	0	0	38
Lowland Shrub	57	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	57
Lowland Spruce/Fir	0	0	0	0	0	0	0	0	0	21	0	0	0	0	0	0	0	0	21
Natural Mixed Pines	0	0	0	0	0	0	0	0	0	0	36	0	0	0	0	0	0	129	165
Northern Hardwood	0	0	0	0	0	0	0	0	0	0	52	0	0	0	0	0	0	49	101
Oak	0	0	0	0	0	0	0	0	0	126	0	0	0	0	0	0	0	0	126
Red Pine	0	0	0	0	0	0	0	0	0	45	0	0	0	0	0	0	0	0	45
Upland Conifers	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
Upland Shrub	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13
Urban	23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	23
White Pine	0	0	0	0	0	0	0	143	0	0	0	0	0	0	0	0	0	0	143
Total	97	309	188	209	200	60	45	143	0	211	147	77	42	0	0	0	0	178	1906



Report 2 – Treatment Summary

Crystal Falls Mgt. Unit
Year of Entry: 2021

Acres of Harvest

Compartment 80
Total Compartment Acres: 1,904

Commercial Harvest - 251
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	105	0	0	0	0	0	0	0	0	105
Northern Hardwood	0	0	0	0	0	52	0	0	0	52
Oak	0	0	0	0	0	94	0	0	0	94
Total	105	0	0	0	0	146	0	0	0	251

Proposed and Next Step Treatments by Method

	Harvest	Site Prep	Pruning	Seeding	Burning	Pesticide	Monitoring	Other	Non-Forest Mgt.	Total Acres
Current	251	0	0	0	0	0	28	0	13	291
Next Step	0	0	0	0	0	0	105	0	0	105
Total	251	0	0	0	0	0	133	0	13	396



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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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Proposed Treatments:

400	12080400-NF	12.8	3205 - Mixed Upland Shrub	Nonstocked	Unspecified	NonForestMgt	Other - Specify	3102 - Grass		No
<p><u>Prescription</u> Opening maintenance via mechanical/Rxburn</p> <p><u>Specs:</u></p> <p><u>Next Step</u></p> <p><u>Treatments:</u></p> <p><u>Acceptable</u></p> <p><u>Regen:</u></p> <p><u>Other</u></p> <p><u>Comment:</u></p> <p><u>Site Condition</u></p> <p><u>Proposed Start Date:</u> 10/1 /2020</p>										

Approved Treatments:

1	12080001-Cut	51.8	4110 - Sugar Maple Association	Sawtimber Well	95	111-140	Harvest	Crown Thinning	411 - Northern Hardwood	Even-Aged	No
<p><u>Prescription</u> Thin to approximately 70-80 BA, releasing crowns of crop trees. Focus removal/scarification as allowed around yellow birch. East end of this</p> <p><u>Specs:</u> stand is wet and may require winter harvesting.</p> <p><u>Next Step</u></p> <p><u>Treatments:</u></p> <p><u>Acceptable</u></p> <p><u>Regen:</u></p> <p><u>Other</u></p> <p><u>Comment:</u></p> <p><u>Site Condition</u></p> <p><u>Proposed Start Date:</u> 10/1 /2020</p>											
50	12080001-Monitor	27.5	4110 - Sugar Maple Association	Sawtimber Well	95	51-80	Monitoring	Natural Regen (Intermediate)	411 - Northern Hardwood	Uneven-Aged	No
<p><u>Prescription</u> MWR monitor</p> <p><u>Specs:</u></p> <p><u>Next Step</u></p> <p><u>Treatments:</u></p> <p><u>Acceptable</u> maple</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> 5 /3 /2018</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
8 12080008-Cut	18.6	4133 - Aspen, Mixed Pine	Poletimber Well	52	Unspecified	Harvest	Clearcut	413 - Aspen	Even-Aged	No
<p><u>Prescription</u> Final harvest all stems 2" dbh and greater. No retention except to leave all red pine, white pine, cedar, hemlock or oak (if found). <u>Specs:</u></p> <p><u>Next Step</u> Monitoring, Natural Regen (Re-Inventory) <u>Treatments:</u></p> <p><u>Acceptable</u> mixed hardwood, mixed softwood <u>Regen:</u></p> <p><u>Other</u> <u>Comment:</u></p> <p><u>Site Condition</u></p> <p><u>Proposed Start Date:</u> 10/1 /2020</p>										
30 12080030-Cut	18.1	4131 - Aspen, Oak	Sawtimber Well	57	Unspecified	Harvest	Clearcut with Retention	413 - Aspen	Even-Aged	No
<p><u>Prescription</u> Final harvest all stems 2" dbh and greater except oak. Residual oak and white pine will be only retention. <u>Specs:</u></p> <p><u>Next Step</u> Monitoring, Natural Regen (Re-Inventory) <u>Treatments:</u></p> <p><u>Acceptable</u> mixed softwood, mixed hardwood <u>Regen:</u></p> <p><u>Other</u> <u>Comment:</u></p> <p><u>Site Condition</u></p> <p><u>Proposed Start Date:</u> 10/1 /2020</p>										
31 12080031-Cut	94.0	4123 - Red Oak	Sawtimber Well	82	111-140	Harvest	Crown Thinning	412 - Oak Types	Two-Aged	No
<p><u>Prescription</u> Thin stand by 1/3 BA without going below 70 BA (aiming for 80 BA). All red maple 2 sticks and greater are designated for cut. Cut all white birch except leave 1-2 trees/acre. Thin through aspen to prevent regenerating pockets. Leave all white pine, hemlock. Favor to retain large crowned, mast producing oak. Will treat oak wilt according to health specialist. <u>Specs:</u></p> <p><u>Next Step</u> <u>Treatments:</u></p> <p><u>Acceptable</u> oak, maple, pine, basswood <u>Regen:</u></p> <p><u>Other</u> original rx: Create some gap openings at least 150 feet in diameter in heavy oak pockets. Scarify in openings and throughout stand. Thin some aspen but not all to avoid a conversion to aspen. Understory treatment will likely be necessary to control ironwood and non desirable species <u>Comment:</u></p> <p><u>Site Condition</u></p> <p><u>Proposed Start Date:</u> 10/1 /2019</p>										
42 12080042-Cut	60.1	4130 - Aspen	Poletimber Well	48	Unspecified	Harvest	Clearcut with Retention	413 - Aspen	Even-Aged	No
<p><u>Prescription</u> Final harvest all stems 2" dbh and greater except oak, red pine, white pine. Will leave one stick and less spruce and fir for WLD. Possibly some vernal ponds in southern half to focus retention around. <u>Specs:</u></p> <p><u>Next Step</u> Monitoring, Natural Regen (Re-Inventory) <u>Treatments:</u></p> <p><u>Acceptable</u> mixed softwood, mixed hardwood, aspen <u>Regen:</u></p> <p><u>Other</u> <u>Comment:</u></p> <p><u>Site Condition</u></p> <p><u>Proposed Start Date:</u> 10/1 /2020</p>										



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Treatment Name	Acres	Stand CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Age Structure	Habitat Cut
45 12080045-Cut	8.2	4130 - Aspen	Poletimber Well	56	111-140	Harvest	Clearcut	413 - Aspen	Even-Aged	No
<p><u>Prescription</u> Final harvest all stems 2" dbh and greater except oak, cedar, white pine, red pine. No retention due to small acreage. Harvest will remain outside 100' buffer to drainage on south.</p> <p><u>Specs:</u></p> <p><u>Next Step</u> Monitoring, Natural Regen (Re-Inventory)</p> <p><u>Treatments:</u></p> <p><u>Acceptable</u> mixed softwood, mixed hardwood, aspen</p> <p><u>Regen:</u></p> <p><u>Other</u></p> <p><u>Comment:</u></p> <p><u>Site Condition</u></p> <p><u>Proposed Start Date:</u> 10/1 /2020</p>										

Total Treatment Acreage Proposed: 291.1



Availability for Management

Total Acres	Acres Available	Acres Avail		Dominant Site Conditions	Dominant Site Conditions									
		With Condition	Not Available		4A	5C	5F	2G	3J	3L	5A	5E		
1003	990	0	13	Aspen		0								13
158	72	0	86	Cedar				0	25	0	61			
4	4	0	0	Exposed Rock										
38	0	38	0	Lowland Conifers	38									
57	57	0	0	Lowland Shrub										
21	0	21	0	Lowland Spruce/Fir	21									
164	164	0	0	Natural Mixed Pines										
101	101	0	0	Northern Hardwood										
126	94	32	0	Oak	32	0								
45	0	22	23	Red Pine	22		0	0	23					
7	7	0	0	Upland Conifers										
13	13	0	0	Upland Shrub										
23	23	0	0	Urban										0
143	143	0	0	White Pine										
1,904	1,669	113	122	Total Forested Acres	113	0	0	0	48	0	61			13
	88%	6%	6%	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	3J: Water quality / BMPs (stream, river, or lake)	15	Unspecified	Unspecified	Unspecified	Unspecified
Comments:							
2	Unavailable	3J: Water quality / BMPs (stream, river, or lake)	23	5E: Long-Term Retention	Unspecified	Unspecified	Unspecified
Comments: Much of this south portion of stand 40 was left for buffer to streams. north is extremely steep right down to pond.							

Report 4 – Site Conditions

Crystal Falls Mgt. Unit
 Deb Goupell : Examiner

Compartment: 80
 Year of Entry: 2021



3	Available	4A: No Markets Available for these Forest Products	22	2D: Portable Bridge Needed (Dept. bridge will be adequate)	Unspecified	Unspecified	Unspecified
Comments: The north portion of this stand is just starting to regenerate after blowdown areas and the south/east portion are on a rock knob.							
4	Unavailable	3J: Water quality / BMPs (stream, river, or lake)	11	Unspecified	Unspecified	Unspecified	Unspecified
Comments:							
5	Unavailable	5A: Not able to obtain desirable regeneration	42	Unspecified	Unspecified	Unspecified	Unspecified
Comments:							
6	Unavailable	5A: Not able to obtain desirable regeneration	19	Unspecified	Unspecified	Unspecified	Unspecified
Comments:							
7	Unavailable	5E: Long-Term Retention	2	Unspecified	Unspecified	Unspecified	Unspecified
Comments:							
8	Available	4A: No Markets Available for these Forest Products	32	Unspecified	Unspecified	Unspecified	Unspecified
Comments: Not sure why this needs a site condition but the stand is being managed for understory aspen. Was cut 15 years ago with agreement to leave oak.							

Report 4 – Site Conditions

Crystal Falls Mgt. Unit
 Deb Goupell : Examiner

Compartment: 80
 Year of Entry: 2021



9	Unavailable	5E: Long-Term Retention	11	3J: Water quality / BMPs (stream, river, or lake)	Unspecified	Unspecified	Unspecified
Comments:							
10	Unavailable	2G: Too wet (sensitive soils, does not include access issues)	0	4A: No Markets Available for these Forest Products	Unspecified	Unspecified	Unspecified
Comments:							
11	Available	4A: No Markets Available for these Forest Products	21	Unspecified	Unspecified	Unspecified	Unspecified
Comments: Stand has barely 2 sticks, particularly in the interior. There is also a drainage in here.							
12	Available	4A: No Markets Available for these Forest Products	38	Unspecified	Unspecified	Unspecified	Unspecified
Comments: The cedar is widely mixed in this stand which makes harvest at this time challenging. We also have had several large no bid lowland sales recently.							

Mgt. Unit

Compartment: #Type!

Year of Entry:



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

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

SCA Name	SCA Category	Detail Type	Recommendation	Acres
Comments				



Report 6 – EXISTING SPECIAL CONSERVATION AREA DETAILS

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

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

Conservation Area	Type	Description
SCA	Cold Water Lake	A coldwater lake has temperature and dissolved oxygen conditions that allow naturally-reproduced or stocked trout populations and those of other coldwater fish species to persist from year to year. Suitable conditions for coldwater fishes may occur in Michigan lakes if they are relatively deep, have substantial groundwater inflows, or are located in colder (northern) areas of the state. Such lakes are established by Director's action and designated as trout resources by Fisheries Order 200.
SCA	Cold Water Stream	A coldwater stream has temperature and dissolved oxygen conditions that allow naturally-reproduced or stocked trout populations and those of other coldwater fish species (e.g., slimy sculpin) to persist from year to year. Coldwater streams in Michigan typically provide these conditions due to substantial contributions of groundwater to their stream flows. Such streams are established by Director's action and designated as trout resources by Fisheries Order 210.
SCA	Riparian Area	A transitional area between aquatic and terrestrial ecosystems in which the terrestrial ecosystem influences the aquatic ecosystem and vice-versa. Because of the unique conditions adjacent to lakes, streams and open water wetlands, riparian areas harbor a high diversity of plants and wildlife. Riparian communities are ecologically and socially significant in their effects on water quality and quantity, as well as aesthetics, habitat, bank stability, timber production, and their contribution to overall biodiversity.



Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	Managed Site	General Comments																																									
1	4110 - Sugar Maple Association	Sawtimber Well	51.8	95	111-140	N/A	STAND thinned 1997. Stand is much wetter on the east half. Likely will need to be a winter only cut.																																									
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2	4133 - Aspen, Mixed Pine	Sapling Well	64.8	23	Immature	N/A	Steele Creek TS cut 1998. Rock knobs and low lying areas																																									
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3	6120 - Lowland Cedar	Poletimber Medium	14.7	100	Unspecified	N/A																																										
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4	6220 - Alder/willow	Nonstocked	18.5	101	Unspecified	No	OPIC - FMD: OI Stand Year Origin was 1919																																									
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5	42260 - Natural Pine, Mixed Deciduous	Poletimber Medium	35.5	95	81-110	N/A	Very steep and rugged. Far west half of this stand was thinned (removed all aspen, birch and 3 sticks or greater jack pine, white spruce, balsam + some marked pine) in South Dam Pine TS 1997. Oak in rough shape as it is topped off by porkies. Very rocky knobs, good climb to overlook South pond.																																									
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6	6120 - Lowland Cedar	Poletimber Well	9.2	95	Unspecified	N/A	North half is upland cedar; east finger has a few tamarack, balm of gilead, tag and balsam fir; very seepy between the two rock ridges. Stream forms in here to flow west.																																									
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7	429 - Mixed Upland Conifers	Sapling Well	7.3	14	Immature	N/A	Jamima Lima TS cut 2006.																																											
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10	4130 - Aspen	Poletimber Well	33.3	34	Immature	N/A	Was cut with stand due south in 1986 but has more residual pine/oak. Steep ridge on north side.																																											
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11	4130 - Aspen	Poletimber Well	118.8	34	Immature	N/A	Briar Patch TS cut 1986. Very nice white pine regeneration. Aspen is short. Looks like a better conifer/pine site. More white pine on far west against private. NW lobe has some serious rock outcropping and some larger residual aspen.																																											
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12	720 - Exposed Rock	Nonstocked	3.6		Unspecified	No																																												
13	42100 - Planted White Pine	Poletimber Well	104.8	60	111-140	N/A	Stand was cut 2004 removing all aspen, birch and hardwood. Aspen is coming in thick in open areas but it is off-site. WP ranges in dbh from 6-12", not overly tall. Opening up too much may create bushiness and encourage more aspen. Southeast lobe is less stocked than west.																																											
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14	4134 - Aspen, Spruce/Fir	Sapling Well	54.2	7	Immature	N/A	Sale harvested 2013 with "Bits And Pieces Sale" #12-055-11-01. Red pine more prevalent on north and east edge. Some older aspen (~10 yrs old) in southwest corner, ~2 acres.																											
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15	6120 - Lowland Cedar	Poletimber Well	18.6	81	Unspecified	N/A	Scattered white pine, aspen and white spruce																											
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16	4130 - Aspen	Sapling Well	35.4	16	Immature	N/A	White Bark Hardwood Mix cut 2004. Southeast and east finger has aspen ~11 years older, but was merged due to acreage and future management. (formerly part of Clearing House TS cut 1993).																											
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17	4134 - Aspen, Spruce/Fir	Sapling Well	7.1	7	Immature	N/A	Bits N Pieces TS cut 2013. Small pocket of black ash on west edge downslope.																											
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18	42100 - Planted White Pine	Poletimber Well	38.3	60	111-140	N/A	Stand was cut 2004 with removal of all aspen, birch, hardwood. Very similar to white pine stand to the north but thicker.																											
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19	122 - Road/Parking Lot	Nonstocked	6.5		Unspecified	No	Old Merriman gravel pit/shooting range.																											
20	4130 - Aspen	Sapling Well	13.0	16	Immature	N/A	Cut as White Bark Hardwood Mix in 2004. Regeneration a little spottier along east edge where there was more birch.																											
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21	4111 - S.Maple, Hard Mast Association	Poletimber Well	21.5	96	81-110	N/A	Thinned 2004 White Bark TS. Not quite ready to be thinned.																											
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22	4133 - Aspen, Mixed Pine	Sapling Well	29.2	7	Immature	N/A	Bits N Pieces TS cut 2013. Lower regeneration where it was heavier to birch in south piece.																																								
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23	42290 - Natural Mixed Pine	Poletimber Well	128.9	59	81-110	N/A	Clearing House TS cut all aspen over 8" dbh and all BF/WS over 3 sticks in 1994. This stand has great variety of stand structure. Pine in all size classes, aspen thick in scattered open pockets.																																								
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24	6122 - Black Spruce	Poletimber Well	20.9	89	Unspecified	N/A	There is a drainage running through here																																								
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27	4130 - Aspen	Poletimber Well	7.8	34	Immature	N/A	Was cut in 1991 with Clearing House TS but should be managed as stand 11, which waws cut with Briar Patch TS cut 1986.																																								
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Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	Managed Site	General Comments	
28	4130 - Aspen	Poletimber Well	40.4	34	Immature	N/A	This 80 (including stand to due south and east) was acquired from Keweenaw Land Co. in 2005. Aspen dbh ranges from 2-9"	
Canopy Species		% Cover	Size Class	DBH	Age	Sub-Canopy Species		
Red Oak		15	Log/Pole	14		Red Oak		
Bigtooth Aspen		30	Pole/Sapling	5		Sugar Maple		
Quaking Aspen		40	Pole/Sapling	5	34	Hazelnut (Spp.)		
						Density		
						Avg. Height		
						Size		
29	4130 - Aspen	Sapling Well	57.9	14	Immature	N/A	There is some white pine seedlings. South lobe has some older 8" aspen; more oak super canopy in west. Some oak saplings coming in with the aspen. Live Wire TS cut 2006.	
Canopy Species		% Cover	Size Class	DBH	Age	Sub-Canopy Species		
Quaking Aspen		72	Sapling	2	14	Hazelnut (Spp.)		
Red Oak		15	Pole/Log	9				
30	4131 - Aspen, Oak	Sawtimber Well	18.1	57	Unspecified	N/A	Cut 2" spec, cut oak equal to and greater than 16" dbh.	
Canopy Species		% Cover	Size Class	DBH	Age	Sub-Canopy Species		
Red Oak		20	Log	14		Balsam Fir		
Bigtooth Aspen		75	Log	12	57	White Spruce		
						White Pine		
						Density		
						Avg. Height		
						Size		
31	4123 - Red Oak	Sawtimber Well	94.0	82	111-140	N/A	Was thinned in 2002. Saw a couple of hemlock on far north slope. Where there is lower oak BA = more ironwood 1-6"dbh. Birch is mostly dead. Lots of rolling hills, nice looking red pine. Where red oak BA is lower, more oak saplings are found in adjacent clearcut. We need to try to start regenerating.	
Canopy Species		% Cover	Size Class	DBH	Age	Sub-Canopy Species		
Bigtooth Aspen		20	Log/Pole	14		White Pine		
Red Oak		65	Log/Pole	14	82	Ironwood		
						Density		
						Avg. Height		
						Size		
32	4123 - Red Oak	Sawtimber Poor	32.2	82	51-80	N/A	Gimme Shelter TS cut 2004	
Canopy Species		% Cover	Size Class	DBH	Age	Sub-Canopy Species		
Red Oak		75	Log/Pole	14	82	Quaking Aspen		
White Pine		15	Log/Pole	14		Red Oak		
Red Pine		10	Log	12		Red Maple		
						Density		
						Avg. Height		
						Size		
33	4130 - Aspen	Sapling Well	109.9	3	Immature	N/A	Merriman Aspen cut 2017. Much of the pine is in retention on far north finger on south edge of stand.	
Canopy Species		% Cover	Size Class	DBH	Age	Sub-Canopy Species		
White Pine		15	Log/Pole	14				
Quaking Aspen		80	Sapling	1	3			
34	6120 - Lowland Cedar	Poletimber Well	11.5	93	Unspecified	N/A		
Canopy Species		% Cover	Size Class	DBH	Age			
Northern White Cedar		90	Pole/Log	9	93			



Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	Managed Site	General Comments			
35	42210 - Natural Red Pine	Poletimber Medium	44.9	80	1-50	N/A	Most of stand has fallen out and is in the process of regenerating to a mixed stand of red maple, aspen and pine. There is a deer stand which must be accessed from the east.			
Canopy Species		% Cover	Size Class	DBH	Age	Sub-Canopy Species		Density	Avg. Height	Size
Red Maple		10	Pole	8		Quaking Aspen		Medium	10 - 20 feet	Sapling
White Spruce		10	Log	12		White Pine		Low	Variable	Sapling
Red Pine		70	Log/Pole	10	80	Red Maple		Low	5 - 10 feet	Sapling
36	6229 - Mixed lowland shrub	Nonstocked	13.1		Unspecified	No				
37	6120 - Lowland Cedar	Poletimber Well	42.1	117	Unspecified	N/A				
Canopy Species		% Cover	Size Class	DBH	Age					
Northern White Cedar		65	Log/Pole	11	117					
Paper Birch		10	Pole	7						
Red Maple		7	Pole	7						
38	4130 - Aspen	Sapling Well	96.7	22	Unspecified	N/A	Some red/white pine overstory. Mitchell Creek TS cut 1998.			
Canopy Species		% Cover	Size Class	DBH	Age					
Quaking Aspen		35	Sapling	3	22					
Bigtooth Aspen		30	Sapling	4						
Red Pine		10	Log	12						
Red Oak		10	Pole/Sap/Log	8						
Red Maple		10	Pole/Sapling	5						
39	110 - Low Intensity Urban	Nonstocked	16.5		Unspecified	No	Powerline easement			
40	4130 - Aspen	Sapling Well	91.2	5	Immature	N/A	Trace of white pine and some residual cherry. North 2/3 has red oak which is dying and/or has epicormic branching. Sale cut in 2015.			
Canopy Species		% Cover	Size Class	DBH	Age					
Bigtooth Aspen		70	Sapling	1	5					
Quaking Aspen		25	Sapling	1	5					
41	4130 - Aspen	Sapling Well	6.9	26	Immature	N/A				
Canopy Species		% Cover	Size Class	DBH	Age					
Quaking Aspen		60	Sapling	3	26					
Bigtooth Aspen		30	Sapling	3						
Red Maple		10	Sapling	2						
42	4130 - Aspen	Poletimber Well	60.1	48	Unspecified	N/A	A few ages in here. Some aspen is 41, some is 55. Dbhs range from 7-12". Nice stand and holding well. Could cut if necessary, but will hold til next entry also.			
Canopy Species		% Cover	Size Class	DBH	Age	Sub-Canopy Species	Density	Avg. Height	Size	
Quaking Aspen		50	Pole	8	48	Hazelnut (Spp.)	Medium	5 - 10 feet	Tall Shrub	
Bigtooth Aspen		48	Pole	8						



Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	Managed Site	General Comments																																	
43	6220 - Alder/willow	Nonstocked	25.8		Unspecified	No																																		
44	6129 - Mixed Coniferous Lowland Forest	Poletimber Well	38.3	95	Unspecified	N/A	A few scattered aspen, white pine on edge. Thick alder. Would be a challenge to harvest due to wet soils.																																	
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45	4130 - Aspen	Poletimber Well	8.2	56	111-140	N/A	There is a bed and bank running on far south through lowland. No retention unless within buffer range.																																	
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46	6120 - Lowland Cedar	Poletimber Well	61.8	106	Unspecified	N/A	A bed bank drainage cross through the center of this stand. A couple pockets of dying tamarack are in here (ELB). Heavy deer use.																																	
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47	4134 - Aspen, Spruce/Fir	Sapling Well	4.1	26	Immature	N/A	Clearing House TS cut 1993. Residual spruce and fir that were left are not holding well (SBW). Aspen mixed in with the spruce/fir is rather small dbh; aspen on east end has some more diameter (5").																																	
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48	4130 - Aspen	Sapling Poor	6.7	3	Immature	N/A	This stand was cut during the spring/summer of 2017 as part of sale #020-16-01.																																	
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49	4133 - Aspen, Mixed Pine	Poletimber Well	36.7	29	Immature	N/A	Gramps Camp TS cut 1991. Older aspen on ridge just on road far east end (~10"dbh). Pine is heavier along road and in west 1/3. Much of spruce residual has evidence of SBW with some mortality.																																	
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50	4110 - Sugar Maple Association	Sawtimber Well	27.5	95	51-80	N/A	Thinned in 1997. This stand was cut in March 2018 for research project, Erickson Ridge MWR 008-17. Cut for shelterwood and tops 8" and greater left. To be monitored for regeneration.																												
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400	3205 - Mixed Upland Shrub	Nonstocked	12.8		Unspecified	Managed Opening	cherry in here and aspen, spruce, balsam creeping in.																												