



Compartment Review Presentation

Crystal Falls Forest Management Unit

Compartment 12104

Entry Year 2020

Acreage: 1,595

County Dickinson

Management Area: Cassidy Creek

Revision Date: 2018-07-31

Stand Examiner: Eric Brolin

Legal Description:

T40N - R29W, Sections 21, 22, 27, 28, 33, and 34

Identified Planning Goals:

On the sites where pine is regenerating, encourage the pine succession. Harvest aspen for age distribution. Manage hardwood sites for oak and good quality hardwood. Creek corridors should be protected for water quality and wildlife habitat.

Soil and topography:

Sandy soils are coarser near pine creek and on the south portion of the compartment. Finer hardwood soils are on the bluffs in the north part of the compartment.

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

Small private ownership of scattered forty acre parcels found within. Some farmlands are found south of the compartment.

Unique Natural Features:

Pine Creek and Fern Creek valleys are cold water habitats.

Archeological, Historical, and Cultural Features:

None known.

Special Management Designations or Considerations:

Protection of the streams from sedimentation.

Watershed and Fisheries Considerations:

Protect stream corridors by moving towards long rotation conifer management adjacent to streams as well as appropriate buffers where timber harvests occur. Pine Creek and Fern Creek valleys are cold water habitats. Pine Creek and Fern Creek are within this compartment- both designated Type 1 trout streams less than 50' in width. A 300' buffer is recommended for the areas susceptible to Aspen regeneration (ex. Stand 36). For areas not susceptible to Aspen regeneration, a 100' plus 5' per 1% increase in slope.

Wildlife Habitat Considerations:

Protect riparian corridor and encourage white pine succession. Wood turtle occurrences to the north and east of the compartment. Loon, osprey, eagle, and great blue heron rookery to the northeast. Loon to north and west. Eagle to west. Potential for goshawk, red shouldered hawk, great blue heron rookery, eagle, osprey, loon, and black-backed woodpecker. Potential for wood turtle habitat along pond. Potential for moose and gray wolf. Oak mast production is a crucial food source for deer and bear. Keep mature conifer for blackburnian warbler. Contains state game fund lands.

Mineral Resource and Development Concerns and/or Restrictions

Surface sediments consist of coarse-textured till and sometimes thin to discontinuous glacial till over bedrock. The glacial drift thickness varies between 50 and 100 feet. The Precambrian Archean granite/gneiss and Chocolay Group outcrop beneath the glacial drift. There is not a current economic use for these rocks, but the granite/gneiss has building/dimension stone potential. The abandoned Norway iron mines are located just to the south. Part of this compartment was previously leased for metallic exploration and potential may still exist. A gravel pit is located in Section 29 and there should be some potential. There is no economic oil and gas production in the UP.

Vehicle Access:

A good county road accesses the south part of the compartment. The north part of the compartment is on a large bluff and access requires four wheel drive or access through private property.

Survey Needs:

A survey request has been submitted for corners in section 22.

Recreational Facilities and Opportunities:

Hunting and fishing.

Fire Protection:

Good access into a majority of this compartment. Accessing land in section 27 from the north requires access through private property and/or gates, or four-wheel drive up steep terrain from the south.

Additional Compartment Information:

The following reports from the Inventory are attached:

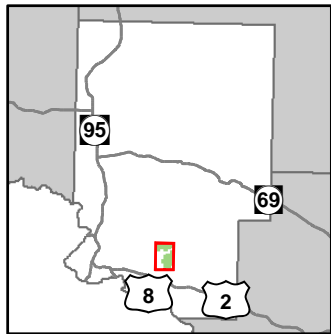
- Total Acres by Cover Type and Age Class**
- Cover Type by Harvest Method**
- Proposed Treatments – No Limiting Factors**
- Proposed Treatments – With Limiting Factors**
- Stand Details (Forested and Nonforested)**
- Dedicated and Proposed Special Conservation Areas**
- Site Condition Details**

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

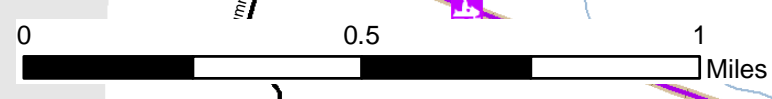
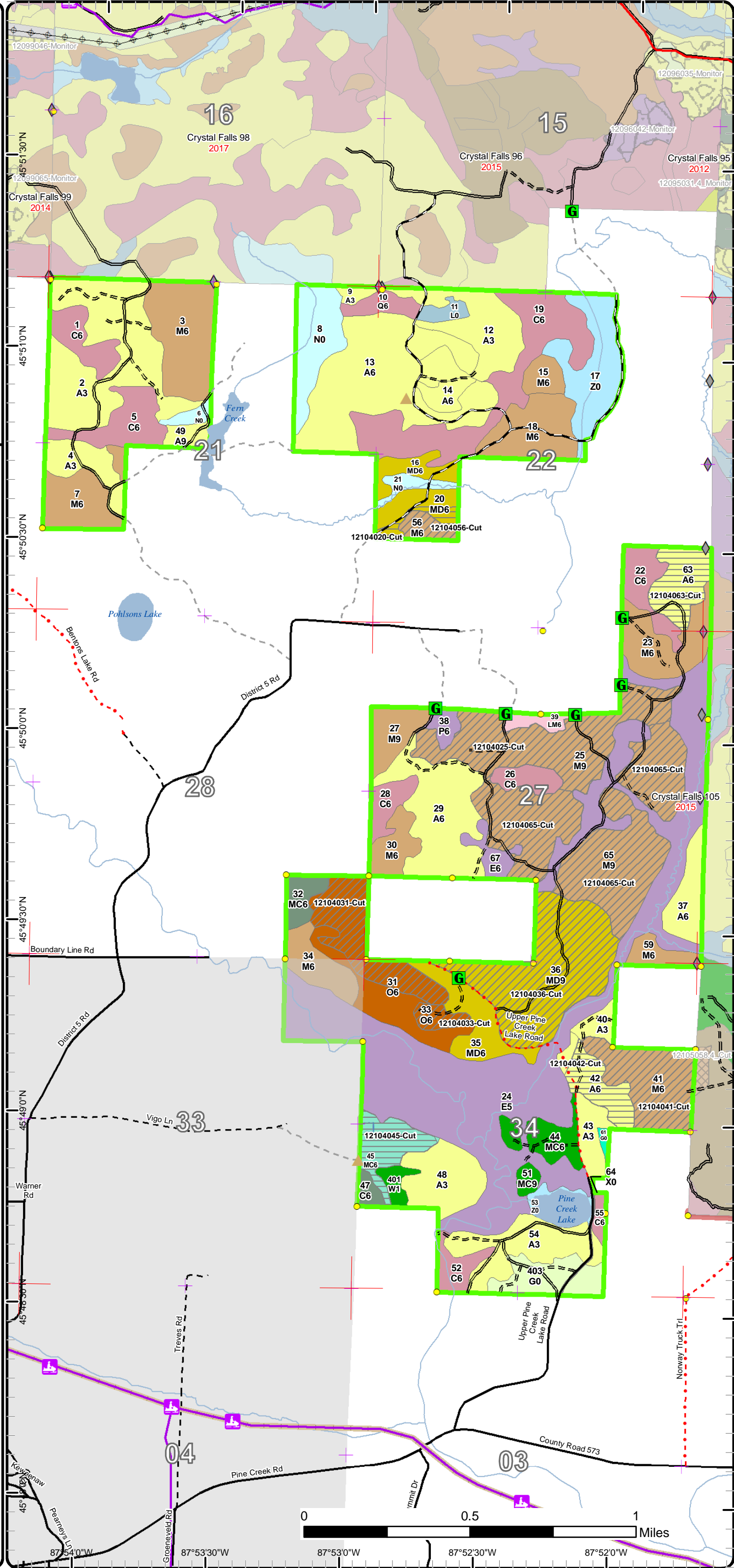
- Base feature information, stand boundaries, cover types, and numbers**
- Proposed treatments**
- Site condition boundaries**
- Details on the road access system**

Cover Type & Treatments Map

Compartment: 104
 T40N, R29W, Sec. 21, 22, 27, 28, 33, 34
 County: Dickinson
 Unit: Crystal Falls
 Mgmt Area: Cassidy Creek
 YOE: 2020
 Acres: 1,596 GIS Calculated
 Examiner: Eric Brodin
 Map Revised: 12/17/2018
 Map Phase: Post-Review

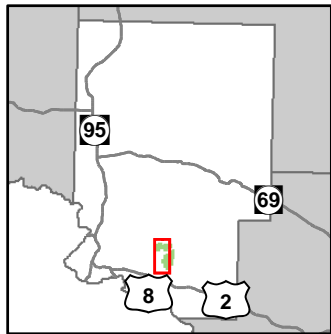


- Miris Corners
- Remonumented Section Corners
- Survey Grade Corners
- Field Grade Corners
- Counties
- DNR - Primary Forest Road
- DNR - Secondary Forest Road
- DNR - Forest Access Route
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- Lakes and Rivers All
- Berms
- Gate
- Culvert
- Cities
- Compartment Boundary
- Clearcut (w/Reserves)
- Thinning (Crown, Low, Systematic)
- 411 - Northern Hardwood
- 412 - Oak Types
- 413 - Aspen
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- 422 - Natural Pines
- 423 - Other Upland Conifers
- 429 - Mixed Upland Conifers
- 611 - Lowland Deciduous Forest
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- 613 - Lowland Mixed Forest
- 122 - Roads/Parking Lot
- 212 - Non-tilled Herbaceous Agriculture
- 310 - Herbaceous Openland
- 500 - Water
- 622 - Lowland Shrub
- 623 - Emergent Wetland
- Lakes

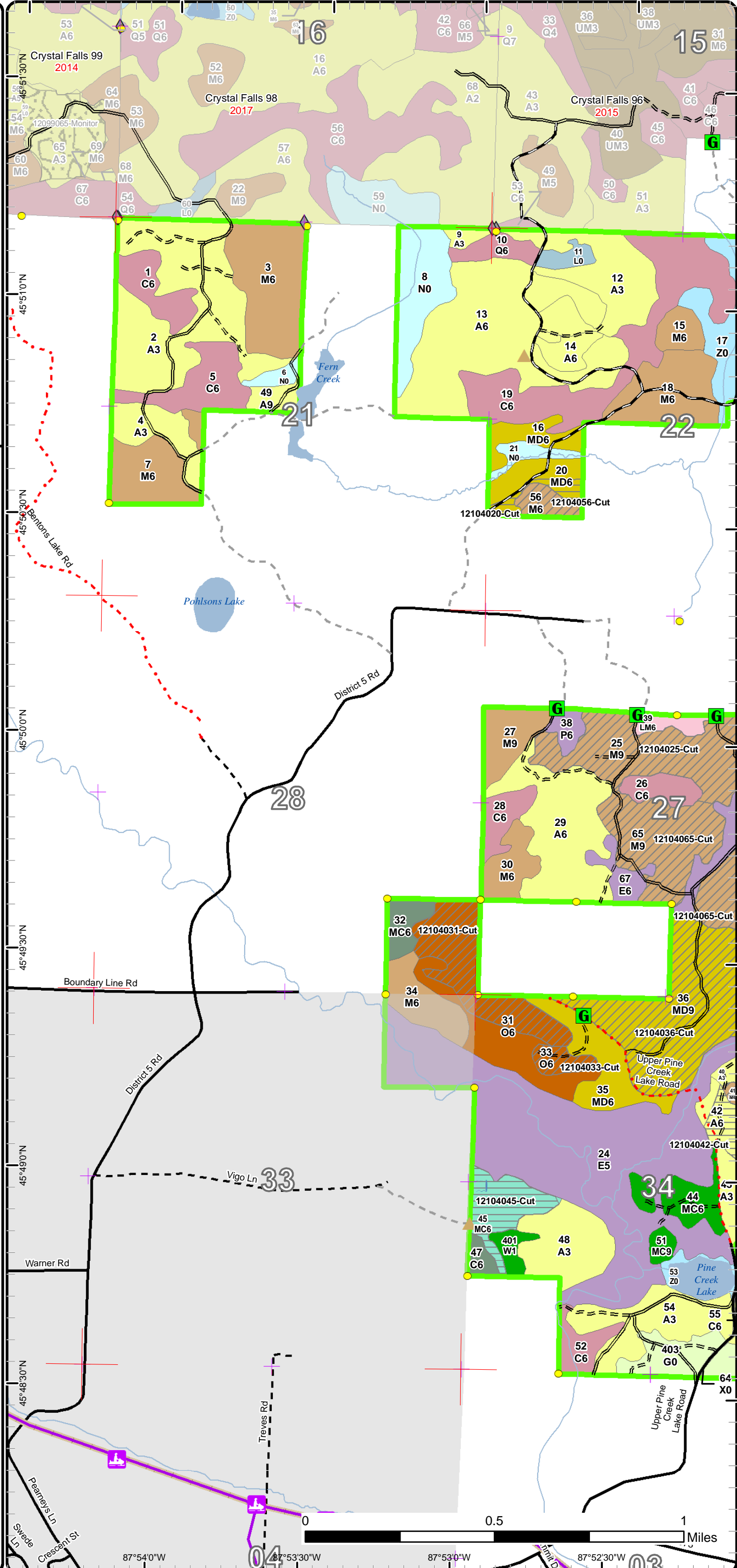


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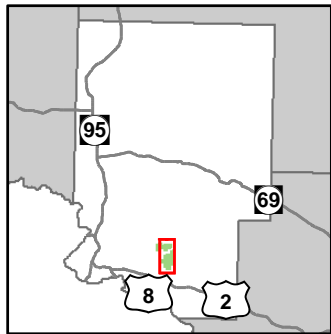
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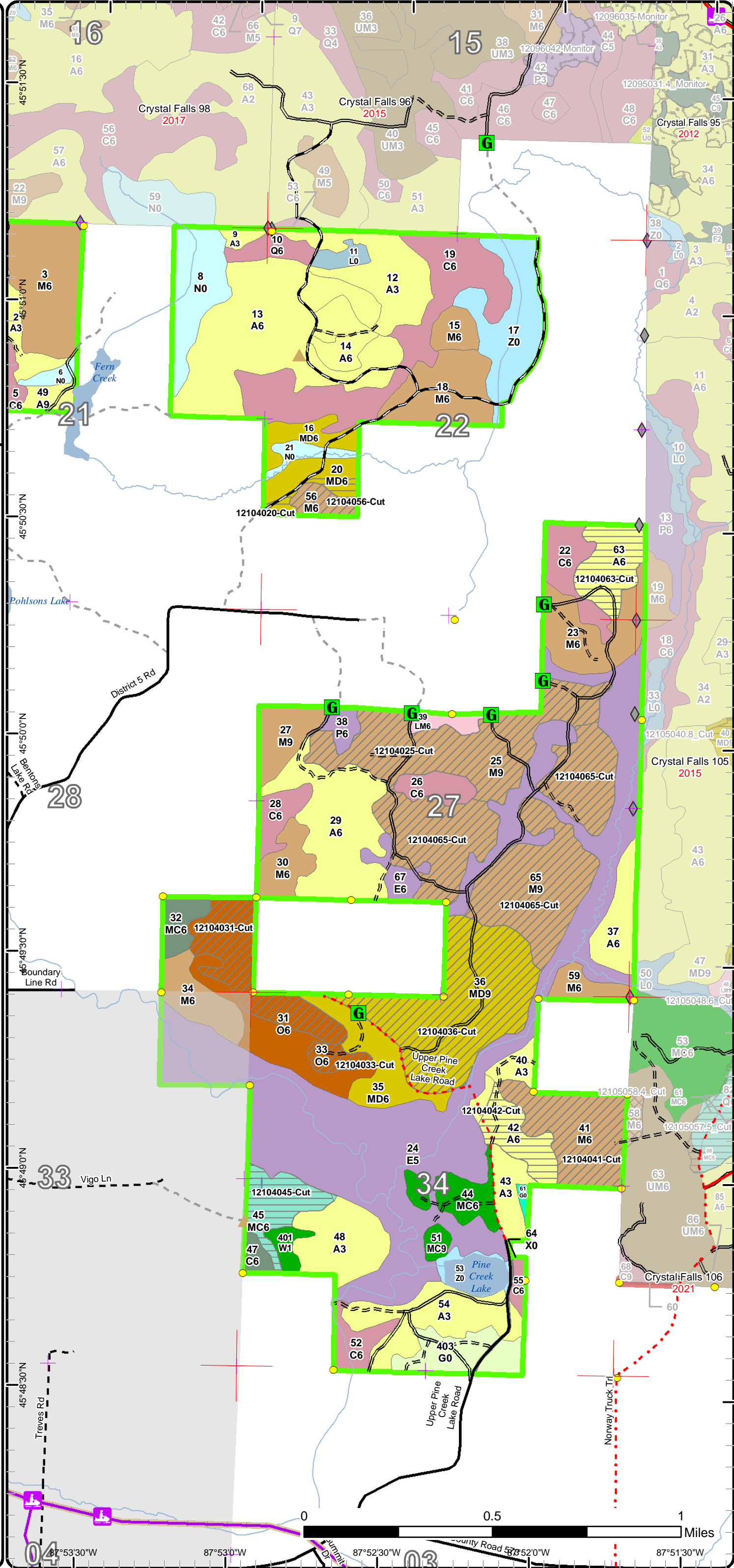
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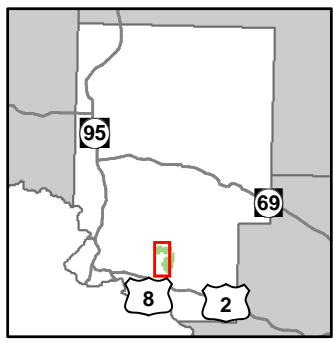


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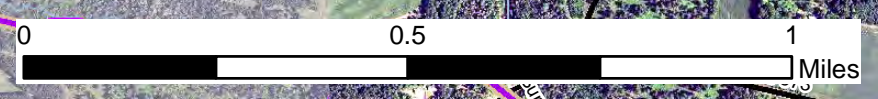
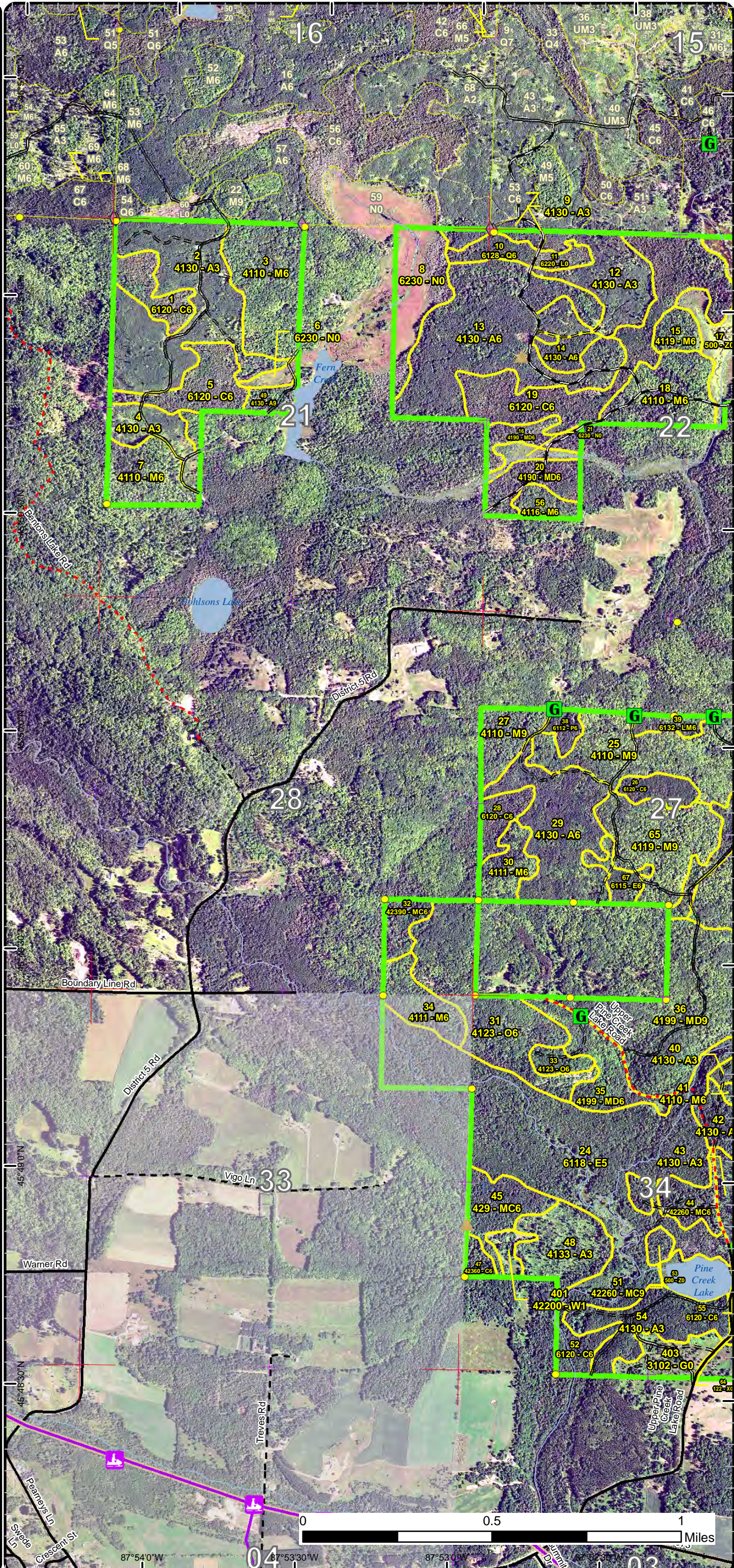


Stand Boundary Map

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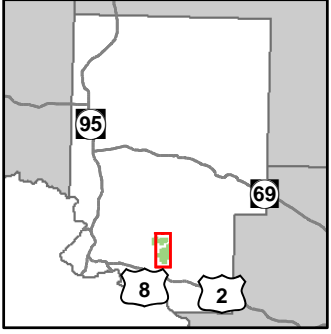
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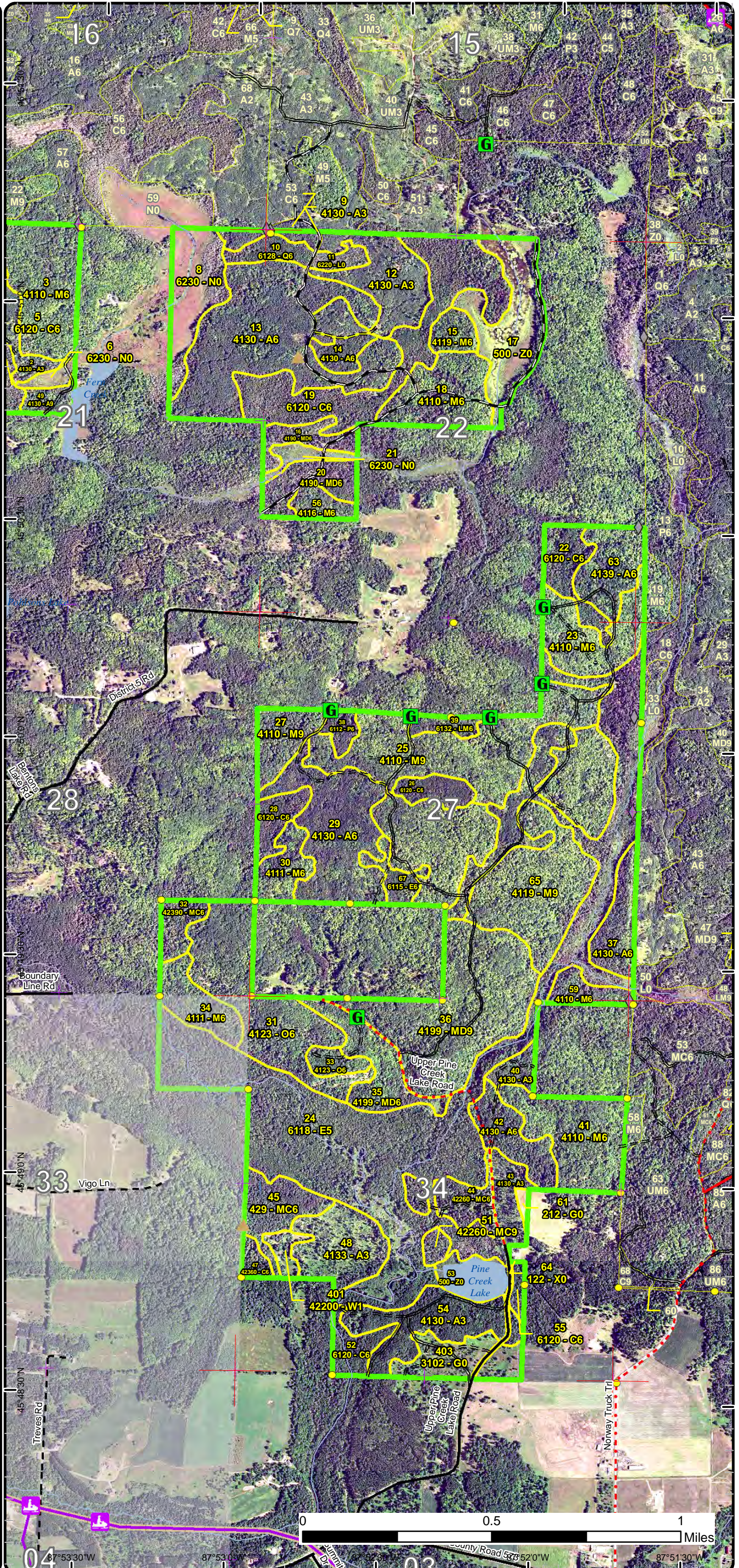
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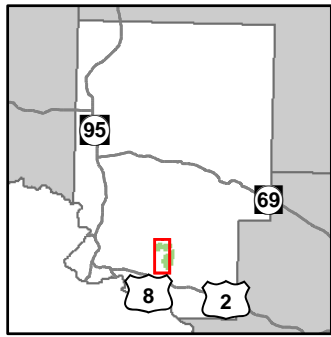


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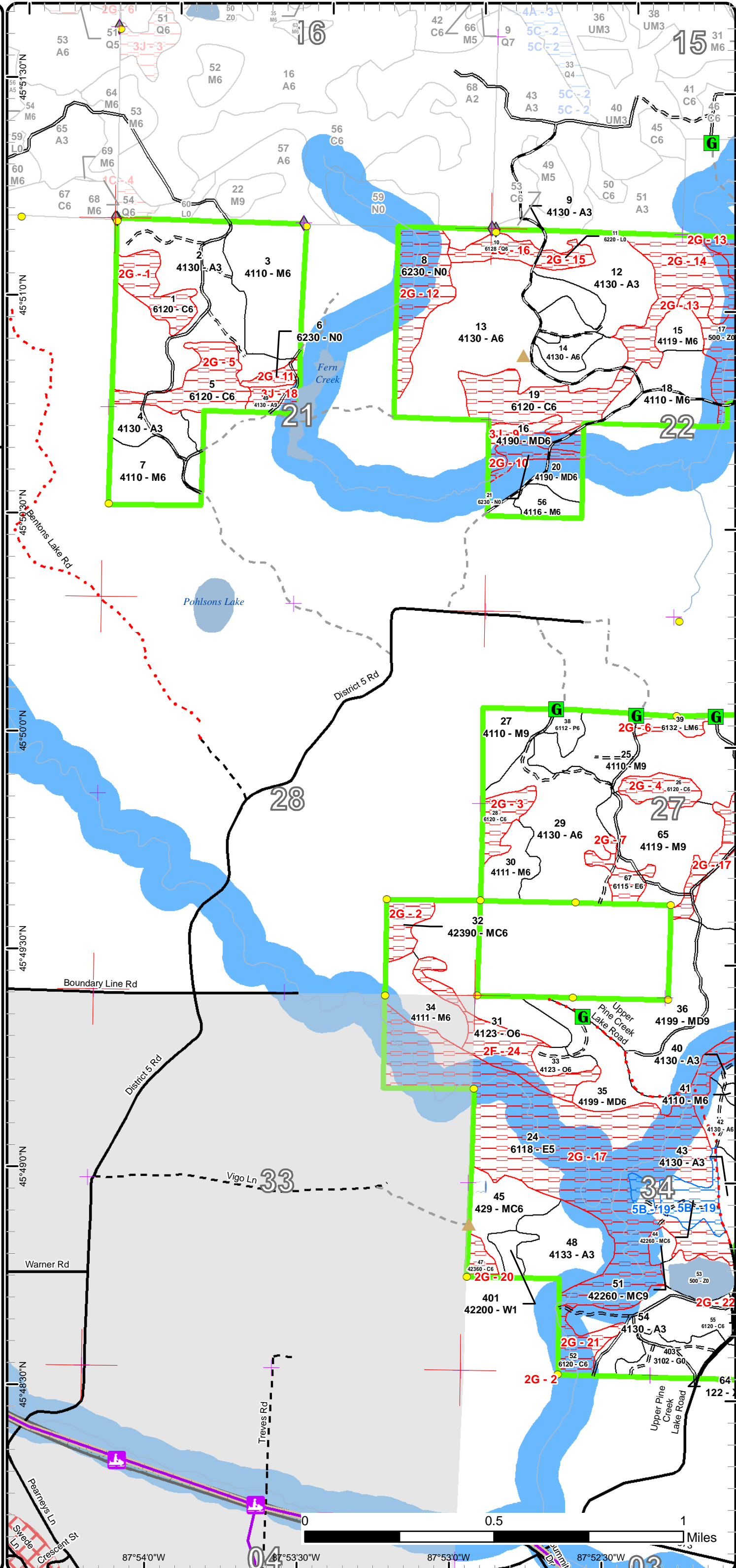


Special Conservation Areas & Site Conditions Map

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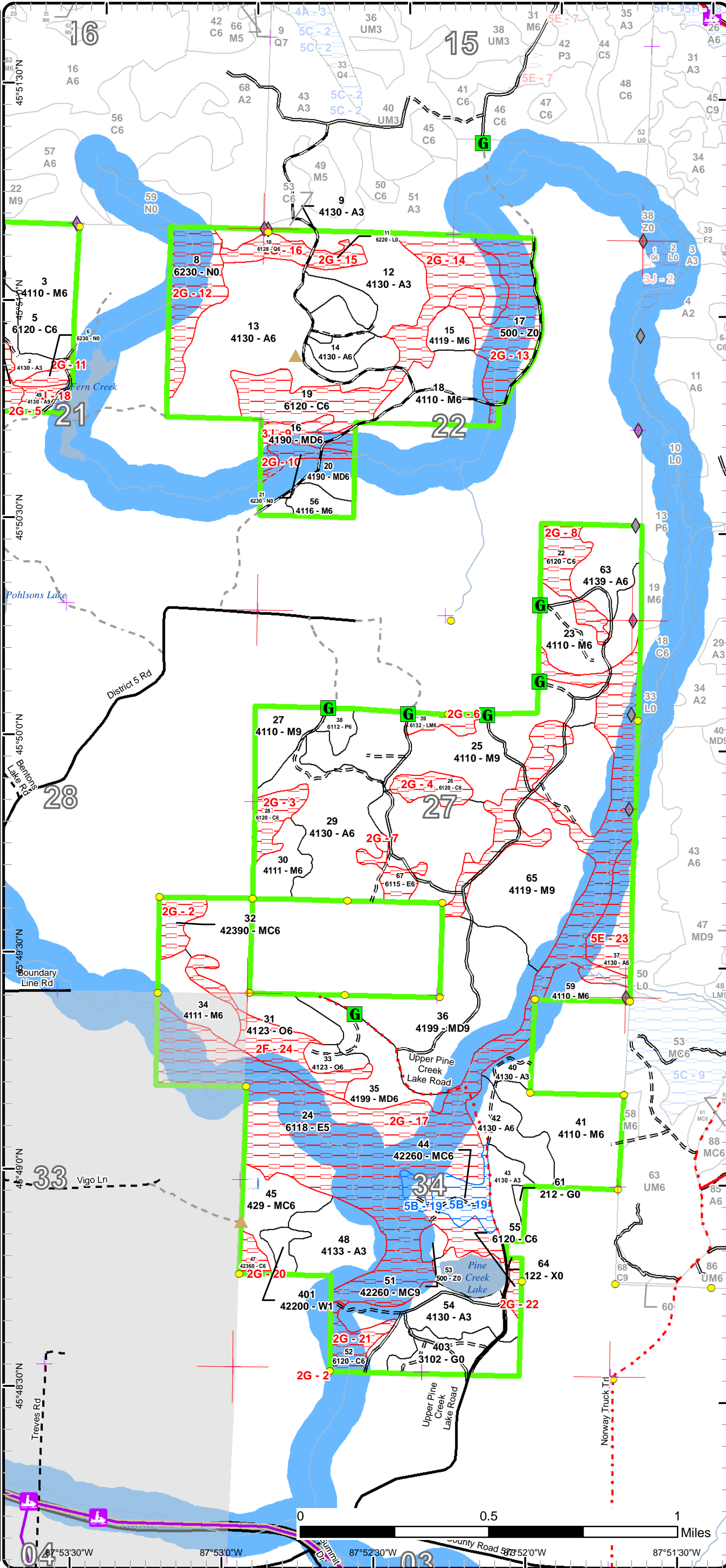
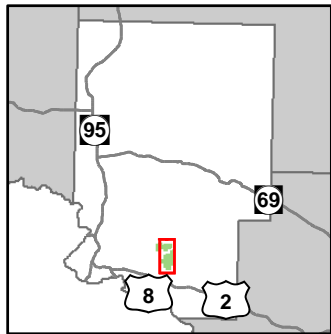


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- Cities
- Compartment Boundary
- Available w/ Constraints
- Unavailable
- 5B: Maintain for regeneration purposes
- 2F: Too steep
- 2G: Too wet (sensitive soils, does not include access issues)
- 3J: Water quality / BMPs (stream, river, or lake)
- Stand Boundaries
- SCA
- Cold Water Streams
- Cold Water Lakes
- High Priority Trout Stream Buffer
- Northern Long-Eared Bat Hibernacula Buffers
- Rail-Trail Corridor



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- Compartment Boundary
- Available w/ Constraints
- Unavailable
- 5B: Maintain for regeneration purposes
- 2F: Too steep
- 2G: Too wet (sensitive soils, does not include access issues)
- 3J: Water quality / BMPs (stream, river, or lake)
- 5E: Long-Term Retention
- Stand Boundaries
- SCA
- Cold Water Streams
- Cold Water Lakes
- High Priority Trout Stream Buffer
- Rail-Trail Corridor



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	55	109	0	189	0	37	0	25	0	0	0	0	0	0	0	0	0	415
Cedar	0	0	0	0	0	0	0	0	0	10	9	68	60	0	0	0	0	0	147
Cropland	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Herbaceous Openland	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20
Lowland Aspen/Balsam Poplar	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	5
Lowland Conifers	0	0	0	0	0	0	0	0	0	0	0	0	8	0	0	0	0	0	8
Lowland Deciduous	0	0	0	0	0	0	0	0	0	0	8	0	245	0	0	0	0	0	253
Lowland Mixed Forest	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	6
Lowland Shrub	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
Marsh	36	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	36
Mixed Upland Deciduous	0	0	0	0	23	0	0	26	0	0	77	0	0	0	0	0	0	0	126
Natural Mixed Pines	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	15	19
Northern Hardwood	0	0	0	0	9	38	28	7	38	15	275	0	0	0	0	0	0	0	409
Oak	0	0	0	0	0	0	0	0	0	6	57	0	0	0	0	0	0	0	63
Upland Conifers	0	0	0	0	0	0	0	0	18	0	0	9	0	0	0	0	0	0	27
Urban	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Water	48	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	48
White Pine	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
Total	113	55	114	0	226	38	65	37	81	31	426	83	313	0	0	0	0	15	1596



Report 2 – Treatment Summary

Crystal Falls Mgt. Unit
Year of Entry: 2020

Acres of Harvest

Compartment 104
Total Compartment Acres: 1,595

Commercial Harvest - 405
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	37	0	0	0	0	0	0	0	0	37
Mixed Upland Deciduous	5	0	0	0	0	77	0	0	0	82
Northern Hardwood	0	0	0	0	0	227	0	0	0	227
Oak	0	0	0	0	0	41	0	0	0	41
Upland Conifers	18	0	0	0	0	0	0	0	0	18
Total	60	0	0	0	0	344	0	0	0	405

Proposed and Next Step Treatments by Method

	Harvest	Site Prep	Planting	Seeding	Burning	Pesticide	Monitoring	Other	Non-Forest Mgt.	Total Acres
Current	405	0	0	0	0	0	0	0	0	405
Next Step	0	0	0	0	0	0	60	0	0	60
Total	405	0	0	0	0	0	60	0	0	465



Stand	Treatment Name	Acres	Stand CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Age Structure	Approval Status
20	12104020-Cut	5.3	4190 - Mixed Upland Deciduous with Cedar	Poletimber Well	66	111-140	Harvest	Clearcut with Retention	4134 - Aspen, Spruce/Fir	Even-Aged	Draft Field Boundary

Habitat Cut: No**Site Condition:**

Prescription Harvest to 4" spec. Leave cedar, hemlock, white pine, black cherry, and oak. Buffer Fern creek to the north 300'.

Specs:

Next Step Monitoring, Natural Regen (Re-Inventory)

Treatments:

Acceptable aspen, spruce, fir, paper birch, maple

Regen:

Other

Comment:

Proposed Start Date: 10/1 /2019

25	12104025-Cut	66.4	4110 - Sugar Maple Association	Sawtimber Well	91	111-140	Harvest	Crown Thinning	411 - Northern Hardwood	Uneven-Aged	Draft Field Boundary
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Habitat Cut: No**Site Condition:**

Prescription Mark this stand to be thinned to a 70-90 BA. Release 7' around trees less than 8" in diameter. Remove the two main crown competitors on trees

Specs: 8" or larger. Leave and open up around any oak that may be present. Mark any live beech unless it appears to be resistant to beech bark disease.

Next Step

Treatments:

Acceptable mixed northern hardwood

Regen:

Other

Focus on releasing good quality crop trees.

Comment:

Proposed Start Date: 10/1 /2019

31	12104031-Cut	34.4	4123 - Red Oak	Poletimber Well	98	111-140	Harvest	Low Thinning	4123 - Red Oak	Even-Aged	Draft Field Boundary
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Habitat Cut: No**Site Condition:**

Prescription This prescription is to ensure a proper crown thinning for a mixed oak/northern hardwoods stand. Mark this stand to be thinned to a 70-90 BA in patches dominated by northern hardwood species. Release 7' around trees less than 8" in diameter. Remove the two main crown competitors on trees 8" or larger. Areas dominant to oak should be thinned lighter to a 80-100 BA. Thin the patch of mixed pine in the east tip to release crowns for future growth. All beech will be designated for removal. Leave cedar, hemlock, and scattered large diameter oak. Treatment lines were estimated from field observations based off of steep terrain.

Next Step

Treatments:

Acceptable oak, mixed northern hardwood

Regen:

Other

Oak management guidelines recommend to NOT remove more than 1/3 BA in any one thinning of an oak dominated stand. This treatment is meant to release crowns for growth and not to create regeneration gaps at this time.

Comment:

Proposed Start Date: 10/1 /2019

33	12104033-Cut	6.1	4123 - Red Oak	Poletimber Well	81	81-110	Harvest	Crown Thinning	4123 - Red Oak	Two-Aged	Draft Field Boundary
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Habitat Cut: No**Site Condition:**

Prescription Mark this stand to be thinned to a 70-90 BA. Release 7' around trees less than 8" in diameter. Remove the two main crown competitors on trees

Specs: 8" or larger. Leave scattered large diameter oak if present.

Next Step

Treatments:

Acceptable oak, mixed northern hardwood

Regen:

Other

Comment:

Proposed Start Date: 10/1 /2019



S t a n d	Treatment Name	Acres	Stand CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Age Structure	Approval Status
36	12104036-Cut	77.1	4199 - Other Mixed Upland Deciduous	Sawtimber Well	91	81-110	Harvest	Crown Thinning	4199 - Other Mixed Upland Deciduous	Uneven-Aged	Draft Field Boundary

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Next Step
Treatments:

Acceptable oak, aspen, mixed hardwoods

Regen:

Other Steep hills and rock bluffs will have to be excluded from this treatment. This should bring the actual treatment size to approximately 40 acres.

Comment:

Proposed Start Date: 10/1 /2019

41	12104041-Cut	37.9	4110 - Sugar Maple Association	Poletimber Well	73	111-140	Harvest	Crown Thinning	411 - Northern Hardwood	Uneven-Aged	Draft Field Boundary
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Habitat Cut: No**Site Condition:**

Prescription Include stand 58 (3.7 acres) from the adjoining compartment 105 to the east. Mark this stand to be thinned to a 70-90 BA. Release 7" around trees less than 8" in diameter. Remove the two main crown competitors on trees 8" or larger. Leave all cedar, hemlock, red pine, white pine, beech, and oak. Mark aspen to thin if needed to benefit hardwood but not to create larger open pockets and encourage aspen regeneration. Designate live paper birch for removal. Exclude small cedar patch along the north border and sub-merchantable balsam in the southeast corner. Mark around rock bluff in the east 1/3 of this stand. Avoid marking in dense hardwood sapling/pole pockets. Avoid damage to hardwood saplings/poles.

Next Step
Treatments:

Acceptable mixed northern hardwood, oak

Regen:

Other Access to this stand may be better to come west off of the Norway Truck Trail due to the steep incline of the road coming into the western tip of this stand.

Comment:

Proposed Start Date: 10/1 /2019

42	12104042-Cut	15.9	4130 - Aspen	Poletimber Well	73	111-140	Harvest	Clearcut with Retention	413 - Aspen	Two-Aged	Draft Field Boundary
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Habitat Cut: No**Site Condition:**

Prescription Harvest stand to 4" spec. Green mark better quality oak to leave approximately one tree per acre for wildlife/seed. Leave cedar, hemlock, and white pine. The treatment has been updated with a 300' buffer for Fern Creek to the west.

Next Step Monitoring, Natural Regen (Re-Inventory)
Treatments:

Acceptable aspen, oak, mixed hardwood

Regen:

Other Determine if northern triangular portion is operable due to steeper slope.

Comment:

Proposed Start Date: 10/1 /2019



S t a n d	Treatment Name	Acres	Stand CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Age Structure	Approval Status
45	12104045-Cut	18.3	429 - Mixed Upland Conifers	Poletimber Well	79	111- 140	Harvest	Clearcut with Retention	4220 - Natural White Pine	Two-Aged	Draft Field Boundary

Habitat Cut: No**Site Condition:**

Prescription Harvest to 2" spec. Leave all cedar, hemlock, red pine, and white pine. Use extra caution to not damage residual pine of any diameter although
Specs: some may need to be removed for access in areas. A 300' buffer for Pine Creek does touch the far east tip of this treatment. The treatment layer has been updated for this buffer.

Next Step Monitoring, Natural Regen (Re-Inventory)

Treatments:

Acceptable aspen, pine and conifer spp.

Regen:

Other Access will be through private. Do not damage the natural spring pipe in the northwest which can be located from the reference layer.

Comment:

Proposed Start Date: 10/1 /2019

56	12104056-Cut	7.2	4116 - Mixed N. Hardwood - Aspen	Poletimber Well	66	111- 140	Harvest	Crown Thinning	411 - Northern Hardwood	Uneven- Aged	Draft Field Boundary
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Habitat Cut: No**Site Condition:**

Prescription Harvest all merchantable aspen. Mark this stand to be thinned to a 70-90 BA. Release 7' around trees less than 8" in diameter. Remove the two
Specs: main crown competitors on trees 8" or larger. Leave all cedar, hemlock, white pine, and oak. After large aspen is removed, target BA should nearly be met. Mark hardwood where needed and for access. Consider machine access up/down slope.

Next Step

Treatments:

Acceptable mixed northern hardwood

Regen:

Other

Comment:

Proposed Start Date: 10/1 /2019

63	12104063-Cut	20.7	4139 - Aspen, Mixed Deciduous	Poletimber Well	53	111- 140	Harvest	Clearcut with Retention	413 - Aspen	Even-Aged	Draft Field Boundary
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Habitat Cut: No**Site Condition:**

Prescription Harvest to 2" spec. Leave sub merchantable spruce/fir, cedar, hemlock, white pine, and oak.

Specs:

Next Step Monitoring, Natural Regen (Re-Inventory)

Treatments:

Acceptable aspen, mixed hardwood

Regen:

Other No pine was observed within this stand. No blue line (just red line) against private will be needed on the north edge due to a steep rock bluff

Comment: which leads down to a lowland drainage.

Proposed Start Date: 10/1 /2019

65	12104065-Cut	115.3	4119 - Mixed Northern Hardwoods	Sawtimber Well	91	111- 140	Harvest	Crown Thinning	411 - Northern Hardwood	Uneven- Aged	Draft Field Boundary
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Habitat Cut: No**Site Condition:**

Prescription This treatment is to salvage the higher percentage of beech volume within this stand while thinning the remaining hardwoods where needed.
Specs: Mark this stand to be thinned to a 70-90 BA in areas where this can be achieved. Release 7' around trees less than 8" in diameter. Remove the two main crown competitors on trees 8" or larger. Designate beech for removal while green marking 1-3 beech trees per acre that appear to be healthy or possibly immune to BBD. BA may be lower than target in areas where more beech is present which will encourage more intolerant/mid-tolerant species. Leave cedar, hemlock, white pine, and oak.

Next Step

Treatments:

Acceptable mixed northern hardwood, oak

Regen:

Other

Comment:

Proposed Start Date: 10/1 /2019

**Total Treatment
Acreage Proposed: 404.6**

Report 4 – Site Conditions

Crystal Falls Mgt. Unit

Eric Brolin : Examiner

Compartment: 104

Year of Entry: 2020

Availability for Management

Total Acres	Acres Available	Acres Avail		Dominant Site Conditions					
		With Condition	Not Available		5B	2F	2G	3J	5E
415	392	0	23	Aspen				6	17
147	0	0	147	Cedar			147		
2	2	0	0	Cropland					
20	20	0	0	Herbaceous Openland					
5	5	0	0	Lowland Aspen/Balsam Poplar					
8	0	0	8	Lowland Conifers			8		
252	0	0	252	Lowland Deciduous			252		
6	0	0	6	Lowland Mixed Forest			6		
5	0	0	5	Lowland Shrub			5		
36	0	0	36	Marsh			36		
126	115	0	11	Mixed Upland Deciduous				11	
19	4	15	0	Natural Mixed Pines	15				
409	409	0	0	Northern Hardwood					
63	41	0	23	Oak		23			
27	18	0	9	Upland Conifers			9		
2	2	0	0	Urban					
48	12	0	36	Water			36		
5	5	0	0	White Pine					
1,595	1,025	15	556	Total Forested Acres	15	23	499	17	17
	64%	1%	35%	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	2G: Too wet (sensitive soils, does not include access issues)	14	Unspecified	Unspecified	Unspecified	Unspecified
Comments:							

Report 4 – Site Conditions

Crystal Falls Mgt. Unit

Eric Brolin : Examiner

Compartment: 104

Year of Entry: 2020

2	Unavailable	2G: Too wet (sensitive soils, does not include access issues)	9	2F: Too steep	Unspecified	Unspecified	Unspecified
Comments: Steep slope stocked with hemlock poles drains down to a lowland cedar patch.							
3	Unavailable	2G: Too wet (sensitive soils, does not include access issues)	10	Unspecified	Unspecified	Unspecified	Unspecified
Comments: lowland cedar							
4	Unavailable	2G: Too wet (sensitive soils, does not include access issues)	9	Unspecified	Unspecified	Unspecified	Unspecified
Comments: lowland cedar							
5	Unavailable	2G: Too wet (sensitive soils, does not include access issues)	21	Unspecified	Unspecified	Unspecified	Unspecified
Comments:							
6	Unavailable	2G: Too wet (sensitive soils, does not include access issues)	6	Unspecified	Unspecified	Unspecified	Unspecified
Comments: lowland cedar/black ash							

Report 4 – Site Conditions

Crystal Falls Mgt. Unit

Eric Brolin : Examiner

Compartment: 104

Year of Entry: 2020

7	Unavailable	2G: Too wet (sensitive soils, does not include access issues)	8	Unspecified	Unspecified	Unspecified	Unspecified
Comments: lowland black ash/alder drainage							
8	Unavailable	2G: Too wet (sensitive soils, does not include access issues)	15	Unspecified	Unspecified	Unspecified	Unspecified
Comments: lowland cedar							
9	Unavailable	3J: Water quality / BMPs (stream, river, or lake)	11	Unspecified	Unspecified	Unspecified	Unspecified
Comments: After applying 300' buffer for Fern Creek, only a couple acres of this stand remain that can not be accessed.							
10	Unavailable	2G: Too wet (sensitive soils, does not include access issues)	6	Unspecified	Unspecified	Unspecified	Unspecified
Comments: Cattail marsh							
11	Unavailable	2G: Too wet (sensitive soils, does not include access issues)	4	3J: Water quality / BMPs (stream, river, or lake)	Unspecified	Unspecified	Unspecified
Comments:							
12	Unavailable	2G: Too wet (sensitive soils, does not include access issues)	27	3J: Water quality / BMPs (stream, river, or lake)	5D: Unproductive Forest Land	Unspecified	Unspecified
Comments:							

Report 4 – Site Conditions

Crystal Falls Mgt. Unit

Eric Brolin : Examiner

Compartment: 104

Year of Entry: 2020

13	Unavailable	2G: Too wet (sensitive soils, does not include access issues)	36	3J: Water quality / BMPs (stream, river, or lake)	Unspecified	Unspecified	Unspecified
Comments:							
14	Unavailable	2G: Too wet (sensitive soils, does not include access issues)	60	Unspecified	Unspecified	Unspecified	Unspecified
Comments:							
15	Unavailable	2G: Too wet (sensitive soils, does not include access issues)	5	5D: Unproductive Forest Land	Unspecified	Unspecified	Unspecified
Comments:							
16	Unavailable	2G: Too wet (sensitive soils, does not include access issues)	8	Unspecified	Unspecified	Unspecified	Unspecified
Comments:							
17	Unavailable	2G: Too wet (sensitive soils, does not include access issues)	245	Unspecified	Unspecified	Unspecified	Unspecified
Comments:							
18	Unavailable	3J: Water quality / BMPs (stream, river, or lake)	6	5E: Long-Term Retention	Unspecified	Unspecified	Unspecified
Comments:							

Report 4 – Site Conditions

Crystal Falls Mgt. Unit

Eric Brolin : Examiner

Compartment: 104

Year of Entry: 2020

19	Available	5B: Maintain for regeneration purposes	15	Unspecified	Unspecified	Unspecified	Unspecified
Comments: Abundant aspen regen would be significantly damaged with a harvest at this time.							
20	Unavailable	2G: Too wet (sensitive soils, does not include access issues)	4	Unspecified	Unspecified	Unspecified	Unspecified
Comments:							
21	Unavailable	2G: Too wet (sensitive soils, does not include access issues)	10	Unspecified	Unspecified	Unspecified	Unspecified
Comments:							
22	Unavailable	2G: Too wet (sensitive soils, does not include access issues)	3	Unspecified	Unspecified	Unspecified	Unspecified
Comments:							
23	Unavailable	5E: Long-Term Retention	17	Unspecified	Unspecified	Unspecified	Unspecified
Comments:							
24	Unavailable	2F: Too steep	23	Unspecified	Unspecified	Unspecified	Unspecified
Comments:							

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	Crystal Falls Mgt. Unit		Report 7 – Forested Stands			Compartment: 104 Year of Entry: 2020	
	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:	
1	6120 - Lowland Cedar	Poletimber Well	14.2	107	111-140	Lowland cedar. OPIC - FMD: OI Stand Year Origin was 1911	
2	4130 - Aspen	Sapling Well	73.1	14	Immature	Young aspen stand. Drainage that may need to be excluded connects cedar stands in south 1/3 of stand. OPIC - FMD: OI Stand Year Origin was 2004	
3	4110 - Sugar Maple Association	Poletimber Well	39.6	91	81-110	Hardwood pole/small sawlog stand. Rocky rolling terrain across stand, many boulders. Some lower terrain with more red maple mixed in found in the north. A wetter yellow birch/black ash swales may need to be excluded from the southeast part of this stand. Some very large remnant oak found within. Average just under 110BA. OPIC - FMD: Thinned in 2004 . Very hilly.	
4	4130 - Aspen	Sapling Well	16.3	6	Immature	Young aspen stand near fully stocked.OPIC - FMD: Cut in 2012.	
5	6120 - Lowland Cedar	Poletimber Well	21.3	107	111-140	Lowland cedar drainage to Fern Creek. Very heavy to cedar. OPIC - FMD: OI Stand Year Origin was 1911	
7	4110 - Sugar Maple Association	Poletimber Well	24.0	91	81-110	Hardwood stand with mixed poles and logs. Large quaking and big tooth aspen mixed throughout. Small lowland patch with some cedar and black ash should be excluded or thinned around in future harvests. OPIC - FMD: Thinned in 2004	
9	4130 - Aspen	Sapling Well	5.6	35	111-140	Young aspen with dense fir under story. OPIC - FMD: OI Stand Year Origin was 1983	
10	6128 - Lowland Coniferous, Mixed Deciduous	Poletimber Well	8.0	116	111-140	Lowland stand. Mainly cedar with denser patches of black ash in areas. OPIC - FMD: OI Stand Year Origin was 1902	
12	4130 - Aspen	Sapling Well	35.6	15	Immature	Young aspen stand with scattered hardwood and oak that were left from the previous harvest.	
13	4130 - Aspen	Poletimber Well	87.7	35	111-140	Aspen pole stand. Dense fir understory in areas. Patches of large red oak and scattered older hardwood was left across the stand. OPIC - FMD: OI Stand Year Origin was 1983	
14	4130 - Aspen	Poletimber Well	7.1	35	111-140	Aspen pole stand. Dense fir under story in areas. Patches of large red oak and scattered older hardwood was left across the stand. OPIC - FMD: OI Stand Year Origin was 1983	



	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
15	4119 - Mixed Northern Hardwoods	Poletimber Well	7.8	46	81-110	<p>Typed as an aspen stand prior to this YOE. Scattered large aspen across stand that has either fallen over already or rapidly degrading from old age. A majority of the canopy is maple saplings/small poles about 45 years old. Scattered remnant white pine. More paper birch mixed on the north border. Steep ridge runs east/west along south border but can be accessed as slope decreases along the cedar stand to the west. This stand has began converting to hardwood and will be merged with the adjoining hardwood stand in the future.</p> <p>OPIC - FMD: STEEP HILL,WATER INFLUENCE ZONE.HOLD.</p>
16	4190 - Mixed Upland Deciduous with Cedar	Poletimber Well	10.9	66	111-140	<p>All species in this stand are degrading. A small percentage of spruce/fir may still be salvageable. Pockets of cedar along south edge.</p>
18	4110 - Sugar Maple Association	Poletimber Well	29.2	91	81-110	<p>Nice hardwood pole/small sawlog stand. High component of aspen in the southwest corner. Lower quality and paper birch mixed along the west. Some lower areas in south central may need to be excluded. A couple veins of fir are found within. Steeper rolling terrain across stand. Average of 110 BA, crowns still have room to grow.</p> <p>OPIC - FMD: Thinned in 2004</p>
19	6120 - Lowland Cedar	Poletimber Well	59.9	116	141-170	<p>Lowland cedar. Dense to cedar except in center portions more to black ash. Far north east tip has some conifer and aspen mixed in.</p> <p>OPIC - FMD: OI Stand Year Origin was 1902</p>
20	4190 - Mixed Upland Deciduous with Cedar	Poletimber Well	15.2	66	111-140	<p>All species in this stand are degrading. A small percentage of spruce/fir may still be salvageable. Pockets of cedar along north edge. Some hemlock is found on the north facing slopes. Gentle terrain.</p>
22	6120 - Lowland Cedar	Poletimber Well	15.4	107	111-140	<p>Lowland cedar with saturated, organic soil. Other species mixed within stand. Cedar origin varies from the early 1900's. Very soft ground across stand. OPIC - FMD: OI Stand Year Origin was 1911</p>
23	4110 - Sugar Maple Association	Poletimber Well	28.0	53	81-110	<p>This is a hardwood pole stand. Average of around 100 BA. Mainly sugar maple poles.</p>
24	6118 - Lowland Deciduous with Cedar	Poletimber Medium	244.6	110	81-110	<p>This is a large lowland drainage that is connected across a majority of this compartment. It is mainly black ash to the south with more cedar and some aspen mixed in further north. OI stand year origin was 1908.</p>
25	4110 - Sugar Maple Association	Sawtimber Well	66.4	91	111-140	<p>Good quality hardwood log stand. Black ash pockets and/or drainages are found within stand. Rocky, rolling terrain but not as rough as surrounding hardwood stands. The far west portion of this stand has some areas of smaller diameter patches of poles. A couple of small red oak/beech patches are found within stand.</p> <p>OPIC - FMD: CUT IN 1997 AS 'DOC'S RETREAT' SALE.</p>



Stand	Crystal Falls Mgt. Unit		Report 7 – Forested Stands			Compartment: 104 Year of Entry: 2020
	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
26	6120 - Lowland Cedar	Poletimber Well	8.9	96	141-170	Lowland cedar patch surrounded by hardwoods.
27	4110 - Sugar Maple Association	Sawtimber Well	15.1	86	81-110	Nice mixed northern hardwood stand. BA averages under 110. There is still plenty of room for crowns to grow, not quite ready to be thinned yet. A drainage borders most of the southeast side of this stand along with a steeper slope in the south which may be difficult to access. The best access would be from the north through private property. A fairly open skid trail mapped from the west would make excellent access through state with a little bit of road work if denied access through private. OPIC - FMD: CUT IN 1997. Bitternut Hickory scattered in this stand.
28	6120 - Lowland Cedar	Poletimber Well	9.8	107	141-170	Lowland cedar with dense balsam under story.
29	4130 - Aspen	Poletimber Well	49.7	36	81-110	Younger aspen stand. Rocky rolling terrain. Scattered mixed hardwood poles, beech, and oak is found across stand. Abundant ironwood saplings around edges of this stand. 1/2 acre patch of Japanese barberry found in south central part of stand. Patch of cedar lowland in southwest corner. OPIC - FMD: OI Stand Year Origin was 1982, prescription was to leave hemlock, oak, beech, cedar, cherry, hickory, white pine and a 2" spec for the rest of the spp.
30	4111 - S.Maple, Hard Mast Association	Poletimber Well	13.2	44	81-110	Average BA around 110. Mainly hardwood poles with scattered remnant oak and aspen. Very limited access. Very difficult terrain. No roads access this stand from state land. Steep drainage cuts across north 1/3 of stand. Recommend revisiting access through state land when adjacent aspen is harvested in the future. OPIC - FMD: Rough terrain. Do not cut. Leave for wildlife. We tried putting up a sale in this area and terrain and private owner blocked access.
31	4123 - Red Oak	Poletimber Well	57.0	98	111-140	Oak log stand in the north transitions to more of an oak pole stand to the southeast. Natural patch about 1.5 acres of red pine/white pine in east tip (12"-14" average) that should be thinned through to allow future growth on pines. Beech and remnant aspen mixed within. Small patches heavier to sugar maple/mixed NH are found within the stand. Rocky rolling terrain may limit harvests to the northern half of this stand. Access would have to be through private. Do not push stand lines into hemlock poles in northwest. Approximately 30 acres will be operable due to steep rock bluffs. OPIC - FMD: Rough terrain. This stand was marked to sell in 1997, but terrain and access limitations prevented operations.
32	42390 - Mixed Non- Pine Upland Conifers	Poletimber Well	9.0	107	111-140	Half lowland cedar, half hemlock poles with mixed hardwood and white pine on transition into uplands. OPIC - FMD: OI Stand Year Origin was 1911
33	4123 - Red Oak	Poletimber Well	6.1	81	81-110	Small oak stand that was broken out from current inventory. Most of this stand was marked in the past but never cut. Average of 140 BA of oak/mixed hardwood poles, and mixed size oak logs. CAN NOT access beyond stand lines along the south and west due to rock bluffs and very steep terrain.



Stand	Crystal Falls Mgt. Unit		Report 7 – Forested Stands			Compartment: 104 Year of Entry: 2020	
	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:	
34	4111 - S.Maple, Hard Mast Association	Poletimber Well	16.7	41	81-110	This stand was broke out from past inventory from the adjoining oak stand due to a different species composition and size. This is a northern hardwood pole stand with scattered oak log trees and remnant aspen. The only access to this stand would be through a funnel from the north due to steep terrain. This stand should coincide with adjoining harvests in the future.	
35	4199 - Other Mixed Upland Deciduous	Poletimber Well	23.0	36	81-110	Oak was left in past. This is a mixed pole stand. Some areas are heavier to aspen, some areas to maple/basswood. Larger oak logs scattered within with some more dense pockets of oak poles in the west 1/3 of stand. Remnant older aspen is scattered across stand. Steep rolling terrain across most of stand. Everything within stand lines should be accessible except possibly areas bordering the fern creek lowland. CAN NOT access beyond stand lines along the west due to rock bluffs and very steep terrain. Small black ash pocket in north. OPIC - FMD: OI Stand Year Origin was 1982, left oak, beech, and black cherry.	
36	4199 - Other Mixed Upland Deciduous	Sawtimber Well	77.1	91	81-110	Beech in stand is infested with BBD. Crowns are in good shape yet but scale is bad, nearly 100% infected. Areas of log sized oak needs to be thinned. Patches of younger hardwood poles scattered across stand. Rolling, rocky terrain. Aspen and paper birch mixed mainly in southern 1/3 of stand. Mixed aspen ages from 35-50+ years old. Stand has average of 110 BA with large oak pockets that have a much higher BA. OPIC - FMD: NICE OAK! SOME STEEP SLOPES. Thinned in 1991.	
37	4130 - Aspen	Poletimber Well	16.6	59	81-110	Older aspen stand with abundant maple saplings/poles growing in. Slight incline across stand running down to the stream. Very open under story except closer to the stream where more conifer saplings are growing.	
38	6112 - Lowland Aspen	Poletimber Well	5.2	36	81-110	This is a little lowland patch. It has saturated ground with about 1/3 being a cedar/black ash cover type. It appears that it was clear-cut in the past while staying out of the cedar/black ash, allowing aspen to fill in the openings. Lowland species around 100 years old.	
39	6132 - Mixed Lowland Forest with Cedar	Poletimber Well	5.6	107	141-170	Lowland cedar stand.	
40	4130 - Aspen	Sapling Well	6.1	35	Immature	Young aspen stand. Very dense balsam understory. Little cedar bubble drains out to the north. Remnant oak and white pine were left. OPIC - FMD: OI Stand Year Origin was 1983	
41	4110 - Sugar Maple Association	Poletimber Well	37.9	73	111-140	Patchy hardwood pole stand in the west, good quality log stand in the east. Average BA across stand is 130, lighter in the west, heavier in the east. Stand varies from poor quality poles, to patches of better quality poles, to dense good quality logs in the west 1/3 of this stand. Poles need to be thinned and released to continue growth. Mixed large aspen, oak, and white pine are scattered across stand. Rock outcrops and drainage across stand. Include 4 acres of hardwood from adjoining unit to the east. All private corners are in.	



	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
42	4130 - Aspen	Poletimber Well	18.3	73	111-140	Older aspen stand. Mixture of quaking and bigtooth in excellent shape. Dominant age is 72 with a component of younger aspen mixed in as well. Hardwood and white pine poles fairly abundant in understory. Scattered oak poles and remnant overstory oak and white pine trees across stand. A fairly steeper slope sweeps across the stand (north/south) becoming steeper to the north. Most of this stand should be operable except possibly in the far northern portion which will be determined during TSE work.
43	4130 - Aspen	Sapling Well	11.7	6	Immature	Fully stocked aspen sapling stand with abundant white pine poles and scattered large red pine. OPIC - FMD: Needs survey. Request sent. Save pine and cherry. HARVESTED WITH PINEAPPLE POPPLE SALE 2012 #12-006-10-01
44	42260 - Natural Pine, Mixed Deciduous	Poletimber Well	15.0	59	111-140	Mixed stand with aspen saplings filling in any gaps. Very diverse age ranging from 26 year old aspen to 90 year old white pine with a majority of pine and a little bit of white spruce species around 60 years old. This stand should be left alone to not damage aspen regen which is thriving any place the canopy has openings and places in the understory. OPIC - FMD: OI Stand Year Origin was 1934
45	429 - Mixed Upland Conifers	Poletimber Well	18.4	79	111-140	Very open understory with gentle terrain. Clones of younger aspen are present but majority of aspen is very large and ready to decline. Previous site condition on stand from 2005 was to hold off on harvest to not damage 3" diameter, 30' tall natural pine regeneration. Both red and white pine ranges from small pole size to 20"+. Most of the pine has reached the overstory and grew in diameter from the previous site condition. More red pine is found in the east at a much smaller diameter which is topped over by large aspen. Some pine is starting to self thin. Removing hardwood species would open up pine to grow and create an excellent natural pine stand adjacent to Pine Creek. A natural spring pipe is located in the northwest corner and can be found in the reference layer.
47	42360 - Upland Cedar	Poletimber Well	4.3	107	111-140	Upland cedar patch, drainage area from adjacent private higher ground. OPIC - FMD: OI Stand Year Origin was 1911
48	4133 - Aspen, Mixed Pine	Sapling Well	27.1	6	Immature	Aspen sapling stand. Large pine scattered across stand. Fully stocked with aspen except areas where pine is too dense. OPIC - FMD: The south end has some hardwood that may be excluded from a sale. Survey requested. Use care to protect logging dam site south of this stand. HARVESTED WITH PINEAPPLE POPPLE SALE 2012 #12-006-10-01
49	4130 - Aspen	Sawtimber Well	6.3	77	111-140	Older aspen peninsula. Larger white pines are mixed in along with fairly abundant advanced white pine regeneration in areas. A small gravel pit is found in the west half of this stand. Aspen is beginning to fall apart. Appropriate buffers for streams will eliminate near all harvestable area. This stand will be left and should convert to more of a white pine stand in the future.



Stand	Crystal Falls Mgt. Unit		Report 7 – Forested Stands			Compartment: 104 Year of Entry: 2020
	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
51	42260 - Natural Pine, Mixed Deciduous	Sawtimber Well	3.6	66	111-140	Natural pine and aspen island surrounded by alder. There is a small patch of dense red/white pine in the north and then scattered pine saplings and larger diameter aspen clones across the rest of the stand. With the required 300' buffer along with access issues to this stand it will be left unmanaged.
52	6120 - Lowland Cedar	Poletimber Well	9.8	83	141-170	Cedar lowland creek bottom.
54	4130 - Aspen	Sapling Well	33.0	36	111-140	Young aspen stand with paper birch. Red maple saplings 20'+ in under story. Remnant pine scattered. Small patch on the east side of Pine Creek Lake Road was not harvested and has larger older trees. OPIC - FMD: OI Stand Year Origin was 1982
55	6120 - Lowland Cedar	Poletimber Well	3.3	107	111-140	Lowland cedar with some black ash and tamarack mixed in more to the north. Old barbed wire fence meanders across the middle of this stand running north/south.
56	4116 - Mixed N. Hardwood - Aspen	Poletimber Well	7.2	66	111-140	Even aged hardwood pole stand with a good component of large, degrading aspen mixed in. Some small patches of paper birch. Stand appears to have never been thinned. A slope runs across this entire stand, steeper in the west but still accessible. Average of 120BA. Could not find corners although a barbed wire fence borders most of the south and east sides. Age was estimated from adjoining stands.
59	4110 - Sugar Maple Association	Poletimber Well	8.7	31	51-80	The west half of this stand can never be accessed. There is a 3.5 acre patch in the east half that could be managed in the future. Inventory is based on the east half. This is a hardwood sapling/pole stand that is cut in half by a steep, wet lowland drainage making the west half inaccessible. Large remnant aspen is scattered within. OPIC - FMD: . INACCESSIBLE.
63	4139 - Aspen, Mixed Deciduous	Poletimber Well	20.7	53	111-140	Nice aspen in stand. Mixed ages and species of aspen but dominant bigtooth averages 12"+ and 52 years old. Component of mixed hardwood found in under story or openings in aspen. This stand was split from the hardwoods to the south due to the current high density aspen cover.
65	4119 - Mixed Northern Hardwoods	Sawtimber Well	115.3	91	111-140	Hardwood stand that has a mixed area of pole and log sized trees. Beech in stand is infested with BBD. Crowns are in good shape yet but scale is bad, nearly 100% infected. Beech ranges from scattered to more dense patches across this stand. Scattered red oak found across entire stand. Knobs of younger hemlock found mainly in the southwest. Black ash pockets and drainage are found within. Rocky, rolling terrain. Better quality found on the west side of this stand. OPIC - FMD: CUT IN 1997 AS 'DOC'S RETREAT' SALE.
67	6115 - Lowland Ash	Poletimber Well	7.8	96	111-140	Lowland stand, mainly black ash.
401	42200 - Natural White Pine	Sapling Poor	5.2	15	Immature	Opening that seeded in dense with 20' white pine saplings/poles. Average 3"-4" diameter. About 1/3 of this stand is fully stocked.



Stand	Cover Type	Acres	Managed Site	General Comments:
6	6230 - Cattail	3.8	No	Cattail marsh
8	6230 - Cattail	26.9	No	
11	6220 - Alder/willow	4.8	No	Lowland patch. Dead standing cedar with scattered live cedar saplings and abundant alder.
17	500 - Water	36.1	No	
21	6230 - Cattail	5.6	No	Cattail marsh
53	500 - Water	12.0	No	Lake with cattail/lowland shrub perimeter.
61	212 - Non-tilled Herbaceous Agricult	1.5	No	Grass opening. Fenced in by private owner. WLD was notified about issue.
64	122 - Road/Parking Lot	1.9	No	OPIC - FMD: Pine Creek Lake road.
403	3102 - Grass	20.2	No	Grass opening with scattered black cherry across the entire field.