



Compartment Review Presentation

Crystal Falls Forest Management Unit

Compartment 12010

Entry Year 2019

Acreage: 3,339

County Dickinson

Management Area: Ralph Ground Moraine

Revision Date: 2017-08-13

Stand Examiner: Deb Goupell

Legal Description:

T44N R29W Sec 13-15,21-24,27-29,33,34

Identified Planning Goals:

Manage for best tree species based on Kotar habitat recommendations. Maintain a sustainable, healthy forest with diversity. Optimize sustainable timber production while enhancing and protecting wildlife habitat. Continue to sustainably balance the aspen age class acres. Protect the riparian areas and transition zones during management activity.

Soil and topography:

Rolling hills with large boulders, well drained soils for the most part.

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

State land in and around this compartment; a few private parcels on the southwest and northwest edge.

Unique Natural Features:

Archeological, Historical, and Cultural Features:

None

Special Management Designations or Considerations:

Small portion in deer wintering complex.

Watershed and Fisheries Considerations:

Headwaters of McGregor Creek and the North Branch of the Ford River form boundaries for this compartment. All trout streams will be buffered 300 feet.

Wildlife Habitat Considerations:

The featured species for this MA include deer, bear, grouse, woodcock, and northern goshawk. This compartment includes both wildlife purchased land and DWC. MNFI has suggested this compartment has the potential for goshawk, red-shouldered hawk, great blue heron rookery, eagle and osprey. Potential for wood turtle along drainages. The potential for moose in lowlands and along riparian habitat corridors. Wolves has long frequented the Big Wheel country. The historic Floodwood deeryard is located in this compartment, which is currently delineated as Iron-Floodwood DWC. Transition zones and riparian corridor are very important as components for the DWC and provide critical wildlife habitat. Aspen age and stand size diversity are important for deer, grouse, woodcock, bear and snowshoe hare in this compartment.

Mineral Resource and Development Concerns and/or Restrictions

Gravel pits are not located in the area, but there could be potential for sand and gravel within the compartment. Bedrock consists of igneous and metamorphic rocks that may have value as dimension stone where bedrock is at or near the surface. There has been no metallic mineral mining within ten miles of the compartment. Iron formations have been mapped to the west and south, but there does not appear to be any iron ore potential within the compartment. Metallic mineral potential appears to be low, but there has been recent leasing activity in the area. There is no economic oil and gas production in the UP.

Vehicle Access:

Big Wheels Road is the primary artery for access through this compartment. Multiple two-tracks branch off this road. Two Mile Creek Road is a county road in the Southern part of compartment.

Survey Needs:

Sec 33

Recreational Facilities and Opportunities:

The Big Wheels Road is also a snowmobile trail. Many people enjoy this area to hunt, fish, trap, camp and snowmobile.

Fire Protection:

Crystal Falls and Felch fire protection area.

Additional Compartment Information:

The following reports from the Inventory are attached:

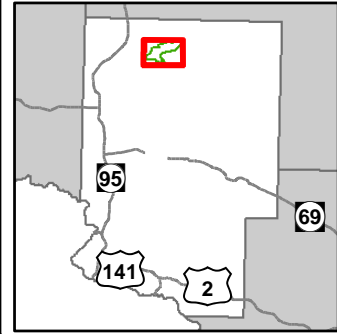
- Total Acres by Cover Type and Age Class**
- Cover Type by Harvest Method**
- Proposed Treatments – No Limiting Factors**
- Proposed Treatments – With Limiting Factors**
- Stand Details (Forested and Nonforested)**
- Dedicated and Proposed Special Conservation Areas**
- Site Condition Details**

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

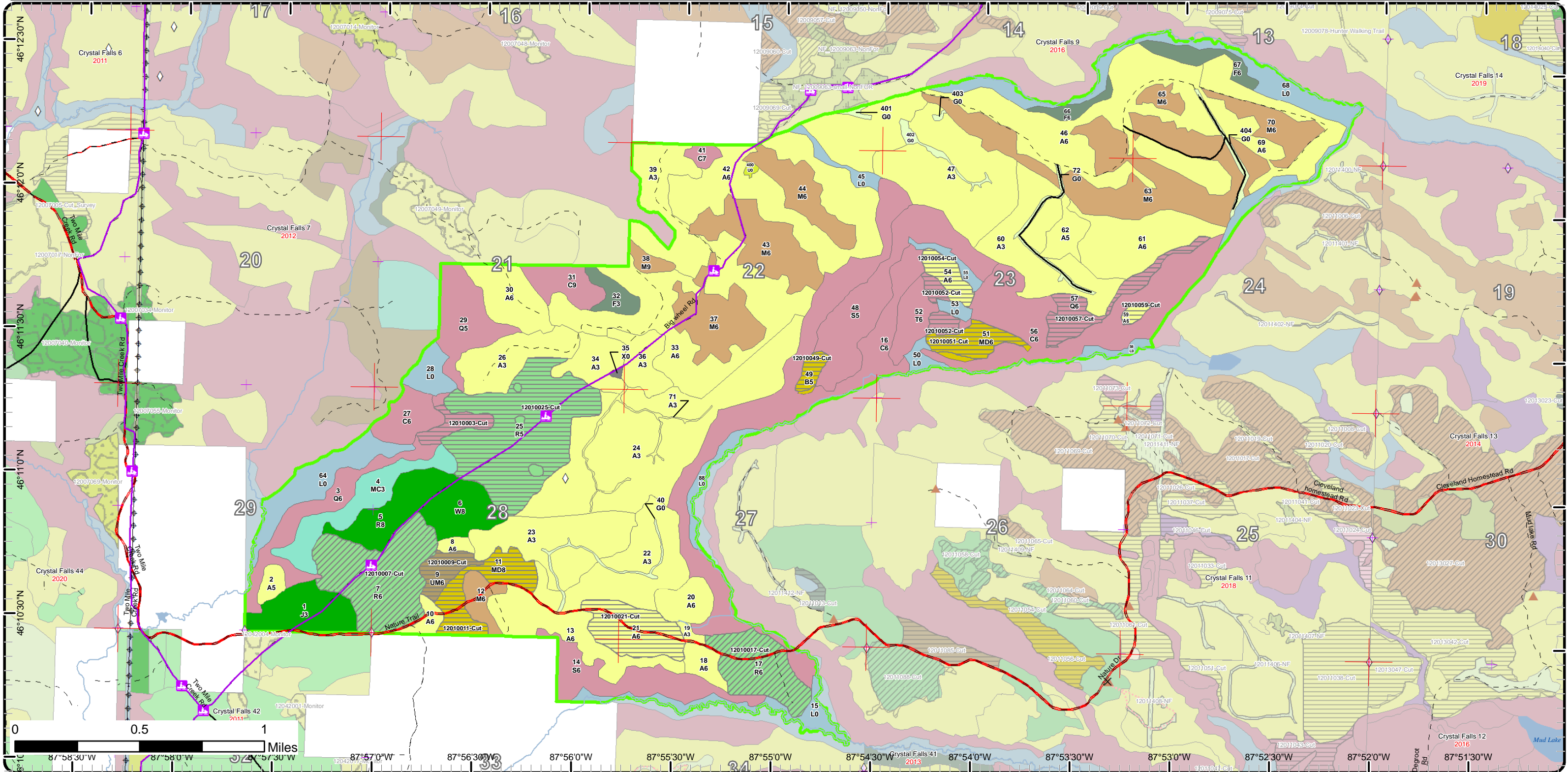
- Base feature information, stand boundaries, cover types, and numbers**
- Proposed treatments**
- Site condition boundaries**
- Details on the road access system**

Cover Type & Treatments Map

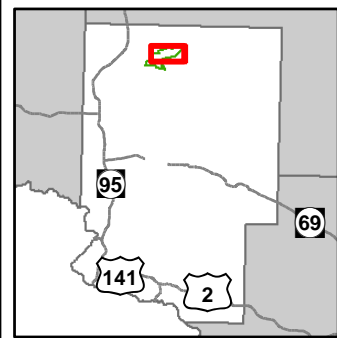
Compartment: 10
 T44N, R29W, Sec. 13, 22-27, 34-36
 County: Dickinson
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 YOE: 2019
 Acres: 3339.3 GIS Calculated
 Examiner: Deb Goupell
 Map Revised: 11/30/2017
 Map Phase: Post-Review



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| <ul style="list-style-type: none"> — Miris Corners — Remonumented Section Corners ◇ Field Grade GPS Corners — Counties ✕ Gate ▲ Berms 🚙 Snowmobile Trails — Designated Snowmobile Trails — Paved Roads — County Gravel Roads — Poor Dirt Roads — Closed — Streams — Lakes and Rivers All | <ul style="list-style-type: none"> ▭ Compartment Boundary ▭ Clearcut (w/Reserves) ▨ Thinning (Crown, Low, Systematic) ■ 411 - Northern Hardwood ■ 413 - Aspen ■ 419 - Mixed Upland Deciduous ■ 421 - Planted Pines ■ 422 - Natural Pines ■ 423 - Other Upland Conifers ■ 429 - Mixed Upland Conifers ■ 430 - Upland Mixed Forest ■ 612 - Lowland Coniferous Forest ■ 122 - Roads/Parking Lot ■ 310 - Herbaceous Openland ■ 330 - Low Density Trees | <ul style="list-style-type: none"> ■ 622 - Lowland Shrub ■ Lakes |
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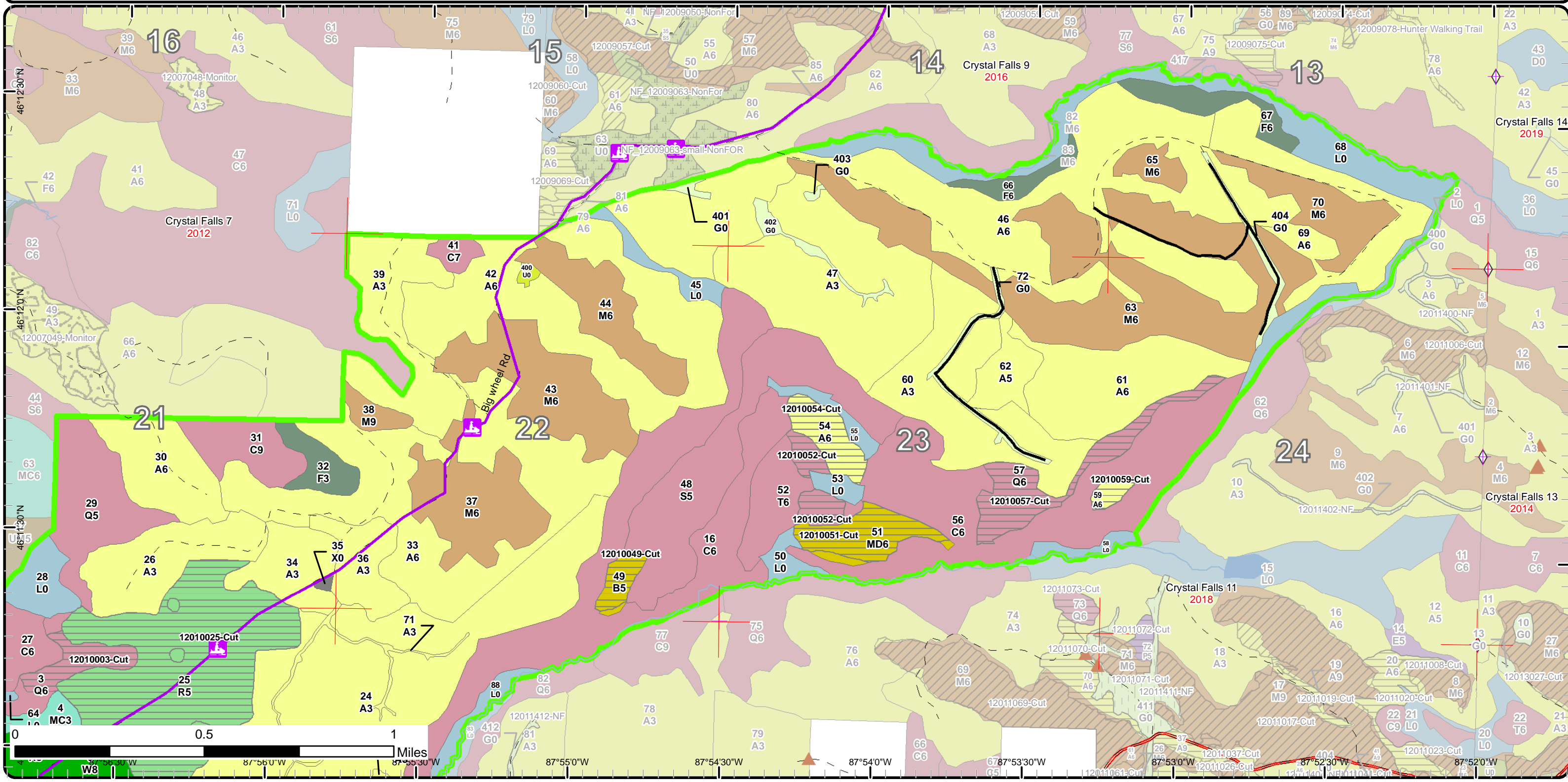


Cover Type & Treatments Map

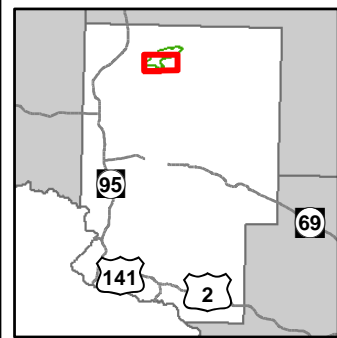


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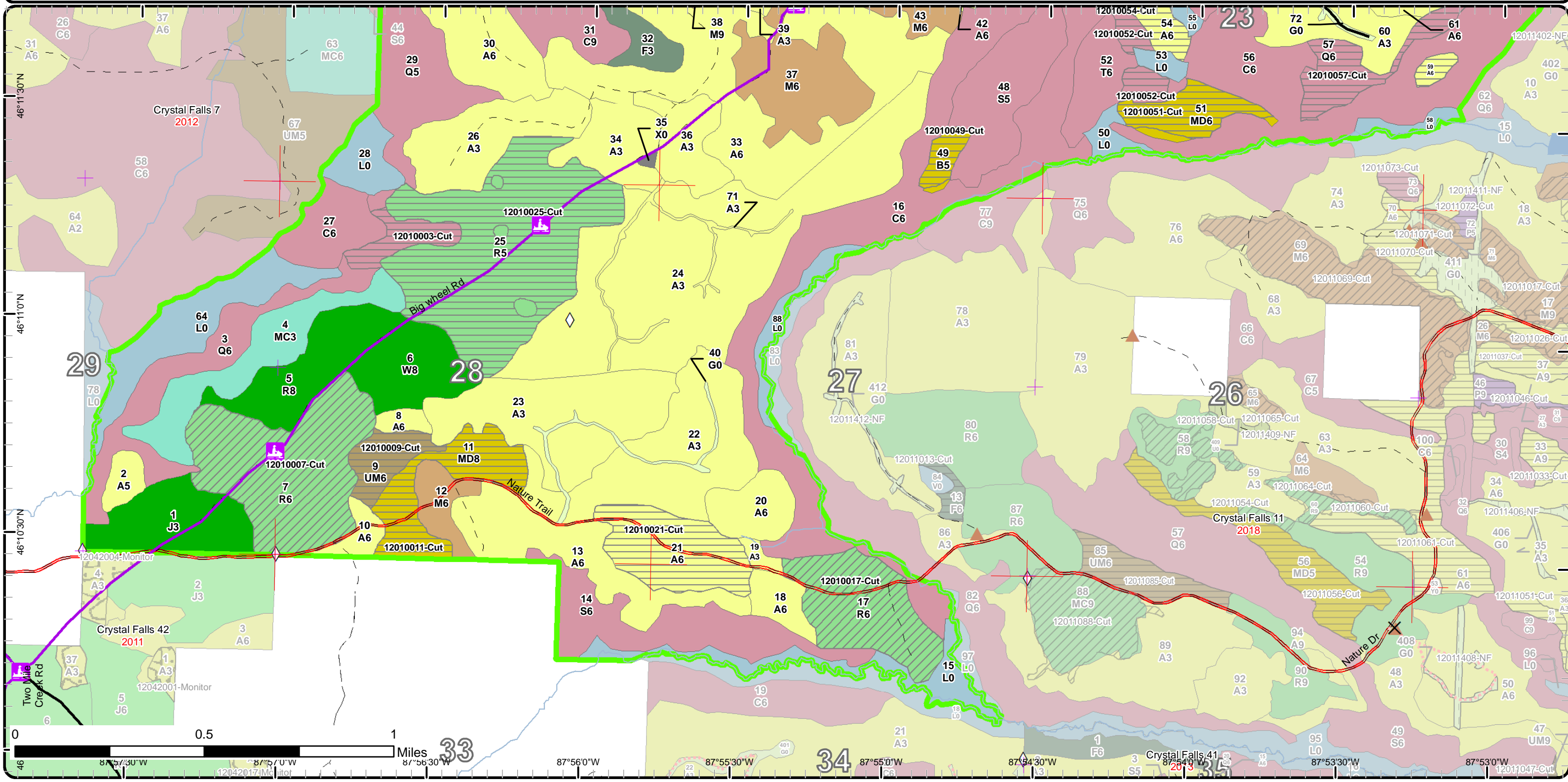


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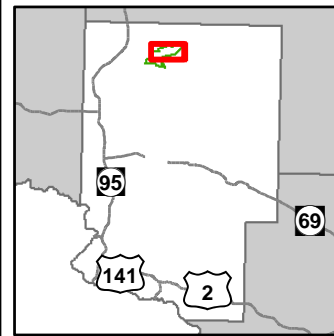
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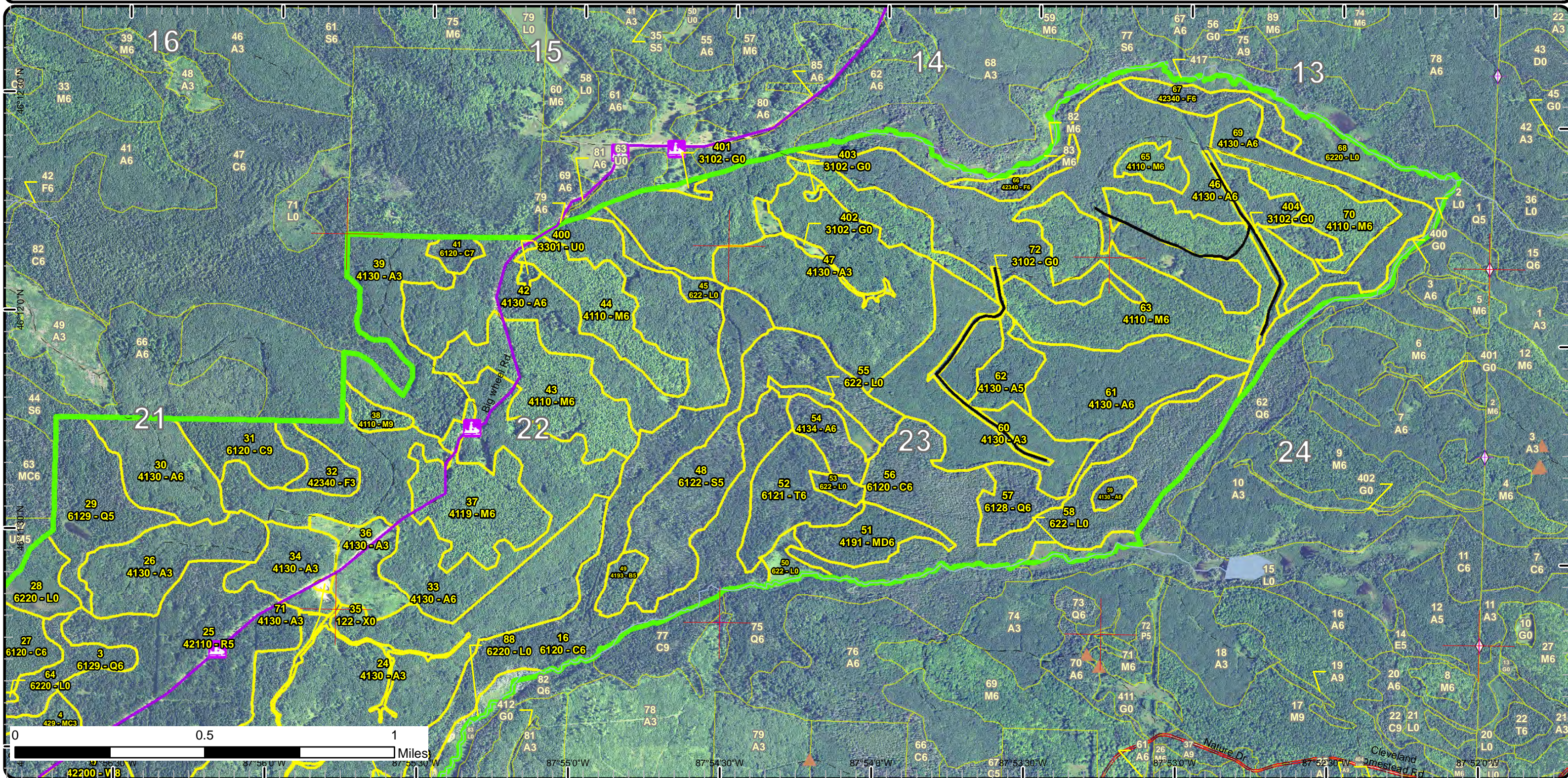


Stand Boundary Map

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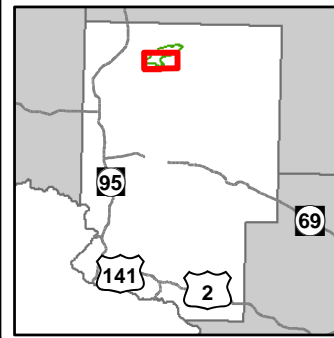


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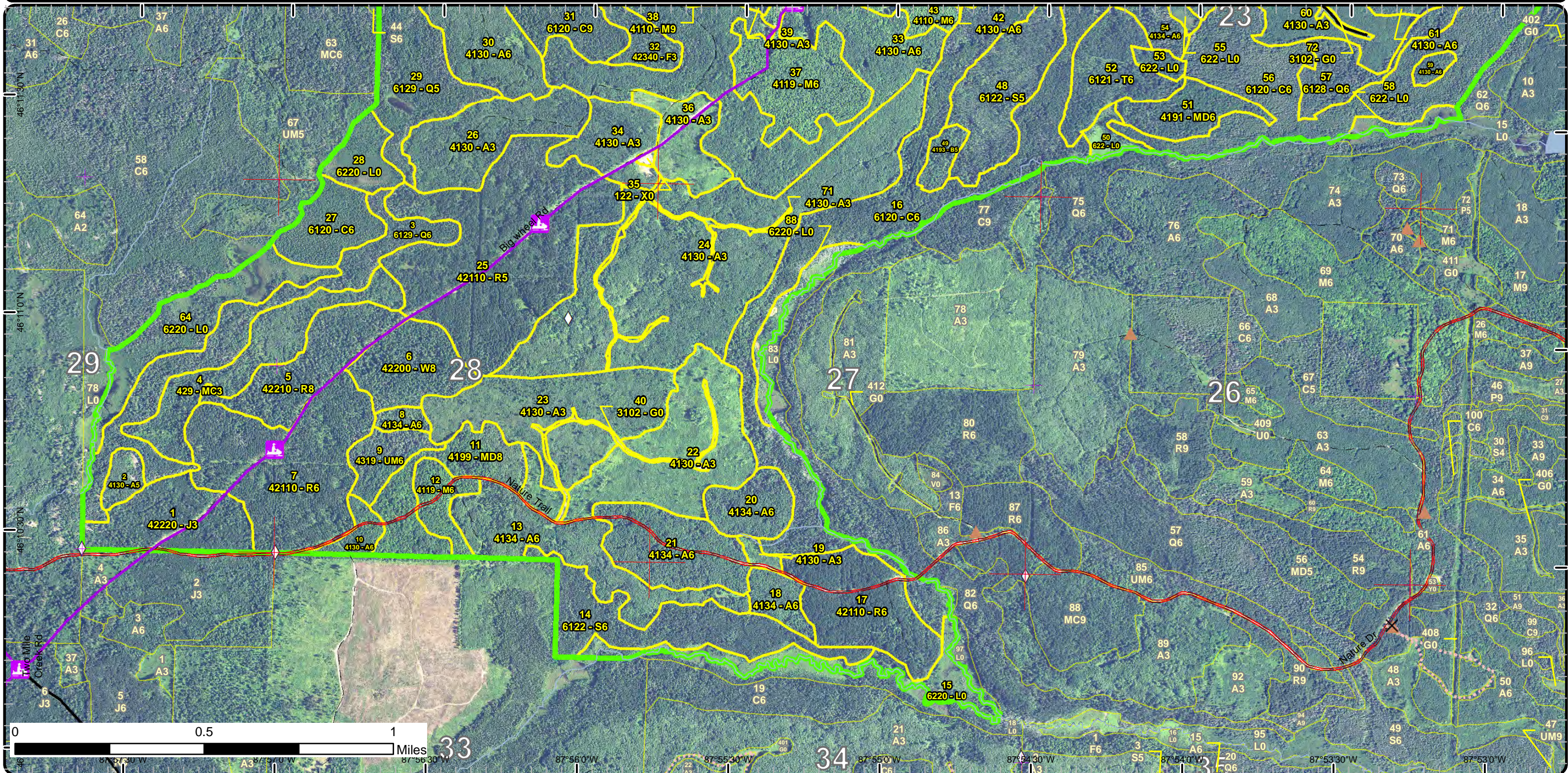


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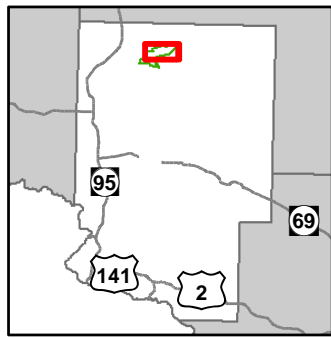


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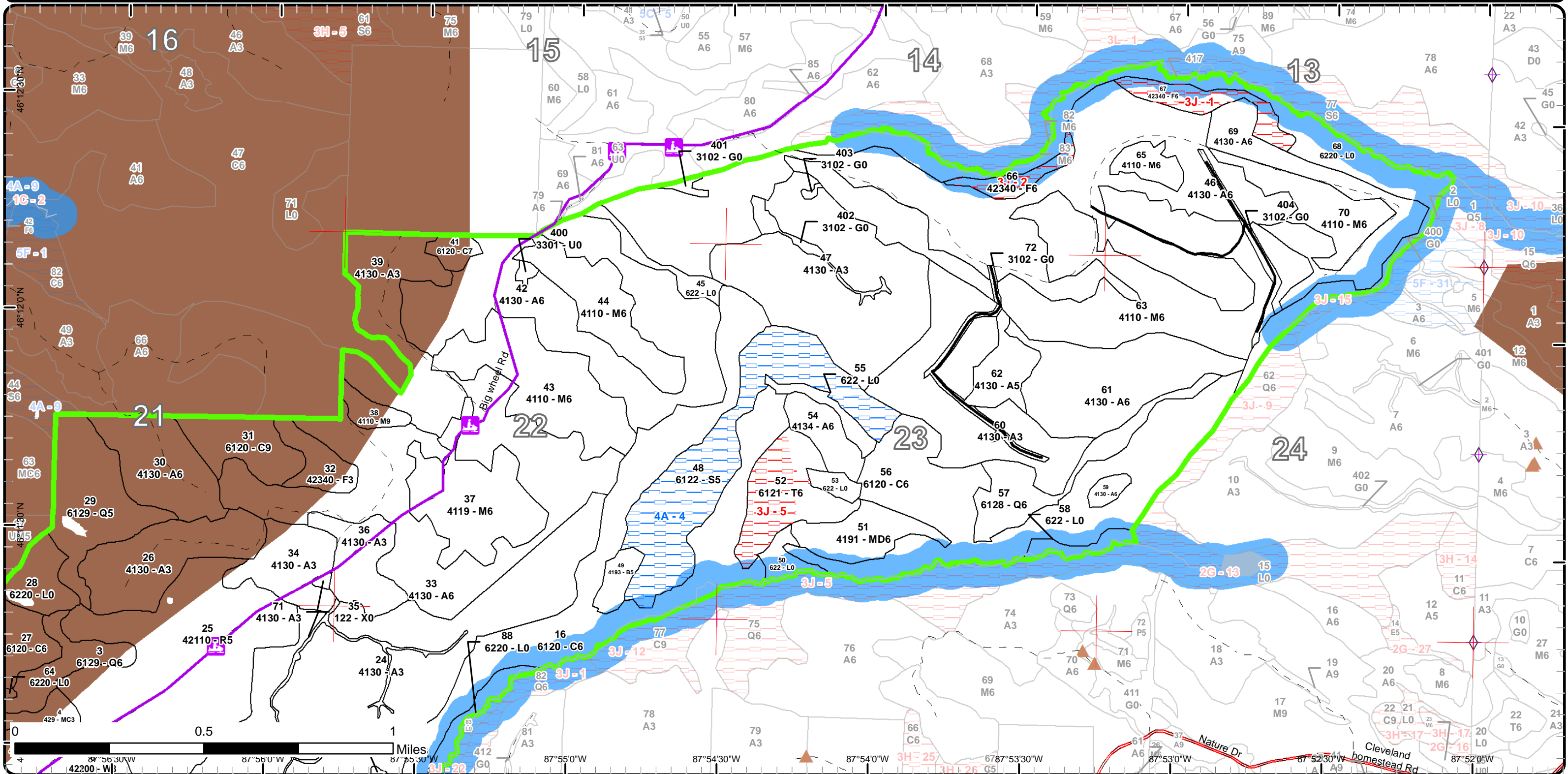


Special Conservation Areas & Site Conditions Map

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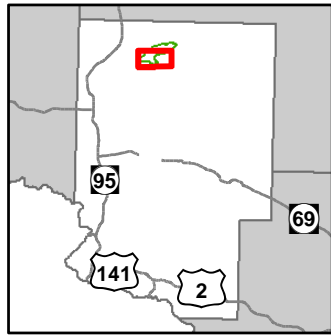


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- Compartment Boundary
- Available w/ Constraints
- Unavailable
- 4A: No Markets Available for these Forest Products
- 3J: Water quality / BMPs (stream, river, or lake)
- Stand Boundaries
- Cold Water Streams
- Cold Water Lakes
- High Priority Trout Stream Buffer
- Deer Winter Range

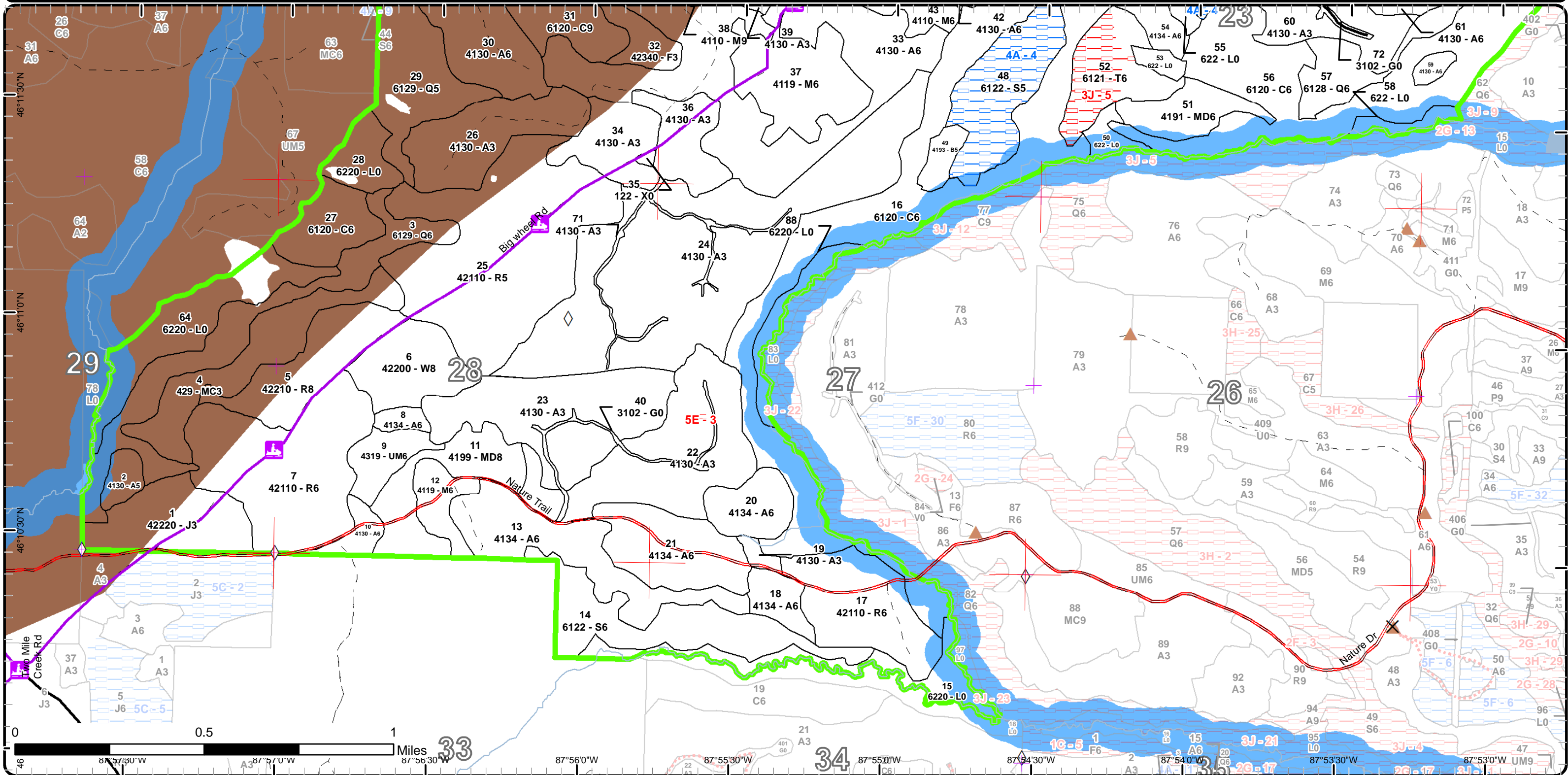


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- Streams
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- Compartment Boundary
- Available w/ Constraints
- Unavailable
- 4A: No Markets Available for these Forest Products
- 3J: Water quality / BMPs (stream, river, or lake)
- 5E: Long-Term Retention
- Stand Boundaries
- Cold Water Streams
- Cold Water Lakes
- High Priority Trout Stream Buffer
- Deer Winter Range



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	109	187	524	565	22	0	0	0	19	0	0	0	0	0	0	0	90	1515
Cedar	0	0	0	0	0	0	0	0	0	26	325	0	0	0	0	0	0	0	351
Herbaceous Openland	28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	28
Jack Pine	0	0	0	42	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42
Low-Density Trees	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Lowland Conifers	0	0	0	0	0	0	0	0	0	0	29	0	0	0	0	0	0	109	138
Lowland Shrub	209	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	209
Lowland Spruce/Fir	0	0	0	0	0	0	0	54	83	0	0	0	0	0	0	0	0	0	137
Mixed Upland Deciduous	0	0	0	0	0	0	0	0	0	23	0	0	0	0	0	0	0	37	60
Northern Hardwood	0	0	0	0	0	0	0	0	0	328	0	0	0	0	0	0	0	23	351
Paper Birch	0	0	0	0	0	0	0	0	0	8	0	0	0	0	0	0	0	0	8
Red Pine	0	0	0	0	0	0	286	0	0	0	0	0	0	0	0	0	0	42	328
Tamarack	0	0	0	0	0	0	0	0	0	35	0	0	0	0	0	0	0	0	35
Upland Conifers	0	0	0	46	0	0	0	0	0	0	0	0	0	0	0	0	0	0	46
Upland Mixed Forest	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16	16
Upland Spruce/Fir	0	0	0	0	0	0	0	26	0	0	0	0	0	0	0	0	0	14	40
Urban	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
White Pine	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	34	34
Total	240	109	187	612	565	22	286	0	80	472	404	0	0	0	0	0	0	365	3341



Report 2 – Treatment Summary

Crystal Falls Mgt. Unit
Year of Entry: 2019

Acres of Harvest

Compartment 10
Total Compartment Acres: 3,339

Commercial Harvest - 480
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	63	0	0	0	0	0	0	0	0	63
Lowland Conifers	42	0	0	0	0	0	0	0	0	42
Mixed Upland Deciduous	57	0	0	0	0	0	0	0	0	57
Paper Birch	8	0	0	0	0	0	0	0	0	8
Red Pine	138	0	0	0	0	145	0	0	0	282
Tamarack	12	0	0	0	0	0	0	0	0	12
Upland Mixed Forest	16	0	0	0	0	0	0	0	0	16
Total	335	0	0	0	0	145	0	0	0	480

Proposed and Next Step Treatments by Method

	Harvest	Site Prep	Planting	Seeding	Burning	Pesticide	Monitoring	Other	Non-Forest Mgt.	Total Acres
Current	480	0	0	0	0	0	0	16	0	496
Next Step	0	234	138	0	0	138	335	0	0	845
Total	480	234	138	0	0	138	335	0	16	1341



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
3	12010003-Cut	13.4	6129 - Mixed Coniferous Lowland Forest	Poletimber Well	89	111-140	Harvest	Clearcut with Retention	612 - Lowland Coniferous Forest	Even-Aged	Approved Proposal

Habitat Cut: No**Site Condition:**

Prescription Final Harvest using 2" spec. Leave all Cedar, Hemlock, Oak if found. Buffer any streams 100 feet. Recommend winter or dry summer
Specs: harvesting conditions.

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

Acceptable Aspen, Pine, Mixed Conifers, Mixed Hardwoods, Tamarack
Regen:

Other Treatment boundary adjusted 8/10/17 to include wildlife corridor.
Comment:

Proposed Start Date: 10/01/2018

7	12010007-Cut	92.4	42110 - Planted Red Pine	Poletimber Well	58	171-200	Harvest	Low Thinning	4211 - Planted Red Pine	Even-Aged	Approved Proposal
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Habitat Cut: No**Site Condition:**

Prescription Thin for quality targeting 1/3rd Pine volume removal. Also harvest other species using 2" spec except Cedar, Hemlock, Oak if found. Exclude
Specs: natural Pine pockets.

Next Step
Treatments:

Acceptable
Regen:

Other No residual BA target due to inconsistent stocking levels.
Comment:

Proposed Start Date: 10/01/2018

9	12010009-Cut	16.3	4319 - Mixed Upland Forest	Poletimber Well	81	111-140	Harvest	Clearcut with Retention	4319 - Mixed Upland Forest	Uneven-Aged	Approved Proposal
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Habitat Cut: No**Site Condition:**

Prescription Final Harvest using 2" spec. Leave all Oak, Hemlock, Pine if found. Also leave submerchantable conifers for future seed source. Scarify post
Specs: harvest using anchor chains to encourage Oak, Birch, and conifer regen.

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

Acceptable Aspen, Pine, Mixed Hardwoods, Mixed Conifers
Regen:

Other Desired future condition of White Pine, Red Maple, Spruce, Fir with minor mix of Aspen, Oak, and Birch.
Comment:

Proposed Start Date: 10/01/2018

11	12010011-Cut	36.6	4199 - Other Mixed Upland Deciduous	Sawtimber Medium	83	51-80	Harvest	Clearcut with Retention	4319 - Mixed Upland Forest	Uneven-Aged	Approved Proposal
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Habitat Cut: No**Site Condition:**

Prescription Final Harvest using 2" spec. Leave all Oak, Hemlock, Pine if found. Also leave submerchantable conifers for future seed source. Scarify post
Specs: harvest using anchor chains to encourage Oak, Birch, and conifer regen.

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

Acceptable Aspen, Pine, Mixed Hardwoods, Mixed Conifers
Regen:

Other Desired stand is White Pine and Red Maple with minor mix of Oak, Aspen, Spruce, Fir, Birch.
Comment:

Proposed Start Date: 10/01/2018



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
17	12010017-Cut	52.2	42110 - Planted Red Pine	Poletimber Well	58	141-170	Harvest	Low Thinning	4211 - Planted Red Pine	Even-Aged	Approved Proposal

Habitat Cut: No**Site Condition:**

Prescription Thin for quality targeting 1/3rd Pine volume removal. Also harvest other trees using 2" spec except Cedar, Hemlock, Oak if found.
Specs:

Next Step
Treatments:

Acceptable
Regen:

Other No residual BA target due to inconsistent stocking levels.

Comment:

Proposed Start Date: 10/01/2018

21	12010021-Cut	43.5	4134 - Aspen, Spruce/Fir	Poletimber Well	45	Unspecified	Harvest	Clearcut with Retention	4319 - Mixed Upland Forest	Even-Aged	Approved Proposal
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Habitat Cut: No**Site Condition:**

Prescription Final harvest using 2" spec. Leave all Oak, Hemlock, Pine if found. Also leave submerchantable conifers for future seed source.
Specs:

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

Acceptable Aspen, Pine, Mixed Conifers, Mixed Hardwoods
Regen:

Other Scarify post harvest using anchor chains to encourage Oak, Birch, and conifer regen.

Comment:

Proposed Start Date: 10/01/2018

25	12010025-Cut	137.8	42110 - Planted Red Pine	Poletimber Medium	58	111-140	Harvest	Clearcut with Retention	4211 - Planted Red Pine	Even-Aged	Approved Proposal
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Habitat Cut: No**Site Condition:**

Prescription Final Harvest using 2" spec. Buffer vernal ponds 100 feet. Exclude natural Pine pockets.
Specs:

Next Step Pesticide, Skidder/Mechanical; SitePrep, Trenching; Planting, Replant; Monitoring, Artificial Regen(3yr)
Treatments:

Acceptable Planted Red Pine
Regen:

Other Herbicide, Trench, Plant to Red Pine

Comment:

Proposed Start Date: 10/01/2018

49	12010049-Cut	7.5	4193 - Birch, Aspen	Poletimber Medium	91	81-110	Harvest	Clearcut with Retention	413 - Aspen	Even-Aged	Approved Proposal
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Habitat Cut: No**Site Condition:**

Prescription Cut all stems 2"dbh and greater except cedar and pine, if found. Retention on far south (reflected in treatment) as part of 300 ft buffer to N. Br. Ford River. Will be wet access.
Specs:

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

Acceptable aspen, mixed hardwood, mixed softwood
Regen:

Other
Comment:

Proposed Start Date: 10/01/2018



Stand Name	Treatment Name	Acres	Stand CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Age Structure	Approval Status
51	12010051-Cut	20.7	4191 - Mixed Upland Deciduous with Conifer	Poletimber Well	91	81-110	Harvest	Clearcut with Retention	4319 - Mixed Upland Forest	Even-Aged	Approved Proposal

Habitat Cut: No**Site Condition:**

Prescription Cut all stems 2"dbh and greater except white pine and cedar. Retention on far south and east, within 300 ft buffer to N. Br. Ford River; treatment reflects buffer.

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

Acceptable birch, aspen, mixed hardwood, mixed softwood
Regen:

Other Access into this stand will be tricky.
Comment:

Proposed Start Date: 10/01/2018

52	12010052-Cut	11.5	6121 - Tamarack	Poletimber Well	86	Unspecified	Harvest	Clearcut	6121 - Tamarack	Even-Aged	Approved Proposal
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Habitat Cut: No**Site Condition:**

Prescription Cut all stems 2"dbh and greater except cedar. Only a few acres of entire stand will be treated. Keep 100 ft from bed/bank

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

Acceptable tamarack, black spruce, balsam of gilead
Regen:

Other
Comment:

Proposed Start Date: 10/01/2018

54	12010054-Cut	15.3	4134 - Aspen, Spruce/Fir	Poletimber Well	91	Unspecified	Harvest	Clearcut	413 - Aspen	Even-Aged	Approved Proposal
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Habitat Cut: No**Site Condition:**

Prescription Cut all stems 2"dbh and greater except pine or cedar. No other retention due to small acreage and low vigor of stand.

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

Acceptable mixed aspen, mixed softwood, mixed hardwood
Regen:

Other
Comment:

Proposed Start Date: 10/01/2018

57	12010057-Cut	28.6	6128 - Lowland Coniferous, Mixed Deciduous	Poletimber Well	93	Unspecified	Harvest	Clearcut with Retention	612 - Lowland Coniferous Forest	Even-Aged	Approved Proposal
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Habitat Cut: No**Site Condition:**

Prescription Cut all stems 2"dbh and greater except cedar and pine. Winter cut only

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

Acceptable tamarack, black spruce, mixed conifer, balsam of gilead, aspen, mixed hardwood
Regen:

Other
Comment:

Proposed Start Date: 10/01/2018



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
59	12010059-Cut	4.1	4130 - Aspen	Poletimber Well	91	Unspec ified	Harvest	Clearcut	413 - Aspen	Even-Aged	Approved Proposal

Habitat Cut: No**Site Condition:**

Prescription Cut all stems 2" dbh and greater except cedar and white pine. no retention due to stand age and vigor and small acreage

Specs:

Next Step Monitoring, Natural Regen (Re-Inventory)

Treatments:

Acceptable aspen, mixed hardwood, mixed softwood

Regen:

Other

Comment:

Proposed Start Date: 10/01/2018

400	12010400-NF	1.5	3301 - Low Density Deciduous Trees	Nonstocked		Unspec ified	NonForestMgt	Other - Specify	3102 - Grass		Proposal
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Habitat Cut: No**Site Condition:**

Prescription Wildlife will maintain opening via mechanical or Rx burn.

Specs:

Next Step

Treatments:

Acceptable

Regen:

Other

Comment:

Proposed Start Date: 10/01/2018

401	12010401-NF	2.0	3102 - Grass	Nonstocked		Unspec ified	NonForestMgt	Other - Specify	3102 - Grass		Proposal
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Habitat Cut: No**Site Condition:**

Prescription Wildlife will maintain opening by mechanical or Rx burns.

Specs:

Next Step

Treatments:

Acceptable

Regen:

Other

Comment:

Proposed Start Date: 10/01/2018

402	12010402-NF	5.7	3102 - Grass	Nonstocked		Unspec ified	NonForestMgt	Other - Specify	3102 - Grass		Proposal
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Habitat Cut: No**Site Condition:**

Prescription wildlife will maintain opening by mechanical or Rx burn.

Specs:

Next Step

Treatments:

Acceptable

Regen:

Other

Comment:

Proposed Start Date: 10/01/2018



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
403	12010403-NF	0.7	3102 - Grass	Nonstocked		Unspecified	NonForestMgt	Other - Specify	3102 - Grass		Proposal

Habitat Cut: No

Site Condition:

Prescription Wildlife will maintain opening via mechanical or Rx burn.

Specs:

Next Step

Treatments:

Acceptable

Regen:

Other

Comment:

Proposed Start Date: 10/01/2018

404	12010404-NF	6.2	3102 - Grass	Nonstocked		Unspecified	NonForestMgt	Other - Specify	3102 - Grass		Proposal
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Habitat Cut: No

Site Condition:

Prescription Wildlife will maintain via mechanical or Rx burn.

Specs:

Next Step

Treatments:

Acceptable

Regen:

Other

Comment:

Proposed Start Date: 10/01/2018

**Total Treatment
Acreage Proposed: 496.0**

Report 4 – Site Conditions

Crystal Falls Mgt. Unit
 Deb Goupell : Examiner

Compartment: 10
 Year of Entry: 2019

Availability for Management

Total Acres	Acres Available	Acres Avail		Dominant Site Conditions	Dominant Site Conditions		
		With Condition	Not Available		4A	3J	5E
1516	1436	0	80	Aspen			80
352	352	0	0	Cedar			
28	22	0	5	Herbaceous Openland			5
42	42	0	0	Jack Pine			
2	2	0	0	Low-Density Trees			
137	137	0	0	Lowland Conifers			
209	209	0	0	Lowland Shrub			
137	54	83	0	Lowland Spruce/Fir	83		
59	59	0	0	Mixed Upland Deciduous			
351	351	0	0	Northern Hardwood			
8	8	0	0	Paper Birch			
327	327	0	0	Red Pine			
35	13	0	22	Tamarack		22	
46	46	0	0	Upland Conifers			
16	16	0	0	Upland Mixed Forest			
39	14	0	26	Upland Spruce/Fir		26	
1	1	0	0	Urban			
34	34	0	0	White Pine			
3,339	3,123	83	133	Total Forested Acres	83	48	85
	94%	2%	4%	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)	17	5F: Evaluated for Forest Health Considerations	Unspecified	Unspecified	Unspecified
Comments:							

Report 4 – Site Conditions

Crystal Falls Mgt. Unit

Deb Goupell : Examiner

Compartment: 10

Year of Entry: 2019

2	Unavailable	3J: Water quality / BMPs (stream, river, or lake)	9	5E: Long-Term Retention	5F: Evaluated for Forest Health Considerations	Unspecified	Unspecified
Comments:							
3	Unavailable	5E: Long-Term Retention	1	Unspecified	Unspecified	Unspecified	Unspecified
Comments:							
4	Available	4A: No Markets Available for these Forest Products	83	Unspecified	Unspecified	Unspecified	Unspecified
Comments: Small diameter and relatively poorly stocked at this time. Also quite wet							
5	Unavailable	3J: Water quality / BMPs (stream, river, or lake)	22	2G: Too wet (sensitive soils, does not include access issues)	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	Habitat Area	An area that provide some specific need for the life cycle of wildlife species, including State Wildlife Areas and Waterfowl Production Areas, deer wintering complexes in lowland conifer communities, grassland openings and savannas. Habitat areas are distinct from critical habitat designated for recovery of endangered or threatened species (such as Kirtland's warbler or piping plover areas) in that they are more general in nature, are not primarily associated with threatened or endangered species, and are not covered by species recovery plans that are developed in cooperation with Federal agencies.
SCA	Riparian Area	A transitional area between aquatic and terrestrial ecosystems in which the terrestrial ecosystem influences the aquatic ecosystem and vice-versa. Because of the unique conditions adjacent to lakes, streams and open water wetlands, riparian areas harbor a high diversity of plants and wildlife. Riparian communities are ecologically and socially significant in their effects on water quality and quantity, as well as aesthetics, habitat, bank stability, timber production, and their contribution to overall biodiversity.



	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
1	42220 - Natural Jack Pine	Sapling Well	42.4	25	Immature	Many scattered supercanopy Jack Pine, White Pine, Red Pine. Aspen pocket in SW corner.
2	4130 - Aspen	Poletimber Medium	8.2	42	Unspecified	Scattered supercanopy Pines throughout. Stand is a rocky outcropping with portions of exposed rock. Very poor, shallow soils. Conifers well represented in understory of sparse Aspen overstory.
3	6129 - Mixed Coniferous Lowland Forest	Poletimber Well	61.5	89	111-140	Mostly lowland with a few upland portions. Stand is a very large creek buffer from previous harvests.
4	429 - Mixed Upland Conifers	Sapling Well	46.4	26	Immature	Small lowland inclusion located to SW hold Tamarack. Many supercanopy conifers. Mixed conifers filling in nicely. More Aspen to North.
5	42210 - Natural Red Pine	Sawtimber Medium	41.6	83	51-80	All but Pine harvested 1991. Resulting stand is log sized Pines with pole sized Aspen, Spruce, Fir, Pine understory. Conifers filling in canopy gaps nicely. Stocking levels vary greatly. Overstory BAs 40-140. Overall merchantable BAs 100-200
6	42200 - Natural White Pine	Sawtimber Medium	34.1	97	1-50	Stand harvested 2003 where only Aspen, Maple, Birch was removed. Resulting stand is log sized overstory of Pine with pole sized understory of mixed conifers, and a sapling layer of Aspen.
7	42110 - Planted Red Pine	Poletimber Well	92.4	58	171-200	Thinned for access 2012. Many openings in plantation resulting from poor planting techniques. Aspen was overtopping planted Pine, then Aspen was removed. Stocking densities vary greatly. BAs range from 40-200+ due to species removal last harvest.
8	4134 - Aspen, Spruce/Fir	Poletimber Well	5.0	40	Unspecified	Trees starting to reach pole sized. Spruce/Fir filling in canopy gaps.
9	4319 - Mixed Upland Forest	Poletimber Well	16.3	81	111-140	Much Spruce Budworm damage observed. Many scattered Pines mixed throughout.
10	4130 - Aspen	Poletimber Well	8.8	40	Unspecified	Trees just starting to reach pole size. Much supercanopy Birch, Maple, Oak, Pine mixed throughout.
11	4199 - Other Mixed Upland Deciduous	Sawtimber Medium	36.6	83	51-80	Mixed deciduous log sized stand with pole sized Red Maple understory. Far Eastern side has a small 40 year old Aspen inclusion. Maple is poor quality due to fine sandy loam soils. Soils best suited for the climax species of White Pine and Red Maple with minor component of Oak, Birch, Spruce, Fir, Aspen. Portions of this stand were thinned 2012. Canopy BA 40-80. Overall merchantable BA 120-140.
12	4119 - Mixed Northern Hardwoods	Poletimber Well	15.6	79	51-80	Thinned 2012. Low quality hardwood stand due to fine sandy loam soils.
13	4134 - Aspen, Spruce/Fir	Poletimber Well	54.6	27	Immature	Trees starting to reach pole size. Tamarack in lowland portions of stand along edge



Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
14	6122 - Black Spruce	Poletimber Well	53.9	72	Unspecified	Black Spruce swamp with a couple very small upland inclusions. Older pocket in middle of stand.
16	6120 - Lowland Cedar	Poletimber Well	173.2	91	Unspecified	
17	42110 - Planted Red Pine	Poletimber Well	52.2	58	141-170	Red Pine plantation with other species of trees where plantation has failed. Thinned 2001.
18	4134 - Aspen, Spruce/Fir	Poletimber Well	12.8	36	Unspecified	Scattered supercanopy Pines
19	4130 - Aspen	Sapling Well	3.6	5	Immature	Harvested 2012
20	4134 - Aspen, Spruce/Fir	Poletimber Well	21.2	36	Unspecified	Scattered supercanopy Pines
21	4134 - Aspen, Spruce/Fir	Poletimber Well	43.5	45	Unspecified	Many different ages of Aspen. Stand was most likely high graded at one point. Pine mixed throughout. Spruce budworm damage is evident.
22	4130 - Aspen	Sapling Well	79.7	5	Immature	Harvested 2012. Supercanopy trees found throughout
23	4130 - Aspen	Sapling Well	75.0	15	Immature	Harvested 2002
24	4130 - Aspen	Sapling Well	191.2	26	Immature	Harvested 1991. Many supercanopy mixed conifers mixed throughout.
25	42110 - Planted Red Pine	Poletimber Medium	140.6	58	111-140	Highly variable stand. BAs range from 30 to 200+. Many openings within plantation resulting from poor planting techniques. Some Aspen, Spruce, and Fir was harvested in 2003. No Pine was harvested. The planted Pine is of poor form and has much defect.
26	4130 - Aspen	Sapling Well	46.4	26	Immature	Many Spruce, Fir, Pines left unharvested from last treatment.
27	6120 - Lowland Cedar	Poletimber Well	26.3	88	Unspecified	
29	6129 - Mixed Coniferous Lowland Forest	Poletimber Medium	46.9	91	Unspecified	Eastern edge of stand is transition zone ground. Tamarack in NW, Black Spruce in South and East, Cedar in middle.
30	4130 - Aspen	Poletimber Well	39.0	37	Unspecified	Healthy Aspen stand. Spruce/Fir understory well represented.
31	6120 - Lowland Cedar	Sawtimber Well	24.5	96	Unspecified	Thick log sized Cedar stand with small Black Ash inclusion.



Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
32	42340 - Upland Spruce/Fir	Sapling Well	13.7	11	Immature	Scattered conifers in supercanopy. Stand is result of natural succession. Overstory has fallen out of stand due to old age and in now regenerating well. Thick Spruce/Fir sapling stand growing on transition zone ground.
33	4130 - Aspen	Poletimber Well	138.9	37	Unspecified	cut 1980
34	4130 - Aspen	Sapling Well	27.7	18	Immature	Many pole sized Pines scattered throughout stand.
36	4130 - Aspen	Sapling Well	25.3	4	Immature	Harvested 2013, Big Wheel Hwd. Scattered Birch, Oak and Pine in supercanopy.
37	4119 - Mixed Northern Hardwoods	Poletimber Well	51.7	88	81-110	Stand thinned in 2013 under Big Wheel Hardwood sale # 12-062-09-01
38	4110 - Sugar Maple Association	Sawtimber Well	7.5	99	81-110	Cut in 2013.
39	4130 - Aspen	Sapling Well	57.2	23	Unspecified	Harvested 1994. Aspen starting to reach pole size. Scattered Oak and Pine in supercanopy. Small Fir inclusion on West side.
41	6120 - Lowland Cedar	Sawtimber Poor	6.1	96	Unspecified	Waucedah-Cathro soil complex. Very poorly drained soils located in depressions of flood plains. Many non-stocked areas. Cedar growing in veins and patches.
42	4130 - Aspen	Poletimber Well	121.4	37	Unspecified	Stand Year Origin was 1980
43	4110 - Sugar Maple Association	Poletimber Well	57.4	88	81-110	Stand thinned in 2013 under Big Wheel Hardwood sale#12-062-09-01
44	4110 - Sugar Maple Association	Poletimber Well	36.3	88	81-110	Stand thinned in 2013 under Big Wheel Hardwood sale# 12-062-09-01
46	4130 - Aspen	Poletimber Well	215.7	37	Unspecified	Sugar maple saplings typically 2-3 chains of hardwood stands. Smaller aspen in narrow swath on south west edge of stand where trail runs south into stand 60
47	4130 - Aspen	Sapling Well	109.6	28	Immature	cut 1989
48	6122 - Black Spruce	Poletimber Medium	83.0	80	Unspecified	Stand is very wet and poorly stocked. Most of the balm of gilead is dead. Thick balsam fir understory in places, with some black spruce seedlings <1ft abd even a couple cedar seedlings! Couple of trees in far north finger have mistletoe.
49	4193 - Birch, Aspen	Poletimber Medium	8.0	91	81-110	Much of the white spruce and much of the birch is half dead and breaking apart



Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
51	4191 - Mixed Upland Deciduous with Conifer	Poletimber Well	22.7	91	81-110	Lots of white spruce/balsam blowdown. Current spruce & fir are dying; white birch breaking apart. Pockets of red maple saplings throughout
52	6121 - Tamarack	Poletimber Well	35.1	86	Unspecified	There is a bed and bank in here. Southeast cut is where tamarack is larger; northeast cut is heavier to black spruce. Very variable stand; proposed cuts where stand is most merchantable
54	4134 - Aspen, Spruce/Fir	Poletimber Well	15.3	91	Unspecified	Lots of conifer blowdown. Overmature stand -- needs cutting now or never. White spruce and aspen are both breaking up.
56	6120 - Lowland Cedar	Poletimber Well	121.5	95	Unspecified	Cedar crowns not looking good - thin tops on east side of stand 51. Good and thick in many places, however.
57	6128 - Lowland Coniferous, Mixed Deciduous	Poletimber Well	28.6	93	Unspecified	Stand is quite wet. Aspen is falling out. Cedar is primarily on the north transition to stand 60. Access stand 51 from this stand?
59	4130 - Aspen	Poletimber Well	4.1	91	Unspecified	Stand is breaking up; not much conifer except on edges
60	4130 - Aspen	Sapling Well	77.4	18	Immature	
61	4130 - Aspen	Poletimber Well	63.8	28	Immature	Very little BF/WS in understory yet
62	4130 - Aspen	Poletimber Medium	16.3	37	Unspecified	Stand is closer to 75% stocked than 100%
63	4110 - Sugar Maple Association	Poletimber Well	144.4	88	81-110	Old ELF Hardwoods sale #12-067-09-01 thinned and completed 12/3/10.
65	4110 - Sugar Maple Association	Poletimber Well	9.6	88	81-110	Old Elf Hardwoods thinned 2010
66	42340 - Upland Spruce/Fir	Poletimber Well	9.0	71	Unspecified	Entire stand in 300 ft buffer to headwaters of McGregor Creek; was retention for stand 46 cut
67	42340 - Upland Spruce/Fir	Poletimber Well	16.8	71	Unspecified	Within 300 feet of McGregor Ck headwaters. west end is wetter
69	4130 - Aspen	Poletimber Well	47.8	28	Immature	
70	4110 - Sugar Maple Association	Poletimber Well	28.7	88	81-110	Old ELF Hardwood sale #12-067-09-01 thinned and completed 12/3/10. Fair amount of multi-stemmed sugar maple poles
71	4130 - Aspen	Sapling Well	6.4	18	Immature	Many pole sized Pines scattered throughout stand.



Stand	Cover Type	Acres	Managed Site	General Comments:
15	6220 - Alder/willow	28.7	No	OPIC - FMD: Carbondale-Cathro mucks soil complex.
28	6220 - Alder/willow	16.8	No	
35	122 - Road/Parking Lot	0.9	No	Gravel Pit opened 2015
40	3102 - Grass	5.3	No	Hunter Walking Trail
45	622 - Lowland Shrub	9.3	No	OPIC - FMD: OI Stand Year Origin was
50	622 - Lowland Shrub	7.1	No	
53	622 - Lowland Shrub	4.8	No	OPIC - FMD: OI Stand Year Origin was
55	622 - Lowland Shrub	6.9	No	
58	622 - Lowland Shrub	6.4	No	
64	6220 - Alder/willow	45.0	No	OPIC - FMD: OI Stand Year Origin was
68	6220 - Alder/willow	70.9	No	OPIC - FMD: OI Stand Year Origin was
72	3102 - Grass	7.7	No	Hunter Walking Trail
88	6220 - Alder/willow	12.8	No	
400	3301 - Low Density Deciduous Tree	1.5	No	stand is filling in
401	3102 - Grass	2.0	No	OPIC - FMD: OI Stand Year Origin was
402	3102 - Grass	5.7	No	OPIC - FMD: OI Stand Year Origin was
403	3102 - Grass	0.7	No	OPIC - FMD: OI Stand Year Origin was
404	3102 - Grass	6.2	No	OPIC - FMD: OI Stand Year Origin was