



Compartment Review Presentation

Crystal Falls Forest Management Unit

Compartment 12024

Entry Year 2017

Acreage: 3,062

County Dickinson

Management Area: Ralph Ground Moraine

Revision Date: 2015-08-05

Stand Examiner: Andrew Church

Legal Description:

T44N R27W Sections 13-15, 21-28

Identified Planning Goals:

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

Soil and topography:

This compartment is mostly Cathro mucks in the lowlands and fine sands in the uplands. The terrain is small rolling hills.

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

Most of this compartment is contiguous State of Michigan with the exception of a few private landowners. Snowmobiling, hunting, fishing, trapping, and camping are the main recreational use patterns.

Unique Natural Features:

Cady Creek, Big Brook Creek, West Branch of Escanaba River.

Archeological, Historical, and Cultural Features:

No Archeological, Historical, or Cultural Features known.

Special Management Designations or Considerations:

Cold water stream designation on Big Brook Creek and West Branch of Escanaba River.

Watershed and Fisheries Considerations:

The West Branch of the Escanaba River runs through this compartment and is a Type I Trout Stream. Buffers should be 300 feet. Streams, regardless of their size or frequency of flow, are connected to downstream waters and strongly influence their function. Additionally, wetlands and open waters in riparian areas and floodplains are physically, chemically, and biologically integrated with rivers via functions that improve downstream water quality. These systems act as effective buffers to protect downstream waters from pollution and are essential components of river food webs. BMP's should be implemented to control sediment sources from adjacent uplands. Fine sediments such as silt and sand negatively affect natural reproduction of fish, decrease the diversity of aquatic invertebrate and fish taxa, and result in lower overall fish populations.

Wildlife Habitat Considerations:

This compartment falls within the historic Cady Creek Deer Wintering Complex. White pine, cedar, hemlock, spruce and fir canopy closure for winter thermal cover, travel corridors, transition to upland winter forage and are critical habitat components for deer and that is why deer were selected as a featured species. Bear are also highly dependent on the lowland conifer and lowland hardwood habitat, refuge trees, riparian habitat, drainages and vernal pools to meet their needs. This compartment provides valuable habitat for bears, deer, furbearers, amphibians and reptiles.

Mineral Resource and Development Concerns and/or Restrictions

Surface sediments consist primarily of peat and muck. There is insufficient data to determine the glacial drift thickness. The Cambrian Trempealeau and Munising formations subcrop below the glacial drift. The Trempealeau could be used for stone. Abandoned iron mines are located approximately ten miles to the northeast. A gravel pit is located one-half mile to the east in Section 18 (T44N R26W), and there appears to be gravel potential on the drumlins. Part of the compartment was previously leased for metallic mineral exploration and potential may still exist. There is no economic oil and gas production in the UP.

Vehicle Access:

Access is limited to the interior portions of this compartment due to the wet soils. County Road 581 is along the South side, Cady Creek Rd. along the West side, and Little Brook Road along the North.

Survey Needs:

A few corner may need to be established.

Recreational Facilities and Opportunities:

Snowmobile Trail #32 along North side.

Fire Protection:

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

Additional Compartment Information:

The following reports from the Inventory are attached:

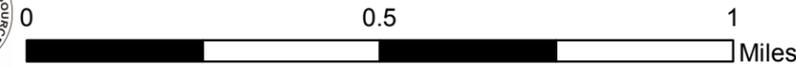
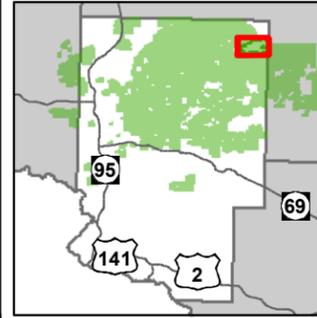
- Total Acres by Cover Type and Age Class**
- Cover Type by Harvest Method**
- Proposed Treatments – No Limiting Factors**
- Proposed Treatments – With Limiting Factors**
- Stand Details (Forested and Nonforested)**
- Dedicated and Proposed Special Conservation Areas**
- Site Condition Details**

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

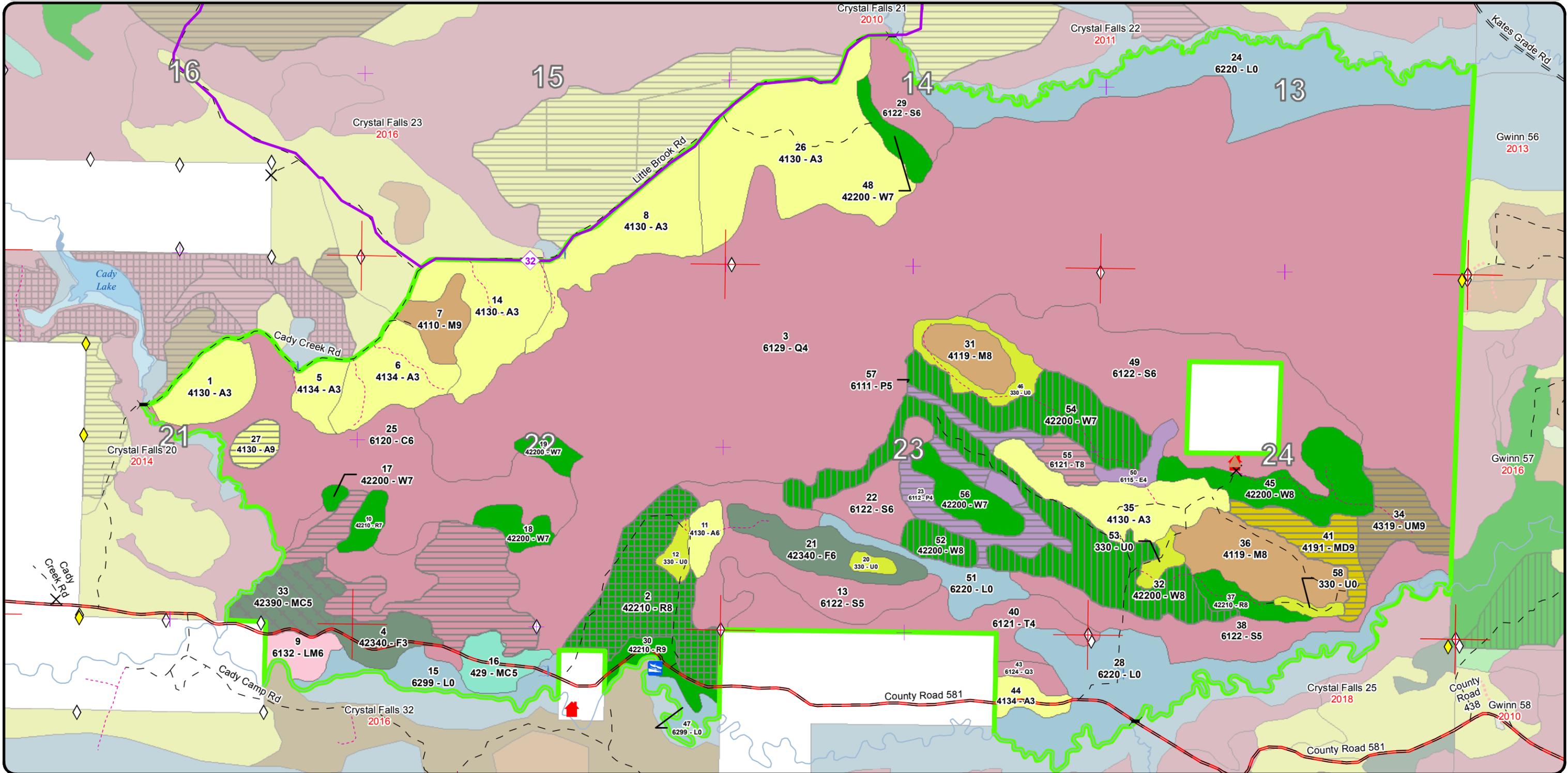
- Base feature information, stand boundaries, cover types, and numbers**
- Proposed treatments**
- Site condition boundaries**
- Details on the road access system**

Cover Type & Treatments

Compartment: 24
 T44N R27W 13-15, 21-28
 County: Dickinson
 Unit: Crystal Falls
 Mgmt Area: Ralph Ground Moraine
 YOE: 2017
 Acres: 3062 GIS Calculated
 Examiner: Andrew Church
 Map Revised: 8/27/2015
 Map Phase: Pre-Review

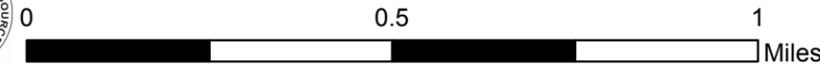
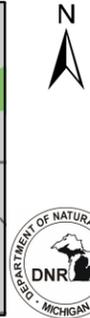
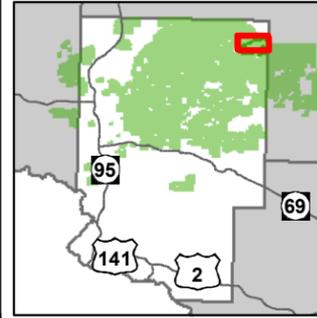


- ✚ Remonumented Section Corners
- ◆ Survey Grade GPS Corners
- ◇ Field Grade GPS Corners
- Miris Corners
- County Gravel Roads
- = Gravel Roads
- - Poor Dirt Roads
- - - Trail (Non-Recreation)
- ⋯ Closed Roads
- Snowmobile
- ✕ Gate
- ▲ Berms
- ✚ Bridges
- Culverts
- Boating Access Site
- Rivers
- Lakes
- Treatments
- Clearcut (w/Reserves)
- Salvage
- Shelter Wood (w/Reserves)
- Seed Tree (w/Reserves)
- Forest Covertype
- 411 - Northern Hardwood
- 413 - Aspen
- 419 - Mixed Upland Deciduous
- 422 - Natural Pines
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- 430 - Upland Mixed Fores
- 611 - Lowland Deciduous Forest
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- 613 - Lowland Mixed Forest
- Non-Forest Covertype
- 330 - Low Density Trees
- 622 - Lowland Shrub

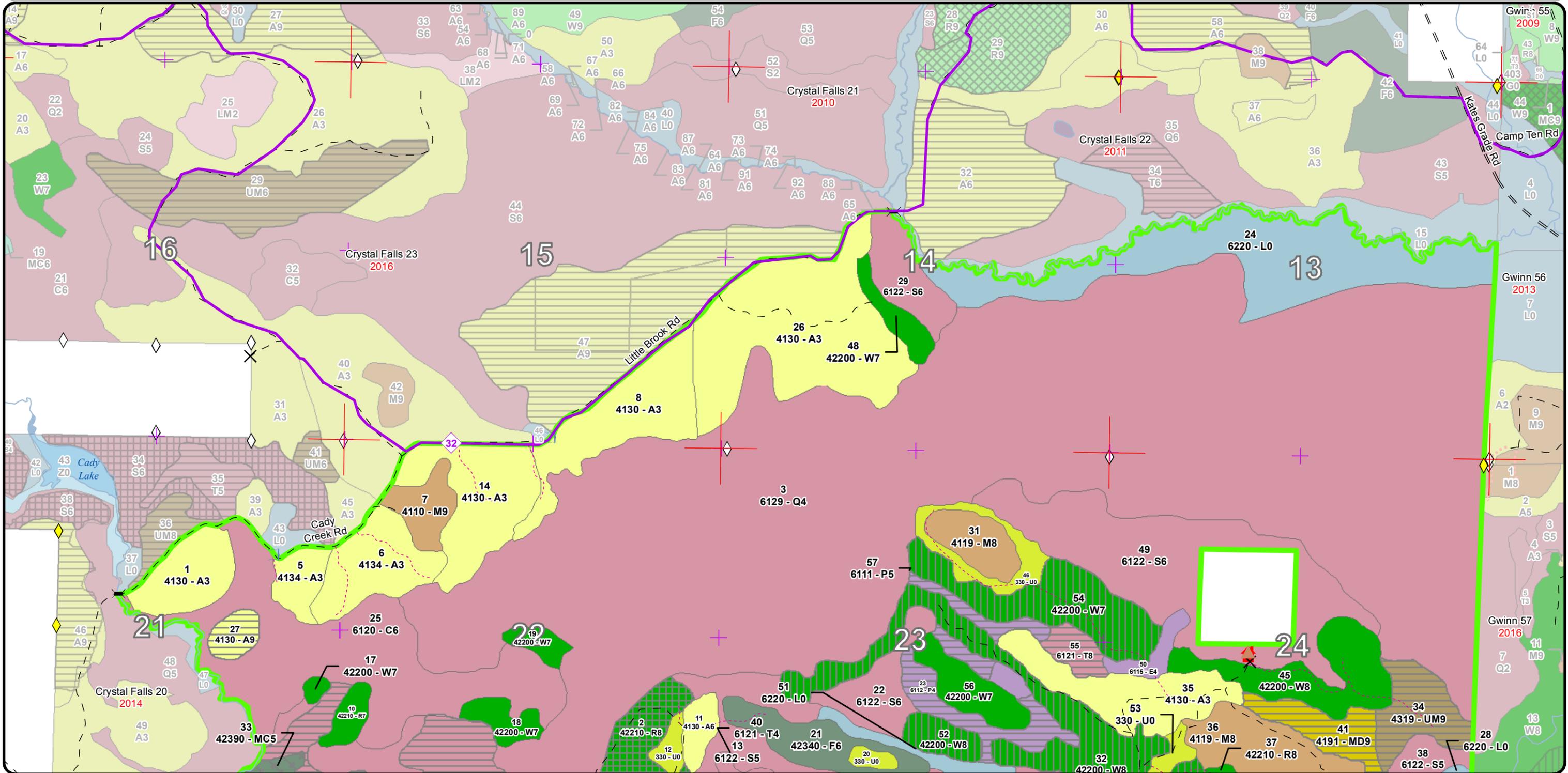


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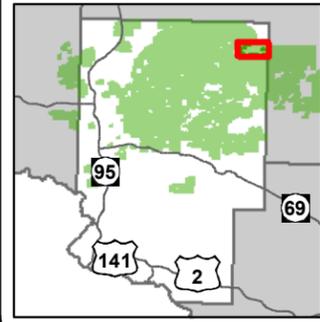
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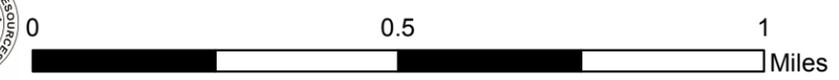
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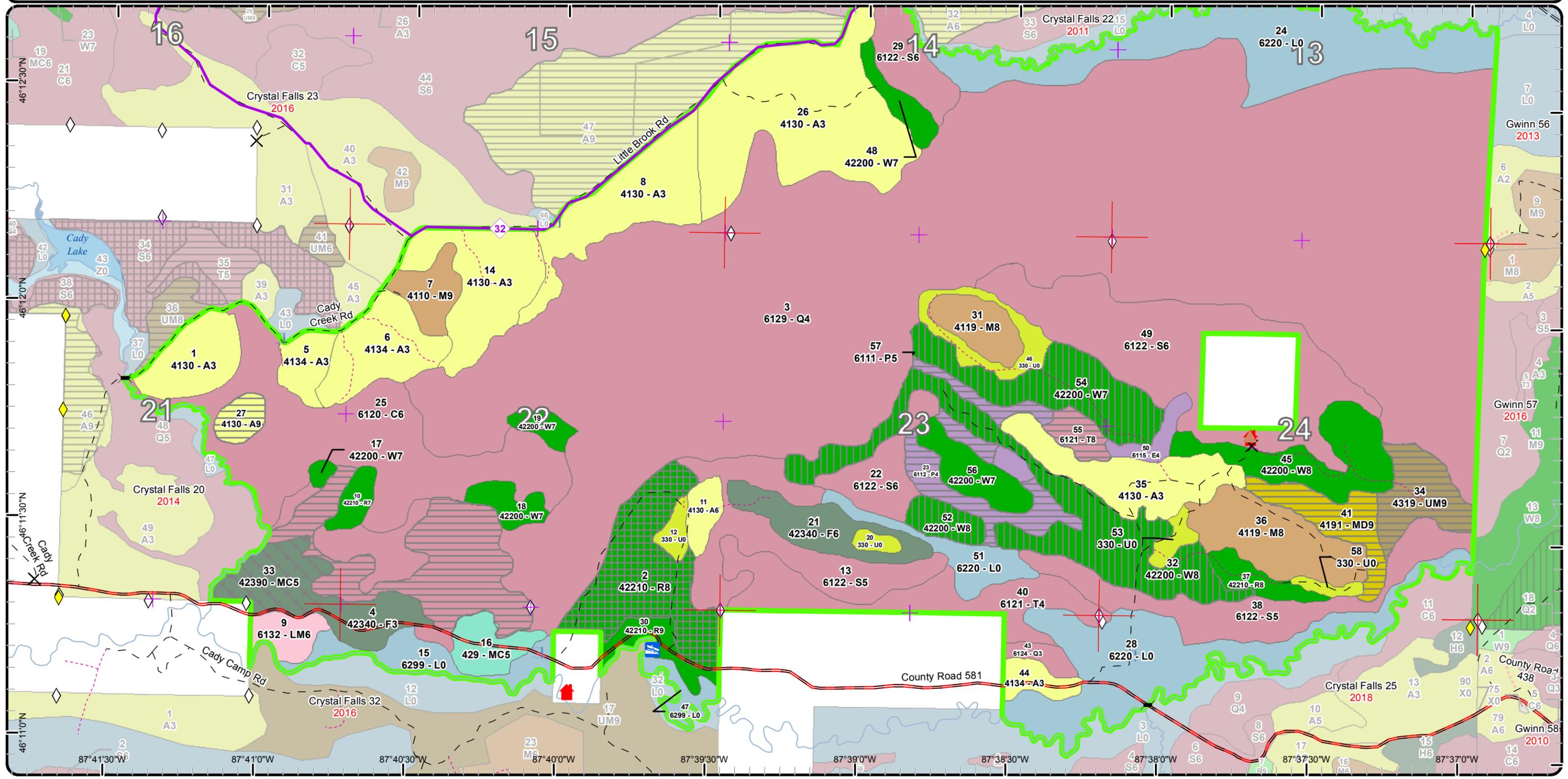
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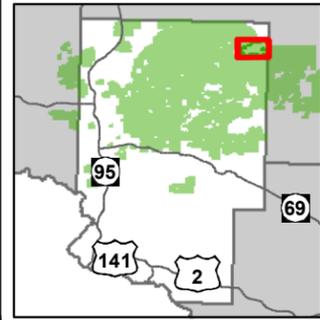
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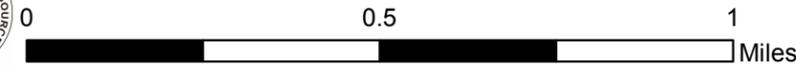
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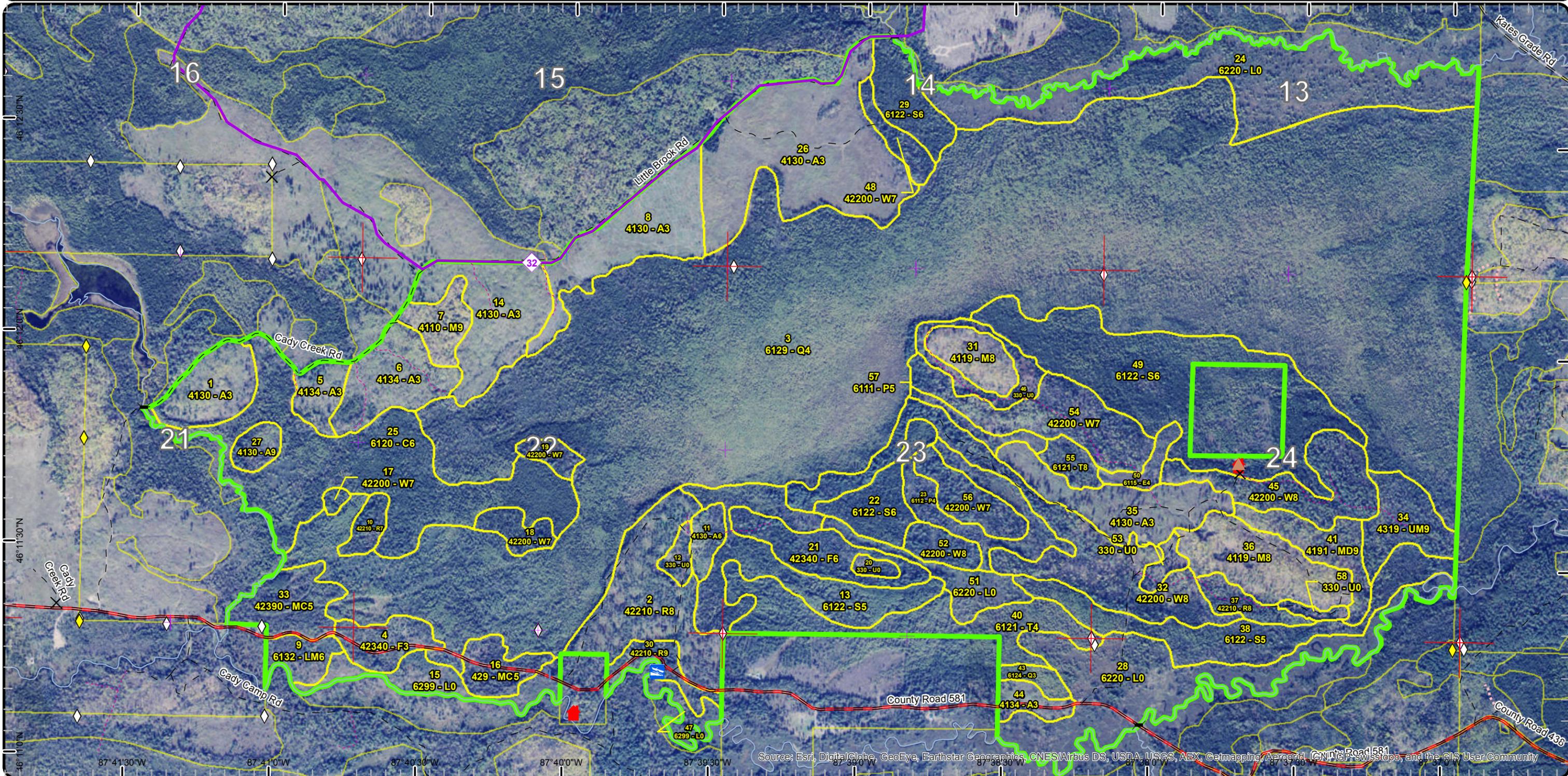
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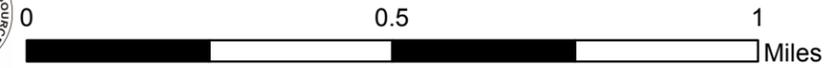
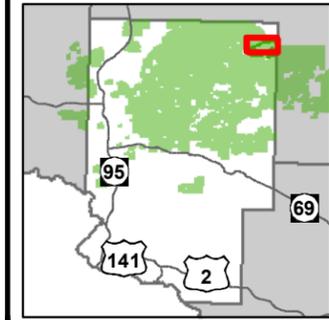
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Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, Swisstopo, and the GIS User Community

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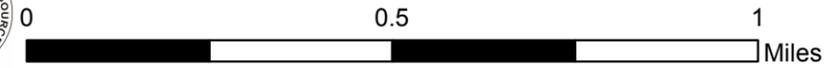
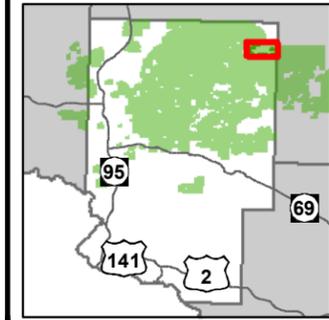
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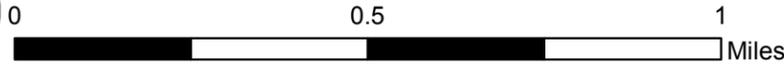
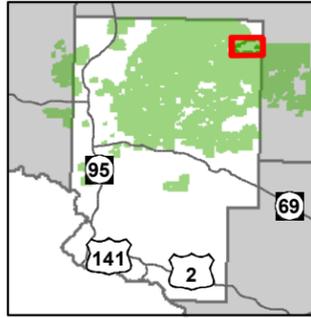
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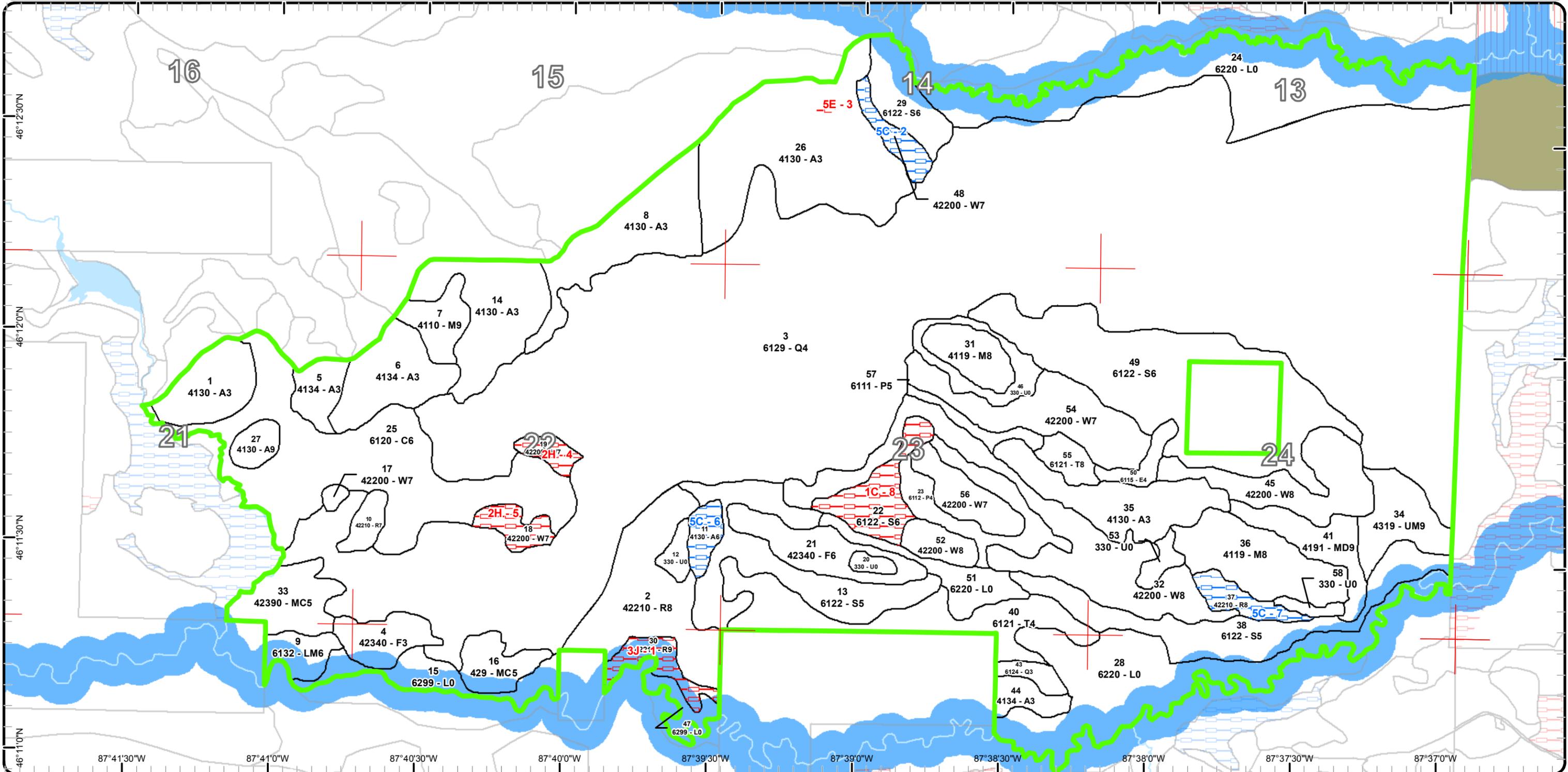
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Special Conservation Areas & Site Conditions Map

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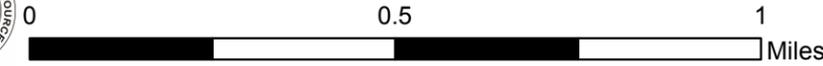
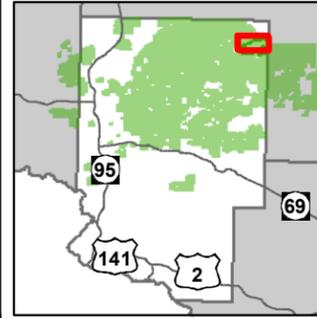


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- Site Condition
- Available w/ Constraints
- Unavailable
- Available Factors W/ Constraints
 - 5C: Delay treatment for age/size class diversity or exceptional site quality
- Unavailable Factors
 - 1C: Other dept or div proc/practices
- 2H: Blocked by physical obstacle (e.g. upland stand in a lowland area)
- 3J: Water quality / BMPs (stream, river, or lake)
- 5E: Long-Term Retention
- Special Conservation Areas
 - Cold Water Streams
 - Cold Water Lakes
 - High Priority Trout Stream Buffer

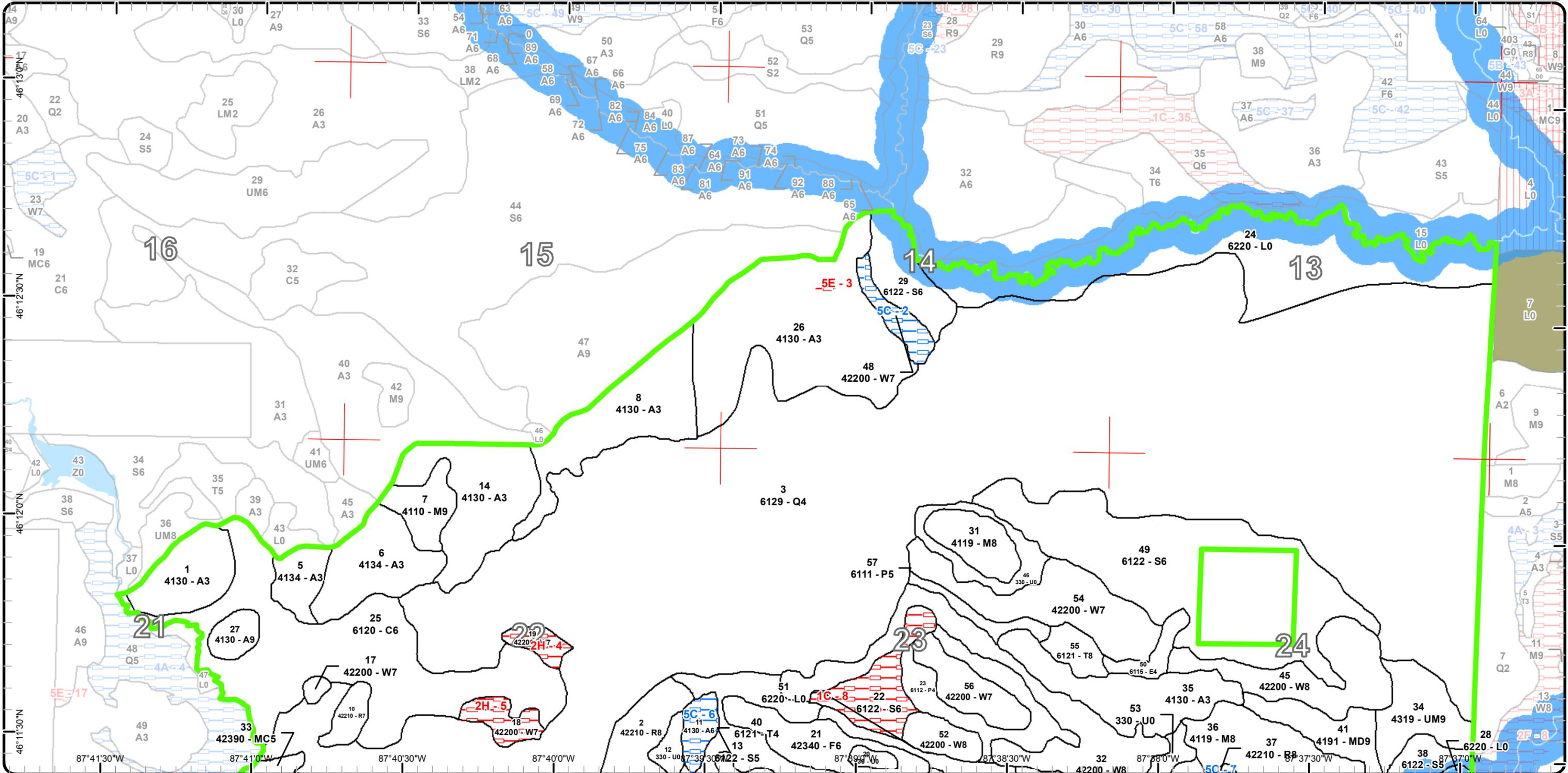


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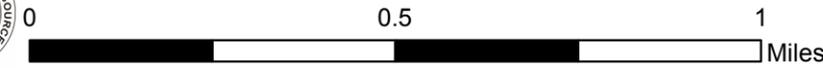
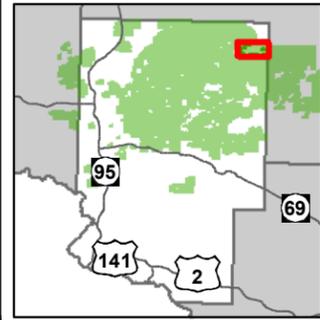


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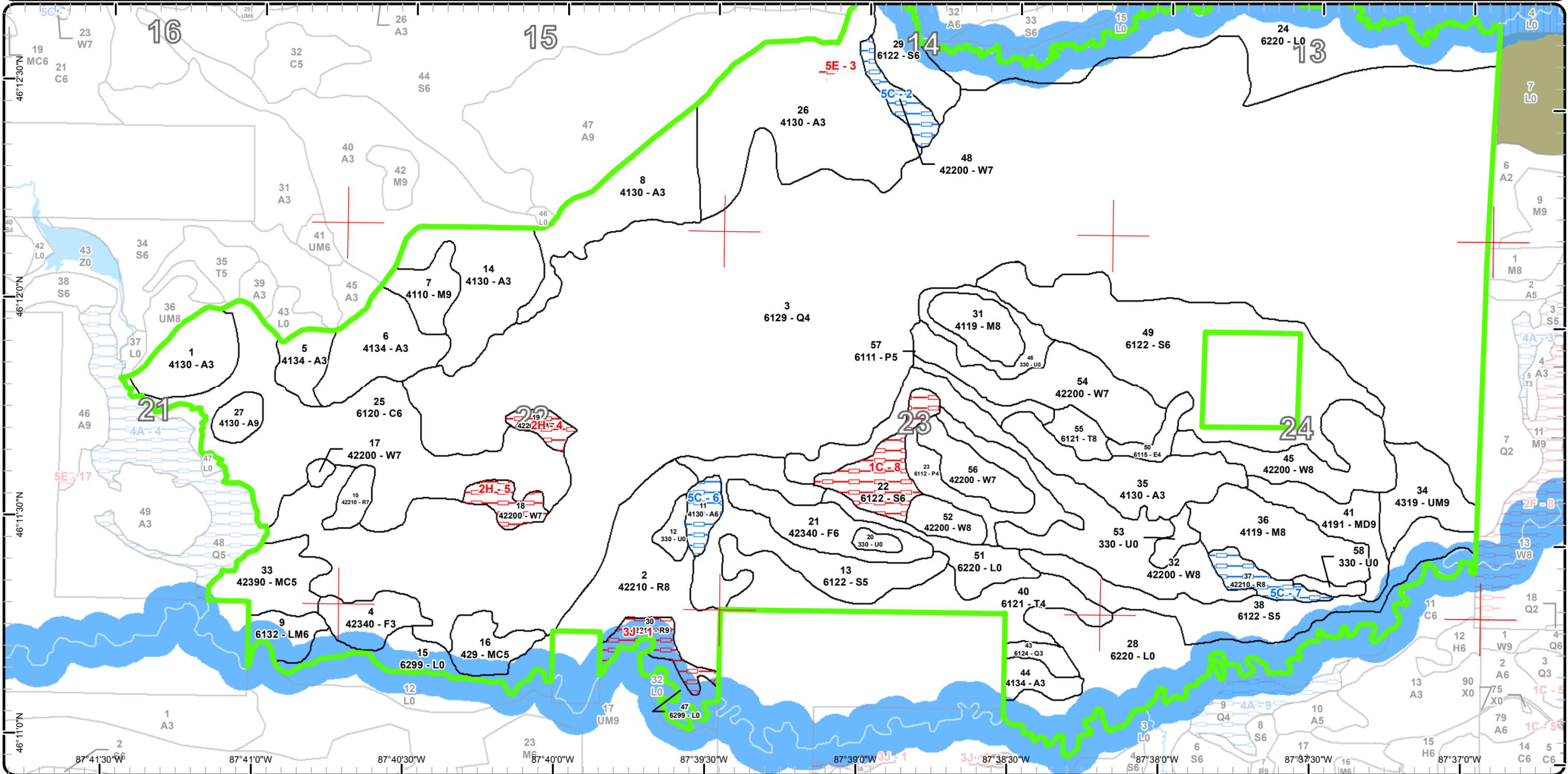


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Report 1 – Total Acres by Cover Type and Age Class



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	212	93	47	0	0	9	9	0	0	0	0	0	0	0	0	0	0	370
Cedar	0	0	0	0	0	0	0	0	0	0	0	0	136	0	0	0	0	0	136
Low-Density Trees	35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	35
Lowland Aspen/Balsam Poplar	0	0	0	0	0	0	0	30	0	8	0	0	0	0	0	0	0	0	38
Lowland Conifers	0	0	0	6	0	0	0	0	1276	0	0	0	0	0	0	0	0	0	1282
Lowland Deciduous	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	8
Lowland Mixed Forest	0	0	0	0	0	0	0	0	0	13	0	0	0	0	0	0	0	0	13
Lowland Shrub	271	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	271
Lowland Spruce/Fir	0	0	0	0	0	25	119	114	0	0	0	25	0	0	0	0	0	0	283
Mixed Upland Deciduous	0	0	0	0	0	0	0	0	0	25	0	0	0	0	0	0	0	0	25
Northern Hardwood	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	80	80
Red Pine	0	0	0	0	0	0	0	0	0	0	0	91	0	0	0	0	0	8	99
Tamarack	0	0	0	0	0	56	0	0	0	10	0	0	0	0	0	0	0	0	66
Upland Conifers	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	44	44
Upland Mixed Forest	0	0	0	0	0	0	0	0	0	28	0	0	0	0	0	0	0	0	28
Upland Spruce/Fir	0	0	0	0	0	29	0	0	0	0	0	0	0	0	0	0	0	19	48
White Pine	0	0	0	0	0	0	0	0	0	0	0	126	0	0	0	0	0	112	238
Total	306	212	93	53	0	110	128	153	1276	84	0	242	136	0	0	0	0	271	3064



Report 2 – Treatment Summary

Crystal Falls Mgt. Unit
Year of Entry: 2017

Acres of Harvest

Compartment 24
Total Compartment Acres: 3,062

Commercial Harvest - 414
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	9	0	0	0	0	0	0	0	0	9
Lowland Aspen/Balsam Poplar	34	0	0	0	0	0	0	0	0	34
Lowland Conifers	73	0	0	0	0	0	0	0	0	73
Mixed Upland Deciduous	25	0	0	0	0	0	0	0	0	25
Red Pine	0	0	0	65	0	0	0	0	0	65
Tamarack	10	0	0	0	0	0	0	0	0	10
Upland Conifers	0	0	0	0	0	0	27	0	0	27
Upland Mixed Forest	28	0	0	0	0	0	0	0	0	28
White Pine	0	0	0	0	144	0	0	0	0	144
Total	178	0	0	65	144	0	0	27	0	414

Proposed and Next Step Treatments by Method

	Harvest	Site Prep	Planting	Seeding	Burning	Pesticide	Monitoring	Other	Non-Forest Mgt.	Total Acres
Current	414	0	0	0	0	0	0	0	0	414
Next Step	0	209	0	0	65	0	414	0	0	688
Total	414	209	0	0	65	0	414	0	0	1102



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
2	12024002-Cut	64.8	42210 - Natural Red Pine	Sawtimber Medium	100	51-80	Harvest	Seed Tree with Retention	42290 - Natural Mixed Pine	Even-Aged	Proposal

Habitat Cut: No**Site Condition:**

Prescription Seed Tree Harvest targeting 20 residual BA of Pine. Leave Cedar, Hemlock if found.

Specs:

Next Step Burn, Understory; SitePrep, Scarification; Monitoring, Natural Regen (Re-Inventory)

Treatments:

Acceptable Pine

Regen:

Other Next steps: Burn per UM direction then utilize cultivation dozer with root rake to scarify and expose bare mineral soil for receptive seedbed. Old
Comment: next step comments:

Proposed Start Date: 10/1 /2016

3	12024003-Cut	73.2	6129 - Mixed Coniferous Lowland Forest	Poletimber Poor	71	1-50	Harvest	Clearcut with Retention	6121 - Tamarack	Even-Aged	Proposal
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Habitat Cut: No**Site Condition:**

Prescription Final Harvest using 2" spec. Leave Cedar, Hemlock, and Pine if found. Buffer Cady Creek on West side 100 feet, and unnamed trib on East

Specs: side 100 feet. Frozen conditions only. Roundwood operations required for seed source.

Next Step

Treatments:

Acceptable Spruce, Fir, Tamarack, Swamp Hardwoods, Aspen

Regen:

Other Old next step comments:

Comment:

Proposed Start Date: 10/1 /2016

23	12024023-Cut	26.5	6112 - Lowland Aspen	Poletimber Poor	65	1-50	Harvest	Clearcut with Retention	611 - Lowland Deciduous Forest	Even-Aged	Proposal
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Habitat Cut: No**Site Condition:**

Prescription Final Harvest using 4" spec. (Leaving all trees 6" or less on the stump.) Also Leave Cedar, Hemlock, and Pine if found. Frozen conditions only.

Specs:

Next Step

Treatments:

Acceptable Maple/Birch/Aspen/Spruce/Fir/Tamarack

Regen:

Other Exclude pure Tag Alder pocket from treatment (reflected in treatment boundary). If stream discovered during sale setup, buffer 100 feet each
Comment: side. Old next step comments:

Proposed Start Date: 10/1 /2016

27	12024027-Cut	8.7	4130 - Aspen	Sawtimber Well	66	Unspec ified	Harvest	Clearcut with Retention	413 - Aspen	Even-Aged	Proposal
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Habitat Cut: No**Site Condition:**

Prescription Final Harvest using 2" spec. Leave Pine, Cedar, Hemlock if found. Buffer Cady Creek 100 feet.

Specs:

Next Step

Treatments:

Acceptable Maple/Spruce/Fir

Regen:

Other Old next step comments:

Comment:

Proposed Start Date: 10/1 /2016

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Treatment Name	Acres	Stand CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Age Structure	Approval Status
32 12024032-Cut	82.8	42200 - Natural White Pine	Sawtimber Medium	100	1-50	Harvest	Shelterwood with Retention	4319 - Mixed Upland Forest	Two-Aged	Proposal

Habitat Cut: No**Site Condition:**

Prescription Cut all species 2" and up EXCEPT: Pine, Cedar, Hemlock, Oak if found. Chipping of slash required to facilitate cultivation needs or use slash reduction burn? Leaving all Pine will resemble a shelterwood harvest (10-50 residual BA)

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

Acceptable Regen: Maple/Aspen/Spruce/Fir/Pine

Other Comment: Next Steps: Scarify post harvest with dozer to encourage conifer regen where overstory Pine is present. Expect pockets of pure Aspen in areas of less Pine. Old next step comments:

Proposed Start Date: 10/1 /2016

33 12024033-Cut	27.3	42390 - Mixed Non-Pine Upland Conifers	Poetlimber Medium	65	81-110	Harvest	Salvage	429 - Mixed Upland Conifers	Even-Aged	Proposal
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Habitat Cut: No**Site Condition:**

Prescription Final harvest using 2" spec due to forest health concerns. Leave all Cedar, Hemlock, White Pine. Buffer Cady Creek 100 feet and Escanaba River 300 feet. Thin small Red Pine pocket for access targeting removal of 1/3rd volume.

Next Step Treatments:

Acceptable Regen: Tamarack, Pine, Birch, Maple, Aspen, Fir, Spruce

Other Comment: Expect wetter areas will regenerate to Tamarack Old next step comments:

Proposed Start Date: 10/1 /2016

34 12024034-Cut	27.6	4319 - Mixed Upland Forest	Sawtimber Well	87	81-110	Harvest	Clearcut with Retention	4319 - Mixed Upland Forest	Two-Aged	Proposal
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Habitat Cut: No**Site Condition:**

Prescription Final Harvest using 2" spec. Leave Cedar and Hemlock. Mark some Large Pine to retain for diversity.

Next Step Treatments:

Acceptable Regen: Spruce/Fir/Maple/Birch/Pine/Aspen

Other Comment: Old next step comments:

Proposed Start Date: 10/1 /2016

41 12024041-Cut	24.7	4191 - Mixed Upland Deciduous with Conifer	Sawtimber Well	81	81-110	Harvest	Clearcut with Retention	413 - Aspen	Even-Aged	Proposal
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Habitat Cut: No**Site Condition:**

Prescription Final Harvest using 2" spec. Leave Cedar and Hemlock. Mark some Large Pine to retain for diversity.

Next Step Treatments:

Acceptable Regen: Maple/Spruce/Fir/Pine

Other Comment: Old next step comments:

Proposed Start Date: 10/1 /2016



Stand	Treatment Name	Acres	Stand CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Age Structure	Approval Status
52	12024052-Cut	11.6	42200 - Natural White Pine	Sawtimber Medium	100	1-50	Harvest	Shelterwood with Retention	4319 - Mixed Upland Forest	Two-Aged	Proposal

Habitat Cut: No**Site Condition:**

Prescription Cut all species 2" and up EXCEPT: Pine, Cedar, Hemlock, Oak if found. Chipping of slash required to facilitate cultivation needs or use slash reduction burn? Leaving all Pine will resemble a shelterwood harvest (10-50 residual BA)

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

Acceptable Regen: Maple/Aspen/Spruce/Fir/Pine

Other Comment: Next Steps: Scarify post harvest with dozer to encourage conifer regen. Expect Swamp Hardwoods in the small lowland area of stand. Old next step comments:

Proposed Start Date: 10/1 /2016

54	12024054-Cut	49.3	42200 - Natural White Pine	Sawtimber Poor	100	1-50	Harvest	Shelterwood with Retention	4319 - Mixed Upland Forest	Two-Aged	Proposal
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Habitat Cut: No**Site Condition:**

Prescription Cut all species 2" and up EXCEPT: Pine, Cedar, Hemlock, Oak if found. Chipping of slash required to facilitate cultivation needs or use slash reduction burn? Leaving all Pine will resemble a shelterwood harvest (10-50 residual BA)

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

Acceptable Regen: Maple/Aspen/Spruce/Fir/Pine

Other Comment: Next Steps: Scarify post harvest with dozer to encourage conifer regen where overstory Pine is present. Expect pockets of pure Aspen in areas of less Pine. Old next step comments:

Proposed Start Date: 10/1 /2016

55	12024055-Cut	9.8	6121 - Tamarack	Sawtimber Medium	89	1-50	Harvest	Clearcut with Retention	6121 - Tamarack	Even-Aged	Proposal
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Habitat Cut: No**Site Condition:**

Prescription Final Harvest using 2" spec. Leave Cedar, Hemlock, and Pine. Frozen conditions only. Roundwood operations required for seed source.

Next Step Treatments:

Acceptable Regen: Swamp Hardwoods/Spruce/Fir

Other Comment: No stream found during inventory. If stream found during setup, buffer 100 feet each side. Old next step comments:

Proposed Start Date: 10/1 /2016

57	12024057-Cut	8.0	6111 - Lowland Balsam Poplar	Poletimber Medium	89	1-50	Harvest	Clearcut with Retention	6119 - Mixed Lowland Deciduous Forest	Even-Aged	Proposal
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Habitat Cut: No**Site Condition:**

Prescription Final Harvest using 4" spec. (Leaving trees 6" or less on the stump.) Also leave all Cedar, Hemlock, and Pine if found. Frozen conditions only.

Next Step Treatments:

Acceptable Regen: Aspen/Spruce/Fir

Other Comment: If stream discovered during sale setup, buffer 100 feet each side. Old next step comments:

Proposed Start Date: 10/1 /2016

Total Treatment Acreage Proposed: 414.2

Report 5 – Site Conditions

Crystal Falls Mgt. Unit
Andrew Church : Examiner

Compartment: 24
Year of Entry: 2017

Availability for Management

Total Acres	Acres Available	Acres Avail		Dominant Site Conditions	Dominant Site Conditions				
		With Condition	Not Available		5C	1C	2H	3J	5E
370	359	9	1	Aspen	9				1
136	136	0	0	Cedar					
35	35	0	0	Low-Density Trees					
38	38	0	0	Lowland Aspen/Balsam Poplar					
1282	1282	0	0	Lowland Conifers					
8	8	0	0	Lowland Deciduous					
13	13	0	0	Lowland Mixed Forest					
271	271	0	0	Lowland Shrub					
282	257	0	25	Lowland Spruce/Fir		25			
25	25	0	0	Mixed Upland Deciduous					
81	81	0	0	Northern Hardwood					
99	73	12	14	Red Pine	12			14	
66	66	0	0	Tamarack					
44	44	0	0	Upland Conifers					
28	28	0	0	Upland Mixed Forest					
48	48	0	0	Upland Spruce/Fir					
237	208	11	18	White Pine	11		18		
3,062	2,972	32	58	Total Forested Acres	32	25	18	14	1
	97%	1%	2%	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)	14	5E: Long-Term Retention	Unspecified	Unspecified	Unspecified
Comments: Buffer to Escanaba River and retention for harvest to North							
2	Available	5C: Delay treatment for age/size class diversity or exceptional site quality	11	Unspecified	Unspecified	Unspecified	Unspecified
Comments: Wait for understory to mature, then harvest.							

Report 5 – Site Conditions

Crystal Falls Mgt. Unit
Andrew Church : Examiner

Compartment: 24
Year of Entry: 2017

3	Unavailable	5E: Long-Term Retention	1	Unspecified	Unspecified	Unspecified	Unspecified
Comments:							
4	Unavailable	2H: Blocked by physical obstacle (e.g. upland stand in a lowland area)	7	Unspecified	Unspecified	Unspecified	Unspecified
Comments: Stand should be entered when neighboring stand is treated. Does not make sense to chase after this small acreage unless an opportunity presents itself.							
5	Unavailable	2H: Blocked by physical obstacle (e.g. upland stand in a lowland area)	11	Unspecified	Unspecified	Unspecified	Unspecified
Comments: Stand should be entered when neighboring stand is treated. Does not make sense to chase after this small acreage unless an opportunity presents itself.							
6	Available	5C: Delay treatment for age/size class diversity or exceptional site quality	9	Unspecified	Unspecified	Unspecified	Unspecified
Comments: Very healthy Aspen stand that will gain much volume next rotation.							
7	Available	5C: Delay treatment for age/size class diversity or exceptional site quality	12	Unspecified	Unspecified	Unspecified	Unspecified
Comments: Wait for understory to mature, then harvest.							
8	Unavailable	1C: Other dept or div proc/practices	26	Unspecified	Unspecified	Unspecified	Unspecified
Comments: No harvest due to bear featured species habitat concerns							

Mgt. Unit

Compartment: #Type!

Year of Entry:



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

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

SCA Name	SCA Category	Detail Type	Recommendation	Acres
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Comments



Report 7 – EXISTING SPECIAL CONSERVATION AREA DETAILS

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

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

Conservation Area	Type	Description
SCA	Cold Water Lake	A coldwater lake has temperature and dissolved oxygen conditions that allow naturally-reproduced or stocked trout populations and those of other coldwater fish species to persist from year to year. Suitable conditions for coldwater fishes may occur in Michigan lakes if they are relatively deep, have substantial groundwater inflows, or are located in colder (northern) areas of the state. Such lakes are established by Director's action and designated as trout resources by Fisheries Order 200.
SCA	Cold Water Stream	A coldwater stream has temperature and dissolved oxygen conditions that allow naturally-reproduced or stocked trout populations and those of other coldwater fish species (e.g., slimy sculpin) to persist from year to year. Coldwater streams in Michigan typically provide these conditions due to substantial contributions of groundwater to their stream flows. Such streams are established by Director's action and designated as trout resources by Fisheries Order 210.
SCA	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 8 – Forested Stands		Compartment: 24 Year of Entry: 2017
	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
1	4130 - Aspen	Sapling Well	28.2	14	Immature	Scattered supercanopy Pines. Very healthy Aspen stand.
2	42210 - Natural Red Pine	Sawtimber Medium	64.8	100	51-80	Large diameter, high quality Pine stand. Shelterwood harvested and anchor chained in 2010. Stocking levels vary from 10-100 BA. Several large canopy gaps were created. Few Pine established within the openings likely because soil dried out, the anchor chaining was not aggressive enough, and/or the raspberry brush out-competed seedlings. The Pine regen that has been established is mostly along the road and skid trails where ground was heavily scarified by equipment.
3	6129 - Mixed Coniferous Lowland Forest	Poletimber Poor	1,275.7	71	1-50	Old trees, but not much merchantability due to very wet site. Mostly 1 stick trees. Some spots within this stand have reached pole size, but stocking is extremely low. More stocking along edges of stand. Harvested in the 1960s along the northern stand boundary.
4	42340 - Upland Spruce/Fir	Sapling Well	18.6	34	Immature	Mixture of Aspen/Spruce/Fir. Majority of trees just starting to reach merchantability size. More Aspen to the East.
5	4134 - Aspen, Spruce/Fir	Sapling Well	13.8	14	Immature	Healthy young Aspen stand. Some Fir and Pines retained in overstory from last harvest. Wet pocket on East side of stand.
6	4134 - Aspen, Spruce/Fir	Sapling Well	36.7	21	Immature	A few trees starting to reach merchantability size. Small lowland inclusion in SW part of stand. Aspen is quite healthy.
7	4110 - Sugar Maple Association	Sawtimber Well	16.4	98	51-80	Large diameter, poor quality Northern Hardwood stand. Thinned 10 years ago.
8	4130 - Aspen	Sapling Well	53.6	2	Immature	Harvested 2013 with Cadyshack Aspen sale. Regenerating nicely.
9	6132 - Mixed Lowland Forest with Cedar	Poletimber Well	13.0	88	Unspecified	
10	42210 - Natural Red Pine	Sawtimber Poor	8.4	100	1-50	Upland island in the swamp. Large scattered Pines with a heavy Spruce/Fir sapling understory. SBW has impacted the understory severely.
11	4130 - Aspen	Poletimber Well	9.3	51	Unspecified	Very healthy Aspen stand. A couple supercanopy Pines throughout. Thick Spruce/Fir understory. A couple Maples mixed in. Wetter along Eastern side of stand. This stand will gain volume.
13	6122 - Black Spruce	Poletimber Medium	60.8	52	51-80	Less stocking and wetter in far SE and Northern portions of stand. Healthy stand. Supercanopy Pines found throughout.
14	4130 - Aspen	Sapling Well	50.7	14	Immature	Healthy young Aspen stand.



	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
16	429 - Mixed Upland Conifers	Poletimber Medium	16.9	41	1-50	This stand was once an open field but has now filled in with mixed conifer and Aspen. Some very small openings still persist. Large Pines are present, particularly on South side of road. Spruce Budworm is heavily defoliating the Spruce/Fir.
17	42200 - Natural White Pine	Sawtimber Poor	2.4	100	1-50	Upland island in the swamp. Large scattered Pines with a heavy Spruce/Fir sapling understory. SBW has impacted the understory severely.
18	42200 - Natural White Pine	Sawtimber Poor	10.8	100	1-50	Upland island in the swamp. Large scattered Pines with a heavy Spruce/Fir sapling understory. SBW has impacted the understory severely. Wet area through middle of stand.
19	42200 - Natural White Pine	Sawtimber Poor	7.0	100	1-50	Upland island in the swamp. Large scattered Pines with a heavy Spruce/Fir sapling understory. SBW has impacted the understory severely.
21	42340 - Upland Spruce/Fir	Poletimber Well	28.9	42	Unspecified	Scattered supercanopy Red and White Pines. Mature strip of timber along Southern stand boundary. Stand is growing very well. Harvested in 1973.
22	6122 - Black Spruce	Poletimber Well	25.5	104	Unspecified	No forest health issues observed within stand. Most likely due to high stem densities. A few supercanopy Pines found throughout.
23	6112 - Lowland Aspen	Poletimber Poor	30.2	65	1-50	Pure Tag Alder pocket within stand. Poor quality, very low stocking level due to wet ground. No stream observed during inventory.
25	6120 - Lowland Cedar	Poletimber Well	135.9	115	Unspecified	Some supercanopy pines found throughout stand. Much Tag Alder/Tamarack near Cady Creek.
26	4130 - Aspen	Sapling Well	114.3	6	Immature	Cut in 2009 Hazel Haven TS
27	4130 - Aspen	Sawtimber Well	8.7	66	Unspecified	Upland island in the swamp. Budworm damage evident. Aspen in decline. Thick understory of Spruce/Fir.
29	6122 - Black Spruce	Poletimber Well	24.6	49	Unspecified	Young Black Spruce stand. Very well stocked. Wetter ground to East near Big Brook.
30	42210 - Natural Red Pine	Sawtimber Well	13.9	100	111-140	High quality Red Pine stand
31	4119 - Mixed Northern Hardwoods	Sawtimber Medium	18.9	100	51-80	Stocking levels vary greatly throughout stand. 30-100. Poor form as these trees seem to be open grown; i.e. large canopies, forks and epicormic branching. The stand is being regenerated in canopy gaps. Wait for ingrowth to treat stand selectively. No record of ever being harvested.
32	42200 - Natural White Pine	Sawtimber Medium	82.8	100	1-50	Large diameter Pine stand. Understory is mature and fully stocked with Spruce/Fir/Aspen/Maple. Stocking levels of Pine vary greatly from 0-90 BA. More Red Pine to West.



Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
33	42390 - Mixed Non-Pine Upland Conifers	Poletimber Medium	27.3	65	81-110	Mixture of Spruce/Fir/Tamarack. Majority of trees just starting to reach merchantability size. Some larger supercanopy Spruce scattered throughout. Spruce budworm is devastating this stand. Much mortality present. More Aspen to the East. Small pocket maybe 1 acre of natural Red Pine adjacent to Cady Creek in West. The Pines are very straight, tall and heavily stocked.
34	4319 - Mixed Upland Forest	Sawtimber Well	27.6	87	81-110	Stand in decline. Much mortality observed particularly on the Aspen and Birch. As trees die in overstory, Maple/Fir saplings filling in the canopy gaps. Upland Hemlock and Cedar well represented. Much of the Aspen is in the Southern reaches of stand. A few supercanopy Pines found throughout.
35	4130 - Aspen	Sapling Well	44.4	7	Immature	Stand has WP residuals. Healthy young Aspen stand. Harvested 2008.
36	4119 - Mixed Northern Hardwoods	Sawtimber Medium	45.4	98	51-80	Stand is large diameter but poor form. Many forks, splits, and cavities trees. Understory is fully stocked with Hard and Soft Maple. The overstory is starting to suppress the understory. Northern edge of stand has more overstory stocking. Small upland brush openings within stand. Last thinned 1987. Wait for ingrowth to treat stand selectively.
37	42210 - Natural Red Pine	Sawtimber Medium	12.0	100	51-80	Large diameter Red Pine stand with a fully stocked Spruce/Fir/Aspen polestand in understory. Understory harvested 1973.
38	6122 - Black Spruce	Poletimber Medium	57.8	51	51-80	Patchy stand. Some areas fully stocked while others open grown. Spruce quality is high.
40	6121 - Tamarack	Poletimber Poor	56.0	48	1-50	Small diameter, low stocking Tamarack stand due to wet soils. Stand is slowly filling in.
41	4191 - Mixed Upland Deciduous with Conifer	Sawtimber Well	24.7	81	81-110	Mix of Aspen/Maple with scattered supercanopy Pines throughout. Aspen in decline.
43	6124 - Lowland Spruce-Fir	Sapling Well	6.5	27	Immature	Mix of Spruce/Tamarack/Fir. Growing well.
44	4134 - Aspen, Spruce/Fir	Sapling Well	10.1	27	Immature	North of road was harvested in 1988, South of road was harvested 1997. Some low areas within stand.
45	42200 - Natural White Pine	Sawtimber Medium	41.7	100	51-80	Large diameter Pine stand with thick Spruce/Fir/Maple/Aspen poles in understory. Understory is quite healthy and is growing well.
48	42200 - Natural White Pine	Sawtimber Poor	10.8	100	1-50	Hodgepodge stand. Mix of many different species below large diameter White Pines. Harvest this stand when adjacent lowlands are mature. Some Pines are 40+ inches in diameter.
49	6122 - Black Spruce	Poletimber Well	113.6	63	Unspecified	Mostly 1-2 stick Spruce. Growing very well. Tight crowns, highly stocked. Scattered supercanopy Pines found through, particularly on the small upland island in middle of stand.

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Crystal Falls Mgt. Unit

Report 8 – Forested Stands

Compartment: 24
Year of Entry: 2017

	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
50	6115 - Lowland Ash	Poletimber Poor	8.4	89	1-50	Southern portion is Tag Alder and Cattail. Northern finger is Black Ash.
52	42200 - Natural White Pine	Sawtimber Medium	11.6	100	1-50	Large diameter Pine stand. Understory is mature and fully stocked with Spruce/Fir/Aspen. Stocking levels of Pine vary greatly. Budworm damage evident. Small drainage running N-S through middle of stand.
54	42200 - Natural White Pine	Sawtimber Poor	49.3	100	1-50	Large diameter Pine stand with fully stocked Aspen/Spruce/Fir/Maple stand in understory. This stand was selection harvested in 1973 where some large Pines and some of the understory was removed.
55	6121 - Tamarack	Sawtimber Medium	9.8	89	1-50	Pine, White Spruce, and Balsam Fir growing on edges of stand.
56	42200 - Natural White Pine	Sawtimber Poor	20.6	100	1-50	Harvested 1973. Left many overstory Pines. Understory is a thick Spruce/Fir stand.
57	6111 - Lowland Balsam Poplar	Poletimber Medium	8.0	89	1-50	Lowland drainage. No stream observed.



Stand	Cover Type	Acres	Managed Site	General Comments:
12	330 - Low-Density Trees	5.9	No	Once an opening slowly filling in with trees. Pine saplings well represented.
15	6299 - Lowland Shrub (OI)	25.3	No	OPIC - FMD: OI Stand Year Origin was
20	330 - Low-Density Trees	3.8	No	Trees slowly filling in this opening
24	6220 - Alder/willow	116.5	No	
28	6220 - Alder/willow	97.9	No	Small diameter, low stocking Tamarack stand due to wet soils. Stand is slowly filling in.
46	330 - Low-Density Trees	15.9	No	OPIC - FMD: This stand has been cut many times throughout the years; hasn't been "managed" well. Currently it is very miscellaneous spotted with large WP; may be typed as F??
47	6299 - Lowland Shrub (OI)	9.8	No	OPIC - FMD: OI Stand Year Origin was
51	6220 - Alder/willow	21.0	No	
53	330 - Low-Density Trees	5.9	No	Stand is slowly filling in with trees
58	330 - Low-Density Trees	3.9	No	Conifers slowly filling in this opening