



Compartment Review Presentation

Grayling Forest Management Unit

Compartment 72168

Entry Year 2022

Acreage: 1,957

County Crawford

Management Area: Grayling Outwash

Revision Date: 2020-08-31

Stand Examiner: Joan Charlebois

Legal Description:

T27N R4W

Sections 10, 11, 14, 15, 22, 23, 24

Identified Planning Goals:

To maintain riparian & forest health, productivity, sustainability, and species and structural diversity throughout the compartment while providing for multiple uses and visual management.

Soil and topography:

The terrain begins with a dissected ridge on the compartment's west edge, then levels out onto outwash plains to the east, with stream terraces and floodplains around the river corridor and swamp complex. Soils on the outwash plains vary from excessively well-drained sands (Grayling & Rubicon) to moderately well drained sands (Croswell). The low ground is characterized by saturated organic soils (Tawas-Lupton, Leafriver & AuSable Bowstring mucks).

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

The compartment is made up of solid State ownership, the majority of which (1585 acres) was purchased from the MacArthur estate in 1988. The compartment borders state land to the west and south, and a mix of state and private property along its north and east edges.

Unique Natural Features:

The mainstream of the AuSable, a designated Natural River, and Sand Hill Lake are within the compartment. There is the potential for rare bird and reptile species to occur along the river and lakeshore.

Archeological, Historical, and Cultural Features:

Old railroad grades cross through the compartment. Remains of the old MacArthur cabin site and water tower can be seen at the southwest edge of the lake. The locations of potential historic sites have been factored into proposed management plans.

Special Management Designations or Considerations:

The AuSable River is a High Conservation Value Area (HCVA) and designated Natural River. Three Ecological Reference Areas (ERAs) occur east of the river; those identified natural communities include a rich conifer swamp, a northern fen, and a dry-mesic northern forest. A Dedicated Habitat Area HCVA for the Eastern Massasauga Rattlesnake overlaps with the rich conifer swamp and northern fen and extends west of the river.

Watershed and Fisheries Considerations:

The mainstream of the AuSable is a quality, cold-water trout stream. The river runs the length of the compartment, from north to south. Sand Hill Lake's out-flow stream and other small tributaries empty into the AuSable. Beaver activity periodically interrupts drainage on those streams.

Wildlife Habitat Considerations:

The compartment's wide range of cover types -- from oak, aspen, mast-producing shrub and mixed herbaceous openlands, to conifer swamp, lowland brush and super-canopy stature pine -- provide potential habitat for a wide variety of game and non-game wildlife species. Over 700 acres have been dedicated for Eastern massasauga rattlesnake habitat management.

Mineral Resource and Development Concerns and/or Restrictions

No known potential exists for commercial metallic mineral production in this part of the state. The closest active sand/gravel pit is nearly five miles away. Sand & gravel potential appears to be good in the compartment, but there are some wetland areas that could inhibit development. The compartment is south of the Antrim Shale gas play and north of the general region of central basin hydrocarbon potential. There is no known hydrocarbon potential beneath the compartment, no test wells have been drilled in the area, and there is no current mineral leasing activity in the vicinity. Oil & gas potential in the compartment is considered low at this time. The state does not own all the mineral rights within the compartment. Because the mineral estate is the dominant estate, reasonable access to the surface must be provided to

private owners if they choose to explore or develop their mineral rights.

Vehicle Access:

There are no county roads within the compartment. The only state forest road open to conventional vehicles crosses the railroad tracks from the east and ends at a parking lot roughly 600 feet short of the river. The MacArthur Tract was fenced and gated at time of acquisition, and vehicle access has remained limited.

Survey Needs:

None at this time.

Recreational Facilities and Opportunities:

Aside from the Natural Resources Trust Fund developed parking lot, there are no designated recreational trails or facilities within the compartment. This stretch of the AuSable River is popular for fishing and kayaking, and Sand Hill Lake is noted for its pan fishing. The compartment's limited vehicle access provides more opportunities for dispersed, non-motorized recreation, such as biking, hiking, cross country skiing, wildlife viewing, hunting, and trapping.

Fire Protection:

West of the river, the compartment is dominated by upland deciduous tree cover and non-forested types. East of the river, red pine and white pine predominate, along with aspen, red maple and oak.

Additional Compartment Information:

The following reports from the Inventory are attached:

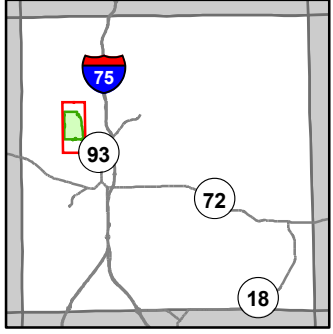
- Total Acres by Cover Type and Age Class**
- Cover Type by Harvest Method**
- Proposed Treatments – No Limiting Factors**
- Proposed Treatments – With Limiting Factors**
- Stand Details (Forested and Nonforested)**
- Dedicated and Proposed Special Conservation Areas**
- Site Condition Details**

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

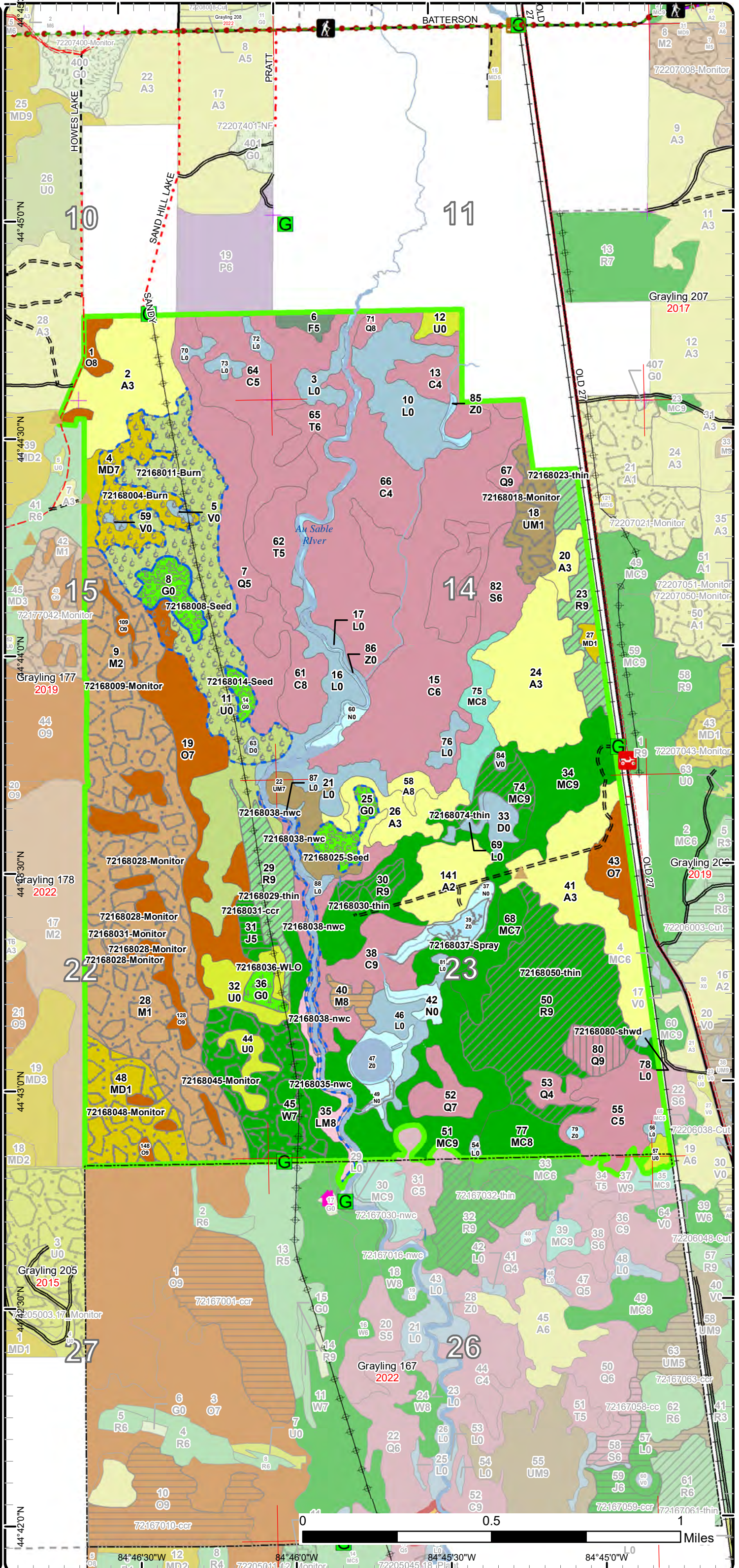
- Base feature information, stand boundaries, cover types, and numbers**
- Proposed treatments**
- Site condition boundaries**
- Details on the road access system**

Cover Type & Treatments Map

Compartment: 168
 T27N,R04W, Sec. 14-15, 22-24
 County: Crawford
 Unit: Grayling
 Mgmt Area: Grayling Outwash
 YOE: 2022
 Acres: 1957 GIS Calculated
 Examiner: Joan Charlebois
 Map Revised: 5/19/2021
 Map Phase: Post-Review

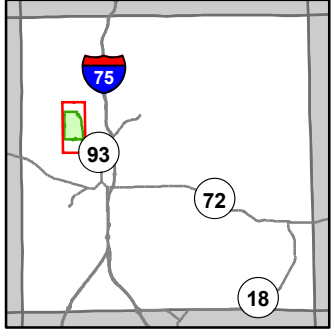


- Miris Corners
- Remonumented Section Corners
- Counties
- == DNR - Secondary Forest Road
- == DNR - Forest Access Route
- Federal / State / County - Paved Road
- - Federal / State - Dirt / Gravel Road
- . - County - Gravel Road
- - - County - Dirt Road (Seasonal)
- - - Private - Dirt / Gravel Road
- Active Railroads
- Hiking Trails
- Horse Trails
- ORV Routes
- Snowmobile Trails
- Designated Hiking Trails
- Designated Equestrian Trails
- Designated ORV Route
- Designated Snowmobile Trails
- Intermittent Stream
- Island in Lake or River
- Lake/Pond
- Perennial River
- Lakes and Rivers
- Structure, Seasonal Dwelling
- Berms
- Gate
- Bridges
- Culvert
- Campground
- Sign
- Powerline
- Fence
- Compartment Boundary
- Treatments with Site Conditions
- Pesticide
- Other Treatment - See Comments
- Planting (tree species)
- Clearcut (w/Reserves)
- Prescribed Burn
- Seeding (tree species)
- Thinning (Crown, Low, Systematic)
- Regeneration Survey
- Shelter Wood (w/Reserves)
- 411 - Northern Hardwood
- 412 - Oak Types
- 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
- 613 - Lowland Mixed Forest
- 211 - Cropland
- 320 - Upland Shrub
- 330 - Low Density Trees
- 500 - Water
- 622 - Lowland Shrub
- 623 - Emergent Wetland

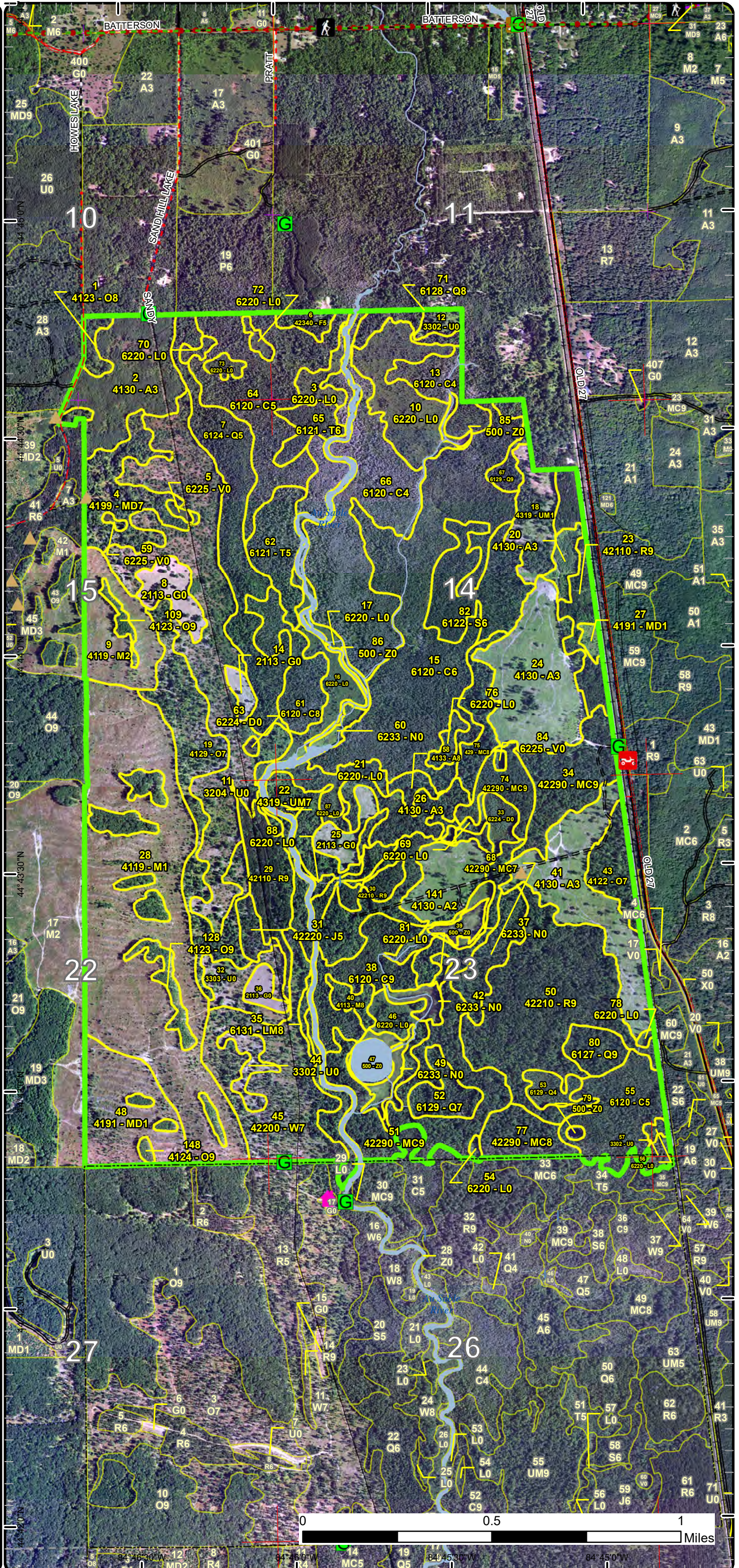


Stand Boundary Map

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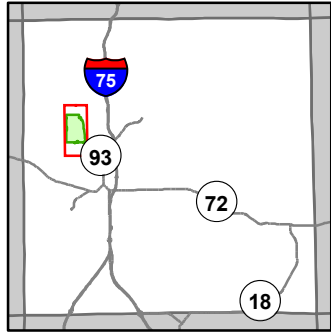


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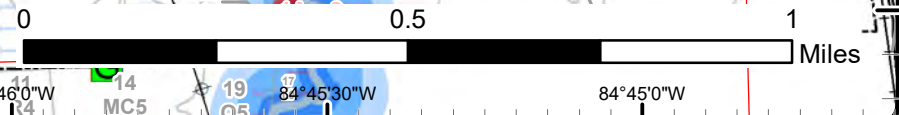
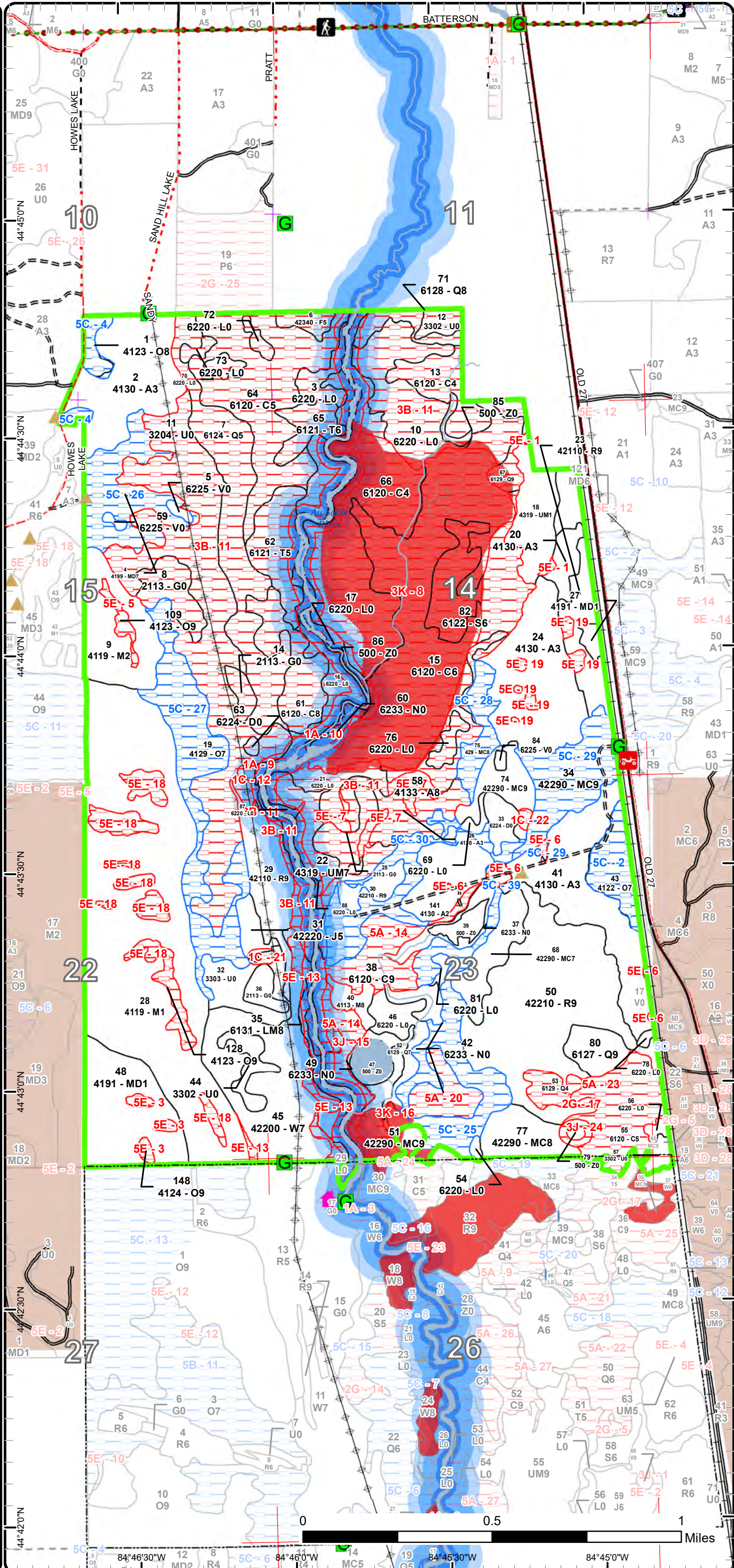


Special Conservation Areas

Compartment: 168
 T27N,R04W, Sec. 14-15, 22-24
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- ▲ Berms
- G Gate
- Bridges
- Culvert
- ▲ Campground
- Sign
- Powerline
- Fence
- Compartment Boundary
- Available w/ Constraints
- Unavailable
- 5C: Delay treatment for age/size class diversity or exceptional site quality
- 1A: Federal/State/Local Law
- 1C: Other dept or div proc/practices
- 2G: Too wet (sensitive soils, does not include access issues)
- 3J: Water quality / BMPs (stream, river, or lake)
- 3K: Rare or unique landforms
- 5A: Not able to obtain desirable regeneration
- 5E: Long-Term Retention
- Stand Boundaries
- Ecological Reference Areas
- Natural Rivers Vegetative Buffer
- Natural Rivers Zoning District
- Cold Water Streams
- Cold Water Lakes
- High Priority Trout Stream Buffer
- Research, Development, and Military Lands





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	146	52	0	0	0	9	0	0	0	0	0	0	0	0	0	0	0	206
Bog	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Cedar	0	0	0	0	0	0	0	0	0	0	0	148	140	0	112	0	0	0	400
Cropland	32	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	32
Jack Pine	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	6
Low-Density Trees	31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	31
Lowland Conifers	0	0	0	0	0	0	0	7	0	19	0	0	64	13	0	0	0	0	102
Lowland Mixed Forest	0	0	0	0	0	0	0	0	0	10	0	0	0	0	0	0	0	0	10
Lowland Shrub	105	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	105
Lowland Spruce/Fir	0	0	0	0	0	0	0	0	0	36	0	0	0	0	0	0	0	0	36
Marsh	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24
Mixed Upland Deciduous	0	41	3	0	0	0	0	0	0	0	32	0	0	0	0	0	0	0	76
Natural Mixed Pines	0	0	0	0	0	17	16	32	0	0	0	0	14	0	89	0	0	0	168
Northern Hardwood	0	199	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	205
Oak	0	0	0	0	0	0	0	0	0	0	0	92	0	15	0	0	0	0	107
Red Pine	0	0	0	0	0	46	0	90	0	0	0	0	7	0	0	0	0	0	143
Tamarack	0	0	0	0	0	0	0	0	0	0	0	21	10	0	0	0	0	0	31
Treed Bog	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
Upland Conifers	0	0	0	0	0	0	0	0	0	0	0	15	0	0	0	0	0	0	15
Upland Mixed Forest	0	21	0	0	0	0	15	0	0	0	0	0	0	0	0	0	0	0	36
Upland Shrub	113	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	113
Upland Spruce/Fir	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	5
Water	39	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	39
White Pine	0	0	0	0	0	0	62	0	0	0	0	0	0	0	0	0	0	0	62
Total	354	407	55	0	0	63	113	129	0	71	32	276	235	28	201	0	0	0	1962



Report 2 – Treatment Summary

Grayling Mgt. Unit

Year of Entry: 2022

Acres of Harvest

Compartment 168

Total Compartment Acres: 1,957

Commercial Harvest - 173
 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
Jack Pine	6	0	0	0	0	0	0	0	0	6
Lowland Conifers	0	0	0	0	11	0	0	0	0	11
Natural Mixed Pines	0	0	0	0	0	11	0	0	0	11
Northern Hardwood	6	0	0	0	0	0	0	0	0	6
Red Pine	0	0	0	0	0	140	0	0	0	140
Total	11	0	0	0	11	151	0	0	0	173

Proposed and Next Step Treatments by Method

	Harvest	Site Prep	Planting	Seeding	Burning	Pesticide	Monitoring	Other	Non-Forest Mgt.	Total Acres
Current	173	0	8	27	117	12	307	1	5	651
Next Step	0	0	0	89	32	121	224	0	0	467
Total	173	0	8	116	149	133	532	1	5	1118



Stand Name	Treatment Name	Acres	Stand CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Age Structure	Habitat Cut
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Approved Treatments:

4	72168004-Burn	27.9	4199 - Other Mixed Upland Deciduous	Sawtimber Poor	95	1-50	Burn	Opening	320 - Upland Shrub		No
<p><u>Prescription</u> Burn periodically to improve upland habitat for the EMR, following EMR Conservation Strategies guidance.</p> <p><u>Specs:</u></p> <p><u>Next Step</u> Monitoring, Prescribed Burn</p> <p><u>Treatments:</u></p> <p><u>Acceptable</u></p> <p><u>Regen:</u></p> <p><u>Other</u></p> <p><u>Comment:</u></p> <p><u>Site Condition</u> Age-Class or Site Quality</p> <p><u>Proposed Start Date:</u> 10/1 /2021</p>											
8	72168008-Seed	13.2	2113 - Forage Crops Nonstocked				Unspecified	Seeding	Machine Seed	31022 - Warm Season Grass	No
<p><u>Prescription</u> Seed in warm season grasses. Fertilize and herbicide as needed in order to establish that cover, following EMR Conservation Strategies guidance. Follow-up with periodic burns in order to maintain the prairie and control invasive species.</p> <p><u>Specs:</u></p> <p><u>Next Step</u> Pesticide, Other - Specify; Burn, Opening; Monitoring, Prescribed Burn</p> <p><u>Treatments:</u> ; Monitoring, Direct Seeding</p> <p><u>Acceptable</u> Dry-mesic prairie</p> <p><u>Regen:</u></p> <p><u>Other</u></p> <p><u>Comment:</u></p> <p><u>Site Condition</u> Species of special concern or T&E</p> <p><u>Proposed Start Date:</u> 10/1 /2021</p>											
9	72168009-Monitor	31.2	4119 - Mixed Northern Hardwoods	Sapling Medium	7	Immature	Monitoring	Natural Regen (Intermediate)	4199 - Other Mixed Upland Deciduous	Even-Aged	No
<p><u>Prescription</u> check regen after two additional growing seasons</p> <p><u>Specs:</u></p> <p><u>Next Step</u></p> <p><u>Treatments:</u></p> <p><u>Acceptable</u> Moderately stocked mix of RM-A-O-pine, with 15% in oak.</p> <p><u>Regen:</u></p> <p><u>Other</u></p> <p><u>Comment:</u></p> <p><u>Site Condition</u></p> <p><u>Proposed Start Date:</u> 10/1 /2021</p>											



Standard

Treatment Name	Acres	Stand CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Age Structure	Habitat Cut
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11	72168011-Burn	89.0	3204 - Mast Producing Shrub	Nonstocked		Unspecified	Burn	Opening	320 - Upland Shrub		No
<p><u>Prescription</u> Burn periodically to improve upland habitat for the EMR, following EMR Conservation Strategies guidance. Exclude the SW peninsula below the 1C Site Condition poly.</p> <p><u>Specs:</u></p> <p><u>Next Step</u> Seeding, Machine Seed; Monitoring, Prescribed Burn</p> <p><u>Treatments:</u> ; Pesticide, Other - Specify</p> <p><u>Acceptable</u> Upland shrub and dry-mesic prairie with less than 30% tree cover.</p> <p><u>Regen:</u></p> <p><u>Other</u></p> <p><u>Comment:</u></p> <p><u>Site Condition</u> Species of special concern or T&E</p> <p><u>Proposed Start Date:</u> 10/1 /2021</p>											

14	72168014-Seed	4.2	2113 - Forage Crops	Nonstocked		Unspecified	Seeding	Machine Seed	31022 - Warm Season Grass		No
<p><u>Prescription</u> Seed in warm season grasses. Fertilize and herbicide as needed in order to establish that cover, following EMR Conservation Strategies guidance. Follow-up with periodic burns in order to maintain the prairie and control invasive species.</p> <p><u>Specs:</u></p> <p><u>Next Step</u> Pesticide, Other - Specify; Burn, Opening; Monitoring, Prescribed Burn</p> <p><u>Treatments:</u> ; Monitoring, Direct Seeding</p> <p><u>Acceptable</u> Dry-mesic prairie</p> <p><u>Regen:</u></p> <p><u>Other</u></p> <p><u>Comment:</u></p> <p><u>Site Condition</u> Species of special concern or T&E</p> <p><u>Proposed Start Date:</u> 10/1 /2021</p>											

18	72168018-Monitor	20.7	4319 - Mixed Upland Forest	Sapling Poor	3	1-50	Monitoring	Natural Regen (Intermediate)	429 - Mixed Upland Conifers	Two-Aged	No
<p><u>Prescription</u> Review M.O.</p> <p><u>Specs:</u></p> <p><u>Next Step</u></p> <p><u>Treatments:</u></p> <p><u>Acceptable</u> Low stocking in tree and shrub cover suitable for upland EMR habitat.</p> <p><u>Regen:</u></p> <p><u>Other</u></p> <p><u>Comment:</u></p> <p><u>Site Condition</u></p> <p><u>Proposed Start Date:</u> 10/1 /2021</p>											

23	72168023-thin	22.2	42110 - Planted Red Pine	Sawtimber Well	49	171-200	Harvest	Low Thinning	4211 - Planted Red Pine	Even-Aged	No
<p><u>Prescription</u> Free-thin the plantations and the naturally-established RP to a target residual of 120 sq. ft. Avoid removing more than half of the starting BA in the densest-stocked areas.</p> <p><u>Specs:</u></p> <p><u>Next Step</u></p> <p><u>Treatments:</u></p> <p><u>Acceptable</u></p> <p><u>Regen:</u></p> <p><u>Other</u></p> <p><u>Comment:</u></p> <p><u>Site Condition</u></p> <p><u>Proposed Start Date:</u> 10/1 /2021</p>											



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Treatment Name	Acres	Stand CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Age Structure	Habitat Cut
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25 72168025-Seed	9.6	2113 - Forage Crops	Nonstocked		Unspecified	Seeding	Machine Seed	31022 - Warm Season Grass		No
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Prescription Seed in warm season grasses. Fertilize and herbicide as needed in order to establish that cover, following EMR Conservation Strategies guidance. Follow-up with periodic burns in order to maintain the prairie and control invasive species.

Next Step Pesticide, Other - Specify; Burn, Lowland; Monitoring, Prescribed Burn
Treatments: ; Monitoring, Direct Seeding

Acceptable Regen: Dry-mesic prairie

Other Comment:

Site Condition Species of special concern or T&E

Proposed Start Date: 10/1 /2021

28 72168028-Monitor	156.9	4119 - Mixed Northern Hardwoods	Sapling Poor	7	Immature	Monitoring	Natural Regen (Intermediate)	4199 - Other Mixed Upland Deciduous	Even-Aged	No
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Prescription check regen after 2 additional growing seasons
Specs:

Next Step
Treatments:

Acceptable Regen: Moderately stocked mix of RM-A-O-pine, with 20% in oak.

Other Comment:

Site Condition

Proposed Start Date: 10/1 /2021

29 72168029-thin	23.5	42110 - Planted Red Pine	Sawtimber Well	49	171-200	Harvest	Systematic Thinning	4211 - Planted Red Pine	Even-Aged	No
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Prescription Row-thin the plantation and free-thin the 2.5 acre naturally-established RP-WP inclusion. Thin within the Natural River zone, if permitted.
Specs:

Next Step
Treatments:

Acceptable Regen:

Other Comment:

Site Condition

Proposed Start Date: 10/1 /2021

30 72168030-thin	6.7	42210 - Natural Red Pine	Sawtimber Well	113	171-200	Harvest	Low Thinning	42210 - Natural Red Pine	Even-Aged	No
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Prescription Thin the RP-WP to 120 sq. ft., taking into consideration windfirmness. Avoid removing more than half of the starting BA in the denser-stocked areas. Protect hemlock and cedar. Spec dry summer or frozen winter harvest.
Specs:

Next Step
Treatments:

Acceptable Regen:

Other Comment:

Site Condition

Proposed Start Date: 10/1 /2021



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Treatment Name	Acres	Stand CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Age Structure	Habitat Cut
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31	72168031-ccr	5.5	42220 - Natural Jack Pine	Poletimber Medium	54	51-80	Harvest	Clearcut with Retention	4122 - Oak, Pine	Even-Aged	No
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Prescription Cut merch stems except the xlog oak. Protect the advanced regen. For retention, exclude the south Site Condition poly.

Specs:

Next Step Monitoring, Natural Regen (Re-Inventory)

Treatments:

Acceptable Low stocking in oak, pine and RM regen.

Regen:

Other

Comment:

Site Condition

Proposed Start Date: 10/1 /2021

28	72168031-Monitor	10.7	4119 - Mixed Northern Hardwoods	Sapling Poor	7	Immature	Monitoring	Natural Regen (Re-Inventory)	4199 - Other Mixed Upland Deciduous	Even-Aged	No
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Prescription

Specs:

Next Step

Treatments:

Acceptable oak, aspen, pine, maple

Regen:

Other Percent to Treat = 100%

Comment:

Site Condition

Proposed Start Date: 1 /19/2016

35	72168035-nwc	3.4	6131 - Hemlock, White Pine, Maple, Birch	Sawtimber Medium	88	81-110	Planting	Underplant	612 - Lowland Coniferous Forest	Two-Aged	No
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Prescription Plant, protect, and monitor Northern White Cedar seedlings along the banks of the AuSable River.

Specs:

Next Step Monitoring, Natural Regen (Intermediate)

Treatments:

Acceptable This treatment will not alter the overall covertype of the stand but will encourage the establishment and recruitment of cedar into the sub-canopy and canopy over the long term.

Regen:

Other

Comment:

Site Condition Federal/State/Local Law

Proposed Start Date: 10/1 /2021



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Stand	Treatment Name	Acres	Stand CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Age Structure	Habitat Cut
36	72168036-WLO	5.2	2113 - Forage Crops	Nonstocked		Unspecified	NonForestMgt	Other - Specify	310 - Herbaceous Openland		No
<p><u>Prescription</u> Periodic opening maintenance, as needed, that may include disking, fertilizing, liming, food plot seeding, mowing, brushing, tree and shrub planting, herbicide application, and removal of invasive species.</p> <p><u>Specs:</u></p> <p><u>Next Step</u> Monitoring, Direct Seeding; Pesticide, Other - Specify; Burn, Opening; Monitoring, Prescribed Burn</p> <p><u>Treatments:</u></p> <p><u>Acceptable Regen:</u></p> <p><u>Other Comment:</u></p> <p><u>Site Condition</u></p> <p><u>Proposed Start Date:</u> 10/1 /2021</p>											
37	72168037-Spray	7.0	6233 - Wet Meadow	Nonstocked		Unspecified	Pesticide	Hand Application	623 - Emergent Wetland		No
<p><u>Prescription</u> Continue to monitor for and control invasive species. Phragmites and purple loosestrife had been treated in the stand the previous YOY.</p> <p><u>Specs:</u></p> <p><u>Next Step</u> Monitoring, Herbicide Use</p> <p><u>Treatments:</u></p> <p><u>Acceptable Regen:</u></p> <p><u>Other Comment:</u></p> <p><u>Site Condition</u></p> <p><u>Proposed Start Date:</u> 10/1 /2021</p>											
38	72168038-nwc	4.8	6120 - Lowland Cedar	Sawtimber Well	119	111-140	Planting	Underplant	612 - Lowland Coniferous Forest	Two-Aged	No
<p><u>Prescription</u> Plant, protect, and monitor Northern White Cedar seedlings along the banks of the AuSable River.</p> <p><u>Specs:</u></p> <p><u>Next Step</u> Monitoring, Natural Regen (Intermediate)</p> <p><u>Treatments:</u></p> <p><u>Acceptable Regen:</u> This treatment will not alter the overall covertype of the stand but will encourage the establishment and recruitment of cedar into the sub-canopy and canopy over the long term.</p> <p><u>Other Comment:</u></p> <p><u>Site Condition</u> Federal/State/Local Law</p> <p><u>Proposed Start Date:</u> 10/1 /2021</p>											
39	72168039-Spray	5.1	500 - Water	Nonstocked		Unspecified	Pesticide	Hand Application	500 - Water		No
<p><u>Prescription</u> Continue to monitor for and control invasive species. Phragmites and purple loosestrife had been treated in the stand the previous YOY.</p> <p><u>Specs:</u></p> <p><u>Next Step</u> Monitoring, Herbicide Use</p> <p><u>Treatments:</u></p> <p><u>Acceptable Regen:</u></p> <p><u>Other Comment:</u></p> <p><u>Site Condition</u></p> <p><u>Proposed Start Date:</u> 10/1 /2021</p>											



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Treatment Name	Acres	Stand CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Age Structure	Habitat Cut
40 72168040-cc	5.5	4113 - R.Maple, Conifer	Sawtimber Medium	88	51-80	Harvest	Clearcut	42201 - Natural White Pine, Mixed Deciduous	Two-Aged	No
<p><u>Prescription</u> Final harvest merch stems with no area-based retention due to small stand size, except exclude the 150-ft Natural Rivers restricted cutting zone. Leave the cedar and xlog WP & RP. Protect advanced regen outside of felling and skidding paths.</p> <p><u>Specs:</u></p> <p><u>Next Step</u> Monitoring, Natural Regen (Re-Inventory)</p> <p><u>Treatments:</u></p> <p><u>Acceptable</u> Moderate stocking in WP, fir, RM, paper birch and aspen.</p> <p><u>Regen:</u></p> <p><u>Other</u></p> <p><u>Comment:</u></p> <p><u>Site Condition</u></p> <p><u>Proposed Start Date:</u> 10/1 /2021</p>										
45 72168045-Monitor	47.0	42200 - Natural White Pine	Sawtimber Poor	52	1-50	Monitoring	Natural Regen (Intermediate)	4310 - Pine, Oak Mix	Even-Aged	No
<p><u>Prescription</u> check regen after 2 additional growing seasons</p> <p><u>Specs:</u></p> <p><u>Next Step</u></p> <p><u>Treatments:</u></p> <p><u>Acceptable</u> Low to moderate stocking in WP-RP-O-RM.</p> <p><u>Regen:</u></p> <p><u>Other</u></p> <p><u>Comment:</u></p> <p><u>Site Condition</u></p> <p><u>Proposed Start Date:</u> 10/1 /2021</p>										
48 72168048-Monitor	40.6	4191 - Mixed Upland Deciduous with Conifer	Sapling Poor	7	1-50	Monitoring	Natural Regen (Intermediate)	4199 - Other Mixed Upland Deciduous	Even-Aged	No
<p><u>Prescription</u> check regen after 2 additional growing seasons</p> <p><u>Specs:</u></p> <p><u>Next Step</u></p> <p><u>Treatments:</u></p> <p><u>Acceptable</u> Moderately stocked mix of RM-O-pine, with 20% in oak.</p> <p><u>Regen:</u></p> <p><u>Other</u></p> <p><u>Comment:</u></p> <p><u>Site Condition</u></p> <p><u>Proposed Start Date:</u> 10/1 /2021</p>										



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Treatment Name	Acres	Stand CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Age Structure	Habitat Cut
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49	72168049-dam removal	1.1	6233 - Wet Meadow	Nonstocked		Unspecified	Other	Other	500 - Water	No
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Prescription Remove beaver dams that impede the Sand Hill Lake outflow stream. Work with Fisheries Division on necessary permits and best practices
Specs:

Next Step Monitoring, Other - Specify
Treatments:

Acceptable
Regen:

Other
Comment:

Site Condition

Proposed Start Date: 10/1 /2021

50	72168050-thin	87.7	42210 - Natural Red Pine	Sawtimber Well	67	141-170	Harvest	Low Thinning	4221 - Natural Red Pine	Two-Aged	No
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Prescription Thin the dense pockets of RP to 120 sq. ft. of residual. Mark through the lower-density mixed conifer-deciduous cover for operability.
Specs: Protect the small wetland inclusions. Exclude the SE end at the swale drain. Spec dry summer or frozen winter harvest. Apply buffers and seasonal restrictions per Raptor Guidance if active hawk nest is found.

Next Step
Treatments:

Acceptable
Regen:

Other
Comment:

Site Condition

Proposed Start Date: 10/1 /2021

74	72168074-thin	11.3	42290 - Natural Mixed Pine	Sawtimber Well	115	171-200	Harvest	Low Thinning	42140 - Planted Mixed Pine	Even-Aged	No
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Prescription Thin the RP-WP to 120 sq. ft. of residual, taking into consideration windfirmness. Avoid removing more than half of the starting BA in the denser-stocked areas. Protect the cedar. Exclude the southeast end with the Site Condition poly. Exclude the wetlands NE of stand 84.
Specs:

Next Step
Treatments:

Acceptable
Regen:

Other
Comment:

Site Condition

Proposed Start Date: 10/1 /2021

80	72168080-shwd	10.7	6127 - Lowland Pine	Sawtimber Well	81	111-140	Harvest	Shelterwood	612 - Lowland Coniferous Forest	Two-Aged	No
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Prescription Cut the merch spruce and tamarack. Spec dry summer or frozen winter harvest due to low ground. Protect advanced regen outside of felling and skidding paths.
Specs:

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

Acceptable Moderate stocking in WP with spruce and tamarack. A longer timeframe to achieve that regeneration on this low ground is expected and
Regen: acceptable.

Other
Comment:

Site Condition

Proposed Start Date: 10/1 /2021



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Treatment
Name

Acres

Stand
CoverType

Size
Density

Stand
Age

BA
Range

Treatment
Type

Treatment
Method

Cover Type
Objective

Age
Structure

Habitat
Cut

Total Treatment
Acreage Proposed: 650.7

Report 4 – Site Conditions

Grayling Mgt. Unit

Compartment: 168

Joan Charlebois : Examiner

Year of Entry: 2022

Availability for Management

Total Acres	Acres Available	Acres Available With Condition	Acres Not Available
207	172	0	35

Dominant Site Conditions

	Total Acres	Acres Available	Acres Available With Condition	Acres Not Available	Dominant Site Condition	Dominant Site Conditions										
						5C	1A	1C	2G	3B	3J	3K	5A	5E		
207	172	0	35		Aspen	0				20						15
3	3	0	0		Bog											
399	0	0	399		Cedar		35			135	2	170	57			0
32	5	0	27		Cropland			0		27						
6	6	0	1		Jack Pine			1								
31	26	0	5		Low-Density Trees			1		5						
101	11	0	90		Lowland Conifers		1		7	69			13			0
10	2	0	7		Lowland Mixed Forest		7									0
105	21	0	85		Lowland Shrub		19	0		66		0				
36	0	0	36		Lowland Spruce/Fir					17		19				
23	20	0	3		Marsh		3				0	0				
76	43	32	0		Mixed Upland Deciduous	32										
168	46	100	22		Natural Mixed Pines	100	7	1			4	8	0			3
205	204	0	1		Northern Hardwood		0									1
107	0	73	33		Oak	73		0								33
142	141	0	1		Red Pine		1									
31	0	0	31		Tamarack		4			27						
7	6	0	1		Treed Bog					1						
15	0	12	3		Upland Conifers	12				3						
36	20	0	16		Upland Mixed Forest		4			11						1
113	0	0	113		Upland Shrub		2	1		110						
5	0	0	5		Upland Spruce/Fir					5						
39	13	0	26		Water		24			2						
62	52	0	9		White Pine		2									7
1,957	792	218	947		Total Forested Acres	218	107	4	7	496	6	198	69			60
	40%	11%	48%		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	5E: Long-Term Retention	1	Unspecified	Unspecified	Unspecified	Unspecified
Comments:							
Boundary-excluded retention left when stand 18 was cut in 2018 (#023-13).							

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2	Available	5C: Delay treatment for age/size class diversity or exceptional site quality	15	Unspecified	Unspecified	Unspecified	Unspecified
Comments: Maintain the xlog oak for mast. Most of the open-grown oak are of a diameter that would not stump sprout well.							
3	Unavailable	5E: Long-Term Retention	4	Unspecified	Unspecified	Unspecified	Unspecified
Comments: Retention islands left when stand 48 was harvested in 2014 (#024-13).							
4	Available	5C: Delay treatment for age/size class diversity or exceptional site quality	7	Unspecified	Unspecified	Unspecified	Unspecified
Comments:							
5	Unavailable	5E: Long-Term Retention	3	Unspecified	Unspecified	Unspecified	Unspecified
Comments: Retention island left when stand 9 was harvested in 2014 (#024-13).							
6	Unavailable	5E: Long-Term Retention	5	Unspecified	Unspecified	Unspecified	Unspecified
Comments: Boundary-excluded retention left when stand 41 was cut in 2016 (#023-13).							
7	Unavailable	5E: Long-Term Retention	9	3B: Threatened, endangered, and special concern species	Unspecified	Unspecified	Unspecified
Comments: Retention left when stand 26 was cut in 2018 (#023-13). Also falls within EMR Managed Lands HCVA.							

Report 4 – Site Conditions

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8	Unavailable	3K: Rare or unique landforms	189	3B: Threatened, endangered, and special concern species	Unspecified	Unspecified	Unspecified
Comments: Rich Conifer Swamp ERA. Also overlaps with EMR Managed Lands.							
9	Unavailable	1A: Federal/State/Local Law	0	Unspecified	Unspecified	Unspecified	Unspecified
Comments: AuSable River's 150-foot Natural Rivers restricted cutting zone. Also EMR Managed Lands HCVA.							
10	Unavailable	1A: Federal/State/Local Law	107	Unspecified	Unspecified	Unspecified	Unspecified
Comments: AuSable River's 150-foot Natural Rivers restricted cutting zone. Also a portion within the EMR Managed Lands HCVA.							
11	Unavailable	3B: Threatened, endangered, and special concern species	496	Unspecified	Unspecified	Unspecified	Unspecified
Comments: EMR Managed Lands HCVA.							
12	Unavailable	1C: Other dept or div proc/practices	1	Unspecified	Unspecified	Unspecified	Unspecified
Comments: see locked comments							
13	Unavailable	5E: Long-Term Retention	7	Unspecified	Unspecified	Unspecified	Unspecified
Comments: Retention islands left when stand 45 was harvested in 2014. The excluded Natural Rivers restricted cutting zone is captured in the linear RMZ site condition poly.							

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14	Unavailable	5A: Not able to obtain desirable regeneration	25	3J: Water quality / BMPs (stream, river, or lake)	Unspecified	Unspecified	Unspecified
Comments: Cedar swamp with narrow streams flowing out to the AuSable River.							
15	Unavailable	3J: Water quality / BMPs (stream, river, or lake)	4	Unspecified	Unspecified	Unspecified	Unspecified
Comments: Sand Hill Lake and outlet RMZ.							
16	Unavailable	3K: Rare or unique landforms	8	Unspecified	Unspecified	Unspecified	Unspecified
Comments: Dry-Mesic Northern Forest ERA							
17	Unavailable	2G: Too wet (sensitive soils, does not include access issues)	8	Unspecified	Unspecified	Unspecified	Unspecified
Comments: Sparse stand on flooded ground, with treed bog inclusions.							
18	Unavailable	5E: Long-Term Retention	27	Unspecified	Unspecified	Unspecified	Unspecified
Comments: Retention islands left when stand 28 was harvested in 2014 (#024-13).							
19	Unavailable	5E: Long-Term Retention	4	Unspecified	Unspecified	Unspecified	Unspecified
Comments: Retention left when stand 24 was cut in 2016 (#023-13).							

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20	Unavailable	5A: Not able to obtain desirable regeneration	13	2G: Too wet (sensitive soils, does not include access issues)	Unspecified	Unspecified	Unspecified
Comments: Cedar, with sparse Q on flooded ground.							
21	Unavailable	1C: Other dept or div proc/practices	2	Unspecified	Unspecified	Unspecified	Unspecified
Comments:							
22	Unavailable	1C: Other dept or div proc/practices	1	Unspecified	Unspecified	Unspecified	Unspecified
Comments:							
23	Unavailable	5A: Not able to obtain desirable regeneration	31	Unspecified	Unspecified	Unspecified	Unspecified
Comments: Cedar swamp with portions on flooded ground.							
24	Unavailable	3J: Water quality / BMPs (stream, river, or lake)	2	5A: Not able to obtain desirable regeneration	Unspecified	Unspecified	Unspecified
Comments: RMZ around pond.							
25	Available	5C: Delay treatment for age/size class diversity or exceptional site quality	41	Unspecified	Unspecified	Unspecified	Unspecified
Comments: Xlog WP-RP stand with extensive wetland interface, dotted with small wetland inclusions.							

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26	Available	5C: Delay treatment for age/size class diversity or exceptional site quality	32	Unspecified	Unspecified	Unspecified	Unspecified
Comments: Sparse stand with open-grown, xlog form common. On terrain dotted with kettleholes and wetlands. Large-diam oak is not expected to have vigorous stump sprouts.							
27	Available	5C: Delay treatment for age/size class diversity or exceptional site quality	52	Unspecified	Unspecified	Unspecified	Unspecified
Comments: Seed-treed stand with mostly xlog cover. Large-diam oak is not expected to have vigorous stump sprouts. Maintain for mast.							
28	Available	5C: Delay treatment for age/size class diversity or exceptional site quality	12	Unspecified	Unspecified	Unspecified	Unspecified
Comments: Minority Xlog WP age flagged the stand for treatment, but the majority younger component is not ready for treatment.							
29	Available	5C: Delay treatment for age/size class diversity or exceptional site quality	31	Unspecified	Unspecified	Unspecified	Unspecified
Comments: Dominant younger RP cover is not yet ready for thinning.							
30	Available	5C: Delay treatment for age/size class diversity or exceptional site quality	27	Unspecified	Unspecified	Unspecified	Unspecified
Comments: Xlog WP-RP stand with extensive wetland interface, dotted with small wetland inclusions.							

Report 4 – Site Conditions

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Compartment: 168

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Year of Entry: 2022

39	Available	5C: Delay treatment for age/size class diversity or exceptional site quality	0	Unspecified	Unspecified	Unspecified	Unspecified
Comments: Xlog WP-RP stand with extensive wetland interface, dotted with small wetland inclusions.							



Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	Managed Site	General Comments																																																																																				
1	4123 - Red Oak	Sawtimber Medium	6.9	102	51-80	N/A	Mature oak stand was thinned in 2003 (#025-02), cutting merch RM-A and marked oak (stated cruise residual of 60-70 sq. ft.). Residual NRO & WO saw over RM-A regen from the harvest. South poly had oak drop out of the canopy, but that appeared to be a self-extinguishing mortality pocket.																																																																																				
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2	4130 - Aspen	Sapling Well	45.1	17	Immature	N/A	Most of the stand was final harvested in 2003-2004 (#025-02), cutting stems 2"+ DBH except for a 2-acre U-type inclusion west of the powerline. Stand regenerated well to trembling aspen, with BC, RM & some oak. Small pole residual from the harvest is scattered across the stand. Pre-harvest cover was A5. The U inclusions have hawthorn, serviceberry & BC.																																																																																				
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3	6220 - Alder/willow	Nonstocked	7.3	0	Unspecified	No	Tag alder over marsh with scattered tamarack, fir, & cedar. Drained by a narrow stream. Cedar along the river is dying out. Tamarack is tolerating the wet site better. Fir & tamarack are continuing to colonize the marsh. Was within an area that appeared (on the 1938 aerial photos) to have been largely cut-over.																																																																																				
4	4199 - Other Mixed Upland Deciduous	Sawtimber Poor	32.2	95	1-50	N/A	Sparse stand on an old pine stumpfield: cull RM stump-origin clumps and open-grown xlog NPO & RO. Aspen is concentrated around the bog stand 5, and occurs scattered elsewhere. The stand is dotted with small kettleholes, some containing wetlands. The stand's pine is mostly rimming the wetlands. The advanced NPO-WO-RM understory and shrub cover makes the canopy appear fuller. NPO age from the previous inventory.																																																																																				
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5	6225 - Bog	Nonstocked	1.3	0	Unspecified	No	Leatherleaf & bog birch with willow, spiraea. Powerline crosses east end.																																																																																				



Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	Managed Site	General Comments				
6	42340 - Upland Spruce/Fir	Poletimber Medium	4.7	53	51-80	N/A	Small upland island that picks up transition ground edge. Is a variable, catch-all stand with RM in the west, an upland opening in the east with JP & QA, and dense spruce-fir surrounding. There is an acre island of this type a couple chains south in the cedar swamp.				
Canopy Species		% Cover	Size Class	DBH	Age	Sub-Canopy Species		Density	Avg. Height	Size	
Red Maple		20	Log/Pole	11	85	Red Maple		Medium	>20 feet	Sapling	
Paper Birch		2	Log/Pole	10		Balsam Fir		Medium	Variable	Sapling	
Balsam Fir		20	Pole/Sapling	7	55	Black Spruce		Low	Variable	Sapling	
Black Spruce		40	Pole/Log	9	53	Black Cherry		Low	Variable	Tall Shrub	
Quaking Aspen		2	Pole	7		Wild Raisin		Low	5 - 10 feet	Tall Shrub	
Jack Pine		5	Pole/Log	8		Tag Alder		Low	5 - 10 feet	Tall Shrub	
White Pine		1	XLog	28		Michigan Holly		Trace	5 - 10 feet	Tall Shrub	
Tamarack		5	Log/Pole	10							
Northern White Cedar		5	Log	11							
7	6124 - Lowland Spruce-Fir	Poletimber Medium	55.6	110	51-80	N/A		Long narrow stand between the uplands and the cedar swamp, occupying lowland and transition ground. Canopy closure drifts off either end of the 50-75% category. Dense spruce-fir poletimber occupies the transition ground edge, along with widely-scattered xlog WP & RP. Moving onto lower ground, the canopy becomes less dense, with swaths of decades-old windthrow where fir-RM-spruce regen is starting to reach into the canopy. Further east on the wettest ground, tree cover is sparse. Understory cover alternates between dense fir or tag alder. The spruce is broadly two-aged, but that could not be reflected due to a MiFI limitation. The immature & mature spruce ages were not averaged together. The mature spruce age was listed, but the second age listed for the fir can be taken to represent the younger spruce also.			
Canopy Species		% Cover	Size Class	DBH	Age	Sub-Canopy Species			Density	Avg. Height	Size
Red Maple		10	Pole/Sap/Log	6		Balsam Fir			Medium	Variable	Sapling
Paper Birch		3	Pole/Sap/Log	6		Black Spruce			Low	Variable	Sapling
Balsam Fir		24	Pole/Sapling	5	49	Tag Alder			Medium	10 - 20 feet	Tall Shrub
Black Spruce		45	Pole/Sap/Log	7	110	Wild Raisin			Low	5 - 10 feet	Tall Shrub
Northern White Cedar		10	Log/Pole	11		Michigan Holly			Low	5 - 10 feet	Tall Shrub
Tamarack		5	Log/Pole	12	106						
White Pine		1	XLog	30							
Balsam Poplar		2	Pole	5							
8	2113 - Forage Crops	Nonstocked	13.2		Unspecified	Managed Opening	Maintained WLO with scattered islands of NPO, BC & serviceberry. W72-734 plantings: rye/buckwheat 2013, rye 2014, buckwheat/clover 2015, rye 2016.				
Sub-Canopy Species		Density	Avg. Height	Size							
Northern Pin Oak		Low	>20 feet	Log							
Black Cherry		Low	Variable	Tall Shrub							
Serviceberry (Juneberry)		Trace	10 - 20 feet	Tall Shrub							
9	4119 - Mixed Northern Hardwoods	Sapling Medium	31.2	7	Immature	N/A	Mature oak stand was final harvested with reserves in late 2014 (#024-13), cutting merch stems except RP-WP and island retention. Residual RP-WP is mostly in the south end. RM is the dominant post-harvest cover. Heavy deer browse pressure on the seed-origin oak. Stump-origin oak generally recruiting, but a significant proportion of the stumps didn't sprout. Recruited oak increases to the south. Aspen concentrated on the east aspect. NPO regen picks up on the flats. Tops were spec'd to be left to impede deer movement; there didn't appear to be a direct correlation between slash depth and oak recruitment. Most of the single-stem browsed oak is only recordable in the understory in the seedling size class. Does not pass regen survey to the new 6' height standard at this time.				
Canopy Species		% Cover	Size Class	DBH	Age	Sub-Canopy Species		Density	Avg. Height	Size	
Red Oak		10	Sapling	1	7	Witch Hazel		Low	< 5 feet	Tall Shrub	
Red Maple		70	Sapling	1	7	Serviceberry (Juneberry)		Low	< 5 feet	Tall Shrub	
White Oak		2	Sapling	1	7	Red Oak		Low	< 5 feet	Seeding	
White Pine		2	Pole/Log/Sap	7		Northern Pin Oak		Trace	< 5 feet	Seeding	
Red Pine		1	Pole/Sap/Log	7							
Bigtooth Aspen		12	Sapling	1	7						
Northern Pin Oak		3	Sapling	1							



Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	Managed Site	General Comments																																																							
10	6220 - Alder/willow	Nonstocked	33.8		Unspecified	No	Part of an area that appeared largely cut-over on the 1938 air photos, with residual stems scattered and in pockets. Cover remains mostly tag alder with low-density fir, cedar, balsam poplar & paper birch.																																																							
11	3204 - Mast Producing Shrub	Nonstocked	112.6		Unspecified	No	Dry outwash plain with BC brush, serviceberry, & hawthorn clumps over hairgrass, sedge, sweetfern, sand cherry, blueberry & rubus. Also scattered patches of big & little bluestem, small trembling aspen clones with black canker, occasional NPO saw, cull RM clumps, and open-grown RP & JP. Small wetland inclusions. Stand's east edge bordering the swamp is a little richer (better soils, moisture); the wild raisin and aronia occur there.																																																							
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12	3302 - Low Density Conifer Trees	Nonstocked	4.6		Unspecified	No	Small upland opening that has been filling in with WP & BC. Spruce-fir concentrated on the swamp edge. Pocket of aspen in NE.																																																							
13	6120 - Lowland Cedar	Poletimber Poor	16.9	106	51-80	N/A	This area appears on the 1938 air photos to have had something approaching an overstory removal or diameter-limit cut. Areas with sparse cedar cover filled in with either tag alder or fir-spruce. More intact cedar cover is thinning as the cedar dies back. Mortality is highest near the backed-up stream. Areas of decades-old windthrow are common, with traces of cedar regen in the tangle. The stand's understory cover alternates between full tag alder or full balsam fir. The fir understory makes the canopy appear fuller.																																																							
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14	2113 - Forage Crops	Nonstocked	4.2		Unspecified	Managed Opening	Maintained WL opening with scattered NPO and BC clumps. W72-734 planting: rye 2013, rye 2014, mast/rye 2015, buckwheat/clover 2016.																																																							
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15	6120 - Lowland Cedar	Poletimber Well	130.6	109	171-200	N/A	Cedar-dominated canopy with spruce-fir associates. This stand has low-density skid-routes visible on the 1938 air photos. Areas with heavier cutting were separated out as stands 67 & 82. Conditions vary from saturated muck soils to drier transition ground. Crown thinning is common, but mortality is not as extensive as in stand 66. Cedar is healthiest on the drier ground. Most of the stand is within a Rich Conifer Swamp ERA.																																																																		
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16	6220 - Alder/willow	Nonstocked	15.7		Unspecified	No	Tag alder on the floodplain with scattered NWC, spruce, fir & tamarack. Sweet gale on the riverbank. Stand boundary picks up secondary channels of the AuSable River and mudflat marsh islands.																																																																		
17	6220 - Alder/willow	Nonstocked	3.0		Unspecified	No	Tag alder on the floodplain with scattered NWC. Sweet gale on the riverbank. Stand boundary picks up secondary channels of the AuSable River and small islands.																																																																		
18	4319 - Mixed Upland Forest	Sapling Poor	20.7	3	1-50	N/A	Was final harvested by March 2018 (#023-13), spec'd to cut stems 2"+ DBH except NWC, RP-WP >24" diam at the stump (5 sq. ft. cruised RP-WP residual), and boundary-excluded island retention. The high ground was cut in early 2016 and the remaining transition ground in early 2018, excluding the NW 4.2 acres that overlap with an ERA & an EMR CCA (both designated after the treatment was approved). The variable pre-harvest cover included spruce-fir-A-RM-WP-RP-BC starting on the uplands and occupying the transition zone down to the cedar swamp. The RM regen is heavily browsed, with a portion only recordable in the subcanopy in the seedling size class. WP, BF, RP & spruce seedlings are continuing to establish. Regen does not pass at 2 years post-harvest. Recommend changing the MO to accept lower stocking, with a maximum of 30% tree cover suitable for EMR upland habitat.																																																																		
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19	4129 - Mixed Oak	Sawtimber Poor	51.6	109	1-50	N/A	70% of the stand was seed-tree harvested in 2004 (#014-02), cutting merch stems except green-marked oak (cruised residual 20 BA). Areas excluded from the harvest were already around seed-tree levels. Residual NPO on the outwash plain is in xlog multiple-stem clumps. The RO there is also xlog and open-grown, becoming cleaner and smaller diameter on the stand's west edge by the hills. WO, open-grown WP, and cull RM clumps are scattered across the stand. Oak snags common. Advanced NPO regen in the north end. RM-A-O regen within the harvested blocks.																																																																		
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22	4319 - Mixed Upland Forest	Sawtimber Poor	14.9	57	1-50	N/A	A string of xlog pine along the river have been seeding-in this old pine stumpfield. There are WP & RP of all size classes (but for a MiFI "rule" would've listed the younger WP as a split P-L-S size class), along with cull RM clumps, open-grown oak, and small amounts of spruce, fir, aspen & birch. The stand is upland, with cedar and tag alder inclusions by the river.																																																																												
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23	42110 - Planted Red Pine	Sawtimber Well	22.2	49	171-200	N/A	Long narrow stand is a mosaic of planted and naturally-established RP, along with small inclusions of A-RM-WP cover. The plantation patches account for 60% of the stand area. In 2006-07 the plantations were row-thinned and most of the natural red pine cover had the A-RM-JP-oak and a small amount of marked red pine removed (#069-05). If the planted & natural RP could be listed as separate canopy records they would be: RP 60% 9" pole-log 48 yrs, and RP 20% 12" L-P-xlog 64-123 yrs. The plantations have generous row spacing. Growth slowed in last 5 years. Most of the recorded subcanopy is under the non-plantation patches. The aspen regen is in one half-acre clone. The plantation BAs ave 185, range 170-200. The naturally-established patches have lower BAs, dragging the overall stand average down to 170.																																																																												
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24	4130 - Aspen	Sapling Well	54.1	5	Immature	N/A	Mixed A-RM-pine stand was final harvested with reserves by April 2016 (#023-13), cutting stems 2"+ DBH except NWC, green-marked oak-pine and island retention (cruised residual 5 BA). Most of the interior islands encompass small OFS wetlands. Two 1-acre boundary-excluded retention islands of mature cover fall on the east side of the bordering closed road. Passed regen survey at time of sale closure in 2018 with full stocking except for skid routes and landings. The stand's SE boundary picks up 2.5 acres of sparser regen from a 2007 harvest (#069-05), an area that has slowly been filling in with JP, WP and aspen.																																																											
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25	2113 - Forage Crops	Nonstocked	9.6		Unspecified	Managed Opening	Maintained wildlife opening. BC-RM-WP-O in islands. W72-734 planting: rye 2013, mast/rye 2015, buckwheat/clover 2016.																																																											
26	4130 - Aspen	Sapling Well	18.7	3	Immature	N/A	Was final harvested by March 2018 (#023-13), cutting stems 2"+ DBH except NWC and boundary-excluded retention. Pre-harvest cover was aspen with RM-pine. Swales of low ground cross through the harvest area, with traces of tag alder. There are some sparse areas on the perimeter, but otherwise the stand filled in well to aspen with RM (largely unbrowsed) and passes the regen survey. Stand picks up a former opening from stand 58 that is starting to fill in with aspen.																																																											
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27	4191 - Mixed Upland Deciduous with Conifer	Sapling Poor	2.7	14	Immature	N/A	J6 stand was final harvested in 2007 (#069-05), cutting stems 2"+ DBH. Due to small stand size and potential for in-growth, the low-density tree cover was accepted at re-inventory. Regen has continued to fill in, reaching the forested benchmark with a mix of WO, conifers and RM-A. The WO cover includes pre-harvest large saplings, but the overall age was set to the harvest-origin sprouts.																																																											
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Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	Managed Site	General Comments
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28	4119 - Mixed Northern Hardwoods	Sapling Poor	168.4	7	Immature	N/A	Mature oak stand was final harvested with reserves in late 2014 (#024-13), cutting merch stems except RP-WP and island retention. Two of the islands are inclusions within this stand because they were too small to split out. Most of the stand had previously been thinned in 2004 (#014-02), cutting merch RM-A and marked oak (cruised residual 60 BA). Residual WP-RP cover increases on the E & SW edges. RM is the dominant post-harvest cover. Heavy deer browse pressure on the seed-origin oak. Stump-origin oak generally recruiting, but a significant proportion of the stumps didn't sprout. Recruited oak increases to the south & east, with impressive stump-origin oak in the area SW of the largest retention island (that unit was cut the earliest). Some south aspects have up to 50% oak cover. Tops were spec'd to be left to impede deer movement; there didn't appear to be a direct correlation between slash depth and oak recruitment. Canopy cover averages toward the high end of 25-50% closure. Most of the single-stem browsed oak is only recordable in the understory in the seedling size class. Regen did not pass at re-inventory to the new 6' height standard. Check again after two growing seasons.				
Canopy Species		% Cover	Size Class	DBH	Age	Sub-Canopy Species		Density	Avg. Height	Size	
Red Maple		70	Sapling/Pole	1	7	Witch Hazel		Low	< 5 feet	Tall Shrub	
Red Oak		13	Sapling	1	7	Red Oak		Low	< 5 feet	Seeding	
White Oak		7	Sapling	1	7	White Oak		Trace	< 5 feet	Seeding	
Red Pine		1	Pole/Log/Sap	8							
White Pine		8	Log/Pole/Sap	10							
Bigtooth Aspen		1	Sapling	1	7						

29	42110 - Planted Red Pine	Sawtimber Well	23.6	49	171-200	N/A	Long, narrow RP plantation dissected by road & powerline corridors. Was established around RM & xlog oak in two planting events: the majority is 48 yrs old, with two rows along the old two-track planted a few years earlier. Generous row spacing. Doubles common. Enough has moved into the saw class that the stand must be called log overall, although the ave diam is still in the pole class. Growth slowing in last 10 years. On the southeast edge against the swamp, there is a 2.5-acre inclusion of naturally-established RP saw with WP & RO saw mixed in. But for a MiFI "rule", would have called the stand 2-aged & listed the nat est RP in a separate canopy record at 10% 14" DBH log-xlog 110 years old. Locally high WP understory in the nat est inclusion. There is also a 2-chain wide strip of RM-O-WP between the plantation edge and the river corridor swamp.				
Canopy Species		% Cover	Size Class	DBH	Age	Sub-Canopy Species		Density	Avg. Height	Size	
Red Maple		4	Log/Pole	10		White Pine		Low	5 - 10 feet	Sapling	
White Oak		1	XLog/Log	20		Black Cherry		Low	Variable	Tall Shrub	
Northern Pin Oak		1	XLog/Log	22							
White Pine		4	XLog/Log	20							
Red Pine		85	Pole/Log	9	49						
Red Oak		4	Log/XLog	15							
Jack Pine		1	Pole/Log	8							

30	42210 - Natural Red Pine	Sawtimber Well	6.7	113	171-200	N/A	Relatively clean log-xlog RP with less clean xlog-log WP. The stand is bisected by a low swale. The west half has most of the WP-RM understory; the east half is more open below.				
Canopy Species		% Cover	Size Class	DBH	Age	Sub-Canopy Species		Density	Avg. Height	Size	
Red Pine		60	Log/XLog	17	113	Red Maple		Medium	5 - 10 feet	Sapling	
White Pine		30	XLog/Log	22		White Pine		Medium	5 - 10 feet	Sapling	
Red Maple		5	Pole/Log	9		Red Maple		Low	< 5 feet	Seeding	
Bigtooth Aspen		3	Log/XLog	14		White Pine		Low	< 5 feet	Seeding	
Hemlock		2	Log/Pole	10							



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31	42220 - Natural Jack Pine	Poletimber Medium	6.2	54	51-80	N/A	JP that established around open-grown oak on the outwash plain. Patchy distribution; open-grown form common in the pine too. Second age estimate on the oak is from adjacent stand 19. NPO snags common. The scattered older JP are dropping out of the canopy.																																																														
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32	3303 - Mixed Low Density Trees	Nonstocked	15.0	0	Unspecified	No	BC brush with scattered open-grown NPO, WP, RP, JP & RM. Surrounds a maintained WLO. Grass-sedge groundcover with patches of blueberry & sweetfern. St. John's wort present at low densities.																																																														
33	6224 - Treed Bog	Nonstocked	6.4		Unspecified	No	Flooded bog with leatherleaf, bog birch, shrubby cinquefoil, and spiraea cover. Rimmed with salix. Spindly tamarack is top-dying. Cedar pocket in NE is also fading. Healthier cedar on the transition ground was pulled into stand 74.																																																														
34	42290 - Natural Mixed Pine	Sawtimber Well	32.0	67	111-140	N/A	Naturally-established RP stand with WP and a significant deciduous component (RM-A-xlog oak). Scattered overmature JP dropping out. While it could not be reflected due to a MiFI limitation, the RP & WP are both broadly two-aged. The listed RP age reflects only its majority younger class, while the WP age reflects only its older class. Previous inventory age on the xlog-log RP was 97 years, and pole-log WP 50-65 years. Locally full cover in understory WP. The NE 6 acres had A-RM-JP-O and a small amount of RP-WP removed in 2008 (#069-05). A half-acre of boundary-excluded retention from stand 41's harvest was merged into this stand (listed QA age from that stand).																																																														
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35	6131 - Hemlock, White Pine, Maple, Birch	Sawtimber Medium	9.5	88	81-110	N/A	Narrow lowland stand on the river floodplain also picks up transition ground on the riser. RM-PB is the common thread, with varying distribution in WP & swamp conifers. Occasional RO, RP & JP on the dry terrace edge. The canopy is gappy from deadfalls, drifts off either end of 50-75% closure. Locally full understory coverage in tag alder, fir, spruce or WP. Light branch flagging in the sapling WP. Numerous hillside seeps feed into the river. Small pond at south end.																																																														
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36	2113 - Forage Crops	Nonstocked	5.2		Unspecified	Managed Opening	Maintained WL opening. W72-734 planting: buckwheat 2013, mast/buckwheat/clover 2015, rye 2016.																																																														



Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	Managed Site	General Comments			
37	6233 - Wet Meadow	Nonstocked	7.0		Unspecified	No	Sedge & marsh grass bordering beaver flooding and outflow stream. Numerous snags. Being colonized by tamarack, WP & fir, with traces of NWC regen from layering. 2010 OFS points: phragmites & purple loosestrife, herbicided in 2010 (H72-653) and 2016.			
38	6120 - Lowland Cedar	Sawtimber Well	43.7	119	111-140	N/A	Dense cedar cover with WP in a "supercanopy" layer above it. That WP is concentrated by the river and the upland edges. The stand's hemlock also occurs near the river, and in the far NE peninsula. That NE peninsula has some sparse swales where the black ash was lost. The understory is variable: open below the densest cedar pockets, and locally high cover in fir, spruce, or tag alder elsewhere. The stand is fairly well-drained and has a good proportion in drier transition ground, supporting some of the healthiest cedar in the compartment. Dieback and mortality are limited to the saturated/flooded ground. Wide range of cedar ages. But for a MiFI "rule", would have listed a second age on the cedar (163 yrs).			
		Canopy Species	% Cover	Size Class	DBH	Age	Sub-Canopy Species	Density	Avg. Height	Size
		Red Maple	5	Log/Pole	11		Balsam Fir	Medium	Variable	Sapling
		Paper Birch	5	Log/Pole	11		Black Spruce	Low	Variable	Sapling
		Balsam Fir	5	Pole/Sapling	6		Tag Alder	Low	5 - 10 feet	Tall Shrub
		Black Spruce	5	Pole/Log/Sap	7					
		Northern White Cedar	65	Log/Pole	12	119				
		White Pine	10	XLog/Log	22	123				
		Hemlock	5	Log/Pole	12					
39	500 - Water	Nonstocked	5.1		Unspecified	No	Beaver flooding, numerous snags. 2010 OFS points: two loosestrife plants & a patch of phragmites in adjacent stand 37. Phragmites & loosestrife along the NW & SE edges of this stand were herbicided in 2011 & 2016 (H72-653).			
40	4113 - R.Maple, Conifer	Sawtimber Medium	5.5	88	51-80	N/A	Small upland stand with transition ground edge. Dominant cover is stump-origin RM & paper birch, with NPO, aspen and mixed conifers. Top dieback is common in the RM & paper birch. Between the WP & fir, there is full understory cover that makes the canopy appear fuller.			
		Canopy Species	% Cover	Size Class	DBH	Age	Sub-Canopy Species	Density	Avg. Height	Size
		Red Maple	60	Log/Pole/XLog	11	88	Balsam Fir	Medium	Variable	Sapling
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		Quaking Aspen	5	Log/XLog	14		Black Spruce	Low	Variable	Sapling
		Northern Pin Oak	5	Log	15		Tag Alder	Trace	5 - 10 feet	Tall Shrub
		Balsam Fir	3	Pole	7		White Pine	Medium	10 - 20 feet	Pole
		Red Pine	4	XLog	24					
		Northern White Cedar	2	Log/Pole	11					
		Black Spruce	3	Log/Pole	10					
		White Pine	8	Pole/Log/XLog	8					



Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	Managed Site	General Comments																																																																									
41	4130 - Aspen	Sapling Well	50.9	5	Immature	N/A	Was final harvested by April 2016 (#023-13), cutting stems 2"+ DBH except NWC, green-marked (10 sq. ft. O-WP-RP cruised residual) and island retention. Passed regen survey at time of sale closure in 2018 with dense aspen clones separated by lower-stocked RM-BC-O, and non-stocked landings and skid routes. Light browse on the RM, heavier on the single-stem oak. Was an aspen stand with open-grown oak and significant RP-WP components. The stand has a small wetland inclusion by the RR tracks. Boundary-excluded island retention was merged with adjacent stand 34.																																																																									
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42	6233 - Wet Meadow	Nonstocked	5.6		Unspecified	No	Emergent marsh, rimmed with lowland shrub cover.																																																																									
43	4122 - Oak, Pine	Sawtimber Poor	15.2	125	51-80	N/A	Mature oak stand was shelterwood harvested in early 2005 (#026-03), cutting merch RM-A and marked oak (40 BA cruised residual). Residual canopy of xlog open-grown RO & WO with younger WP-RP now reaching into the lower canopy. Oak diameters decrease toward the stand's south end; traces of canopy JP & BTA there. Understory of A-RM regen from the cut and advanced WP saplings. Scattered oak snags.																																																																									
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44	3302 - Low Density Conifer Trees	Nonstocked	7.9	0	Unspecified	No	This stand was excluded from stand 45's harvest. It is a string of small, interconnected frost-pocket openings, being colonized by JP & WP, with scattered RP, NPO & cherry brush.																																																																									
45	42200 - Natural White Pine	Sawtimber Poor	61.8	52	1-50	N/A	Dry oak-pine stand with heavy mortality in the NPO was final harvested with reserves in late 2014 (#024-13), cutting merch stems except WO-RP-WP, marked NPO, and boundary-excluded retention (mostly within the RMZ, all left as inclusions within the post-harvest stand boundary). The dead oak was spec'd to cut, with the green-marked NPO expected to become the snag component. The residual WP-RP-O is the featured canopy. Because a lot of the oak was dead when cut, only a fraction of the cut stumps sprouted. Some areas have advanced oak regen. WP continues to seed in. Good slash complexes for EMR. Most of the canopy RO, RM & JP is within the RMZ retention; WP understory is heavier there also. Regen did not pass at time of re-inventory. Check again after two growing seasons.																																																																									
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46	6220 - Alder/willow	Nonstocked	12.1		Unspecified	No	Tag alder over marsh grass, with scattered NWC and colonizing tamarack. Four sub-acre islands of higher ground have patchy fir, spruce, RM & WP cover.																																																															
47	500 - Water	Nonstocked	7.2		Unspecified	No	Sand Hill Lake and a satellite pond dug on its inlet. Beaver dam between the lake and the AuSable River has the adjacent marsh under water.																																																															
48	4191 - Mixed Upland Deciduous with Conifer	Sapling Poor	40.6	7	1-50	N/A	Mature oak stand was final harvested with reserves in late 2014 (#024-13), cutting merch stems except RP-WP and island retention. Significant residual WP-RP cover increases in the SW & E. Most of the xlog WP-RP are on the west edge. RM is the dominant post-harvest cover, but there is a greater proportion in oak here than in stand 28, particularly in recruited stump-origin WO. Tops were spec'd to be left to impede deer movement; there didn't appear to be a direct correlation between slash depth and oak recruitment. Most of the single-stem browsed oak is only recordable in the understory in the seedling size class. Canopy closure drifts off either end of 50%. Regen did not pass at re-inventory to the new 6' height standard. Check again after two growing seasons.																																																															
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49	6233 - Wet Meadow	Nonstocked	6.9		Unspecified	No	Marsh is currently under water due to a beaver dam on the Sand Hill Lake outlet. Carried forward previous comments: Sedge, marsh grass, rushes and patches of lowland shrub surrounding Sand Hill Lake. The 1978 air photos show a pond having been dug on the lake's inlet stream. OFS point is the spoils pile. Near the lake's outflow, roughly an acre of marsh near the cabin site is encompassed by the remains of a fence.																																																															
50	42210 - Natural Red Pine	Sawtimber Well	89.6	67	141-170	N/A	This stand appears partially cut-over on the 1938 air photos. The residual RP-WP (now xlog) seeded in the majority small saw-large pole cover. Due to a MiFI limitation, the xlog RP had to be rolled into the log-pole RP canopy record, but its age (119 yrs) was not averaged into the dominant age (66 yrs). The xlog WP age can be considered a surrogate for the xlog RP. Species distribution varies, with dense pockets of RP separated by lower stocking in WP-A-RM-JP-O. Ten acres of stand 68's species-removal harvest extended into this stand, but the removal there was so light that it did not significantly alter the pine canopy. The stand is dotted with small wetlands (leatherleaf, tag alder). High cover in WP regen except under the dense RP pockets.																																																															
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51	42290 - Natural Mixed Pine	Sawtimber Well	88.9	135	111-140	N/A	Variable stand of xlog WP-RP above a significant deciduous component (RM, PB, A, O) and conifer poles. The pole WP-RP was not factored into the overall species age. The stand occupies upland and transition ground, is dotted with micro wetlands (leatherleaf, tag alder), and has extensive riparian interface. Cedar and hemlock occur on the transition ground and in lowland inclusions. Locally high cover in WP regen.				
Canopy Species		% Cover	Size Class	DBH	Age	Sub-Canopy Species		Density	Avg. Height	Size	
Red Maple		10	Log/Pole/XLog	12	94	Balsam Fir		Low	Variable	Sapling	
Red Oak		4	XLog/Log	22		Black Spruce		Trace	Variable	Sapling	
Paper Birch		1	Log/Pole	12		White Pine		Medium	Variable	Sapling	
Black Spruce		1	Pole/Log	8		Tag Alder		Trace	5 - 10 feet	Tall Shrub	
Northern White Cedar		4	Log/Pole	12							
White Pine		40	XLog/Log/Pole	22	135						
Red Pine		30	XLog/Log/Pole	20	123						
Jack Pine		1	Log	12							
Hemlock		4	Log/Pole	12							
Quaking Aspen		2	Log/XLog	14							
Bigtooth Aspen		2	Log/XLog	15							
Balsam Fir		1	Pole	7							
52	6129 - Mixed Coniferous Lowland Forest	Sawtimber Poor	12.5	125	51-80	N/A	The stand's NW & SW peninsulas are flooded and have sparse tamarack and spruce cover over tall tag alder. The stand's core has cedar with tamarack, birch, RM and fading WP. Windthrow is common and the cedar is dying back, except along the transition ground edge.				
Canopy Species		% Cover	Size Class	DBH	Age	Sub-Canopy Species		Density	Avg. Height	Size	
Red Maple		5	Log/Pole	10		Balsam Fir		Low	5 - 10 feet	Sapling	
Paper Birch		5	Pole/Log/Sap	7		Tamarack		Low	5 - 10 feet	Sapling	
Black Spruce		20	Pole	7	128	White Pine		Low	5 - 10 feet	Sapling	
Northern White Cedar		45	Log/Pole	10	125	Tag Alder		High	10 - 20 feet	Tall Shrub	
Tamarack		20	Log/Pole	11		Black Spruce		Low	Variable	Sapling	
53	6129 - Mixed Coniferous Lowland Forest	Poletimber Poor	7.5	118	1-50	N/A	Sparse stand on flooded ground, seen from edge only. East half has tamarack with spruce over full cover in tag alder. West half has spruce with tamarack over leatherleaf and labrador tea. Fading WP saw scattered throughout. Treed bog inclusion in SW.				
Canopy Species		% Cover	Size Class	DBH	Age	Sub-Canopy Species		Density	Avg. Height	Size	
Red Maple		2	Log/Pole	12		Black Spruce		Low	Variable	Sapling	
Black Spruce		40	Pole/Sapling	5		Tag Alder		Medium	5 - 10 feet	Tall Shrub	
Northern White Cedar		3	Pole	9		Labrador Tea		Medium	< 5 feet	Tall Shrub	
Tamarack		40	Pole/Sap/Log	7	118	Leatherleaf		Medium	< 5 feet	Tall Shrub	
54	6220 - Alder/willow	Nonstocked	1.1		Unspecified	No	Tag alder with some ilex.				



Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	Managed Site	General Comments																																																																						
55	6120 - Lowland Cedar	Poletimber Medium	33.8	116	141-170	N/A	Cedar cover varies from densely-stocked and healthy on the drier transition ground to sparse and fading on the saturated muck soils. The understory is heavy to tag alder & balsam fir below the struggling cedar on flooded ground, and root-tipping is common. Black spruce & tamarack are mixed in throughout & occur in locally-dense pockets. WP occurs mostly on the stand edge, along with a trace of RP. Crossed through W1/2 of stand but only viewed the E1/2 from the edge, so called the Survey Type: Edge.																																																																						
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56	6220 - Alder/willow	Nonstocked	1.7		Unspecified	No	Tag alder with scattered tamarack, spruce, fir & QA.																																																																						
57	3302 - Low Density Conifer Trees	Nonstocked	3.5		Unspecified	No	Upland opening with BC brush and colonizing WP. Spruce-fir concentrated on the margins.																																																																						
58	4133 - Aspen, Mixed Pine	Sawtimber Medium	8.5	57	51-80	N/A	New stand split off from stand 26 during post-harvest updates. These retention islands picked up some of the wettest lowland shrub swales, in addition to the majority upland ground. The aspen has immature to overmature stems, there are WP of all size classes, and the mature RM is oversized pulp.																																																																						
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59	6225 - Bog	Nonstocked	1.0	0	Unspecified	No	Hourglass leatherleaf bog.																																																																						
60	6233 - Wet Meadow	Nonstocked	4.0		Unspecified	No	Mudflat marsh island in the AuSable River, with tag alder and sweet gale mostly in the NE.																																																																						
61	6120 - Lowland Cedar	Sawtimber Medium	22.7	131	111-140	N/A	Cedar stand on mucky, marshy ground, with spruce & tamarack mixed in. NWC dieback common, increases toward the river. Cedar mortality has lowered the canopy into the 50-75% category. Black ash component gone. NW edge on less saturated ground has larger-diameter, healthier cedar. Tag alder throughout, with high cover in fir under the denser cedar canopy.																																																																						
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62	6121 - Tamarack	Poletimber Medium	20.8	101	51-80	N/A	Tamarack with spruce, NWC, and a fading super-canopy WP component. On mucky, saturated ground. Canopy becomes sparser toward the river.																																																												
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63	6224 - Treed Bog	Nonstocked	0.9		Unspecified	No	Leatherleaf bog with low-density tree cover (black spruce, WP & RP).																																																												
64	6120 - Lowland Cedar	Poletimber Medium	61.8	118	51-80	N/A	Cedar stand on mucky ground, with spruce, tamarack, and an increasing fir component. NWC dieback common on the lowest ground. The less-saturated ground has larger-diameter, healthier cedar. Canopy closure drifts off either end of the 50-75% category; it swings lower in areas with more cedar dieback (SE) or that were partially cut-over (pre-1938, North-center), and is highest on the somewhat drier ground. Black ash component gone. The understory alternates between high cover in tag alder or balsam fir. Fir recruitment from the understory is keeping the canopy from dropping a closure category.																																																												
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65	6121 - Tamarack	Poletimber Well	10.0	111	81-110	N/A	Relatively uniform cohorts of tamarack & spruce poletimber. Species distribution varies, with more spruce in the SW and more tamarack in the center & NE.																																																												
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66	6120 - Lowland Cedar	Poletimber Poor	89.4	134	51-80	N/A	Cedar on mucky, saturated ground with extensive dieback and mortality. Scattered supercanopy WP are also fading. Tamarack tolerating the wet site better. Understory has high coverage in balsam fir, alternating with high cover in tag alder. Second age estimate drawn from stand 65's current tamarack age.																																																												
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67	6129 - Mixed Coniferous Lowland Forest	Sawtimber Well	7.2	64	111-140	N/A	The south half of the stand was within stand 18's harvest boundary but was not cut due to low ground and overlap with subsequently-designated EMR habitat and Rich Conifer Swamp ERA. There is a moat of flooded ground near the adjacent uplands, with drier transition ground behind it. The stand has highly variable cover that changes every couple hundred feet: from south to north, starts with spruce-fir, shifts to NWC, then supercanopy WP & RP, crosses an intermittent stream, and ends with hemlock, RM and more xlog WP. Locally full understory in tag alder or balsam fir. Second age estimate on the cedar is from adjacent stand 15.																																																																						
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68	42290 - Natural Mixed Pine	Sawtimber Poor	16.6	46	1-50	N/A	A species-removal harvest was carried out in 2007 (#070-05), cutting merch stems except RP-WP. About 8 cd/ac was removed, half of that QA and the rest RM-JP-O. Canopy is two-layered, with large RP saw above mostly-pole WP. WP continuing to fill in the understory. There are pockets of A-RM regen where the residual pine was sparse. The harvest also encompassed ten acres within the NW edge of stand 50, but the removal there was so light that it did not significantly change the canopy.																																																																						
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69	6220 - Alder/willow	Nonstocked	2.5		Unspecified	No	Salix and tag alder with bog birch increasing to the east.																																																																						
70	6220 - Alder/willow	Nonstocked	2.1	0	Unspecified	No	Tall tag alder over marshy ground with scattered cedar, fir & tamarack. Was within an area that appeared (on the 1938 aerial photos) to have been largely cut-over.																																																																						
71	6128 - Lowland Coniferous, Mixed Deciduous	Sawtimber Medium	7.5	88	51-80	N/A	Variable stand on alternating bands of transition ground and saturated swales. The drier ground has dense spruce-fir cover. The lower swales have cedar, RM, tamarack and aspen. Cover is sparse and flooded where the black ash was lost. Locally high understory cover in fir or tag alder.																																																																						
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72	6220 - Alder/willow	Nonstocked	2.5	0	Unspecified	No	Tall tag alder over marshy ground with fading fir and scattered cedar & tamarack. Was within an area that appeared (on the 1938 aerial photos) to have been largely cut-over.																																																																						



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73	6220 - Alder/willow	Nonstocked	2.8	0	Unspecified	No	Tall tag alder over marshy ground with scattered fir, cedar, & tamarack. Was within an area that appeared (on the 1938 aerial photos) to have been largely cut-over.																																																																						
74	42290 - Natural Mixed Pine	Sawtimber Well	14.2	115	171-200	N/A	Relatively uniform, tall clean RP & WP, most stems not varying much on either site of xlog DBH. The stand picks up some cedar on the edge of the treed bog, and is dotted with micro wetlands (leatherleaf, tag alder). Locally high cover in WP regen.																																																																						
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75	429 - Mixed Upland Conifers	Sawtimber Medium	14.9	107	81-110	N/A	Variable transition stand between the uplands and the cedar swamp. Roughly three canopy layers: open-grown xlog WP-RP above log RM-A, and pole WP-S-F below. Species distribution varies. Locally high understory cover in WP, fir or RM. That understory makes the canopy appear fuller. Tag alder occurs on the stand edge and small inclusions. But for a MiFI "rule" would have called the younger WP P-L, and the older XL-L.																																																																						
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76	6220 - Alder/willow	Nonstocked	4.2	0	Unspecified	No	Tag alder with scattered fir, spruce, cedar, and colonizing paper birch & RM regen. Decades-old cedar windthrow in west half.																																																																						
77	42290 - Natural Mixed Pine	Sawtimber Medium	16.4	51	81-110	N/A	Part of an area that appeared largely cleared on the 1938 air photos (rest in comp 167), with WP & RP left scattered and in small clumps. The now xlog WP-RP residual occupies a supercanopy layer above the main canopy of pole-log WP & RP. Small clumps of pole QA are scattered across the stand. The xlog WP is open-grown, with low forks & multiple stem tops; second age estimate is from the rest of the type to the south in comp 167 stand 33.. WP is still colonizing brushy areas. Would've listed the majority younger WP as a split P-L category, but then a MiFI "rule" wouldn't have allowed listing the xlog WP separately.																																																																						
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78	6220 - Alder/willow	Nonstocked	0.9	0	Unspecified	No	Tag alder and salix, rimmed with aspen & pine.																																																																						
79	500 - Water	Nonstocked	0.9	0	Unspecified	No	Small pond surrounded by floating bog mat. Rimmed with NWC.																																																																						



Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	Managed Site	General Comments																																																								
80	6127 - Lowland Pine	Sawtimber Well	10.7	81	111-140	N/A	Black spruce with WP & some tamarack, established below residual WP saw. Ground starts on flooded bog in the east, then dries to >/< transition ground in the west. Traces of RM & PB.																																																								
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81	6220 - Alder/willow	Nonstocked	1.6	0	Unspecified	No	Tag alder, snags and scattered live NWC, WP.																																																								
82	6122 - Black Spruce	Poletimber Well	35.7	84	81-110	N/A	Spruce-dominated stand with fir, cedar and tamarack associates. On saturated lowlands except for drier transition ground on the east side. The west half appeared largely cut-over on the 1938 air photos, with a network of closely-spaced skid routes. Cedar cored pointed to most of it being residual from that cutting (134, 140 years, averaged for second age, 102 years - excluded); it tends to have old bole damage and poor form. The spruce on that side ran 75-85 years old, and on the east side about ten years older. Traces of xlog WP on the east edge. Windthrow and deadfalls are opening up the canopy; high cover in tag alder in those areas. NWC seedlings are scattered throughout but don't reach recordable levels.																																																								
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84	6225 - Bog	Nonstocked	0.9	0	Unspecified	No	Leatherleaf with tag alder and salix. Smaller satellite wetlands to north & east are inclusions within stand 74.																																																								
85	500 - Water	Nonstocked	2.0		Unspecified	No	Flooded stretch of two tribs to the AuSable.																																																								
86	500 - Water	Nonstocked	23.6		Unspecified	No	The AuSable River, with emergent wetland fragments encompassed by braided portions of the channel.																																																								
87	6220 - Alder/willow	Nonstocked	1.0		Unspecified	No	Tag alder with scattered NWC, WP & RM.																																																								
88	6220 - Alder/willow	Nonstocked	1.6		Unspecified	No	Tag alder with scattered RM & NWC. Small stream flows through to the AuSable.																																																								
109	4123 - Red Oak	Sawtimber Well	3.4	104	81-110	N/A	Retention island left when stand 9 was cut in 2014. NRO & WO, with RM pole clumps reaching into the bottom of the canopy. Suppressed poles continuing to weed out. Windthrow on the west edge near the ridgetop.																																																								
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Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	Managed Site	General Comments	
128	4123 - Red Oak	Sawtimber Well	26.1	103	51-80	N/A	Mature oak retention islands left when stand 28 was harvested in 2014. Most of the stand had been thinned in 2004 (#014-02), cutting merch RM-A and marked oak (cruised residual 60 BA). Only a trace of oak stump-sprouts alive from the 2004 thinning. Some windthrow on exposed NW edges.	
Canopy Species		% Cover	Size Class	DBH	Age	Sub-Canopy Species		
Red Oak		90	Log	12	103	White Pine		
White Oak		8	Log	11		Witch Hazel		
White Pine		2	Log/Pole/XLog	10		Red Maple		
						Red Pine		
						White Oak		
						Density		
						Avg. Height		
						Size		
141	4130 - Aspen	Sapling Medium	22.3	5	Immature	N/A	Most of the stand was final harvested by April 2016 (#023-13), cutting stems 2"+ DBH except NWC, green-marked (10 sq. ft. O-WP-RP cruised residual) and island retention. Passed regen survey at time of sale closure in 2018, filling in well with aspen except an acre in the NW that was sparse pre-harvest, and another acre in the NE that was mostly pine. Was an aspen stand with open-grown oak and significant RP-WP components. The stand has a small wetland inclusion (see OFS point). Boundary-excluded island retention was merged with adjacent stand 51, except for a 2-acre strip along the beaver pond that was kept with this stand (sparse aspen due to beaver cutting, filling in with WP).	
Canopy Species		% Cover	Size Class	DBH	Age	Sub-Canopy Species		
Black/Red (Hybrid) Oak		1	XLog	30		Red Maple		
White Oak		1	XLog	18		Density		
Quaking Aspen		60	Sapling	1	5	Avg. Height		
Bigtooth Aspen		10	Sapling	1	5	Size		
White Pine		7	Pole/Log/XLog	9				
Red Pine		1	XLog	22				
Red Maple		5	Sapling	1	5			
Black Cherry		15	Sapling	1	5			
148	4124 - Red with White Oak	Sawtimber Well	3.5	104	51-80	N/A	Mature oak retention islands left when stand 48 was harvested in 2014. Windthrow nibbling at exposed NW edges.	
Canopy Species		% Cover	Size Class	DBH	Age	Sub-Canopy Species		
Red Oak		67	Log/Pole/XLog	11	104	White Pine		
White Oak		20	Log/Pole	11		Witch Hazel		
Red Maple		10	Pole/Sapling	5		Density		
White Pine		3	Pole	8		Avg. Height		
						Size		