Compartment Review Presentation

Grayling Forest Management Unit

Compartment 210
Entry Year 2016
Acreage: 1,352
County Crawford
Management Area: Grayling Ice Contact

Revision Date: 08/19/2014

Stand Examiner: Scott Shooltz

Legal Description:

T28N R4W Sections 25, 26, & 27 North Frederic Township, Crawford County

Identified Planning Goals:

Management will emphasize continuing to balance the age class of aspen on suitable sites, thinning the northern hardwoods, and balancing age classes of red pine. Management will strive to sustainably produce various forest products; enhance game and non-game wildlife habitat; protect areas of unique character, and provide for forest-based recreational uses. Expected trends within this 10-year planning period are increased recreational pressure, managing oil and gas development, and introduced pests and diseases.

Soil and topography:

The soil is Kalkaska/Blue Lake sand on the east side with Rubicon sand in the middle. The AuSable River flood plain consists of Tawas/Lupton muck. The upland on the west side is Kalkaska sand. The terrain is rolling hills to very rolling hills on the east and west with the AuSable River flood plain traversing through the compartment.

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

This compartment consists of state land intermixed with private land, many which contain permanent residences. Recent sub-dividing has occurred on private land north of section 25 which will increase use within the area.

Unique Natural Features:

Eastern Massasauga (Sistrurus catenatus) is a reported occurrence in the compartment.

Archeological, Historical, and Cultural Features:

No Archeological, Historical, or Cultural Features known.

Special Management Designations or Considerations:

The AuSable River is a designated as a “natural river” and is a high priority cold water trout stream.

Watershed and Fisheries Considerations:

The AuSable River, a designated natural river and a high quality trout stream is located within the compartment. The Compartment also contains Cranberry Lake which does not have developed access.

Wildlife Habitat Considerations:

Featured species for this compartment, as designated by the Grayling Ice Contact MA, are American woodcock, Beaver, Eastern massasauga rattlesnake, Pileated woodpecker, Red-headed woodpecker, Ruffed grouse, Wild turkey, and White-tailed deer. The primary focus of wildlife habitat management in the Grayling Ice Contact management area will be to address the habitat requirements identified for the listed featured species. Based on the selected featured species, some of the most significant wildlife management issues in the management area are the maintenance of young forest and large open grassland complexes, the retention of large, over-mature trees and snags and the maintenance and expansion of hard mast and mesic conifer components. Expansion of hard mast tree species will be an issue with the onset of Beech Bark disease within the compartment. Supplemental planting of oak may be necessary to promote desired wildlife habitat.

Mineral Resource and Development Concerns and/or Restrictions

Surface sediments consist of ice-contact and glacial outwash sand and gravel and postglacial alluvium. The glacial drift thickness varies between 600 and 800 feet. Beneath the glacial drift is the Coldwater Shale. The Coldwater does not have an economic use. The nearest gravel pit is located one mile to the north and potential is good in the upland areas. The compartment is leased for oil and gas and has been developed for Antrim Shale gas production.

Vehicle Access:

County Roads in the compartment are Cameron Bridge Road, Kolka Creek Road, Hulbert Road, County Road 612 (paved), and Old U.S. 27 (paved). An extensive network of county roads and state trail roads provides adequate access. No roads have been identified for closure.

Survey Needs:

I survey is needed to establish the NW 1/16th corner and the SW 1/16th corner of section 26. These corners are needed to facilitate future management of stand 43.

Recreational Facilities and Opportunities:

Designated snowmobile trail #679, Blue Bear Trail, runs through the compartment.

Fire Protection:

The area has many trail roads for access. Some of the trail roads are narrow and sandy and hilly but most of the area can be reached. Response time will be greater along these trail roads. Most of the area is upland (except for the AuSable River flood plain) and consists of oak, aspen and hardwood stands.

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 & Treatment Map

Compartment: 210
T28N R04W Sec. 25,26,27
County: Crawford
Unit: Grayling
Management Area: Grayling Ice Contact
YOE: 2016
Acres: 1,352 GIS Calculated
Examiner: Scott Shooltz
Map Revised: 09/02/2014
Map Phase: Pre-Review

Stand # 23
Stocking Density
(412)0) - A7
Level 3 Level 4 OI Code
Cover Type Code

27 26 25

N

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Legend

- PLSS Corner
- Miris Corners
- Remonumented Section Corners
- Highway
- County Paved Roads
- Paved Roads
- County Gravel Roads
- Gravel Roads
- Poor Dirt Roads
- County Poor Dirt Roads
- Trail (Non-Recreation)
- Snowmobile Trail
- Snowmobile Trails
- Pipeline
- Powerline
- Stream
- Intermittent Stream
- Railroads
- Lakes and Rivers
- State Forest Land

- Directional
- Horizontal (90 deg.)
- Oil & Gas Well Surface Locations
- Oil
- Natural Gas
- Gas Condensate
- Gas Injection
- Gas Storage
- Liquified Petroleum Gas Storage
- Gas Production and Brine Disposal
- Brine Disposal
- Dry Hole
- Water Injection
- Other Injection
- Observation
- Other
- Permitted Well Location
- Oil & Gas Wells Plugged Wells

Treatments
- Clearcut (w/Reserves, Patch/Strip)
- Thinning (Crown, Low, Systematic)
- Selection (Group, Single Tree)
- Other Treatment - See Comments

Forest Stands
Level 3
- 411 - Northern Hardwood
- 413 - Aspen Types
- 419 - Mixed Upland Deciduous
- 421 - Planted Pines
- 422 - Natural Pines
- 423 - Other Upland Conifers
- 429 - Mixed Upland Conifers
- 431 - Upland Mixed Forest
- 611 - Lowland Deciduous Forest
- 612 - Lowland Coniferous Forest
- 613 - Lowland Mixed Forest

Non-Forest Stands
Level 3
- 110 - Low Intensity Urban
- 122 - Road/Parking Lot
- 310 - Herbaceous Openland
- 320 - Upland Shrub
- 330 - Low-Density Trees
- 500 - Water
- 622 - Lowland Shrub

1 4111-M6 · 2 122-X0 · 3 4111-M6 · 4 320-U0 · 5 4116-M9 · 6 4130-A6 · 7 310-G0 · 8 4110-M9 · 9 4116-M5 · 10 310-G0 · 11 4211-R6 · 12 4130-A6 · 13 4130-A3 · 14 622-V0 · 15 4226-MC9 · 16 4112-M9 · 17 4133-A9 · 18 4130-A6 · 19 4211-R8 · 20 4110-M8 · 21 622-V0 · 22 310-G0 · 23 4211-R8 · 24 4111-M9 · 25 4311-UM9 · 26 6132-LM6 · 27 122-X0 · 28 330-U0 · 29 6120-C8 · 30 4110-M9 · 31 6119-E4 · 32 4110-M8 · 33 4139-A3 · 34 4134-A9 · 35 4211-R9 · 36 310-G0 · 37 310-G0 · 38 4139-A3 · 39 110-X0 · 40 330-U0 · 41 6120-C9 · 42 6129-Q5 · 429 -MC9 · 43 4211-R9 · 44 6118-E9 · 45 6122-S6 · 46 500-Z0 · 47 4134-A9 · 48 4238-MC9 · 49 622-D0 · 50 4130-A3 · 51 4211-R9 · 52 6117-E6 · 53 4130-A3 · 54 622-L0 · 55 4134-A9 · 56 330-U0 · 57 4211-R9 · 58 500-Z0 · 59 6127-Q8 · 60 4136-A9 · 61 4132-A6 · 62 6129-Q5 · 63 6129-Q4 · 64 4191-MD9 · 65 4134-A9 · 66 4226-MC9 · 67 4110-M6 · 68 4137-A6 · 69 4130-A9 · 70 330-U0 · 71 310-G0 · 72 310-G0 · 73 4214-MC9 · 74 4211-R6 · 75 330-U0 · 76 330-U0 · 77 4130-A6 · 78 4311-UM9 · 79 4211-R6 · 80 330-U0 · 81 4130-A6 · 82 4226-MC6 · 83 4211-R6 · 84 110-X0 · 85 4133-A6 · 86 4130-A5 · 87 330-U0 · 88 4311-UM9 · 89 330-U0 · 90 4112-M9 · 91 4130-A9 · 92 4130-A3 · 93 4130-A8 · 94 330-U0 · 95 4116-M9 · 96 320-U0 · 97 4139-A8 · 98 4116-M9 · 99 330-U0 · 100 4130-A6 · 101 4139-A3 · 102 330-U0 · 103 310-G0 · 104 4112-M9 · 105 330-U0

Au Sable River · Cranberry Lake · W Cameron Bridge Rd · Hulbert Rd · Wolf Rd · Fawn Dr · N Old 27 · N Park St · N Cedar St · S Twin Peaks D · I 75 Crossover · W County Road 612 · N Roberts Rd · Johnston

84°47'0"W · 84°46'0"W · 84°45'0"W · 84°44'0"W · 84°43'0"W · 44°48'0"N · 44°47'0"N

1 0.5 0 1 Miles

Stand Boundary Map

Compartment: 210
T28N R04W Sec. 25,26,27
County: Crawford
Unit: Grayling
Management Area: Grayling Ice Contact
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- Oil & Gas Wells Plugged Wells
- Stand Boundaries

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- 330 - Low-Density Trees
- 500 - Water
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1 0.5 0 1 Miles

Special Conservation Areas & Site Conditions Map

Compartment: 210
T28N R04W Sec. 25,26,27
County: Crawford
Unit: Grayling
Management Area: Grayling Ice Contact
YOE: 2016
Acres: 1,352 GIS Calculated
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Map Revised: 09/02/2014
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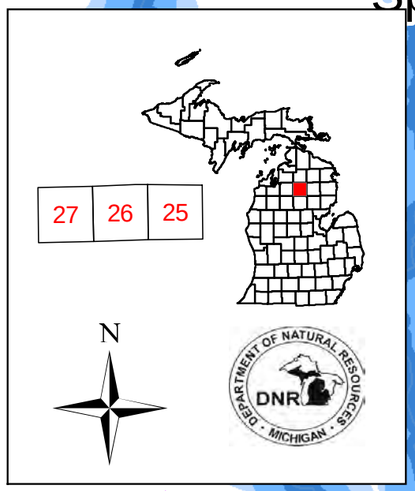
Stand # 23 — Stocking Density (412)0) - A7
Level 3 / Level 4 / OI Code
Cover Type Code



Legend
- Miris Corners
- Stand Boundaries

Reviewable SCAs
- SCA Removal

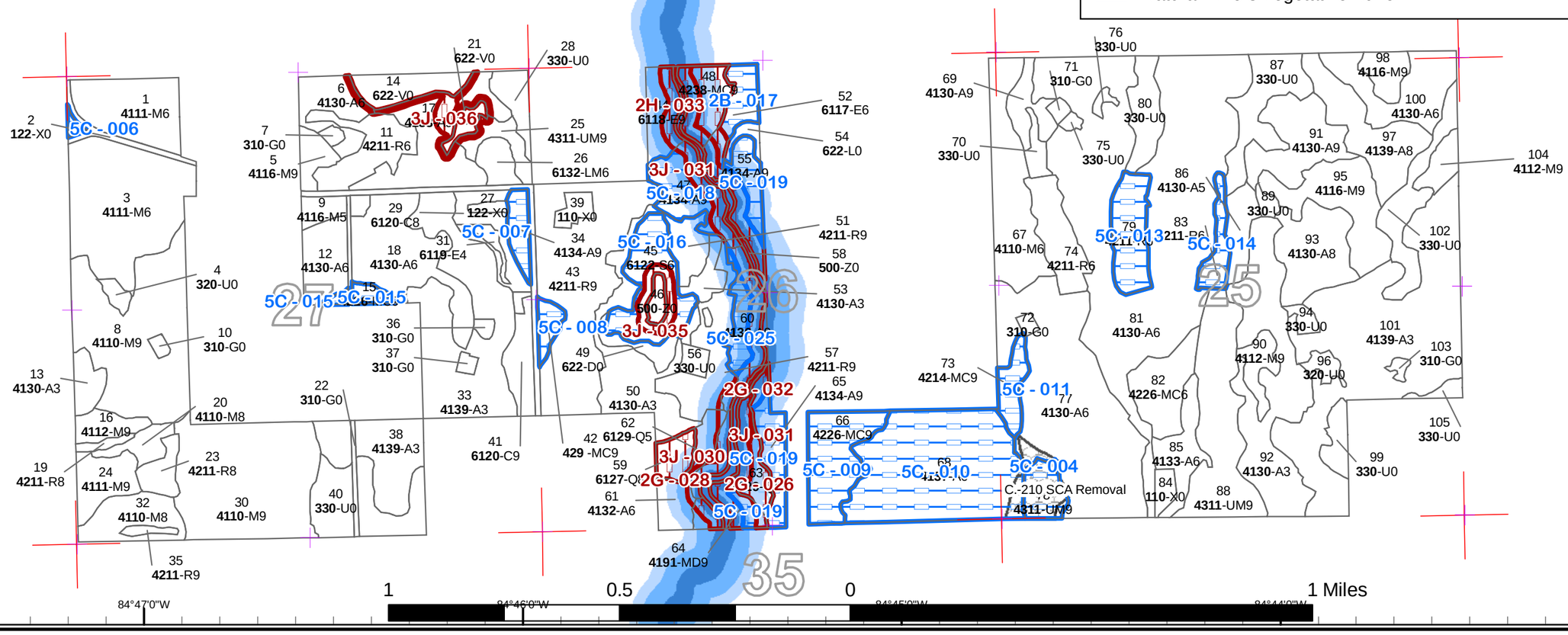
Site Condition Available
- Available w/ Constraints (Factor - Number)
- Unavailable (Factor - Number)

Site Condition Type

Available Factors W/ Constraints
- 5C: Delay treatment for age/size class diversity or exceptional site quality
- 2B: Unknown if access through adjacent landowner(s) is possible

Unavailable Factors
- 2G: Too wet (sensitive soils, does not include access issues)
- 2H: Blocked by physical obstacle (e.g. upland stand in a lowland area)
- 3A: Potential old growth / biodiversity
- 3J: Water quality / BMPs (stream, river, or lake)

Special Conservation Areas
- Cold Water Streams
- High Priority Trout Stream Buffer
- Natural Rivers Zoning District
- Natural Rivers Vegetative Buffer



Report 1 – Total Acres by Cover Type and Age Class

Grayling Mgt. Unit **Compartment 210 Year of Entry 2016**

Scott Shooltz : Examiner

Age Class

	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 +	Uneven Age	Total
Aspen	137	90	166	81	0	58	98	20	0	18	0	0	0	0	**668**
Bog	11	0	0	0	0	0	0	0	0	0	0	0	0	0	**11**
Cedar	0	0	0	0	0	0	0	0	15	0	0	0	0	0	**15**
Herbaceous Openland	10	0	0	0	0	0	0	0	0	0	0	0	0	0	**10**
Low-Density Trees	77	0	0	0	0	0	0	0	0	0	0	0	0	0	**77**
Lowland Conifers	0	0	0	0	0	0	0	0	16	0	0	0	0	0	**16**
Lowland Deciduous	0	0	8	0	4	0	8	0	0	0	0	0	0	0	**21**
Lowland Mixed Forest	0	5	0	0	0	0	0	0	0	0	0	0	0	0	**5**
Lowland Shrub	2	0	0	0	0	0	0	0	0	0	0	0	0	0	**2**
Lowland Spruce/Fir	0	0	0	0	0	0	0	0	17	0	0	0	0	0	**17**
Mixed Upland Deciduous	0	0	0	0	0	0	0	7	0	0	0	0	0	0	**7**
Natural Mixed Pines	0	0	0	0	13	0	0	3	0	0	18	0	0	0	**33**
Northern Hardwood	0	0	0	0	0	5	0	5	209	35	0	0	0	0	**253**
Planted Mixed Pines	0	0	0	0	0	0	0	0	6	0	0	0	0	0	**6**
Red Pine	0	0	0	0	0	37	83	0	0	0	0	0	0	0	**120**
Treed Bog	4	0	0	0	0	0	0	0	0	0	0	0	0	0	**4**
Upland Conifers	0	0	0	0	0	0	0	3	9	0	0	0	0	0	**13**
Upland Mixed Forest	0	0	0	0	0	0	36	0	6	0	0	0	0	0	**43**
Upland Shrub	4	0	0	0	0	0	0	0	0	0	0	0	0	0	**4**
Urban	16	0	0	0	0	0	0	0	0	0	0	0	0	0	**16**
Water	11	0	0	0	0	0	0	0	0	0	0	0	0	0	**11**
Total	**273**	**95**	**174**	**81**	**17**	**99**	**225**	**37**	**279**	**53**	**18**	**0**	**0**	**0**	**1352**

Report 2 – Proposed Treatment Summaries

Grayling Mgt. Unit
Year of Entry 2016

Compartment 210
Total Compartment Acres: 1,352

Acres by Treatment Type

Commercial Harvest - 349	Tree Planting - 0	Other - 0
Habitat Cut - 0	Opening Maintenance - 47	

Cover Type by Harvest Method

	Clearcut	Selection	Seed Tree	Shelterwood	Thinning	Other - Specify	Total Acres
Aspen Types	89	0	0	0	0	0	**89**
Northern Hardwood	29	51	0	0	132	0	**212**
Planted Pines	0	0	0	0	13	0	**13**
Upland Mixed Forest	5	0	0	0	31	0	**36**
Total	**123**	**51**	**0**	**0**	**176**	**0**	**349**

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
1	72210001-Cut	18.9	4111 - S.Maple, Hard Mast Association	High Density Pole	80	141-170	Harvest	Crown Thinning	4111 - S.Maple, Hard Mast Association	Cmpt. Review Proposal

Prescription Specs: Thin stand to 80 BA. Focus on removing beech, multiple clumped basswood, and releasing crop trees.

Other Comments: Stand is heavily stocked with sugar maple under 10 inches DBH. Some may be releasable others may need to be removed.

Next Steps: No next step needed.

Proposed Start Date: 10/01/2015

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
3	72210003-Cut	41.1	4111 - S.Maple, Hard Mast Association	High Density Pole	80	111-140	Harvest	Crown Thinning	4111 - S.Maple, Hard Mast Association	Cmpt. Review Proposal

Prescription Specs: Thin stand to 80 BA. Focus on removing beech, multiple clumped basswood, and releasing crop trees.

Other Comments: Stand is heavily stocked with sugar maple 10 inches and under with the largest size class being the 8 inch size class. Some of these may be releasable others will need to be removed.

Next Steps: No next step needed.

Proposed Start Date: 10/01/2015

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
8	72210008-Cut	45.7	4110 - Sugar Maple Association	High Density Log	80	141-170	Harvest	Single Tree Selection	4110 - Sugar Maple Association	Cmpt. Review Proposal

Prescription Specs: Thin stand between 80 and 100 BA. Create one 80ft canopy gap per acre. Focus on releasing crop trees.

Other Comments: Just under 50% of the stand BA is in the 10 and 12 inch size class. 30% of the stand is in the 6 and 8 inch size class. Manage for best tree in place but try to retain sugar maple above 14 inches DBH.

Next Steps: Natural regeneration survey. Management objective is sugar maple with a mix of intolerant species within gaps. Will accept any upland mix.

Proposed Start Date: 10/01/2015

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
11	72210011-Cut	13.1	42110 - Planted Red Pine	High Density Pole	62	141-170	Harvest	Crown Thinning	4211 - Planted Red Pine	Cmpt. Review Proposal

Prescription Specs: Mark stand to 110 BA by removing individual trees. Focus on releasing crop trees.

Other Comments: Some areas of this stand have experience blow down. Do not thin these areas as heavy. Protect snowmobile trail and signs.

Next Steps: No next step.

Proposed Start Date: 10/01/2015

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
16	72210016-Cut	5.1	4112 - Maple, Beech, Cherry Association	High Density Log	85	111-140	Harvest	Single Tree Selection	4112 - Maple, Beech, Cherry Association	Cmpt. Review Proposal

Prescription Specs: Thin stand to 90 BA. Focus on removing beech and poor formed trees. Create one or two 80 ft canopy gaps.

Other Comments: Stand is lower quality than stands to the north. Ok to reduce BA if needed.

Next Steps: Natural regeneration survey. Management objective is sugar maple/beech with more intolerant species within canopy gaps. Will accept any upland mix.

Proposed Start Date: 10/01/2015

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
17	72210017-Cut	18.2	4133 - Aspen, Mixed Pine	High Density Log	62		Harvest	Clearcut with Reserves	4136 - Aspen, Mixed Conifer	Cmpt. Review Proposal

Prescription Specs: Final harvest 2" and up. Buffer vernal ponds one tree length and streams 100 ft. Use these buffers as retention. Apply drumming log specifications.

Other Comments: NE corner will be best accessed from stand 28 because of a small stream which connects the two bogs. There is a intermittent stream which flows south out of stand 21 which is dry for most of the year. Ok to harvest accross but may need extra protection from rutting.

Next Steps: Natural regeneration survey. Management objective is aspen/mixed conifer but will accepts any upland mix.

Proposed Start Date: 10/01/2015

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
25	72210025-Cut	4.9	4311 - Pine, Aspen Mix	High Density Log	62		Harvest	Clearcut	4136 - Aspen, Mixed Conifer	Cmpt. Review Proposal

Prescription Specs: Final harvest 2" and up. Do not apply retention to this stand because of small treatment area. Apply drumming log specifications

Other Comments: Run boundary line as close as possible to adjacent lowland stand.

Next Steps: Natural regeneration survey. Management objective is aspen with mixed conifer but will accept andy upland mix.

Proposed Start Date: 10/01/2015

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
30	72210030-Cut	47.6	4110 - Sugar Maple Association	High Density Log	80	111-140	Harvest	Crown Thinning	4110 - Sugar Maple Association	Cmpt. Review Proposal

Prescription Specs: Remove poor quality sugar maple stems and basswood. Girdle 4 - 10 trees per acre to create some standing dead snags. Remove all beach except mark 1 - 2 per acre to leave. Leave all tops.

Other Comments: Treatment from past 10 years still under contract. Recreating treatment for the next 10 years.

Next Steps: No next step needed.

Proposed Start Date: 10/01/2015

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
67	72210067-Cut	24.4	4110 - Sugar Maple Association	High Density Pole	85	111-140	Harvest	Crown Thinning	4110 - Sugar Maple Association	Cmpt. Review Proposal

Prescription Specs: Thin stand to 80 BA. Focus on releasing crops trees and removing beech from this stand.

Other Comments: Set up with stand 69,

Next Steps: No next step needed.

Proposed Start Date: 10/01/2015

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
69	72210069-Cut	6.5	4130 - Aspen	High Density Log	57		Harvest	Clearcut	4139 - Aspen, Mixed Deciduous	Cmpt. Review Proposal

Prescription Specs: Final harvest 2" and up. Do not apply retention to this stand because of small stand size. Apply drumming log specifications.

Other Comments: Hardwood inclusion was removed from treatment area.

Next Steps: Natural regeneration survey. Management objective is aspen with a hardwood component but willa accept any upland mix.

Proposed Start Date: 10/01/2015

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
86	72210086-Cut	6.9	4130 - Aspen	Medium Density Pole	64		Harvest	Clearcut with Reserves	413 - Aspen	Cmpt. Review Proposal

Prescription Specs: Final harvest 2" and up. Apply standard area retention. Apply drumming log specifications.

Other Comments: Goal of this prescription is to expand aspen clone into the more open areas of this stand.

Next Steps: Natural regeneration survey. Management opbjective is aspen. If aspen fails plant to red pine.

Proposed Start Date: 10/01/2015

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
88	72210088-Cut	30.8	4311 - Pine, Aspen Mix	High Density Log	62	171-200	Harvest	Crown Thinning	4311 - Pine, Aspen Mix	Cmpt. Review Proposal

Prescription Specs: Thin this stand to 80 BA. Focus on retaining various size classes of white pine and releasing red pine crop trees. Protect as much understory white pine as possible.

Other Comments: Stand is on a side slope. Make sure to mark for operability.

Next Steps: No next step needed.

Proposed Start Date: 10/01/2015

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
90	72210090-Cut	5.3	4112 - Maple, Beech, Cherry Association	High Density Log	93	141-170	Harvest	Clearcut	4112 - Maple, Beech, Cherry Association	Cmpt. Review Proposal

Prescription Specs: Final harvest 2" and up. Do not apply retention to this stand because of small stand size and forest health concerns. Apply drumming log specifications.

Other Comments: The main objective of this harvest is to remove all of the beech to help manage Beech Bark Disease. Best access to this stand will be through stand 92 from 96. Skidding through stand 88 is also an option but will be a long skid.

Next Steps: Natural regeneration survey. Management objective is a mix of sugar maple and beech but will accept any upland mix.

Proposed Start Date: 10/01/2015

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
91	72210091-Cut	17.9	4130 - Aspen	High Density Log	64		Harvest	Clearcut with Reserves	4139 - Aspen, Mixed Deciduous	Cmpt. Review Proposal

Prescription Specs: Final harvest 2" and up. Apply standard area retention. Apply drumming log specifications.

Other Comments: Place retention around areas of advanced hardwood regeneration.

Next Steps: Natural regeneration survey. Management objective is aspen with a hardwood component. Will accept any upland mix.

Proposed Start Date: 10/01/2015

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
93	72210093-Cut	18.5	4130 - Aspen	Medium Density Log	94	81-110	Harvest	Clearcut with Reserves	4139 - Aspen, Mixed Deciduous	Cmpt. Review Proposal

Prescription Specs: Final harvest 2" and up. Apply standard area retention. Apply drumming log specifications.

Other Comments: Focus retention around vigorous hardwood advanced regeneration.

Next Steps: Natural regeneration survey. Management objective is aspen with a hardwood component but will accept andy upland mix.

Proposed Start Date: 10/01/2015

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
95	72210095-Cut	19.5	4116 - Mixed N. Hardwood - Aspen	High Density Log	94	111-140	Harvest	Clearcut with Reserves	4116 - Mixed N. Hardwood - Aspen	Cmpt. Review Proposal

Prescription Specs: Final harvest 2" and up. Apply standard area retention. Apply drumming log specifications.

Other Comments: Focus retention around areas of quality hardwoods.

Next Steps: Natural regeneration survey. Mangement objective is northern hardwood with an aspen component but will accept any upland mix.

Proposed Start Date: 10/01/2015

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
97	72210097-Cut	20.5	4139 - Aspen, Mixed Deciduous	Medium Density Log	64		Harvest	Clearcut with Reserves	4139 - Aspen, Mixed Deciduous	Cmpt. Review Proposal

Prescription Specs: Final harvest 2" and up. Apply standard area retention. Apply drumming log specifications.

Other Comments: Focus retention around hardwood pockets to help maintain diversity within the area. Treatment area extends into stand 102 in order to reduce woody biomass within opening. Work with a representative from Wildlife Division when setting up this portion of the sale area.

Next Steps: Natural regeneration survey. Management objective is aspen with a hardwood component. Will accept any upland mix.

Proposed Start Date: 10/01/2015

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
104	72210104-Cut	4.5	4112 - Maple, Beech, Cherry Association	High Density Log	94	111-140	Harvest	Clearcut	4112 - Maple, Beech, Cherry Association	Cmpt. Review Proposal

Prescription Specs: Final harvest 2" and up. Do not apply retention to this stand because of small stand size and forest health concerns. Apply drumming log specifications.

Other Comments: The main objective of this harvest is to remove all of the beech to help manage Beech Bark Disease.

Next Steps: Natural regeneration survey. Management objective is the current mix of species but will accept any upland mix.

Proposed Start Date: 10/01/2015

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
4	NF_72210004-NonFor	1.9	3205 - Mixed Upland Shrub				Non-Forest Management	Other - Specify	310 - Herbaceous Openland	Cmpt. Review Proposal

Prescription Specs: Periodic opening maintenance, as needed, that may include disking, fertilizing, food plot seeding, no-till prairie grass drill seeding, mowing, brushing, burning and herbicide application.

Other Comments:

Next Steps:

Proposed Start Date: Unspecified

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
36	NF_72210036-NonFor	1.0	310 - Herbaceous Openland				Non-Forest Management	Other - Specify	310 - Herbaceous Openland	Cmpt. Review Proposal

Prescription Specs: Periodic opening maintenance, as needed, that may include disking, fertilizing, food plot seeding, no-till prairie grass drill seeding, mowing, brushing, burning and herbicide application.

Other Comments:

Next Steps:

Proposed Start Date: Unspecified

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
56	NF_72210056-NonFor	2.2	3302 - Low Density Conifer Trees				Non-Forest Management	Other - Specify	310 - Herbaceous Openland	Cmpt. Review Proposal

Prescription Specs: Periodic opening maintenance, as needed, that may include disking, fertilizing, food plot seeding, no-till prairie grass drill seeding, mowing, brushing, burning and herbicide application.

Other Comments:

Next Steps:

Proposed Start Date: Unspecified

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
80	NF_72210080-NonFor	8.8	3301 - Low Density Deciduous Trees				Non-Forest Management	Other - Specify	310 - Herbaceous Openland	Cmpt. Review Proposal

Prescription Specs: Periodic opening maintenance, as needed, that may include disking, fertilizing, food plot seeding, no-till prairie grass drill seeding, mowing, brushing, burning and herbicide application.

Other Comments:

Next Steps:

Proposed Start Date: Unspecified

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
87	NF_72210087-NonFor	15.0	3301 - Low Density Deciduous Trees				Non-Forest Management	Other - Specify	310 - Herbaceous Openland	Cmpt. Review Proposal

Prescription Specs: Periodic opening maintenance, as needed, that may include disking, fertilizing, food plot seeding, no-till prairie grass drill seeding, mowing, brushing, burning and herbicide application.

Other Comments:

Next Steps:

Proposed Start Date: Unspecified

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
96	NF_72210096-NonFor	2.4	320 - Upland Shrub				Non-Forest Management	Other - Specify	310 - Herbaceous Openland	Cmpt. Review Proposal

Prescription Specs: Periodic opening maintenance, as needed, that may include disking, fertilizing, food plot seeding, no-till prairie grass drill seeding, mowing, brushing, burning and herbicide application.

Other Comments:

Next Steps:

Proposed Start Date: Unspecified

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
99	NF_72210099-NonFor	4.4	3301 - Low Density Deciduous Trees				Non-Forest Management	Other - Specify	310 - Herbaceous Openland	Cmpt. Review Proposal

Prescription Specs: Periodic opening maintenance, as needed, that may include disking, fertilizing, food plot seeding, no-till prairie grass drill seeding, mowing, brushing, burning and herbicide application.

Other Comments:

Next Steps:

Proposed Start Date: Unspecified

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
102	NF_72210102-NonFor	11.5	3301 - Low Density Deciduous Trees				Non-Forest Management	Other - Specify	310 - Herbaceous Openland	Cmpt. Review Proposal

Prescription Specs: Periodic opening maintenance, as needed, that may include disking, fertilizing, food plot seeding, no-till prairie grass drill seeding, mowing, brushing, burning and herbicide application.

Other Comments:

Next Steps:

Proposed Start Date: Unspecified

Total Treatment Acreage Proposed: 396.7

Report 4 -- Treatments Prescribed with a Site Condition

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
		#Type!	#Type!							

Prescription Specs:

Other Comment:

Next Steps:

Proposed Start Date: #Type!

Limiting Factor

Total Treatment Acreage Proposed: 0.0

Report 5 – Site Conditions

Grayling Mgt. Unit

Scott Shooltz : Examiner

Compartment 210

Year of Entry 2016

Availability for Management

Total Acres	Acres Available	Acres Not Available		Dominant Site Conditions Un	No	5C	3J	2H	2G	2B
668	641	27	**Aspen**	3	557	84	23		1	
15	15		**Cedar**		15					
16	0	16	**Lowland Conifers**		0		7		9	
21	15	6	**Lowland Deciduous**		9		5	1		6
5	5		**Lowland Mixed Forest**		5					
17	13	4	**Lowland Spruce/Fir**			13	4			
7	2	5	**Mixed Upland Deciduous**		1	2	1		3	
33	33		**Natural Mixed Pines**		13	20				
253	253		**Northern Hardwood**		252	1				
6	6		**Planted Mixed Pines**			6				
119	119	0	**Red Pine**		102	17	0			
13	3	9	**Upland Conifers**			3	4	6		
43	42	1	**Upland Mixed Forest**		36	6	1			
1,215	1,148	68	Total Forested Acres	3	989	153	44	7	13	6
	94%	6%	Relative Percent							

**Due to limitations in the current Site Conditions Analysis tool, all nonforested acres are considered available. Future development will enable analysis of nonforested types.*

Site No.	Dominant Site Cond	Availability	Dominant Site Condition	Acres	Other Site Condition	Other Site Condition	Other Site Condition	Other Site Condition
004		**Available**	**5C: Delay treatment for age/size class diversity or exceptional site quality**	7				
Comments:								
006		**Available**	**5C: Delay treatment for age/size class diversity or exceptional site quality**	1				
Comments:								

007	**Available**	**5C: Delay treatment for age/size class diversity or exceptional site quality**	5	

Comments:

008	**Available**	**5C: Delay treatment for age/size class diversity or exceptional site quality**	3	

Comments:

009	**Available**	**5C: Delay treatment for age/size class diversity or exceptional site quality**	18	

Comments:

010	**Available**	**5C: Delay treatment for age/size class diversity or exceptional site quality**	52	

Comments:

011	**Available**	**5C: Delay treatment for age/size class diversity or exceptional site quality**	6	

Comments:

013	**Available**	**5C: Delay treatment for age/size class diversity or exceptional site quality**	12	

Comments:

014	**Available**	**5C: Delay treatment for age/size class diversity or exceptional site quality**	5

Comments:

015	**Available**	**5C: Delay treatment for age/size class diversity or exceptional site quality**	3

Comments:

016	**Available**	**5C: Delay treatment for age/size class diversity or exceptional site quality**	13

Comments:

017	**Available**	**2B: Unknown if access through adjacent landowner(s) is possible**	6

Comments:

018	**Available**	**5C: Delay treatment for age/size class diversity or exceptional site quality**	8

Comments:

019	**Available**	**5C: Delay treatment for age/size class diversity or exceptional site quality**	16

Comments:

025	**Available**	**5C: Delay treatment for age/size class diversity or exceptional site quality**	5		

Comments:

026	**Not Available**	**2G: Too wet (sensitive soils, does not include access issues)**	5		

Comments:

028	**Not Available**	**2G: Too wet (sensitive soils, does not include access issues)**	5		

Comments:

030	**Not Available**	**3J: Water quality / BMPs (stream, river, or lake)**	21		

Comments:
Natural River Buffer 150 ft. Main Branch Au Sable.

031	**Not Available**	**3J: Water quality / BMPs (stream, river, or lake)**	13	2B: Unknown if access through adjacent landowner(s) is possible	

Comments:
Natural River Buffer Main Branch Au Sable River.

032	**Not Available**	**2G: Too wet (sensitive soils, does not include access issues)**	4	3J: Water quality / BMPs (stream, river, or lake)	

Comments:
Natural River Buffer Main Branch Au Sable River.

033	**Not Available**	**2H: Blocked by physical obstacle (e.g. upland stand in a lowland area)**	7	2B: Unknown if access through adjacent landowner(s) is possible

Comments:

035	**Not Available**	**3J: Water quality / BMPs (stream, river, or lake)**	4

Comments:

Craneberry Lake RMZ

036	**Not Available**	**3J: Water quality / BMPs (stream, river, or lake)**	6

Comments:

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

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	Archaeological Site	An aquatic or terrestrial area of the State that contains physical remains of human occupation. These are sites of cultural and historical significance that may occur upon terrestrial areas and Great Lakes bottomlands. They include thousands of Native American settlements and burial sites, as well as French and British outposts, nineteenth century logging camps, mines and homesteads. Beneath the waters of the Great Lakes, there are shipwrecks and other remains documenting the maritime trade. Such sites may be identified by Natural heritage data from the State Historic Preservation Office. Proposed treatments in this compartment will be implemented in such a manner as to maintain the integrity of these sites. Due to the sensitive nature of this information, no further detail about location is available.
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.
HCVA	Natural Rivers	There are two Natural Rivers datasets which are derived from spatial buffers set from an established and approved distance from the river centerlines. The Natural Rivers Zoning District is a 400 foot buffer for most Natural Rivers. The Vegetative Buffer ranges from 25 to 100 feet. To view specific Zoning Districts and Vegetative Buffers for each Natural River see the table located on the I:\Documentation\GDSE data folder.

Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
1	4111 - S.Maple, Hard Mast Association	High Density Pole	19.7	80	141-170	Kotar Classification: AFO with the best site quality to the east. Terrain is rolling to flat with the majority of the stand sloping down towards the private to the east. Areas of good sugar maple understory but also pockets of beech present. Dense canopy cover is controlling most of the understory.
3	4111 - S.Maple, Hard Mast Association	High Density Pole	41.1	80	111-140	Heavy stocking of pole size sugar maple within this stand most likely due to the lack of management over the past 40 years. Aspen is concentrated along the east edge but does exist throughout the stand. The understory is less dense than in adjacent stands but does have some thick pockets, mostly beech.
5	4116 - Mixed N. Hardwood - Aspen	High Density Log	4.6	74	51-80	Low quality hardwood stand with aspen. Pockets of dense sugar and red maple understory.
6	4130 - Aspen	High Density Pole	10.0	17		Stand has a thick understory to the west. Raspberry is prevelant throughout. Stand starts sloping down towards bog within 2 chains.
8	4110 - Sugar Maple Association	High Density Log	45.7	80	141-170	Good sugar maple regeneration in areas where the stand was thinned the hardest and around openings and well pads. Beech is the primary understory species and is extremely dense in areas.
9	4116 - Mixed N. Hardwood - Aspen	Medium Density Pole	4.6	57	51-80	Two aged stand created from previous harvest. Regeneration from that harvest is now occupying parts of the canopy. Low quality hardwoods.
11	42110 - Planted Red Pine	High Density Pole	13.1	62	141-170	Heavy red maple understory throughout with mixed hardwood to the west. Some blow down hass occurred since last harvest. Mostly smaller diameter trees.
12	4130 - Aspen	High Density Pole	10.5	15		
13	4130 - Aspen	High Density Sapling	4.8	16		Dense stand of aspen. Northern hardwood component will become more evident as stand ages.
15	42260 - Natural Pine, Mixed Deciduous	High Density Log	2.8	71	111-140	
16	4112 - Maple, Beech, Cherry Association	High Density Log	5.1	85	111-140	Site quality diminishes in this stand. Sugar maple and beech are from stump sprout origin with 3 - 5 stems per clump. Good wildlife value in this stand because of edge.
17	4133 - Aspen, Mixed Pine	High Density Log	23.3	62		Kotar Classification: PArVHa. Several vernal ponds in the north and east parts of the stand, surrounded by upland timber. These ponds are part of a larger drainage system which connects adjacent bogs through forested drains. Old beaver channels are present in a few of the forested drains. White pine is concentrated to the north and east. Red pine is south of the adjacent pine plantation.

Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
18	4130 - Aspen	High Density Pole	25.6	27		Kotar classification is PArVVb/AFO. Good aspen site but primarily a hardwood understory. Quaking aspen becomes more prevelent as you move east.
19	42111 - Planted Red Pine, Mixed Deciduous	Medium Density Log	1.4	58	51-80	Half of the red pine in this stand have a dead top. May be the result of being suppressed by competing species. Some have also wind thrown.
20	4110 - Sugar Maple Association	Medium Density Log	4.7	80	51-80	Heavily thinned hardwood stand. Removed most of the beech component because of forest health concerns. Stand should regenerate well but the understory currently has minimal stocking.
23	42110 - Planted Red Pine	Medium Density Log	4.8	58	111-140	Off site red pine. Dense hardwood understory occupies this stand and will become more dense as it fills in from thinning operation. Red pine growing well.
24	4111 - S.Maple, Hard Mast Association	High Density Log	9.2	85	81-110	Stand BA varies significantlly (30 - 170). This was created in previous thinning. Areas that where thinned the hardest now have a thick understory of sugar maple and accociated species about 15 - 20ft tall. Pockets of beech understory occupy the rest of the stand in dense pockets.
25	4311 - Pine, Aspen Mix	High Density Log	5.7	62		Heavy blow down of aspen and balsam fir. Few nice gaps created. Filling in with aspen and maple mostly. White is concentrated to the north and west of southern bog and appears to be planted, same age as adjacent red pine and in semi visible rows.
26	6132 - Mixed Lowland Forest with Cedar	High Density Pole	4.6	17		Heavy blow down of cedar has occurred over the past 20 years resulting in a change of cover type. Older cedar component is still present and concentrated to the south of this stand.
29	6120 - Lowland Cedar	Medium Density Log	7.8	86		3 - 4" of standing water throughout stand at time of inventory. Stand is wettest towards the north where cedar is experiencing mortality. Tag alder is a heavy understory component. Evidence of past cedar removal was present, single cut cedar stumps. Some regrowth of deciduous species is occuring but it is sparse.
30	4110 - Sugar Maple Association	High Density Log	47.6	80	111-140	Most of this stand sits on an easternly facing slope which is farely steep in spots. Kotar classification is AFO. Best site quality is mid slope of this stand. The understory in this stand is very dense with elderberry. Pockets of beech and sugar maple do exist though.
31	6119 - Mixed Lowland Deciduous Forest	Low Density Pole	4.1	48		Stand is comprised of three sperate cutting areas from the 60's. The northern most units are extremely wet with a full understory of tag alder. The canopy is sparse and is mostly comprised of pole size birch and ash with scattered large diameter white pine. The southern most unit is far more dry and regenerated to balsam poplar and birch which are now pole - log size. Tag alder is far less prevelent.

Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
32	4110 - Sugar Maple Association	Medium Density Log	11.3	80	1-50	Heavily thinned hardwood stand. Removed most of the beech component because of forest health concerns. Stand should regenerate well but the understory currently has minimal stocking. This stand contained more beech than in the north half of the unit which resulted in a lower residual stocking.
33	4139 - Aspen, Mixed Deciduous	High Density Sapling	42.6	5		Aspen stand with a mix of low areas to the east and higher areas to the west. Harvest left a lot of the previous understory intact resulting in variable canopy heights. Canopy closure is on the low end of 75 - 100% when cherry pockets are excluded. These areas are more predominant to the north end of the stand.
34	4134 - Aspen, Spruce/Fir	High Density Log	4.8	68		Boardered by drainage ditch to the west and Kolka Creek Rd. to the east. Balsam is wind throwing, aspen still looks healthy.
35	42110 - Planted Red Pine	High Density Log	1.3	58	111-140	Off site red pine. Dense hardwood understory occupies this stand and will become more dense as it fills in from thinning operation. Red pine growing well.
38	4139 - Aspen, Mixed Deciduous	High Density Sapling	18.6	5		Stand regenerated well. Established the previous mix of species. Few understory red maple were left from harvest. Tops dying.
41	6120 - Lowland Cedar	High Density Log	7.6	86	171-200	Vigorous cedar stand with a mix of deciduous species. Understory and ground cover were minimal. No water present in the stand at time of inventory. Ground is dryest along east edge and wettest towards the west. Overall solid ground. A deep drainage ditch runs along Kolka Creek Rd. to the east.
42	429 - Mixed Upland Conifers	High Density Log	3.3	72	141-170	South portion was part off adjacent pine plantation but failed. Red pine is located here. Aspen makes up majority of the north while white pine dominates southern half. Balsam fir and aspen are tipping over and snapping. Residual white pine appear to have been left in previous harvest creating two age classes. Some canopy white pine were aged at 60.
43	42110 - Planted Red Pine	High Density Log	47.6	60	141-170	Crown closure is on the low end of 75 - 100%. An area in the middle of this stand was left out of most previous harvest and possibly the one before. This area contains aspen and hardwoods along with red pine in the canopy. Kotar classification on this site is PArVVb/AFO(north end) - PArVHa (south end).
44	6118 - Lowland Deciduous with Cedar	High Density Log	8.4	68		Lowland stand with a similar mix of species as adjacent upland stand. Signs of periodic flooding in this stand but overall solid ground, no standing water. Blow down of balsam fir and aspen throughout the stand. Heavy deer use as a travel corridor.
45	6122 - Black Spruce	High Density Pole	17.0	86	111-140	Dense pole size spruce stand. Gground cover is 100% moss. Water was not present in stand and ground was semi spongey. Tamarack becomes more prevelant as you approuch the lake.

Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
47	4134 - Aspen, Spruce/Fir	High Density Log	13.4	68		Undulating terrain but mostly dry. Several small kettle holes and forested drains in this stand. This is where the cedar is located. Balsam fir component is snapping or wind throwing throughout the stand. Some red pine is located along the south edge of the stand.
48	42380 - Non Pine Upland Conifer, Mixed Deciduous	High Density Log	9.3	86		Fir is falling over and creating a heavy slash load. Red maple succeeding through the canopy. Stand rises in the middle, this is where most of the aspen is.
50	4130 - Aspen	High Density Sapling	20.9	17		Big tooth along north finger. Quaking aspen is majority in south block. Residual red pine along plantation.
51	42110 - Planted Red Pine	High Density Log	6.5	60	141-170	Crown closure is on the low end of 75 - 100%. Kotar classification on this site is AFO/AFOCa - PArVHa. Sugar maple was present in the understory along the east edge with the understory transitioning to red maple/oak to the west.
52	6117 - Lowland Deciduous, Mixed Coniferous	High Density Pole	8.5	20		Old beaver cut. Stand is part of a forested drain system which flows into two small stream to the south. Cedar is in pockets. Ground is firm, tag alder appears to be a releck from past beaver activity when water table was higher. Areas to the north are still wet. More spruce, cedar, and white pine to the north as well.
53	4130 - Aspen	High Density Sapling	5.7	17		Higher site quality in north finger. Primarily hardwood. Quaking aspen dominant in the south.
55	4134 - Aspen, Spruce/Fir	High Density Log	10.1	72		Two small streams run on either side of this stand with the east stream crossing through the stand to the south. Small trout were visible swimming in the streams.
57	42110 - Planted Red Pine	High Density Log	15.5	60	141-170	Crown closure is on the low end of 75 - 100%. Kotar classification on this site is AFOCa(north end) - AFO (south end).
59	6127 - Lowland Pine	Medium Density Log	4.6	86	81-110	Lowland white pine stand with mossy/lowland shrub ground cover. Water present throughout stand. South half has 30% canopy closure and is dominated by pole size spruce and tamarack. Little spruce in north half. Multiple age classes of white pine with the dominant stems aged at 86.
60	4136 - Aspen, Mixed Conifer	High Density Log	12.2	68		Aspen with cedar and white pine along river edge. Old beaver activity present in stand. One low spot in center of stand. Possibly standing water during wettest months.
61	4132 - Aspen, Jack Pine	High Density Pole	9.0	26		Stand includes a small inclusion to the south along Hulbert Rd. Old beaver activity in the stand promoted some of the current white pine.

Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
62	6129 - Mixed Coniferous Lowland Forest	Medium Density Pole	3.6	86	1-50	West edge of stand was cut with adjacent stand. Left most of the cedar along with scattered tamarack and balsam fir. Good regeneration of lowland species along west edge. Understory becomes pure tag alder close to river. Heavy blow down of cedar and mortality from age and site conditions. Old beaver activity present in stand.
63	6129 - Mixed Coniferous Lowland Forest	Low Density Pole	7.7	86		Wet stand. Cedar canopy has experienced heavy mortality. Balsam fir is succeed the canopy. Small drainage of the Au Sable river runs through south portion of stand.
64	4191 - Mixed Upland Deciduous with Conifer	High Density Log	6.8	72		Dry stand with wet boarders. Stand is split by the Au Sable River. Cedar concentrated around the edges and to the north. North half drops in elevation.
65	4134 - Aspen, Spruce/Fir	High Density Log	9.6	72	141-170	Stand sits on a western aspect slope and is a transition zone from upland to lowland.
66	42260 - Natural Pine, Mixed Deciduous	High Density Log	17.6	106	171-200	Kotar classification is PArVHa - PArVVb/AFO. Stand sites on a slope with a westernly facing aspect. A mix of deciduous species (mostly from past management) exist throughout this site but is dominated by pine types. White pine exists in three distinct age classes (log, pole, advanced regeneration) and has good potential for management.
67	4110 - Sugar Maple Association	High Density Pole	24.4	85	111-140	Kotar classification is AFO/AFOCa. Site quality increases from south to north. The sugar maple towards the extreme south end is stump sprout origin and growing in clumps. Most of this stand sits on a side slope with an easternly facing aspect.
68	4137 - Aspen, Birch	High Density Pole	51.6	53		Snowmobile trail runs through the north portion of this stand. Terrain is rolling with the highest point at the center of the stand. Kotar classification is PArVVb/AFO. Scattered pine, oak, and hardwood where left from previous harvest. All residual appear healthy and should last another ten years.
69	4130 - Aspen	High Density Log	6.5	57		
73	42141 - Planted Mixed Pine, Mixed Deciduous	High Density Log	5.7	81	111-140	Stand sits in a low area between hills and possibly acts as a frost pockets. Planted red pine and natural white pine dominate the site. Plantaion appears to have failed or had a significant volume removed in '75. Bigtooth becomes present on the western hill and shifts to quaking aspen in the flats. White pine and red maple advanced regeneration are filling in canopy gaps.
74	42110 - Planted Red Pine	High Density Pole	11.8	54	141-170	The canopy of this stand is still closing in from previous harvest. Some windthrow has occured. Parts of this stand will take awhile to respond to thinning because of its low crown ratio.
77	4130 - Aspen	High Density Pole	64.1	39		Terrain is made up of ridges and draws with the highest elevation in along the center of the stand. Kotar classification is PArVVb/AFO. Some red maple present throughout the stand but primarily a big tooth aspen clone with quaking aspen sprinkled in along some of the draws and lower areas.

Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
78	4311 - Pine, Aspen Mix	High Density Log	6.5	81	141-170	Two distinct age classes occupy this site. The 106 age class is made up of red and white pine which appear to be of natural origin. The 81 age class is made up of deciduous species and planted red pine which is in obvious rows and looks to have been planted to increase stocking or re-forest the site. Stand sits on a side slope with a westernly facing aspect.
79	42110 - Planted Red Pine	High Density Pole	12.1	54	171-200	The canopy of this stand is still closing in from previous harvest. Some windthrow has occured. Parts of this stand will take awhile to respond to thinning because of its low crown ratio.
81	4130 - Aspen	High Density Pole	121.8	26		North two fingers have a kotar classification of AFO/AFOCa. The sough portion is PArVVb/AFO but is most likely PArVVb or lower and has a heavy pine component. As stand ages areas of hardwood canopy will become more apparent.
82	42260 - Natural Pine, Mixed Deciduous	High Density Pole	12.9	45	81-110	Natural mixed pine stand. Red pine is more prevelent to the south. The older class of pine appears to have been residual from the harvest of the parent stand. Kotar classification is PArVVb/AFO.
83	42110 - Planted Red Pine	High Density Pole	5.3	54	171-200	The canopy of this stand is still closing in from previous harvest. Some windthrow has occured. Parts of this stand will take awhile to respond to thinning because of its low crown ratio.
85	4133 - Aspen, Mixed Pine	High Density Pole	9.6	26		Super-canopy red pine varies by 20 years. White pine will become a larger portion of this stand as individuals recruit.
86	4130 - Aspen	Medium Density Pole	6.9	64		Aspen clone does not cover entire stand. Areas of this stand are cherry openings.
88	4311 - Pine, Aspen Mix	High Density Log	30.8	62	171-200	Stand sits on a side slope with a westernly aspect. The 61 year old red pine is mostly located in the north end where it was planted underneath older stems of red pine and white pine. The white pine on site has several different age classes with the largest being 102 years old. Aspen/maple is heaviest in the SE corner of the stand.
90	4112 - Maple, Beech, Cherry Association	High Density Log	5.3	93	141-170	Beech mortality beginning in this stand. Most likely caused by BBD. Scale present but not abundant. The beech understory is thick throughout this stand.
91	4130 - Aspen	High Density Log	17.9	64		Kotar classification is AFO/AFOCa. In areas of this stand, mainly occupied by quaking aspen, the canopy is beggining to fall down and allow the hardwood understory to recruite into the canopy. The big tooth aspen is holding up better.
92	4130 - Aspen	High Density Sapling	38.2	17		Mix of pure aspen and hardwood pockets. The hardwood pockets vary in density. Openings are filled with raspberry.
93	4130 - Aspen	Medium Density Log	18.5	94	81-110	Over mature aspen stand converting to hardwood. Understory is pole size and recruiting into the canopy after aspen mortality. Some maple has even grown into the log class.

Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
95	4116 - Mixed N. Hardwood - Aspen	High Density Log	19.5	94	111-140	Northern most portion of this stand would be suitable for hardwood management but the west finger and the south finger drop significantly in quality. The aspen appears to have been cut from this stand 64 years ago, leaving all of the hardwood. This may explain some of the poor form. Kotar classification is AFO/AFOCa.
97	4139 - Aspen, Mixed Deciduous	Medium Density Log	19.0	64		Open grown aspen stand with pockets of n. hardwood. Sub-canopy is soft and hard maple of varying heights.
98	4116 - Mixed N. Hardwood - Aspen	High Density Log	5.6	94	81-110	Poor quality hardwood stand with many individuals from stump sprout origin, growing in clumps. The aspen appears to have been cut from this stand 64 years ago, leaving all of the hardwood. This may explain some of the poor form. Kotar classification is AFO/AFOCa.
100	4130 - Aspen	High Density Pole	17.0	39		Nice aspen stand with an understory of hardwood. Kotar classification is AFO/AFOCa.
101	4139 - Aspen, Mixed Deciduous	High Density Sapling	76.2	5		Left white pine/hardwood residual, now super canopy. Mix of dense regeneration and open pockets.
104	4112 - Maple, Beech, Cherry Association	High Density Log	4.5	94	111-140	Scale present. Mortality not yet occuring.

Report 9 – Nonforested Stands

Stand	Cover Type	Acres	Managed Site	Management Priority (Objective)	General Comments:
2	122 - Road/Parking Lot	3.2	Unspecified	Unspecified	
4	3205 - Mixed Upland Shrub	1.9	Yes	Medium	
7	310 - Herbaceous Openland	1.0	Unspecified	Unspecified	
10	310 - Herbaceous Openland	1.0	No	Unspecified	Old antrim well pad. Raspberry and grasses taking over site. Tree seedlings beginning to encroach around perimeter.
14	6225 - Bog	8.7	No	Unspecified	Leatherleaf/blueberry bog. Scattered pole size white pine throughout. Stand is part of a drainage system which flows through adjacent aspen stands and bogs.
21	6225 - Bog	2.4	No	Unspecified	Bog is part of larger drainage system. More water present here than in bog to the north. Signs of old beaver activity. No current activity.
22	310 - Herbaceous Openland	2.8	No	Unspecified	Powerline easement.
27	122 - Road/Parking Lot	7.6	Unspecified	Unspecified	
28	3301 - Low Density Deciduous Tree	5.5	No	Unspecified	Old farm site.
36	310 - Herbaceous Openland	1.0	Natural Regen	Aspen	Landing from previous harest. 1/8 - 1/4 of stand is covered by chips. Grasses are filling in rest of the site along with a couple clumps of trees.
37	310 - Herbaceous Openland	1.0	Unspecified	Unspecified	
39	11 - Low Intensity Urban	3.0	No	Low	Gas/oil storage facility.
40	3301 - Low Density Deciduous Tree	18.0	No	Unspecified	Cherry field with a few scattered red maple. Perimeter red maple to the north is retention from adjacent stand to the north.
46	50 - Water	2.2	No	Unspecified	Cranberry Lake. No developed public access. Some grasses and shrubs filling in around the edges of the lake.
49	6224 - Treed Bog	4.1	No	Unspecified	Trees and shrubs throughout. Water was also present in stand but treees suggest it dries out during summer months.
54	622 - Lowland Shrub	2.0	No	Unspecified	Dead cedar stand. Lots of water present.

Stand	Cover Type	Acres	Managed Site	Management Priority (Objective)	General Comments:
56	3302 - Low Density Conifer Trees	2.2	No	Unspecified	Old antrim well pad. Multiple clumps to scattered individuals of red pine.
58	50 - Water	9.3	No	Low	Main branch Au Sable River.
70	3301 - Low Density Deciduous Tree	2.9	No	Low	
71	3102 - Grass	1.1	No	Low	
72	3103 - Rubus-Fern	1.0	No	Low	
75	3301 - Low Density Deciduous Tree	0.9	No	Low	
76	3301 - Low Density Deciduous Tree	1.0	No	Low	
80	3301 - Low Density Deciduous Tree	8.8	No	Unspecified	
84	11 - Low Intensity Urban	2.5	No	Low	Gas/oil storage facility.
87	3301 - Low Density Deciduous Tree	15.0	No	Low	
89	3301 - Low Density Deciduous Tree	1.4	No	Low	
94	3301 - Low Density Deciduous Tree	1.9	Natural Regen	Aspen	Low density area created from adjacent harvest. Stand is slowly filling in.
96	320 - Upland Shrub	2.4	No	Unspecified	
99	3301 - Low Density Deciduous Tree	4.4	No	Unspecified	Stand boarders private field. Nice transition from open to forested.
102	3301 - Low Density Deciduous Tree	13.1	No	Unspecified	
103	3103 - Rubus-Fern	1.0	No	Low	
105	3301 - Low Density Deciduous Tree	1.8	No	Low	