



Compartment Review Presentation

Grayling Forest Management Unit

Compartment 72198

Entry Year 2017

Acreage: 1,458

County Crawford

Management Area: Ogemaw Hills

Revision Date: 2015-08-03

Stand Examiner: Joan Charlebois

Legal Description:

T25N R4W Sections 10, 11, 12

Identified Planning Goals:

To maintain forest health, productivity, sustainability, species diversification, and structural diversity throughout the compartment while providing for multiple use, visual management, and military training needs as allowed by the twenty year management agreement.

Soil and topography:

Terrain is steep on the west end and level to rolling elsewhere. The compartment's most productive soils, Klacking loamy sand and Kalkaska sand, support northern hardwoods cover, while it's poorer soils, Grayling sand and Graycalm-Grayling sand, underlay more of the oak and aspen types.

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

The compartment interfaces with private property that is mainly used for full-time residences. Section 10 is under a ten year management agreement with the Michigan National Guard. This agreement allows for camping and maneuvers but does not allow use of heavy equipment or high intensity live ammunition firing. Tracked vehicles are prohibited on these lands except to cross designated tank trails. Wheeled vehicles are restricted to existing trails and are not to be driven cross country. DNR management activities take precedence on these lands, though we try to tailor management activities so they are compatible with National Guard training needs.

Unique Natural Features:

None, per MNFI.

Archeological, Historical, and Cultural Features:

There are known concerns within the compartment. All proposed management activities have taken these concerns into consideration.

Special Management Designations or Considerations:

Military leased land.

Watershed and Fisheries Considerations:

None

Wildlife Habitat Considerations:

The compartment's mix of aspen, oak, pine, hardwoods and maintained wildlife openings provide habitat for upland game species.

Mineral Resource and Development Concerns and/or Restrictions

Surface sediments consist of glacial outwash sand and gravel and postglacial alluvium. The glacial drift thickness varies between 400 and 600 feet. Beneath the glacial drift is the Michigan Formation. The Michigan is quarried for gypsum elsewhere in the state. An active gravel pit is located in Section 9 (State pit #26) as well as an older pit in Section 36 (undocumented pit on State land), and potential is good on the upland areas. The compartment is leased for oil and gas. The compartment is located to the east of Beaver Creek Field. The field has produced over 21 MBO from the Devonian Detroit River Group and over 5 Bcf gas from the Ordovician Prairie du Chien. The compartment has one active well site and pipeline along King Road.

Vehicle Access:

County roads include Military, Five Mile, King & Oak roads. State forest trail roads provide additional access to the compartment's interior.

Survey Needs:

Could not locate property corners in the SESW sec 11.

Recreational Facilities and Opportunities:

The #7 Snowmobile trail runs through the east side of the compartment. Upland game hunting and mushroom picking are popular forms of dispersed recreation.

Fire Protection:

The compartment has good access for fire control equipment on the existing network of county and state forest roads. A fire hydrant is located in the NW corner of section 12 along the south side of 5-mile road.

Additional Compartment Information:

The following reports from the Inventory are attached:

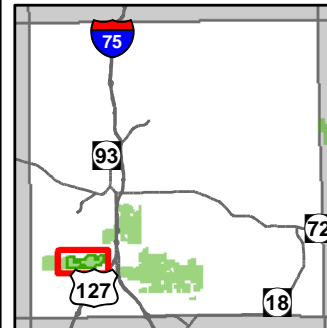
- Total Acres by Cover Type and Age Class**
- Cover Type by Harvest Method**
- Proposed Treatments – No Limiting Factors**
- Proposed Treatments – With Limiting Factors**
- Stand Details (Forested and Nonforested)**
- Dedicated and Proposed Special Conservation Areas**
- Site Condition Details**

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

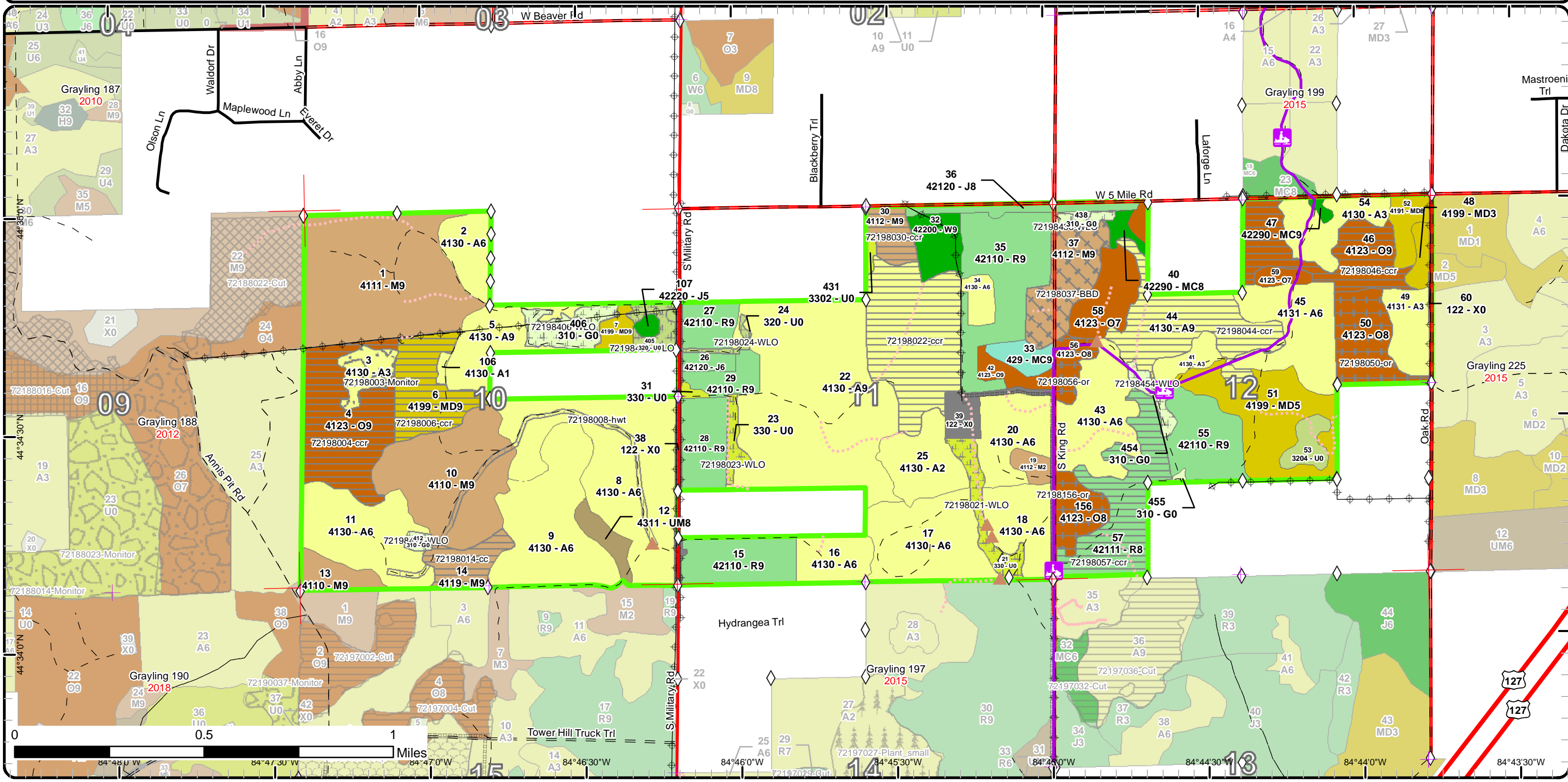
- Base feature information, stand boundaries, cover types, and numbers**
- Proposed treatments**
- Site condition boundaries**
- Details on the road access system**

Cover Type & Treatments Map

Compartment: 198
 T26N R04W 10-12
 County: Crawford
 Unit: Grayling
 Mgmt Area: Ogemaw Hills
 YOE: 2017
 Acres: 1460 GIS Calculated
 Examiner: Joan Charlebois
 Map Revised: 5/17/2016
 Map Phase: Post-Review

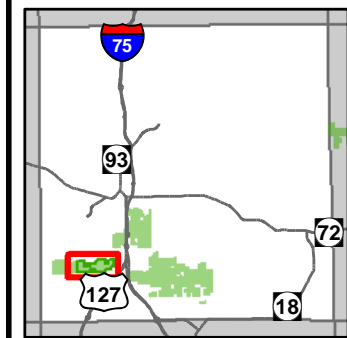


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|--|---|---|
| <ul style="list-style-type: none"> — Miris Corners + Remonumented Section Corners ◇ Field Grade GPS Corners ▲ Berms 🛷 Snowmobile Trails 🛷 Designated Snowmobile Trails 🛤 Highway 🛤 County Paved Roads 🛤 Paved Roads 🛤 County Gravel Roads 🛤 Gravel Roads 🛤 Poor Dirt Roads ⋯ Closed Roads — Pipeline | <ul style="list-style-type: none"> ⊕ Powerline ▭ Compartment Boundary ▭ Clearcut (w/Reserves) ▭ Other Treatment - See Comments ▭ Salvage ▭ Opening Maintenance ▭ Regeneration Survey ▭ Harvest, Overstory Removal ▭ 411 - Northern Hardwood ▭ 412 - Oak Types ▭ 413 - Aspen ▭ 419 - Mixed Upland Deciduous ▭ 421 - Planted Pines ▭ 422 - Natural Pines ▭ 429 - Mixed Upland Conifers | <ul style="list-style-type: none"> ■ 430 - Upland Mixed Fores ■ 122 - Roads/Parking Lot ■ 310 - Herbaceous Openland ■ 320 - Upland Shrub ■ 330 - Low Density Trees |
|--|---|---|

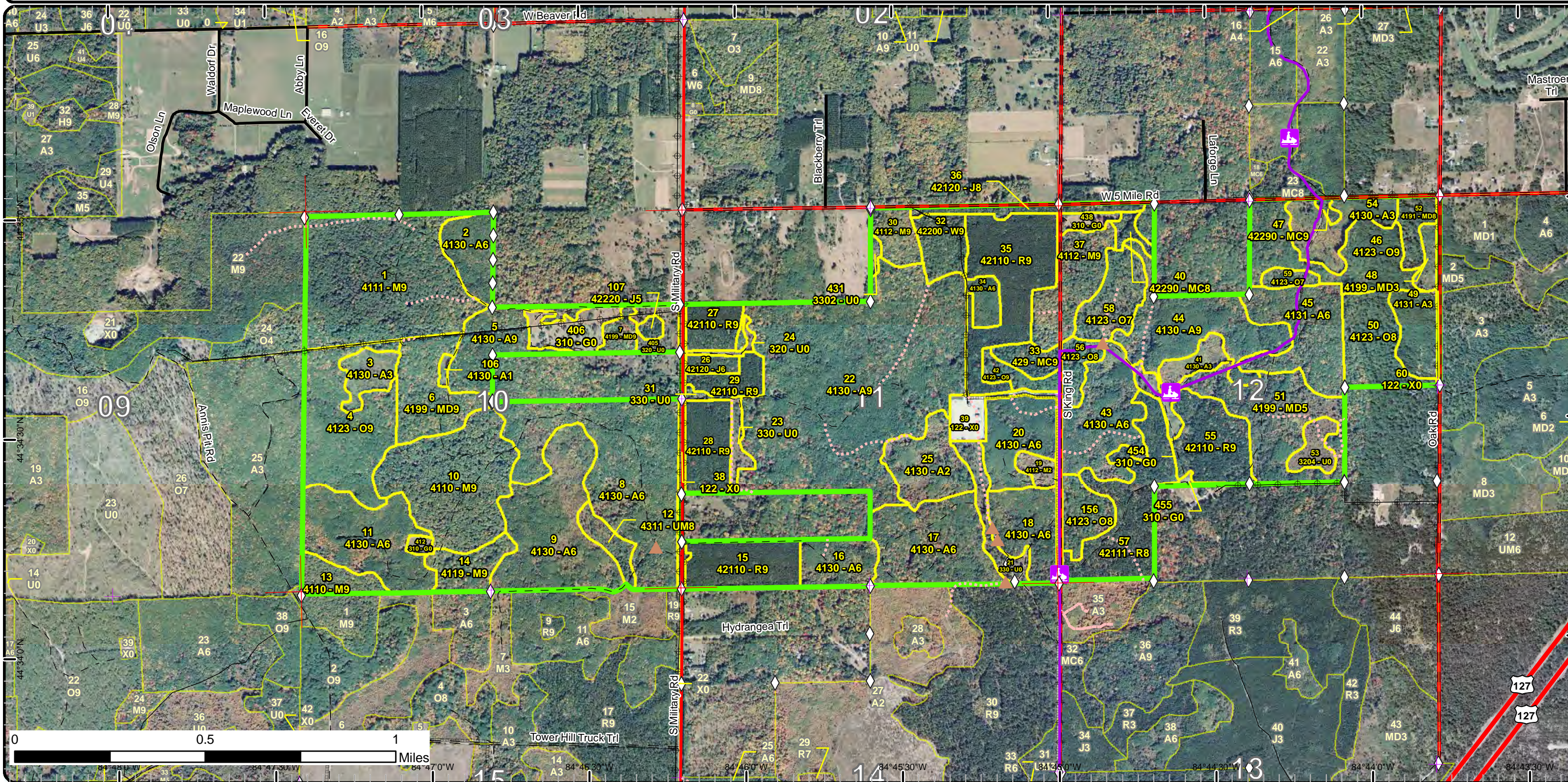


Stand Boundary Map

Compartment: 198
 T26N R04W 10-12
 County: Crawford
 Unit: Grayling
 Mgmt Area: Ogemaw Hills
 YOE: 2017
 Acres: 1460 GIS Calculated
 Examiner: Joan Charlebois
 Map Revised: 5/17/2016
 Map Phase: Post-Review

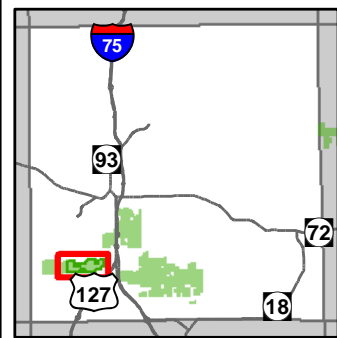


- Miris Corners
- Remonumented Section Corners
- Field Grade GPS Corners
- Berms
- Snowmobile Trails
- Designated Snowmobile Trails
- Highway
- County Paved Roads
- Paved Roads
- County Gravel Roads
- Gravel Roads
- Poor Dirt Roads
- Closed Roads
- Pipeline
- Compartment Boundary
- Stand Boundaries
- 411 - Northern Hardwood
- 412 - Oak Types
- 413 - Aspen
- 419 - Mixed Upland Deciduous
- 421 - Planted Pines
- 422 - Natural Pines
- 429 - Mixed Upland Conifers
- 430 - Upland Mixed Fores
- 122 - Roads/Parking Lot
- 310 - Herbaceous Openland
- 320 - Upland Shrub
- 330 - Low Density Trees

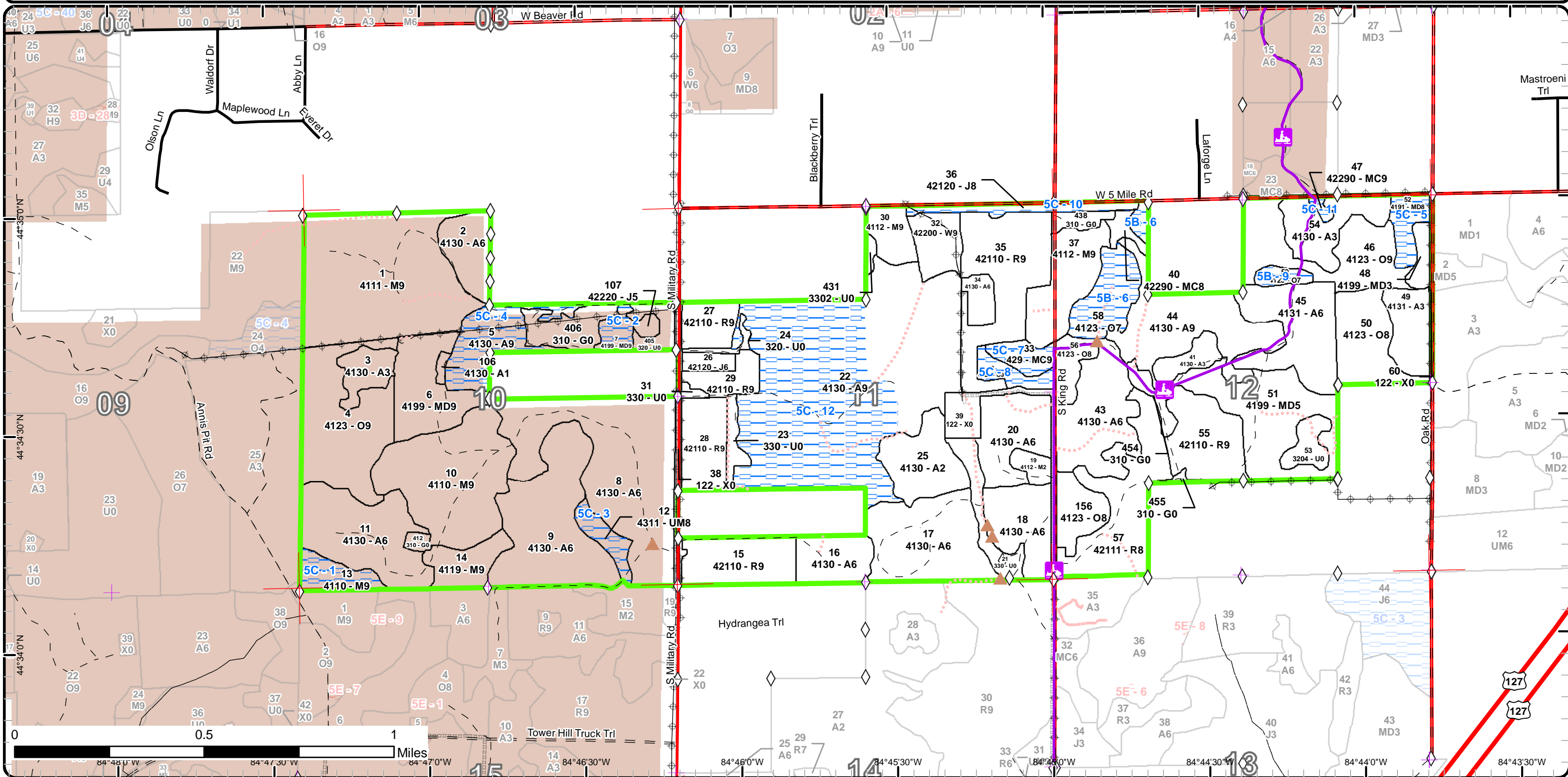


Special Conservation Areas & Site Conditions Map

Compartment: 198
 T26N R04W 10-12
 County: Crawford
 Unit: Grayling
 Mgmt Area: Ogemaw Hills
 YOE: 2017
 Acres: 1460 GIS Calculated
 Examiner: Joan Charlebois
 Map Revised: 5/17/2016
 Map Phase: Post-Review



- Miris Corners
- + Remonumented Section Corners
- Field Grade GPS Corners
- Berms
- Snowmobile Trails
- Designated Snowmobile Trails
- Highway
- County Paved Roads
- County Gravel Roads
- - Gravel Roads
- - - Poor Dirt Roads
- - - - Closed Roads
- Pipeline
- Compartment Boundary
- SCA
- SCA Removal
- Available w/ Constraints
- 5B: Maintain for regeneration purposes
- 5C: Delay treatment for age/size class diversity or exceptional site quality
- Stand Boundaries
- Special Conservation Areas
- Research, Development, and Military Lands



Report 1 – Total Acres by Cover Type and Age Class

Grayling Mgt. Unit

Compartment 198 Year of Entry 2017

Joan Charlebois : Examiner



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	39	23	193	116	276	42	0	0	0	0	0	0	0	0	0	0	0	689
Cropland	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
Herbaceous Openland	26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	26
Jack Pine	0	0	0	0	0	4	0	8	0	0	0	0	0	0	0	0	0	2	14
Low-Density Trees	19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19
Mixed Upland Deciduous	0	5	0	0	42	0	0	0	0	6	0	36	0	0	0	0	0	0	89
Natural Mixed Pines	0	0	0	0	0	0	0	0	4	0	0	0	1	0	0	0	0	0	5
Northern Hardwood	0	5	0	0	0	0	0	0	0	0	167	26	10	0	0	0	0	0	208
Oak	0	0	0	0	0	0	0	0	0	0	61	15	84	0	0	0	0	0	160
Red Pine	0	0	0	0	0	9	98	0	67	0	0	0	0	0	0	0	0	0	174
Upland Conifers	0	0	0	0	0	0	0	0	0	0	0	8	0	0	0	0	0	0	8
Upland Mixed Forest	0	0	0	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0	7
Upland Shrub	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	17
Urban	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24
White Pine	0	0	0	0	0	0	0	0	0	0	13	0	0	0	0	0	0	0	13
Total	91	49	23	193	158	289	147	8	71	6	241	85	95	0	0	0	0	2	1458



Report 2 – Treatment Summary

Grayling Mgt. Unit

Year of Entry: 2017

Acres of Harvest

Compartment 198

Total Compartment Acres: 1,458

Commercial Harvest - 345
 Harvests with Site Condition - 0
 Next Step Harvest - 0
 Habitat Cut - 0

Cover Type by Harvest Method

	Clearcut	Selection	Patch Clearcut	Seed Tree	Shelterwood	Thinning	Overstory Removal	Salvage	Other	Total Acres
Aspen	99	0	0	0	0	0	0	0	0	99
Mixed Upland Deciduous	27	0	0	0	0	0	0	0	0	27
Northern Hardwood	24	0	0	0	0	0	0	26	0	49
Oak	83	0	0	0	0	46	0	0	0	128
Red Pine	41	0	0	0	0	0	0	0	0	41
Total	274	0	0	0	0	46	26	0	0	345

Proposed and Next Step Treatments by Method

	Harvest	Site Prep	Planting	Seeding	Burning	Pesticide	Monitoring	Other	Non-Forest Mgt.	Total Acres
Current	345	0	0	0	0	10	0	56	0	411
Next Step	0	41	41	0	0	82	360	0	49	573
Total	345	41	41	0	0	82	370	0	105	985



S t a n d	Treatment Name	Acres	Stand CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Age Structure	Approval Status
3	72198003-Monitor	10.1	4130 - Aspen	Sapling Well	6	Immature	Monitoring	Natural Regen (Re-Inventory)	413 - Aspen	Even-Aged	Approved Proposal

Habitat Cut: No

Site Condition:

Prescription check regen
Specs:

Next Step
Treatments:

Acceptable aspen
Regen:

Other Old next step comments:
Comment:

Proposed Start Date: 10/1 /2014

4	72198004-ccr	47.5	4123 - Red Oak	Sawtimber Well	90	111-140	Harvest	Clearcut with Retention	4191 - Mixed Upland Deciduous with Conifer	Even-Aged	Proposal
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Habitat Cut: No

Site Condition:

Prescription Cut 2"+ DBH except leave the pine and ~2 acres in island retention. Try to place retention on the more sheltered, better quality sites within the stand.
Specs:

Next Step
Treatments:

Acceptable A moderately stocked mix of oak, aspen, maple & WP.
Regen:

Other Protect WP regen. Apply drumming log/hare spec. Old next step comments:
Comment:

Proposed Start Date: 10/1 /2016

6	72198006-ccr	27.4	4199 - Other Mixed Upland Deciduous	Sawtimber Well	100	81-110	Harvest	Clearcut with Retention	4191 - Mixed Upland Deciduous with Conifer	Even-Aged	Proposal
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Habitat Cut: No

Site Condition:

Prescription Cut 2"+ DBH except leave the pine and ~1 acre in island retention.
Specs:

Next Step
Treatments:

Acceptable A moderately stocked mix of oak, aspen, RM, beech & WP.
Regen:

Other Protect WP regen. Apply drumming log/grouse spec. Old next step comments:
Comment:

Proposed Start Date: 10/1 /2016

8	72198008-hwt	7.6	4130 - Aspen	Poetimber Well	38	51-80	NonForestMgt	Herbaceous/Crop /Grass Planting	310 - Herbaceous Openland		Proposal
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Habitat Cut: No

Site Condition:

Prescription Re-close the road (stump berm has been breached) and seed with forage cover. Hunter walking trail.
Specs:

Next Step
Treatments:

Acceptable
Regen:

Other Old next step comments:
Comment:

Proposed Start Date: 1 /4 /2016



Stand	Treatment Name	Acres	Stand CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Age Structure	Approval Status
14	72198014-cc	13.3	4119 - Mixed Northern Hardwoods	Sawtimber Well	92	81-110	Harvest	Clearcut	4139 - Aspen, Mixed Deciduous	Even-Aged	Proposal

Habitat Cut: No

Site Condition:

Prescription Final harvest 1"+ DBH except leave some of the open-grown oak with good den/nest potential & the WP. No additional retention due to small stand size.
Specs:

Next Step
Treatments:

Acceptable Aspen with mixed hardwoods at moderate stocking. Poorer stocking is expected where stem densities were low pre-harvest.
Regen:

Other Apply drumming log/grouse spec. Old next step comments:
Comment:

Proposed Start Date: 10/1 /2016

21	72198021-WLO	11.4	330 - Low-Density Trees	Nonstocked		1-50	NonForestMgt	Other - Specify	310 - Herbaceous Openland		Proposal
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Habitat Cut: No

Site Condition:

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

Next Step
Treatments:

Acceptable
Regen:

Other Old next step comments:
Comment:

Proposed Start Date: 10/1 /2016

22	72198022-ccr	57.1	4130 - Aspen	Sawtimber Well	48	81-110	Harvest	Clearcut with Retention	4139 - Aspen, Mixed Deciduous	Even-Aged	Proposal
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Habitat Cut: No

Site Condition:

Prescription Cut approximately a third of the stand this YOY, leaving the pine and ~2 acres in island retention.
Specs:

Next Step
Treatments:

Acceptable A fully stocked mix of aspen, oak & maple.
Regen:

Other Apply drumming log/grouse spec. Consider cutting the remaining portion of the stand over the next 2 YOY's if the aspen health holds up. The aspen is too old to stagger the harvests across 4 YOY's as indicated in the M.A. plan for grouse. Old next step comments:
Comment:

Proposed Start Date: 10/1 /2016

23	72198023-WLO	4.8	330 - Low-Density Trees	Nonstocked		Unspecified	NonForestMgt	Other - Specify	310 - Herbaceous Openland		Proposal
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Habitat Cut: No

Site Condition:

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

Next Step
Treatments:

Acceptable
Regen:

Other Old next step comments:
Comment:

Proposed Start Date: 10/1 /2016



S t a n d	Treatment Name	Acres	Stand CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Age Structure	Approval Status
24	72198024-WLO	2.3	320 - Upland Shrub	Nonstocked	0	Unspecified	NonForestMgt	Other - Specify	310 - Herbaceous Openland		Proposal

Habitat Cut: No

Site Condition:

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

Next Step
Treatments:

Acceptable
Regen:

Other Old next step comments:
Comment:

Proposed Start Date: 1 /4 /2016

30	72198030-ccr	10.2	4112 - Maple, Beech, Cherry Association	Sawtimber Well	110	111-140	Harvest	Clearcut with Retention	4139 - Aspen, Mixed Deciduous	Even-Aged	Proposal
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Habitat Cut: No

Site Condition:

Prescription Cut 2"+ DBH except leave the pine, hemlock and ~1/2 acre in island retention.
Specs:

Next Step
Treatments:

Acceptable A moderately stocked mix of aspen with maple & beech.
Regen:

Other Old next step comments:
Comment:

Proposed Start Date: 10/1 /2016

37	72198037-BBD	25.6	4112 - Maple, Beech, Cherry Association	Sawtimber Well	104	81-110	Harvest	Salvage	4119 - Mixed Northern Hardwoods	Uneven-Aged	Proposal
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Habitat Cut: No

Site Condition:

Prescription Pre-salvage the beech. Beech scale present.
Specs:

Next Step
Treatments:

Acceptable
Regen:

Other Spec applicable beech hauling restriction. Old next step comments:
Comment:

Proposed Start Date: 10/1 /2016

44	72198044-ccr	41.8	4130 - Aspen	Sawtimber Well	57	81-110	Harvest	Clearcut with Retention	413 - Aspen	Even-Aged	Proposal
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Habitat Cut: No

Site Condition:

Prescription Cut 2"+ DBH except leave ~3 acres in island retention.
Specs:

Next Step
Treatments:

Acceptable Full to moderate stocking in aspen, oak & RM, with poorer stocked inclusions expected where cover is currently sparse.
Regen:

Other Apply snowmobile & ORV trail protection specs. Protect hawthorn. Apply drumming log/hare spec. Old next step comments:
Comment:

Proposed Start Date: 10/1 /2016



S t a n d	Treatment Name	Acres	Stand CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Age Structure	Approval Status
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46	72198046-ccr	35.3	4123 - Red Oak	Sawtimber Well	118	81-110	Harvest	Clearcut with Retention	4121 - Oak, Aspen	Even-Aged	Proposal
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Habitat Cut: No

Site Condition:

Prescription Cut 2"+ DBH except leave the pine, hemlock and ~2 acres in island retention.

Specs:

Next Step

Treatments:

Acceptable A moderately stocked mix of oak, aspen, maple and pine.

Regen:

Other Protect advanced regen. Apply snowmobile & ORV trail protection specs. Add drumming log/grouse spec. Old next step comments:

Comment:

Proposed Start Date: 10/1 /2016

50	72198050-or	24.2	4123 - Red Oak	Sawtimber Medium	118	51-80	Harvest	Overstory Removal	4121 - Oak, Aspen	Two-Aged	Proposal
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Habitat Cut: No

Site Condition:

Prescription Remove the mature oak overstory that was left by the 1990 shelterwood harvest. Leave ~1 acre in island retention.

Specs:

Next Step

Treatments:

Acceptable A moderately stocked mix of oak, aspen, RM & pine. A majority will be advanced regen released by the cut, with additional oak stump sprouts

Regen: expected from the cut.

Other Cut operational paths through the regen, and consider additional clearing of RM saplings around the cut oak, otherwise protect the regen. Old

Comment: next step comments:

Proposed Start Date: 10/1 /2016

56	72198056-or	8.2	4123 - Red Oak	Sawtimber Medium	105	51-80	Harvest	Overstory Removal	4191 - Mixed Upland Deciduous with Conifer	Two-Aged	Proposal
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Habitat Cut: No

Site Condition:

Prescription Remove the mature oak overstory left by the 1989 shelterwood harvest. Leave ~1/2 acre in island retention (consider excluding the NW corner

Specs: to protect the hemlock there).

Next Step

Treatments:

Acceptable A moderately stocked mix of RM, aspen, PB, oak & pine. A majority will be advanced regen released by the cut, with additional oak stump

Regen: sprouts expected from the cut.

Other Cut operational paths through the regen, and consider additional clearing of RM saplings around the cut oak, otherwise protect the regen. Old

Comment: next step comments:

Proposed Start Date: 10/1 /2016

57	72198057-ccr	41.1	42111 - Planted Red Pine, Mixed Deciduous	Sawtimber Medium	76	81-110	Harvest	Clearcut with Retention	42110 - Planted Red Pine	Even-Aged	Proposal
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Habitat Cut: No

Site Condition:

Prescription Cut 1"+ DBH except leave ~2 acres in island retention. Consider leaving islands at ends of peninsulas that extend into stand 43's aspen type.

Specs: Site prep & plant RP, with mechanical and herbicide treatments as needed to establish the stand. Consider not planting the narrowest portions of the stand's peninsulas.

Next Step SitePrep, Trenching; Pesticide, Aerial; Planting, Initial Plant; Monitoring, Artificial Regen(1yr); Pesticide, Aerial

Treatments:

Acceptable Full stocking in planted RP.

Regen:

Other Apply snowmobile trail protection specs. Old next step comments:

Comment:

Proposed Start Date: 10/1 /2016



S t a n d	Treatment Name	Acres	Stand CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Age Structure	Approval Status
156	72198156-or	13.1	4123 - Red Oak	Sawtimber Medium	95	51-80	Harvest	Overstory Removal	4191 - Mixed Upland Deciduous with Conifer	Two-Aged	Proposal

Habitat Cut: No

Site Condition:

Prescription Cut the mature oak & RP overstory left by the 1989 shelterwood harvest. Leave ~1/2 acre in island retention.

Specs:

Next Step

Treatments:

Acceptable Regen: A moderately stocked mix of RM, aspen, oak & pine. A majority will be advanced regen released by the cut, with additional oak stump sprouts expected from the cut.

Other Comment: Old next step comments:

Proposed Start Date: 10/1 /2016

405	72198405-WLO	6.4	320 - Upland Shrub	Nonstocked		Unspec ified	NonForestMgt	Other - Specify	310 - Herbaceous Openland		Proposal
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Habitat Cut: No

Site Condition:

Prescription Periodic opening maintenance, as needed, that may include disking, fertilizing, food plot seeding, no-till prairie grass drill seeding, mowing, brushing, tree and shrub planting, Rx burning and herbicide application. See OFS regarding exclusion.

Specs:

Next Step

Treatments:

Acceptable Regen:

Other Comment: Old next step comments:

Proposed Start Date: 1 /4 /2016

406	72198406-WLO	13.2	310 - Herbaceous Openland	Nonstocked		Unspec ified	NonForestMgt	Other - Specify	3105 - Mixed Upland Herbaceous		Proposal
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Habitat Cut: No

Site Condition:

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

Specs:

Next Step

Treatments:

Acceptable Regen:

Other Comment: Old next step comments:

Proposed Start Date: 1 /4 /2016

412	72198412-WLO	2.0	310 - Herbaceous Openland	Nonstocked		Unspec ified	NonForestMgt	Other - Specify	3105 - Mixed Upland Herbaceous		Proposal
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Habitat Cut: No

Site Condition:

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

Specs:

Next Step

Treatments:

Acceptable Regen:

Other Comment: Old next step comments:

Proposed Start Date: 1 /4 /2016



S t a n d	Treatment Name	Acres	Stand CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Age Structure	Approval Status
438	72198438-WLO	3.3	310 - Herbaceous Openland	Nonstocked		Unspecified	NonForestMgt	Other - Specify	3105 - Mixed Upland Herbaceous		Proposal

Habitat Cut: No **Site Condition:**

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

Next Step
Treatments:

Acceptable
Regen:

Other Old next step comments:
Comment:

Proposed Start Date: 10/1 /2016

454	72198454-WLO	5.3	310 - Herbaceous Openland	Nonstocked		Unspecified	NonForestMgt	Other - Specify	310 - Herbaceous Openland		Proposal
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Habitat Cut: No **Site Condition:**

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

Next Step
Treatments:

Acceptable
Regen:

Other Old next step comments:
Comment:

Proposed Start Date: 1 /4 /2016

Total Treatment Acreage Proposed: 411.2

Report 5 – Site Conditions

Grayling Mgt. Unit
Joan Charlebois : Examiner

Compartment: 198
Year of Entry: 2017

Dominant Site Conditions

	5B	5C
Aspen		139
Cropland		
Herbaceous Openland		
Jack Pine		8
Low-Density Trees		
Mixed Upland Deciduous		14
Natural Mixed Pines		1
Northern Hardwood		10
Oak	25	7
Red Pine		
Upland Conifers		8
Upland Mixed Forest		7
Upland Shrub		
Urban		
White Pine		
Total Forested Acres	25	194
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	Available	5C: Delay treatment for age/size class diversity or exceptional site quality	10	Unspecified	Unspecified	Unspecified	Unspecified
Comments: Continue to manage with the rest of the type (comp 197 stand 1) which will likely be at thinning threshold by next YOE. When comp 197 is re-inventoried, consider incorporating comp 198 stand 13 into comp 197 stand 1.							
2	Available	5C: Delay treatment for age/size class diversity or exceptional site quality	6	Unspecified	Unspecified	Unspecified	Unspecified
Comments: Small stand, poor quality, OFS.							

Report 5 – Site Conditions

Grayling Mgt. Unit

Joan Charlebois : Examiner

Compartment: 198

Year of Entry: 2017

3	Available	5C: Delay treatment for age/size class diversity or exceptional site quality	8	Unspecified	Unspecified	Unspecified	Unspecified
Comments: Strip that was left when adjacent harvests were carried out. Could treat in the future when stand 8 is ready for entry.							
4	Available	5C: Delay treatment for age/size class diversity or exceptional site quality	23	Unspecified	Unspecified	Unspecified	Unspecified
Comments: Delay regen harvest until next YOE. Good site for aspen, will hold.							
5	Available	5C: Delay treatment for age/size class diversity or exceptional site quality	9	Unspecified	Unspecified	Unspecified	Unspecified
Comments: Broadly two-aged stand, part immature, part overmature. The older component triggered the age criteria. Hold and manage the majority younger component when ready.							
6	Available	5B: Maintain for regeneration purposes	21	Unspecified	Unspecified	Unspecified	Unspecified
Comments: Recently shelterwood cut. Consider removing the overstory next YOE.							
7	Available	5C: Delay treatment for age/size class diversity or exceptional site quality	8	Unspecified	Unspecified	Unspecified	Unspecified
Comments: Portions treated in 2009. Majority canopy is large, naturally-established RP-WP.							
8	Available	5C: Delay treatment for age/size class diversity or exceptional site quality	7	Unspecified	Unspecified	Unspecified	Unspecified
Comments: Recently thinned. Oak meets age criteria, but want to prioritize treatments this YOE on the mature oak stands that haven't seen recent management.							

Report 5 – Site Conditions

Grayling Mgt. Unit
Joan Charlebois : Examiner

Compartment: 198
Year of Entry: 2017

9	Available	5B: Maintain for regeneration purposes	4	Unspecified	Unspecified	Unspecified	Unspecified
Comments: Recent shelterwood cut.							
10	Available	5C: Delay treatment for age/size class diversity or exceptional site quality	8	Unspecified	Unspecified	Unspecified	Unspecified
Comments: Treat concurrent with the adjacent RP plantation (stand 35) when it is entered next.							
11	Available	5C: Delay treatment for age/size class diversity or exceptional site quality	2	Unspecified	Unspecified	Unspecified	Unspecified
Comments: Small stand of large, naturally established RP & WP.							
12	Available	5C: Delay treatment for age/size class diversity or exceptional site quality	116	Unspecified	Unspecified	Unspecified	Unspecified
Comments: Following M.A. plan guidance on featured wildlife species (grouse), harvests will be staggered across this large stand over multiple YOE's, aspen health allowing.							

Mgt. Unit

Compartment: #Type!

Year of Entry:



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

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

SCA Name	SCA Category	Detail Type	Recommendation	Acres
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Comments



Report 7 – EXISTING SPECIAL CONSERVATION AREA DETAILS

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

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

Conservation Area	Type	Description
SCA	Research and Military Areas	These areas provide facilities and lands specifically dedicated for research, or other purposes. They include the 5,847 acre Forest Fire Experiment Station, the 12,000 acre Houghton Lake Wildlife Research Area, the Beaver Islands Archipelago Wildlife Research Area (that includes most of Garden Island, all of High and Hog Islands, all state owned land on Beaver, South Fox and North Fox Islands), the Cusino Wildlife Research Area, the 3,000 acre Hunt Creek Fisheries Research Station, the 125 acre Wyman Nursery, and over 144,000 acres of Military Lands.



	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
1	4111 - S.Maple, Hard Mast Association	Sawtimber Well	85.5	94	81-110	Most of the stand was thinned in 1997-1998 (#003-96). Northern hardwood stand with a significant RO component that increases to the west & south. The white ash has been dead for a few years. There are traces of hemlock, PB, WP & RP. This stand's hardwood type and stand 4's oak type slop back and forth across the utility corridor, but the boundary was drawn at the powerline. Hilly to steep terrain. Areas of excellent HM regen, locally high coverage in IW & beech. This stand has enough high quality stems to warrant continued thinning and management toward an uneven-aged condition. Quarter mile of new road constructed in Dec 2014 to access sale in comp 188 (#001-12).
2	4130 - Aspen	Poletimber Well	15.5	40	81-110	Was clearcut in 1975 (#20-75), all merch stems. High-end site for aspen. Nice oak also. WP mostly on the east side. Traces of RP & hemlock.
3	4130 - Aspen	Sapling Well	10.1	6	Immature	Was clearcut in 2009 (#43-07), 2"+ DBH except RP. Aside from a couple sparse frost-pocket depressions, the aspen regen filled in very well. Oak frosted late May, starting to re-leaf. Steeply-rolling terrain.
4	4123 - Red Oak	Sawtimber Well	47.5	90	111-140	Oak stand on rolling to steeply-rolling terrain. On the more sheltered north & east aspects, the oak is larger-diameter with more canopy hardwoods (RM, beech, even some HM & basswood) mixed in. Trace representation in better-site shrubs occur there (BHN, MLV, IW). On the drier slopes, the canopy is almost exclusively oak. Medium oak cored 85 & 96 years old, ave 90.
5	4130 - Aspen	Sawtimber Well	22.7	49	111-140	Was cut by 1966 (#53-66 & #62-66) merch A-PB. This stand was cut at the same time as stand 6 to the west, but had much less residual oak and RM. The aspen diameter varies widely with the amount of residual competition, but enough has moved into the saw class to call it saw overall. The oak is concentrated on the west side, where there is a diffuse boundary with stand 6. A small amount of RM was cut along the south edge (#76-67). The stand's northeast peninsula contains inclusions of the WLO.
6	4199 - Other Mixed Upland Deciduous	Sawtimber Well	27.4	100	81-110	North half was cut the same time as stand 5 (merch A-PB by 1966, #53-66 & #62-66), and the south half in 1968 (merch A-RM-PB, #76-67), but this stand had much more oak residual. The two-aged canopy has mature oak (100, first age) with significant RM & beech components. Because of the cutting specs, there is a minority older class of aspen-RM-PB, but most of it resulted from the 1960's harvests (48, 2nd age). The cut-origin aspen is small diam for its age due to the amount of residual it grew under. There is a pocket of overstory WP in the stand's center. The subcanopy is heavy to beech, with locally high cover in WP. Light beech scale present. This stand has a diffuse boundary with stand 5, but the trail road was used to define part of it.
7	4199 - Other Mixed Upland Deciduous	Sawtimber Well	5.5	85	81-110	Looks to have been grazed prior to tax reverting. Generally multiple-stem large cull RM, overmature aspen, and scattered open-grown oak. DWD building as the aspen breaks up. The stand's perimeter has some younger aspen & paper birch. Diverse understory. Used previous inventory age on the aspen. Current age taken on RM too close to call the stand two-aged. OFS



	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
8	4130 - Aspen	Poletimber Well	81.1	38	51-80	Was clearcut by 1977 (#35-75A), all merch stems. Fairly uniform aspen stand on a good site, with a minor amount of stump-origin oak. The quaking aspen is not as healthy (some black canker, conks starting) as the BTA. Diverse shrub layer, locally high cover in witch hazel. Traces of autumn olive.
9	4130 - Aspen	Poletimber Well	56.1	27	51-80	Was clearcut by 1988 (#41-87), all stems 2"+ DBH. The quaking aspen clones are further behind in development than the BTA clones. Some QA clones are still majority sapling-sized, particularly in the shallow valley in the stand's east half. Most of the QA clones have black canker and/or hypoxylon present to varying extents. The stand's east half also has LDT-U inclusions. The west half is healthier and further transitioned into the pole class.
10	4110 - Sugar Maple Association	Sawtimber Well	57.9	90	81-110	Was selection harvested by 2010 (#43-07), marked stems only. Decent quality small saw - large pole HM with large saw basswood & RO, and minor amounts of RM, PB & beech. Ironwood thicket below with white ash, some aspen, beech. The only HM above seedling stature are stump sprouts from the harvest.
11	4130 - Aspen	Poletimber Well	40.9	27	51-80	Was clearcut in 1988 (#43-87), all stems 2"+ DBH. Vigorous aspen stand on high-end site for the species. Minor but quality component of stump-origin oak also from the cut. Traces of HM in the canopy & understory.
12	4311 - Pine, Aspen Mix	Sawtimber Medium	7.5	57	51-80	This stand is a strip that was left when surrounding harvests were set up in the 1970's & 1980's. Several supercanopy WP seeded in the majority younger pine cover (small saw cored 49 & 65 years old, ave 57). The aspen component is very overmature and breaking up. WP & RM are filling in heavy below. The stand's north end picks up an LDT-U inclusion with scattered log-pole black cherry. The stand is likely at least two-aged, but 3 trees cored landed too close in age to make that call.
13	4110 - Sugar Maple Association	Sawtimber Well	10.2	94	111-140	Was thinned in 1996 with the bulk of the type in adjacent compt 197 (#44-95), cutting orange-marked and all aspen. Previous YOE notes indicated continuing to manage with the comp 197 type. Hard maple small saw and poles with significant basswood saw component. The basswood occurrence is split between multiple stem clumps and single stems. The HM is moderate to good quality, with single stems predominating. The RM is generally poor quality. The RM & beech increases to the east. White ash died a few years ago. Understory of ironwood with poor-quality HM saplings. Nice RO, but getting xlog.
14	4119 - Mixed Northern Hardwoods	Sawtimber Well	13.3	92	81-110	Poor-quality NH stand with large cull HM doubles & triples (knobby, poorly-healed branch scars), large >/< open-grown RO, large basswood, cull RM, and scattered overmature aspen. Has the appearance of having been grazed in the past. The understory has large sapling IW nearly reaching into the canopy. Decent-quality HM stems are the exception, with a few to the NE. Note: the RO is split between xlog-log, but MiFI won't give that option with the diameter listed.



	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
15	42110 - Planted Red Pine	Sawtimber Well	23.7	57	141-170	Plantation was established on abandoned farm field through three planting entries over 5 years. The south half was planted at standard spacing in 1955, with a second in 1958 (likely supplemental fill-in). The north half was planted in 1960 at higher stocking. Set stand age to average of the planting entries. Was row-thinning by 1990 (#64-88), then free-thinned in 2008 (#42-07). The older south half is further into the saw class, has lower residual, and higher understory cover (most of the RM & beech is concentrated there). The younger north half is still log overall, and fairly open below. A few large RO, and traces of PB & QA are scattered across the stand. RP growth slowing in last 3 years. Half of BA swings below 140 and half above, range 110-170, ave 146. RP SI ave 67. OFS
16	4130 - Aspen	Poletimber Well	15.6	27	1-50	Was cut in 1988 (#40-87), all stems 2"+ DBH. Still transitioning into the pole class, but enough shifted there to call pole overall. BTA furthest along, with variation between clones. Canopy is a mosaic of dense aspen clones separated by 50-75% closure in RM & oak cover. The oak is represented by vigorous stump sprouts (dominant/co-dominant) and single-stems (co-dominant/intermediate).
17	4130 - Aspen	Poletimber Well	41.9	44	81-110	Was clearcut in 1971 (#24-70A), merch A-O-RM-PB except oak >16" stump diam. Aspen pole stand with a minority moved into the saw class. There are RM poles from the cut and cull log residual. Most of the WO appears to have been left, regardless of diam. The scattered xlog NRO & NPO residual is very open-grown, and increases to the W1/2.
18	4130 - Aspen	Poletimber Well	22.3	44	81-110	Was clearcut in 1971 (#24-70A), merch A-O-RM-PB except oak >16" stump diam. Same harvest as stand 17 across the valley. Aspen pole stand with a minority moved into the saw class. There are RM poles from the cut and cull log residual. Most of the WO appears to have been left, regardless of diam. The scattered xlog BRO residual is open-grown. The stand's south end and cover between clones is more open (50-75% closure) and heavier to oak & RM stump sprouts.
19	4112 - Maple, Beech, Cherry Association	Sapling Medium	4.6	6	Immature	Was clearcut in 2009 (#45-07), 2"+ DBH. Regenerated to RM with BC, oak, and small patches of aspen. Scattered residual (P-S-L) WP & RM. Not a lot of oak stump sprouts, but they are well-recruited, 5-10' tall. Passes regen check to a moderately stocked deciduous mix.
20	4130 - Aspen	Poletimber Well	24.1	27	51-80	Was clearcut in 1988 (#42-87), 2"+ DBH. Well-stocked aspen stand, not completely transitioned into pole class but enough there to call pole overall. The margin along stand 19 has some large cull residual RM & oak. The oak stump sprouts range from P-S, but MiFI error wouldn't allow that category to be used in addition to the xlog oak line, so dropped the sapling class.
22	4130 - Aspen	Sawtimber Well	173.6	48	81-110	The stand's N1/2 was cut between 1968 & 1970 (#62-68A), merch A-PB-RM-O except marked oak (a couple per acre). The stand's S1/2 was cut between 1964 & 1965 (#95-64 & #45-63), merch A-RM-O except marked oak. Set stand age to average of harvests. The merch & up cutting specs left a second mature age class across all species, the greatest proportion in the RM & least in the aspen. The marked-to-leave oak are in a class by themselves, massive & open-grown. The xlog oak is widely scattered interior, with a few concentrated pockets on the margins. Aspen clone development varies from majority log to majority pole, but the stand overall makes the log benchmark.



	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
25	4130 - Aspen	Sapling Medium	23.3	16	Immature	Most of the stand was clearcut in 1999 (per notes, no TCR, #001-98), merch except green-marked oak (~10 sq. ft. per cruise). The NE edge by the EnCana wellsite was not part of the harvest area and has P-S RM, NPO & BC, with scattered mature oak. The harvest area has a mosaic of dense aspen clones separated by sparser cover in RM-O-BC. Averages out to high end of 50-75% cover. A couple frost pockets are non-stocked. Marked-to-leave residual oak saw is mainly on the east side.
26	42120 - Planted Jack Pine	Poletimber Well	4.3	44	81-110	Planted JP, could not locate the planting records. Top mortality, breakage & standing dead increasing. Small amounts of RM, BC, PB, apple, WP & aspen are scattered throughout. Heavy RM & beech understory. JP SI ave 48.
27	42110 - Planted Red Pine	Sawtimber Well	11.1	57	141-170	Plantation was established on abandoned farm field. Could not locate the planting records, but trees cored landed in the range consistent with available planting records for stands 28 & 15, but without portions established at higher stocking. Row spacing is generous, most stems are in the saw class, and the deciduous understory is full in the S1/2 & low in the N1/2. Was row-thinned by 1990 (#64-88), then free-thinned in 2008 (#42-07). Half of BA swings below 140 and half above, range 120-170, ave 145. Continued positive response to release. RP SI ave 67. OFS
28	42110 - Planted Red Pine	Sawtimber Well	18.8	57	141-170	Plantation was established on abandoned farm field through three planting entries over 5 years. The east half was planted at standard spacing in 1955, with a second in 1958 (likely supplemental fill-in). The west half was planted in 1960 at higher stocking. Set stand age to average of the planting entries. Was row-thinning by 1990 (#64-88), then free-thinned in 2008 (#42-07) except the west 6 rows were red-line excluded. Relatively uniform RP stand except sparser around the scattered deciduous sawtimber. Locally full deciduous understory, heaviest toward the south end. Two-thirds of BA swings above 140. Varying growth response to release. RP SI ave 66. OFS
29	42110 - Planted Red Pine	Sawtimber Well	9.5	44	111-140	RP planted on abandoned farm field at unusually wide spacing between & within rows. Could not locate the planting records. The west half has less uniform stocking: dense pockets alternate with sparse, open-grown stems. Apple trees likely cut in that half during site prep re-sprouted and are part of the understory. The east half maintained better stocking, but started out lower than typical due to the wide planting pattern. A few rows of JP were planted near the east edge (much dead already). W1/2 ave 100 BA, E1/2 155 BA, stand ave 125. Growth varies from decent & maintaining to slowing. RP SI ave 70.
30	4112 - Maple, Beech, Cherry Association	Sawtimber Well	10.2	110	111-140	Lower quality northern hardwood site heavy to beech and RM. Aside from a couple-acre pocket of better-form HM in the north-center, the HM is largely cull, with knobby, poorly-healed branch scars. Beech cover increases in the S1/2; that species has the best form overall, but light beech scale is already present. The scattered aspen are overmature. Traces of hemlock, xlog RP, & basswood. Understory mostly beech & IW, with traces of hemlock.



	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
32	42200 - Natural White Pine	Sawtimber Well	12.8	97	141-170	WP sawtimber with RP and a deep list of minor deciduous species. Basal area and quality varies widely. Half of BA swings were below 140 & half above. The stand's core interior has stocking at levels to warrant thinning, but the rest of the stand (over half) has more open-grown xlog WP & RP with intermediate RM, WP & aspen. The aspen is mostly overmature, the RM largely cull. Trace of beech with scale present. Understory light on WP, heavy to IW, beech & RM.
33	429 - Mixed Upland Conifers	Sawtimber Well	7.5	103	141-170	North & south edges of the stand were selection harvested in 2009 (#45-07), cutting orange-marked and all A-RM-O-PB. The middle was not treated. Naturally-established stand of large RP & WP over mixed hardwoods. Little of the mature hemlock was recordable in the canopy (short, top-dead). Shelterwood Rx with mixed natural regen goal. Passes to that M.O., but is heavier to beech than pine.
34	4130 - Aspen	Poletimber Well	6.3	26	1-50	Was clearcut in 1989 (#004-89), all stems 2"+ DBH. Vigorous aspen regen; just enough of the aspen has transitioned into the pole class to call it pole overall. The subcanopy pine is concentrated on the stand margins.
35	42110 - Planted Red Pine	Sawtimber Well	44.4	57	141-170	Plantation was established on abandoned farm field through three planting entries over 5 years, in alternating bands. Initial swaths were planted at standard spacing in 1955, with a second entry in 1958 (likely supplemental fill-in). The remaining swaths were planted in 1960 at significantly higher stocking (1200+ tpa, tight spacing within & between rows). Was row-thinned in 1989 (#004-89), and free-thinned in 2008 (#42-07). Varying response to release, depending on level of residual. 1960's portion of planting drags the ave stand diam down. Half of BA swings below 140 & half above, ave 147. RP SI ave 67. Small stick nest excluded from the 2008 harvest. OFS
36	42120 - Planted Jack Pine	Sawtimber Medium	7.9	69	51-80	Windbreak strip of JP & SP planted along county road in mid-1940's. Overmature JP with increasing mortality, standing dead, accumulating DWD. Scotch pine persisting. Large cull HM & open-grown oak roadside & bordering maintained WLO. A few rows of RP were planted more recently east of King Road. Understory filling in heavy to hardwoods as pine canopy opens up. Stand picks up a couple small openings. OFS
37	4112 - Maple, Beech, Cherry Association	Sawtimber Well	25.6	104	81-110	Most of the stand was selection harvested in 2009 (#45-01), cutting orange-marked and all aspen. HM-beech stand with a significant RM component, scattered hemlock and large NRO. Lower-end site for the HM; form is a mix of decent & poor. Beech has the best form overall, but scale is already present. Most of the hemlock can only be recorded in the subcanopy due to height. The north edge of the stand by the WLO was not treated because the BA was already near target; multiple-stem pole clumps are common there, with scattered overmature aspen. Passes to NH regen objective, but the mix is heavy to beech.
40	42290 - Natural Mixed Pine	Sawtimber Medium	3.6	70	81-110	Shallow valley partially filled in with RP & WP. Aside from a dense patch of RP in the middle, the pine cover is sparser and more open-grown, with oak and BC in the canopy gaps. Mowed walking path runs down an old two-track through the stand. The dense patch of RP skewed the BA range higher.



	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
41	4130 - Aspen	Sapling Well	7.5	7	Immature	Was clearcut in 2008 (#45-07), 2"+ DBH. Vigorous aspen regen with RM and minor amounts of oak stump sprouts. Oak heavily frosted in May, starting to re-leaf.
42	4123 - Red Oak	Sawtimber Well	6.9	105	81-110	All but the stand's northwest was thinned in 2009 (#45-07), spec'd to cut orange-marked and A-RM-PB, cruised residual of 70-80 BA. Good quality NRO with some poor-form xlog specimens. Relatively broad range of ages in the oak (80-125, ave 105). Heavy deciduous understory. Low density oak stump sprouts long dead. Shelterwood Rx with thinning-level residual across most of stand; oak-pine M.O. with a mix of species accepted. Passes to a mix of regen, but not to oak.
43	4130 - Aspen	Poletimber Well	34.8	26	51-80	Was clearcut in 1989 (#3-88), all stems 2"+ DBH. Good site for aspen. BTA farthest into the pole class, with oak in between and RM well behind. Some oak frosted this May.
44	4130 - Aspen	Sawtimber Well	41.8	57	81-110	Mid-1950's timbersales noted, followed by most of the stand burning in 1958. The core burned area is where the dense BTA regenerated (first age set to burn). The west edge valley and a variable strip along the private property fell outside the fire plow lines. That area has older aspen (more quaking) and greater proportions of mature oak (second age) and RM mixed in. Couple-acre inclusion at the south end of the shallow valley has sparser cover in BC, RM & NPO. Aside from the valley, is a high-end site for aspen. The burn-era BTA is healthy, with only a trace of conks present. The QA and older age class of aspen has increasing rot and breakage. Mowed walking paths originate from PVT forty. Un-mowed footpaths branch off.
45	4131 - Aspen, Oak	Poletimber Well	35.0	39	81-110	Was part of a larger 1976 clearcut (#31-75A), all merch stems cut. BTA with vigorous NRO & WO stump-origin stems. Some of the best oak stump sprouts have moved into the saw class. Shallow valley inclusions have sparser cover and poorer-quality oak. The stand's west side was not cut as cleanly, leaving scattered older A-O-RM.
46	4123 - Red Oak	Sawtimber Well	35.3	118	81-110	Oak stand on rolling terrain with site quality increasing to the north as the ground levels out. Small to medium NRO saw on the hills in the south half, with larger-stature, good quality oak where the stand levels out in the north half. The pine component is greatest on the west and north sides. Hemlock is concentrated in the NW. Small patches of mature aspen are scattered throughout. WP understory cover varies from trace to high. WO sapling cover is high circa mature WO.
47	42290 - Natural Mixed Pine	Sawtimber Well	1.5	117	171-200	Naturally-established stand of large RP & WP, with mature oak, RM & aspen mixed in. Encompasses the snowmobile trail intersection with the county road. 2008 clearcut wraps around it.
48	4199 - Other Mixed Upland Deciduous	Sapling Well	4.8	7	Immature	Was clearcut in 2008 (#45-07), 2"+ DBH, except for a strip left along the county road. The north half has full stocking in RM-A. The south half has moderate stocking in RM-O-WP, with a sparse frost pocket at the south end. Oak throughout the stand was heavily frosted this May but is starting to re-leaf. Stand passes to a moderately stocked mix of regeneration.



	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
49	4131 - Aspen, Oak	Sapling Well	15.2	25	Immature	Was clearcut in 1990 (#001-88), all merch stems. BTA occupies the upper terrain at full stocking with NRO & RM mixed in. The stump-origin NRO is farthest into the pole class and holding co-dominant to dominant crown positions. The lower slopes and frost pocket terrain have less dense cover in majority hybridized oak and RM, both species there present in stump-origin and single stems. A high proportion of the stand's WO is in single stems. Shorter oak, particularly on the lower terrain, were frosted this May.
50	4123 - Red Oak	Sawtimber Medium	24.2	118	51-80	Was shelterwood cut in 1990 (#001-88) merch stems except green-marked oak. The mature oak residual is the featured canopy. Most of the regen from the cut (RM-O-A) is still in the subcanopy, but the aspen in the south end reaches into and was recorded in the canopy. The oak regen doesn't have much in stump-origin stems, but there is locally high cover in single-stem oak in canopy gaps. Oak saplings in the larger gaps were heavily frosted this May but are starting to re-leaf.
51	4199 - Other Mixed Upland Deciduous	Poletimber Medium	42.4	39	51-80	Was part of a larger 1976 clearcut (#31-75A), all merch stems, to expand the aspen into the upland brush cover for wildlife habitat. The stand has small (+/- 1 acre) aspen clones scattered around it, with RM, oak or upland brush in between. Residual mature oak, JP & RP are scattered along the stand's perimeter. The stand's NW peninsula was not cut as cleanly, leaving scattered older A-O-RM. The upland brush is a mix of hard and soft mast species. A larger area of U-type that didn't see in-growth was split out as stand 53.
52	4191 - Mixed Upland Deciduous with Conifer	Sawtimber Medium	8.8	102	51-80	Variable stand, broadly two-aged, with large mature hybridized oak above mostly younger RM, oak & WP. There is a sub-acre patch of RP saw in the northeast corner by the county road intersection. U/G inclusions are common, one of them a frost pocket depression at the south end. The very large, overmature NPO have been dying out, with RM & oak recruiting in the gaps created. Used previous inventory age for the mature oak. Second age on the RM from a 1967 harvest (#46-67, merch A-RM-PB) recorded in that forty, although there is likely a range of age classes due to the partial cutting specs and subsequent establishment of regen over time.
54	4130 - Aspen	Sapling Well	20.0	7	Immature	Was clearcut in 2008 (#45-07), all stems 2"+ DBH except RP >18" DBH, and an uncut strip left along the county road. Vigorous aspen regen with widely-scattered xlog RP interior and mature WP-RP-BTA left bordering the road. The minor amount of oak regen was frosted in May. Inclusion of former grassy opening stand in NW along road that's below minimum stand mapping size.
55	42110 - Planted Red Pine	Sawtimber Well	26.1	76	141-170	RP & JP planted in 1939. The JP largely died out, except for a scattering along the stand edges. The stand's perimeter flats (particularly in the SW) is where the aspen is concentrated, with sparser open-grown RP above it. The core of the stand, on a low rise, has more intact RP plantation stocking and better form, with low-density RM & oak mixed in. Was planted at the same time as stand 57, but was not part of the 1989 species-removal, so its understory is much sparser. RP cored for growth came in 10 years younger than planting record. RP BA swings ranged 80-180, ave 120. RP SI 63.



	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
56	4123 - Red Oak	Sawtimber Medium	8.2	105	51-80	Was shelterwood cut in 1989 (#003-88), merch stems except green-marked oak. Featured canopy is the mature oak residual, along with a portion of the regen from the cut that is pole-sized. Most of the RM-A-PB-O regen from the cut is large sapling and in the subcanopy, along with relatively short sap-pole WP. The mature oak residual is heaviest along King Rd & the snowmobile trail, and becomes sparser interior. The canopy WP & hemlock are concentrated in the NW. Despite the good site and good quality oak, upper crown die-back has been occurring.
57	42111 - Planted Red Pine, Mixed Deciduous	Sawtimber Medium	41.1	76	81-110	RP & JP planted in 1939. All species except RP were cut in 1989 (#003-88), leaving variable distribution in RP sawtimber. Part of the dense RM-A-O regen from the cut reaches into and was recorded in the canopy (where RP plantation was sparser). Suppressed regen below denser RP cover is still part of the subcanopy. RP form is stocky and deep-crowned where the plantation stocking didn't hold up. Half the RP BA swings were 90 or below, range 50-140, ave 100. RP cored for growth came in 10 years younger than planting record. RP SI 60.
58	4123 - Red Oak	Sawtimber Poor	21.2	110	1-50	Was shelterwood cut in 2008 (#45-07), all except green-marked, cruised residual 40-50 BA. Residual is mostly NRO with WO, and traces of RP, WP & RM. Dense regen from the cut is RM with oak stump sprouts & locally full aspen cover. The oak was heavily frosted in May, starting to re-leaf. Oak overstory age estimate based on cut-corrected stumps from the 2008 harvest. Pretty wide range (100-125, ave 110). Oak-Pine M.O. with a mix of O-RM-WP accepted. Regen passes to that mix.
59	4123 - Red Oak	Sawtimber Poor	4.1	115	1-50	Was shelterwood cut in 2008 (#45-07), all except green-marked oak (cruised residual 40 BA). Residual canopy oak above a subcanopy heavy to RM, with some WP, oak & aspen. The oak was heavily frosted in May. Oak M.O. but with notes regarding promoting WP and RM being present in the understory. Passes to a mix of species, but not to oak. Overstory oak age estimate based on current age in adjacent stand 46.
106	4130 - Aspen	Sapling Poor	1.3	6	Immature	Landing for hilly stand 3 (#043-07, cut 2009). Filling in with aspen and hardwoods.
107	42220 - Natural Jack Pine	Poletimber Medium	2.2	35	51-80	JP that filled in over time from a few old seed trees in an abandoned farm field. Patchy cover, with outliers open-grown, branchy. Likely a range of ages but didn't spend much time in this stand -- mapped it because it sticks out as a landmark feature.
156	4123 - Red Oak	Sawtimber Medium	13.1	95	51-80	RP & JP were planted in 1939. Was shelterwood cut in 1989 (#003-88), merch stems except green-marked. Featured canopy is the mature oak & planted RP residual, along with a portion of the regen from the cut that is pole-sized. Most of the RM-A-O regen from the cut is large sapling and in the subcanopy, along with relatively short sap-pole WP. The better quality mature NRO has upper crown die-back occurring. The poorer quality NPO is dropping out of the stand. There is more RP by basal area than canopy % (not much seen from above due to lower canopy positions).



Stand	Cover Type	Acres	Managed Site	General Comments:
21	330 - Low-Density Trees	11.4	No	Shallow valley opening. Big & little bluestem, sedge, sweetfern, serviceberry & BC, with scattered log-xlog NPO clumps, patches of open-grown JP, and encroaching regen (NPO, JP, RP). Old RR grade runs through. Small piles of stumps from EnCana wellsite clearing were permitted within the stand. Old FTP's from 1970's & 1980's for WLO maintenance.
23	330 - Low-Density Trees	4.8	No	West edge of an abandoned farm field that wasn't planted to RP. Opening with grass, sweetfern, rubus, filling in with BC brush and cull saw-poles, RP, RM, oak and a patch of JP at the north end. Old FTP's from 1970's & 1980's for WLO maintenance.
24	320 - Upland Shrub	2.3	No	On the margins of an abandoned farm field that was not planted to RP. Decades of tree encroachment resulted in cover verging on Low-Density Tree status (black cherry, RM, pine, aspen, witch hazel and serviceberry) over grass, brackenfern & sweetfern. Traces of Autumn olive. Old FTP's from 1970's & 1980's for WLO maintenance.
31	330 - Low-Density Trees	1.2	No	Low-density tree cover in WP, paper birch, white poplar, apple, black walnut, autumn olive. OFS
38	122 - Road/Parking Lot	7.4	No	Cleared county road corridor.
39	122 - Road/Parking Lot	13.4	No	Marathon (former EnCana) wellsite, cleared pipeline and county road corridor.
53	3204 - Mast Producing Shrub	7.6	No	Was part of the larger 1976 clearcut (#31-75A), cutting all merch stems with the intent to expand aspen clones into the U-types for wildlife habitat. This area remains almost exclusively upland brush, with a mix of mast-producing shrubs (mostly black cherry, with serviceberry, hawthorn & blueberry).
60	122 - Road/Parking Lot	2.8	No	Cleared county road corridor with encroaching sapling cover.
405	320 - Upland Shrub	6.8	No	Abandoned farm field with encroaching JP & BC, scattered malus, some autumn olive, patch syringa. Cable company structure in NE of stand removed within the last year. OFS
406	310 - Herbaceous Openland	13.2	Yes	Maintained WLO, previous YOE FTP W72-753. Mowing around scattered BC and small islands of JP, A & PB. Some autumn olive on perimeter. Township dump was permitted in north-center from 1956-1966.
412	310 - Herbaceous Openland	2.0	Yes	Former wellsite. Maintained WLO. Mostly grass, some sweetfern, with a few encroaching RP & BC. Previous YOE FTP W72-753.
431	3302 - Low Density Conifer Trees	1.5	No	Grassy opening that's been filling in with JP, WP & QA.
438	310 - Herbaceous Openland	4.4	Yes	Maintained WLO. Previous YOE FTP W72-753. Mowed grass around islands of mature maple & hemlock. Encroaching SP being removed under the FTP. OFS



Stand	Cover Type	Acres	Managed Site	General Comments:
454	310 - Herbaceous Openland	5.3	No	Shallow valley opening with grass, sweetfern, and encroaching JP-RP-O-A-BC. 1980's FTP W71-134 for continued WLO maintenance.
455	310 - Herbaceous Openland	1.4	No	Grassy opening along trail road corridor, with small patches of oak & pine. 1980's FTP W71-134 for continued WLO maintenance. Possible encroachment on east end.
500	211 - Cropland	5.1	No	DELETE - PVT