



Compartment Review Presentation

Grayling Forest Management Unit

Compartment 72192

Entry Year 2017

Acreage: 1,855

County Crawford

Management Area: AuSable Outwash

Revision Date: 2015-08-04

Stand Examiner: Joan Charlebois

Legal Description:

T25N R04W Sections 21, 28, 33

Identified Planning Goals:

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

Soil and topography:

The primary upland soil series are Graycalm, Graycalm-Klackung, and Graycalm-Grayling sands. The lowland complexes include Kinross-AuGres, Dawson-Loxley peats, and Tawas-Lupton mucks. The terrain is flat except for section 33's hills.

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

The compartment has limited private interface or adjacent residential development. Most of the compartment is within the Beaver Creek oil field.

Unique Natural Features:

An MNFI-identified Northern Shrub Thicket natural community is located in the eastern portion of section 28. The area surrounding the northern shrub thicket contains the Beaver Creek Complex Crawford CO PLU. There is the potential for rare plants and animals to be associated with the compartment's dry jack pine habitats.

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:

None

Watershed and Fisheries Considerations:

None

Wildlife Habitat Considerations:

The compartment's mix of pine, oak & aspen provides habitat for a variety of game and non-game wildlife.

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 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 entire compartment is leased for oil and gas and part of it (sections 21 and 28) is in the 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.

Vehicle Access:

County roads include 7 Mile, Fletcher, Hunters Truck Trail and Moorsetown roads. A network of forty roads provide access to the compartment's interior. Many of those forty roads have street name signs, but they are not part of the county road system.

Survey Needs:

No surveys are needed at this time.

Recreational Facilities and Opportunities:

Several motorized recreational trails cross through the south portion of the compartment. Those designated recreational trails include the MCCCT, Beaver Creek & West Higgins ORV trails, and the Beaver Creek Snowmobile trail.

Fire Protection:

The compartment is designated as a no-plow zone due to its pipelines and sour gas wells. Access for fire equipment is provided by the network of forty roads. The Beaver Creek Fire Department is the best nearby water source.

Additional Compartment Information:

The following reports from the Inventory are attached:

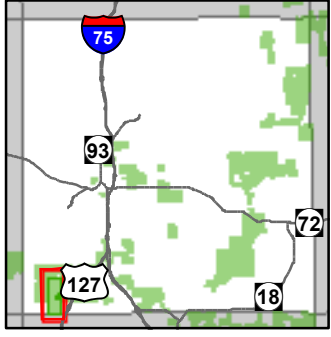
- Total Acres by Cover Type and Age Class**
- Cover Type by Harvest Method**
- Proposed Treatments – No Limiting Factors**
- Proposed Treatments – With Limiting Factors**
- Stand Details (Forested and Nonforested)**
- Dedicated and Proposed Special Conservation Areas**
- Site Condition Details**

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

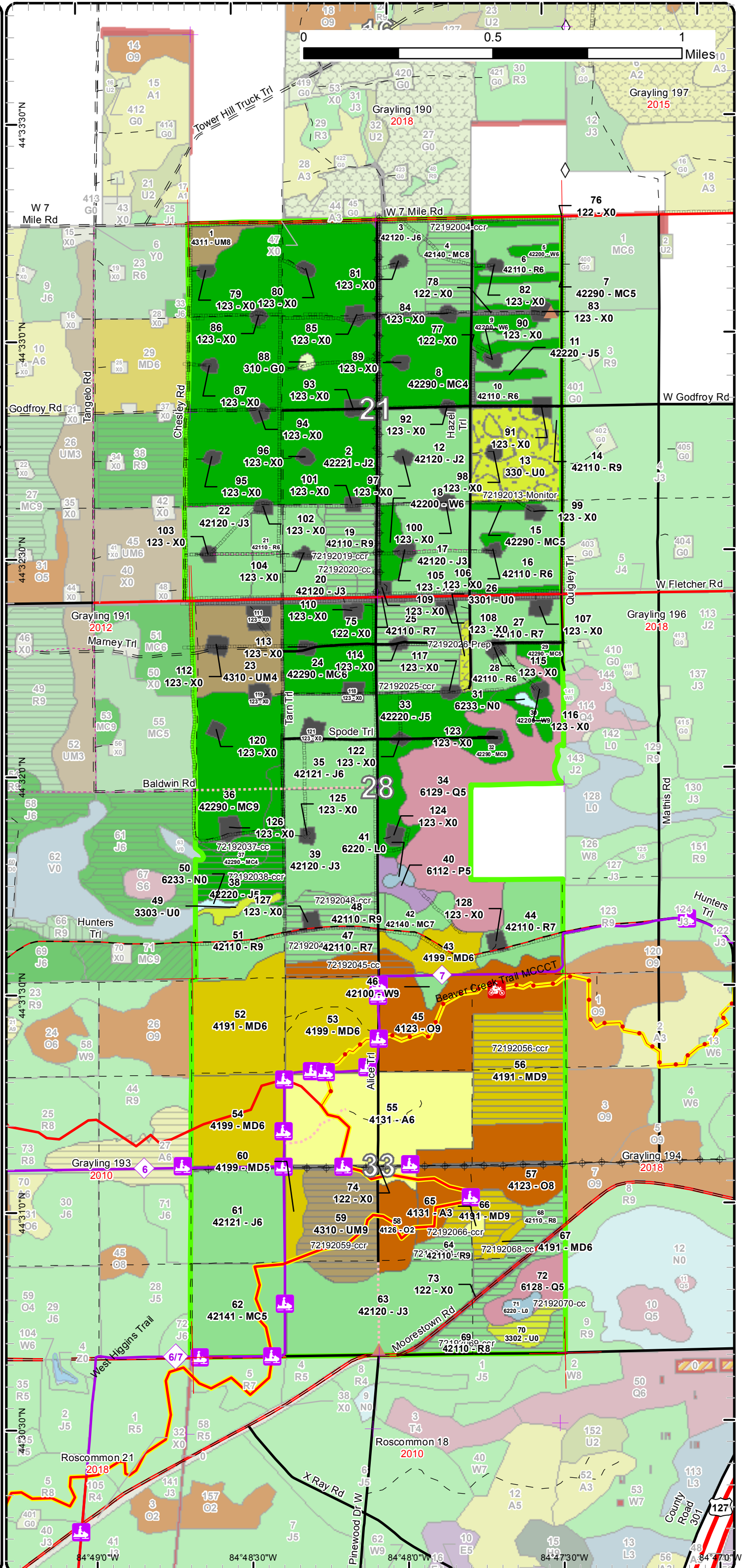
- Base feature information, stand boundaries, cover types, and numbers**
- Proposed treatments**
- Site condition boundaries**
- Details on the road access system**

Cover Type & Treatments

Compartment: 192
 T25N,R04W, Sec. 21, 28, 33
 County: Crawford
 Unit: Grayling
 Mgmt Area: AuSable Outwash
 YOE: 2017
 Acres: 1855 GIS Calculated
 Examiner: Joan Charlebois
 Map Revised: 10/12/2015
 Map Phase: Review

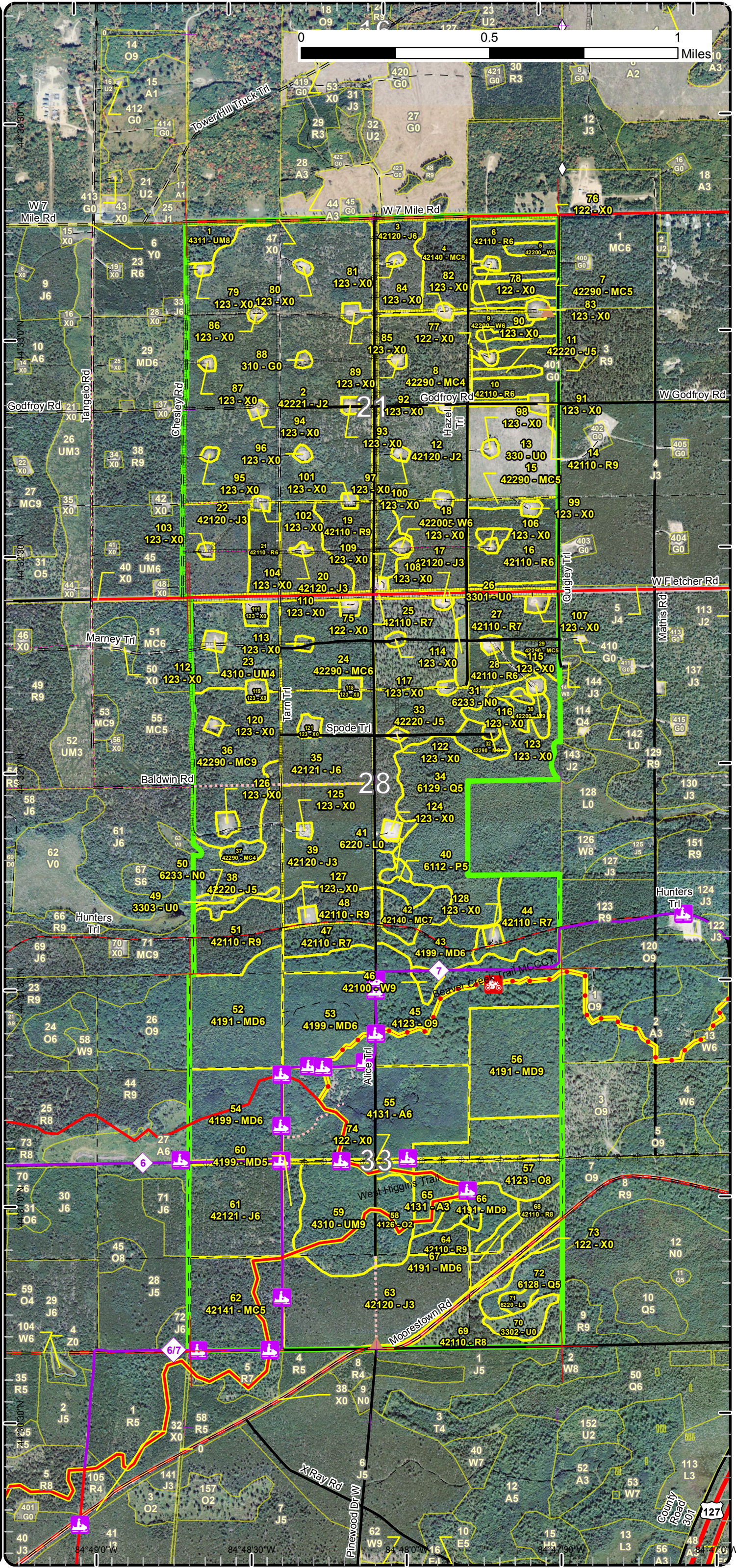
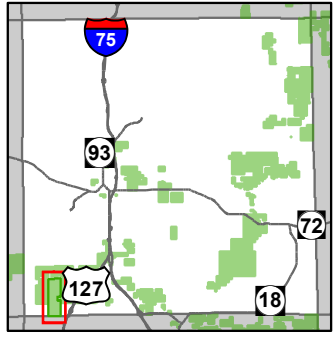


- ✚ Remonumented Section Corner
- ◇ Field Grade GPS Corners
- Miris Corners
- Highway
- County Paved Roads
- Paved Roads
- County Gravel Roads
- Gravel Roads
- Poor Dirt Roads
- County Poor Dirt Roads
- Trail (Non-Recreation)
- Closed Roads
- ▲ Berms
- 🏍 Motorcycle Trails (DNR License)
- 🏂 Snowmobile Trails
- 🛵 ORV License & Trail Permit
- 🚗 Designated ATV
- 🏂 Designated Snowmobile Trails
- 🛤 Designated MCCCT Trails
- Rivers
- Lakes
- Pipeline
- Powerline
- Treatments
- 🏗 Site Prep
- 🌳 Clearcut (w/Reserves)
- 🔍 Regeneration Survey
- Forest Covertype
- 412 - Oak Types
- 413 - Aspen
- 419 - Mixed Upland Deciduous
- 421 - Planted Pines
- 422 - Natural Pines
- 430 - Upland Mixed Fores
- 611 - Lowland Deciduous Forest
- 612 - Lowland Coniferous Forest
- Non-Forest Covertype
- 122 - Roads/Parking Lot
- 123 - Other High Intensity Urban
- 310 - Herbaceous Openland
- 330 - Low Density Trees
- 622 - Lowland Shrub
- 623 - Emergent Wetland



Stand Boundary Map

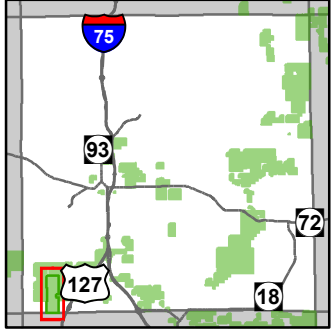
Compartment: 192
 T25N,R04W, Sec. 21, 28, 33
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- 122 - Roads/Parking Lot
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 - 310 - Herbaceous Openland
 - 330 - Low Density Trees
 - 622 - Lowland Shrub
 - 623 - Emergent Wetland

Special Conservation Areas & Site Conditions Map

Compartment: 192
 T25N,R04W, Sec. 21, 28, 33
 County: Crawford
 Unit: Grayling
 Mgmt Area: AuSable Outwash
 YOE: 2017
 Acres: 1855 GIS Calculated
 Examiner: Joan Charlebois
 Map Revised: 8/19/2015
 Map Phase: Review



- ✚ Remonumented Section Corner
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- 🚗 Designated ATV
- 🛷 Designated Snowmobile Trails
- 🛷 Designated MCCCT Trails
- Rivers
- Pipeline
- Powerline
- Stand Boundaries
- Site Condition
- Available w/ Constraints
- Unavailable

Available Factors W/ Constraints

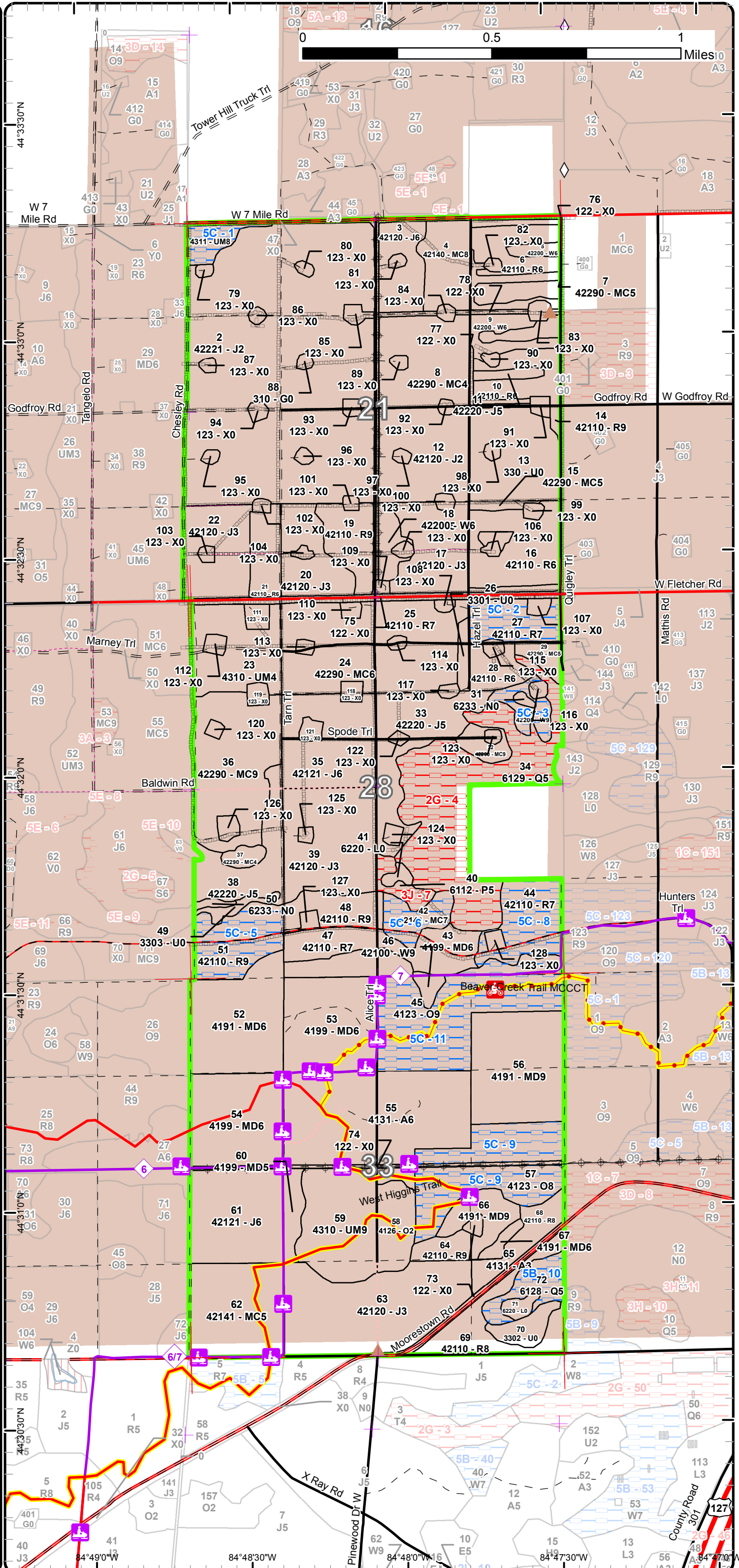
- 5B: Maintain for regeneration purposes
- 5C: Delay treatment for age/size class diversity or exceptional site quality

Unavailable Factors

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

Special Conservation Areas

- Cold Water Streams
- Research, Development, and Military Lands



Report 1 – Total Acres by Cover Type and Age Class

Grayling Mgt. Unit

Compartment 192 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	0	0	78	0	0	0	0	0	0	0	0	0	0	0	0	0	0	78
Herbaceous Openland	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Jack Pine	0	0	36	259	178	89	23	0	0	0	0	0	0	0	0	0	0	0	585
Low-Density Trees	49	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	49
Lowland Aspen/Balsam Poplar	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	6
Lowland Conifers	0	0	0	0	0	0	0	0	78	12	0	0	0	0	0	0	0	0	90
Lowland Shrub	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
Marsh	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Mixed Upland Deciduous	0	0	0	0	43	103	0	0	13	0	46	0	0	0	0	0	0	0	205
Natural Mixed Pines	0	0	0	0	13	78	0	0	50	0	6	0	0	0	0	0	0	0	147
Oak	0	0	0	14	0	0	0	0	0	0	117	0	0	0	0	0	0	0	131
Planted Mixed Pines	0	0	0	0	0	40	0	0	19	11	0	0	0	0	0	0	0	0	70
Red Pine	0	0	0	80	12	0	0	0	13	166	0	0	0	0	0	0	0	0	271
Upland Mixed Forest	0	0	0	30	0	0	0	0	8	0	0	37	0	0	0	0	0	0	75
Urban	104	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	104
White Pine	0	0	0	0	21	0	0	0	0	3	0	8	0	0	0	0	0	0	32
Total	161	0	36	461	267	316	23	0	50	131	198	163	45	0	0	0	0	0	1851



Report 2 – Treatment Summary

Grayling Mgt. Unit

Year of Entry: 2017

Acres of Harvest

Compartment 192

Total Compartment Acres: 1,855

Commercial Harvest - 275
 Harvests with Site Condition - 0
 Next Step Harvest - 0
 Habitat Cut - 0

Cover Type by Harvest Method

	Clearcut	Selection	Patch Clearcut	Seed Tree	Shelterwood	Thinning	Overstory Removal	Salvage	Other	Total Acres
Jack Pine	26	0	0	0	0	0	0	0	0	26
Low-Density Trees	7	0	0	0	0	0	0	0	0	7
Mixed Upland Deciduous	59	0	0	0	0	0	0	0	0	59
Natural Mixed Pines	4	0	0	0	0	0	0	0	0	4
Oak	12	0	0	0	0	0	0	0	0	12
Planted Mixed Pines	18	0	0	0	0	0	0	0	0	18
Red Pine	112	0	0	0	0	0	0	0	0	112
Upland Mixed Forest	37	0	0	0	0	0	0	0	0	37
Total	275	0	0	0	0	0	0	0	0	275

Proposed and Next Step Treatments by Method

	Harvest	Site Prep	Planting	Seeding	Burning	Pesticide	Monitoring	Other	Non-Forest Mgt.	Total Acres
Current	275	4	0	0	0	35	0	0	0	314
Next Step	0	167	171	0	0	268	484	0	0	1089
Total	275	171	171	0	0	268	519	0	0	1403



Stand	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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4	72192004-ccr	18.3	42140 - Planted Mixed Pine	Sawtimber Medium	84	51-80	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 ~3% in island retention (ie: on the west side by running a straight line to exclude the dog-leg). Then site prep and plant RP, with mechanical and herbicide treatments as needed to establish the stand. Treatment boundary has been edited to approximate the intended exclusion.

Next Step SitePrep, Trenching; Planting, Initial Plant; Monitoring, Artificial Regen(1yr); Pesticide, Aerial; Monitoring, Artificial Regen(3yr)

Acceptable Full stocking in planted RP.

Other Pipelines border and cross through the stand. Old next step comments:

Proposed Start Date: 10/1 /2016

13	72192013-Monitor	35.0	330 - Low-Density Trees	Nonstocked	0	Unspecified	Monitoring	Artificial Regen(1yr)	42110 - Planted Red Pine	Even-Aged	Proposal
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Habitat Cut: No

Site Condition:

Prescription Year 1 artificial regen survey

Next Step Pesticide, Aerial; Monitoring, Artificial Regen(3yr)

Acceptable Moderate to full stocking in planted RP

Other Old next step comments:

Proposed Start Date: 4 /1 /2015

19	72192019-ccr	15.3	42110 - Planted Red Pine	Sawtimber Well	92	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 the few natural-origin supercanopy pine and leave ~3% in island retention (ie: by running a straight line on the west side to exclude the NW dog-leg). Pick up and treat part of the adjacent J3 stand in the same manner. Then site prep and plant RP, with mechanical and herbicide treatments as needed to establish the stand. Treatment boundary has been edited to approximate the intended exclusion.

Next Step SitePrep, Trenching; Planting, Initial Plant; Monitoring, Artificial Regen(1yr); Pesticide, Aerial; Monitoring, Artificial Regen(3yr)

Acceptable Full stocking in planted RP.

Other Pipelines border and cross through the stand. Old next step comments:

Proposed Start Date: 10/1 /2016

20	72192020-cc	4.4	42120 - Planted Jack Pine	Sapling Well	35	1-50	Harvest	Clearcut	42110 - Planted Red Pine	Even-Aged	Proposal
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Habitat Cut: No

Site Condition:

Prescription Cut 1"+ DBH. No retention due to small size. Then site prep and plant RP, with mechanical and herbicide treatments as needed to establish the stand. Treat concurrent with stand 19.

Next Step SitePrep, Trenching; Planting, Initial Plant; Monitoring, Artificial Regen(1yr); Pesticide, Aerial; Monitoring, Artificial Regen(3yr)

Acceptable Full stocking in planted RP.

Other Pipelines border and cross through the stand. Old next step comments:

Proposed Start Date: 10/1 /2016



Stand	Treatment Name	Acres	Stand CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Age Structure	Approval Status
25	72192025-ccr	31.3	42110 - Planted Red Pine	Sawtimber Poor	99	1-50	Harvest	Clearcut with Retention	42110 - Planted Red Pine	Even-Aged	Proposal

Habitat Cut: No Site Condition:

Prescription Cut 1"+ DBH except leave ~3% in island retention (ie: boundary-exclude the NE corner). Then site prep and plant RP, with mechanical and herbicide treatments as needed to establish the stand. The treatment boundary has been edited to approximate the intended exclusion.

Next Step SitePrep, Trenching; Planting, Initial Plant; Monitoring, Artificial Regen(1yr); Pesticide, Aerial; Monitoring, Artificial Regen(3yr)
Treatments:

Acceptable Full stocking in planted RP.
Regen:

Other Pipelines border and cross through the stand. Roundwood & top piles may be heavier than what could be consumed by Rx burn or broken up by roller-chopper. If TMS thinks the slash is unmanageable at this time, drop the Rx, let the slash break down for another 10 and restart the plantation next YOY. Protect remaining witness trees. Old next step comments:

Proposed Start Date: 10/1 /2016

26	72192026-Prep	3.8	3301 - Low Density Deciduous Trees	Nonstocked	0	Unspecified	SitePrep	Trenching	42110 - Planted Red Pine	Even-Aged	Proposal
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Habitat Cut: No Site Condition:

Prescription Site prep and plant RP, with mechanical and herbicide treatments as needed to establish the stand. Delay site prep to coincide with adjacent stand 25's site prep.

Next Step Planting, Initial Plant; Monitoring, Artificial Regen(1yr); Pesticide, Aerial; Monitoring, Artificial Regen(3yr)
Treatments:

Acceptable Full stocking in planted RP.
Regen:

Other Old next step comments:
Comment:

Proposed Start Date: 10/1 /2016

37	72192037-cc	3.6	42290 - Natural Mixed Pine	Poletimber Poor	41	1-50	Harvest	Clearcut	42110 - Planted Red Pine	Even-Aged	Proposal
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Habitat Cut: No Site Condition:

Prescription Cut 1"+ DBH, no retention due to small stand size. Then site prep and plant RP, with mechanical and herbicide treatments as needed to establish the stand. Treat concurrent with stand 38.

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

Acceptable Full stocking in planted RP.
Regen:

Other Old next step comments:
Comment:

Proposed Start Date: 10/1 /2016

38	72192038-ccr	21.6	42220 - Natural Jack Pine	Poletimber Medium	54	51-80	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 at least 3% in island retention (ie: buffering the west side bog and south side marsh as indicated by BMP guidelines).
Specs: Then site prep and plant RP, with mechanical and herbicide treatments as needed to establish the stand. Exclude the part of this stand that is north of the pipeline trail road. Incorporate the part of stand 36 south of the pipeline trail road. Treat concurrent with stand 37.

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

Acceptable Full stocking in planted RP.
Regen:

Other Pipelines border the harvest. Potential green-up concerns with adjacent harvest in comp 191. 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
45	72192045-cc	12.1	4123 - Red Oak	Sawtimber Well	108	81-110	Harvest	Clearcut	4199 - Other Mixed Upland Deciduous	Even-Aged	Proposal

Habitat Cut: No

Site Condition:

Prescription Cut stems 1"+ DBH. No retention at this time because only a small part of the stand is being treated this YOY. Consider harvesting concurrent with adjacent stand 47.
Specs:

Next Step
Treatments:

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

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

Proposed Start Date: 10/1 /2016

47	72192047-cc	11.5	42110 - Planted Red Pine	Sawtimber Poor	91	1-50	Harvest	Clearcut	42110 - Planted Red Pine	Even-Aged	Proposal
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Habitat Cut: No

Site Condition:

Prescription Cut 1"+ DBH, no retention. Then site prep and plant RP, with mechanical and herbicide treatments as needed to establish the stand.
Specs:

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

Acceptable Full stocking in planted RP.
Regen:

Other A pipeline borders the stand. No retention due to small stand size, narrow shape, and intolerant regen species. Old next step comments:
Comment:

Proposed Start Date: 10/1 /2016

48	72192048-ccr	12.5	42110 - Planted Red Pine	Sawtimber Well	91	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 island retention (ie: ~1 acre on the east end across the N-S pipeline/road corridor). Then site prep and plant RP, with mechanical and herbicide treatments as needed to establish the stand. Treatment boundary has been edited to approximate the intended exclusion.
Specs:

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

Acceptable Full stocking in planted RP.
Regen:

Other Pipelines border the stand. Old next step comments:
Comment:

Proposed Start Date: 10/1 /2016

56	72192056-ccr	46.5	4191 - Mixed Upland Deciduous with Conifer	Sawtimber Well	104	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 ~4 acres in island retention. Evaluate the 50-year old oak at time of sale prep: if it can be released without triggering shock &/or epicormic branching, consider leaving that younger component.
Specs:

Next Step
Treatments:

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

Other Old next step comments:
Comment:

Proposed Start Date: 10/1 /2016



Stand Name	Treatment Name	Acres	Stand CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Age Structure	Approval Status
59	72192059-ccr	36.9	4310 - Pine, Oak Mix	Sawtimber Well	117	81-110	Harvest	Clearcut with Retention	4191 - Mixed Upland Deciduous with Conifer	Even-Aged	Proposal

Habitat Cut: No

Site Condition:

Prescription Cut 2"+ DBH except leave ~4 acres in island retention. Consider WP seed dispersal & prevailing winds when determining island placement.
Specs: Evaluate the 38-year old oak at time of sale prep: if it can be released without triggering shock &/or epicormic branching, consider leaving that younger component.

Next Step
Treatments:

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

Other Apply rec trail protection specs. Old next step comments:
Comment:

Proposed Start Date: 10/1 /2016

64	72192064-cc	6.4	42110 - Planted Red Pine	Sawtimber Well	94	111-140	Harvest	Clearcut	42110 - Planted Red Pine	Even-Aged	Proposal
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Habitat Cut: No

Site Condition:

Prescription Cut 1"+ DBH except leave oak with good den/nest potential. No additional retention due to small stand size. Then site prep and plant RP, with mechanical and herbicide treatments as needed to establish the stand.

Next Step SitePrep, Trenching; Planting, Initial Plant; Monitoring, Artificial Regen(1yr); Pesticide, Aerial; Monitoring, Artificial Regen(3yr)
Treatments:

Acceptable Full stocking in planted RP.
Regen:

Other Old next step comments:
Comment:

Proposed Start Date: 10/1 /2016

66	72192066-ccr	12.7	4191 - Mixed Upland Deciduous with Conifer	Sawtimber Well	80	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 an island bounded by the rec trail in the NW.
Specs:

Next Step
Treatments:

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

Other Apply rec trail protection specs. Old next step comments:
Comment:

Proposed Start Date: 10/1 /2016

68	72192068-cc	13.0	42110 - Planted Red Pine	Sawtimber Medium	85	51-80	Harvest	Clearcut	42110 - Planted Red Pine	Even-Aged	Proposal
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Habitat Cut: No

Site Condition:

Prescription Cut 1"+ DBH, no retention due to relatively small stand size and narrow width. Then site prep & plant RP, with mechanical and herbicide treatments as needed to establish the stand.

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

Acceptable Full stocking in planted RP.
Regen:

Other Old next step comments:
Comment:

Proposed Start Date: 10/1 /2016



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Treatment Name	Acres	Stand CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Age Structure	Approval Status
69 72192069-ccr	21.7	42110 - Planted Red Pine	Sawtimber Medium	91	51-80	Harvest	Clearcut with Retention	42110 - Planted Red Pine	Even-Aged	Proposal

Habitat Cut: No

Site Condition:

Prescription Specs: Cut 1"+ DBH, leaving at least 3% in island retention (ie: in the narrow NE peninsula by the lowland). Then site prep & plant RP, with mechanical and herbicide treatments as needed to establish the stand.

Next Step Treatments: SitePrep, Trenching; Planting, Initial Plant; Monitoring, Artificial Regen(1yr); Pesticide, Aerial; Monitoring, Artificial Regen(3yr)

Acceptable Regen: Full stocking in planted RP.

Other Comment: Treat stand 70 concurrent. Old next step comments:

Proposed Start Date: 10/1 /2016

70 72192070-cc	7.3	3302 - Low Density Conifer Trees	Nonstocked	0	Unspecified	Harvest	Clearcut	42110 - Planted Red Pine	Even-Aged	Proposal
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Habitat Cut: No

Site Condition:

Prescription Specs: Cut 1"+ DBH, no retention due to small stand size. Then site prep & plant RP, with mechanical and herbicide treatments as needed to establish the stand. Treat concurrent with stand 69.

Next Step Treatments: SitePrep, Trenching; Planting, Initial Plant; Monitoring, Artificial Regen(1yr); Pesticide, Aerial; Monitoring, Artificial Regen(3yr)

Acceptable Regen: Full stocking in planted RP.

Other Comment: Old next step comments:

Proposed Start Date: 10/1 /2016

Total Treatment Acreage Proposed: 313.7

Report 5 – Site Conditions

Grayling Mgt. Unit
Joan Charlebois : Examiner

Compartment: 192
Year of Entry: 2017

Availability for Management

Total Acres	Acres Available	Acres Avail		Dominant Site Conditions	5B	5C	2G	3J
		With Condition	Not Available					
78	78	0	0	Aspen				
1	1	0	0	Herbaceous Openland				
586	586	0	0	Jack Pine				
49	49	0	0	Low-Density Trees				
6	0	0	6	Lowland Aspen/Balsam Poplar				6
89	0	12	78	Lowland Conifers	12		78	
5	5	0	0	Lowland Shrub				
2	2	0	0	Marsh				
205	205	0	0	Mixed Upland Deciduous				
148	148	0	0	Natural Mixed Pines				
132	26	106	0	Oak		106		
70	59	11	0	Planted Mixed Pines		11		
272	208	64	0	Red Pine		64		
74	67	8	0	Upland Mixed Forest		8		
104	104	0	0	Urban				
32	25	8	0	White Pine		8		
1,855	1,564	207	83	Total Forested Acres	12	195	78	6
	84%	11%	5%	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	8	Unspecified	Unspecified	Unspecified	Unspecified
Comments: Small mixed two-aged stand.							

Report 5 – Site Conditions

Grayling Mgt. Unit

Joan Charlebois : Examiner

Compartment: 192

Year of Entry: 2017

2	Available	5C: Delay treatment for age/size class diversity or exceptional site quality	16	Unspecified	Unspecified	Unspecified	Unspecified
Comments: A majority of this stand is immature, with lower-density mature RP residual above that triggered the silvicultural criteria. By next YOE, the immature component will be the featured canopy. Manage based on the younger RP.							
3	Available	5C: Delay treatment for age/size class diversity or exceptional site quality	8	Unspecified	Unspecified	Unspecified	Unspecified
Comments: The older WP age triggered the silvicultural criteria, but this stand's characteristics indicate managing based on basal area rather than age. This small stand is at least two-aged, on PARVCo ground, wraps around an emergent marsh & a wellsite, is crossed by pipelines, and has considerable swamp interface.							
4	Unavailable	2G: Too wet (sensitive soils, does not include access issues)	78	Unspecified	Unspecified	Unspecified	Unspecified
Comments: This stand's transition ground edge and pine islands could be cut through WLD FTP or concurrent with adjacent upland harvests, but the core of this stand has standing water that would limit harvest and regeneration options.							
5	Available	5C: Delay treatment for age/size class diversity or exceptional site quality	24	Unspecified	Unspecified	Unspecified	Unspecified
Comments: Thinned recently. Hits silvicultural criteria by age, but is maintaining good health and still showing positive growth response to release. Consider regenerating next YOE.							
6	Available	5C: Delay treatment for age/size class diversity or exceptional site quality	11	Unspecified	Unspecified	Unspecified	Unspecified
Comments: Patchy cover in open-grown RP & JP. Planted RP age triggered the silvicultural criteria, but the stand is two+aged, with a majority of the stand immature. OFS							

Report 5 – Site Conditions

Grayling Mgt. Unit

Joan Charlebois : Examiner

Compartment: 192

Year of Entry: 2017

7	Unavailable	3J: Water quality / BMPs (stream, river, or lake)	6	Unspecified	Unspecified	Unspecified	Unspecified
Comments: A good portion of this small stand would be left in order to buffer the open water wetland it wraps around (stand 41). This stand's upland and transition ground edges outside of the buffer could be cut when adjacent upland stands are scheduled for harvest.							
8	Available	5C: Delay treatment for age/size class diversity or exceptional site quality	23	Unspecified	Unspecified	Unspecified	Unspecified
Comments: Deciduous understory is too dense & small-diameter to address through the harvest, but too tall to roller-chop. To maintain RP on the site, consider letting the understory grow ten more years into a diam range that could be spec'd for removal, then re-start RP.							
9	Available	5C: Delay treatment for age/size class diversity or exceptional site quality	46	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.							
10	Available	5B: Maintain for regeneration purposes	12	Unspecified	Unspecified	Unspecified	Unspecified
Comments: This is three small stands put together: the uncut transition ground margins, the partially-cut wetter east end, and the fully-cut remainder (1998 harvest). The uncut component triggered the age criteria, but the stand should be managed based on the immature component.							
11	Available	5C: Delay treatment for age/size class diversity or exceptional site quality	59	Unspecified	Unspecified	Unspecified	Unspecified
Comments: Thinned in 1999. Oak meets age criteria, but want to prioritize treatments this YOE on the mature oak stands that haven't seen recent management. Will treat the west peninsula concurrent with the adjacent RP stand in that forty.							

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
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.



Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
1	4311 - Pine, Aspen Mix	Sawtimber Medium	7.5	87	51-80	RP-JP planted 1925 & 1928. Most of the stand was cut in 1976 (#7-75), thinning the RP and cutting other merch species. The residual planted RP is in the stand's north half. Residual & regen from the cut in A-JP-O-RM occur with the RP there and at lower canopy closure in the stand's south half. RP cored came in a few years younger (1934) than the planting record. (Note: There isn't canopy RP saplings -- MiFI wouldn't give Log/Pole as an option for the entered DBH, so had to pick Log/Pole/Sap).
2	42221 - Natural Jack Pine, Mixed Deciduous	Sapling Medium	216.0	27	1-50	Was clearcut in 1988 (#30-87), 2"+ DBH. Regenerated naturally to a patchy mosaic of JP, small QA clones and upland brush, with widely scattered O-RP-RM. JP distribution varies from over- to under-stocked, with open-grown form common where cover is sparser. QA clone health and development varies. There is older pole JP rimming the original wellpads, with younger JP encroaching on the pads themselves.
3	42120 - Planted Jack Pine	Poletimber Well	17.0	45	51-80	The stand was planted to JP in 1970, except for an uncut strip of JP on the west edge and a pocket on the north side. Those exclusions (~10% of stand) are now mature, log-pole in size. The majority planted JP is still transitioning into the pole class. Heavy dead limbs are common, with self-thinning and pockets of top breakage occurring.
4	42140 - Planted Mixed Pine	Sawtimber Medium	18.9	84	51-80	Couldn't locate record for the stand but RP & JP were planted (1931 by core). Most of the planted JP were cut in 1977 (#11-77), leaving a minor amount of mature JP saw. Two-layered, two-aged canopy, with original planted RP & JP saw in dense patches and younger pole JP-WP-O-RM in gaps. The plantation is sparse in the S1/2, with majority younger JP & O. Surface pipeline arcs through the stand. (Note: There isn't canopy RP saplings -- MiFI wouldn't give Log/Pole as an option for the entered DBH, so had to pick Log/Pole/Sap).
5	42200 - Natural White Pine	Poletimber Well	5.3	39	111-140	Was strip cut in 1976 (#37-75A), merch JP-RP-WP-SP except RP-WP >10" DBH left for seed trees. Those seed trees are now xlog in size, scattered above the majority younger pole component dating to around the cut. Sub-merch stems released by the cut are now in the log class. The WP has good form where there is full stocking, but gets open-grown on the perimeter. Set age to cut. Cored 8" DBH WP 37 yrs). Pipeline on surface in north poly. (Note: There isn't canopy RP saplings -- MiFI wouldn't give Log/Pole as an option for the entered DBH, so had to pick Log/Pole/Sap).
6	42110 - Planted Red Pine	Poletimber Well	22.3	24	51-80	Was strip cut in 1989 (#6-88) and planted to RP in 1991 (C72-244). Just over half of the planted RP are pole-sized (range 4-7" DBH). Good stocking except for gaps that had deciduous competition (BC & O). Minor amount of volunteer JP w/in plantation and on wellsite margins. Widely-scattered residual open-grown WP & RP saw. RP SI 56.
7	42290 - Natural Mixed Pine	Poletimber Medium	6.8	39	51-80	Was strip cut in 1976 (#37-75A), merch JP-RP-WP-SP except RP-WP >10" DBH left for seed trees. Those seed trees are now xlog in size, scattered above the majority younger pole-log component dating to around the cut. Open-grown form is common in the perimeter RP. The stand's interior transitions to majority JP poles. Set age to cut. Cored 14" DBH RP 40 yrs old.



	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
8	42290 - Natural Mixed Pine	Poletimber Poor	35.6	42	1-50	Was cut in 1998 (#23-97), 5"+ DBH. This stand was dropped from FTP C72-407 due to noted heavy post-harvest residual. That residual is the featured canopy, with open-grown form common. Stocking & species distribution varies (RP increases to the S & W; JP to the N & E). JP regen varies from under- to over-stocked (is full at the old landings).
9	42200 - Natural White Pine	Poletimber Well	9.2	39	81-110	Was strip cut in 1976 (#37-75A), merch JP-RP-WP-SP except RP-WP >10" DBH left for seed trees. Those seed trees are now xlog in size, scattered above the majority younger pole component dating to around the cut. Sub-merch stems released by the cut are now in the log class. Species distribution varies across the stand from majority WP, to RP, to JP, with all gradations in between. Stocking is variable also, with open-grown RP & WP where stem densities were lower. Cored 8" DBH WP 39 yrs).
10	42110 - Planted Red Pine	Poletimber Well	20.0	24	81-110	Was strip cut in 1989 (#6-88) and planted to RP in 1991 (C72-244). Just over half of the planted RP are pole-sized (range 3-7" DBH). Decent stocking except for gaps that had deciduous competition (BC & O). Minor amount of volunteer JP w/in plantation and on wellsite margins. Widely-scattered residual open-grown WP saw. RP SI 50.
11	42220 - Natural Jack Pine	Poletimber Medium	4.2	39	51-80	Was strip cut in 1976 (#37-75A), merch JP-RP-WP-SP except RP-WP >10" DBH left for seed trees. Those seed trees are now xlog in size, scattered above the majority younger pole-log component dating to around the cut. Low-density cover in open-grown RP & WP alternates with dense patches of JP pole cover. Set age to cut. Cored 6" DBH JP 39 yrs old.
12	42120 - Planted Jack Pine	Sapling Medium	36.4	17	Immature	Was clearcut in 1998, 5"+ DBH. FTP C72-407 for planting or seeding JP was completed that fall. Trenches weave around scattered residual WP-RP-JP-NPO. Was part of the same harvest as stand 8, but had a lot less residual. Regen varies from full- to non-stocked.
14	42110 - Planted Red Pine	Sawtimber Well	1.4	96	111-140	RP planted in 1919 and left as designated retention for #59-07.
15	42290 - Natural Mixed Pine	Poletimber Medium	6.4	39	51-80	Was strip cut in 1976 (#37-75A), merch JP-RP-WP-SP except RP-WP >10" DBH left for seed trees. Regenerated to a mix of SP-WP-JP cover. Stocking ranges from sparse to dense, form from open-grown to clean-boled. SP not recruiting in the understory. Set age to cut. Cored 7" DBH SP 38 yrs old.
16	42110 - Planted Red Pine	Poletimber Well	28.6	24	51-80	Was strip cut in 1989 (#6-88) and planted to RP in 1991 (C72-244). Just over half of the planted RP are pole-sized (range 3-7" DBH). Decent stocking except for swaths that had deciduous competition (BC). Stand's SE has the most gaps and more volunteers (JP-SP-BC). That area runs 50-75% RP cover, but the stand averages 75-100% overall when factoring all species. Widely-scattered residual open-grown WP-RP-SP saw. RP SI 50.



	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
17	42120 - Planted Jack Pine	Sapling Well	27.2	35	1-50	Was cut in 1976 (#37-75A), merch JP-RP-SP-WP except for RP-WP >10" DBH. JP planted in 1980 (C71-15), still transitioning into the pole class. A minority of stems have decent form and self-pruning. The stand has older residual pole JP along the roads and wellsite margins, and scattered open-grown WP & RP interior. RP seeded in near the west wellsite. Trace of SP in stand's east.
18	42200 - Natural White Pine	Poletimber Well	7.0	39	81-110	Was cut in 1976 (#37-75A), merch JP-RP-WP-SP except RP-WP >10" DBH left for seed trees. Those seed trees are now xlog in size, scattered above the majority younger pole component dating to around the cut. Sub-merch stems released by the cut are now in the log class. The WP has good form where there is full stocking, but gets open-grown on the perimeter. RP seeded in heavily on soil disturbed during the original wellpad construction. Set age to cut. Cored 6" & 7" DBH WP 43 & 40 yrs old).
19	42110 - Planted Red Pine	Sawtimber Well	15.7	92	81-110	RP-JP were planted in 1921 & 1923. The JP and some RP were cut in 1976 (#21-76). Was set up for thinning under marking contract and partially cut (#10-07, Fletcher Forties, couldn't locate closed sale, already cut on 2009 imagery). The south 4 acres were harvested and the rest was not. Pink-marked trees were girdled per the contract. The thinning was largely from below, and not much had to be removed to reach the target BA, so the stand was kept intact for mapping purposes. The north half has more WP in the canopy & subcanopy. Tall WP saps where the plantation was sparser have recruited into the canopy.
20	42120 - Planted Jack Pine	Sapling Well	20.7	35	1-50	Was cut in 1976 (#38-75A), merch JP-RP. Then planted to JP in 1980 (C71-15). JP have persistent heavy dead limbs, the stand is self-thinning, with individual stem mortality and pockets of top breakage. A majority of the stems that meet minimum pole class diam don't meet pole standards (can't make a stick due to limbiness, taper). The scattered log-diam open-grown WP & RP were sub-merch at time of harvest. There's a strip of pole JP & WP volunteers on the west edge over a swath that wasn't planted around a surface pipeline.
21	42110 - Planted Red Pine	Poletimber Well	12.1	35	81-110	Was cut in 1976 (#38-75A), merch JP-RP. Then planted to RP in 1980 (C71-15). RP plantation with scattered residual stocky RP & WP saw, small aspen clones, and volunteer JP rimming the roads. RP ranges 3-8" DBH, SI 45-53, ave 49. RP saw couldn't be listed separately in the canopy due to current MiFI rule, and wasn't common enough (est 1%) to split the dominant size class Pole/Sap/Log.
22	42120 - Planted Jack Pine	Sapling Well	26.6	35	1-50	Was cut in 1976 (#38-75A), merch JP-RP. Then planted to JP in 1980 (C71-15). JP have persistent heavy dead limbs, the stand is self-thinning, with individual stem mortality and pockets of top breakage. A majority of the stems that meet minimum pole class diam don't meet pole standards (can't make a stick due to limbiness, taper). JP on road & wellsite edges are majority pole-sized. Small aspen clones and open-grown residual RP & WO are scattered across the stand.
23	4310 - Pine, Oak Mix	Poletimber Poor	30.1	26	1-50	Was cut in 1989 (#4-88), 2"+ DBH except oak. Planting FTP was cancelled due to pipelines (above & below ground), but a swath of JP was put in east of the interior wellsite. Cover is patchy, densest along roads & wellsites, sparse interior. Aspen clones are scattered across the stand, with open-grown pine, oak, and upland brush in between.



	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
24	42290 - Natural Mixed Pine	Poletimber Well	34.5	42	81-110	JP was planted in 1924, with no treatments recorded since. A majority of the planted JP has died. What remains is a "supercanopy" layer of overmature JP above the majority younger pole stand (WP with RM-RP-O) that seeded in as the plantation broke up. A lot of snags & DWD. The JP regen is mainly around the wellsites.
25	42110 - Planted Red Pine	Sawtimber Poor	32.3	99	1-50	RP-JP were planted in 1916. Row-thinned in 1969 (#73-66). Was set up for shelterwood under marking contract and cut by 2009 (#10-07, Fletcher Forties, couldn't locate closed sale), all JP-RM-A and un-marked RP to 40 BA target. Scattered RP were girdled per the contract. Residual RP R8 by BA, R7 by canopy closure cross-over. Tops weren't chipped and small piles of JP roundwood were left across the sale. JP snag deadfalls are adding to the DWD. Rx had nat regen M.O. of RP-oak. Traces of RP & WP regen, patchy JP sapling cover. Mostly stump-origin BC & oak. The oak stump sprouts are vigorous. Combined regen (excluding the BC brush), makes poor-moderate stocking. Considerable logging residue will limit cultivation options.
27	42110 - Planted Red Pine	Sawtimber Poor	16.1	99	1-50	RP-JP planted in 1916. Was cut in 1989 (#6-88), 2"+ DBH and only the marked RP. RP was then planted around the residual in 1991 (C72-243). The varying distribution in residual RP and WP comprise the two-aged featured canopy. The 1991 planted RP is in the subcanopy where overstory suppression was greatest, and in the canopy where free-to-grow. Due to current MiFI rules, all of the planted RP - regardless of canopy position - had to be recorded in the subcanopy. By next YOE, the regen will likely be the featured canopy. RP cored came in 23 years younger than the planting record, either a volunteer or from a supplemental planting.
28	42110 - Planted Red Pine	Poletimber Well	9.3	24	51-80	RP-JP planted in 1916. Was clearcut in 1989 (#6-88), 2"+ DBH. RP was then planted in 1991 (C72-243). RP ranges 3-7" DBH. A few rows of JP were planted south of the wellsite, and there is volunteer JP along the roads.
29	42290 - Natural Mixed Pine	Poletimber Medium	5.2	42	51-80	RP-JP were planted in 1916 in the north end. Was cut in 1973 (#28-73), merch JP. Two-aged, two-layered canopy of limby WP & JP (likely dating to around the cut - did not core any) and older residual RP & WP above. JP heavier in the north half, WP cover increases toward the swamp edge.
30	42200 - Natural White Pine	Sawtimber Well	7.9	113	81-110	Peninsula of drier PARVCo ground extending into the swamp and encompassing an emergent marsh stand. At least two age classes in the overstory WP & RP, with minor spruce, JP, RM, PB associates. A lot of DWD, mainly from the older JP and spruce breaking up. 3 decade age-span in the WP cored (113 & 84 yrs old). To better reflect the age range, did not average the cored WP together, but set the stand's first age to the older WP. The younger WP is reasonably represented by the stand's RP 2nd age. Two sub-acre islands of this stand that are isolated by the swamp were typed as inclusions within that swamp.
32	42290 - Natural Mixed Pine	Sawtimber Well	5.8	95	81-110	Peninsula of PARVCo ground extending into the swamp. Overmature JP with black spruce, WP-RP saw, and minor deciduous associates. JP snags & deadfalls common. 3 sub-acre islands of this stand that are isolated by the swamp were typed as inclusions within that swamp.



	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
33	42220 - Natural Jack Pine	Poletimber Medium	33.2	49	51-80	JP was planted in 1925. Was cut in 1966 (#60-66, #44-66), merch JP & A, except for marked JP seed trees in the N1/2. Variable stocking in JP poles dating to around the cut (+/- 5 yrs), with scattered residual JP saw from the original planting. Form ranges from decent to open-grown, with better stocking (J6) on the N & W sides and more open canopy (J5) to the E. Couple clones of aspen in the NW.
34	6129 - Mixed Coniferous Lowland Forest	Poletimber Medium	77.6	89	51-80	Portions of the swamp edge, 1-3 chains deep, were cut in 1972 (#17-72), merch JP-A-BS-BF. Densest spruce cover is on the transition ground edge, with traces of JP, BF, QA, RM & RP. Medium density Black spruce cover occurs on sphagnum bogs just off the transition ground. The interior lowest ground has sparser tamarack and black spruce over full L3 and standing water. The stand's SE has a solid 5-acre patch of NWC. The stand boundary incorporates isolated sub-acre pine islands, mainly in the NE. Lowland shrub inclusions are being progressively colonized. Did not average the tamarack cores, in order to reflect the age range present. Set second age on the tamarack to the low end of the cored range; the high end (90 yrs) is adequately represented by the stand's first age on the black spruce.
35	42121 - Planted Jack Pine, Mixed Deciduous	Poletimber Well	36.7	35	51-80	Was cut in 1976 (#30-75A), merch stems. JP was then planted in 1980 (C71-17). Limby planted JP with scattered residual JP & open-grown RP-WP saw. Was planted through several small aspen clones, with poor JP survivorship there. The aspen clones have varying levels of black canker & hypoxylon.
36	42290 - Natural Mixed Pine	Sawtimber Well	50.4	73	81-110	JP was planted in 1925. Merch A & marked JP were cut in 1966 (#115-66 & #125-66). Remaining merch JP were cut in 1975 (#27-75). Scattered xlog RP & WP seeded in the majority cover: mostly-log RP above mostly-pole WP. The largest aspen clones from the 1966 cutting had been typed out as their own stand last YOE, but the clones have become increasingly diffuse through mortality and are being edged out by the WP. Cored RP ranged from 53-73 yrs old. Set the stand's 1st age to the top end in order to reflect the 2-aged condition. The stand's 2nd age (set to the cored WP & the first harvest) adequately reflects the younger RP cored (53 & 60 yrs old).
37	42290 - Natural Mixed Pine	Poletimber Poor	3.6	41	1-50	Was cut in 1989 (#4-88), 2"+ DBH except oak. WP & RP released by the cut and are now stocky & open-grown. Residual oak of varying sizes are scattered across the stand. Patches of JP seeded in (set age to harvest). Only had a fifteen-year age spread between the WP & the JP, so couldn't call the stand 2-aged.
38	42220 - Natural Jack Pine	Poletimber Medium	23.1	54	51-80	WP-RP-JP were planted in the south end in 1924, and JP was planted across the rest in 1925. Was cut in 1967 (#125-66), merch A & marked JP. The remaining merch JP were then cut in 1975 (#28-75). The stand has naturally-established JP, with QA mainly in two clones (SW & NW), and RP concentrated along the south edge & scattered elsewhere. Aspen in poor shape, with conks, canker and top mortality. The JP has some top breakage and individual stem mortality. Still running toward the high end of 50-75% canopy closure.
39	42120 - Planted Jack Pine	Sapling Well	42.9	24	Immature	Was cut in 1989 (#4-88), 2"+ DBH except oak. JP was planted in 1991 (FTP C72-219, completion date per OI notes). Fully stocked JP plantation with scattered residual oak and open-grown RP-WP.



Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
40	6112 - Lowland Aspen	Poletimber Medium	5.7	49	51-80	Most of it was cut in 1966 (#44-66), merch JP-A. Aspen in the south end was likely cut in 1977 (#34-76). RP-JP were planted on the SE edge in 1923, where the stand grades up onto dry ground. The rest of the stand is on transitional- to low-ground and wraps around a flooded lowland shrub stand.
42	42140 - Planted Mixed Pine	Sawtimber Poor	11.0	92	1-50	RP-JP were planted in 1923. Was cut in 1977 (#34-76), merch JP. All the RP were left, but the aspen was likely cut in addition to the JP. The stand has patchy, variable cover in open-grown RP saw and open-grown JP poles. Part of the regen from the cut was recorded in the canopy, but part had to be left in the subcanopy (MiFI won't allow sapling material listed in the canopy of stands categorized as Log-sized overall. Cover is denser along the stand margins and sparse interior.
43	4199 - Other Mixed Upland Deciduous	Poletimber Well	14.7	48	81-110	RP-JP were planted in 1923. Most of the stand was cut in 1967 (#131-66), merch A-O-RM north of Hunters Truck Trail, and only the merch A-RM south of the road. Remnant planted RP and a trace of the JP are scattered across the stand. The oak residual (massive, open-grown) is all south of Hunters Truck Trail & has been slowly dying out. Most of the aspen is north of the road. RM is the common thread on both sides of the road, majority pole-sized but with a lesser cull log component. The stand's SW peninsula was cut in 1977 (#34-76), also leaving the RP & oak. The stand is upland overall but grades down onto seasonally wet ground toward the swamp. The 2nd age estimate is based on current oak age in the bordering stand 45.
44	42110 - Planted Red Pine	Sawtimber Poor	23.4	92	1-50	RP-JP-WP were planted in 1923. Was cut in 1988 (#5-88), 2"+ DBH except for the RP. The featured canopy of remnant planted RP is above a tall (30-40 ft) dense understory of sapling-pole RM-A-O. Kept all of the regen from the cut - including the minor pole component - in the subcanopy. The residual RP distribution varies. Form is open-grown where the stocking is lower in the E1/2. RP density increases toward the swamp.
45	4123 - Red Oak	Sawtimber Well	71.3	108	81-110	WP was planted across the stand, through oak regen, between 1923 & 1927. The north edge in section 28 also had RP-JP planted in 1923. The stand was "thinned" in 1999 (#45-97), removing 2"+ DBH A-RM-JP and the RP <8" DBH. This species-removal cut didn't uniformly release the majority oak cover. Oak residual varies widely, from 50-75% cover to largely-intact canopy. There is heavy RM in the understory except where little of that species was cut out. Not all of the RM & A were cut, especially on the hills in the S1/2. The RO is good quality, with only small self-extinguished clumps of dead trees.
46	42100 - Planted White Pine	Sawtimber Well	3.1	91	81-110	WP was planted in 1924. The stand was within a larger "thinning" harvest in 1999 (#45-97), removing 2"+ DBH A-RM-JP and the RP <8" DBH. Because this stand had little by way of the designated-cut species, the canopy was largely untouched. The dominant planted WP had been hit by weevil early on; crook & double tops are common. The oak is large and open-grown. Heavy RM regen below.
47	42110 - Planted Red Pine	Sawtimber Poor	11.5	91	1-50	WP-RP-JP were planted in 1924. A-O-RM were removed from the plantation in 1966 (#123-66). The stand was then "thinned" in 1999 (#45-97), removing 2"+ DBH A-RM-JP and the RP <8" DBH. This species-removal, diam-limit cut resulted in variable RP residual stocking (10-70 BA) above a full subcanopy of tall RM saplings that gives way to oak regen in the far west end.



	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
48	42110 - Planted Red Pine	Sawtimber Well	13.7	91	81-110	WP-RP-JP were planted in 1924. A-O-RM were removed from the plantation in 1966 (#123-66). The stand was then "thinned" in 1999 (#45-97), removing 2"+ DBH A-RM-JP and the RP <8" DBH. This species-removal, diam-limit cut did result in fairly uniform spacing and achieved the thinning objective. Growth response to the thinning has dropped back to pre-harvest levels. BA swings ranged from 90-130, ave 110. RP SI 52. There is a well-developed oak understory, with RM picking up near the Truck Trail.
51	42110 - Planted Red Pine	Sawtimber Well	23.9	91	81-110	WP-RP-JP were planted in 1924. Merch JP-O-RM-A were cut in 1976 (#40-75). Was then set up for thinning under marking contract and cut by 2009 (#10-07, couldn't find closed sale), all JP-RM-A and marked RP (110 BA target Rx). BA swings range from 80-130, ave 100. RP showing good growth response to release. RP SI 54. Well-developed oak understory north of the Truck Trail and in the SE. To the SW, site quality and RP diam increases. The scattering of residual RM saw occurs there, along with locally high cover in tall RM saplings.
52	4191 - Mixed Upland Deciduous with Conifer	Poletimber Well	43.1	45	81-110	WP was planted in 1924. By the 1960's, the plantation was overtopped by A-RM-O, so merch stems of those species were removed between 1966 & 1970 in a "plantation release" cut (#74-66, incorrectly attributed to the NENW). The remnant planted WP is a component of the current canopy, but the stand has more naturally-established deciduous than planted WP cover. The RO stump sprouts are vigorous, some just into the saw class, and weeded down to 1-3 stems per clump. There is a lesser component of oak saw that was residual from the cut. The aspen was cut fairly cleanly, but the RM was heavy to barely sub-merch residual that is now cull log in size. The aspen is mainly on the stand's S & E edges.
53	4199 - Other Mixed Upland Deciduous	Poletimber Well	39.9	39	81-110	WP was planted in 1924. Survivorship was poor due to deciduous completion. By the 1970's it was noted as a scattered understory component in an oak-aspen type. Merch A-O were cut by 1976 (#34-75A). Current cover is vigorous stump-origin oak with a significant BTA component, and scattered remnant planted WP. The RM likely also dates to the cut. The RO stump sprouts have weeded down to 4 or fewer stems per clump and hold dominant to co-dominant canopy positions.
54	4199 - Other Mixed Upland Deciduous	Poletimber Well	38.5	46	81-110	JP was planted on 17 acres in 1926, and WP at 150 t/a on 21 acres in 1929. Merch J-A-O-RM were cut in 1969 (#93-68). Patches of remnant planted WP are scattered across the stand. A majority of the deciduous component is pole-sized and dates to the cut, but there is a minor older saw class across the oak & RM that was likely sub-merch residual from the cut. The stump-origin RO & WO from the cut are clean-boled & weeded down to 1-3 stems per clump, some stems edging into the saw class. The stand's N1/2 is on richer ground, with more RO-BTA. Site quality decreases to the south, where most of the NPO-QA-JP occurs.
55	4131 - Aspen, Oak	Poletimber Well	76.6	27	51-80	Various plantings of WP, JP & RP occurred in the 1920's. Everything was cut 2"+ DBH in 1988 (#37-87), except for a line of mature oak & WP left along the south edge powerline. Aspen with vigorous RO stump sprouts (right up there with the aspen, and weeding down to 1-3 stems/clump). Lots of small-diam RM. About 5 acres of sparser cover on the N edge had burned and is bounded by plowline. Another sparse inclusion in the SW has more mixed oak and black cherry. OFS



Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
56	4191 - Mixed Upland Deciduous with Conifer	Sawtimber Well	46.5	104	81-110	Was planted in 1927, WP in the N1/2 & WP-RP-JP in the S1/2. Was thinned in 1965, merch A-RM, and oak-pine designated through marking (#50-63, #28-63). The oak's two-aged condition could not be reflected in the canopy data due to a current MiFI rule; the 50-year old oak had to be merged with the 100+ year old oak in a split size class. RM split the same way. Good quality RO saw, though the xlog component is more open-grown. The oak stump sprouts from the thinning are now pole-sized. The aspen suffered a lot of suppression. About a quarter of the stand regenerated from the 1965 cut; the rest is mature O-RM or the planted WP-RP. The WP poles are suppressed, with small crowns, so its bird's-eye-view canopy representation is less than its BA representation. Was set up for thinning under marking contract, but the harvest was closed incomplete and this portion was not cut (#12-07).
57	4123 - Red Oak	Sawtimber Medium	46.4	101	51-80	Various plantings of WP-RP-JP occurred between 1920 & 1927, ave 91 yrs old. The NE 20 acres were thinned in 1965 (#28-63), merch A-RM and unmarked oak. The entire stand was then set up under marking contract and most of it was thinned in 2009 (#12-07), all RM-A and marked O-WP-RP, Rx target of 70 BA. The contract was closed incomplete, with small uncut patches along the stand's north edge (the traces of merch A-RM occur there). Pink-marked trees were girdled per the contract. The stand's N1/2 & SW have better quality RO. The SE is dryer, with poorer quality oak, more RP, and a more open canopy. The BRO there has top dieback and a possible oak wilt pocket (Forest Health point). Distribution of the remnant planted pine varies widely. The most suppressed portion of the RP poles was recorded in the subcanopy.
58	4126 - White, Black, N. Pin Oak	Sapling Medium	14.3	27	1-50	WP-RP-JP were planted in 1921. Was then clearcut in 1988 (#37-87), 2"+ DBH. Same harvest as stand 55, but the dry south aspect here resulted in lower canopy closure. Canopy is also heavier to oak. The BRO is mainly in stump-clumps, while the WO is mostly individual-stem. Because of the opener canopy, the stump-origin clumps haven't weeded down as well as in stand 55.
59	4310 - Pine, Oak Mix	Sawtimber Well	36.9	117	81-110	WP was planted in 1927, and south of the two-track had WP-RP-JP planted in 1930. The stand was thinned in 1977 (#40-76), by cutting marked strips (~20% of stand area, removing mostly oak). All WP-RP were left in those strips. The planted WP diam & canopy representation increases in the stand's S & W. WP in the stand's NE1/3 is largely suppressed, pole-sized, with little canopy presence as seen from above. The oak canopy has mature saw and 38-year old poles. The oak that regenerated from the cut couldn't be listed separately in the canopy due to a current MiFI rule. The stand's S & W ends have larger diam oak and the traces of A-RM occur there. Some crown dieback & individual stem mortality is occurring in the mature oak.
60	4199 - Other Mixed Upland Deciduous	Poletimber Medium	7.3	46	1-50	JP was planted in 1926. Was cut in 1969 (#93-68), with merch JP-A-O-RM spec'd for removal. The oak wasn't cut close to spec's, leaving now-xlog specimens scattered above the patchy canopy of A-O-JP that regenerated after the cut. An acre of JP was seeded in the NW in 1972; that area burned last YO. The pole oak listed in the canopy should be recorded as pole-sapling, but a current MiFI rule prevented that split size class. The poor-quality overmature xlog oak continues to die out. Oak is working on filling in the many canopy gaps. Mature oak age estimate based on the current oak age in adjacent stand 59.



	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
61	42121 - Planted Jack Pine, Mixed Deciduous	Poletimber Well	39.1	43	51-80	JP was planted in 1925. Merch JP-A were cut in 1970 (#34-69A). Was seeded to JP in 1972 (FTP 52) in widely-spaced rows. Within-row spacing ranges from wide to tight. Canopy closure is at the low end of 75-100%, with BA's running lower than typical for that level of overstory cover due to open-grown form. Low-density residual oak & RP are scattered above, along with naturally-established JP poles. The seeding furrows were run through small aspen clones in the stand's NW, with little JP survivorship. Those aspen clones are getting more diffuse as stems top-die and drop out. Small U/G inclusions are common. OFS
62	42141 - Planted Mixed Pine, Mixed Deciduous	Poletimber Medium	40.1	43	51-80	JP-RP were planted in 1925 & 1930. Merch JP-A were cut in 1971 (#14-71). FTP 58, with no completion records, but old inventory noted it was seeded at the same time as stand 61 in 1972. This stand had considerably more residual than stand 61, with open-grown remnant planted RP in the NE1/3, and scattered xlog-log oak. In addition to the seeded JP, there is natural regen from the cut (oak-QA-JP). The JP cover is patchy, poor quality, with top-breakage and self-thinning occurring. Nice advanced oak regen.
63	42120 - Planted Jack Pine	Sapling Well	62.8	35	1-50	Various plantings of RP-JP-WP occurred between 1921 & 1930. Merch JP-RP-O were cut in the W1/2 in 1976 (#36-75A) and the E1/2 in 1977 (#47-76A). The stand was roller-chopped in late 1979. Couldn't locate the planting completion report, but cored JP pointed to 1980. Stocky residual RP are scattered across the stand and in a pocket in the NW. A row of RP was planted with the JP along Moorsetown Rd. The planted JP is limby, with self-thinning and small pockets of top breakage. A majority of the stems that meet the minimum pole diam don't meet pole product standards.
64	42110 - Planted Red Pine	Sawtimber Well	6.4	94	111-140	WP-RP-JP were planted in 1921. 1965 harvest recorded in the forty (#36-65), may have encompassed this stand, removing merch JP. Large planted RP with xlog oak and younger, canopy-intermediate oak & RM. RP SI 60.
65	4131 - Aspen, Oak	Sapling Well	1.3	26	Immature	Was cut in 1989 (#21-97) 2"+ DBH. Tall, almost-pole BTA with 5-10' tall WO.
66	4191 - Mixed Upland Deciduous with Conifer	Sawtimber Well	12.7	80	111-140	Various plantings of RP-WP-JP were recorded between 1920 & 1924. Cored RP came in 10 years younger (unrecorded planting in 1935?). The planted pine had heavy deciduous competition. The stand has more bird's-eye-view canopy representation in naturally-established oak than planted pine, due to the suppressed-intermediate crown position of a lot of the RP. A portion of the RP poles didn't break out of the subcanopy. More pine by BA swings than canopy %. Oak age estimate based on the current oak age in adjacent stand 57.
67	4191 - Mixed Upland Deciduous with Conifer	Poletimber Well	2.8	37	51-80	RP-WP-JP were planted in 1920 & 1924. Merch stems except RP were cut in 1977 (#41-76). The remnant planted RP is stocky & open-grown, scattered above the pole-sapling deciduous regen from the cut.



	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
68	42110 - Planted Red Pine	Sawtimber Medium	13.0	85	51-80	RP-WP-JP were recorded to have been planted in 1920 & 1924. RP cored indicate later unrecorded plantings, circa 1930. That "younger" planted RP is shorter & deep-crowned. Merch stems except RP were cut across most of the stand in 1977 (#38-76 & #41-76). The stand was thinned in 2012 (#24-08), all JP-O-RM-A and marked pine. The species-removal left varying stocking in the RP; BA swings ranged from 40-120, ave 70. Heavy RM-O stump-sprout understory developed from the cut.
69	42110 - Planted Red Pine	Sawtimber Medium	21.7	91	51-80	Various plantings of RP-JP-WP were recorded between 1920 & 1930. Most of the stand appears to be from the 1924 entry (91 yrs old), with some of the 1930's planting in the NE by Moorsetown Road. JP saw was removed in 1960 & 1965 (#73-60 & #24-65). The stand was thinned in 2012 (#24-08), cutting JP-O-RM-A and marked pine. The variable distribution of designated-cut species left widely variable stocking in the residual RP. BA swings ranged from 30-140, ave 75. The traces of misc species occur on the stand's margins. The sparsest portion of the harvest was split off as a non-forested type (Low-Density Tree stand 70). Regen from the cut ranges from full to low stocking in RM-A-O. RP SI 52.
72	6128 - Lowland Coniferous, Mixed Deciduous	Poletimber Medium	11.8	90	1-50	This stand is three small stands put together: the uncut transition ground margins, the partially-cut wetter east end, and the fully-cut remainder (1998, #21-97, 2"+ DBH). Part of the harvest didn't regenerate past LDT status and was separated out as NF stand 71. All of the canopy species are split between regen & residual, but a single age had to be assigned to each. Some of the regen from the cut was recorded in the canopy & some in the subcanopy. Variable cover, difficult to describe under one stand, but not worth splitting out further.



Stand	Cover Type	Acres	Managed Site	General Comments:
13	330 - Low-Density Trees	35.0		RP plantation was clearcut in 2008 (#59-07) except for pine rimming the interior wellsite and a retention island in the NE (now stand 14). C72-603 submitted for planting RP. JP planted in 2010 had high mortality. Was re-planted to RP in 2014. Light mortality seen during walk-through, maintaining medium to full stocking. Traces of volunteers (JP, WP & oak), with cherry brush. Oaks frosted. Due for year-1 artificial regen survey.
26	3301 - Low Density Deciduous Tree	3.8		RP-JP were planted in 1916. Row-thinned in 1969 (#73-66). Was set up for shelterwood under marking contract and cut by 2009 (#10-07, Fletcher Forties, couldn't locate closed sale), all JP-RM-A and un-marked RP to 40 BA target. This portion of the harvest appeared to have majority designated-cut JP, with only a trace of RP saw to leave. Regen'd to cherry brush with oak stump sprouts & JP. Fails to Rx MO of RP-oak.
31	6233 - Wet Meadow	0.9	No	Emergent marsh: sedge & grass, rimmed with leatherleaf.
41	6220 - Alder/willow	1.9	No	Flooded lowland shrub: salix with tag alder, spiraea and scattered quaking aspen.
49	3303 - Mixed Low Density Trees	3.3	No	Currently dry portion of shallow valley. Mast-producing shrub cover (BC, serviceberry, hawthorn) with patches of trees (JP-QA-WP-RP).
50	6233 - Wet Meadow	1.3	No	Marshy swale, extent of flooding appears to vary. Clumps of JP, aspen & hawthorn are currently within the flooded area. Narrow dry channel extends out the stand's east end.
70	3302 - Low Density Conifer Trees	7.3	No	RP-JP were planted across the stand's SW in 1924. Was part of a larger RP stand thinned in 2012 (#24-08), cutting JP-O-RM-A and marked pine. This part of the harvest was heavy to designated-cut species, leaving scattered open-grown WP and a trace of RP. Regen is mostly cherry brush, with a patch of aspen and perimeter RM-O stump sprouts.
71	6220 - Alder/willow	2.9	No	Was part of a larger E-type clearcut in 1998 (#21-97), 2"+ DBH. Didn't regenerate beyond low-density tree status (LDT covertime category not available for lowland stands). Tall tag alder with ilex, salix and patches of regen from the cut (RM-BS-BF-WP).
73	122 - Road/Parking Lot	5.8	No	County road corridor (Moorestown).
74	122 - Road/Parking Lot	6.1	No	Cleared state forest road and powerline corridor.
75	122 - Road/Parking Lot	11.7	No	Paved county road (Fletcher) & cleared pipeline corridor.
76	122 - Road/Parking Lot	13.4	No	Cleared state forest road and pipeline corridors with encroaching tree cover.
77	122 - Road/Parking Lot	1.8	No	Cleared state forest road and pipeline corridors with encroaching tree cover.



Stand	Cover Type	Acres	Managed Site	General Comments:
78	122 - Road/Parking Lot	1.4	No	Cleared state forest road and pipeline corridors with encroaching tree cover.
79	123 - Other High Intensity Urban	0.9	No	Breitburn wellsite State Beaver Creek B9.
80	123 - Other High Intensity Urban	0.9	No	Breitburn wellsite State Beaver Creek B8.
81	123 - Other High Intensity Urban	0.9	No	Breitburn wellsite State Beaver Creek G4.
82	123 - Other High Intensity Urban	0.9	No	Breitburn wellsite State Beaver Creek G3.
83	123 - Other High Intensity Urban	2.1	No	Breitburn wellsite State Beaver Creek xx.
84	123 - Other High Intensity Urban	1.2	No	Breitburn wellsite State Beaver Creek G6.
85	123 - Other High Intensity Urban	1.9	No	Breitburn wellsite State Beaver Creek B14.
86	123 - Other High Intensity Urban	1.0	No	Breitburn wellsite State Beaver Creek B12.
87	123 - Other High Intensity Urban	0.9	No	Breitburn wellsite State Beaver Creek B5.
88	310 - Herbaceous Openland	1.0	No	Former wellsite. Grass with knapweed, St. Johnswort, sweetfern.
89	123 - Other High Intensity Urban	1.0	No	Breitburn wellsite State Beaver Creek H1.
90	123 - Other High Intensity Urban	1.0	No	Breitburn wellsite State Beaver Creek xx.
91	123 - Other High Intensity Urban	1.7	No	Breitburn wellsite State Beaver Creek XX.
92	123 - Other High Intensity Urban	1.0	No	Breitburn wellsite State Beaver Creek H2.
93	123 - Other High Intensity Urban	1.3	No	Breitburn wellsite State Beaver Creek B18.
94	123 - Other High Intensity Urban	1.4	No	Breitburn wellsite State Beaver Creek B16.
95	123 - Other High Intensity Urban	0.9	No	Breitburn wellsite State Beaver Creek C1.



Stand	Cover Type	Acres	Managed Site	General Comments:
96	123 - Other High Intensity Urban	1.0	No	Breitburn wellsite State Beaver Creek C4.
97	123 - Other High Intensity Urban	1.0	No	Breitburn wellsite State Beaver Creek K4.
98	123 - Other High Intensity Urban	1.1	No	Breitburn wellsite State Beaver Creek K6.
99	123 - Other High Intensity Urban	1.3	No	Breitburn wellsite State Beaver Creek K10.
100	123 - Other High Intensity Urban	1.4	No	Breitburn wellsite State Beaver Creek K9.
101	123 - Other High Intensity Urban	1.0	No	Breitburn wellsite State Beaver Creek C6.
102	123 - Other High Intensity Urban	1.1	No	Breitburn wellsite State Beaver Creek C5.
103	123 - Other High Intensity Urban	1.1	No	Breitburn wellsite State Beaver Creek C2.
104	123 - Other High Intensity Urban	0.9	No	Breitburn wellsite State Beaver Creek C3.
105	123 - Other High Intensity Urban	1.2	No	Breitburn wellsite State Beaver Creek K5.
106	123 - Other High Intensity Urban	0.9	No	Breitburn wellsite State Beaver Creek K3.
107	123 - Other High Intensity Urban	1.6	No	Breitburn wellsite State Beaver Creek xx
108	123 - Other High Intensity Urban	1.0	No	Breitburn wellsite State Beaver Creek xx
109	123 - Other High Intensity Urban	1.0	No	BreitBurn gas facility (compression station).
110	123 - Other High Intensity Urban	1.4	No	Breitburn wellsite State Beaver Creek xx.
111	123 - Other High Intensity Urban	2.7	No	Breitburn wellsite State Beaver Creek xx.
112	123 - Other High Intensity Urban	1.8	No	Breitburn wellsite State Beaver Creek xx
113	123 - Other High Intensity Urban	1.1	No	Breitburn wellsite State Beaver Creek



Stand	Cover Type	Acres	Managed Site	General Comments:
114	123 - Other High Intensity Urban	1.0	No	
115	123 - Other High Intensity Urban	1.5	No	Breitburn wellsite State Beaver Creek xx
116	123 - Other High Intensity Urban	1.3	No	Breitburn wellsite State Beaver Creek A9.
117	123 - Other High Intensity Urban	1.1	No	Breitburn wellsite State Beaver Creek xx
118	123 - Other High Intensity Urban	2.0	No	Breitburn wellsite State Beaver Creek xx
119	123 - Other High Intensity Urban	2.1	No	Breitburn wellsite State Beaver Creek xx
120	123 - Other High Intensity Urban	1.1	No	Breitburn wellsite State Beaver Creek xx
121	123 - Other High Intensity Urban	2.1	No	Breitburn wellsite State Beaver Creek xx
122	123 - Other High Intensity Urban	0.9	No	Breitburn wellsite State Beaver Creek A4.
123	123 - Other High Intensity Urban	1.0	No	Breitburn wellsite State Beaver Creek A3.
124	123 - Other High Intensity Urban	1.5	No	Breitburn wellsites State Beaver Creek xx & xx
125	123 - Other High Intensity Urban	1.0	No	Breitburn wellsite State Beaver Creek xx
126	123 - Other High Intensity Urban	2.2	No	Breitburn wellsite State Beaver Creek xx
127	123 - Other High Intensity Urban	1.8	No	Breitburn wellsite State Beaver Creek xx
128	123 - Other High Intensity Urban	1.5	No	Breitburn wellsite State Beaver Creek D4-28.