



Compartment Review Presentation

Grayling Forest Management Unit

Compartment 72201

Entry Year 2018

Acreage: 1,977

County Crawford

Management Area: Camp Grayling

Revision Date: 2016-04-05

Stand Examiner: Joan Charlebois

Legal Description:

T26N R04W Sections 25, 26, 27

Identified Planning Goals:

This compartment is comprised of Hanson Reserve Lands which contain the following deed restrictions: 1) The lands are to be used as a permanent encampment and maneuvering ground for the military, 2) to serve as a game preserve for the breeding and protection of game, and 3) to serve as a forest reserve. The management goal is to maintain forest health, productivity, sustainability, species diversification, and structural diversity throughout the compartment while meeting the deed restrictions.

Soil and topography:

Terrain rises from the Lake Margrethe basin to Wilson Hill, then is level to gently rolling to the east. Grayling and Graycalm-Grayling sands predominate.

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

Part of the Michigan Army National Guard's Camp Grayling lies within this compartment, which consists entirely of Military Board ownership. Most of that ownership is within the Hanson Military Reserve, with the exception of one forty in Section 26. Hanson Reserve Lands were given to the National Guard, Department of Military Affairs (DMA) by Rasmus Hanson in 1913, with several deed restrictions as outlined under the Planning Goals. These restrictions have tasked the DNR with managing the natural resources on these lands, as long as management activities do not conflict with military needs. In addition, hunting is prohibited on the Hanson Reserve Lands.

Unique Natural Features:

There is the potential for rare plants and animals to be associated with the Lake Margrethe basin.

Archeological, Historical, and Cultural Features:

The military's long history of use in the area is evidenced by decommissioned structures and improvements in the vicinity of Camp Grayling.

Special Management Designations or Considerations:

This compartment is designated as a Military Special Conservation Area (SCA). It is also part of the Hanson Military Reserve, with goals and restrictions as noted above. Most of Camp Grayling's Land-Nav orienteering course lies within this compartment, as does part of the Hanson Hills trail system.

Watershed and Fisheries Considerations:

The compartment borders the southeast shore of Lake Margrethe, a cool water lake noted for its sport fishery and recreational boating opportunities.

Wildlife Habitat Considerations:

Opportunities for specific wildlife habitat management activities are limited due to military use, however, a variety of species would benefit by establishing new age classes oak and aspen, and by maintaining grassland and upland brush covertypes.

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 are the Coldwater Shale and Marshall Sandstone. The Marshall was previously used as a building stone. A gravel pit is located in Section 34 and there is good potential. The compartment is not leased for oil and gas development.

Vehicle Access:

Military Road runs through the compartment. Howe Road, Wilson Hill Road and the South Access Road are within Camp Grayling's fenced cantonment area. Beyond the fence, there is a network of two-track roads associated with military

training maneuvers and Hanson Hills ski trails.

Survey Needs:

None at this time.

Recreational Facilities and Opportunities:

Military training needs take precedence over all other considerations, and any recreation – even if dispersed – cannot be allowed to conflict with military activities. Hunting is specifically prohibited per Hanson Reserve Lands deed restrictions, but hunting is allowed on the non-Reserve forty in Section 26. The compartment has developed facilities west of Military Road within Camp Grayling's restricted-access Cantonment Area. Recreational trails have been developed east of Military Road and include the Hanson Hills Recreation Area's cross country ski and mountain bike trail systems, and the Hanson Hills-to-Grayling Snowmobile Trail.

Fire Protection:

Aside from a few small pine stands, the compartment is dominated by upland oak types. Access is good through an extensive network of two-track roads, but areas within Camp Grayling's fenced cantonment area require coordinated access.

Additional Compartment Information:

The following reports from the Inventory are attached:

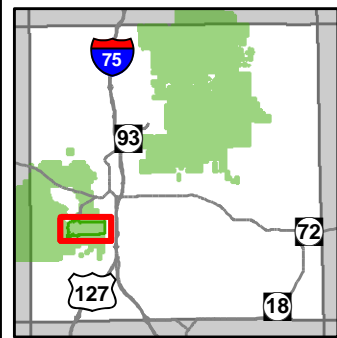
- Total Acres by Cover Type and Age Class**
- Cover Type by Harvest Method**
- Proposed Treatments – No Limiting Factors**
- Proposed Treatments – With Limiting Factors**
- Stand Details (Forested and Nonforested)**
- Dedicated and Proposed Special Conservation Areas**
- Site Condition Details**

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

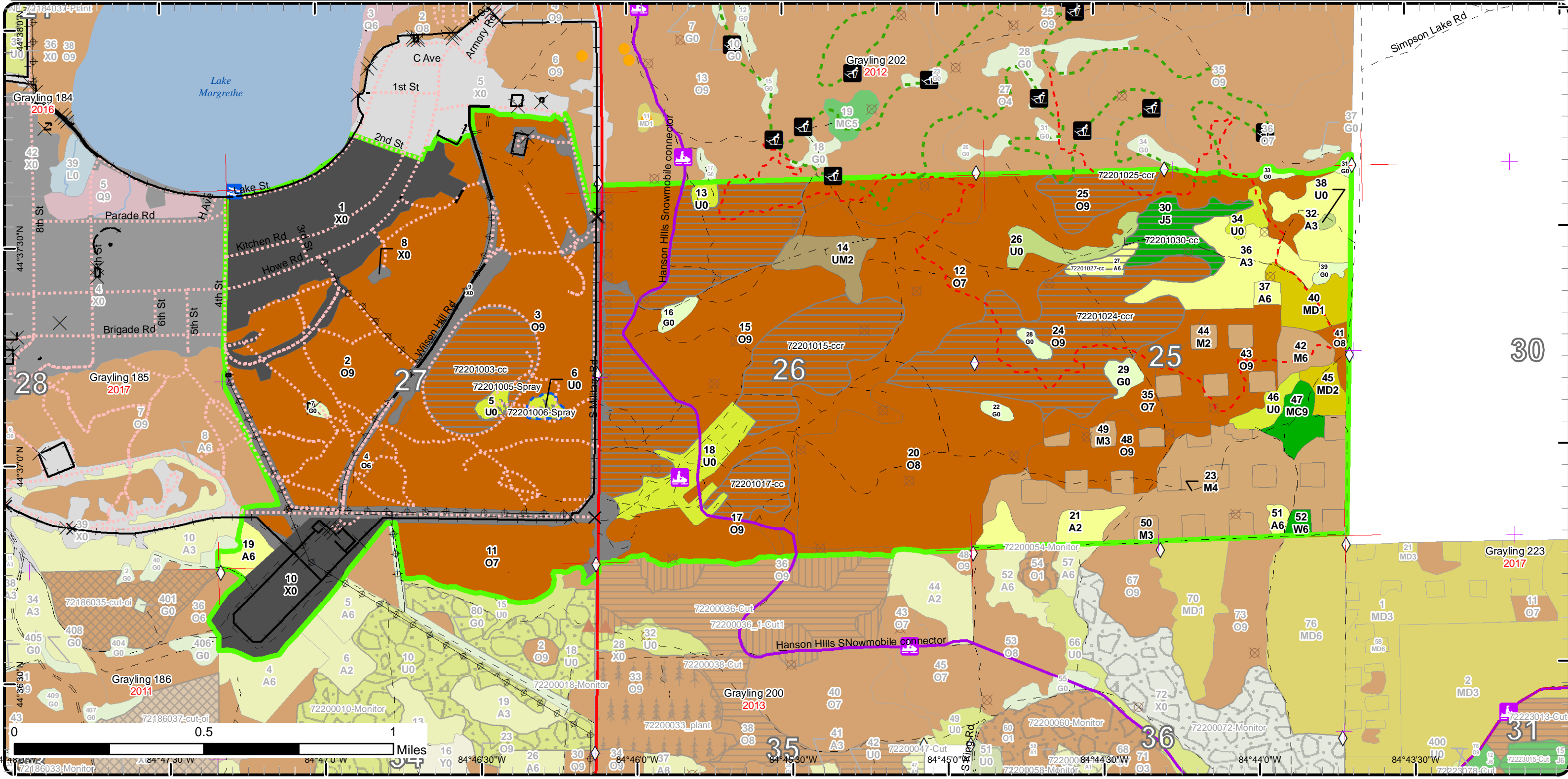
- Base feature information, stand boundaries, cover types, and numbers**
- Proposed treatments**
- Site condition boundaries**
- Details on the road access system**

Cover Type & Treatments Map

Compartment: 201
 T26N, R04W, Sec: 25-27
 County: Crawford
 Unit: Grayling
 Mgmt Area: Camp Grayling
 YOE: 2018
 Acres: 1977 GIS Calculated
 Examiner: Joan Charlebois
 Map Revised: 3/9/2017
 Map Phase: Post-Review

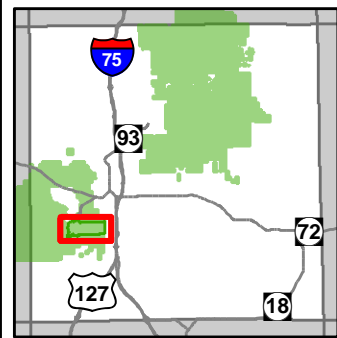


- Miris Corners
- + Remonumented Section Corners
- ◇ Field Grade GPS Corners
- X Gate
- ▲ Berms
- 🚤 Boating Access Site
- OFS Other-Specify
- 🏠 Ski Trails
- 🚗 Snowmobile Trails
- - - Designated Hiking Trails
- - - Designated Bicycle Trails
- - - Designated Ski Trails
- - - Designated ORV Route
- Designated Snowmobile Trails
- County Paved Roads
- Paved Roads
- Gravel Roads
- - - Poor Dirt Roads
- - - Closed
- Streams
- Lakes and Rivers All
- Powerline
- Compartment Boundary
- Treatments with Site Conditions
- Clearcut (w/Reserves)
- Pesticide
- 411 - Northern Hardwood
- 412 - Oak Types
- 413 - Aspen Types
- 419 - Mixed Upland Deciduous
- 422 - Natural Pines
- 430 - Upland Mixed Forest
- 122 - Roads/Parking Lot
- 123 - Other High Intensity Urban
- 310 - Herbaceous Openland
- 320 - Upland Shrub
- 330 - Low Density Trees
- Lakes
- X Camp Grayling Land Navigation Marker
- X Camp Grayling Gates
- Camp Grayling Fence

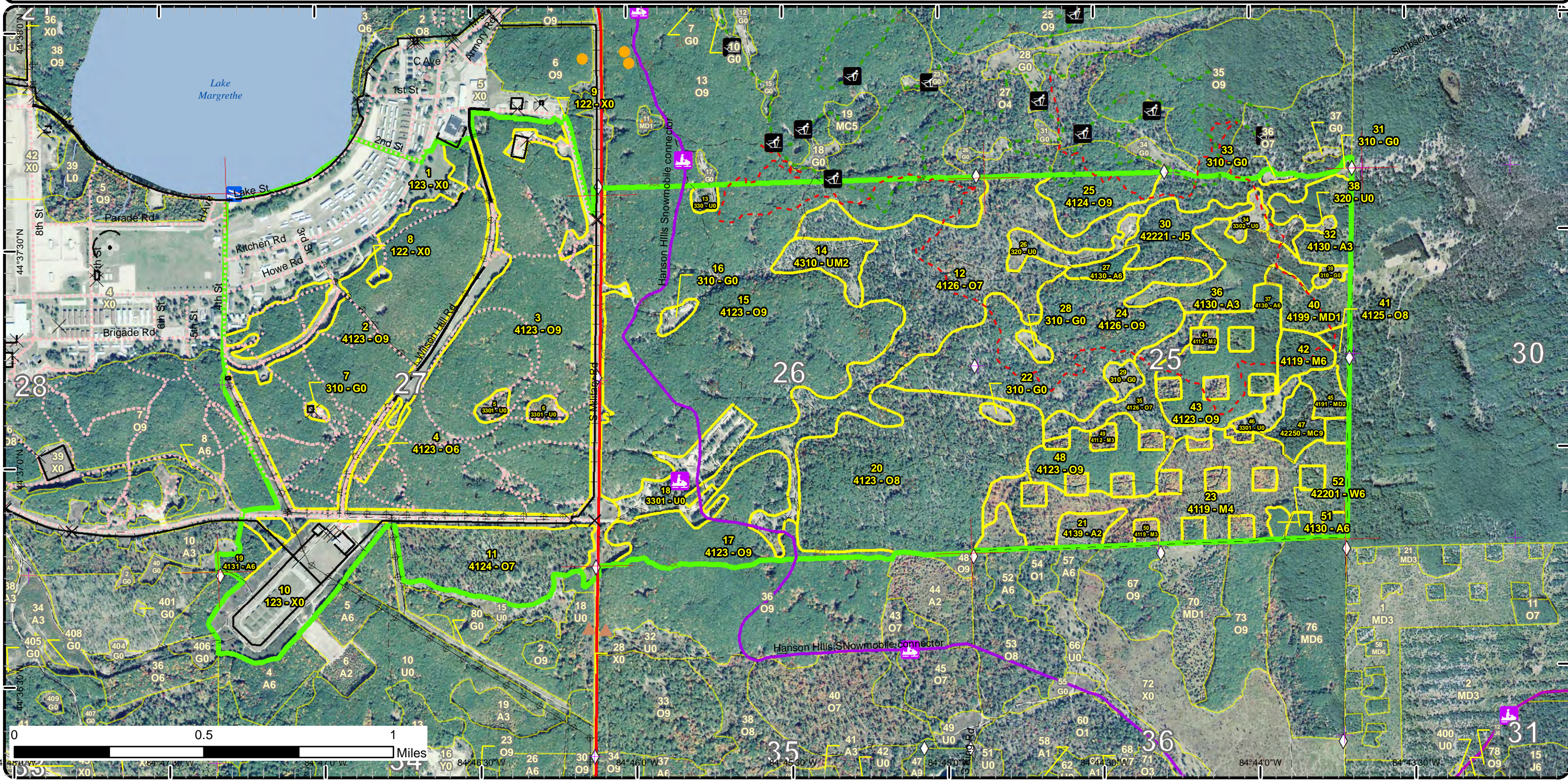


Stand Boundary Map

Compartment: 201
 T26N, R04W, Sec: 25-27
 County: Crawford
 Unit: Grayling
 Mgmt Area: Camp Grayling
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 Examiner: Joan Charlebois
 Map Revised: 3/9/2017
 Map Phase: Post-Review

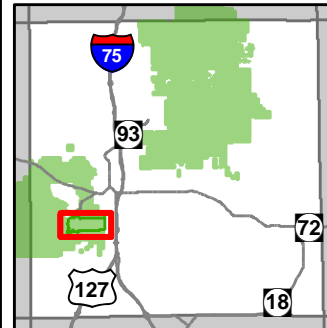


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- County Paved Roads
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- Compartment Boundary
- Stand Boundaries
- 422 - Natural Pines
- 430 - Upland Mixed Forest
- 122 - Roads/Parking Lot
- 123 - Other High Intensity Urban
- 310 - Herbaceous Openland
- 320 - Upland Shrub
- 330 - Low Density Trees
- ⊗ Camp Grayling Land Navigation Marker
- ⊗ Camp Grayling Gates
- Camp Grayling Fence
- 411 - Northern Hardwood
- 412 - Oak Types
- 413 - Aspen Types
- 419 - Mixed Upland Deciduous

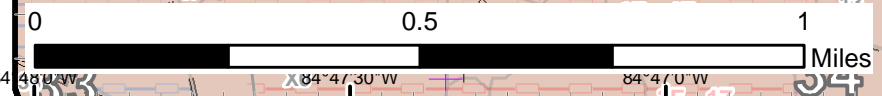
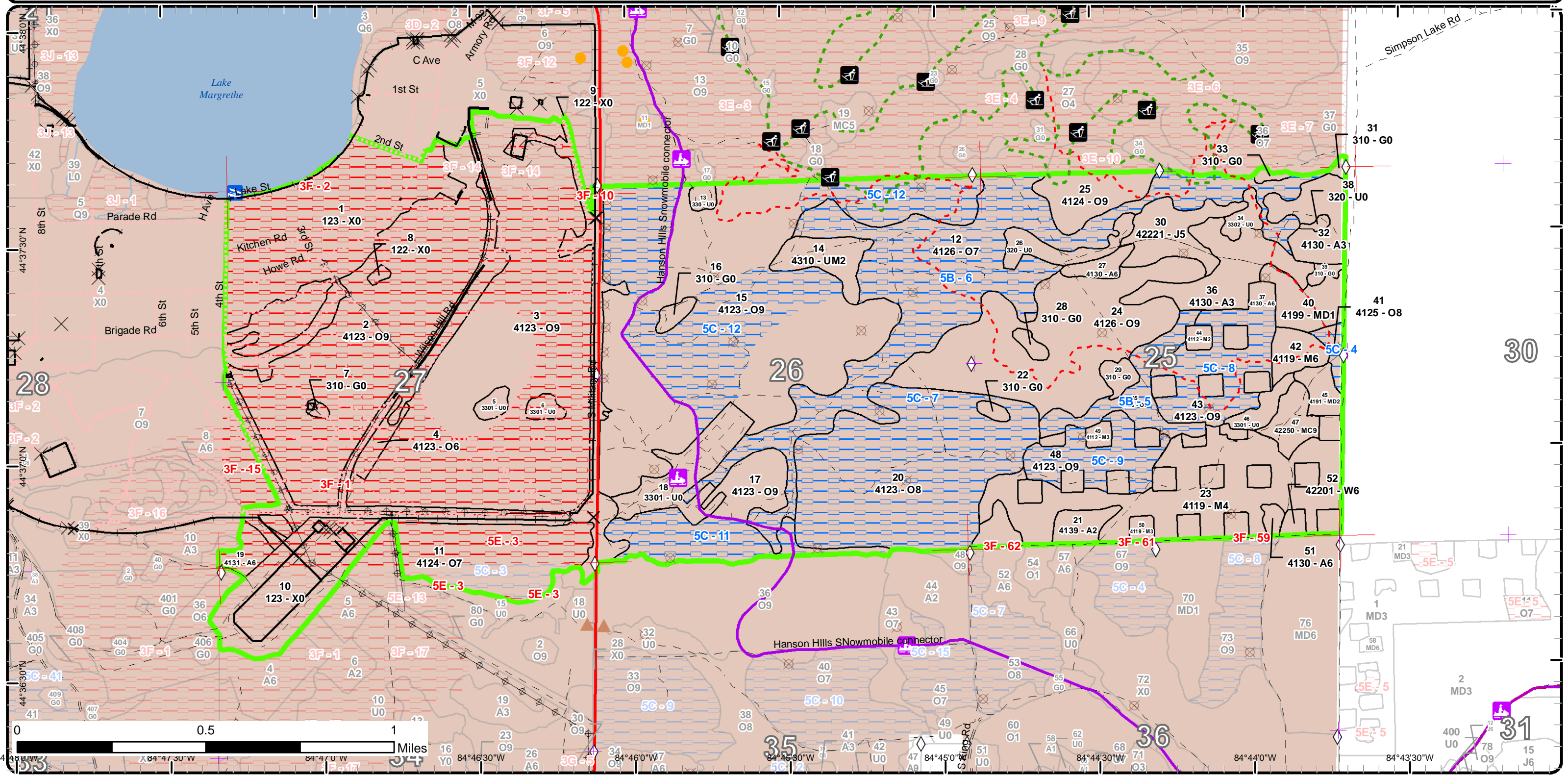


Special Conservation Areas & Site Conditions Map

Compartment: 201
 T26N, R04W, Sec: 25-27
 County: Crawford
 Unit: Grayling
 Mgmt Area: Camp Grayling
 YOE: 2018
 Acres: 1977 GIS Calculated
 Examiner: Joan Charlebois
 Map Revised: 3/9/2017
 Map Phase: Post-Review



- Miris Corners
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- Gate
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- County Paved Roads
- Paved Roads
- Gravel Roads
- Poor Dirt Roads
- Closed
- Streams
- Lakes and Rivers All
- Powerline
- Compartment Boundary
- Available w/ Constraints
- Unavailable
- 5B: Maintain for regeneration purposes
- 5C: Delay treatment for age/size class diversity or exceptional site quality
- 3F: Military easement / lease
- 5E: Long-Term Retention
- Stand Boundaries
- Research, Development, and Military Lands
- Camp Grayling Land Navigation Marker
- Camp Grayling Gates
- Camp Grayling Fence



Report 1 – Total Acres by Cover Type and Age Class

Grayling Mgt. Unit

Compartment 201 Year of Entry 2018

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	14	32	24	10	0	5	0	0	0	0	0	0	0	0	0	0	0	84
Herbaceous Openland	19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19
Jack Pine	0	0	0	0	0	0	21	0	0	0	0	0	0	0	0	0	0	0	21
Low-Density Trees	49	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	49
Mixed Upland Deciduous	0	0	25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24
Natural Mixed Pines	0	0	0	0	0	0	11	0	0	0	0	0	0	0	0	0	0	0	11
Northern Hardwood	0	0	0	51	10	0	0	0	0	85	0	0	0	0	0	0	0	0	146
Oak	0	0	0	0	0	0	6	0	0	0	429	894	0	0	0	0	0	0	1329
Upland Mixed Forest	0	0	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15
Upland Shrub	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13
Urban	263	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	263
White Pine	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Total	344	14	72	78	20	0	43	0	0	85	429	894	0	0	0	0	0	0	1977



Report 2 – Treatment Summary

Grayling Mgt. Unit

Year of Entry: 2018

Acres of Harvest

Compartment 201

Total Compartment Acres: 1,977

Commercial Harvest - 368
 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	5	0	0	0	0	0	0	0	0	5
Jack Pine	21	0	0	0	0	0	0	0	0	21
Oak	342	0	0	0	0	0	0	0	0	342
Total	368	0	0	0	0	0	0	0	0	368

Proposed and Next Step Treatments by Method

	Harvest	Site Prep	Planting	Seeding	Burning	Pesticide	Monitoring	Other	Non-Forest Mgt.	Total Acres
Current	368	0	0	0	0	7	0	0	0	375
Next Step	0	0	0	0	0	0	375	0	0	375
Total	368	0	0	0	0	7	375	0	0	750



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	72201003-cc	42.2	4123 - Red Oak	Sawtimber Well	102	81-110	Harvest	Clearcut	4121 - Oak, Aspen	Even-Aged	Draft Field Boundary

Habitat Cut: No

Site Condition:

Prescription Within the PT track, cut all stems 2"+ DBH except RP & WP.

Specs:

Next Step Monitoring, Natural Regen (Intermediate)

Treatments:

Acceptable Regen: A moderately stocked mix of oak, aspen and RM, with poorer stocking expected in the sparse stand 5. If natural regen fails, supplemental plant RP &/or WP.

Other Comment: Consider doing hand planting by volunteers adjacent to recreational trails.

Proposed Start Date: 10/01/2017

5	72201005-Spray	3.5	3301 - Low Density Deciduous Trees	Nonstocked		Unspecified	Pesticide	Hand Application	330 - Low-Density Trees		Draft Field Boundary
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Habitat Cut: No

Site Condition:

Prescription Control the non-native Lonicera in this stand and stand 6, using approved methods that may include herbicide and manual treatments.

Specs:

Next Step Monitoring, Herbicide Use

Treatments:

Acceptable Regen:

Other Comment:

Proposed Start Date: 10/01/2017

6	72201006-Spray	3.5	3301 - Low Density Deciduous Trees	Nonstocked		Unspecified	Pesticide	Hand Application	330 - Low-Density Trees		Draft Field Boundary
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Habitat Cut: No

Site Condition: Military Lease/Easement

Prescription Control the non-native Lonicera in this stand and stand 5, using approved methods that may include herbicide and manual treatments.

Specs:

Next Step Monitoring, Herbicide Use

Treatments:

Acceptable Regen: N/A

Other Comment:

Proposed Start Date: 10/01/2017

15	72201015-ccr	155.5	4123 - Red Oak	Sawtimber Well	101	81-110	Harvest	Clearcut with Retention	4121 - Oak, Aspen	Even-Aged	Draft Field Boundary
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Habitat Cut: No

Site Condition:

Prescription Final harvest 2"+ DBH except leave the RP-WP, approximately 3% in retention islands, and protect the oak and pine regen.

Specs:

Next Step Monitoring, Natural Regen (Intermediate)

Treatments:

Acceptable Regen: Oak-A-RM-pine at moderate stocking, with lower levels of regen in areas of the stand that were sparse pre-harvest. If natural regen fails, supplemental plant RP &/or WP.

Other Comment: Contact the Grayling Recreational Authority (GRA) at the beginning of sale prep. Align harvest boundaries with roads and trails where possible to reduce the impact on recreational use. Protect LandNav course markers and apply recreation trail protection specs for the snowmobile and mountain bike trails. Consider doing hand planting by volunteers adjacent to recreational trails.

Proposed Start Date: 10/01/2017



Stand	Treatment Name	Acres	Stand CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Age Structure	Approval Status
17	72201017-cc	17.5	4123 - Red Oak	Sawtimber Well	96	111-140	Harvest	Clearcut	4122 - Oak, Pine	Two-Aged	Draft Field Boundary

Habitat Cut: No**Site Condition:**

Prescription Final harvest 2"+ DBH except leave the WP-RP and protect the oak & pine regen. No retention designated for this portion of the stand.

Specs:

Next Step Monitoring, Natural Regen (Intermediate)

Treatments:

Acceptable Regen: Oak-WP-RM at moderate stocking. Areas where the residual overstory pine is concentrated are expected to have sparser regen. If natural regen fails, supplemental plant RP &/or WP.

Other Comment: Contact the Grayling Recreational Authority (GRA) at the beginning of sale prep. Protect LandNav course markers. Apply snowmobile trail protection specs. Treat the portion of the stand north of the snowmobile trail this YOY. The canopy and subcanopy RP & WP cover is concentrated here in the stand's northeast. Consider doing hand planting by volunteers adjacent to recreational trails.

Proposed Start Date: 10/01/2017

24	72201024-ccr	106.6	4126 - White, Black, N. Pin Oak	Sawtimber Well	97	81-110	Harvest	Clearcut with Retention	412 - Oak Types	Even-Aged	Draft Field Boundary
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Habitat Cut: No**Site Condition:**

Prescription Final harvest 2"+ DBH except leave any RP-WP and approximately 3% in island retention.

Specs:

Next Step Monitoring, Natural Regen (Intermediate)

Treatments:

Acceptable Regen: O-A-RM-pine at moderate stocking, with lower levels where the canopy was sparse pre-harvest. If natural regen fails, supplemental plant RP &/or WP.

Other Comment: Contact the Grayling Recreational Authority (GRA) at the beginning of sale prep. Protect LandNav course markers. Apply recreation trail protection specs for the mountain bike trail. Consider extending the harvest boundary into the edge of stand 12 to regenerate the adjacent live oak there. Consider doing hand planting by volunteers adjacent to recreational trails.

Proposed Start Date: 10/01/2017

25	72201025-ccr	19.8	4124 - Red with White Oak	Sawtimber Well	99	81-110	Harvest	Clearcut with Retention	4121 - Oak, Aspen	Even-Aged	Draft Field Boundary
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Habitat Cut: No**Site Condition:**

Prescription Final harvest 2"+ DBH except leave any RP-WP, boundary-exclude the portion north of the ski trail, and mark some oak to leave along the south edge of the ski trail. Create a wavy boundary with comp 200 (eliminate the artificial straight edge).

Specs:

Next Step Monitoring, Natural Regen (Intermediate)

Treatments:

Acceptable Regen: Oak, aspen & RM at moderate stocking. If natural regen fails, supplemental plant RP &/or WP.

Other Comment: Contact the Grayling Recreational Authority (GRA) at the beginning of sale prep. Protect LandNav course markers. Apply recreation trail protection specs for the XC ski and mountain bike trails. Consider extending the harvest boundary into the edge of stand 12 to regenerate the adjacent aspen there. Consider doing hand planting by volunteers adjacent to recreational trails.

Proposed Start Date: 10/01/2017

27	72201027-cc	5.4	4130 - Aspen	Poletimber Well	59	81-110	Harvest	Clearcut	413 - Aspen	Even-Aged	Draft Field Boundary
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Habitat Cut: No**Site Condition:**

Prescription Final harvest 1"+ DBH, no retention due to small stand size.

Specs:

Next Step Monitoring, Natural Regen (Re-Inventory)

Treatments:

Acceptable Regen: Aspen with RM, BC & oak, at moderate stocking.

Other Comment: Contact the Grayling Recreational Authority (GRA) at the beginning of sale prep. Protect LandNav course markers. Consider doing hand planting by volunteers adjacent to recreational trails.

Proposed Start Date: 10/01/2017



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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
30 72201030-cc	21.1	42221 - Natural Jack Pine, Mixed Deciduous	Poletimber Medium	58	51-80	Harvest	Clearcut	4121 - Oak, Aspen	Even-Aged	Draft Field Boundary

Habitat Cut: No

Site Condition:

Prescription Final harvest 2"+ DBH except leave any RP-WP and protect the oak regen.
Specs:

Next Step Monitoring, Natural Regen (Intermediate)
Treatments:

Acceptable Oak, aspen, RM & JP at moderate stocking.
Regen:

Other Contact the Grayling Recreational Authority (GRA) at the beginning of sale prep. Protect LandNav course markers. Consider extending the
Comment: harvest boundary into stand 12 to regenerate the adjacent oak & aspen in that stand. Consider doing hand planting by volunteers adjacent to recreational trails.

Proposed Start Date: 10/01/2017

Total Treatment Acreage Proposed: 375.1

Report 4 – Site Conditions

Grayling Mgt. Unit
Joan Charlebois : Examiner

Compartment: 201
Year of Entry: 2018

Availability for Management

Total Acres	Acres Available	Acres Avail		Dominant Site Conditions					
		With Condition	Not Available		5B	5C	3E	3F	5E
85	78	0	7	Aspen				7	
19	17	0	2	Herbaceous Openland			0	1	
21	21	0	0	Jack Pine					
49	45	0	4	Low-Density Trees				4	
24	24	0	0	Mixed Upland Deciduous					
11	11	0	0	Natural Mixed Pines					
146	146	0	0	Northern Hardwood					
1329	343	581	406	Oak	190	390	0	376	30
15	15	0	0	Upland Mixed Forest					
13	13	0	0	Upland Shrub					
263	23	0	240	Urban				240	
3	3	0	0	White Pine					
1,977	739	581	658	Total Forested Acres	190	390	0	628	30
	37%	29%	33%	Relative Percent					

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

Site No.	Dominant Site Cond Availability	Dominant Site Condition	Acres	Other Site Condition	Other Site Condition	Other Site Condition	Other Site Condition
1	Unavailable	3F: Military easement / lease	123	Unspecified	Unspecified	Unspecified	Unspecified
Comments:							
2	Unavailable	3F: Military easement / lease	440	Unspecified	Unspecified	Unspecified	Unspecified
Comments: Within Camp Grayling's Cantonment Fence.							
3	Unavailable	5E: Long-Term Retention	30	Unspecified	Unspecified	Unspecified	Unspecified
Comments: Islands and marked-to-leave trees within harvested area.							

Report 4 – Site Conditions

Grayling Mgt. Unit

Joan Charlebois : Examiner

Compartment: 201

Year of Entry: 2018

4	Available	5C: Delay treatment for age/size class diversity or exceptional site quality	5	Unspecified	Unspecified	Unspecified	Unspecified
Comments: Small triangle of mature cover left when adjacent harvests were carried out in the 1990's.							
5	Available	5B: Maintain for regeneration purposes	23	Unspecified	Unspecified	Unspecified	Unspecified
Comments: Extensive mortality occurred in the NPO, to where the entire stand doesn't meet the forested benchmark. Oak & RM regen are filling in below the sparse overstory. Most of the live overstory is along the stand margins. Consider cutting to regenerate those edges when adjacent stands are harvested.							
6	Available	5B: Maintain for regeneration purposes	167	Unspecified	Unspecified	Unspecified	Unspecified
Comments: Extensive mortality occurred in the NPO, to where the entire stand doesn't meet the forested benchmark. Oak & RM regen are filling in below the sparse overstory. Most of the live oak overstory is along the stand margins. Consider cutting to regenerate those edges when adjacent stands are harvested.							
7	Available	5C: Delay treatment for age/size class diversity or exceptional site quality	135	Unspecified	Unspecified	Unspecified	Unspecified
Comments: While this stand's oak age is up there with the rest of the compartment's, it did see treatment two YOE's ago that reduced the basal area. Leave this YOE in order to focus treatment on oak cover that has never been treated.							
8	Available	5C: Delay treatment for age/size class diversity or exceptional site quality	38	Unspecified	Unspecified	Unspecified	Unspecified
Comments: While this stand's oak age is up there with the rest of the compartment's, it is on a better quality site than adjacent stands and, aside from the mixed oak on the margins, is maintaining better health. Leave this YOE in order to focus treatment on oak cover that is at higher risk for increasing mortality due to poorer site.							

Report 4 – Site Conditions

Grayling Mgt. Unit

Joan Charlebois : Examiner

Compartment: 201

Year of Entry: 2018

9	Available	5C: Delay treatment for age/size class diversity or exceptional site quality	27	Unspecified	Unspecified	Unspecified	Unspecified
Comments: While this stand's oak age is up there with the rest of the compartment's, it is on a better quality site than adjacent stands and, aside from the mixed oak on the margins, is maintaining better health. Leave this YOE in order to focus treatment on oak cover that is at higher risk for increasing mortality due to poorer site.							
10	Unavailable	3F: Military easement / lease	1	Unspecified	Unspecified	Unspecified	Unspecified
Comments:							
11	Available	5C: Delay treatment for age/size class diversity or exceptional site quality	36	Unspecified	Unspecified	Unspecified	Unspecified
Comments: While this stand's oak age is up there with the rest of the compartment's, it shares a long border with a recent large regen harvest in the compt to the south. Leave the portion of the stand between that harvest and the snowmobile trail, cutting only the portion north of the snowmobile trail this YOE.							
12	Available	5C: Delay treatment for age/size class diversity or exceptional site quality	135	Unspecified	Unspecified	Unspecified	Unspecified
Comments: In order to start a new age class of oak within this large stand and reduce the visual impact of the harvest on the motorized and non-motorized recreation trails, treat approximately half of the stand this YOE in three blocks.							
15	Unavailable	3F: Military easement / lease	15	Unspecified	Unspecified	Unspecified	Unspecified
Comments:							
59	Unavailable	3F: Military easement / lease	1	Unspecified	Unspecified	Unspecified	Unspecified
Comments:							

Report 4 – Site Conditions

Grayling Mgt. Unit
Joan Charlebois : Examiner

Compartment: 201
Year of Entry: 2018

61	Unavailable	3F: Military easement / lease	0	Unspecified	Unspecified	Unspecified	Unspecified
Comments:							
62	Unavailable	3F: Military easement / lease	1	Unspecified	Unspecified	Unspecified	Unspecified
Comments:							

Mgt. Unit

Compartment: #Type!

Year of Entry:



Report 5 – 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 6 – 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:
2	4123 - Red Oak	Sawtimber Well	171.3	101	111-140	NRO mostly fair- to good-quality small-med saw, with scattered x-log open-grown stems, and the suppressed pole component largely died out. WO generally smaller-diam, with suppressed poles also dropping out of the canopy. WO distribution is variable, tends to increase on the flats. Small clones of BTA are scattered across the stand. RM clumps have little canopy representation compared to on-the-ground basal area, due to suppressed to intermediate stature. Most of the stand's unrecordable RP & WP are concentrated near the Camp edge. Stand is within the cantonment fence, occupying the hilltop and rolling to steep terrain overlooking Lake Margrethe. Multi-poly was created when DVQ road was cleared in 2006. The stand contains small frost pocket openings and former borrow-pits. NRO cored 93-107 years, ave 100.
3	4123 - Red Oak	Sawtimber Well	231.3	102	81-110	NRO small-med saw, best quality on the hilltop and within the oval track, form becomes poorer and more open-grown on the margins of small openings within the stand, the suppressed pole component largely died out. WO generally smaller-diam, with suppressed poles also dropping out of the canopy. WO distribution is variable, tends to increase on the flats. Small clones of BTA are scattered across the stand. RM clumps have little canopy representation compared to on-the-ground basal area, due to suppressed to intermediate stature. Traces of RP & WP present. The stand's small non-forested inclusions are filling in with cherry brush, RM, aspen & oak. Stand is within the cantonment fence, occupying the hilltop overlooking Lake Margrethe. NRO cored 100-103 years, ave 101.
4	4123 - Red Oak	Poletimber Well	5.8	56	81-110	Vigorous stump-origin NRO, holding dominant/co-dominant crown positions, generally above the RM, weeded down to 1-3 stems/clump, with some shifted into the small saw class already. RM not weeding down as fast or putting on the diam growth. WO landing between those two species in development. Occasional residual mature oak & aspen, and traces of BTA regen from the cut. No t-sale record, but by air photos, was done before 1963, by a year or two.
11	4124 - Red with White Oak	Sawtimber Poor	53.6	96	1-50	Was seed tree harvested in 2009 (72-642-08-01), cutting merch stems except WP, RP, green-marked (20 BA cruised resid, mostly oak, but also some RM, BTA, BC) and retention islands. Trenched in 2010 and planted to WP in 2011 under FTP C72-764. Planting Rx was for RP. Passes Yr 3 artificial regen survey if WP is acceptable. RP was prescribed due to concerns over deer browse on WP seedlings. The retention islands combined with the residual cover make the overstory the featured canopy vs. the regen at this time. In addition to the planted WP, which is growing well, there are patches of BTA regen, RM stump sprouts, and vigorous stump-origin oak. Marked-to-leave NRO cored showed response to release, but also epicormic branching.
12	4126 - White, Black, N. Pin Oak	Sawtimber Poor	167.2	97	1-50	Variable oak-pine stand occupying a shallow valley. Extensive NPO mortality in the valley bottom; most of the remaining live NPO occurs on the valley side-slopes. The WO is maintaining decent health & vigor considering the difficult site. RP, WP & JP became established across portions of the stand over time, with multiple age & size classes present. BTA & quaking aspen occur at trace levels. Dense oak regen has established in areas where canopy mortality is near 100%. Did not attempt to split out those areas as separate stands, so the overall mature canopy cover ranges from 0-75% closure across the stand. Within the LandNav orienteering course and the Hanson Hills Recreation Area lease. MtB & XC ski trails cross through the stand.



	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
14	4310 - Pine, Oak Mix	Sapling Medium	15.3	18	1-50	Most of the stand was harvested in 1999 (#021-98), cutting all stems 4" DBH & up. That spec left JP & oak that are now pole-log sized (~15% of the canopy) above the JP, oak & BC regen from the cut. The oak stump sprouts are vigorous, and there is a single-stem component that is also recruiting. Cover across the stand is not uniform, ranging from non-stocked to 75%+ canopy closure. The residual JP pole material is 30+ years older, but due to a MiFI rule, the stand's two-aged condition could not be reflected. The 52-year old pole component had to be combined into a split sapling/pole category with the majority 17 year old regen.
15	4123 - Red Oak	Sawtimber Well	291.1	101	81-110	NRO small-med saw, best quality to the west and on the upper terrain, becoming poorer-form and more hybridized to the east and on the lower terrain/flats, the suppressed pole component largely died out. WO generally smaller-diam, with suppressed poles dropping out of the canopy. WO distribution is variable, tends to increase on the stand margins. Small clones of BTA are scattered across the stand. RM clumps have little canopy representation compared to on-the-ground basal area, due to suppressed to intermediate stature. Patchy representation in RP & WP in the canopy & subcanopy. The stand has sparse frost-pocket depressions and shallow valleys with increasing mortality in the poorer-quality oak. LandNav course staging facility is located in the stand's west edge, with orienteering markers located throughout. Snowmobile, XC Ski and MtB trails also cross through the stand. Within the Hanson Hills Recreation Area lease. NRO cored 99-102 years, ave 100.
17	4123 - Red Oak	Sawtimber Well	52.9	96	111-140	NRO small-med saw, best quality in the south half on the hill, more open-grown x-log stems on the margins, the suppressed pole component largely died out. WO generally smaller-diam, with suppressed poles dropping out of the canopy. BTA saw clumps occur at low densities. RM clumps have little canopy representation compared to on-the-ground basal area, due to suppressed to intermediate stature. The canopy and subcanopy RP & WP cover is concentrated in the stand's northeast. The stand has a few sparse frost-pocket depressions in the east half. Within the LandNav orienteering course and the Hanson Hills Recreation Area lease. Snowmobile trail crosses through. NRO cored 92-99 years, ave 95.
19	4131 - Aspen, Oak	Poletimber Well	7.1	39	81-110	Could not locate the harvest record, but most of the stand's aspen and some of the oak & RM were cut ~1978 as part of a clearing for facility expansion. Most of the BTA regen from the cut has transitioned into the pole class, and edge stems are into the saw class. Mature residual oak and RM are scattered across the stand. Oak regen from the cut is now pole-sized, with good form where trained up by the aspen. Because of a MiFI rule, the 38-year old pole oak and the 99-year old saw oak had to be combined into one canopy record with the mature age featured.
20	4123 - Red Oak	Sawtimber Medium	135.3	102	51-80	Was shelterwood-prep harvested in 2002 (#029-98), cutting marked oak and all aspen & RM except for RM flanking the XC ski pathway (that segment is no longer groomed). Stated cruised residual of 62 sq. ft., while removing an ave of 40 sq. ft. The stand's south 3/4's is on a hill, with better stocking and health. Most of the RM stump-sprout regen is there. The stand's north 1/4 on the flats has lower stocking and the oak tends to be shorter and smaller diam. Epicormic branching common. Was cut during the dormant oak period, but the amount of residual did not appear to favor recruitment of the oak stump sprouts. Within the LandNav orienteering course and the Hanson Hills Recreation Area lease. NRO cored 99-104, ave 101 years.



	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
21	4139 - Aspen, Mixed Deciduous	Sapling Medium	14.0	7	Immature	Was final harvested in late 2010 (#648-08), cutting merch stems except RM-RP-WP-green marked. These portions of the larger harvest was where the aspen was concentrated, leaving only widely-scattered WP & RM residual above the majority regen from the cut. The aspen clones are densest in the stand's south half, with sparser aspen and more NPO-RM-BC to the north. The oak stump sprouts are vigorous and there is a single-stem layer of oak <5' tall with potential to recruit. Within the LandNav orienteering course and the Hanson Hills Recreation Area lease.
23	4119 - Mixed Northern Hardwoods	Poletimber Poor	84.8	81	1-50	Was final harvested in late 2010 (#648-08), cutting merch stems except RM-RP-WP and green marked oak (mainly along former ski trail), and boundary-excluded retention islands (4.3 acres, in NE along former ski trail and SE bordering the horse trail and two-track roads). The residual from the cut, including the retention island cover, is the featured canopy. The RM residual drifts off either end of 25% canopy closure. The WP residual is heaviest in the W & E ends of the stand and sparse elsewhere. The RM had grown up suppressed by the oak canopy and the smaller material experienced the most shock from the release, with mortality and epicormic branching common. Second age estimate is the current NRO age from adjacent uncut oak types (stands 43 & 48), The oak that sprouted and recruited is vigorous. The portion that was browsed heavily has died. Aspen cover is locally high but averages to low stand-wide. RM sprouts are the most consistent regen across the stand. Within the LandNav orienteering course and the Hanson Hills Recreation Area lease.
24	4126 - White, Black, N. Pin Oak	Sawtimber Well	106.6	97	81-110	Mixed oak stand on shallow rolling terrain. Best quality/health BRO is in the NE 1/2 of the stand on the hilltops. To the SW, in the valleys, on stand margins and flanking sparse frost-pocket depressions, the canopy is more open, the WO component increases, there is more hybridized red oak, and the NPO has largely died out. The RM has more canopy representation that typical of oak stands in the area and there is locally full RM understory cover. Small clones of BTA are scattered across the stand. Within the LandNav orienteering course and the Hanson Hills Recreation Area lease. MtB trail crosses through the middle of the stand. BRO cored 91-101, ave 96 years.
25	4124 - Red with White Oak	Sawtimber Well	20.8	99	81-110	Oak on the hilltop & upper slopes is decent quality NRO, with WO & overmature BTA. The understory is sparse there. RM has more representation by BA than canopy %-age due to intermediate & suppressed crown position. Grading downslope, there is more hybridized BRO, the NPO has largely died out, the proportion in WO increases, and there is locally full understory cover in RM. As the poorer quality oak continues to drop out of the canopy on the lower slopes, the overstory cover is edging toward 50-75%. Within the LandNav orienteering course and the Hanson Hills Recreation Area lease. The XC Ski trail dips into northwest edge and the MtB trail crosses through the northeast.
27	4130 - Aspen	Poletimber Well	5.4	59	81-110	Overmature quaking aspen with younger aspen perimeter. Gaps between clones are occupied by RM & BC pole material. Large NPO are scattered across the stand. JP mixes in at the east end. Heavy RM understory cover. Conks on the OMQA.
30	42221 - Natural Jack Pine, Mixed Deciduous	Poletimber Medium	21.1	58	51-80	Two-aged JP-NPO-QA stand in the valley. Mortality in the overmature components is opening up the canopy and shifting the overall size from log to pole. Regen varies across the stand from full oak to full RM sapling cover. Within the LandNav orienteering course and the Hanson Hills Recreation Area lease.



	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
32	4130 - Aspen	Sapling Well	20.7	26	Immature	Was harvested between 1989-1991 (#059-88), cutting stems 2"+ DBH. BTA clones occupy the hilltops, with sparser O-RM-BC-WP cover in between. The dense BTA keeps the sparser adjacent cover from dragging the canopy average below 75%. The small amount of QA is not as well developed as the BTA or the oak stump sprouts. Within the LandNav orienteering course and the Hanson Hills Recreation Area lease.
35	4126 - White, Black, N. Pin Oak	Sawtimber Poor	23.1	98	1-50	Poor quality oak stand occupying a shallow valley. Extensive NPO mortality in the valley bottom; most of the remaining live NPO occurs on the valley side-slopes. The WO is maintaining decent health & vigor considering the difficult site. WP, RM & BTA occur at not much above trace levels. Dense oak regen has established in areas where canopy mortality is near 100%. There is locally full cover in RM regen also. The sparse north ends of four patch cuts (#059-88, 1989-1991) were incorporated into the south end of the stand. Within the LandNav orienteering course and the Hanson Hills Recreation Area lease. The MtB trail crosses through the north peninsula. A LandNav marker is on the south stand edge.
36	4130 - Aspen	Sapling Well	32.1	18	Immature	Was harvested in 1999 (#021-98), cutting stems 4"+ DBH. The stand regenerated to quaking aspen with minor amounts of oak & BC. Residual from the cut includes pole JP & QA, and larger open-grown WP. The JP & QA residual pole material is heaviest in the stand's north & east. Due to a MiFI rule, the residual aspen could not be listed separately from the 17 year old sapling aspen. If it could have been recorded separately, it would have been 5% of the cover, ave 6" DBH, pole-sized, 40 years old. Within the LandNav orienteering course and the Hanson Hills Recreation Area lease. There is a LandNav marker within the stand and the MtB trail crosses through the east half.
37	4130 - Aspen	Poletimber Well	2.8	29	81-110	One of several patch cuts, harvested in 1988 (#059-88), cutting all stems 2"+ DBH. Regenerated well to aspen, with QA on the flats, BTA on the hilltop, and RM in between.
40	4199 - Other Mixed Upland Deciduous	Sapling Poor	16.5	18	Immature	Within the same 1999 harvest as stand 36 (#21-98), spec'd to be cut 4"+ DBH, but this portion came back sparser, with more RM & oak regen than aspen, and a larger proportion in residual across all species. Areas that were non-forested pre-harvest have majority black cherry brush now. The residual aspen poles had grown up heavily suppressed and couldn't take much advantage of the release; they are short & contorted. The stand is two-aged across all species, with variable distribution across the stand. Was harvested in 1999 (#021-98), cutting stems 4"+ DBH. The stand regenerated to quaking aspen with minor amounts of oak & BC. Residual from the cut includes pole JP & QA, and larger open-grown WP. The JP & QA residual pole material is heaviest in the stand's north & east. Due to a MiFI rule, the residual aspen could not be listed separately from the 17 year old sapling aspen. If it could have been recorded separately, it would have been 5% of the cover, ave 6" DBH, pole-sized, 40 years old. Within the LandNav orienteering course and the Hanson Hills Recreation Area lease. There is a LandNav marker within the stand and the MtB trail crosses through the middle of the stand.



	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
41	4125 - Black, N. Pin Oak	Sawtimber Medium	4.9	98	51-80	Small triangle of mature cover left when adjacent harvests were carried out in the 1990's. The NRO is in the SE on the hill, the lower part of the valley has mixed oak, predominantly NPO. There is some mortality in that component but not extensive as in the other valley stands 12 & 35. WO, pine, RM and traces of BTA present. The understory is approaching moderate stocking in oak-WP-RM. Within the LandNav orienteering course and the Hanson Hills Recreation Area lease.
42	4119 - Mixed Northern Hardwoods	Poletimber Well	9.7	37	51-80	Was harvested in 1980 (#15-80A), cutting merch stems. Stump-origin RM & NRO with BTA clones on the hilltop and open-grown WP on the south edge. The NRO is good quality; weeding down to 1-3 stems/clump.
43	4123 - Red Oak	Sawtimber Well	38.1	101	111-140	Relatively uniform cover in good quality NRO small saw, with more hybridized oak on the margins that is seeing increased mortality. WO & overmature BTA scattered throughout. RM present at higher BA's than reflected in canopy % due to intermediate/suppressed crown positions. Locally full RM understory cover on the perimeter. Within the LandNav orienteering course and the Hanson Hills Recreation Area lease. The MtB trail crosses through the stand and there is a LandNav marker in the south half.
44	4112 - Maple, Beech, Cherry Association	Sapling Medium	15.2	28	Immature	Patch cuts (#59-88) harvested 2"+ in 1989. The proportion in minor species varies across the patches but the dominant consistent cover is stump-origin RM. The oak & open-grown WP are present at very low densities. The sparse halves of the south two patches were merged with the adjacent stands 35 & 46. Within the LandNav orienteering course and the Hanson Hills Recreation Area lease.
45	4191 - Mixed Upland Deciduous with Conifer	Sapling Medium	7.6	18	1-50	Was harvested in 1999 (#21-98), cutting merch stems except RP-WP. Regen from the cut is the featured canopy, with the scattered residual WP-RP-oak-RM-JP forming a "supercanopy" layer above it. Stump-origin oak from the harvest is vigorous and there is a single-stem oak layer with potential to recruit. A patch of aspen sprouted in the middle of the stand. Within the LandNav orienteering course and the Hanson Hills Recreation Area lease.
47	42250 - Pine, Oak	Sawtimber Well	11.0	53	81-110	Valley stand containing all size-classes of WP-RP, along with mature oak & a trace of aspen. The stand includes a 2-acre patch cut in the middle (#59-88, 1989) that regenerated heavily to WP but also has some RM & oak stump sprouts. Previous Inventory age on the RP was 52 years. Note that the adjacent mature red oak cover bordering this stand's south edge is part of stand 23 (retention islands from 2010 harvest). Within the LandNav orienteering course and the Hanson Hills Recreation Area lease.
48	4123 - Red Oak	Sawtimber Well	26.9	101	81-110	Relatively uniform cover in good quality NRO small saw, with more hybridized oak on the margins that is seeing increased mortality. WO cover is greater on the stand margins. RM present throughout at higher BA's than reflected in canopy % due to intermediate/suppressed crown positions. Within the LandNav orienteering course and the Hanson Hills Recreation Area lease. There are LandNav markers within the stand.



	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
49	4112 - Maple, Beech, Cherry Association	Sapling Well	10.5	26	Immature	Patch cuts (#59-88) harvested 2"+ in 1991. The proportion in minor species (WP-O-A) varies across the patches but the dominant consistent cover is stump-origin RM. Sparse portions of the north tier of patches were merged with the adjacent stand 35. Within the LandNav orienteering course and the Hanson Hills Recreation Area lease.
50	4119 - Mixed Northern Hardwoods	Sapling Well	25.9	26	Immature	Patch cuts (#59-88) harvested 2"+ in 1991, with the east three patches cut a couple years earlier. The proportion in minor species varies across the patches but the dominant consistent cover is stump-origin RM. WP cover is greatest in the W & E patches, and sparse in between. Most of the aspen is in the south tier. The oak is a very minor component across most of the patches, achieving its best presence in the east end. The oak that did recruit within dense cover has good form, clean-boled and weeded down to 1-3 stems/clump. Oak on the open edges is limbier and not weeded down as well. Relatively uniform cover in good quality NRO small saw, with more hybridized oak on the margins that is seeing increased mortality. WO cover is greater on the stand margins. RM present throughout at higher BA's than reflected in canopy % due to intermediate/suppressed crown positions. Within the LandNav orienteering course and the Hanson Hills Recreation Area lease.
51	4130 - Aspen	Poletimber Well	2.5	37	81-110	Was final harvested in 1980 (#15-80A), cutting merch stems. Regenerated to good quality BTA, with suppressed RM. The minor amount of NRO that sprouted on the north end is good quality, clean-boled and weeded down to 2-3 stems/clump. Note that the adjacent mature oak cover bordering this aspen type's SW & NE are part of stand 23 (retention islands from 2010 harvest). Relatively uniform cover in good quality NRO small saw, with more hybridized oak on the margins that is seeing increased mortality. WO cover is greater on the stand margins. RM present throughout at higher BA's than reflected in canopy % due to intermediate/suppressed crown positions. Within the LandNav orienteering course and the Hanson Hills Recreation Area lease.
52	42201 - Natural White Pine, Mixed Deciduous	Poletimber Well	2.7	28	1-50	One of several patch cuts (#59-88), cut 2"+ in 1989. This patch regenerated to majority WP, with excessive stocking interior. Stump-origin RM & NRO present throughout and concentrated on the south side. The oak is good quality, clean-boled and weeded down well. Traces of aspen & RP present. Relatively uniform cover in good quality NRO small saw, with more hybridized oak on the margins that is seeing increased mortality. WO cover is greater on the stand margins. RM present throughout at higher BA's than reflected in canopy % due to intermediate/suppressed crown positions. Within the LandNav orienteering course and the Hanson Hills Recreation Area lease.



Stand	Cover Type	Acres	Managed Site	General Comments:
1	123 - Other High Intensity Urban	114.4	No	Middle of Camp Grayling, within cantonment fence. Roads, parking lots, buildings, mowed areas, scattered landscape trees and isolated patches of oak & pine.
5	3301 - Low Density Deciduous Tree	3.5	No	Opening that has been filling in with black cherry brush and RM saps. Non-native Lonicera shrub patches scattered within.
6	3301 - Low Density Deciduous Tree	3.5	No	Opening that has been filling in with black cherry brush, RM, oak & aspen. Has large cull RM clumps on the perimeter, tall serviceberry clumps, and heavier patches of the non-native Lonicera than stand 5 to the west. East end of stand is completely open.
7	310 - Herbaceous Openland	1.4	No	Small opening, a portion of it fenced.
8	122 - Road/Parking Lot	1.2	No	Parking lot.
9	122 - Road/Parking Lot	91.8	No	Cleared road, fence and utility corridors and associated parking lots and openings. Planted RP & WP along portions of the South Access Road (W of the gate) and Wilson Hill Road (by the oval track). Mature oak & pine are scattered within the natural openings.
10	123 - Other High Intensity Urban	55.4	No	Fenced Military facility. Cantonment fence ties into it.
13	330 - Low-Density Trees	2.9	No	Frost pocket opening with black cherry brush and scattered WP & oak.
16	310 - Herbaceous Openland	3.4	No	Frost pocket depression with perimeter NPO (mature & regen), and traces RP-WP-WO-BC.
18	3301 - Low Density Deciduous Tree	27.8	No	Old training area that had cleared lanes with narrow strips of mature forest cover in between. Concrete corner bunkers are tucked into the strips of open-grown mixed oak, WO, RP & WP. Oak regen is colonizing the lanes. Snowmobile trail crosses through.
22	310 - Herbaceous Openland	2.1	No	Frost pocket depression with oak regen on the edges.
26	320 - Upland Shrub	11.5	No	Former training area with some earthworks. Black cherry brush, serviceberry, with scattered NPO (mature & regen), JP & quaking aspen.
28	310 - Herbaceous Openland	2.6	No	Pair of frost pocket depressions, rimmed with NPO (mature & regen).
29	310 - Herbaceous Openland	4.6	No	Grassy opening with scattered BC brush, NPO, WP & JP.
31	310 - Herbaceous Openland	1.1	No	Frost pocket depression with a large oak witness tree (survey corner on east edge of stand) and perimeter BC brush.



Stand	Cover Type	Acres	Managed Site	General Comments:
33	310 - Herbaceous Openland	1.5	No	Frost pocket depression with perimeter JP, oak, BC & aspen.
34	3302 - Low Density Conifer Trees	4.9	No	Opening that has been filling in with JP. Also has BC brush, perimeter aspen and NPO. The MtB trail runs down the east edge of the stand.
38	320 - Upland Shrub	1.3	No	Frost pocket depression with BC brush and encroaching JP, aspen & oak.
39	310 - Herbaceous Openland	2.2	No	Opening with scattered BC brush, JP, aspen & oak.
46	3301 - Low Density Deciduous Tree	6.3	No	Shallow depression with scattered saw NPO-WO-WP-RP and patches of oak regen, BC brush. Trace of aspen at east end. West end picks up the sparse half of a 1989 patch cut (#59-88).