



Compartment Review Presentation

Grayling Forest Management Unit

Compartment 72241

Entry Year 2019

Acreage: 1,507

County Crawford

Management Area: Camp Grayling

Revision Date: 2017-09-06

Stand Examiner: Joan Charlebois

Legal Description:

T28N R3W Sections 23, 26, 35
Maple Forest Township

Identified Planning Goals:

To provide an area that allows for National Guard training while maintaining forest health, productivity, sustainability, species diversification, and structural diversity throughout the compartment.

Soil and topography:

The compartment occupies rolling to steeply-rolling terrain dissected by shallow valleys. Dominant upland soils are Kalkaska and Rubicon-Graycalm sands, along with one of the most productive woodland soils in the Crawford County: Blue Lake loamy sand. The swamp complex associated with the nearby East Branch of the AuSable River has saturated organic soils such as Kinross and Tawas-Leafriver mucks.

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

This area is under the 1935 long-term lease agreement L-1479 (Act 154 P.A. 1935) with the Michigan National Guard, Department of Military Affairs. The agreement provides for use by the military during their encampment, with no permanent buildings or improvements to be erected. Military needs take precedence over resource management needs on long-term lease lands. The DNR will coordinate all prescribed activities with the National Guard to ensure they are compatible with military training needs. There are Military Firing Points and a Medivac Landing Zone within the compartment. The compartment is adjacent to several private parcels, many with year-round homes and a long history of farming. The south end of the compartment borders Hartwick Pines State Park lands. That adjacent portion of the Park is undeveloped except for their scenic drive which follows Vista Drive, a county road.

Unique Natural Features:

There is the potential for rare plant and animal species to be associated with the AuSable's swamp complex.

Archeological, Historical, and Cultural Features:

Maple Forest Township's better soils were the focus of homesteading and logging around the turn of the century. There are known concerns within the compartment. All proposed management activities have taken those concerns into consideration.

Special Management Designations or Considerations:

Because the compartment is part of the Long-term Military Lease Agreement, it is designated as a Research and Military Special Conservation Area (SCA).

Watershed and Fisheries Considerations:

The swamp stands on the eastern edge of section 35 have diffuse overland and sub-surface groundwater flow toward the nearby East Branch of the AuSable River. Beaver activity has created a pond and flood-killed nearby cedar. Surface water elsewhere in the compartment is limited to sub-acre wetland pockets.

Wildlife Habitat Considerations:

The compartment's diverse cover types -- northern hardwoods, aspen, herbaceous openland, upland shrub, pine, and lowlands -- provide habitat for a variety of game species, including deer, turkey, bear, hare, fox and coyote.

Mineral Resource and Development Concerns and/or Restrictions

A former gravel pit is located in Section 26, and there is good sand and gravel potential on the upland areas within the compartment. Active Antrim Shale gas production is occurring just to the north. There may be Antrim Shale gas potential within the compartment, but this area is at the southern edge of the Antrim play and wells in this area tend to be less productive. There are currently no active leases within the compartment. There is no known metallic mineral potential in this part of the state. The state does not own the mineral rights beneath much of the compartment.

Vehicle Access:

County roads within the compartment include Hartwick Pines Road, White Road, County Road 612 and Bear Lake Road. Military use has maintained open an adequate network of forest roads.

Survey Needs:

No survey work is needed at this time. A large survey project to delineate the state boundary was carried out the previous YOY.

Recreational Facilities and Opportunities:

Hunting is the primary form of dispersed recreation within the compartment, along with target shooting in the old gravel pit.

Fire Protection:

Most of the compartment consists of forest types that are not prone to fire, such as hardwoods and aspen. The dense scotch pine regeneration establishing across some of the old fields could pose a fire hazard. The existing road network is adequate for fire control 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**

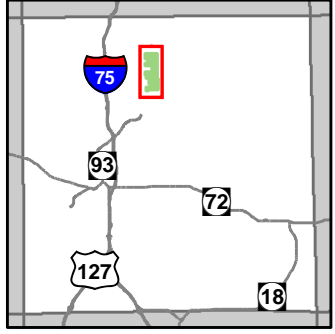
The following information is displayed, where pertinent, on the attached compartment maps:

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

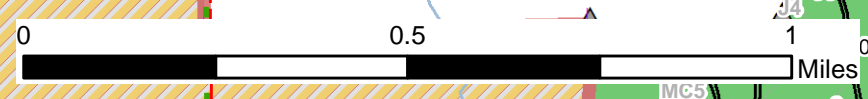
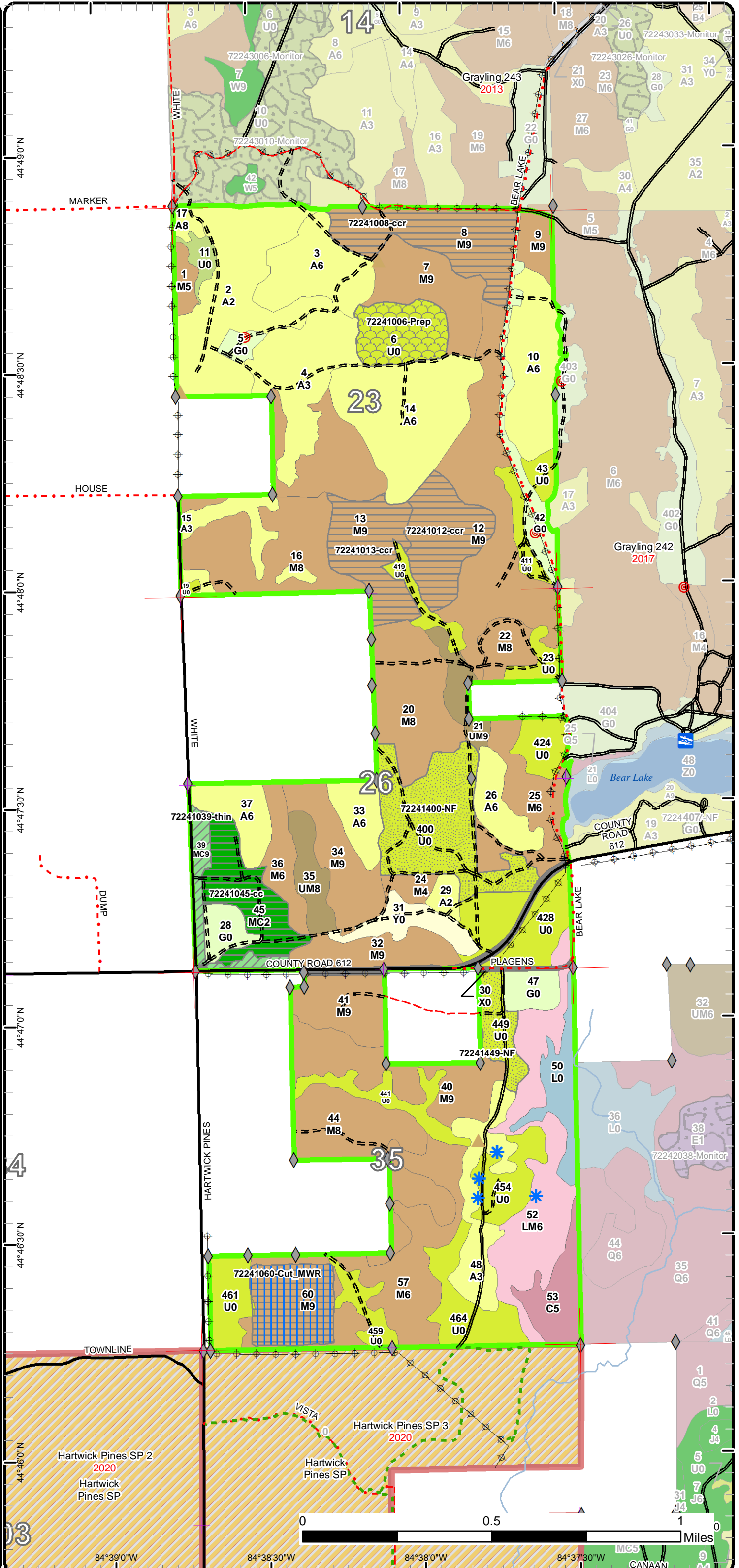
Cover Type & Treatments Map

Compartment: 241
T28N,R03W, Sec. 23, 26, 35

County: Crawford
Unit: Grayling
Mgmt Area: Camp Grayling
YOE: 2019
Acres: 1,508 GIS Calculated
Examiner: Joan Charlebois
Map Revised: 6/13/2018
Map Phase: Post-Review



- Miris Corners
- Remonumented Section Corners
- ◆ Field Grade Corners
- Counties
- ▲ Berms
- ⊕ Boating Access Site
- Designated Hiking Trails
- DNR - Secondary Forest Road
- DNR - Forest Access Route
- Federal / State / County - Paved Road
- County - Gravel Road
- County - Dirt Road (Seasonal)
- Private - Dirt / Gravel Road
- Streams
- Lakes and Rivers All
- ⊕ Powerline
- Compartment Boundary
- Clearcut (w/Reserves)
- Seed Tree (w/Reserves)
- Thinning (Crown, Low, Systematic)
- Mowing
- Site Prep
- 411 - Northern Hardwood
- 413 - Aspen Types
- 421 - Planted Pines
- 422 - Natural Pines
- 430 - Upland Mixed Forest
- 612 - Lowland Coniferous Forest
- 613 - Lowland Mixed Forest
- 122 - Roads/Parking Lot
- 310 - Herbaceous Openland
- 320 - Upland Shrub
- 330 - Low Density Trees
- 622 - Lowland Shrub
- 710 - Sand/Soil
- Lakes
- ★ Camp Grayling Monitoring Wells
- ⊙ Camp Grayling Firing Point

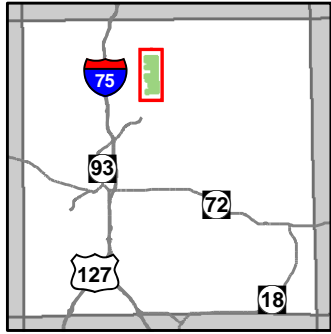


84°39'0"W 84°38'30"W 84°38'0"W 84°37'30"W

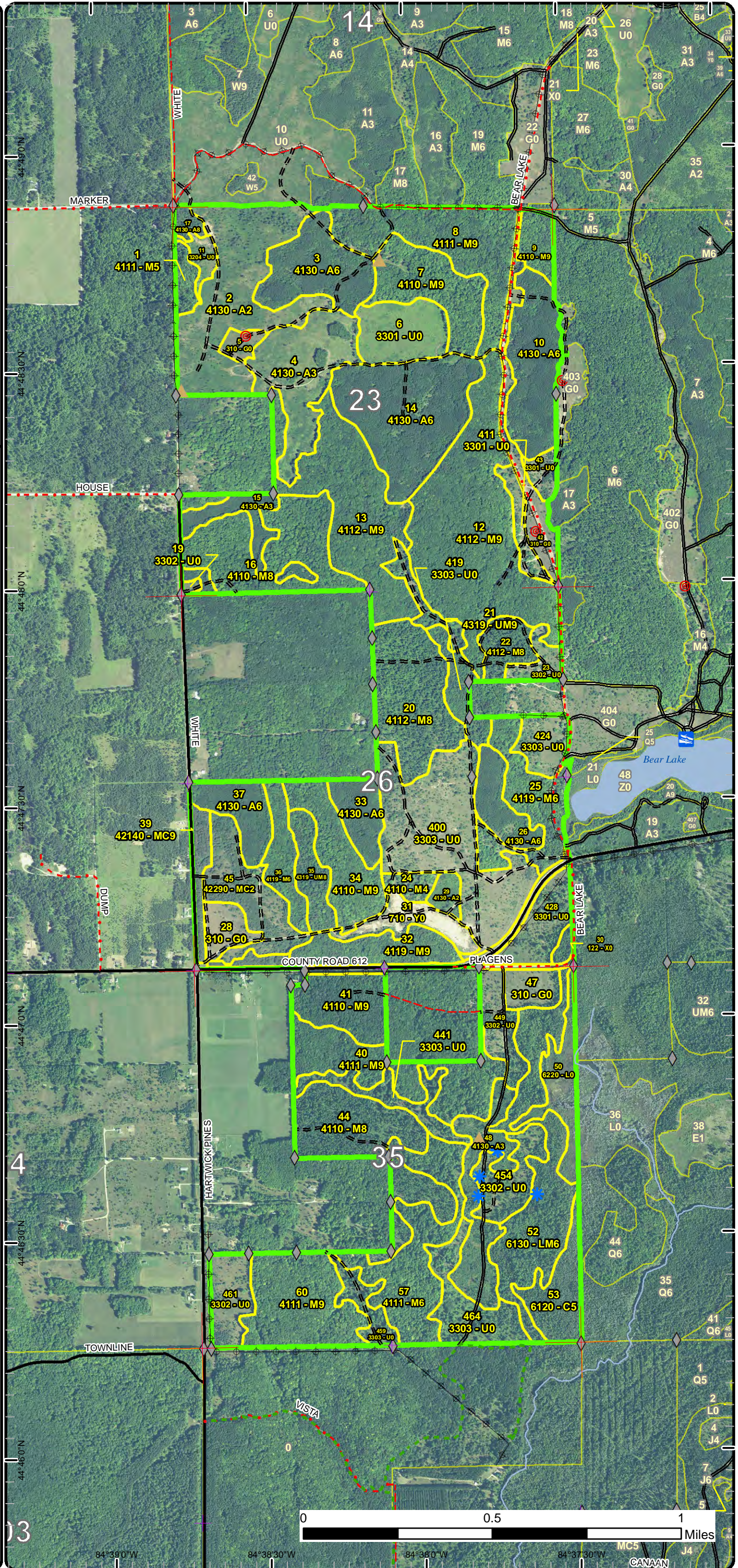
Stand Boundary Map

Compartment: 241
T28N,R03W, Sec. 23, 26, 35

County: Crawford
Unit: Grayling
Mgmt Area: Camp Grayling
YOE: 2019
Acres: 1,508 GIS Calculated
Examiner: Joan Charlebois
Map Revised: 6/13/2018
Map Phase: Post-Review



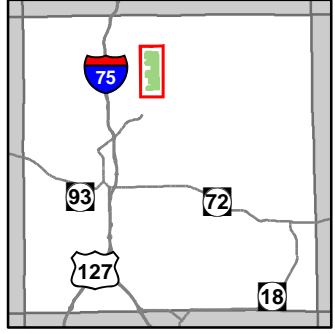
- Miris Corners
- + Remonumented Section Corners
- ◆ Field Grade Corners
- Counties
- Berms
- Boating Access Site
- Designated Hiking Trails
- DNR - Secondary Forest Road
- = DNR - Forest Access Route
- Federal / State / County - Paved Road
- - - County - Gravel Road
- - - County - Dirt Road (Seasonal)
- - - Private - Dirt / Gravel Road
- Streams
- Lakes and Rivers All
- Powerline
- Compartment Boundary
- Stand Boundaries
- 411 - Northern Hardwood
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- ★ Camp Grayling Monitoring Wells
- ⊙ Camp Grayling Firing Point



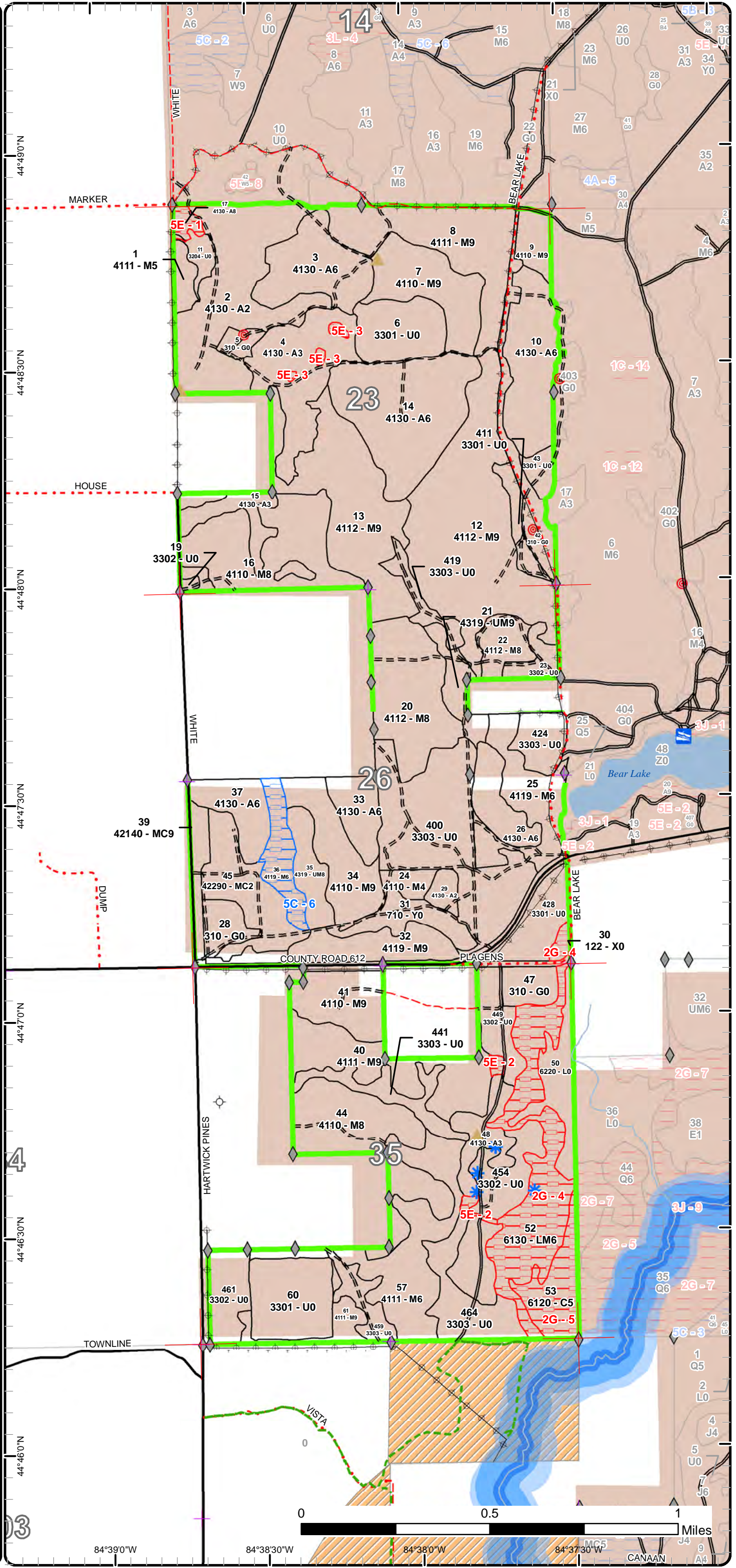
Special Conservation Areas & Site Conditions Map

Compartment: 241
T28N,R03W, Sec. 23, 26, 35

County: Crawford
Unit: Grayling
Mgmt Area: Camp Grayling
YOE: 2019
Acres: 1,508 GIS Calculated
Examiner: Joan Charlebois
Map Revised: 8/1/2018
Map Phase: Post-Review



- Miris Corners
- + Remonumented Section Corners
- ◆ Field Grade Corners
- Counties
- DNR - Secondary Forest Road
- DNR - Forest Access Route
- Federal / State / County - Paved Road
- County - Gravel Road
- County - Dirt Road (Seasonal)
- Private - Dirt / Gravel Road
- Designated Hiking Trails
- Lake/Pond
- Perennial River
- Lakes and Rivers All
- Berms
- Boating Access Site
- Powerline
- Compartment Boundary
- Available w/ Constraints
- Unavailable
- 5C: Delay treatment for age/size class diversity or exceptional site quality
- 2G: Too wet (sensitive soils, does not include access issues)
- 5E: Long-Term Retention
- Stand Boundaries
- Natural Rivers Vegetative Buffer
- Natural Rivers Zoning District
- Eastern Massasauga Managed Land
- Cold Water Streams
- High Priority Trout Stream Buffer
- Research, Development, and Military Lands
- Dry Hole
- * Camp Grayling Monitoring Wells
- ⊙ Camp Grayling Firing Point





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	143	17	180	0	0	4	0	0	0	0	0	0	0	0	0	0	0	344
Cedar	0	0	0	0	0	0	0	0	0	0	0	0	20	0	0	0	0	0	20
Herbaceous Openland	43	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42
Low-Density Trees	252	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	251
Lowland Mixed Forest	0	0	0	0	0	0	0	0	0	59	0	0	0	0	0	0	0	0	59
Lowland Shrub	19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19
Natural Mixed Pines	0	0	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	30
Northern Hardwood	0	0	0	0	0	0	0	0	0	295	318	12	45	0	0	0	0	0	669
Planted Mixed Pines	0	0	0	0	0	0	0	13	0	0	0	0	0	0	0	0	0	0	13
Sand, Soil	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15
Upland Mixed Forest	0	0	0	0	0	0	0	12	14	0	0	0	0	0	0	0	0	0	26
Upland Shrub	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
Urban	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14
Total	348	143	47	180	0	0	4	25	14	354	318	12	65	0	0	0	0	0	1507



Report 2 – Treatment Summary

Grayling Mgt. Unit

Year of Entry: 2019

Acres of Harvest

Compartment 241

Total Compartment Acres: 1,507

Commercial Harvest - 184
 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
Natural Mixed Pines	30	0	0	0	0	0	0	0	0	30
Northern Hardwood	111	0	0	30	0	0	0	0	0	141
Planted Mixed Pines	0	0	0	0	0	13	0	0	0	13
Total	141	0	0	30	0	13	0	0	0	184

Proposed and Next Step Treatments by Method

	Harvest	Site Prep	Planting	Seeding	Burning	Pesticide	Monitoring	Other	Non-Forest Mgt.	Total Acres
Current	184	0	0	0	0	24	0	0	74	281
Next Step	0	24	24	0	30	127	188	0	30	423
Total	184	24	24	0	30	151	188	0	104	704



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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6	72241006-Spray	23.6	3301 - Low Density Deciduous Trees	Nonstocked		Unspecified	Pesticide	Skidder/Mechanical	4211 - Planted Red Pine	Even-Aged	Draft Field Boundary
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Habitat Cut: No Site Condition:

Prescription Herbicide to control deciduous competition.

Specs:

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

Acceptable Regen: Full stocking in planted RP, with site prep & release treatments as needed, which may include herbicide use.

Other Regen:

Comment: Planting investment will be contingent upon assurances from that Military that the stand will be avoided by training operations that could damage the planted trees. If not possible, the stand's natural regeneration will be accepted.

Proposed Start Date: 01/01/2018

8	72241008-ccr	44.2	4111 - S.Maple, Hard Mast Association	Sawtimber Well	86	111-140	Harvest	Clearcut with Retention	4139 - Aspen, Mixed Deciduous	Even-Aged	Draft Field Boundary
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Habitat Cut: No Site Condition:

Prescription Final harvest with standard retention. Harvest when dormant and leave tops, if the Military permits, in order to protect the expected coppice regen. Consider leaving the traces of pine and excluding the stand's narrow SE peninsula (treatment boundary edited to reflect that), designating the triangle NE of the grown-over two-track as retention and shifting the portion SW of the two-track to stand 7.

Next Step Treatments: Monitoring, Natural Regen (Intermediate)

Acceptable Regen: A moderately stocked mix of aspen and northern hardwoods. Schedule intermediate regen check after 3 growing seasons.

Other Regen:

Comment: Following the Pre-Review, the site was reviewed by co-managers to evaluate the suitability of selectively removing the beech-aspen versus final harvesting. There weren't enough quality hardwoods stems present, excluding the high-risk beech and aspen, to facilitate thinning, so the prescription was changed to final harvest.

Proposed Start Date: 10/01/2018

12	72241012-ccr	33.3	4112 - Maple, Beech, Cherry Association	Sawtimber Well	90	81-110	Harvest	Clearcut with Retention	411 - Northern Hardwood	Even-Aged	Draft Field Boundary
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Habitat Cut: No Site Condition:

Prescription Final harvest with standard retention. Harvest when dormant. Consider siting retention on the steeper slopes bordering stand 419.

Specs:

Next Step Treatments: Monitoring, Natural Regen (Intermediate)

Acceptable Regen: A moderately stocked mix of northern hardwoods and aspen. Schedule intermediate regen check after 3 growing seasons. If the regen fails or is beech-dominated, site prep as needed, which may include herbicide, and plant RP.

Other Regen:

Comment: The west-center of the stand is where QD data picked up more of the high-risk beech component. Leave the lower-risk portions of the stand for now in order to move this YOE's NH restart acres closer to the even distribution target. Planting investment will be contingent upon assurances from that Military that the stand will be avoided by training operations that could damage the planted trees. If not possible, the stand's natural regeneration will be accepted.

Proposed Start Date: 10/01/2018



Stand Name	Treatment Name	Acres	Stand CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Age Structure	Approval Status
13	72241013-ccr	33.4	4112 - Maple, Beech, Cherry Association	Sawtimber Well	88	81-110	Harvest	Clearcut with Retention	4139 - Aspen, Mixed Deciduous	Even-Aged	Draft Field Boundary

Habitat Cut: No

Site Condition:

Prescription Final harvest with standard retention the south half of the stand. Harvest when dormant. Consider for retention the narrow, steep ridge end with
Specs: open-grown hardwoods that extends into the stand's NE from stand 14.

Next Step Monitoring, Natural Regen (Intermediate)
Treatments:

Acceptable A moderately stocked mix of aspen and northern hardwoods. Schedule intermediate regen check after 3 growing seasons. If the regen fails or is
Regen: beech-dominated, site prep as needed, which may include herbicide, and plant RP.

Other The south half of the stand is where QD data picked up more of the high-risk beech component and aspen. Leave the lower-risk portion of the
Comment: stand for now in order to move this YOE's NH restart acres closer to the even distribution target. Planting investment will be contingent upon assurances from that Military that the stand will be avoided by training operations that could damage the planted trees. If not possible, the stand's natural regeneration will be accepted.

Proposed Start Date: 10/01/2018

39	72241039-thin	13.0	42140 - Planted Mixed Pine	Sawtimber Well	66	141-170	Harvest	Crown Thinning	42110 - Planted Red Pine	Even-Aged	Draft Field Boundary
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Habitat Cut: No

Site Condition:

Prescription Remove the scotch pine and jack pine. Thin the remaining red pine & white pine down to 120 sq. ft. of basal area.
Specs:

Next Step
Treatments:

Acceptable
Regen:

Other
Comment:

Proposed Start Date: 10/01/2018

45	72241045-cc	30.1	42290 - Natural Mixed Pine	Sapling Medium	13	Immatu re	Harvest	Clearcut	320 - Upland Shrub		Draft Field Boundary
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Habitat Cut: No

Site Condition:

Prescription Harvest the merchantable scotch pine. Follow up with non-commercial treatments targeting the majority scotch pine sapling cover. Protect the
Specs: apple trees and native tree species where possible. Non-commercial scotch pine control measures may include mowing, burning and herbicide.

Next Step NonForestMgt, Mowing; Burn, Slash; Pesticide, Skidder/Mechanical
Treatments:

Acceptable A mix of herbaceous openland, upland shrub, and low-density native tree cover.
Regen:

Other
Comment:

Proposed Start Date: 10/01/2018

60	72241060-Cut_MWR	29.7	4111 - S.Maple, Hard Mast Association	Sawtimber Well	91	81-110	Harvest	Seed Tree	411 - Northern Hardwood	Even-Aged	Field Boundary
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Habitat Cut: No

Site Condition:

Prescription Seed tree. A residual density of 6-8 trees per acre (5-7% overstory cover) will be prescribed by same criteria as shelterwood trees. Leave Tops
Specs: <8" diameter.

Next Step Monitoring, Natural Regen (Intermediate)
Treatments:

Acceptable A diverse mix of northern hardwood species.
Regen:

Other
Comment:

Proposed Start Date: 06/01/2016



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
400	72241400-NF	59.3	3303 - Mixed Low Density Trees	Nonstocked		Unspecified	NonForestMgt	Mowing	320 - Upland Shrub		Draft Field Boundary

Habitat Cut: No **Site Condition:**

Prescription Remove the invading scotch pine Cut native species as needed for operability. Treatments may include mowing, burning or herbicide.
Specs:

Next Step Pesticide, Skidder/Mechanical
Treatments:

Acceptable
Regen:

Other
Comment:

Proposed Start Date: 10/01/2018

449	72241449-NF	14.4	3302 - Low Density Conifer Trees	Nonstocked		Unspecified	NonForestMgt	Mowing	320 - Upland Shrub		Draft Field Boundary
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Habitat Cut: No **Site Condition:**

Prescription Remove the invading scotch pine Cut native species as needed for operability. Treatments may include mowing, burning or herbicide.
Specs:

Next Step Pesticide, Skidder/Mechanical
Treatments:

Acceptable
Regen:

Other
Comment:

Proposed Start Date: 10/01/2018

Total Treatment Acreage Proposed: 281.0

Report 4 – Site Conditions

Grayling Mgt. Unit
Joan Charlebois : Examiner

Compartment: 241
Year of Entry: 2019

Availability for Management

Total Acres	Acres Available	Acres Avail			Dominant Site Conditions		
		With Condition	Not Available		5C	2G	5E
343	336	0	7	Aspen			7
20	0	0	20	Cedar		20	
42	42	0	0	Herbaceous Openland			
252	252	0	0	Low-Density Trees			0
59	0	0	59	Lowland Mixed Forest		59	
19	19	0	0	Lowland Shrub			
30	30	0	0	Natural Mixed Pines			
670	653	15	1	Northern Hardwood	15		1
13	13	0	0	Planted Mixed Pines			
15	15	0	0	Sand, Soil			
26	26	0	0	Upland Mixed Forest			
5	0	0	5	Upland Shrub			5
14	14	0	0	Urban			
1,507	1,400	15	93	Total Forested Acres	15	79	13
	93%	1%	6%	Relative Percent			

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

Site No.	Dominant Site Cond Availability	Dominant Site Condition	Acres	Other Site Condition	Other Site Condition	Other Site Condition	Other Site Condition
1	Unavailable	5E: Long-Term Retention	4	3J: Water quality / BMPs (stream, river, or lake)	Unspecified	Unspecified	Unspecified
Comments: Designated retention for 72-617-09-01. Also contains a wetland.							
2	Unavailable	5E: Long-Term Retention	3	Unspecified	Unspecified	Unspecified	Unspecified
Comments: Boundary-excluded retention for stand 48 & 49's 2012 (#635-09) harvest.							

Report 4 – Site Conditions

Grayling Mgt. Unit
Joan Charlebois : Examiner

Compartment: 241
Year of Entry: 2019

3	Unavailable	5E: Long-Term Retention	2	Unspecified	Unspecified	Unspecified	Unspecified
Comments: Designated retention within 72-617-09-01. Shapefile not readily available (old Trimble .cor file) so island location/size is approximate.							
4	Unavailable	2G: Too wet (sensitive soils, does not include access issues)	59	Unspecified	Unspecified	Unspecified	Unspecified
Comments: PARVCo ground, mosaic of seasonally-flooded and year-round saturated soils, increasingly marginal cover closer to swamp.							
5	Unavailable	2G: Too wet (sensitive soils, does not include access issues)	20	5A: Not able to obtain desirable regeneration	Unspecified	Unspecified	Unspecified
Comments: Saturated soils, standing water.							
6	Available	5C: Delay treatment for age/size class diversity or exceptional site quality	15	Unspecified	Unspecified	Unspecified	Unspecified
Comments: Most of the stand falls within the BA range used as silvicultural criteria for HW thinning, but the common presence of multiple stem clumps in this lower-quality stand gives an inflated sense of the BA relative to the classic northern hardwood single-stem form that the criteria is based on.							

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	Cold Water Stream	A coldwater stream has temperature and dissolved oxygen conditions that allow naturally-reproduced or stocked trout populations and those of other coldwater fish species (e.g., slimy sculpin) to persist from year to year. Coldwater streams in Michigan typically provide these conditions due to substantial contributions of groundwater to their stream flows. Such streams are established by Director's action and designated as trout resources by Fisheries Order 210.
SCA	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.
SCA	Riparian Area	A transitional area between aquatic and terrestrial ecosystems in which the terrestrial ecosystem influences the aquatic ecosystem and vice-versa. Because of the unique conditions adjacent to lakes, streams and open water wetlands, riparian areas harbor a high diversity of plants and wildlife. Riparian communities are ecologically and socially significant in their effects on water quality and quantity, as well as aesthetics, habitat, bank stability, timber production, and their contribution to overall biodiversity.
HCVA	Natural Rivers	There are two Natural Rivers datasets which are derived from spatial buffers set from an established and approved distance from the river centerlines. The Natural Rivers Zoning District is a 400 foot buffer for most Natural Rivers. The Vegetative Buffer ranges from 25 to 100 feet. To view specific Zoning Districts and Vegetative Buffers for each Natural River see the table located on the I:\Documentation\GDSE data folder.



	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
1	4111 - S.Maple, Hard Mast Association	Poletimber Medium	6.2	82	81-110	Small HWs stand occupying a sideslope. Quality and stocking decrease on the stand margins, particularly further down the slope; open-grown form and multiple-stem clumps are common there. Ironwood has filled in larger canopy gaps. Beech with varying amounts of scale, from light to whitewashed.
2	4130 - Aspen	Sapling Medium	66.3	3	Immature	Was final harvested with reserves by Jan 2015 (#617-09) cutting stems 2"+ DBH except oak, pine & cherry and a retention island in the NW. The stand was a mosaic of declining aspen clones, upland brush, and grassy openings. The split-off stands 17 & 11 were the boundary-excluded retention area (steep hill/small wetland & U/G). Current cover is a mosaic of dense aspen regen alternating with U-G-LDT (residual WP, BC, NPO, RP, QA). Some hawthorn thickets.
3	4130 - Aspen	Poletimber Well	32.7	28	1-50	Was final harvested by 1990 (#005-89), cutting stems 2"+ DBH. Aspen & oak transitioned furthest into the pole class; significant mixed HW component lagging behind. Black canker slowing growth in a few of the QA edge clones. HW-dominated areas between clones are majority sapling-sized. Serviceberry in the canopy.
4	4130 - Aspen	Sapling Well	42.1	3	Immature	Was final harvested with reserves by Jan 2015 (#617-09) cutting stems 2"+ DBH except oak, pine & cherry and three retention islands totaling 2 acres. The stand was a mix of aspen and low-end northern hardwoods. The aspen sprouted well, but areas to the NE that had majority HW cover sprouted less vigorously & saw more browse. Widely-scattered WP-Oak-RP residual. Retention islands majority HM-Beech; beech scale present.
7	4110 - Sugar Maple Association	Sawtimber Well	31.8	89	81-110	Was thinned in 2000 (#004-99), cutting orange-marked trees and all aspen (except for scattered green-marked left for soft-cavity snags), down to 60 BA. Moderate quality northern hardwoods with multiple-stem form in the minority. Beech scale present. Heavy beech understory. IW in understory and canopy. QD'd
8	4111 - S.Maple, Hard Mast Association	Sawtimber Well	49.2	86	111-140	Moderate to marginal quality northern hardwoods with overmature aspen. HW varies from clean boled single stems to knobby stump-origin clumps. Large cull aspen scattered across the stand in small pockets. Beech increases to the west; Traces of WP saw there also. Heavy scale. IW-beech understory. QD'd.
9	4110 - Sugar Maple Association	Sawtimber Well	9.2	87	81-110	Was thinned in 2000 (#004-99), cutting orange-marked trees and all aspen (except for scattered green-marked left for soft-cavity snags), down to 70 BA. Moderate-quality HM, predominantly single-stem. Basswood in clumps. Beech with scale. Ash already lost to EAB. Heavy beech understory. Trace of xlog BTA. QD'd stand.
10	4130 - Aspen	Poletimber Well	37.5	28	51-80	Was final harvested by 1990 (#005-89), cutting stems 2"+ DBH. The majority aspen cover has transitioned far enough into the pole class that the stand has to be called pole-overall, but the significant mixed HW component is still mostly sapling-sized. Trace of ash already hit by EAB. Serviceberry in the canopy. Rim of open-grown mature HW's & RP on the east edge and HW's on the southwest edge.



	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
12	4112 - Maple, Beech, Cherry Association	Sawtimber Well	99.4	90	81-110	Moderate to poor quality HW's on rolling to steeply rolling terrain. Quality decreases on the lower slopes & valleys, more open-grown form there. Uneven beech distribution. Heavily white-washed with scale; some breakage already. Traces of WA, WP, RP, PB. Small clumps of overmature aspen. QD'd
13	4112 - Maple, Beech, Cherry Association	Sawtimber Well	64.2	88	81-110	Lower quality hardwoods on rolling terrain with small pockets of mature aspen. Stump-origin clumps, open-grown form & poorly-healed branch scars are common in the HWs. Largest aspen clones occupy the valley on the east side. Beech & IW understory with occasional patches of large sapling HM. Traces of YB & AE. Beech increasingly white-washed with scale. QD'd
14	4130 - Aspen	Poletimber Well	61.3	28	51-80	Was final harvested by 1990 (#005-89), cutting stems 2"+ DBH. Aspen almost fully transitioned in to the pole class, significant mixed HWs component lagging behind. Wt ash being impacted by EAB.
15	4130 - Aspen	Sapling Well	16.6	17	Immature	Was final harvested in 2001 (#004-99), cutting all stems 2"+ DBH. Multiple patches of aspen in shallow valleys. Hypoxylon in some of the QA clones.
16	4110 - Sugar Maple Association	Sawtimber Medium	50.5	92	51-80	Was thinned in 2001 (#004-99), cutting orange-marked trees and all aspen (except for scattered green-marked left for soft-cavity snags), down to 60 BA. Thinning increased the ave diam but there wasn't adequate quality to allow for removal of all poor-form stems and still maintain stocking. Traces PB & YB. Variable stocking. Some areas, all the suppressed poles were removed, other areas many were left. Traces of well-developed large-sapling HM in large former gaps, now pole-sized. Understory of beech-IW really took off after the thin. Light scale on beech. QD'd
17	4130 - Aspen	Sawtimber Medium	3.5	51	51-80	This portion of stand 2 was boundary-excluded retention for 72-617-09-01. It contains a small wetland rimmed with Salix in the SE and the rest occupies a sideslope.
20	4112 - Maple, Beech, Cherry Association	Sawtimber Medium	45.3	113	1-50	Was thinned between 2010 & 2013 (#624-09), cutting all orange-marked stems and aspen, except green-marked stems. With Military approval, tops were not chipped. Contract was amended to pre-salvage ash & beech due to EAB & BBD concerns. Scattered beech were pink-marked to leave. Original marking contract residual was 60 BA (70 BA if excluded regen gaps). Post-salvage residual, including regen gaps, was 50 BA. On rolling to steeply-rolling terrain. Better quality HW's on hilltop to west, hemlock there too; more RM on lower slopes & flats to east. Epicormic branching common on sub-dominants. Some windthrow & top-breakage. Heavy beech, IW & rubus understory. Some maple stump sprouts. QD plots landed in sparser areas; didn't feel representative. Traces of BC & QA.
21	4319 - Mixed Upland Forest	Sawtimber Well	12.1	68	111-140	WP, low-end HWs & aspen in shallow valley. WP seeded in from a few xlog trees. Areas of well-developed HM regen; far better than seen in surrounding HW stands.



	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
22	4112 - Maple, Beech, Cherry Association	Sawtimber Medium	11.8	109	51-80	Was thinned between 2011 & 2013 (#624-09), cutting all orange-marked stems and aspen (except green-marked). With Military approval, tops were not chipped. Contract was amended to pre-salvage ash & beech due to EAB & BBD concerns. Scattered beech were yellow dot-marked to leave. Original marking contract residual was 70 BA. Post-salvage residual, including regen gaps, was 50 BA. Moderate quality hardwoods on gently rolling terrain with a fair amount of red maple. Epicormic branching common on sub-dominant maple around larger gaps. Some windthrow. Beech with light scale. Traces of top-dead hemlock. Heavy beech and ironwood understory with rubus, minor amounts of white ash and maple. QD'd
24	4110 - Sugar Maple Association	Poletimber Poor	5.6	91	51-80	Marginal stand between the old fields & gravel pit, made up of open-grown HWs, WP & patches of aspen. Majority pole-sized, with saw diam component landing in the over-sized pulp/cull class. HM age from current on adjacent stand 34.
25	4119 - Mixed Northern Hardwoods	Poletimber Well	30.4	89	81-110	Poor-quality HWs with mature aspen and mixed conifers. The HM & RM is majority pole-sized, with larger diameter stems in the oversized pulp/cull class. Stump-origin clumps & open-grown form common. May have been grazed. Basswood & beech have the best form & diameter growth; presence increases in the stand's N & W. South end of stand borders Bear Lake's swamp basin and encompasses a few wetland pockets. Aspen is mainly in the stand's south half.
26	4130 - Aspen	Poletimber Well	15.8	28	51-80	Was final harvested by 1990 (#005-89), cutting stems 2"+ DBH. The aspen is farthest transitioned into the pole class; the significant mixed HW's are majority sapling-sized. A sub-acre patch of the harvest was cut to the SW in stand 25.
29	4130 - Aspen	Sapling Medium	5.0	5	Immature	Was final harvested by June 2013 (#624-09), cutting stems 2"+ DBH except oak. Aspen & maple regen with sapling residual, rimmed with uncut HWs & WP. A lot of BC sprouting in the west side that was predominantly HW cover.
32	4119 - Mixed Northern Hardwoods	Sawtimber Well	21.7	90	81-110	Lower quality HWs with aspen & mixed pine, on rolling terrain between the former gravel pit and CR 612. Stump-origin clumps common, with poor form typical except in the basswood. More RM than reflected in the QD data. Aspen is overmature except on the gravel pit margin; everything is younger along that disturbed edge. Some JP on north edge along the forest road.
33	4130 - Aspen	Poletimber Well	14.7	28	51-80	Was final harvested by 1990 (#005-89), cutting stems 2"+ DBH. A majority of the aspen has transitioned into the pole class; the mixed HWs are still mostly sapling-sized.
34	4110 - Sugar Maple Association	Sawtimber Well	28.5	91	81-110	Was thinned in 2000 (#050-99), spec'd to cut all aspen and paper birch, stated cruise residual 60 BA. Little evidence of thinning. Multiple-stem form common. Basswood good form despite being in clumps. Scattered xlog WP, RP & RO. Traces of missed canopy aspen & birch. QD'd



	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
35	4319 - Mixed Upland Forest	Sawtimber Medium	14.1	70	81-110	Was thinned in 2000 (#050-99), cutting most of the aspen and RM, stated cruise residual 60 BA. RP & WP with poor-quality HWs, in a shallow valley. The pine established in patches from scattered xlog seed trees. Species-removal left variable distribution. Heavy IW & HM regen. Traces of scotch pine & JP at south end by road, along with some uncut aspen. Second age on HW from current HW age in adjacent stand 34.
36	4119 - Mixed Northern Hardwoods	Poletimber Well	15.4	87	111-140	Lower quality HWs with aspen & scattered pine. Multiple-stem clumps & open-grown form common. Quality improves some to the north, mainly due to the increase in basswood cover. Aspen mainly in south half of stand. Old comm wire in trees. QD'd
37	4130 - Aspen	Poletimber Well	17.5	28	51-80	Most of the stand was final harvested by 1990 (#005-89), cutting stems 2"+ DBH. Aspen is majority pole-sized; the mixed HWs are still sapling-sized overall. An acre was left uncut in the NW along road (HWs & WP). East half has patches of majority PB. Traces of SP on west edge.
39	42140 - Planted Mixed Pine	Sawtimber Well	13.0	66	141-170	RP with varying amounts of SP-WP-JP were planted along CR 612 & White Rd. In addition to the original planted SP, there is a significant second age class of SP that is now small saw/large pole in size, in a swath off the east & north sides of the original roadside planting. SP age was set to that younger component, although there is that older large-saw SP cover from the original planting. JP dying out. Heavy deciduous understory. SP regen concentrated on Medivac field edge.
40	4111 - S.Maple, Hard Mast Association	Sawtimber Well	41.1	88	81-110	Poor quality HWs on rolling terrain; moderate quality stems are limited to the stand's W & NW edges on the level. Xlog WP on west side, old barbwire in trees. Multiple stem clumps, poorly healed branch scars & open grown form common on the rolling terrain. Aspen, WP & NPO occur mostly within the sparser valley inclusions. RM picks up to east. Acre inclusion of former QA retention island in NE. Increasing scale whitewash in the beech. QD'd
41	4110 - Sugar Maple Association	Sawtimber Well	23.7	95	81-110	Was thinned by 1990 under three small fuelwood sales (#42-89, #43-89, #44-89), cutting marked stems. Moderate to good quality HWs; best seen in the compt. Predominantly single stems & clean-boled. Canopy ash breaking up. Seeded in dense pockets of ash, otherwise the subcanopy is dominated by IW. WP on open edges, traces of hemlock & paper birch. Some of the beech is heavily whitewashed with scale. QD'd
44	4110 - Sugar Maple Association	Sawtimber Medium	48.1	89	1-50	Was thinned in 2013 (#635-09), cutting orange-marked trees and all aspen, beech & ash, except for stems marked to leave (aspen w/ green paint, beech & ash w/ pink paint). With Military approval, the tops were not chipped. The beech & ash were added through a contract amendment per the Beech-Ash Salvage Initiative guidance. The resulting cruised residuals ranged from 20 to 90 (including regen gaps), and averaged 50 sq. ft. Moderate quality HWs on rolling terrain, majority single-stem. Pre-salvage of the beech dropped the residual into shelterwood range where the beech was concentrated. Areas opened up that much have epicormic branching on sub-dominant stems, increased windthrow & top breakage, and heavy rubeus groundcover. QD'd



	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
45	42290 - Natural Mixed Pine	Sapling Medium	30.1	13	Immature	Scotch pine colonizing a field from scattered open-grown seed trees. Cover varies from dog-hair thick saplings to LDT/U. Given how the SP has been spreading over time, there is likely a range of ages, but based stand first age on a couple representative saplings cut down. Minor species include WP, JP & aspen. Traces of American elm & black walnut.
48	4130 - Aspen	Sapling Well	29.6	6	Immature	Was final harvested by June 2012 (#635-09), cutting all stems 2"+ DBH except oak, paper birch & conifers (cruise residual of 3 sq. ft. total). QA & RM regen with low-density residual scattered above. Mature aspen retention island inclusion.
52	6130 - Fir, Aspen, Maple	Poletimber Well	59.1	88	51-80	PARVCo ground; tip-up mound topography and standing water in cradle knolls. Flooded swamp inclusions, drier transition ground to west. Best cover is on that transition edge, gets increasingly marginal deeper into the stand. Super-canopy WP and intermediate hemlock are mainly in the stand's south half. Mature cull, dead-and-down, and significant immature patches common.
53	6120 - Lowland Cedar	Poletimber Medium	20.1	113	81-110	Cedar swamp with increasing balsam fir component. Cedar is healthy and better developed on the drier transition ground, but on the core flooded ground, the cedar is majority narrow-crowned poles, with top-mortality common, over black muck/standing water.
57	4111 - S.Maple, Hard Mast Association	Poletimber Well	45.3	94	81-110	Poor quality HWs on rolling terrain. Multiple-stem clumps, poorly-healed branch scars & open-grown form common. Excepting basswood, most of the saw-sized stems are oversized pulp. Scale on the beech. Large old WP stumps. The aspen, NPO & WP occurs mainly in the shallow valleys where the HW cover is particularly sparse and marginal. Traces of PB, YB & WO. QD'd
60	4111 - S.Maple, Hard Mast Association	Sawtimber Well	42.2	91	81-110	Lower quality HWs on rolling terrain. Stump-origin clumps, poorly-healed branch scars & open-grown form common. Basswood & beech the cleanest-boled despite being in stump clumps. Increasing scale in the beech. Large old WP stumps. Old barbwire fence cuts thru west side, may have been pastured. Minor component of xlog older HM, basswood & beech. Scattered clumps of mature aspen. 30-acre MWR research harvest within stand. QD'd



Stand	Cover Type	Acres	Managed Site	General Comments:
5	310 - Herbaceous Openland	4.5	Yes	Cleared Military Firing Point #321. Encroaching aspen regen from surrounding harvest.
6	3301 - Low Density Deciduous Tree	23.6		Beech scale was found in this portion of stand 7 in 2010. An OYOE BBD harvest was approved through the 11-3-10 Compt Review. Was final harvested in spring 2012 (#640-11), cutting stems 2"+ DBH and the tops were chipped. Was HM with minor beech & ash components. Regen heavier to BC & ironwood than HM. Ash mainly in E-end, beech on W & N edges. Some aspen filling in. Rubus throughout. A lot of the HM stumps didn't sprout.
11	3204 - Mast Producing Shrub	5.1	No	Was boundary-excluded from stand 2's 2009 YOY harvest. Valley opening with hawthorn, serviceberry, black cherry, prairie willow, & scattered WP and aspen.
19	3302 - Low Density Conifer Trees	1.1	No	Small opening with encroaching WP-SP-JP-A.
23	3302 - Low Density Conifer Trees	7.5	No	BC brush with open-grown WP & HM. Based on compartment boundary and as seen on recent aerial imagery, there is an encroachment from the adjacent residence: STOP sign blocking two-track, vehicles and possibly a shed stored on state land. Will need to run the property line to determine extent of trespass.
28	310 - Herbaceous Openland	9.7	Yes	Field is periodically maintained open through mowing by the Military. Is used for bivouacking and maneuvers (Medivac Landing Zone - Charlie). Notes on Update Map indicate that a weevil research plot was installed in 2010 (for spotted knapweed control?).
30	122 - Road/Parking Lot	14.0	No	Cleared corridors of CR 612 and Plagens Road.
31	710 - Sand, Soil	14.9	No	Former gravel pit. Informal target practice use.
42	310 - Herbaceous Openland	18.4	Yes	Cleared Military Firing Point #303 along Bear Lake Road. Scattered BC brush & a few open-grown HM.
43	3301 - Low Density Deciduous Tree	5.5	No	BC brush, serviceberry & hawthorn with encroaching HM, beech, QA & oak.
47	310 - Herbaceous Openland	9.6	No	A series of annual use permits were issued for grazing in the 1950's and 1960's. This area hasn't grown over as much as the permit area north of Plagens Rd. BC brush & WP colonizing the field. Notes on Update Map indicate that a weevil research plot was installed in 2010 (for spotted knapweed control?).
50	6220 - Alder/willow	18.8	No	Tall tag alder with scattered balsam fir, RM & WP. Cattail & cedar snags on the most flooded ground in the center.
400	3303 - Mixed Low Density Trees	72.4	No	Large opening on rolling hills. BC brush, sumac & hawthorn, open-grown WP & HW's, and colonizing QA. Traces scotch pine in NE & SE. Patches of lilac. RDR in northcenter: ORV hot lap track (snow-covered; couldn't tell if used in the last year).



Stand	Cover Type	Acres	Managed Site	General Comments:
411	3301 - Low Density Deciduous Tree	7.9	No	Open-grown HM & Bass on hillside overlooking FP 303. BC brush, IW, HM, QA & oak filling in. Previous YOE resource damage report associated with the multiple hill climb runs.
419	3303 - Mixed Low Density Trees	8.2	No	Shallow valley opening with BC, sumac & serviceberry, open-grown HM & WP, and encroaching QA & IW. Couple apple trees.
424	3303 - Mixed Low Density Trees	12.1	No	Former field with BC brush and open-grown WP & HM. Old fence around the north portion and a weather station. Lilac patch at south end.
428	3301 - Low Density Deciduous Tree	17.7	No	A series of annual use permits were issued for grazing in the 1950's and 1960's. The opening has sub-acre patches of open-grown HW's & aspen, an alder-willow wetland, and encroaching WP & BC brush. Patch of lilac.
441	3303 - Mixed Low Density Trees	14.4	No	Shallow valley opening that is becoming marginally forested with HWs, WP, aspen, NPO and black cherry. Mature HM & WP are open-grown. BC, IW & hawthorn shrub cover.
449	3302 - Low Density Conifer Trees	14.4	No	Opening being colonized by scotch pine, WP, JP, NPO & BC brush. Open-grown HW's, patches of aspen, and wild raisin along the swamp edge.
454	3302 - Low Density Conifer Trees	17.9	No	Old pine stump field that has been filling in over time with WP, balsam fir, aspen, RM & black cherry. Serviceberry, hawthorn & hazelnut shrub cover, with wild raisin by the swamp. See red comp folder.
459	3303 - Mixed Low Density Trees	10.2	No	Valley stand with narrow gauge railroad grade running through it. Has been slowly filling in with HM-A-RP-WP-JP-NPO-BC. Two permanent ground blinds in SE.
461	3302 - Low Density Conifer Trees	16.2	No	A series of annual use permits were issued for cutting hay in the 1950's-1970's. This old field is being colonized by RP-WP-JP.
464	3303 - Mixed Low Density Trees	22.8	No	Opening that has been filling in over time. Open-grown WP-RP-JP, large cull RM & BC, and younger NPO, balsam fir & aspen. BC & serviceberry shrub cover. See red comp folder.