



Compartment Review Presentation

Grayling Forest Management Unit

Compartment 72284

Entry Year 2018

Acreage: 856

County Crawford

Management Area: Kirtland's Warbler

Revision Date: 2016-08-11

Stand Examiner: Paul Roell

Legal Description:

T27N R01W Sections 25, 26, 35, 36
Crawford County Lovell's Township

Identified Planning Goals:

To maintain forest health, productivity, sustainability, species diversification, and structural diversity throughout the compartment while providing for multiple use and visual management. In addition, to maintain a healthy habitat for the endangered species *Dendroica kirtlandii* (Kirtland's Warbler), taking into account the warbler management plan directives, species diversity, and visual management.

Soil and topography:

The compartment is mostly flat high ground with some lowland areas in the south and southeastern portion of the compartment. Soil types include Grayling sands with some Rifle peat and Newton sands.

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

State ownership is intermixed with private parcels that are used as full time residences as well as seasonal recreation. Since the last inventory cycle, state land in section 36 on the south side of Cherry Creek Rd has been disposed of. Approximately 20 acres remains on the north side of the road located in the NESE of section 36. That acreage is subject to review as surplus as soon as an easement is processed. A landowner by the name of Bodi is in process of obtaining an easement across this parcel. In return we get a reciprocal easement providing access to stands located in the SWNE of section 36. Once easement is obtained and recorded, a review of this land for disposal or exchange can occur.

Unique Natural Features:

Hill's Thistle, a plant of state special concern can be found in section 35.

Archeological, Historical, and Cultural Features:

none at this time.

Special Management Designations or Considerations:

Most of the compartment is designated Kirtland's Warbler habitat.

Watershed and Fisheries Considerations:

The North Branch of the AuSable, part of the designated natural river system, flows through the compartment, but all river frontage is in private ownership.

Wildlife Habitat Considerations:

The creation and maintenance of habitat for the Kirtland's Warbler is the primary management objective for this compartment and is guided by the Kirtland's Warbler Management plan. Other wildlife species, such as deer, grouse, rabbits, and species that inhabit pine barrens are to be considered as well. Maintaining the existing swamp conifer cover types is beneficial to these species.

Mineral Resource and Development Concerns and/or Restrictions

Oil and gas well sites and pipeline can be found in the west and southwest portions of the compartment. A large pipeline traverses through the southeast of section 26 and along Morley Road. Surface sediments consist of glacial outwash sand and gravel and postglacial alluvium. The glacial drift thickness varies between 200 and 400 feet. Beneath the glacial drift is the Coldwater Shale. The Coldwater does not have a current economic use. A gravel pit is located in Section 26 and there should be potential. The compartment is partly leased for oil and gas and is in the Conner's Marsh Field. The field has produced over 20 Bcf gas from the Ordovician Prairie du Chien.

Vehicle Access:

Access to the compartment can be obtained from Morley Road and Cherry Creek Road. A few two-tracks branch off these

roads into the compartment. We also have obtained a reciprocal easement for along Bodi trail to provide access to SWNE of section 36.

Survey Needs:

None at this time.

Recreational Facilities and Opportunities:

This compartment contains the Roll Loop snowmobile trail and the Shore to Shore Rlding and Hiking trail. It also hosts dispersed recreational activity.

Fire Protection:

This area is high risk with the dominant cover type being jack pine. Special concerns for fire suppression efforts include oil and gas pipelines along Morley Road and the many residential and seasonal structures in and around the compartment. The three closest water sources include the North Branch of the AuSable, the main branch of the AuSable, and Big Creek.

Additional Compartment Information:

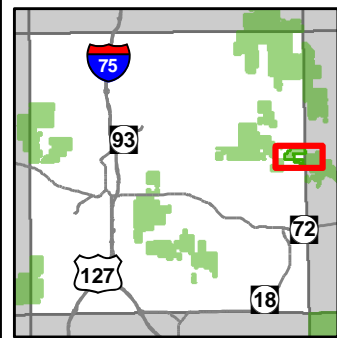
The following reports from the Inventory are attached:

- 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:

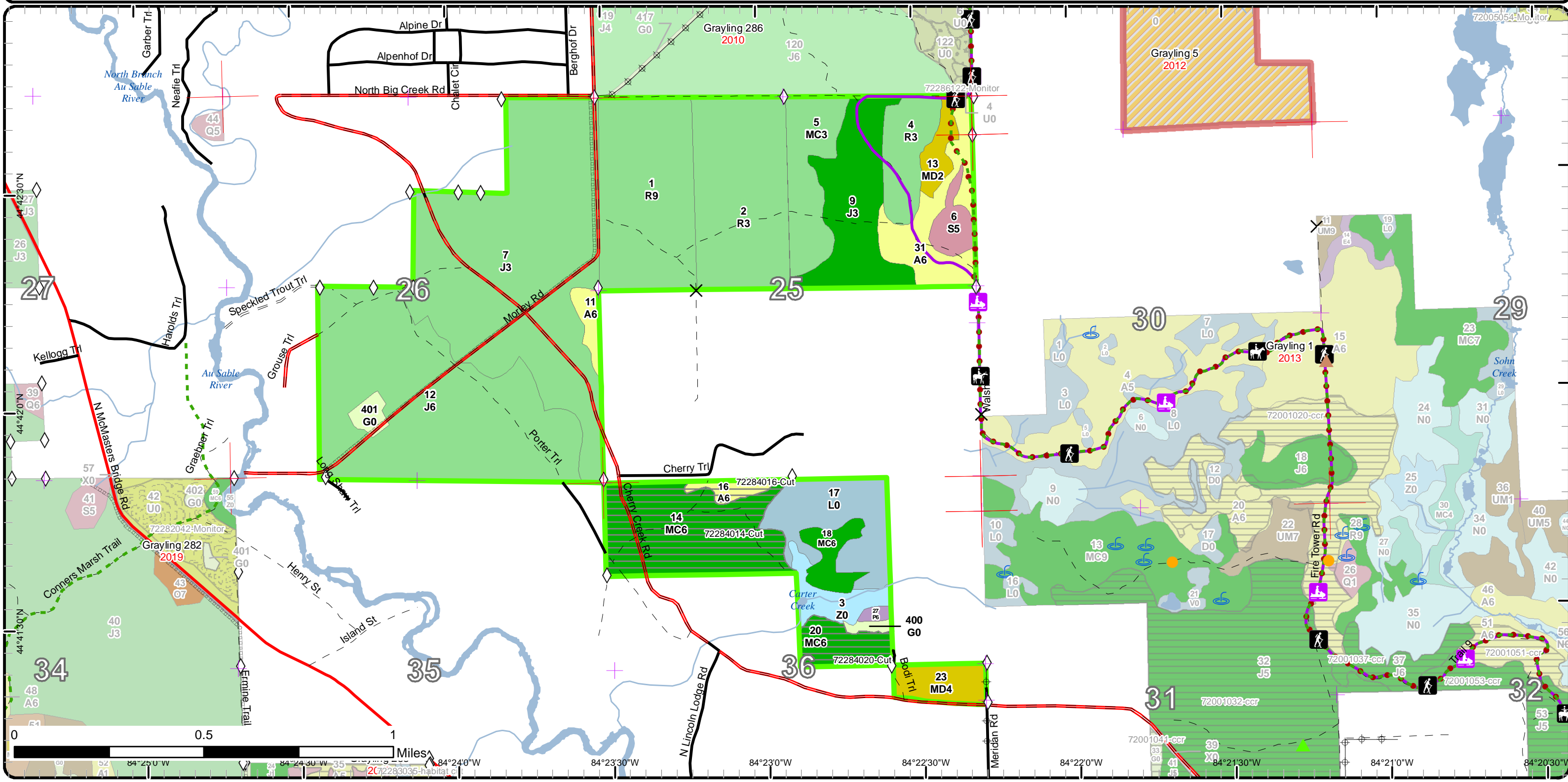
- Base feature information, stand boundaries, cover types, and numbers**
- Proposed treatments**
- Site condition boundaries**
- Details on the road access system**

Cover Type & Treatments Map



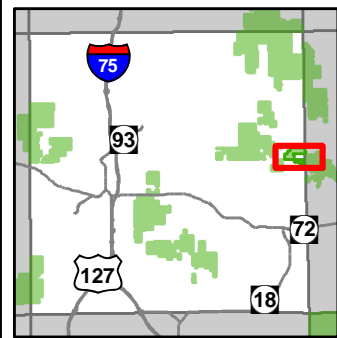
Compartment: 284
 T27N R01W 26-26, 36
 County: Crawford
 Unit: Grayling
 Mgmt Area: Kirtland's Warbler
 YOE: 2018
 Acres: 856 GIS Calculated
 Examiner: Paul Roell
 Map Revised: 3/9/2017
 Map Phase: Post-Review

- Miris Corners
- + Remonumented Section Corners
- ◇ Field Grade GPS Corners
- ✕ Gate
- ▲ Berms
- ▲ OFS Human Impact
- OFS Hydro
- OFS Other-Specify
- 🚶 Hiking Trails
- 🐎 Horse Trails
- 🚙 Snowmobile Trails
- Designated Hiking Trails
- Designated Equestrian Trails
- Designated Snowmobile Trails
- County Paved Roads
- Paved Roads
- County Gravel Roads
- Gravel Roads
- Poor Dirt Roads
- Streams
- Lakes and Rivers All
- Pipeline
- ⊕ Powerline
- ▭ Compartment Boundary
- ▭ Clearcut (w/Reserves)
- ▭ 413 - Aspen Types
- ▭ 419 - Mixed Upland Deciduous
- ▭ 421 - Planted Pines
- ▭ 422 - Natural Pines
- ▭ 611 - Lowland Deciduous Forest
- ▭ 612 - Lowland Coniferous Forest
- ▭ 310 - Herbaceous Openland
- ▭ 500 - Water
- ▭ 622 - Lowland Shrub
- ▭ Lakes

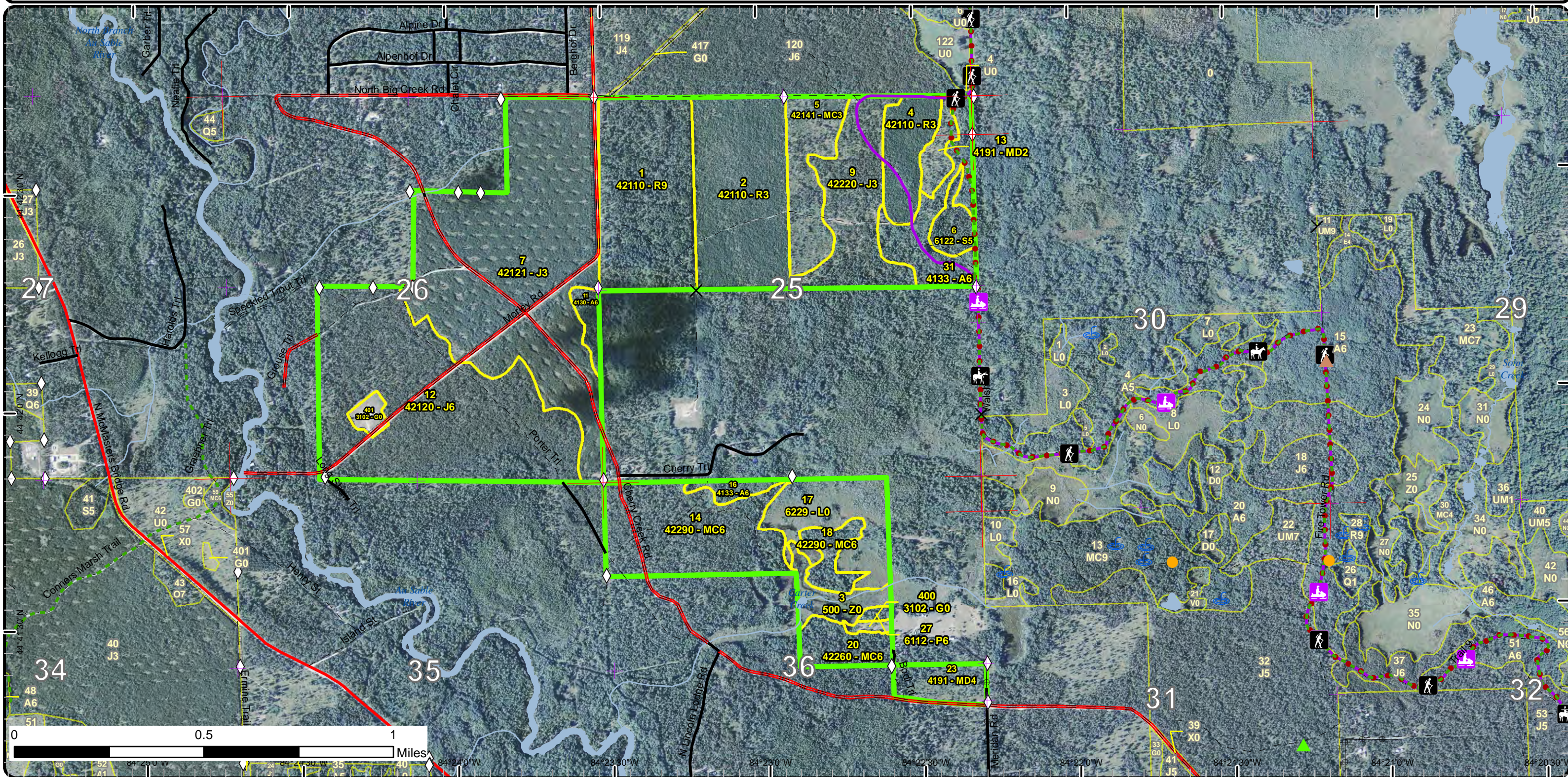


Stand Boundary Map

Compartment: 284
 T27N R01W 26-26, 36
 County: Crawford
 Unit: Grayling
 Mgmt Area: Kirtland's Warbler
 YOE: 2018
 Acres: 856 GIS Calculated
 Examiner: Paul Roell
 Map Revised: 3/9/2017
 Map Phase: Post-Review

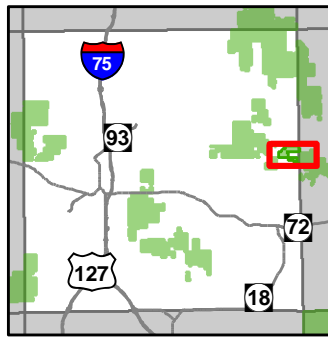


- Miris Corners
- + Remonumented Section Corners
- ◇ Field Grade GPS Corners
- X Gate
- ▲ Berms
- ▲ OFS Human Impact
- OFS Hydro
- OFS Other-Specify
- 🚶 Hiking Trails
- 🐎 Horse Trails
- 🚙 Snowmobile Trails
- - Designated Hiking Trails
- Designated Equestrian Trails
- Designated Snowmobile Trails
- County Paved Roads
- Paved Roads
- County Gravel Roads
- Gravel Roads
- - Poor Dirt Roads
- Streams
- Lakes and Rivers All
- Pipeline
- ⊕ Powerline
- ▭ Compartment Boundary
- ▭ Stand Boundaries
- 413 - Aspen Types
- 419 - Mixed Upland Deciduous
- 421 - Planted Pines
- 422 - Natural Pines
- 611 - Lowland Deciduous Forest
- 612 - Lowland Coniferous Forest
- 310 - Herbaceous Openland
- 500 - Water
- 622 - Lowland Shrub

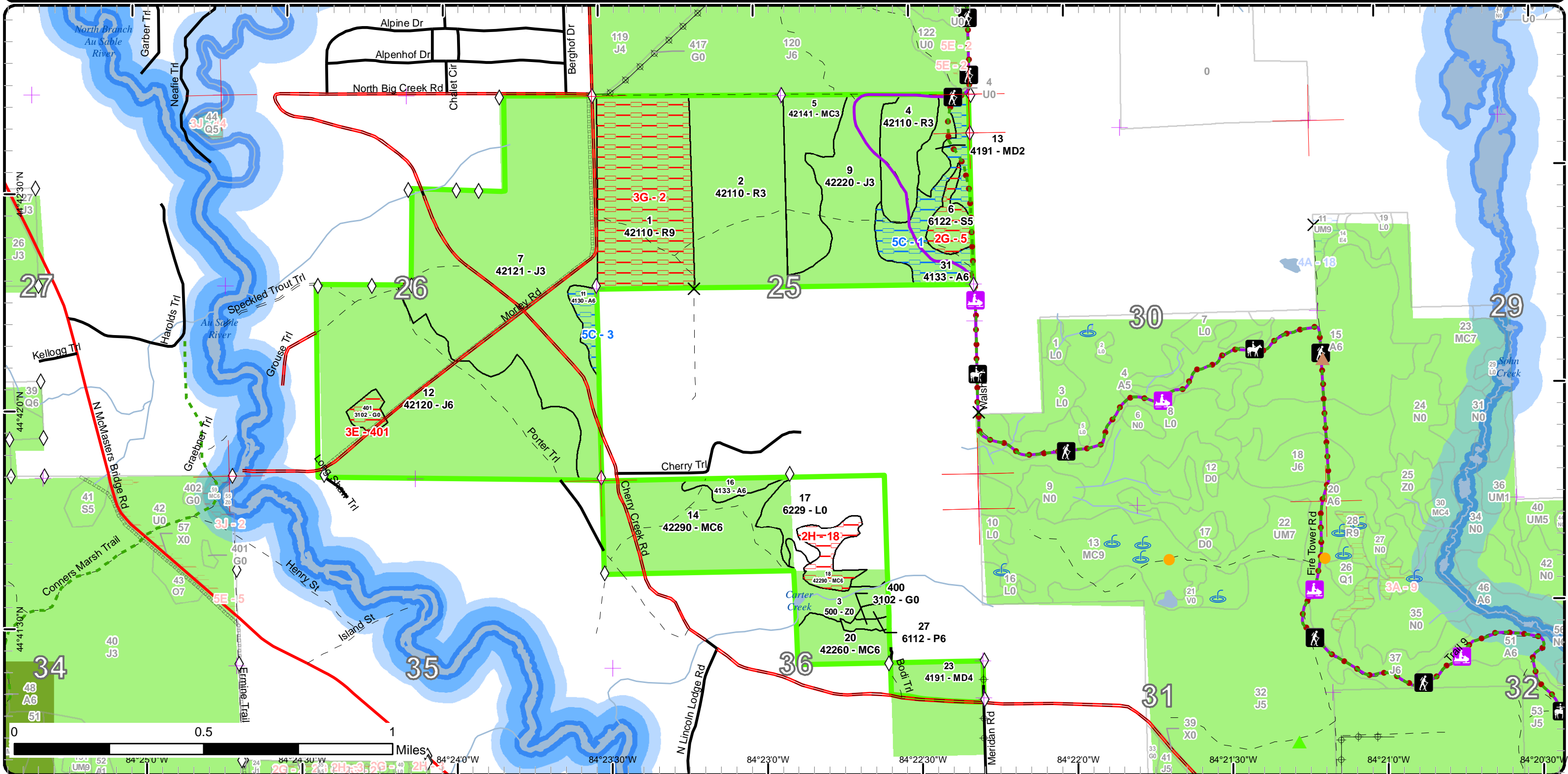


Special Conservation Areas & Site Conditions Map

Compartment: 284
 T27N R01W 26-26, 36
 County: Crawford
 Unit: Grayling
 Mgmt Area: Kirtland's Warbler
 YOE: 2018
 Acres: 856 GIS Calculated
 Examiner: Paul Roell
 Map Revised: 3/9/2017
 Map Phase: Post-Review



- Miris Corners
- Remonumented Section Corners
- ◇ Field Grade GPS Corners
- ✕ Gate
- ▲ Berms
- ▲ OFS Human Impact
- OFS Hydro
- OFS Other-Specify
- 🚶 Hiking Trails
- 🐎 Horse Trails
- 🛷 Snowmobile Trails
- Designated Hiking Trails
- Designated Equestrian Trails
- Designated Snowmobile Trails
- County Paved Roads
- Paved Roads
- County Gravel Roads
- Gravel Roads
- Poor Dirt Roads
- Streams
- Lakes and Rivers All
- Pipeline
- 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)
- 2H: Blocked by physical obstacle (e.g. upland stand in a lowland area)
- 3E: Easement / lease, non-military (e.g.- Consumers Power red pine, etc)
- 3G: Other Influence zones - See comments
- Stand Boundaries
- Natural Rivers Vegetative Buffer
- Natural Rivers Zoning District
- Kirtland Warbler Habitat
- Cold Water Streams
- Cold Water Lakes
- High Priority Trout Stream Buffer
- Wildlife Management Areas



Report 1 – Total Acres by Cover Type and Age Class



Age Class

	Non-Forest	0-9	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100-109	110-119	120-129	130-139	140-149	150+	Uneven-Aged	Total
Aspen	0	0	0	0	0	32	12	0	0	0	0	0	0	0	0	0	0	0	44
Herbaceous Openland	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
Jack Pine	0	0	0	192	52	159	0	0	0	0	0	0	0	0	0	0	0	0	403
Lowland Aspen/Balsam Poplar	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2
Lowland Shrub	39	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	39
Lowland Spruce/Fir	0	0	0	0	0	0	0	0	10	0	0	0	0	0	0	0	0	0	10
Mixed Upland Deciduous	0	0	9	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	25
Natural Mixed Pines	0	0	0	0	0	0	83	0	0	0	0	11	0	0	0	0	0	0	94
Planted Mixed Pines	0	0	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	33
Red Pine	0	0	0	104	0	0	0	0	0	82	0	0	0	0	0	0	0	0	186
Water	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14
Total	60	0	42	312	52	191	95	2	10	82	0	11	0	0	0	0	0	0	857



Report 2 – Treatment Summary

Grayling Mgt. Unit

Year of Entry: 2018

Acres of Harvest

Compartment 284

Total Compartment Acres: 856

Commercial Harvest - 89
 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	6	0	0	0	0	0	0	0	0	6
Natural Mixed Pines	83	0	0	0	0	0	0	0	0	83
Total	89	0	0	0	0	0	0	0	0	89

Proposed and Next Step Treatments by Method

	Harvest	Site Prep	Planting	Seeding	Burning	Pesticide	Monitoring	Other	Non-Forest Mgt.	Total Acres
Current	89	0	0	0	0	0	0	0	0	89
Next Step	0	166	83	0	0	83	172	0	0	504
Total	89	166	83	0	0	83	172	0	0	593



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
14 72284014-Cut	66.6	42290 - Natural Mixed Pine	Poletimber Well	54	81-110	Harvest	Clearcut with Retention	4211 - Planted Red Pine	Even-Aged	Draft Field Boundary

Habitat Cut: No

Site Condition:

Prescription Final harvest all trees with minimal area retention for visual management.

Specs:

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

Acceptable A fully stocked stand of pine.

Regen:

Other

Comment:

Proposed Start Date: 10/01/2017

16 72284016-Cut	5.7	4133 - Aspen, Mixed Pine	Poletimber Well	50	81-110	Harvest	Clearcut	413 - Aspen	Even-Aged	Draft Field Boundary
-----------------	-----	--------------------------	-----------------	----	--------	---------	----------	-------------	-----------	----------------------

Habitat Cut: No

Site Condition:

Prescription Final harvest all trees no retention and include drumming log spec.

Specs:

Next Step Monitoring, Natural Regen (Re-Inventory)

Treatments:

Acceptable Aspen mixed hardwood and softwood

Regen:

Other

Comment:

Proposed Start Date: 10/01/2017

20 72284020-Cut	16.5	42260 - Natural Pine, Mixed Deciduous	Poletimber Well	57	81-110	Harvest	Clearcut with Retention	4211 - Planted Red Pine	Even-Aged	Draft Field Boundary
-----------------	------	---------------------------------------	-----------------	----	--------	---------	-------------------------	-------------------------	-----------	----------------------

Habitat Cut: No

Site Condition:

Prescription Final harvest with retention focus retention on the east stand line along private. Harvest all trees 2" and up. Chipping spec to help with planting.

Specs:

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

Treatments: Artificial Regen(3yr)

Acceptable Planted red pine at adequate densities to ensure a fully stocked red pine plantation.

Regen:

Other

Comment:

Proposed Start Date: 10/01/2017

Total Treatment Acreage Proposed: 88.8

Report 4 – Site Conditions

Grayling Mgt. Unit
Paul Roell : Examiner

Compartment: 284
Year of Entry: 2018

Availability for Management

Total Acres	Acres Available	Acres Available With Condition	Acres Not Available
44	6	38	0

Dominant Site Conditions

	Total Acres	Acres Available	Acres Available With Condition	Acres Not Available	Dominant Site Conditions					
					5C	2G	2H	3E	3G	
44	6	6	38	0	38					
7	2	2	0	5				5		
402	402	402	0	0						
2	2	2	0	0						
39	39	39	0	0						
10	0	0	0	10		10				
24	24	24	0	0						
95	83	83	0	11			11			
33	33	33	0	0						
186	104	104	0	82						82
14	14	14	0	0						
856	710	710	38	108	38	10	11	5		82
	83%	83%	4%	13%						

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

Site No.	Dominant Site Cond Availability	Dominant Site Condition	Acres	Other Site Condition	Other Site Condition	Other Site Condition	Other Site Condition
1	Available	5C: Delay treatment for age/size class diversity or exceptional site quality	32	Unspecified	Unspecified	Unspecified	Unspecified
Comments: This stand should be managed when the surrounding stands are treated. The stand will have end up having three different harvest units in it because of the drainage within it. Could not fully map the drainage because of the snow.							
2	Unavailable	3G: Other Influence zones - See comments	82	Unspecified	Unspecified	Unspecified	Unspecified
Comments: Part of the KW management Block.							

Report 4 – Site Conditions

Grayling Mgt. Unit
Paul Roell : Examiner

Compartment: 284
Year of Entry: 2018

3	Available	5C: Delay treatment for age/size class diversity or exceptional site quality	7	Unspecified	Unspecified	Unspecified	Unspecified
Comments: Treat when the adjacent stands are managed.							
5	Unavailable	2G: Too wet (sensitive soils, does not include access issues)	10	Unspecified	Unspecified	Unspecified	Unspecified
Comments: Very wet stand has a drainage/creek flow into it and out through stand 31. There was too much snow during inventory to accurately map the creek.							
18	Unavailable	2H: Blocked by physical obstacle (e.g. upland stand in a lowland area)	11	Unspecified	Unspecified	Unspecified	Unspecified
Comments:							
401	Unavailable	3E: Easement / lease, non-military (e.g.- Consumers Power red pine, etc)	5	Unspecified	Unspecified	Unspecified	Unspecified
Comments:							



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
	Potential Old Growth		SCA Removal	4
Comments				
Part of the KW SCA				



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 Lake	A coldwater lake has temperature and dissolved oxygen conditions that allow naturally-reproduced or stocked trout populations and those of other coldwater fish species to persist from year to year. Suitable conditions for coldwater fishes may occur in Michigan lakes if they are relatively deep, have substantial groundwater inflows, or are located in colder (northern) areas of the state. Such lakes are established by Director's action and designated as trout resources by Fisheries Order 200.
SCA	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	Designated Critical Habitat	Critical habitat areas are established via a consultative and cooperative process between the DNR and the U.S. Fish and Wildlife service for the recovery of threatened and endangered species, as governed by Part 365, Endangered Species Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, and the Federal Endangered Species Act of 1973. This is an active program, with proposed species plans in various stages of review. As of now only two exist, Kirtland Warbler Habitat and Piping Plover Habitat.
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	42110 - Planted Red Pine	Sawtimber Well	81.8	86	111-140	Thinned spring of 2000 contract #006-98-01 Morley Cherry Pine. This stand is part of future expansion of KW management. Per approved variance of 2/29/08 it was decided to drop thinning prescription and hold stand until needed to cut it for KW mgt. Southern portion of the stand has a little higher BA.
2	42110 - Planted Red Pine	Sapling Well	80.3	25	Immature	
4	42110 - Planted Red Pine	Sapling Well	23.8	25	Immature	OPIC - FMD: Immature Red Pine plantation Planted in 1993 2-3ft tall and 1-2 inches in diameter.
5	42141 - Planted Mixed Pine, Mixed Deciduous	Sapling Well	33.1	12	Immature	Stand was cut in 99-01 under two contracts portions of the stand were planted to jack pine in 05. There are two different FTPs on file for this stand. Pervious treatment was to harvest all trees that have a 4 inch diameter at 100 inches. Stand had an FTP to be planted to red pine which didn't happen due to the post harvest residual.
6	6122 - Black Spruce	Poletimber Medium	9.7	76	Unspecified	Stream runs through the stand
7	42121 - Planted Jack Pine, Mixed Deciduous	Sapling Well	192.2	26	Immature	Traces of red maple and aspen
9	42220 - Natural Jack Pine	Sapling Well	51.6	36	Unspecified	Pervious treatment was to harvest all trees that have a 4 inch diameter at 100 inches. Stand had an FTP to be planted to red pine which didn't happen due to the post harvest residual.
11	4130 - Aspen	Poletimber Well	6.6	51	51-80	
12	42120 - Planted Jack Pine	Poletimber Well	158.7	45	Unspecified	Kirtlands Warbler Management
13	4191 - Mixed Upland Deciduous with Conifer	Sapling Medium	9.0	18	Immature	Pervious treatment was to harvest all trees that have a 4 inch diameter at 100 inches. Stand had an FTP to be planted to red pine which didn't happen due to the post harvest residual.
14	42290 - Natural Mixed Pine	Poletimber Well	66.6	54	81-110	Driveway easements were granted along existing trail road in stad 14 (NWNW sec 36) across state land from Cherry Creek Road to private - see L-8661 Porter 1998 and L10136 Burroughs 2010.
16	4133 - Aspen, Mixed Pine	Poletimber Well	5.7	50	81-110	.
18	42290 - Natural Mixed Pine	Poletimber Well	11.4	101	1-50	

S
t
a
n
d

Grayling Mgt. Unit

Report 7 – Forested Stands

Compartment: 284
Year of Entry: 2018

	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
20	42260 - Natural Pine, Mixed Deciduous	Poletimber Well	16.5	57	81-110	Stand borders swamp in the north and private land to the east, west and south. Large super canopy Red Pine are scattered throughout the stand. Density varies throughout the stand ranging from 20-160. Aspen is found in small pockets throughout the stand. Jack pine and oak appear to be declining.
23	4191 - Mixed Upland Deciduous with Conifer	Poletimber Poor	15.5	28	1-50	This stand is designated for disposal. OPIC - FMD: 2006 Notes: Stand was part of stand 15(24) in previous inventory. Since inventory, stand was cut and all trees under 4 inches were left (mostly Jack Pine). Stand was suppose to be replanted along with stand 14(now 22) and was not planted. This stand is possibly in trade for another parcel of land to consoldate state land. Recommend doing nothing at this time. 2000 Notes:LEAVE RP AND RESIDUAL UNDER 4 INCHES. REPLANT WITH STD 14. Jack pine and aspen was cut spring 2000 contract #006-98-01 Morley Cherry Pine. FTP C72-438 was sent in to plant RP in stand 15 and stand 14.
27	6112 - Lowland Aspen	Poletimber Well	1.9	66	51-80	
31	4133 - Aspen, Mixed Pine	Poletimber Well	31.8	49	Unspecified	



Stand	Cover Type	Acres	Managed Site	General Comments:
3	500 - Water	14.0	No	Lowland Brush and Tag Alder, Swamp grasses and water. Some large diameter Aspen borders the swamp some tamarack and spruce along the north edge.
17	6229 - Mixed lowland shrub	39.2	No	Lowland Brush and Tag Alder, Swamp grasses and water. Some large diameter Aspen borders the swamp some tamarack and spruce along the north edge.
400	3102 - Grass	2.3	No	
401	3102 - Grass	4.8	No	OPIC - FMD: Oil/Gas well site. Grass with a well head on it.