



Compartment Review Presentation

Grayling Forest Management Unit

Compartment 72179

Entry Year 2021

Acreage: 1,386

County Crawford

Management Area: Kirtland's Warbler

Revision Date: 2019-07-03

Stand Examiner: Scott McClarren

Legal Description:

(South Fredric Township) T27N, R04W, Sections 28, 29, and 30

Identified Planning Goals:

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

Soil and topography:

Terrain is level to slightly rolling. Soils consist of primarily Grayling sands. This soil is excessively drained with a low water-holding capacity.

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

This compartment is comprised of primarily State owned lands with private parcels along the Manistee River Corridor. The majority of state ownership is under the 1935 long-term lease agreement L-1479 (Act 154 P.A. 1935) with the Michigan National Guard, Department of Military and Veteran Affairs.

Unique Natural Features:

The Manistee River is a designated "Natural River". There is potential for dry prairie plants in grassy openings: Hill's thistle, rough fescue, Alleghany plum, and pale agoseris. There is potential for several animals of concern in this compartment: Kirtland's warbler, prairie warbler, secretive locust, dusted skipper, grizzled skipper, and the red-legged spittle bug.

Archeological, Historical, and Cultural Features:

None known at this time.

Special Management Designations or Considerations:

Compartment 179 is the Goose Creek Kirtland's Warbler Management Area. The Manistee River a designated "Natural River" can be found within this compartment. These areas are designated High Conservation Value Areas (HCVA).

Watershed and Fisheries Considerations:

This compartment is in Central Lake Michigan Management Unit.

Wildlife Habitat Considerations:

Kirtland's warbler and prairie warbler could occur in the young jack pine. Along the lakes and streams there may be eagles, osprey, and great blue heron rookeries. There is potential for dusted skipper, grizzled skipper, and red-legged spittle bug to occur in grassy openings. Secretive locust may occur in bog habitat and surrounding uplands. Blanding's turtle, wood turtle, and massasauga rattle snake have potential to be found along the water ways.

Mineral Resource and Development Concerns and/or Restrictions

No active sand/gravel pits exist in the area, but there is good sand & gravel potential in the eastern portion of the compartment. There is no current or past oil & gas production in the area, and no test wells have been drilled within two miles. The compartment is not currently leased but was leased in the recent past by Encana during their pursuit of the Collingwood and then by Marathon as they hoped to develop the Richfield. Neither company did any development in this area. The compartment is well south of the Antrim Shale gas play and northern Niagaran reef trend. Oil & gas potential within the compartment is considered low at this time. There is no known metallic mineral potential in this part of the state.

Vehicle Access:

Access to the compartment is excellent by way of county and forest roads.

Survey Needs:

None at this time.

Recreational Facilities and Opportunities:

Dispersed recreation occurs throughout. Portions of the Fredric ORV Trail as wells Snowmobile Trail # 79 (Frederic Route) traverse the compartment.

Fire Protection:

There is potential for extreme fire behavior due to fuel types. County roads and the Manistee River should provide adequate fuel breaks for fire of moderate to lower intensity. The Howes Lake Fire burned through a large portion of the compartment in 2011.

Additional Compartment Information:**The following reports from the Inventory are attached:**

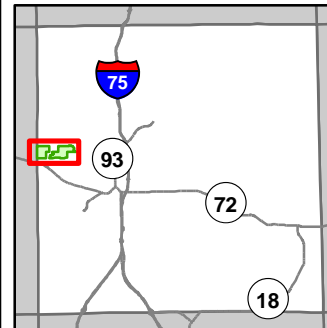
- Total Acres by Cover Type and Age Class**
- Cover Type by Harvest Method**
- Proposed Treatments – No Limiting Factors**
- Proposed Treatments – With Limiting Factors**
- Stand Details (Forested and Nonforested)**
- Dedicated and Proposed Special Conservation Areas**
- Site Condition Details**

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

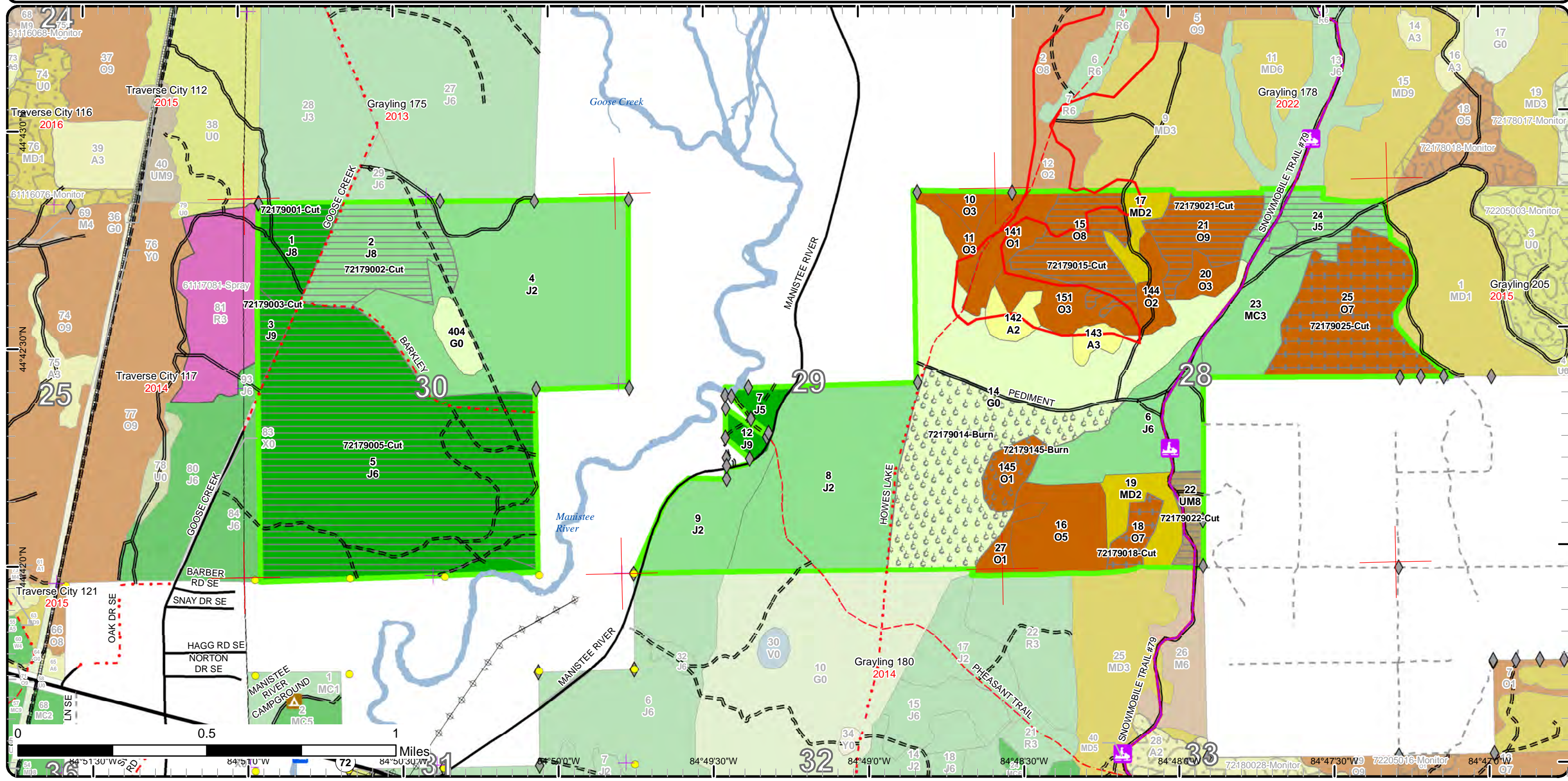
- Base feature information, stand boundaries, cover types, and numbers**
- Proposed treatments**
- Site condition boundaries**
- Details on the road access system**

Cover Type & Treatments Map

Compartment: 179
 T27N, R04W, Sec. 28-30
 County: Crawford
 Unit: Grayling
 Mgmt Area: Kirtland's Warbler
 YOE: 2021
 Acres: 1,386 GIS Calculated
 Examiner: Scott McClarren
 Map Revised: 12/9/2019
 Map Phase: Post-Review



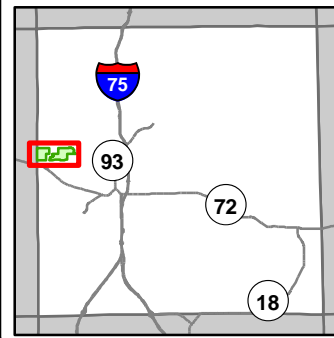
- Miris Corners
- Remonumented Section Corners
- Survey Grade Corners
- Field Grade Corners
- Counties
- DNR - Secondary Forest Road
- DNR - Forest Access Route
- Federal / State Highway
- Federal / State / County - Paved Road
- County - Gravel Road
- County - Dirt Road (Seasonal)
- Private - Dirt / Gravel Road
- ORV Routes
- Snowmobile Trails
- Designated ATV
- Designated ORV Route
- Designated Snowmobile Trails
- Boating Access Site
- Campground
- Island in Lake or River
- Perennial River
- Lakes and Rivers
- Pipeline
- Powerline
- Compartment Boundary
- Clearcut (w/Reserves)
- Harvest, Overstory Removal
- Prescribed Burn
- 412 - Oak Types
- 413 - Aspen
- 419 - Mixed Upland Deciduous
- 421 - Planted Pines
- 422 - Natural Pines
- 430 - Upland Mixed Forest
- 310 - Herbaceous Openland



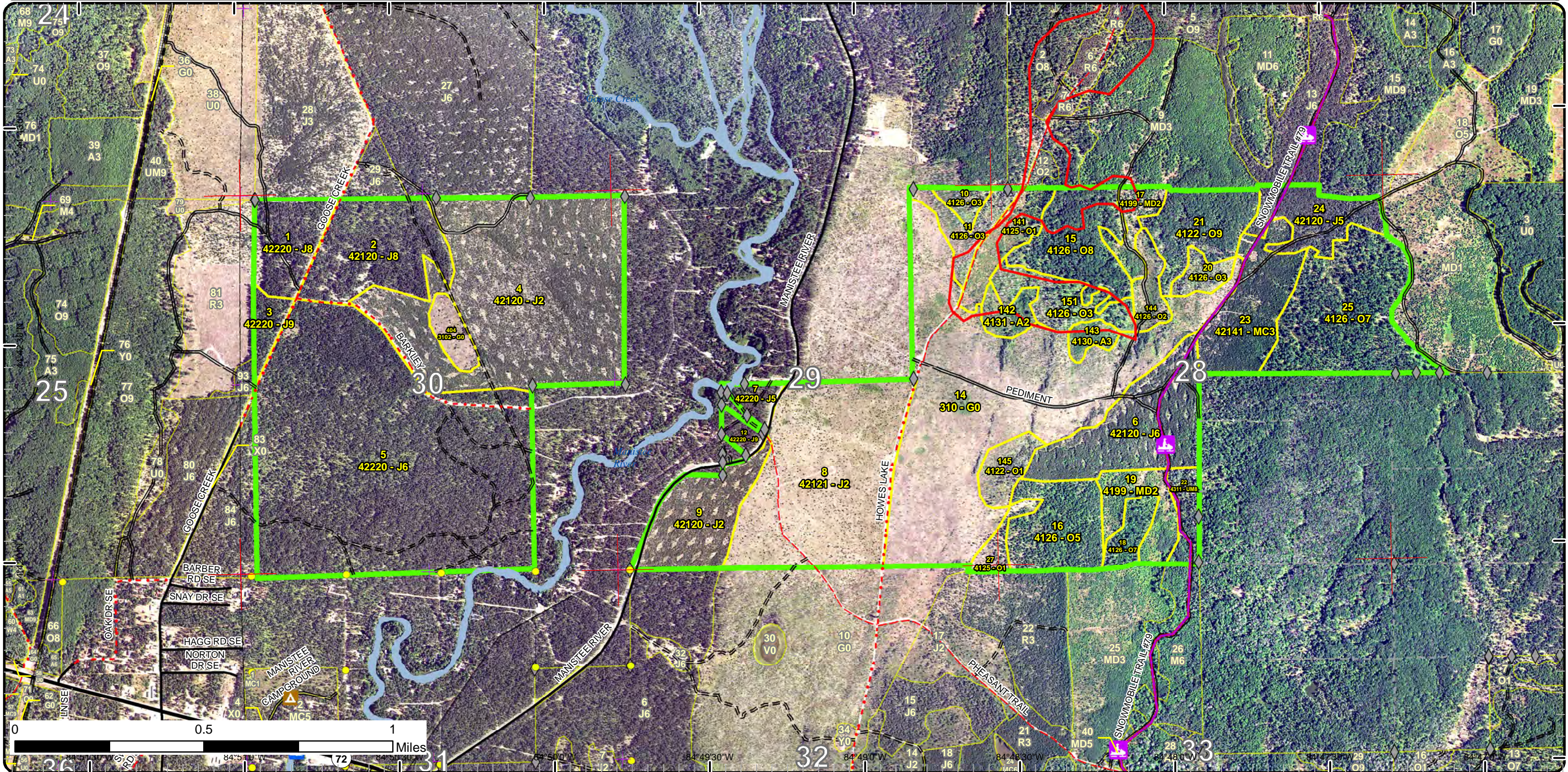
Map coordinates: 44°42'30"N, 44°42'00"N, 44°41'30"N, 84°51'30"W, 84°51'00"W, 84°50'30"W, 84°49'30"W, 84°49'00"W, 84°48'30"W, 84°48'00"W

Stand Boundary Map

Compartment: 179
 T27N, R04W, Sec. 28-30
 County: Crawford
 Unit: Grayling
 Mgmt Area: Kirtland's Warbler
 YOE: 2021
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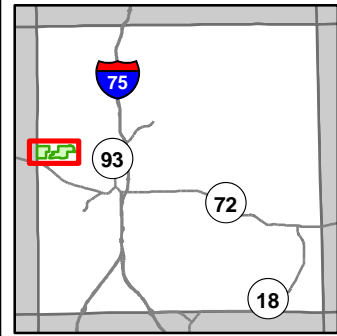


- Miris Corners
- + Remonumented Section Corners
- Survey Grade Corners
- ◆ Field Grade Corners
- Counties
- DNR - Secondary Forest Road
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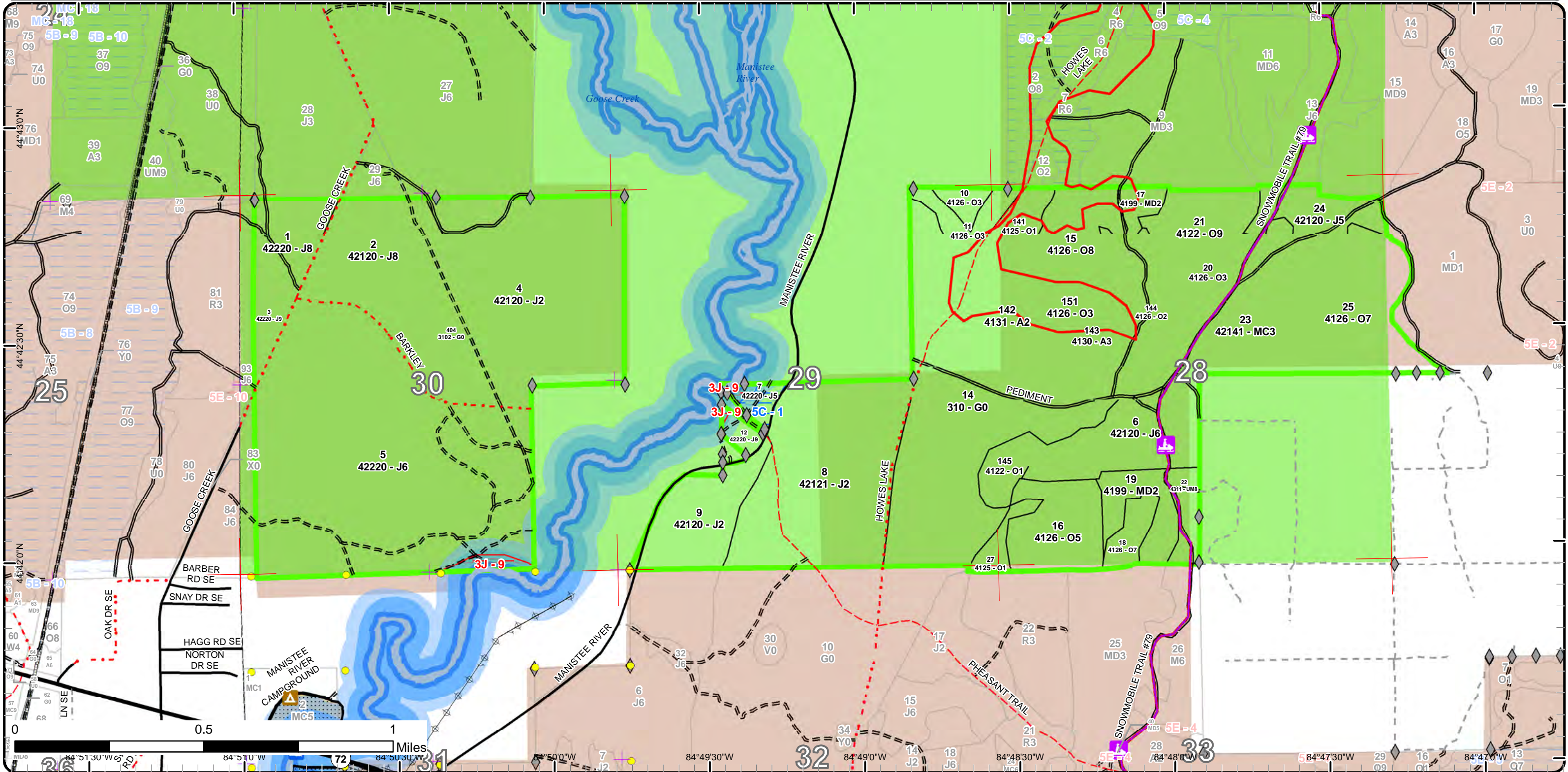


Special Conservation Areas

Compartment: 179
 T27N, R04W, Sec. 28-30
 County: Crawford
 Unit: Grayling
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- Miris Corners
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- DNR - Secondary Forest Road
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- County - Gravel Road
- County - Dirt Road (Seasonal)
- Private - Dirt / Gravel Road
- ORV Routes
- Snowmobile Trails
- Designated ATV
- Designated ORV Route
- Designated Snowmobile Trails
- Boating Access Site
- Campground
- Island in Lake or River
- Perennial River
- Lakes and Rivers
- Pipeline
- Powerline
- Compartment Boundary
- Available w/ Constraints
- Unavailable
- Stand Boundaries
- SCA
- Natural Rivers Vegetative Buffer
- Natural Rivers Zoning District
- Kirtland Warbler Habitat
- Cold Water Streams
- Cold Water Lakes
- High Priority Trout Stream Buffer
- Research, Development, and Military Lands
- State Forest Campground



Report 1 – Total Acres by Cover Type and Age Class

Grayling Mgt. Unit
 Scott McClarren : Examiner

Compartment 179 Year of Entry 2021



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	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15
Herbaceous Openland	204	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	204
Jack Pine	0	118	0	211	0	331	0	68	62	0	0	0	0	0	0	0	0	0	790
Mixed Upland Deciduous	0	0	32	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	32
Oak	0	94	0	0	44	0	0	0	0	0	155	0	0	0	0	0	0	0	293
Planted Mixed Pines	0	0	0	41	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41
Upland Mixed Forest	0	0	0	0	0	0	0	11	0	0	0	0	0	0	0	0	0	0	11
Total	204	227	32	252	44	331	0	68	73	0	155	0	0	0	0	0	0	0	1386



Report 2 – Treatment Summary

Grayling Mgt. Unit

Year of Entry: 2021

Acres of Harvest

Compartment 179

Total Compartment Acres: 1,386

Commercial Harvest - 553
 Harvests with Site Condition - 0
 Next Step Harvest - 0
 Habitat Cut - 0

Cover Type by Harvest Method

	Clearcut	Selection	Patch Clearcut	Seed Tree	Shelterwood	Thinning	Overstory Removal	Salvage	Other	Total Acres
Jack Pine	387	0	0	0	0	0	0	0	0	387
Oak	71	0	0	0	0	84	0	0	0	155
Upland Mixed Forest	11	0	0	0	0	0	0	0	0	11
Total	469	0	0	0	0	84	0	0	0	553

Proposed and Next Step Treatments by Method

	Harvest	Site Prep	Planting	Seeding	Burning	Pesticide	Monitoring	Other	Non-Forest Mgt.	Total Acres
Current	553	0	0	0	108	0	0	0	0	661
Next Step	0	1106	553	0	0	553	1767	193	0	4172
Total	553	1106	553	0	108	553	1767	193	0	4833



Stand	Treatment Name	Acres	Stand CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Age Structure	Habitat Cut
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Approved Treatments:

1	72179001-Cut	27.5	42220 - Natural Jack Pine	Sawtimber Medium	69	111- 140	Harvest	Clearcut with Retention	42220 - Natural Jack Pine	Even-Aged	No
<p><u>Prescription</u> KW clear cut with retention. Add some retention in the form of vortex strips. Leave tops and limbs for cones. Scarify for natural regen.</p> <p><u>Specs:</u></p> <p><u>Next Step</u> Monitoring, Natural Regen (Intermediate); SitePrep, Scarification; SitePrep, Trenching; Pesticide, Aerial - Site Prep; Planting, Initial</p> <p><u>Treatments:</u> Plant; Monitoring, Artificial Regen(1yr); Monitoring, Artificial Regen(3yr)</p> <p><u>Acceptable</u> Jack pine and red pine are desired species. Any combination of the two that meet minimum stocking for KW habitat will be acceptable. If</p> <p><u>Regen:</u> natural regen fails, site prep as needed and plant a mix of jack pine (75%) and red pine (25%).</p> <p><u>Other</u></p> <p><u>Comment:</u></p> <p><u>Site Condition</u></p> <p><u>Proposed Start Date:</u> 10/1 /2020</p>											
2	72179002-Cut	53.0	42120 - Planted Jack Pine	Sawtimber Medium	75	81-110	Harvest	Clearcut with Retention	4222 - Natural Jack Pine	Even-Aged	No
<p><u>Prescription</u> KW clear cut with retention. Add some retention in the form of vortex strips. Leave tops and limbs for cones. Scarify for natural regen.</p> <p><u>Specs:</u></p> <p><u>Next Step</u> Monitoring, Natural Regen (Intermediate); SitePrep, Scarification; SitePrep, Trenching; Pesticide, Aerial - Site Prep; Planting, Initial</p> <p><u>Treatments:</u> Plant; Monitoring, Artificial Regen(1yr); Monitoring, Artificial Regen(3yr)</p> <p><u>Acceptable</u> Jack pine and red pine are desired species. Any combination of the two that meet minimum stocking for KW habitat will be acceptable. If</p> <p><u>Regen:</u> natural regen fails, site prep as needed and plant a mix of jack pine (75%) and red pine (25%).</p> <p><u>Other</u></p> <p><u>Comment:</u></p> <p><u>Site Condition</u></p> <p><u>Proposed Start Date:</u> 10/1 /2020</p>											
3	72179003-Cut	9.2	42220 - Natural Jack Pine	Sawtimber Well	75	51-80	Harvest	Clearcut	4222 - Natural Jack Pine	Even-Aged	No
<p><u>Prescription</u> Clearcut no retention due to size. Leave tops and limbs for cones. Scarify for natural regen.</p> <p><u>Specs:</u></p> <p><u>Next Step</u> Monitoring, Natural Regen (Intermediate); SitePrep, Scarification; SitePrep, Trenching; Pesticide, Aerial - Site Prep; Planting, Initial</p> <p><u>Treatments:</u> Plant; Monitoring, Artificial Regen(1yr); Monitoring, Artificial Regen(3yr)</p> <p><u>Acceptable</u> Jack pine and red pine are desired species. Any combination of the two that meet minimum stocking for KW habitat will be acceptable. If</p> <p><u>Regen:</u> natural regen fails, site prep as needed and plant a mix of jack pine (75%) and red pine (25%).</p> <p><u>Other</u></p> <p><u>Comment:</u></p> <p><u>Site Condition</u></p> <p><u>Proposed Start Date:</u> 10/1 /2020</p>											



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Treatment Name	Acres	Stand CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Age Structure	Habitat Cut
5 72179005-Cut	269.9	42220 - Natural Jack Pine	Poletimber Well	40	51-80	Harvest	Clearcut with Retention	4222 - Natural Jack Pine	Even-Aged	No
<p><u>Prescription</u> KW clear cut with retention. Add some retention in the form of vortex strips. Leave tops and limbs for cones. Scarify for natural regen.</p> <p><u>Specs:</u></p> <p><u>Next Step</u> Monitoring, Natural Regen (Intermediate); SitePrep, Scarification; SitePrep, Trenching; Pesticide, Aerial - Site Prep; Planting, Initial</p> <p><u>Treatments:</u> Plant; Monitoring, Artificial Regen(1yr); Monitoring, Artificial Regen(3yr)</p> <p><u>Acceptable Regen:</u> Jack pine is the desired species. Must meet minimum stocking for KW habitat. If natural regen fails, site prep as needed and plant jack pine.</p> <p><u>Other Comment:</u> Note to Sale Administrator: Once timber sale is opened, initiate road closure proposal. Road closure should be completed through harvest operations.</p> <p><u>Site Condition</u></p> <p><u>Proposed Start Date:</u> 10/1 /2020</p>										
14 72179014-Burn	95.7	310 - Herbaceous Openland	Nonstocked	0	Unspecified	Burn	Opening	310 - Herbaceous Openland		No
<p><u>Prescription</u> Burn periodically for ecosystem restoration and maintenance.</p> <p><u>Specs:</u></p> <p><u>Next Step</u> Monitoring, Prescribed Burn</p> <p><u>Treatments:</u></p> <p><u>Acceptable Regen:</u> Dry sand prairie natural community characteristics</p> <p><u>Other Comment:</u></p> <p><u>Site Condition</u></p> <p><u>Proposed Start Date:</u> 4 /12/2019</p>										
15 72179015-Cut	38.9	4126 - White, Black, N. Pin Oak	Sawtimber Medium	92	51-80	Harvest	Clearcut with Retention	412 - Oak Types	Even-Aged	No
<p><u>Prescription</u> Clearcut with retention. Place retention islands around pockets of white pine regen. Add military specs and oak wilt specs. Add trail specs.</p> <p><u>Specs:</u></p> <p><u>Next Step</u> Monitoring, Natural Regen (Re-Inventory); SitePrep, Roller Chopping; SitePrep, Trenching; Pesticide, Aerial - Site Prep; Planting, Initial</p> <p><u>Treatments:</u> Plant; Monitoring, Artificial Regen(1yr); Monitoring, Artificial Regen(3yr); Other, Pre-Commercial Thi</p> <p><u>Acceptable Regen:</u> Oak is the desired species. Maple, aspen, and white pine are also acceptable. If stand fails to meet minimum stocking for oak, site prep as needed and plant red pine.</p> <p><u>Other Comment:</u></p> <p><u>Site Condition</u></p> <p><u>Proposed Start Date:</u> 10/1 /2020</p>										
18 72179018-Cut	10.5	4126 - White, Black, N. Pin Oak	Sawtimber Poor	91	1-50	Harvest	Overstory Removal	412 - Oak Types	Even-Aged	No
<p><u>Prescription</u> Remove all merchantable stems. Protect advanced oak regen. No retention due to size and health of oak overstory. Add military and oak wilt</p> <p><u>Specs:</u> specs.</p> <p><u>Next Step</u> Monitoring, Natural Regen (Re-Inventory); SitePrep, Roller Chopping; SitePrep, Trenching; Pesticide, Aerial - Site Prep; Planting, Initial</p> <p><u>Treatments:</u> Plant; Monitoring, Artificial Regen(1yr); Monitoring, Artificial Regen(3yr); Other, Pre-Commercial Thi</p> <p><u>Acceptable Regen:</u> Fully stocked oak. Other acceptable species are any mix of aspen, maple and pine. If stand fails to meet minimum stocking for oak, site prep and plant red pine.</p> <p><u>Other Comment:</u></p> <p><u>Site Condition</u></p> <p><u>Proposed Start Date:</u> 10/1 /2020</p>										



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Treatment Name	Acres	Stand CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Age Structure	Habitat Cut
21 72179021-Cut	31.7	4122 - Oak, Pine	Sawtimber Well	91	81-110	Harvest	Clearcut with Retention	412 - Oak Types	Even-Aged	No
<p><u>Prescription</u> Clearcut using standard island retention around pockets of white pine regen. Add oak wilt specs and military specs. <u>Specs:</u></p> <p><u>Next Step</u> Monitoring, Natural Regen (Re-Inventary); SitePrep, Roller Chopping; SitePrep, Trenching; Pesticide, Aerial - Site Prep; Planting, Initial <u>Treatments:</u> Plant; Monitoring, Artificial Regen(1yr); Monitoring, Artificial Regen(3yr); Other, Pre-Commercial Thi</p> <p><u>Acceptable</u> Fully stocked oak. Aspen, maple, and pine can make up the remainder of species composition. If stand fails to meet minimum stocking, site <u>Regen:</u> prep and plant red pine.</p> <p><u>Other</u> <u>Comment:</u></p> <p><u>Site Condition</u></p> <p><u>Proposed Start Date:</u> 10/1 /2020</p>										
22 72179022-Cut	11.3	4311 - Pine, Aspen Mix	Sawtimber Medium	74	51-80	Harvest	Clearcut	413 - Aspen	Even-Aged	No
<p><u>Prescription</u> Clearcut no retention. Add military specs. Add trail specs. <u>Specs:</u></p> <p><u>Next Step</u> Monitoring, Natural Regen (Re-Inventary); SitePrep, Roller Chopping; SitePrep, Trenching; Pesticide, Skidder - Site Prep; Planting, <u>Treatments:</u> Initial Plant; Monitoring, Artificial Regen(1yr); Monitoring, Artificial Regen(3yr); Other, Pre-Commercial Th</p> <p><u>Acceptable</u> Fully stocked aspen. Oak, pine, and maple are also acceptable species. A couple of poorly stocked openings mixed in are expected and <u>Regen:</u> acceptable. If stand fails to meet minimum stocking for aspen, site prep and plant red pine.</p> <p><u>Other</u> <u>Comment:</u></p> <p><u>Site Condition</u></p> <p><u>Proposed Start Date:</u> 10/1 /2020</p>										
24 72179024-Cut	27.4	42120 - Planted Jack Pine	Poletimber Medium	62	51-80	Harvest	Clearcut with Retention	4222 - Natural Jack Pine	Even-Aged	No
<p><u>Prescription</u> Clearcut with standard retention. Harvest with adjacent stand 13 of comp 178 to the north. Add Trail Specs. <u>Specs:</u></p> <p><u>Next Step</u> Monitoring, Natural Regen (Re-Inventary); SitePrep, Roller Chopping; SitePrep, Trenching; Pesticide, Aerial - Site Prep; Planting, Initial <u>Treatments:</u> Plant; Monitoring, Artificial Regen(1yr); Monitoring, Artificial Regen(3yr); Other, Pre-Commercial Thi</p> <p><u>Acceptable</u> Fully stocked jack pine. Oak and maple are also acceptable. If stand fails to meet minimum stocking for jack pine, site prep as needed and <u>Regen:</u> plant red pine.</p> <p><u>Other</u> <u>Comment:</u></p> <p><u>Site Condition</u></p> <p><u>Proposed Start Date:</u> 10/1 /2020</p>										
25 72179025-Cut	73.5	4126 - White, Black, N. Pin Oak	Sawtimber Poor	90	1-50	Harvest	Overstory Removal	4122 - Oak, Pine	Even-Aged	No
<p><u>Prescription</u> Overstory removal. Remove all merchantable stems. Protect red pine and oak advanced regen. Put a 1 chain no harvest buffer around stick <u>Specs:</u> nest. If its found to be an active nest during layout, buffer accordingly. Add goshawk spec in case nest is found to be active prior to or during harvest. Add military specs and oak wilt spec.</p> <p><u>Next Step</u> Monitoring, Natural Regen (Re-Inventary); SitePrep, Roller Chopping; SitePrep, Trenching; Pesticide, Aerial - Site Prep; Planting, Initial <u>Treatments:</u> Plant; Monitoring, Artificial Regen(1yr); Monitoring, Artificial Regen(3yr); Other, Pre-Commercial Thi</p> <p><u>Acceptable</u> Oak and red pine are desired. To consider regeneration successful, must have 60% oak and red pine. The rest of the regen can consist of <u>Regen:</u> any combination of white pine, jack pine, aspen, or maple. If stand fails to meet minimum stocking for oak-pine, site prep and plant red pine.</p> <p><u>Other</u> <u>Comment:</u></p> <p><u>Site Condition</u></p> <p><u>Proposed Start Date:</u> 10/1 /2020</p>										



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Treatment Name	Acres	Stand CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Age Structure	Habitat Cut
145 72179145-Burn	12.6	4122 - Oak, Pine	Sapling Poor	8	Immature	Burn	Opening	310 - Herbaceous Openland		No
<p><u>Prescription</u> Burn periodically for ecosystem restoration and maintenance.</p> <p><u>Specs:</u></p> <p><u>Next Step</u> Monitoring, Prescribed Burn</p> <p><u>Treatments:</u></p> <p><u>Acceptable</u> Dry sand prairie natural community characteristics.</p> <p><u>Regen:</u></p> <p><u>Other</u></p> <p><u>Comment:</u></p> <p><u>Site Condition</u></p> <p><u>Proposed Start Date:</u> 10/1 /2020</p>										

Total Treatment 661.2
Acres Proposed:

Report 4 – Site Conditions

Grayling Mgt. Unit
Scott McClarren : Examiner

Compartment: 179
Year of Entry: 2021

Availability for Management

Total Acres	Acres Available	Acres Avail		Dominant Site Conditions	Dominant Site Conditions		
		With Condition	Not Available		5C	3J	5E
15	15	0	0	Aspen			
204	204	0	0	Herbaceous Openland			
790	778	5	7	Jack Pine	5	7	0
32	32	0	0	Mixed Upland Deciduous			
291	291	0	0	Oak			
41	41	0	0	Planted Mixed Pines			
11	11	0	0	Upland Mixed Forest			
1,386	1,373	5	7	Total Forested Acres	5	7	0
	99%	0%	1%	Relative Percent			

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

Site No.	Dominant Site Cond Availability	Dominant Site Condition	Acres	Other Site Condition	Other Site Condition	Other Site Condition	Other Site Condition
1	Available	5C: Delay treatment for age/size class diversity or exceptional site quality	5	Unspecified	Unspecified	Unspecified	Unspecified
Comments:							
9	Unavailable	3J: Water quality / BMPs (stream, river, or lake)	7	Unspecified	Unspecified	Unspecified	Unspecified
Comments: Manistee River, Natural River buffer.							

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 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	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	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.



Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	Managed Site	General Comments																											
1	42220 - Natural Jack Pine	Sawtimber Medium	27.5	69	111-140	N/A	Red pine rows are not apparent in most places. Gets more open and heavier jack towards the north. Similar composition to stand 2.																											
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2	42120 - Planted Jack Pine	Sawtimber Medium	53.0	75	81-110	N/A	CCC era red pine/jack pine plantation that has never been thinned. Red pine dominates the canopy in the southeast. Estimate the site index to be mid 40's. The west side of stand has 40 year old planted jack pine 6" that looks like it may have been interplanted in openings. Some openings with jack pine saplings. Northeast appears to be natural jack pine around 80 years old.																											
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3	42220 - Natural Jack Pine	Sawtimber Well	9.2	75	51-80	N/A	Changed stand age feom 61 to 75. New red pine/jack pine plantation adjacent on Kalkaska side.																											
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4	42120 - Planted Jack Pine	Sapling Medium	171.1	20	Immature	N/A	West side of p'abitation is more open than the east. Old comment- (Stand swapped from Non-Forested to Forested. Planted jack pine about 5' tall. Not as much oak as the other stand along Manistee and Howe road. Traces of oak and cherry. A few snags left standing. Nine acres of plantation were burned during a wildfire event.)																											
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5	42220 - Natural Jack Pine	Poletimber Well	274.5	40	51-80	N/A	Changed from 2 aged to even age. Scattered jack pine cored at 73 years old comprise 10-20% of the canopy. Most are around 40 years old currently. Scattered legacy red pine found (very wofly form). West side of stand more open canopy cover (50%-75%) Old comments- (Typical poor quality jp stand except for the lack of oak. Scattered wofly rp. Cherry present in the understory in the open areas. Patchy w/ u-types and J3 areas. Illegal ORV activity present through out stand.)																											
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6	42120 - Planted Jack Pine	Poletimber Well	56.9	40	1-50	N/A	Stand reached pole sized overall, still a lot of saplings mixed in. Plowline from howes lake fire cuts through northwest side of stand with charred jack pine. ATV/ORV trail splits stand. Old comments- (Jack pine plantation, planted to warbler weave. Maybe a handful of merchantable jp. 15-20' tall. Some scattered oak and cherry brush. Browse evident.)																											
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7	42220 - Natural Jack Pine	Poletimber Medium	7.4	60	51-80	N/A	<p>Small stand wedged between private property and the manistee river. Part of stand falls in natural river buffer. Consumers powerline ROW cuts through stand as well. Property corners have been surveyed. some white pine in understory (medium towards the river and low to trace near the road). Expect considerable jack pine mortality in the next 10-20 years.</p> <p>Old comments- (3' of snow. 44 (core) age class seemed to be the best representatives. Pockets of older and younger stuff present. Oak is declining. Typical understory. Driveway t-pass area.)</p>																												
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8	42121 - Planted Jack Pine, Mixed Deciduous	Sapling Medium	118.0	5	Immature	N/A	<p>Stand has some lowland kettle formations too small to map on the north side. Old comments- (Part of Manistee River KW block #38. Was occupied habitat before being burned in the 2011 Howes Lake Road wildfire. Variance was requested by WLD and approved in 2014 to re-plant this portion. Was re-trenched and most of the stand was planted in 2014 (W72-750). The roughly 30 remaining acres were planted in 2015. Passed Yr 1 regen survey with 1,033 JP and 154 BC/O per acre. Yr 3 regen survey found 1096 JP & 183 Oak per acre. Below the 1,200 min JP/acre for KW habitat, but passes in combination with the oak. FTP complete.)</p>																												
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9	42120 - Planted Jack Pine	Sapling Medium	39.6	20	Immature	N/A	<p>Changed canopy cover to 50-75%. Small sliver of private property on north side of stand. Old comments- (Stand swapped from Non-Forested to Forested. JP plantation about 5' tall. Scattered oak stump sprouts and cherry brush. Some cherry brush is actually twice as tall as the oak and pine. I do not suspect it will ever be merchantable.)</p>																												
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10	4126 - White, Black, N. Pin Oak	Sapling Well	5.9	8	1-50	N/A	<p>Howes Lake Fire burned through stand killing overstory. There is a very heavy loading of down dead oak and standing oak snags. Fully stocked oak with a component of big toothed aspen has regenerated and is now mostly above browse height. Some oak and pine in northeast survived, but not enough to delineate. Old comments- (The stand is a steep ridge. Difficult for equipment to operate. Extensive browse, currently do not think that harvesting this stand will enhance oak component, if harvested this stand will need supplemental planting efforts, this will be difficult w/ topo. Some oak regen wp is establishing well in the understory.)</p>																												
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11	4126 - White, Black, N. Pin Oak	Sapling Well	15.6	8	1-50	N/A	<p>Howes Lake Fire burned through stand killing overstory. There is a very heavy loading of down dead wood and standing snags. Fully stocked oak with a component of big toothed aspen has regenerated and is now mostly above browse height on east and west slopes. South tip had heavier jack pine overstory and has moderately stocked oak with jack pine seedlings filling in the gaps. Some oak and pine in northeast survived, but not enough to delineate. Old comments- (2-age classes of jp and oak. Oak regen looks good in a few pockets. WP starting to creep in. Tough to isolate canopy for estimate. Some trees starting to fall apart, these will make excellent snags. Deer are browsing on everything they can reach. White pine and red pine in north.)</p>																												
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12	42220 - Natural Jack Pine	Sawtimber Well	5.5	60	81-110	N/A	<p>Stand disposal approved through 2021 YOE comp review. Small stand wedged between private property and the manistee river. Part of stand falls in natural river buffer. Consumers powerline ROW cuts through stand as well. Property corners have been surveyed. Little to no understory except for some scattered white pine seedlings. Expect considerable jack pine mortality in the next 10-20 years</p> <p>Old comments- (3' of snow. 44 (core) age class seemed to be the best representatives. Pockets of older and younger stuff present. Oak is declining. Typical understory. Driveway t-pass area.)</p>																																				
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14	310 - Herbaceous Openland	Nonstocked	194.4	0	Unspecified	4222 - Natural Jack Pine	<p>Stand is mostly open with small patches of jack pine, oak, and cherry. Fire left some unburned patches and vortex strips of original jack pine plantation. Split off some of the portions over 5 acres that came back forested in the north and the east side of stand. May be additional portions of stand that fill in as O1 or J1 next YOE if left unmanaged.</p> <p>Old Comments- (This is the site of the Howes Lake Fire from 2011. The burnt timber was left per wildlife's request. No salvage was done. There is little to none regeneration of jack pine throughout the stand. A portion of the stand was a warbler plantation. Some cherry brush is about all that is coming back at this time. 2018 update: the Military requested permission to move fallen trees/slash to clear a sub-acre patch of grass to set up tents and camp for a few days. Permission was given with the restriction that no ground cover scalping or soil disturbance would occur.)</p>																																				
15	4126 - White, Black, N. Pin Oak	Sawtimber Medium	38.9	92	51-80	N/A		<p>South side of stand 15 burned in Howes Lake Fire in 2011 killing the overstory and was split off into its own stand (151). Oak canopy is declining has mortality occurring throughout. Heavy oak and maple throughout stand understory. There is some heavy white pine in pockets through parts of the sub-canopy, and scattered ones through most of the stand.</p> <p>Old Comments- (Island of jp in the southern part of stand. Everything but oak removed during previous treatment. Red maple and aspen clones present in the understory. Browse. ORV trail. Medium quality oak.)</p>																																			
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16	4126 - White, Black, N. Pin Oak	Poletimber Medium	35.6	33	1-50	N/A	<p>Stand is more open towards the west. Enough of the oak is in the 6" d-class to call it O5 now, but still a lot of saplings present. Found what appears to be an old plow line through west side of stand (may have burned in past).Old comment- (15-20' Good oak regen, rm throughout. Browse.)</p>																																				
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17	4199 - Other Mixed Upland Deciduous	Sapling Medium	12.1	16	Immature	N/A	Oak seems to be filling in some of the gaps. Stand may be more oak/aspens in the future if more of the oak recruits..Old comments - (Hodge podge of regen. Regen is sparse in some areas.)																																																
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18	4126 - White, Black, N. Pin Oak	Sawtimber Poor	10.5	91	1-50	N/A	Harvested in 2002. Oak mortality occurring with a lot of the larger oaks. High to full oak regen throughout most of stand (a lot of it is above browse height now). Dense pockets of aspen and maple in a few spots.																																																
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19	4199 - Other Mixed Upland Deciduous	Sapling Medium	20.1	17	Immature	N/A	On west side of stand oak has filled in and recruited above browse height and looks like O3. East side has more aspen\cherry\maple and large openings and looks like MD2.Old comment- (Cut 2002. Heavy browse. Mostly cherry brush and oak stump sprouts.)																																																
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20	4126 - White, Black, N. Pin Oak	Sapling Well	8.0	8	81-110	N/A	Stand overstory was almost completely killed by Howes Lake Fire. Lots of snags and down dead wood throughout. Fully stocked oak has come up below dead standing.																																																
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21	4122 - Oak, Pine	Sawtimber Well	31.7	91	81-110	N/A	White pine and red pine through most of the unburned portions of sub-canopy (some WP getting pole size). Howes Lake fire burned through south side of stand and brought a cohort of mostly white oak underneath. A few X-log size pines and oaks seen.																																																
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22	4311 - Pine, Aspen Mix	Sawtimber Medium	11.3	74	51-80	N/A	Stand is bound by private to the east and ORV//ATV/horse trail to the west. Trail runs through middle of stand on south side. Jack pine cored at 74 years old. Aspen looks at least 50 years old (trembling in north side and big-toothed in south) and has reached saw class. Good oak regen in pockets, red maple through understory most places. Larger oaks and jack pine seeing some mortality. Old comments- (Closer to 50%. Previously typed as a U. A few open areas w/ scrub cherry. Poor quality oak throughout w/ clones of aspen and some red maple. Decent oak regen in portions of this stand. Several age classes 90ish, 60ish, 30 ish...)																																														
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23	42141 - Planted Mixed Pine, Mixed Deciduous	Sapling Well	41.1	24	1-50	N/A	Mixed planted jp and rp mostly immature with the exception of some well spaced pole size red pine interior. Scattered rp and jp poles through rest of stand. There are small openings and an oak component. A lot of the pine are very tightly spaced due to jp naturals and putting on very little growth. Old comments- (Old comments indicate that a conversion to rp was attempted, a few rp rows were evident through the snow. Rp is not doing well. Oak stump sprouts scattered through out.)																																														
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24	42120 - Planted Jack Pine	Poletimber Medium	27.4	62	51-80	N/A	Tall jack pine with oak/maple understory. Extensive mortality in jack pine occurring in south half of stand. Hawthorn mostly along two track. Old comments- (Some budworm damage. Overall stand is still in decent shape.)																																														
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25	4126 - White, Black, N. Pin Oak	Sawtimber Poor	73.5	90	1-50	N/A	Shelterwood cut in 2004. Stand responded well to shelterwood harvest. Most of the oak has gotten above browsing height. There is a large component of red pine that has taken over large portions of the understory (mostly in the west side of stand). A small pocket of fully stocked jack pine is located in a drainage on the west side of the stand. Maple is medium in the north and high in portions of the south. The south side of the stand has an aspen component as well. Some large pockets of oak mortality occurring through stand. Small stick nest located, no activity during inventory in April. Old comments- (Stick nest in stand. Shelter wooded. Quite a bit of white oak. Majority of regen under 5' tall. Medium quality. Browse.)																																														
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27	4125 - Black, N. Pin Oak	Sapling Poor	7.6	30	1-50	N/A	Open canopy stand (Just meets 25% crown cover). Some trees are getting pole size but, still a lot of sapling sized trees. Old comment- (Patchy. Jp and oak stump sprouts w/ cherry brush.)																																														
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Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	Managed Site	General Comments
141	4125 - Black, N. Pin Oak	Sapling Poor	18.1	8	Immature	N/A	This is part of the Howes Lake Fire from 2011. Stand was split from original stand 14 as it has come back to a forested oak stand. Memorial cross located on north side of stand (OFS point).
Canopy Species		% Cover	Size Class	DBH	Age		
Black/Red (Hybrid) Oak		60	Sapling	1	8		
Black Cherry		35	Sapling	1			
142	4131 - Aspen, Oak	Sapling Medium	9.1	8	Immature	N/A	This is part of the Howes Lake Fire from 2011. Stand was split from original stand 14 as it has come back to a forested aspen/oak stand.
Canopy Species		% Cover	Size Class	DBH	Age		
Quaking Aspen		65	Sapling	1	8		
Black/Red (Hybrid) Oak		25	Sapling	1			
Black Cherry		10	Sapling	1			
143	4130 - Aspen	Sapling Well	6.2	8	Immature	N/A	This is part of the Howes Lake Fire from 2011. Stand was split from original stand 14 as it has come back to a forested aspen stand.
Canopy Species		% Cover	Size Class	DBH	Age		
Bigtooth Aspen		83	Sapling	1	8		
Black/Red (Hybrid) Oak		10	Sapling	1			
144	4126 - White, Black, N. Pin Oak	Sapling Medium	10.8	8	Immature	N/A	This is part of the Howes Lake Fire from 2011. Stand was split from original stand 14 as it has come back to a forested stand. East of the road that splits stand is almost pure oak, west of the road is mostly cherry with some oak.
Canopy Species		% Cover	Size Class	DBH	Age		
Black Cherry		30	Sapling	1			
Black/Red (Hybrid) Oak		40	Sapling	1	8		
White Oak		30	Sapling	1			
145	4122 - Oak, Pine	Sapling Poor	12.6	8	Immature	N/A	This is part of the Howes Lake Fire from 2011. Stand was split from original stand 14 as it has come back to a forested oak/jack pine stand.
Canopy Species		% Cover	Size Class	DBH	Age		
Northern Pin Oak		65	Sapling	1	8		
Jack Pine		35	Sapling	1			
151	4126 - White, Black, N. Pin Oak	Sapling Well	22.4	8	Immature	N/A	North side of Howes Lake Fire killed split from parent stand 15. Oak overstory killed and not salvaged. Lots of standing snags and down dead wood. Dense oak regen under standing dead. Maple came back pretty dense in east side of stand. Snags are losing bark and falling over, pine snags are getting punky. ATV trail winds through stand. Old Comments- (Island of jp in the southern part of stand. Everything but oak removed during previous treatment. Red maple and aspen clones present in the understory. Browse. ORV trail. Medium quality oak.)
Canopy Species		% Cover	Size Class	DBH	Age		
Bigtooth Aspen		10	Sapling	1			
Red Maple		15	Sapling	1			
White Oak		30	Sapling	1			
Black/Red (Hybrid) Oak		34	Sapling	1	8		
404	3102 - Grass	Nonstocked	9.8	0		No	Split from stand 4. Part of KW plantation that burned during a wildfire event. Open grass with scattered jack pine and cherry saplings.