Compartment Review Presentation

Grayling Forest Management Unit

Compartment 267
Entry Year 2015
Acreage: 1,777
County Crawford
Management Area: Camp Grayling

Revision Date: 01/28/2013

Stand Examiner: Thomas Barnes

Legal Description:

T28N R1W Section 18 and T28N R2W Section 13, 14, and 15

Identified Planning Goals:

The primary goal is to provide for military training while maintaining health, productivity, species and structure diversity, and sustainability throughout the compartment. We need to maintain age class distribution and species diversification through continued regular treatments of stands in the compartment, continue to manage for grouse habitat, provide for Camp Grayling to continue to use the area for their needs, and provide for recreational opportunities such as camping, fishing and hunting.

Soil and topography:

The soils are predominantly Grayling-Graycalm sand with the river valley comprised of Tawas-Leaf River muck. The east half of the Compartment is level with the North Branch of the AuSable River and Shupac Lake located in the area. The west half is rolling hills with broad valleys.

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

The east half is a mix of private property and State land. The private property has numerous residences and the town of Lovells is located one mile to the south of the compartment. The west half is entirely State land. State land consists of a mixture of State owned (DNR) and Military Board land. All State ownership west of Twin Bridge Road (sections 13, 14 and 15) are either Military Board land or under L-1479, which provide this land for military training. Much of this area is part of the Camp Grayling Army National Guard Range 40 Complex. The far western portion of the compartment (stand 86) is within the fenced in area of the Range.

Unique Natural Features:

The North Branch of the AuSable River a designated natural river and Shupac Lake are in the East portion of the compartment.

Archeological, Historical, and Cultural Features:

There are known concerns within the compartment. All proposed management activities have taken these concerns into consideration.

Special Management Designations or Considerations:

Shupac Lake State Forest Campground is located on the east side of the compartment. Several areas between Twin Bridge Road and the AuSable River were purchased by Fisheries Division to provide walk-in access to the AuSable River.

Watershed and Fisheries Considerations:

The AuSable River (Natural River designated) is a cold-water trout stream. Shupac Lake is also in the Compartment and provides for fishing opportunities.

Wildlife Habitat Considerations:

Much of the upland hardwoods (oak/aspen) in the compartment are part of a grouse management area. There are numerous blocks designed for habitat improvement for grouse. Several of these blocks have been cut in the past. Additional blocks are scheduled to be cut during the current Year-of-Entry to continue to provide appropriate habitat.

Mineral Resource and Development Concerns and/or Restrictions

Surface sediments consist of ice-contact and glacial outwash sand and gravel and post glacial alluvium. Glacial drift thickness varies between 400 and 800 feet. Beneath the glacial drift is the Coldwater Shale. There is not an economic use for the Coldwater Shale. The nearest gravel pit is located in Section 24 and potential is thought to be good in the Upland areas. None of the compartment is leased for oil and gas. The Antrim Shale has been developed for gas production to the northeast.

Vehicle Access:

Numerous roads bisect the compartment providing for good access. Some of the trails near the Range are comprised of loose sand but are passable. No existing roads need to be closed at this time. All new roads created through management activities are to be closed upon completion.

Survey Needs:

No surveying is needed.

Recreational Facilities and Opportunities:

Shupac Lake and Shupac Lake State Forest Campground are located on the east side of the compartment. The North Branch of the AuSable River provides opportunities for fishing, canoeing and other water related recreational activities.

Fire Protection:

The entire compartment is comprised of upland hardwoods (oak/aspen). There are pockets of red pine and white pine within this compartment as well. The Range 40 Complex is located on the far west side of the compartment. Fires do occur in the Range but FRD has a Policy in place of not entering onto those lands that are fenced and posted as such. The compartment has an adequate system of roads and trails to access for fire suppression activities.

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 & Treatment Map

Compartment: 267
T28N R01W Sec. 18
T28N R02W Sec. 13, 14, 15
County: Crawford
Unit: Grayling
YOE: 2015
Acres: 1,777 GIS Calculated
Examiner: Thomas Barnes
Map Revised: 09/04/2013
Map Phase: Pre-Review

Stand # 23 — Stocking Density
(412)0) - A7
Level 3 / Level 4 — OI Code
Cover Type Code

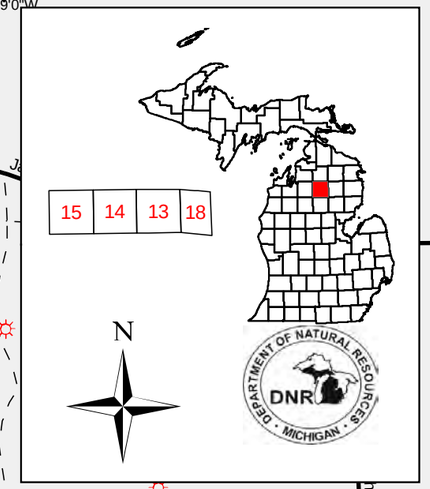
Legend

- PLSS Corner
- Remonumented Section Corners
- Miris Corners
- Highway
- County Paved Roads
- Paved Roads
- County Gravel Roads
- Gravel Roads
- Poor Dirt Roads
- County Poor Dirt Roads
- Trail (Non-Recreation)
- Closed Roads
- State Forest Campgrounds
- Recreation
- Fishing Access Site
- Boat Access Site
- Range 40 Fence
- Stream
- Intermittent Stream
- Lakes and Rivers
- State Forest Land

Treatments
- Clearcut (w/Reserves, Patch/Strip)
- Thinning (Crown, Low, Systematic)

Forest Stands
Level 3
- 411 - Northern Hardwood
- 412 - Oak Types
- 413 - Aspen Types
- 419 - Mixed Upland Deciduous
- 421 - Planted Pines
- 422 - Natural Pines
- 431 - Upland Mixed Forest
- 611 - Lowland Deciduous Forest

Non-Forest Stands
Level 3
- 310 - Herbaceous Openland
- 320 - Upland Shrub
- 330 - Low-Density Trees
- 500 - Water
- 622 - Lowland Shrub
- 710 - Sand, Soil



1 0.5 0 1 Miles

84°33'0"W 84°32'0"W 84°31'0"W 84°30'0"W 84°29'0"W
44°50'0"N 44°49'0"N

Stand Boundary Map

Compartment: 267
T28N R01W Sec. 18
T28N R02W Sec. 13, 14, 15
County: Crawford
Unit: Grayling
YOE: 2015
Acres: 1,777 GIS Calculated
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Map Revised: 09/04/2013
Map Phase: Pre-Review

Stand # 23 — Stocking Density
(412)0) - A7
Level 3 OI
Level 4 Code
Cover Type Code

Legend

- PLSS Corner
- Remonumented Section Corners
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- County Paved Roads
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- Gravel Roads
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- County Poor Dirt Roads
- Trail (Non-Recreation)
- Closed Roads
- Boat Access Site
- State Forest Campgrounds
- Recreation
- Fishing Access Site
- Range 40 Fence
- Stream
- Intermittent Stream
- Stand Boundaries

Forest Stands
Level 3
411 - Northern Hardwood
412 - Oak Types
413 - Aspen Types
419 - Mixed Upland Deciduous
421 - Planted Pines
422 - Natural Pines
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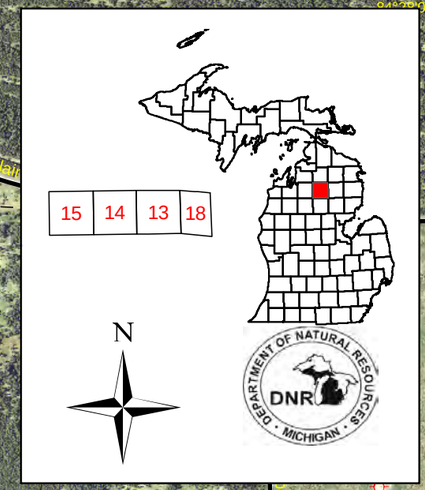
Non-Forest Stands
Level 3
310 - Herbaceous Openland
320 - Upland Shrub
330 - Low-Density Trees
500 - Water
622 - Lowland Shrub
710 - Sand, Soil



1 0.5 0 1 Miles

Special Conservation Areas & Site Conditions Map

Compartment: 267
T28N R01W Sec. 18
T28N R02W Sec. 13, 14, 15
County: Crawford
Unit: Grayling
YOE: 2015
Acres: 1,777 GIS Calculated
Examiner: Thomas Barnes
Map Revised: 09/04/2013
Map Phase: Pre-Review

Stand # 23 — Stocking Density
(412)0) - A7
Level 3 Level 4 — OI Code
Cover Type Code

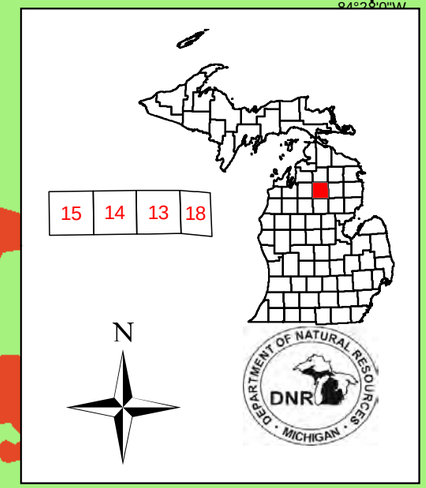
Legend

- Remonumented Section Corners
- Miris Corners
- Stand Boundaries

Site Condition Available
- Unavailable (Factor - Number)

Site Condition Type
- Unavailable Factors
  - 1A: Federal/State/Local Law
  - 2G: Too wet (sensitive soils, does not include access issues)
  - 3B: Threatened, endangered, and special concern species/communities
  - 3F: Military easement / lease

Dedicated Special Conservation Areas
- Cold Water Streams
- Ecological Reference Areas
- Natural Rivers Zoning District
- Natural Rivers Vegetative Buffer
- Essential Habitat (Kirtland Warbler)
- Cold Water Lakes
- High Priority Trout Stream Buffer
- Research, Development, and Military Lands



Report 1 – Total Acres by Cover Type and Age Class

Grayling Mgt. Unit **Compartment 267 Year of Entry 2015**

Thomas Barnes : Examiner

Age Class

	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 +	Uneven Age	Total
Aspen	329	0	400	0	0	0	41	43	56	0	0	0	0	0	**869**
Bog	13	0	0	0	0	0	0	0	0	0	0	0	0	0	**13**
Herbaceous Openland	38	0	0	0	0	0	0	0	0	0	0	0	0	0	**38**
Jack Pine	0	0	0	0	0	0	0	10	0	0	0	0	0	0	**10**
Low-Density Trees	75	0	0	0	0	0	0	0	0	0	0	0	0	0	**75**
Lowland Aspen/Balsam Poplar	0	0	0	0	0	0	0	0	13	0	0	0	0	0	**13**
Lowland Deciduous	0	0	0	0	0	0	0	0	13	0	0	0	0	0	**13**
Mixed Upland Deciduous	0	0	0	0	0	0	0	232	100	113	0	0	0	0	**445**
Natural Mixed Pines	0	0	0	0	0	0	78	0	0	0	0	0	0	0	**78**
Northern Hardwood	0	8	0	0	0	0	0	0	0	0	0	0	0	0	**8**
Oak	0	0	0	0	0	0	0	0	30	0	0	0	0	0	**30**
Planted Mixed Pines	0	0	0	0	0	0	0	0	5	0	0	0	0	0	**5**
Red Pine	0	0	0	0	0	0	9	0	0	0	0	0	0	0	**9**
Sand, Soil	9	0	0	0	0	0	0	0	0	0	0	0	0	0	**9**
Upland Mixed Forest	0	0	0	0	0	0	0	0	5	0	32	0	0	0	**37**
Upland Shrub	123	0	0	0	0	0	0	0	0	0	0	0	0	0	**123**
Water	2	0	0	0	0	0	0	0	0	0	0	0	0	0	**2**
Total	**589**	**8**	**400**	**0**	**0**	**0**	**129**	**284**	**222**	**113**	**32**	**0**	**0**	**0**	**1777**

Report 2 – Proposed Treatment Summaries

Grayling Mgt. Unit
Year of Entry 2015

Compartment 267
Total Compartment Acres: 1,777

Acres by Treatment Type

Commercial Harvest - 367	Tree Planting - 0	Other - 0
Habitat Cut - 0	Opening Maintenance - 0	

Cover Type by Harvest Method

	Clearcut	Selection	Seed Tree	Shelterwood	Thinning	Other - Specify	Total Acres
Aspen Types	132	0	0	0	0	0	**132**
Mixed Upland Deciduous	0	0	0	0	195	0	**195**
Natural Pines	10	0	0	0	0	0	**10**
Oak Types	30	0	0	0	0	0	**30**
Total	**172**	**0**	**0**	**0**	**195**	**0**	**367**

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
1	72267001-Cut	41.0	4130 - Aspen	High Density Pole	68		Harvest	Clearcut with Reserves	4130 - Aspen	Cmpt. Review Proposal

Prescription Specs: Clear cut with reserves, follow standard retention guidelines. Stand should regenerate to a fully stocked aspen stand with associated species.

Other Comments:

Next Steps: Monitor the success of regeneration during the next treatment period. Acceptable regeneration is a moderately stocked stand of aspen, oak and maple.

Proposed Start Date: 10/01/2014

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
8	72267008-Cut	35.0	4131 - Aspen, Oak	High Density Log	84	111-140	Harvest	Clearcut with Reserves	4131 - Aspen, Oak	Cmpt. Review Proposal

Prescription Specs: Clearcut with reserves, follow standard retention guidelines, include the regen protection spec or concentrate retention where oak regeneration is the greatest. Stand should regenerate to a moderate to fully stocked stand of aspen and oak.

Other Comments: Stem quality is not that great, conks are forming on aspen and oak is bushy. There is good advanced oak regeneration in the understory of the stand.

Next Steps: Monitor success of regeneration during the next inventory cycle. Will accept a moderate mixture of oak, aspen and associated species following harvest.

Proposed Start Date: 10/01/2014

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
12	72267012-Cut	43.2	4133 - Aspen, Mixed Pine	High Density Pole	72	111-140	Harvest	Clearcut with Reserves	4132 - Aspen, Jack Pine	Cmpt. Review Proposal

Prescription Specs: Clearcut without retention to maximize aspen regeneration and do to size of the stand. Trying to expand the amount of aspen, stand should regenerate to an moderately stocked aspen, oak, jack pine and other decidous species.

Other Comments: Small Jack Pine stand that borders a firing point and area that burned in 2012. Aspen and oak are mixed in with this stand, Just to the south in the neighboring compartment are two open areas with ground cover dominated by leather leaf.

Next Steps: Monitor regeneration during next inventory cycle. Acceptable regenerations is poor to moderately stock stand of aspen, oak and jack pine.

Proposed Start Date: 10/01/2014

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
15	72267015-Cut	9.6	42221 - Natural Jack Pine, Mixed Deciduous	High Density Pole	71		Harvest	Clearcut	4132 - Aspen, Jack Pine	Cmpt. Review Proposal

Prescription Specs: Clearcut without reserves to maximize the regeneration of aspen. Stand should regenerate to a fair to moderately stocked stand of aspen, jack pine and oak.

Other Comments:

Next Steps: Monitor the success of regeneration during the next inventory cycle. Acceptable regeneration is a poor to moderately stocked stand of aspen, jack pine and other associated species.

Proposed Start Date: 10/01/2014

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
27	72267027-Cut	12.8	4130 - Aspen	High Density Pole	82		Harvest	Clearcut	4130 - Aspen	Cmpt. Review Proposal

Prescription Specs: Clearcut without reserves to maximize regeneration and to re-establish quality. Stand should regenerate to a full stocked aspen stand.

Other Comments: Treatment boundary was adjusted to reflect 150 ft buffer for Lovells Bog as per the Lovells Bog ERA Management Plan. This buffer is a no cut, no equipment zone.

Next Steps: Monitor regeneration during the next inventory cycle Acceptable regeneration is a moderate to well stocked stand of mixed aspen, oak, maple and other associated species.

Proposed Start Date: 10/01/2014

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
37	72267037-Cut	194.8	4199 - Other Mixed Upland Deciduous	High Density Log	79	111-140	Harvest	Low Thinning	4129 - Mixed Oak	Cmpt. Review Proposal

Prescription Specs: Thinning, removal of all aspen and maple stems. Site does have good oak regeneration so add the regen protection spec to contract.

Other Comments: Concerns about aspen and maple taking over the stand, prescribing a two step harvest. First cut remove all aspen and maple stems. Conduct a second harvest roughly 5 growing seasons after the first harvest is completed. Do whatever is needed to remove aspen and maple regen which may include roller chopping, herbicide and/or encouraging the producer to run over young aspen and maple regen while removing oak overstory.

Next Steps: 5 growing seasons after closure of first species removal mark stand down to 10 BA of oak and red pine, all other species are to be removed. Harvest should be conducted during the growing season to maximize the impact on aspen and maple regeneration.

Proposed Start Date: 10/01/2014

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
47	72267047-Cut	30.4	4125 - Black, N. Pin Oak	High Density Log	88	111-140	Harvest	Clearcut with Reserves	4121 - Oak, Aspen	Cmpt. Review Proposal

Prescription Specs: Clearcut with reserves, follow standard retention guidelines, focus retention where white pine regeneration is greatest. Stand should regenerate to a moderately to fully stocked stand of oak, aspen and maple.

Other Comments: Due to the size of many of the aspen stems, aspen regenerations may not be as vigorous as a stand with smaller stems.

Next Steps: Monitor regeneration during the next inventory cycle. Acceptable regeneration is a moderately stocked stand of aspen, oak, maple and mixed conifer.

Proposed Start Date: 10/01/2014

Total Treatment Acreage Proposed: 366.7

Report 4 -- Treatments Prescribed with a Limiting Factor

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
		#Type!	#Type!							

Prescription Specs:

Other Comment:

Next Steps:

Proposed Start Date: #Type!

Limiting Factor

Total Treatment Acreage Proposed: 0.0

Data updated before 2:00 PM

Report 5 – Site Conditions

Grayling Mgt. Unit | **Compartment 267**

Thomas Barnes : Examiner | **Year of Entry 2015**

Availability for Management

Total Acres	Acres Available	Acres Not Available		Dominant Site Conditions No	3B	2G	1A
869	857	12	**Aspen**	857	12		
10	10		**Jack Pine**	10			
13	1	12	**Lowland Aspen/Balsam Poplar**	1		6	6
13		13	**Lowland Deciduous**			10	3
445	443	2	**Mixed Upland Deciduous**	443			2
78	78		**Natural Mixed Pines**	78			
8	8		**Northern Hardwood**	8			
30	30		**Oak**	30			
5	5		**Planted Mixed Pines**	5			
9	9		**Red Pine**	9			
37	37		**Upland Mixed Forest**	37			
1,517	1,478	39	Total Forested Acres	1,478	12	15	11
	97%	3%	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
002		**Not Available**	**2G: Too wet (sensitive soils, does not include access issues)**	6	3J: Water quality / BMPs (stream, river, or lake)			

Comments:

Stand was set up for harvest as part of a limit factor/lowland sale, 72-032-07-01. However, the harvest was not conducted because the site was never operable, this is still holding true, site is very wet and has a difficult time freezing up.

Site No.	Dominant Site Cond	Availability	Dominant Site Condition	Acres
004		**Not Available**	**3F: Military easement / lease**	102

Comments:

Part of Range 40 Complex and is accessible only by military.

Report 5 – Site Conditions

Grayling Mgt. Unit | **Compartment 267**

Thomas Barnes : Examiner | **Year of Entry 2015**

005	**Not Available**	**1A: Federal/State/Local Law**	3	3J: Water quality / BMPs (stream, river, or lake)	

Comments:
Natural Rivers set back of 150'.

006	**Not Available**	**1A: Federal/State/Local Law**	5	3J: Water quality / BMPs (stream, river, or lake)	

Comments:
Natural River setback of 150'.

007	**Not Available**	**1A: Federal/State/Local Law**	3	3J: Water quality / BMPs (stream, river, or lake)	

Comments:
Natural Rivers setback of 150'.

009	**Not Available**	**2G: Too wet (sensitive soils, does not include access issues)**	10		

Comments:
Stand was set up for harvest as part of a limit factor/lowland sale, 72-032-07-01. This stand was partially cut in late 2010, with operations suspended soon after they started due to rutting. Similiar conditions still exist.

010	**Not Available**	**3B: Threatened, endangered, and special concern species/communities**	12	3G: Other Influence zones - See comments	

Comments:
Lovells Bog buffer 150 ft in width for most part then extended to Lonesome Lake Rd. The creation of this buffer is part of the Lovells Bog ERA Plan.

011	**Not Available**	**1A: Federal/State/Local Law**	13	3B: Threatened, endangered, and special concern species/communities

Comments:

Lovells Bog ERA

Report 6 – PROPOSED SPECIAL CONSERVATION AREA* (SCA) DETAILS

* This is a partial list of SCAs for this compartment. Not included are those areas identified under other Department initiatives (Natural Rivers, Deer Wintering Areas, etc.). Those will be identified in separate, future map and report products.

SCA Name	SCA Category	Detail Type	Recommendation	Acres

Comments

Report 7 – DEDICATED CONSERVATION AREA DETAILS

* This is a list of Dedicated Biodiversity Areas for this compartment along with a 1/4 mile buffer surrounding the compartment. Refer to Dedicated Conservation Area Map for areas that the below listed Conservation Areas are located.

ERA = Ecological Reference Area
HCVA = High Conservation Value Area
SCA = Special Conservation Area

Conservation Area	Type	Description
SCA	Archaeological Site	An aquatic or terrestrial area of the State that contains physical remains of human occupation. These are sites of cultural and historical significance that may occur upon terrestrial areas and Great Lakes bottomlands. They include thousands of Native American settlements and burial sites, as well as French and British outposts, nineteenth century logging camps, mines and homesteads. Beneath the waters of the Great Lakes, there are shipwrecks and other remains documenting the maritime trade. Such sites may be identified by Natural heritage data from the State Historic Preservation Office. Proposed treatments in this compartment will be implemented in such a manner as to maintain the integrity of these sites. Due to the sensitive nature of this information, no further detail about location is available.
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.
ERA	Ecological Reference Areas	Ecological Reference Areas (ERAs) are high quality examples of natural communities that have been identified as Element Occurrences (EOs) by the Michigan Natural Features Inventory (MNFI) within the context of their natural community classification system. Element Occurrences with viability ranks of A (Excellent) or B (Good) and a Global (G) or State (S) element (rarity) ranking of endangered (1), threatened (2), or rare (3) serve as an initial base of ERAs. They may be located upon any ownership in the State. The system is comprised of individual or associations of natural community types that are managed for restoration and maintenance of natural ecological processes and values. The public may submit recommendations for lands as ERAs using the DNR Conservation Area Recommendation Form.

Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
1	4130 - Aspen	High Density Pole	41.0	68		Pole to log sized stand of poor quality aspen. Stand is primarily PArVHa/PArVVb. Ground vegetation would not be listed due to snow.
4	4130 - Aspen	High Density Sapling	59.7	5		Stand was clearcut in winter '06-'07 under 720250501, with good regeneration of aspen and associated species. There are a few clumps (large sap/small pole) of maple and oak which over top the stand but these clumps are few and far between, There is evidence of a fair amount of deer browse in this stand. Regen surveys were conducted on Old OI stands 69, 70, 73, and 120 all four stands meet the minimum requirement of 2000 stems per acre. Stand is entirly PArVHa/PArVVb. There is sliver of PArVHa along the south western edge of stand. Ground vegetation would not be listed due to snow.
5	4130 - Aspen	High Density Pole	24.9	25		Pole size aspen stand with little understory/subcanopy, as expected. This stand is just moving into the pole size stage. Stand is entirely PArVHa/PArVVb. Ground vegetation would not be listed due to snow.
7	4130 - Aspen	High Density Pole	18.1	25		Pole sized stand with mixture of oak and maple. Stand is entirely PArVHa/PArVVb. Ground vegetation would not be listed due to snow.
8	4131 - Aspen, Oak	High Density Log	35.0	84	111-140	Mixed stand with oak and aspen being the dominate species. Stem quality is not that great, conks are forming on aspen and oak is bushy. There is good advanced oak regeneration in the understory of the stand. Four BA points were taken with an average of 114 BA for the stand. Aspen was 40, Black oak 52, white oak 5, red maple 15 and red pine 2. The subcanopy white pine and oak are would be best classified and sapling/pole, however that option is not available so sapling was selected. Stand is primarily PArVHa/PArVVb, there are a couple of areas along the perimter that are PArVHa. Ground vegetation would not be listed due to snow.
9	4130 - Aspen	High Density Sapling	43.1	5		Young aspen stand harvested in winter 06/07 under 720250501. Regeneration surveys were conducted on Old OI stands 56, 57, 59, 116 all stand meet or exceed the minimum requirement of 2000 stems per acre. Stand is entirely PArVHa/PArVVb. Ground vegetation would not be listed due to snow.
10	4130 - Aspen	High Density Pole	19.1	25		Poor quality aspen stand with sapling to log size trees. Stand is not very well stocked and conks are present on many of the stems. Understory is primarily cherry and witch hazel. Stand is entirely PArVHa/PArVVb. Ground vegetation would not be listed due to snow.
11	4130 - Aspen	High Density Pole	18.7	25		Nice pole size stand of quaking and bigtooth aspen. Red maple and oak are also present in this stand. Stand is entirely PArVHa/PArVVb. Ground vegetation would not be listed due to snow.

Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
12	4133 - Aspen, Mixed Pine	High Density Pole	43.2	72	111-140	Pole size stand with varying levels of both sapling and log size trees as well. Nice variety of mixed hardwoods as well as red and jack pine in this stand. The aspen is of poor quality. Five BA swings were taken, average BA's were red pine 30, Q Aspen 80, J Pine 4, R Maple 4, Oak 8, Big Aspen 4. Stand is entirely PArVHa/PArVVb. Ground vegetation would not be listed due to snow.
14	4130 - Aspen	High Density Sapling	20.8	5		Young aspen stand harvested in the winter 06/07 under 720250501. Old OI stands 52, 53 were surveyed for regeneration success, both stands meet or exceed the minimum requirement of 2000 stems per acre. Stand is entirely PArVHa/PArVVb. Ground vegetation would not be listed due to snow.
15	42221 - Natural Jack Pine, Mixed Deciduous	High Density Pole	9.6	71		Small Jack Pine stand that borders a firing point and area that burned in 2012. Aspen and oak are mixed in with this stand, Just to the south in the neighboring compartment are two open areas with ground cover dominated by leather leaf. Stand is primarily PArVHa/PArVVb, there is a portion in the center of the stand with a Kotar ID of Dawson-Peat-VP-Kamic and typed as unclassified lowland. Ground vegetation would not be listed due to snow.
17	4130 - Aspen	High Density Sapling	56.5	4		Young aspen stand cut by TR Timber in winter '08 under 720250501. No subcanopy as stand is very young, clumps of serviceberry throughout the stand. Regen Surveys were conducted on OI stands 66, 67, and 115. Stands 67 and 115 meet or exceed the minimum requirement of 2000 stems per acre. Stand 66 had an Oak MO, this stand failed the Oak requirement, however, it does pass for combined species of 2000 stems or greater. Stand is primarily PArVHa/PArVVb, there is a small portion that is PArVVb. Ground vegetation would not be listed due to snow.
18	4130 - Aspen	High Density Pole	54.7	25		Nice stand of mixed aspen and associated species. Stand just entering pole size. There are areas within this stand with low density trees and there is a small component of mixed upland conifer within the stand as well. Quality of larger aspen is poor. Stand is primarily PArVHa/PArVVb, southern protion is PArVVb. Ground vegetation would not be listed due to snow.
20	4130 - Aspen	High Density Sapling	34.8	25		Young aspen stand at the edge of being a pole sized stand, majority of stems are at the higher end of sapling diameter, could be either classification. Good amount of oak and maple clumps scattered throughout the stand. Appears to be a heavy presences of deer by the amount of tracks in the snow and browse. Stand is primarily PArVHa/PArVVb, in the northeastern corner the stand switches to PArVVb/AFO. Ground vegetation would not be listed due to snow.
21	4130 - Aspen	High Density Sapling	47.6	6		Very young aspen stand that has regenerated nicely to aspen with a component of oak and maple. Cut in Dec 2006 (skidded and chipped tops spring 2007) under 726530501 (U-G Aspen). Regen surveys were conducted on OI stands 44, 45, 49 and all 3 stand meet or exceed the minimum requirement of 2000 stems per acre. Stand is entirely PArVHa/PArVVb. Ground vegetation would not be listed due to snow.

Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
22	4130 - Aspen	Low Density Sapling	20.3	25		Open stand primarily aspen with oak and maple mixed in, there are clumps of serivceberry present as well. Stand is on the borderline of being non-forested. Trees are relatively small age of stand is an estimate. Stand is entirely PArVHa/PArVVb. Ground vegetation would not be listed due to snow.
25	4130 - Aspen	High Density Pole	12.8	25		Young aspen stand right on the edge of pole size. Stand is adjacent to a firing point. Stand is primarily PArVHa/PArVVb, there is a finger in the south central portion of stand that is PArVVb/AFO. Ground vegetation would not be listed due to snow.
27	4130 - Aspen	High Density Pole	21.2	82		Stand of pole size aspen with a decent amount of logs (lower end dbh) and the quality is not that great. Very small amount of associated species. Stand is primarily PArVHa/PArVVb with PArVVB in the northeastern portion. Ground vegetation would not be listed due to snow.
28	42260 - Natural Pine, Mixed Deciduous	Medium Density Pole	78.2	63	51-80	This stand is a mixture of conifer and hardwoods. Jack pine is scattered throughout the stand and of poor form, most trees are very bushy from the open grown nature of the stand. Stand has pockets of aspen throughout and well as oak and maple. Stand is primarily PArVHa/PArVVb, there is a small portion of stand that is PArVVb/AFO. Ground vegetation would not be listed due to snow.
30	4130 - Aspen	High Density Sapling	25.3	6		Cut in Dec 2006 (skidded and chipped tops spring 2007) under 726530501 (U-G Aspen). Very young aspen stand regenerating nicely. Nice clumps of oak and red maple scattered throughout to help with diveristy. Regen Surveys were conducted on OI stands 32 and 45 both stands meet the minimum requirement of 2000 stems per acre. Stand is primarily PArVHa/PArVVb, the edges at the northern boundary are PArVVB/AFO. Ground vegetation would not be listed due to snow.
31	4130 - Aspen	High Density Pole	17.6	25		Nice pole size stand with small amounts of oak, maple and a few jack pine scattered about the stand. Hawthrone is mainly along the perimeter of the stand. Stand is primarily PArVHa/PArVVb, along the western edge PArVVb is present. Ground vegetation would not be listed due to snow.
32	4131 - Aspen, Oak	High Density Pole	41.4	25		Stand is a nice pole size dominated by oak and aspen, nice stem densities and mixture of associated species. There is some beech regen present in the northern portion of this stand. The northeastern block is PArVVb/AFO and the southwestern block is PArVHa/PArVVb. Ground vegetation would not be listed due to snow.
33	4130 - Aspen	High Density Pole	51.8	27		Nice pole stand with areas of sapling size classes. Stand is primarily PArVHa/PArVVb, along the north boundary is PArVVb/AFO. Ground vegetation would not be listed due to snow.

Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
34	4119 - Mixed Northern Hardwoods	High Density Sapling	7.9	18		Cut 2" & up in late 1994 under 72-003-95-02, Some of the harvest was in Comp 268. Heavy to red maple, with sugar maple and red oak, and small amounts of aspen, ironwood, beech and paperbirch. The dense sprout-origin regen tend to be small diameter, except for the oak which has the best height & diameter growth. Stand is entirely PArVHa/PArVVb. Ground vegetation would not be listed due to snow.
35	4130 - Aspen	High Density Sapling	18.6	7		Young aspen stand, canopy closure near the 75% range. There a small patch of pole to log sized maple and oak on the west edge of stand, not sure if this was retention from prior harvest. Stand is half PArVHa/PArVVb and PArVVb/AFO. Ground vegetation would not be listed due to snow.
36	4130 - Aspen	High Density Sapling	18.7	27		Young aspen stand with good stem denisty. Nice mixture of associated species. Stand is primarily PArVHa/PArVVb, along the sw edge is PArVVb/AFO. Ground vegetation would not be listed due to snow.
37	4199 - Other Mixed Upland Deciduous	High Density Log	194.8	79	111-140	Mature mixed oak stan. Stems are of fair quality. Topography is rolling terrain. Site index is 56. Six BA swings were taken with a stand average of 121 and individual averages of 67 for oak, 27 bigtooth aspen, 27 red maple. Stand is entirely PArVHa/PArVVb. Ground vegetation would not be listed due to snow.
38	4130 - Aspen	High Density Sapling	16.5	7		Young aspen stand with good stem denisty. Stand is entirely PArVHa/PArVVb. Ground vegetation would not be listed due to snow.
39	4199 - Other Mixed Upland Deciduous	High Density Pole	36.8	71	81-110	This stand consists mainly of a steep narrow ridge. Some limited ORV use on the hill. Erosion is not a problem at this time. Stand is entirely PArVHa/PArVVb. Ground vegetation would not be listed due to snow.
40	4130 - Aspen	High Density Sapling	41.0	7		Very young aspen stand with good stem density. Stand is entirely PArVHa/PArVVb. Ground vegetation would not be listed due to snow.
41	4131 - Aspen, Oak	High Density Sapling	16.9	26		Young aspen stand with a greater component of oak and white pine then stand 35. Good stem denisity. Stand is entirely PArVHa/PArVVb. Ground vegetation would not be listed due to snow.
42	4130 - Aspen	High Density Sapling	21.7	23		Young aspen stand. Stand is entirely PArVHa/PArVVb. Ground vegetation would not be listed due to snow.
43	4191 - Mixed Upland Deciduous with Conifer	Low Density Log	67.4	90	1-50	Low density upland mix with pockets of aspen not large enough to delinate. Stand not great quality, but good mast producers for wildlife. Six BA swings were taken average stand BA was 42, individual were oak 17, mixed aspen 5, red maple 11, red pine 7 and white pine 2. Stand is primarily PVCd/PArVHa, extreme southern portion is PArVHa/PArVVb. Ground vegetation would not be listed due to snow.

Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
44	4199 - Other Mixed Upland Deciduous	High Density Log	25.2	84	81-110	Stand is a good mix of oak, maple and other species. Stand is just entering the log size there are also pole size stems within the stand. Five BA swings were taken and average BA's were Oak - 50, white oak - 6, Maple - 24, Bigtooth Aspen 8 for a total of 88. Stand is very open in the understory. Site index was 50. Stand should be treated in the next entry cycle. Stand is entirely PArVHa/PArVVb. Ground vegetation would not be listed due to snow.
45	4131 - Aspen, Oak	High Density Sapling	19.8	26		Nice stand of sapling/pole sized stems. Stand has a good mixture of oak and aspen with some maple and cherry. Stand is entirely PArVHa/PArVVb. Ground vegetation would not be listed due to snow.
46	4130 - Aspen	High Density Pole	8.3	26		Pole sized aspen stand with a component of oak and maple throughout. Stand is entirely PArVHa/PArVVb. Ground vegetation would not be listed due to snow.
47	4125 - Black, N. Pin Oak	High Density Log	30.4	88	111-140	Nice stand of log and pole sized species. Stem quality is fair to good. There are some pockets of very large aspen that are starting to break down, would be a good idea to try and get them while we can. Not much of an understory stand is very park like. There are a few clumps of paper birch scattered throughtout the stand but were not enough to quantify. Numerous signs of wildlife activity as evidenced by ground scratching through the snow either deer or turkey, there was alot of deer sign in this portion of the compartment. There is illegal yard waste dumping along the SE corner of the stands. Eight BA swings were taken with species averages of 91 for mixed oak, 25 for b aspen and 6 for r maple. Site index was 55. Stand is half PArVHa/PArVVb and PVCd/PArVHa with a small vein of PArVHa separating them. Ground vegetation would not be listed due to snow.
48	42140 - Planted Mixed Pine	High Density Log	4.8	83	51-80	Stand was thinned in late 2010 under 72-032-07-0, to 70 - 90 BA. There has been storm damage from our heavy wet snow in 2012 and 2013. Stand average BA was 76. Red and white pine BA was 33 and 30 respectfully and oak was 13. Site index was 60. Stand is entirely PVCd/PArVHa. Ground vegetation would not be listed due to snow.
49	6117 - Lowland Deciduous, Mixed Coniferous	High Density Log	13.0	87		Stand was set up for harvest as part of a limit factor/lowland sale, 72-032-07-01. This stand was partially cut in late 2010, with operations suspended soon after they started due to rutting. Partial repair of the ruts was achieved during the first half of January. Sale was kept open in case additional repair work could be done. Sale was closed in early 2012 after checking the site and finding continuing re-vegetation of the area and deciding that additional equipment activity was not going to improve upon the healing-over that was occurring. Roughly 3 acres were cut in this stand, cut area is regenerating nicely with aspen. Regen survey was conducted on portion of stand that was harvested, this portion of stand did pass the minimum regen standards. Stand is entirely unclassified lowland, Kotar ID of Tawas-Muck-VP-Outwash. Ground vegetation would not be listed due to snow.

Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
50	4310 - Pine, Oak Mix	Medium Density Log	4.5	82	81-110	Stand is a mixture of Red pine and mixed oak with the majority of stems being of the log size. Overstory closure is in the 60-70 percent range and subcanopy is pushing 100 percent, with white pine dominating the understory. Sub canopy red and white pine stems were primarily sapling with a few pushing the pole size. This stand is very small and should be considered for treatment in the next inventory cycle, if treated at all. Three BA swings were taken and stand average was 87, species averages were as follow red pine 37, oak, 30 and bigtooth aspen 20. There was a small maple overstory component that was not measured in the BA swings. Seed source for the white pine is coming from private stand just west of this location. Stand is entirely PVCd/PArVHa. Ground vegetation would not be listed due to snow.
51	6112 - Lowland Aspen	Medium Density Log	4.5	86		Stand is a mixture of quaking aspen and bam. Stand borders N Branch AuSable River and once the setback is put into place there isn't much left of this stand that is operational. Stand is entirely unclassified lowland, Kotar ID of Tawas-Muck-VP-Outwash. Ground vegetation would not be listed due to snow.
53	6112 - Lowland Aspen	High Density Pole	8.6	87		Stand was set up for harvest as part of a limit factor/lowland sale, 72-032-07-01. This sale was closed incomplete, with this stand left uncut. Ground was checked periodically during good conditions for freezing down, but aside from a couple-inch crust of frozen surface soil, it was soupy black muck below. The same site conditions are still happening, crust of ice then muck below would be a tough stand to harvest unless the winter has a long period of cold temps. Stand borders the N Branch of the AuSable. Stand does exceed the age criteria, however, size and soils will make this stand very difficult to treat. Stand is only 6 acres without the Natural Rivers setback. Stand is entirely unclassified lowland, Kotar ID of Tawas-Muck-VP-Outwash. Ground vegetation would not be listed due to snow.
54	42110 - Planted Red Pine	High Density Pole	9.4	62	81-110	Stand was thinned in late 2010 under 72-032-07-01, down to 70 - 90 BA. Red pine plantation. Site index of 60. Stand is entirely PVCd. Ground vegetation would not be listed due to snow.
55	4199 - Other Mixed Upland Deciduous	High Density Log	75.2	88	81-110	Stands understory is dominated by white pine in the southern 3/4 of the stand. Mixture of aspen, oak and maple throughout stand with pockets of higher density of individual species. Majority of oak is poorly formed and large, typical of open grown stems. There is a power line corridor that does run through the stand and along the eastern edge. Five BA swings were taken and average stand BA was 88, individual species were oak 46, red maple 14, white pine 10, red pine 6, quaking aspen 6 and bigtooth aspen 6. Site index is 55. Stand is entirely PVCd. Ground vegetation would not be listed due to snow.
56	4191 - Mixed Upland Deciduous with Conifer	High Density Log	45.9	93	81-110	The South Eastern portion of this stand lies within Shupac Lake State Forest Campground. Canopy closure is in the 75 - 90 percent category, it opens up more as you move North in the stand. Stand is primarily large oak sawlog trees of poor to fair quality. The portion of the stand within the campground does have log to xlog bigtooth aspen. Five BA swings were taken and average BA was 86, species averages were red pine 15, oak 35, bigtooth 13, red maple 5, white oak 5, white pine 3 and quaking aspen 7. Overall site index was 55.

Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
57	4310 - Pine, Oak Mix	High Density Pole	32.3	103	81-110	Stand is within the boundaries of Shupac Lake Campground. There is a red pine plantation on the west side of entrance rd, the remainder of the stand is oak and associated species. Overall canopy closure is at the lower end of selected category. Stems are not of good quality. Red pine BA within the plantation was 60. However, overall BA for red pine in the stand was 32, oak 34, bigtooth aspen 7, white pine 5, j pine 2 and red maple 7, for a stand average of 87. Site index is 55. Stand is entirely PVCd. Ground vegetation would not be listed due to snow.

Report 9 – Nonforested Stands

Stand	Cover Type	Acres	Managed Site	Management Priority (Objective)	General Comments:
2	3205 - Mixed Upland Shrub	101.8	No	Unspecified	This is a portion of the Range 40 Air to Ground Complex. Area is fenced and no entry is allowed. The site is made up of grasses, ferns, shrubs and seedling sprouts. Species would include oak, maple and aspen. This area is also frequently burned.
3	3301 - Low Density Deciduous Tree	63.7	No	Unspecified	This area is next to Range 40 Complex and is a mixture of barren sand, shrub and low denisty tree species. The percent canopy coverage is below 25%. This area does receive alot of military activity.
6	710 - Sand, Soil	8.6	No	Unspecified	Large sandy area just outside the fence of range 40. Islands of sapling sized trees scattered about.
13	3102 - Grass	16.0	No	Unspecified	Firing Points 201 & 202. Site is mostly grasses, ferns and seedlings. Site is used by the Michigan National Guard.
16	3301 - Low Density Deciduous Tree	10.9	Natural Regen	Aspen	This site was a result in a accidental military fire. Species within the plow line were totally consumed, main species was aspen about 25 years old, associated species were oak, maple, cherry and some conifer. Classified as non-forested because all trees were consumed and killed.
19	3102 - Grass	8.6	No	Unspecified	This is Firing Point 207 and is maintained by Michigan National Guard. Ground cover is grasses and ferns.
23	3102 - Grass	7.5	No	Unspecified	Firing Point 222. Site is maintained by Michigan National Guard, ground cover is grasses, ferns and seedlings
24	3205 - Mixed Upland Shrub	21.4	No	Unspecified	Stand is mostly open area with shrub and low density trees. Within this stand is also Firing Point 208 which is labeled stand 56.
26	3102 - Grass	5.8	No	Unspecified	Firing Point 208. Site is grass, fern and seedlings. Used heavily by National Guard Training.
29	6225 - Bog	13.4	Yes	Low	This Lovells Bog which is an ERA with its own management plan. To much snow on the ground to tell what made up the ground cover.
52	50 - Water	1.9	No	Unspecified	North Branch of AuSable River

Data updated before 2:00 PM