Report 1 – Compartment Review Presentation

Traverse City Forest Management Unit

Compartment 16
Entry Year 2015
Acreage: 2,914
County Benzie
Management Area: Benzie Outwash

Revision Date: 04/24/2013

Stand Examiner: Craig Allen

Legal Description:

T26N- R13W; Sections 19, 20, 29-32

Identified Planning Goals:

This compartment is a part of the Benzie Outwash Management Area. A majority of the northern half of the compartment contains stands heavily populated with aspen. This year's proposed aspen treatments target stands that contain older aspen trees in an effort to cut and regenerate these stands. The plans for aspen in this area continue to focus on creation of stand age class diversity which will create early successional wildlife habitat needs, maintaining healthy forests while also balancing a sustainable flow of wood products for the future. Some of these stands also contain a sizable percentage of red oak. In these stands, selection cutting of some of the oak trees is prescribed in hopes of regenerating these oaks by stump sprouts. A majority of the oaks will remain for mast production and aesthetic value.
The southern half of the compartment is dominated by mesic Northern Hardwood hills. These stands have been select thinned at different intervals and locations over the years. Unfortunately, these stands have been experiencing major forest health issues recently. These include: Oak wilt, maple and oak decline, tent caterpillar outbreak, drought conditions, and now the beginning stages of emerald ash borer and beech bark disease. These will have major impacts on these areas. We will be experiencing mortality in ash, beech and oak (from oak wilt). Although a very large number of these trees will be lost, we will be attempting salvage operations in some stands to utilize these trees.

Soil and topography:

The northern two-thirds is generally flat. Kinney Creek lies in a narrow valley with progressively steeper slopes as you go downstream. The southern one-third is a hilly northern hardwood terrain noted on many maps as "Turtle Lake Hills".

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

To the north and south there are equal portions of State and private ownership. To the east, most of the ownership is State and to the west, most of the ownership is private. The compartment is located in an area of sparse, rural residential development. There is a small amount of farming in the area.

Unique, Natural Features:

Carter Creek originates in the compartment and flows westerly approximately four miles where it joins up with the Platte River. Turtle Lake is a 38 acre lake located in sections 29 and 32. Kinney Creek, located in section 20, flows northerly and empties into Brundage Creek and ultimately into the Platte River.

Archeological, Historical, and Cultural Features:

There are no known specific features in the compartment.

Special Management Designations or Considerations:

Both Kinney and Carter Creeks originate in this compartment, and are high quality cold water streams that flow into the Platte River. There is a stand scheduled for treatment near Kinney Creek. The timber sale boundary will be kept at least 100 feet away from Kinney Creek.

Watershed and Fisheries Considerations:

This compartment contains Turtle Lake and portions of Kinney Creek. Kinney Creek is a naturally reproducing trout stream that flows into Brundage Creek (water supply source for the Platte River State Fish Hatchery), and eventually the Platte River. Clear cutting along the riparian edges of this stream should be avoided, and appropriate BMP's should be adhered to. Though none of the proposed treatments appear as though they will have any significant impacts on the riparian corridor of Turtle Lake, the appropriate BMP's should be followed. (comments by Heather Hettinger).

Wildlife Habitat Considerations:

Compartment 16 is comprised 100% of a sandy outwash plain. Soils within this LTA are generally excessively drained, acidic, and low in natural fertility. This landtype is normally associated with frequent wildfires and the associated fire dependent communities. GLO notes for this portion reported mainly beech/hemlock forests. However, this LTA also

supported oak/pine barrens, pine barrens, and upland prairie. Several large non-forested stands in the NW corner of this compartment provide an excellent opportunity for opening management consisting of warm and cool season herbaceous vegetation. At the very least these stands should be maintained as open by clearing encroaching woody vegetation. Once suitable herbaceous vegetation is established these stands should be maintained by periodic prescribed fire.
The south and southwest portion of the compartment is fairly hilly and supports a relatively contiguous northern hardwood complex. Stands in this area should be managed to perpetuate northern hardwoods, providing habitat for species such as red-bellied woodpecker, gray squirrel, wild turkey, white-breasted nuthatch, and blue-spotted salamander. Timber prescriptions should be designed to maintain species diversity as well as include specs for snags, coarse woody debris, and conifer retention. Some of the slash should be left in piles for small animal habitat. The conifer component in these stands is essentially non-existent. Measures should be taken to attempt to reintroduce conifers, especially eastern hemlock. The thinnings in stands 84 and 90 may provide protection from browsing via slash piles for the establishment of hemlock, but the possibility of planting should not be limited to these stands.
This compartment also has a history of aspen cutting. Such early successional management is appropriate and will be continued in this area, with additional aspen harvests scheduled this inventory cycle in order to increase age class diversity. The incorporation of snags, leave trees, and downed logs in these cuts will help to replicate a wildfire-altered forest and increase wildlife use by species like grouse, woodcock, golden-winged warbler, and deer. Again, some of the slash should be left in piles for small animal habitat. Harvest operations should be utilized to create some (approximately 1-2 trees per acre) coarse woody debris (CWD), preferably via timber sale specs.
Oak occurs here as a component of the overall species mix. Its continued presence as a component here is very important for hard mast production, especially considering the spread of beech bark disease. Sale specs should include measures to retain some mature mast producing trees as well as promote the regeneration of the oak component through seeding and stump sprouting. Some cedar along Kinney and Carter Creeks provide winter cover for deer. The potential for both northern goshawk and red-shouldered hawk exists here, specifically in the southwest part of the compartment. (Comments by Steve Griffith)

Mineral Resource and Development Concerns and/or Restrictions

Surface sediments consist of glacial outwash sand and gravel and postglacial alluvium and coarse-textured glacial till. The glacial drift thickness varies between 400 and 600 feet. Beneath the glacial drift is the Devonian Ellsworth Shale. The Ellsworth is used for cement products. A gravel pit is located one-half mile to the north and there should be potential especially to the south. This area is located northwest of the current Antrim Shale gas play. Approximately one-half of the Compartment is leased for oil and gas development, as the Antrim Shale appears to have potential. The nearest producing well is located in Section 33. (Comments by Tom Hoane).

Vehicle Access:

There are good gravel and paved county roads at various locations in this compartment. Access to State land is very good. There are also many forest “2-track” roads in various areas of the compartment that are in good condition and are used for public and DNR land management accessibility.

Survey Needs:

A survey may possibly be needed to establish a corner adjacent to private land in Section 32.

Recreational Facilities and Opportunities:

Snowmobile trail #3 (Platte River Snowmobile Trail) runs East/West through the compartment, as well as North/South along N. Carmean Rd. Proposed timber management activities should include trail protection specifications to reduce impacts, as well as serve as an example of how silviculturally sound timber harvesting practices can co-exist, and often improve recreation and wildlife experiences for future generations. A non-winter harvest, coupled with avoiding the use of the trail as a haul route is suggested considerations. A State public access site managed by DNR Parks and Recreation Division is located on the north tip of Turtle Lake offering a boat launch for fishing and boating. Biking, and hiking on non-designated trails, as well as hunting are additional recreational activities enjoyed throughout the compartment. (Comments by Todd Neiss, 3/13)

Fire Protection:

This area has wildfire protection by DNR and local volunteer Fire Departments.

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: 016
T26N R13W
Sections 19, 20, 29, 30, 31, 32
County: Benzie
Unit: Traverse City
YOE: 2015
Acres: 2,914 GIS Calculated
Examiner: Craig Allen
Map Revised: 05/28/2013
Map Phase: Web Post

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

19 | 20
30 | 29
31 | 32

N

DEPARTMENT OF NATURAL RESOURCES · DNR · MICHIGAN

Legend

- Miris Corners
- Remonumented Section Corners
- Highway
- Paved Roads
- Gravel Roads
- Poor Dirt Roads
- Pipeline
- Powerline
- Stream
- Intermittent Stream
- Lakes and Rivers
- Culverts
- Snowmobile Trail

Treatments
- Clearcut (w/Reserves, Patch/Strip)
- Shelter Wood (w/Reserves)
- Other Harvest - See Comments

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
- 612 - Lowland Coniferous Forest

Non-Forest Stands
Level 3
- 310 - Herbaceous Openland
- 330 - Low-Density Trees
- 500 - Water
- 622 - Lowland Shrub
- 790 - Other Bare/Sparsely Vegetated

1 0.5 0 1 Miles

85°57'0"W 85°56'0"W 85°55'0"W 85°54'0"W 85°53'0"W
44°39'0"N 44°38'0"N 44°37'0"N 44°36'0"N

Stand Boundary Map

Compartment: 016
T26N R13W
Sections 19, 20, 29, 30, 31, 32
County: Benzie
Unit: Traverse City
YOE: 2015
Acres: 2,914 GIS Calculated
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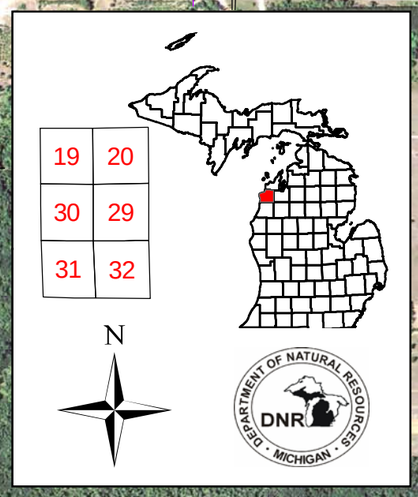
Stand # 23 — Stocking Density
(412)0) - A7
Level 3 — OI Code
Level 4
Cover Type Code



Legend
- Miris Corners
- Remonumented Section Corners
- Highway
- Paved Roads
- Gravel Roads
- Poor Dirt Roads
- Pipeline
- Powerline
- Stream
- Intermittent Stream
- Snowmobile Trail
- Culverts
- Stand Boundaries

1 Miles

Special Conservation Areas & Site Conditions Map

Compartment: 016
T26N R13W
Sections 19, 20, 29, 30, 31, 32
County: Benzie
Unit: Traverse City
YOE: 2015
Acres: 2,914 GIS Calculated
Examiner: Craig Allen
Map Revised: 05/28/2013
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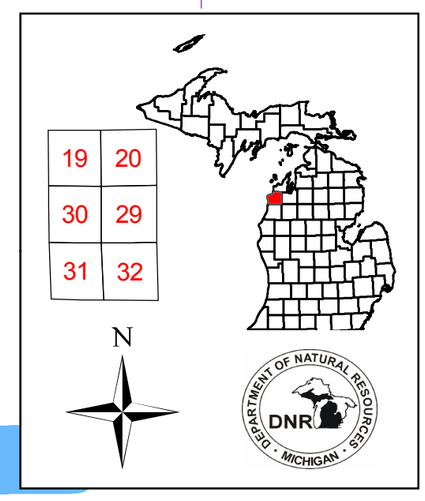
Stand # 23 — Stocking Density
(412)0) - A7
Level 3 Level 4 — OI Code
Cover Type Code



Legend
- Miris Corners
- Remonumented Section Corners

Site Condition Available
- Available w/ Constraints (Factor - Number)
- Unavailable (Factor - Number)

Dedicated Special Conservation Areas
- Cold Water Streams
- Cold Water Lakes
- High Priority Trout Stream Buffer
- Stand Boundaries

5C - 009
5C - 010
5C - 011
2G - 008
2G - 007
2F - 003
5C - 006
5C - 005
3D - 004
Turtle Lake Access Site

1 0.5 0 1 Miles

85°57'0"W 85°56'0"W 85°55'0"W 85°54'0"W 85°53'0"W
44°39'0"N 44°38'0"N 44°37'0"N 44°36'0"N

Report 2 – Total Acres by Cover Type and Age Class

Traverse City Mgt. Unit **Compartment 016 Year of Entry 2015**

Craig Allen : 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	95	0	318	187	36	112	42	0	0	0	0	0	0	0	**791**
Bare/Sparsely Vegetated	58	0	0	0	0	0	0	0	0	0	0	0	0	0	**58**
Bog	9	0	0	0	0	0	0	0	0	0	0	0	0	0	**9**
Cedar	0	0	0	0	0	0	0	0	0	0	0	2	0	0	**2**
Herbaceous Openland	121	0	0	0	0	0	0	0	0	0	0	0	0	0	**121**
Low-Density Trees	113	0	0	0	0	0	0	0	0	0	0	0	0	0	**113**
Lowland Conifers	0	0	0	0	0	0	0	0	0	0	57	0	0	0	**57**
Mixed Upland Deciduous	0	0	32	0	29	0	0	0	105	0	0	0	0	0	**166**
Natural Mixed Pines	0	0	0	0	0	15	0	0	2	0	0	0	0	0	**18**
Northern Hardwood	0	0	42	0	0	0	0	60	797	328	0	0	0	0	**1227**
Oak	0	0	0	0	0	0	0	0	34	10	0	0	0	0	**44**
Planted Mixed Pines	0	0	0	0	0	0	3	0	0	0	0	0	0	0	**3**
Red Pine	0	0	0	0	0	49	6	6	0	0	0	0	0	0	**61**
Upland Mixed Forest	0	0	0	0	0	53	93	0	0	0	0	0	0	0	**146**
Water	1	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**
White Pine	0	0	0	98	0	0	0	0	0	0	0	0	0	0	**98**
Total	**397**	**0**	**392**	**285**	**65**	**230**	**144**	**66**	**938**	**338**	**57**	**2**	**0**	**0**	**2914**

Report 3 – Proposed Treatment Summaries

Traverse City Mgt. Unit
Year of Entry 2015

Compartment 016
Total Compartment Acres: 2914

Acres by Treatment Type

Commercial Harvest - 341	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	134	0	0	0	0	0	**134**
Mixed Upland Deciduous	30	0	0	65	0	0	**95**
Northern Hardwood	0	0	0	0	0	87	**87**
Oak Types	0	0	0	25	0	0	**25**
Total	**164**	**0**	**0**	**90**	**0**	**87**	**341**

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
24	61016024-Cut_small	18.6	4130 - Aspen	High Density Pole	50		Harvest	Clearcut with Reserves	4130 - Aspen	Cmpt. Review Proposal

Prescription Specs: Harvest to regenerate and expand aspen. Cut all aspen, cherry and red maple. Possibly mark any poor form or declining white pine trees to cut and leave all others. Leave all oak and protect sap and pole oak as much as possible. Leave one or two retention islands and possibly mark a few scattered retention maple and cherry trees to leave. Create some CWD during harvest operations and leave any standing dead and den trees.

Other Comments:

Next Steps:

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
32	61016032-Cut	42.5	4133 - Aspen, Mixed Pine	High Density Pole	60	81-110	Harvest	Clearcut with Reserves	4130 - Aspen	Cmpt. Review Proposal

Prescription Specs: Cut all hardwoods except leave oak. Also cut majority of white pine, but leave all larger DBH super canopy pine and try to protect some of the pine saplings during harvest. Retention goals can be accomplished by marking leave trees of various hardwood species along with pine and oak as discussed. Keep sale boundary a minimum of 100 feet from Kinney Creek, although most of boundary will be farther away due to steep terrain. Create some CWD during harvest and leave any standing dead and den trees.

Other Comments:

Next Steps:

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
44	61016044-Cut	73.3	4130 - Aspen	High Density Pole	55	81-110	Harvest	Clearcut with Reserves	4130 - Aspen	Cmpt. Review Proposal

Prescription Specs: Manage for aspen regeneration by cutting all aspen, maple and cherry. Leave most oak, but mark a few to cut to try for stump sprout regeneration. Mark to leave a few retention islands (one would be along snowmobile trail edges in NW area of the stand) and mark some scattered cherry to leave for wildlife mast. Select mark some of the white pine to cut. Leave any standing dead trees along with den trees. Create some CWD during harvest operations.

Other Comments:

Next Steps:

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
50	61016050-Cut	29.9	4191 - Mixed Upland Deciduous with Conifer	High Density Pole	81	81-110	Harvest	Clearcut with Reserves	4133 - Aspen, Mixed Pine	Cmpt. Review Proposal

Prescription Specs: Harvest all aspen and red maple and cut all white pine 6" to 12" DBH. Possibly, leave retention island/strip near Cinder road for dual purpose of visual management. Possibly mark a scattered lower quality oak to cut for potential resprouting. Create some CWD during harvest and leave any standing dead trees and den trees.

Other Comments:

Next Steps:

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
62	61016062-Cut	24.9	4123 - Red Oak	High Density Log	85	81-110	Harvest	Shelter Wood with Reserves	4131 - Aspen, Oak	Cmpt. Review Proposal

Prescription Specs: Manage for aspen, maple and oak regeneration. Harvest all aspen, red maple, and select mark some of the oak (of lower quality/form) to encourage oak sprouts. Select mark all of the trees in the area south of the snowmobile trail to leave higher BA residual for aesthetic reasons (adjacent to two roads and a private camprground). Retention includes the majority of oak will remain and select mark scattered leave tree aspen and maple. Also, possibly leave retention island/strip near Cinder road. Leave all pine. Create some CWD during harvest and leave any standing dead trees and den trees.

Other Comments:

Next Steps:

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
68	61016068-Cut	65.0	4199 - Other Mixed Upland Deciduous	High Density Log	86	51-80	Harvest	Shelter Wood with Reserves	4131 - Aspen, Oak	Cmpt. Review Proposal

Prescription Specs: Cut all aspen and red maple and select mark some scattered oak to induce oak stump sprout regen. Leave a couple retention islands comprising of at a miniumum of 3% of the harvest area. Create some CWD during harvest and leave any standing dead trees and den trees in place.

Other Comments:

Next Steps:

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
84	61016084-Cut	52.1	4110 - Sugar Maple Association	High Density Log	85	81-110	Harvest	Other - Specify in Comments	4110 - Sugar Maple Association	Cmpt. Review Proposal

Prescription Specs: Due to invasive species and disease problems, salvage cut all ash, beech and possibly red oak if oak wilt is present. Will need to harvest these trees as soon as possible.

Other Comments:

Next Steps:

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
90	61016090-Cut	34.6	4111 - S.Maple, Hard Mast Association	High Density Log	85	81-110	Harvest	Other - Specify in Comments	4111 - S.Maple, Hard Mast Association	Cmpt. Review Proposal

Prescription Specs: Due to invasive species insect and disease problems, salvage cut all ash, beech and red oak trees. Will need to harvest these trees as soon as possible.

Other Comments:

Next Steps:

Proposed Start Date: 10/01/2014

Total Treatment Acreage Proposed: 340.9

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

Prescription Specs:

Other Comment:

Next Steps:

Proposed Start Date: #Type!

Limiting Factor

Total Treatment Acreage Proposed: **0**

Report 6 – Out of YOE – Treatments Prescribed with No Limiting Factor

Year of Entry: 2015

Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
28218	5.9	Unspecified				Harvest	Other - Specify in Comments	Unspecified	Cmpt. Review Proposal

Prescription Specs:

Other Comments:

Next Steps:

Proposed Start Date:

28219	7.2	Unspecified				Harvest	Other - Specify in Comments	Unspecified	Cmpt. Review Proposal - Incomplete

Prescription Specs:

Other Comments:

Next Steps:

Proposed Start Date:

61043_OutOfYOE-Cut	2.1					Harvest	Clearcut with Reserves	4131 - Aspen, Oak	Cmpt. Review Proposal - Incomplete

Prescription Specs: retain some pine and osk for mast and seed production, Folllow WLD guidance for CWD creation. Harvest all stems that are not retained.

Other Comments: New stand should have mix of oak, pine, aspen and maple.

Next Steps:

Proposed Start Date: 09/01/2009

Total Treatment Acreage Proposed: 15.3

Report 7 – Site Conditions

Traverse City Mgt. Unit

Craig Allen : Examiner

Compartment 016

Year of Entry 2015

Availability for Management

Total Acres	Acres Available	Acres Not Available		Dominant Site Conditions No	5C	3D	2G	2F
791	791		**Aspen**	734	57			
2	2		**Cedar**	2				
57	7	50	**Lowland Conifers**	7			50	
166	166		**Mixed Upland Deciduous**	166				
18	18		**Natural Mixed Pines**	18				
1227	1187	40	**Northern Hardwood**	1,187				40
44	34	10	**Oak**	25	9	10		
3	3		**Planted Mixed Pines**	3				
61	61		**Red Pine**	61				
146	146		**Upland Mixed Forest**	53	93			
98	98		**White Pine**	98				
2,612	2,511	101	Total Forested Acres	2,353	159	10	50	40
	96%	4%	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
003		**Not Available**	**2F: Too steep**	40				
	Comments:							
004		**Not Available**	**3D: Recreational / Scenic values**	10				
	Comments: turtle lake access site parcel							
005		**Available**	**5C: Delay treatment for age/size class diversity or exceptional site quality**	36				
	Comments:							

006	**Available**	**5C: Delay treatment for age/size class diversity or exceptional site quality**	9

Comments:

007	**Not Available**	**2G: Too wet (sensitive soils, does not include access issues)**	20

Comments:

008	**Not Available**	**2G: Too wet (sensitive soils, does not include access issues)**	30

Comments:

009	**Available**	**5C: Delay treatment for age/size class diversity or exceptional site quality**	21

Comments:

010	**Available**	**5C: Delay treatment for age/size class diversity or exceptional site quality**	87

Comments:

011	**Available**	**5C: Delay treatment for age/size class diversity or exceptional site quality**	6

Comments:

Report 8 – 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
Turtle Lake Access Site	Concentrated Recreation Area	Boat Access Site	**SCA**	10.1
Comments				

Report 9 – 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	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.

Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
3	4117 - Mixed N. Hardwood - Pine	High Density Log	43.5	83	81-110	good mixed species stand
5	4110 - Sugar Maple Association	High Density Log	5.8	83	81-110	
8	4110 - Sugar Maple Association	Low Density Log	7.0	90	1-50	
9	42110 - Planted Red Pine	High Density Log	5.6	74	111-140	
10	4112 - Maple, Beech, Cherry Association	High Density Log	39.5	83	51-80	
11	4117 - Mixed N. Hardwood - Pine	Low Density Log	159.9	85	1-50	
15	42260 - Natural Pine, Mixed Deciduous	High Density Pole	15.3	56	81-110	
16	4130 - Aspen	High Density Sapling	39.2	7		
18	4130 - Aspen	High Density Sapling	15.0	7		
19	4112 - Maple, Beech, Cherry Association	High Density Log	6.8	88	81-110	
22	4311 - Pine, Aspen Mix	High Density Pole	52.9	55	51-80	
23	6128 - Lowland Coniferous, Mixed Deciduous	High Density Log	23.9	109	81-110	
24	4130 - Aspen	High Density Pole	39.2	50		also contains some scattered mature red oak and scattered pole/sap red oak
27	4116 - Mixed N. Hardwood - Aspen	High Density Pole	10.6	85	51-80	
29	4112 - Maple, Beech, Cherry Association	High Density Pole	14.8	88	51-80	
30	42101 - Planted White Pine, Mixed Deciduous	High Density Pole	47.7	36	51-80	
32	4133 - Aspen, Mixed Pine	High Density Pole	42.5	60	81-110	
33	4133 - Aspen, Mixed Pine	High Density Pole	103.3	26		

Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
34	4130 - Aspen	High Density Sapling	24.9	7		
36	4133 - Aspen, Mixed Pine	High Density Pole	24.2	25		
37	4130 - Aspen	High Density Sapling	15.9	7		
39	6128 - Lowland Coniferous, Mixed Deciduous	High Density Log	33.1	100	81-110	
40	42110 - Planted Red Pine	High Density Pole	49.4	57	141-170	
41	4130 - Aspen	High Density Sapling	71.4	25		
43	4311 - Pine, Aspen Mix	High Density Pole	93.4	65	51-80	
44	4130 - Aspen	High Density Pole	73.3	55	81-110	
45	4133 - Aspen, Mixed Pine	High Density Pole	25.3	39		
46	4112 - Maple, Beech, Cherry Association	High Density Log	24.7	83	1-50	
47	4133 - Aspen, Mixed Pine	High Density Sapling	9.6	25		
48	4133 - Aspen, Mixed Pine	High Density Pole	33.5	30		
50	4191 - Mixed Upland Deciduous with Conifer	High Density Pole	29.9	81	81-110	
52	4130 - Aspen	High Density Pole	30.4	25		
53	4130 - Aspen	High Density Pole	18.3	25		
54	4112 - Maple, Beech, Cherry Association	High Density Log	24.1	90	81-110	
55	4133 - Aspen, Mixed Pine	High Density Pole	40.4	39		
56	4133 - Aspen, Mixed Pine	High Density Pole	57.9	39		

Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
57	6120 - Lowland Cedar	High Density Log	1.7	114	51-80	Small part of larger type in adjacent compartments. Nice quality cedar. a few hemlock
58	4112 - Maple, Beech, Cherry Association	Medium Density Pole	42.2	24		
59	4199 - Other Mixed Upland Deciduous	High Density Pole	19.5	25		
60	4133 - Aspen, Mixed Pine	High Density Pole	8.9	25		
61	42101 - Planted White Pine, Mixed Deciduous	High Density Pole	50.7	36	51-80	
62	4123 - Red Oak	High Density Log	24.9	85	81-110	
64	4112 - Maple, Beech, Cherry Association	High Density Pole	60.2	70	81-110	
65	4123 - Red Oak	High Density Log	8.6	86	51-80	
66	4130 - Aspen	High Density Pole	23.6	25		
67	4123 - Red Oak	High Density Log	10.1	90	81-110	
68	4199 - Other Mixed Upland Deciduous	High Density Log	65.3	86	51-80	
70	4110 - Sugar Maple Association	High Density Log	35.4	86	81-110	
71	4130 - Aspen	High Density Pole	10.5	25		
72	4112 - Maple, Beech, Cherry Association	High Density Log	66.0	85	81-110	
73	4110 - Sugar Maple Association	High Density Log	38.4	85	81-110	
75	4131 - Aspen, Oak	High Density Pole	36.3	48		
76	4112 - Maple, Beech, Cherry Association	High Density Log	20.5	90	81-110	
77	4110 - Sugar Maple Association	High Density Log	57.5	85	81-110	

Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
78	4112 - Maple, Beech, Cherry Association	High Density Pole	10.5	80	81-110	
79	4130 - Aspen	High Density Pole	17.6	25		
80	4110 - Sugar Maple Association	High Density Log	40.3	85	111-140	
81	4191 - Mixed Upland Deciduous with Conifer	High Density Sapling	12.8	25		
82	4199 - Other Mixed Upland Deciduous	High Density Pole	28.7	40	81-110	
83	42260 - Natural Pine, Mixed Deciduous	High Density Log	2.4	85	81-110	
84	4110 - Sugar Maple Association	High Density Log	52.1	85	81-110	
86	4110 - Sugar Maple Association	High Density Log	276.6	90	81-110	
88	42140 - Planted Mixed Pine	High Density Pole	3.1	62	111-140	
89	4119 - Mixed Northern Hardwoods	High Density Log	24.8	86	51-80	
90	4111 - S.Maple, Hard Mast Association	High Density Log	34.6	85	81-110	also contains some scattered cherry too
91	4110 - Sugar Maple Association	High Density Log	48.8	85	81-110	
92	42110 - Planted Red Pine	High Density Log	5.6	62	81-110	
93	4199 - Other Mixed Upland Deciduous	High Density Log	9.7	82	81-110	
94	4139 - Aspen, Mixed Deciduous	High Density Pole	29.5	37		
96	4110 - Sugar Maple Association	High Density Log	9.1	82	51-80	
97	4110 - Sugar Maple Association	High Density Log	73.6	85	81-110	

Report 11 – Nonforested Stands

Stand	Cover Type	Acres	Managed Site	Management Priority (Objective)	General Comments:
1	790 - Other Bare/Sparsely Vegetate	28.0	N\A	Unspecified	
2	310 - Herbaceous Openland	1.0	N\A	Unspecified	
4	310 - Herbaceous Openland	1.3	N\A	Unspecified	
6	330 - Low-Density Trees	28.9	N\A	Unspecified	
7	310 - Herbaceous Openland	47.5	N\A	Unspecified	
12	310 - Herbaceous Openland	24.1	N\A	Unspecified	
13	310 - Herbaceous Openland	1.5	N\A	Unspecified	
14	330 - Low-Density Trees	45.6	N\A	Unspecified	
17	310 - Herbaceous Openland	17.6	N\A	Unspecified	
20	310 - Herbaceous Openland	4.0	N\A	Unspecified	
21	310 - Herbaceous Openland	6.2	N\A	Unspecified	
25	310 - Herbaceous Openland	2.1	N\A	Unspecified	
26	310 - Herbaceous Openland	4.2	N\A	Unspecified	
28	50 - Water	1.4	N\A	Unspecified	
31	6225 - Bog	8.7	N\A	Unspecified	
35	330 - Low-Density Trees	10.1	N\A	Unspecified	
38	330 - Low-Density Trees	3.3	N\A	Unspecified	
42	310 - Herbaceous Openland	1.3	N\A	Unspecified	

Data updated before 10:00 AM

Stand	Cover Type	Acres	Managed Site	Management Priority (Objective)	General Comments:
49	330 - Low-Density Trees	4.9	N\A	Unspecified	
51	330 - Low-Density Trees	1.7	N\A	Unspecified	
63	310 - Herbaceous Openland	2.7	N\A	Unspecified	
69	330 - Low-Density Trees	2.6	N\A	Unspecified	
74	330 - Low-Density Trees	5.5	N\A	Unspecified	
85	310 - Herbaceous Openland	7.4	N\A	Unspecified	
87	790 - Other Bare/Sparsely Vegetate	29.7	N\A	Unspecified	
95	330 - Low-Density Trees	10.7	N\A	Unspecified	