Compartment Review Presentation

Baraga Forest Management Unit

Compartment 81
Entry Year 2016
Acreage: 3,606
County Keweenaw
Management Area: Keweenaw Tip

Revision Date: 04/09/2014

Stand Examiner: Brad Carlson

Legal Description:

Keweenaw County, Grant Township
T58N R27W, Section 5, 6, 7, 8, 9, 16, 17

Identified Planning Goals:

The Keweenaw Tip management area is on a bedrock ridge complex in northern Keweenaw County. The state forest covers 8,716 acres and is mostly contiguous. The major ownerships in this vicinity are forest industry and non-industrial private. The management area is dominated by the northern hardwood, upland spruce/fir and cedar cover types. Other attributes that played a role in the definition of this management area include:

- Dominated by two natural communities: mesic northern forest and boreal forest;
- Mid-range in site quality;
- Most of the lands in this management area were acquired after 2000;
- High recreational interest (recommendations of the Keweenaw Point Citizens Advisory Committee); and
- Opportunities to enhance biodiversity.

The management priorities for this area are to develop its recreational characteristics while preserving and enhancing the native biodiversity. Management for timber products will be limited to when compatible with the other priorities.

Soil and topography:

The upland is hilly to rolling; soils are Arcadian-Dishno-Rock Outcrop complex, Arcadian-Michigamme-Rock Outcrop complex, Trimountain-Lac La Belle-Michigamme complex, Gratiot-Sabattis complex, Montreal-Paavola-Dishno complex, Wallace-Rubicon sands on the upland, and Lupton and Tawas mucks, Tawas-Deford mucks in the lowlands.

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

Lands to the west are forest industry; there are small private ownerships to the east, and state land to the south. The Nature Conservancy owns property to the north.

Unique Natural Features:

There are threatened and endangered plants in the area.

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:

This has not been designated as a special management area; however, it will be treated as a highly sensitive area.

Watershed and Fisheries Considerations:

Stream crossings on Union Creek should be upgraded.

Wildlife Habitat Considerations:

Feature oak where present; mark trees growing under and around oaks so as to release oak crowns and to stimulate oak reproduction. This compartment features threatened and endangered plant species.

Mineral Resource and Development Concerns and/or Restrictions

Surface sediments consist of coarse-textured glacial till and lacustrine (lake) sand and gravel thin to discontinuous along the coastline. There is insufficient data to determine the glacial drift thickness. The Precambrian Copper Harbor Conglomerate and Portage Lake Conglomerate subcrop below the glacial drift. The Copper Harbor Conglomerate was previously mined for small amounts of copper. There are no gravel pits in the area, but there may be some potential. Abandoned copper mines are located to the west. The Compartment has not been leased for metallic exploration. There is no economic oil and gas production in the UP.

Vehicle Access:

Access is via the Mandan Road off of the end of US-41. Access is poor (the roads are rough). Stream crossings need to be upgraded. Roads should be upgraded, but not to high speed gravel roads.

Survey Needs:

Some survey work will need to be completed in section 7 before timbersale preparation can take place.

Recreational Facilities and Opportunities:

The Mandan Road from the Clark Mine Road to the Highrock Bay and the Highrock Bay Road are a designated Snowmobile Trail. There designated ATV trail in the area but none in the compartment, but the are abundant opportunities for ATV riding. The advisory committee recommended several small campsites, hiking trails and a parking area at High Rock Bay.

Fire Protection:

This area is usually not a fire prone area, but in August of 2006 the Keystone Bay Fire consumed more than 100 acres of mixed conifer and cedar swamp due to severe drought conditions. This fire occurred just south of the compartment line in compartment 75.

Additional Compartment Information:

A citizens committee made recommendations for management for this compartment and compartments 75 and 82. These recommendations and the recommendations from the Baraga Management Unit are still in place but no action has been taken to finalize their status..

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

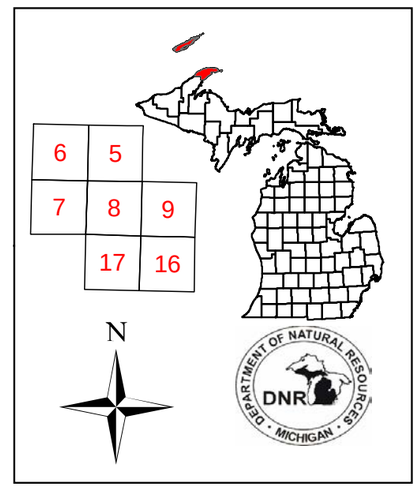
The following information is displayed, where pertinent, on the attached compartment maps:

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: 81
T58N R27W Sec. 5 - 9, 16, 17
County: Keweenaw
Unit: Baraga
YOE: 2016
Acres: 3,606 GIS Calculated
Examiner: Brad Carlson
Map Revised: 05/20/2014
Map Phase: Pre-Review

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



1 4112-M9
2 4123-O9
3 4111-M9
4 4111-M8
5 4190-MD8
6 4111-M9
7 6132-LM9
8 4139-A9
9 4191-MD9
10 6120-C9
11 4139-A9
12 4191-MD9
13 4130-A9
14 4119-M9
15 4191-MD3
16 6120-C9
17 4134-A3
18 4191-MD9
19 622-L0
20 4110-M6
21 4134-A6
22 4319-UM6
23 4319-UM3
24 6124-Q6
25 4319-UM3
26 4119-M9
27 4110-M9
28 4139-A9
29 6123-Q4
30 4191-MD9
31 4130-A3
32 6120-C6
33 4139-A9
34 6128-Q6
35 4220-W9
36 429 -MC9
37 4191-MD6
38 500-Z0
39 4119-M9
40 6120-C1
41 429 -MC9
42 623-N0
43 6128-Q5
44 4112-M9
45 4112-M9
46 4220-W9
47 6120-C6
48 4238-MC6
49 6127-Q4
50 6122-S2
51 4220-W9
52 4319-UM9
53 6122-S6
54 6122-S6

Camp Manitou Rd
E Bluff Tower Trl
N Mandan Rd
S Mandan Rd
Horseshoe Harbor Trl
Rocket Range Trl
High Rock Bay Trl
Keystone Bay Trl
Hoar Lake Rd
Schlatter Lake
Gill Lake
Bay Lake

Legend

- Miris Corners
- Gravel Roads
- Poor Dirt Roads
- Pipeline
- ORV Routes
- Snowmobile Trails
- ORV Route
- Snowmobile Trail
- Stream
- Intermittent Stream
- Lakes and Rivers

Treatments
- Clearcut (w/Reserves, Patch/Strip)
- Selection (Group, Single Tree)

Forest Stands
Level 3
- 411 - Northern Hardwood
- 412 - Oak Types
- 413 - Aspen Types
- 419 - Mixed Upland Deciduous
- 422 - Natural Pines
- 423 - Other Upland Conifers
- 429 - Mixed Upland Conifers
- 431 - Upland Mixed Forest
- 612 - Lowland Coniferous Forest
- 613 - Lowland Mixed Forest

Non-Forest Stands
Level 3
- 500 - Water
- 622 - Lowland Shrub
- 623 - Emergent Wetland

1 0.5 0 1 Miles

87°48'0"W 87°47'0"W 87°46'0"W 87°45'0"W 87°44'0"W 87°43'0"W
47°28'0"N 47°27'0"N 47°26'0"N 47°25'0"N 47°24'0"N

Stand Boundary Map

Compartment: 81
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(412)0) - A7
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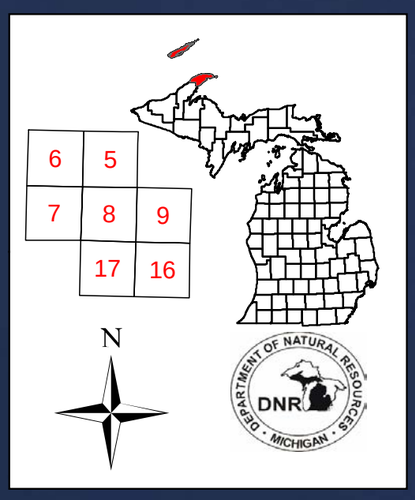

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49 6127-Q4
50 6122-S2
51 4220-W9
52 4319-UM9
53 6122-S6
54 6122-S6

Camp Manitou Rd
Horseshoe Harbor Trl
B Bluff Tower Trl
N Manitou Rd
Rocket Range Trl
High Rock Bay Trl
S Manitou Rd
Clark Mine Rd
Keystone Bay Trl
Hoar Lake Rd
Schlatter Lake
Gill Lake
Bay Lake

Legend

- Miris Corners
- Stand Boundaries
- Gravel Roads
- Poor Dirt Roads
- Pipeline
- ORV Routes
- Snowmobile Trails
- ORV Route
- Stream
- Intermittent Stream

Forest Stands

Level 3

411 - Northern Hardwood
412 - Oak Types
413 - Aspen Types
419 - Mixed Upland Deciduous
422 - Natural Pines
423 - Other Upland Conifers
429 - Mixed Upland Conifers
431 - Upland Mixed Forest
612 - Lowland Coniferous Forest
613 - Lowland Mixed Forest

Non-Forest Stands

Level 3

500 - Water
622 - Lowland Shrub
623 - Emergent Wetland

1 0.5 0 1 Miles

Special Conservation Areas & Site Conditions Map

Compartment: 81
T58N R27W Sec. 5 - 9, 16, 17
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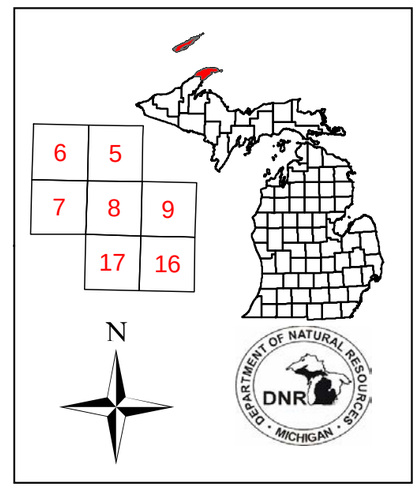

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3A - 009
8 4139-A9
3 4111-M9
4 4111-M9
5C - 003
5C - 006
3J - 007
7 6132-LM9
12 4191-MD9
13 4130-A9
5 4190-MD8
6 4111-M9
9 4191-MD9
11 4139-A9
10 6120-C9
14 4119-M9
5C - 013
18 4191-MD9
2G - 010 622-L0
16 6120-C9
24 6124-Q6
29 6123-Q4
26 4119-M9
33 4139-A9
32 6120-C6
17 4134-A3
15 4191-MD3
35 4220-W9
45 4112-M9
38 500-Z0
21 4134-A6
25 4319-UM3
41 429 -MC9
23 4319-UM3
3A - 002
20 4110-M6
22 4319-UM6
42 623-N0
49 6127-Q4
28 4139-A9
36 429 -MC9
40 6120-C1
27 4110-M9
31 4130-A3
53 6122-S6
30 4191-MD9
37 4191-MD6
46 4220-W9
52 4319-UM9
51 4220-W9
2G - 011 6128-Q6
44 4112-M9
50 6122-S2
39 4119-M9
43 6128-Q5
47 6120-C6
2H - 004
48 4238-MO6
54 6122-S6

Legend

- Miris Corners
- Stand Boundaries
- Stand Boundaries
- Available w/ Constraints (Factor - Number)
- Unavailable (Factor - Number)

Site Condition Type

Available Factors W/ Constraints

- 5C: Delay treatment for age/size class diversity or exceptional site quality

Unavailable Factors

- 2G: Too wet (sensitive soils, does not include access issues)
- 2H: Blocked by physical obstacle (e.g. upland stand in a lowland area)
- 3A: Potential old growth / biodiversity
- 3J: Water quality / BMPs (stream, river, or lake)

Special Conservation Areas

- Ecological Reference Areas
- Cold Water Streams
- Cold Water Lakes
- High Priority Trout Stream Buffer

1 0.5 0 1 Miles

Report 1 – Total Acres by Cover Type and Age Class

Baraga Mgt. Unit **Compartment 081 Year of Entry 2016**

Brad Carlson : 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	0	74	0	0	0	0	0	510	753	0	0	0	0	0	**1337**
Cedar	0	0	0	0	0	20	0	164	0	0	0	0	0	74	**258**
Lowland Conifers	0	0	0	0	76	0	54	0	8	0	0	0	0	66	**205**
Lowland Mixed Forest	0	0	0	0	0	0	0	0	0	0	0	0	0	66	**66**
Lowland Shrub	11	0	0	0	0	0	0	0	0	0	0	0	0	0	**11**
Lowland Spruce/Fir	0	0	0	0	0	78	23	27	0	0	0	0	0	0	**128**
Marsh	2	0	0	0	0	0	0	0	0	0	0	0	0	0	**2**
Mixed Upland Deciduous	25	0	0	0	0	0	0	0	49	0	0	0	0	321	**394**
Northern Hardwood	0	0	0	0	0	0	0	0	93	20	0	0	0	381	**493**
Oak	0	0	0	0	0	0	0	95	0	0	0	0	0	0	**95**
Upland Conifers	0	0	0	0	0	0	0	0	0	0	0	0	6	34	**40**
Upland Mixed Forest	74	60	0	0	0	0	0	0	0	0	0	0	0	111	**246**
Water	280	0	0	0	0	0	0	0	0	0	0	0	0	0	**280**
White Pine	0	0	0	0	0	0	0	0	0	0	1	0	0	50	**51**
Total	**392**	**134**	**0**	**0**	**76**	**98**	**77**	**796**	**903**	**20**	**1**	**0**	**6**	**1103**	**3606**

Report 2 – Proposed Treatment Summaries

Baraga Mgt. Unit
Year of Entry 2016

Compartment 081
Total Compartment Acres: 3,606

Acres by Treatment Type

Commercial Harvest - 545	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	120	0	0	0	0	0	**120**
Mixed Upland Deciduous	207	0	0	0	0	0	**207**
Northern Hardwood	193	25	0	0	0	0	**218**
Total	**520**	**25**	**0**	**0**	**0**	**0**	**545**

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
6	11081006-Cut	19.7	4111 - S.Maple, Hard Mast Association	High Density Log	91	111-140	Harvest	Clearcut with Reserves	413 - Aspen	Cmpt. Review Proposal

Prescription Specs: Harvest all species down to 4.6 inches DBH exceptred oak, cedar and white pine. Also, reserve hemlock if present. Operation shall not disturb the snowmobile trail from Dec 1st - March 31st.

Other Comments: Sugar Maple has top dieback throughout stand, Red Oak is healthy. Clearcut reserving Red Oak and the few Cedar and White Pine that are in the stand. Retention for this stand will be greater than 3% and will consist of reserve tree species.

Next Steps: Regeneration survey as per work instructions.

Proposed Start Date: 10/01/2015

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
9	11081009-Cut	174.3	4191 - Mixed Upland Deciduous with Conifer	High Density Log	86	111-140	Harvest	Clearcut with Reserves	413 - Aspen	Cmpt. Review Proposal

Prescription Specs: Harvest all species down to 4.6 inches DBH except cedar, red oak and white pine. Also reserve hemlock if it is present. Retention for this stand will be greater than 3% and will consist of reserve tree species. Retain some large aspen and white spruce along Union Creek corridor. Also, reserve hemlock if present. Operation shall not disturb the snowmobile trail from Dec 1st - March 31st.

Other Comments: Maple in the stand has top dieback

Next Steps: Regeneration survey as per work instructions.

Proposed Start Date: 10/01/2015

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
28	11081028-Cut	120.3	4139 - Aspen, Mixed Deciduous	High Density Log	77	81-110	Harvest	Clearcut with Reserves	413 - Aspen	Cmpt. Review Proposal

Prescription Specs: Harvest all species down to 4.6 inches DBH except hemlock, red oak, cedar and white pine. Retention for this stand will be greater than 3% and will consist of reserve tree species. No operations from DEC 1st - March 31st due to snowmobile trail.

Other Comments: GMO did a some aspen removal before it was acquired, Stand should be final harvested reserving White Pine, Hemlock. Red Oak and Cedar. Stand has uneven aged characteristics.

Next Steps: Regeneration survey as per work instructions.

Proposed Start Date: 10/01/2015

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
37	11081037-Cut	32.8	4191 - Mixed Upland Deciduous with Conifer	High Density Pole	69	51-80	Harvest	Clearcut with Reserves	413 - Aspen	Cmpt. Review Proposal

Prescription Specs: Harvest all species down to 4.6 inches DBH except cedar and white pine. Also reserve red oak and hemlockl if they are present. Retention for this stand will be greater than 3% and will consist of reserve tree species. No operations from DEC 1st - March 31st due to snowmobile trail.

Other Comments: Adjacent to a 1998 GMO Clearcut, A nondesignated ATV trail runs through the stand.

Next Steps: Regeneration survey as per work instructions.

Proposed Start Date: 10/01/2015

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
44	11081044-Cut	25.1	4112 - Maple, Beech, Cherry Association	High Density Log	97	81-110	Harvest	Single Tree Selection	411 - Northern Hardwood	Cmpt. Review Proposal

Prescription Specs: Selectively thin hardwoods to 70-90 sqft of BA. Favor oak, hemlock, white pine, yellow birch and cedar where present. Oak should be released on 3 sides to an average BA of 60 sqft. Where 30 sqft or more of hemlock occurs thin to less than 100 sqft of BA. Follow all guidelines set forth in "The Complete Marker". No operations from DEC 1st - March 31st due to snowmobile trail.

Other Comments: Old road through stand that ATVs have opened up. Road comes from old clearcut to the north.

Next Steps:

Proposed Start Date: 10/01/2015

Total Treatment Acreage Proposed: 372.3

Report 4 -- Treatments Prescribed with a Site Condition

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
4	11081004-Cut	93.0	4111 - S.Maple, Hard Mast Association	Medium Density Log	86	1-50	Harvest	Clearcut with Reserves	413 - Aspen	Cmpt. Review Proposal

Prescription Specs: Harvest all species down to 4.6 inches DBH except cedar, red oak and white pine. Also reserve hemlock if it is present. Retention for this stand will be greater than 3% and will consist of reserve tree species. Also, reserve hemlock if present. Operation shall not disturb the snowmobile trail from Dec 1st - March 31st.

Other Comment: Stand was cut heavy by GMO before we acquired it. Residual maple is either dead or dying. Adjacent stand is prescribed. Prescribe stand and possibly negotiate with the contractor who wins the bid on the adjacent sale to determine if it is economically feasible to harvest. Retention for this stand will be greater than 3% and will consist of reserve tree species.

Next Steps: Regeneration survey as per work instructions.

Proposed Start Date: 10/01/2015

Limiting Factor: 5C: Delay treatment for age/size class diversity or exceptional site quality

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
14	11081014-Cut	80.1	4119 - Mixed Northern Hardwoods	High Density Log	81	1-50	Harvest	Clearcut with Reserves	413 - Aspen	Cmpt. Review Proposal

Prescription Specs: Harvest all species down to 4.6 inches DBH except cedar, red oak and white pine. Also reserve hemlock if it is present. Retention for this stand will be greater than 3% and will consist of reserve tree species. Retain some large aspen and white spruce along Union Creek corridor. Also, reserve hemlock if present. Operation shall not disturb the snowmobile trail from Dec 1st - March 31st.

Other Comment: Stand was cut heavy by GMO before we acquired it. Residual maple is either dead or dying. Adjacent stand is prescribed. Prescribe stand and possibly negotiate with the contractor who wins the bid on the adjacent sale to determine if it is economically feasible to harvest.

Next Steps: Regeneration survey as per work instructions.

Proposed Start Date: 10/01/2015

Limiting Factor: 5C: Delay treatment for age/size class diversity or exceptional site quality

Total Treatment Acreage Proposed: 173.1

Report 5 – Site Conditions

Baraga Mgt. Unit

Brad Carlson : Examiner

Compartment 081

Year of Entry 2016

Availability for Management

Total Acres	Acres Available	Acres Not Available		Dominant Site Conditions No	5C	3J	3I	3A	2H	2G
1337	276	1060	**Aspen**	194	82	17	2	1,041		
258	74	184	**Cedar**	74	0			182		2
204		204	**Lowland Conifers**					106		98
66	0	66	**Lowland Mixed Forest**		0	66				
127		127	**Lowland Spruce/Fir**					127		
394	346	48	**Mixed Upland Deciduous**	346				48		
492	373	120	**Northern Hardwood**	124	249	8		85	27	
95		95	**Oak**					95		
40		40	**Upland Conifers**					40		
245	134	111	**Upland Mixed Forest**	134				111		
51		51	**White Pine**					51		
3,310	1,203	2,107	Total Forested Acres	871	332	91	2	1,887	27	100
	36%	64%	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**	**3A: Potential old growth / biodiversity**	1,318				
	Comments:							
003		**Available**	**5C: Delay treatment for age/size class diversity or exceptional site quality**	93				
	Comments:							

004	**Not Available**	**2H: Blocked by physical obstacle (e.g. upland stand in a lowland area)**	27	5C: Delay treatment for age/size class diversity or exceptional site quality	

Comments:

005	**Not Available**	**3I: Historical / archeological (add locked comments)**	3	5E: Long Term	

Comments:

006	**Available**	**5C: Delay treatment for age/size class diversity or exceptional site quality**	159	No Limiting Factor	

Comments:

007	**Not Available**	**3J: Water quality / BMPs (stream, river, or lake)**	91		

Comments:

009	**Not Available**	**3A: Potential old growth / biodiversity**	853		

Comments:

010	**Not Available**	**2G: Too wet (sensitive soils, does not include access issues)**	11		

Comments:

011	**Not Available**	**2G: Too wet (sensitive soils, does not include access issues)**	100

Comments:

013	**Available**	**5C: Delay treatment for age/size class diversity or exceptional site quality**	80

Comments:

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
Baraga POG 1	Type 1 or Type 2 Old Growth	Possible Type 2 Old Growth Area		853.0
Comments				
Baraga POG 2	Type 1 or Type 2 Old Growth	Possible Type 2 Old Growth Area		1317.5
Comments				

Report 7 – 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	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 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	Habitat Area	An area that provide some specific need for the life cycle of wildlife species, including State Wildlife Areas and Waterfowl Production Areas, deer wintering complexes in lowland conifer communities, grassland openings and savannas. Habitat areas are distinct from critical habitat designated for recovery of endangered or threatened species (such as Kirtland's warbler or piping plover areas) in that they are more general in nature, are not primarily associated with threatened or endangered species, and are not covered by species recovery plans that are developed in cooperation with Federal agencies.
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.
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	4112 - Maple, Beech, Cherry Association	High Density Log	26.8	Uneven Age	81-110	Steep terrian. Tough access.
2	4123 - Red Oak	High Density Log	94.8	71	51-80	Ridgetop Oak, 2 sticks tall. No signs of past management. Consider type 2 old growth.
3	4111 - S.Maple, Hard Mast Association	High Density Log	84.3	Uneven Age	81-110	Stand was highgraded before it was acquired. The Mandan Road travels the entire length of the stand and recieves heavy recreational use in the summer months.
4	4111 - S.Maple, Hard Mast Association	Medium Density Log	93.0	86	1-50	Stand was cut heavy by GMO before we acquired it. Residual maple is either dead or dying. Adjacent stand is prescribed. Prescribe stand and possibly negotiate with the contractor who wins the bid on the adjacent sale to determine if it is economically feasible to harvest.
5	4190 - Mixed Upland Deciduous with Cedar	Medium Density Log	2.4	Uneven Age	51-80	Small pocket bog surrounded by cedar.
6	4111 - S.Maple, Hard Mast Association	High Density Log	19.7	91	111-140	Sugar Maple has top dieback throughout stand, Red Oak is healthy. Clearcut reserving Red Oak and the few Cedar and White Pine that are in the stand.
7	6132 - Mixed Lowland Forest with Cedar	High Density Log	66.4	Uneven Age	51-80	Stream corridor with steep slopes transitioning from the upland. Pockets of L0 where there are old beaver dams.
8	4139 - Aspen, Mixed Deciduous	High Density Log	394.8	81	81-110	Some wet drainages within stand. No signs of past management. Consider nominating for Type 2 old growth. Stand has uneven aged characteristics due to the prevailing wind off of Lake Superior creating pockets of wind throw which regenerate younger early successional species.
9	4191 - Mixed Upland Deciduous with Conifer	High Density Log	174.3	Uneven Age	111-140	Maple has top dieback which is severe is some areas of the stand. Even age manage the stand for Aspen, Pine and Oak. Final harvest reserving White Pine, Cedar and Red Oak.
10	6120 - Lowland Cedar	High Density Log	5.9	Uneven Age	51-80	
11	4139 - Aspen, Mixed Deciduous	High Density Log	99.5	71	81-110	The Mandan Road travels the entire length of the stand and recieves a high volume of recreational traffic in the summer months. Possibly harvest next rotation with adjacent hardwood stand.
12	4191 - Mixed Upland Deciduous with Conifer	High Density Log	48.5	81	81-110	No signs of past management. Consider nominating for Type 2 old growth. Stand has uneven aged characteristics due to the prevailing wind off of Lake Superior creating pockets of wind throw which regenerate younger early successional species.
13	4130 - Aspen	High Density Log	287.9	71	81-110	Some wet drainages within stand. No signs of past management. Consider nominating for Type 2 old growth. Stand has uneven aged characteristics due to the prevailing wind off of Lake Superior creating pockets of windthrow which regenerate younger early successional species.

Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
14	4119 - Mixed Northern Hardwoods	High Density Log	80.1	Uneven Age	1-50	Stand was cut heavy by GMO before we acquired it. Residual maple is either dead or dying. Adjacent stand is prescribed. Prescribe stand and possibly negotiate with the contractor who wins the bid on the adjacent sale to determine if it is economically feasible to harvest.
15	4191 - Mixed Upland Deciduous with Conifer	High Density Sapling	24.6	7		cut in 2007 as part of "Tears Aspen" 11-017-06-01.
16	6120 - Lowland Cedar	High Density Log	68.1	Uneven Age	111-140	GMO attempted some cutting but left because it was too wet, Some aspen is managable on the west side of the stand next to the mandan road. High Rock Bay Road borders the stand.
17	4134 - Aspen, Spruce/Fir	High Density Sapling	32.6	16		Clearcut by GMO in 1998.
18	4191 - Mixed Upland Deciduous with Conifer	High Density Log	5.6	Uneven Age	51-80	Small acreage, High Rock Bay road runs through the stand.
20	4110 - Sugar Maple Association	High Density Pole	35.2	Uneven Age	51-80	Monitor for top dieback in summer. May need to final harvest if it is severe.
21	4134 - Aspen, Spruce/Fir	High Density Pole	2.5	74		Retention Island from "Tears Aspen" 11-017-06-01. See OFS layer.
22	4319 - Mixed Upland Forest	High Density Pole	60.0	16	1-50	Stand was poorly clearcut by GMO in 1998. There is quite a bit of scattered residual.
23	4319 - Mixed Upland Forest	High Density Sapling	38.7	7		Harvest in 2007 with "Tears Aspen" 11-017-06-01.
24	6124 - Lowland Spruce-Fir	High Density Pole	65.8	Uneven Age		Stand appear to have no past management. Consider for Type 2 old growth.
25	4319 - Mixed Upland Forest	High Density Sapling	35.7	7		Harvested in 2007 with "Tears Aspen" 11-017-06-01.
26	4119 - Mixed Northern Hardwoods	High Density Log	27.8	Uneven Age	51-80	No Signs of past management - consider for Type 2 old growth. High Rock Bay road travels through the stand and recieves high recreational traffic in the summer months.
27	4110 - Sugar Maple Association	High Density Log	44.2	Uneven Age	51-80	Thinned hard by GMO before it was acquired, Thin next rotation. Top dieback it parts of stand, moniter in summer to check severity.
28	4139 - Aspen, Mixed Deciduous	High Density Log	120.3	77	81-110	GMO did a some aspen removal before it was acquired, Stand should be final harvested reserving White Pine, Hemlock. Red Oak and Cedar. Stand has uneven aged characteristics.
29	6123 - Lowland Fir	Low Density Pole	32.6	61		Old Beaver flooding. No signs of past management - consider for type 2 old growth.

Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
30	4191 - Mixed Upland Deciduous with Conifer	High Density Log	106.2	Uneven Age	81-110	Thinned hard by GMO before it was acquired. Top dieback in parts of stand, monitor in summer months to determine severity.
31	4130 - Aspen	High Density Sapling	41.3	16		Clearcut by GMO iin 1998.
32	6120 - Lowland Cedar	High Density Pole	164.0	71		North part of stand resembles D0. Road travels through stand to the south side of Schlatter Lake. No sign of past management. Consider type 2 old growth
33	4139 - Aspen, Mixed Deciduous	High Density Log	358.3	81	51-80	Some wet drainages within stand. No signs of past management. Consider nominating for Type 2 old growth. Stand has uneven aged characteristics due to the prevailing wind off of Lake Superior creating pockets of wind throw which regenerate younger early successional species.
34	6128 - Lowland Coniferous, Mixed Deciduous	High Density Pole	76.4	47	51-80	Wet Ground, Pockets of wind throw creating and all aged condition. No signs of past managment.
35	42200 - Natural White Pine	High Density Log	11.9	Uneven Age	51-80	No signs of past management. Consider nominating for Type 2 old growth. Stand has uneven aged characteristics due to the prevailing wind off of Lake Superior creating pockets of wind throw which regenerate younger early successional species. Inoperable hillside next to Schlatter Lake. Campsites within stand along with roads providing boat access to the lake.
36	429 - Mixed Upland Conifers	High Density Log	16.7	Uneven Age	81-110	White Pine knob next to Schlatter Lake. Campsites within stand and roads providing boat access to the lake. No signs of past management. Consider nominating for Type 2 old growth. Stand has uneven aged characteristics due to the prevailing wind off of Lake Superior creating pockets of wind throw which regenerate younger early successional species.
37	4191 - Mixed Upland Deciduous with Conifer	High Density Pole	32.8	Uneven Age	51-80	Adjacent to a 1998 GMO Clearcut, A nondesignated ATV trail runs through the stand.
39	4119 - Mixed Northern Hardwoods	High Density Log	26.7	Uneven Age	111-140	Tough access hardwood island surrounded by swamp. May qualify as type 2 old growth, may want to add if stands in adjacent compartment to the south qualify as type 2 old growth. Factor Limit as "no access"
40	6120 - Lowland Cedar	Low Density Sapling	5.9	54	1-50	Previously a DO. No signs of past management. Consider nominating for Type 2 old growth.
41	429 - Mixed Upland Conifers	High Density Log	6.0	121	111-140	Island in Schlatter Lake. Campsite within stand. No signs of past management. Consider nominating for Type 2 old growth.
43	6128 - Lowland Coniferous, Mixed Deciduous	Medium Density Pole	21.8	61	51-80	Stand was significantly impacted by beavers in the past. Forested sections could be considered upland. Possible access from the east.
44	4112 - Maple, Beech, Cherry Association	High Density Log	25.1	Uneven Age	81-110	Old road through stand that ATVs have opened up. Road comes from old clearcut to the north.

Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
45	4112 - Maple, Beech, Cherry Association	High Density Log	30.3	Uneven Age	141-170	High Rock Bay road travel through the stand and recieves high volume of recreational traffic during the summer months. No signs of past management. Consider nominating for Type 2 old growth.
46	42200 - Natural White Pine	High Density Log	1.2	101	81-110	Small White Pine Knob on the southwest side of Schlautter's Lake. Consider for Type 2 Old Growth. Cedar is on Shoreline.
47	6120 - Lowland Cedar	High Density Pole	14.1	56		ATV trail cut open on very north edge of stand. No signs of past management. Consider nominating for Type 2 old growth. Union creek travels through stand.
48	42380 - Non Pine Upland Conifer, Mixed Deciduous	High Density Pole	17.1	Uneven Age	51-80	ATV trail cut open on west side of stand. No sign of previous management. Consider for type 2 old growth.
49	6127 - Lowland Pine	Low Density Pole	7.9	89	1-50	No signs of previous management. Consider for type 2 old growth. Stand is flooded by Schlatter Lake when water levels are high.
50	6122 - Black Spruce	Medium Density	77.9	54		Currently a federally recognized ERA as a poor conifer swamp. No signs of previous management, Consider for type 2 old growth.
51	42200 - Natural White Pine	High Density Log	38.3	Uneven Age	81-110	No signs of previous management. Consider of type 2 old growth. Forest road into stand from High Rock Bay road provides boat access to Schlatter Lake. Campsites in the north part of stand.
52	4319 - Mixed Upland Forest	High Density Log	111.1	Uneven Age	51-80	Forest road through stand provides Boat access to Schlautters Lake from the High Rock Bay road. Also ATV trail cut through the stand and possibly goes around Schlautter's Lake.
53	6122 - Black Spruce	High Density Pole	23.0	64	51-80	No signs of past management. Consider nominating for Type 2 old growth. Stand has uneven aged characteristics due to the prevailing wind off of Lake Superior creating pockets of wind throw which regenerate younger early successional species.
54	6122 - Black Spruce	High Density Pole	26.6	77	81-110	Federally recognized ERA as a Poor Conifer Swamp. No signs of past management. Consider nominating for type 2 old

Report 9 – Nonforested Stands

Stand	Cover Type	Acres	Managed Site	Management Priority (Objective)	General Comments:
19	6220 - Alder/willow	10.8	No	Unspecified	
38	50 - Water	279.9	No	Unspecified	
42	6239 - Mixed Emergent Wetland	2.5	No	Unspecified	