Compartment Review Presentation

Traverse City Forest Management Unit

Compartment 245
Entry Year 2016
Acreage: 1,941
County Kalkaska
Management Area: Manistee River Valley

Revision Date: 04/01/2014

Stand Examiner: Steve Crigier

Legal Description:

T25N R7W Sections 27, 28, 33, and 34

Identified Planning Goals:

Vegetation management in the Manistee River Valley management area will provide timber products; maintain or enhance wildlife habitat; protect areas of unique character including the Manistee River and its tributaries, a designated natural river; protect threatened, endangered and special concern species; and provide for forest-based recreational uses. Most of this management area sits on glacial outwash plain. A history of intensive management has resulted in the varied forest cover types present today. Timber management will emphasize aspen harvests to maintain early successional habitat for hunting and other wildlife-related recreational opportunities; increasing regeneration of oak; balancing the red pine age class structure through final harvests and re-planting; and improving red pine quality through partial harvests. Expected trends within this 10-year planning period are increased recreational pressure, especially on the established trails and along the Manistee River and its tributaries; a need to restore barrens communities through prescribed fire; and invasive plant control.

Soil and topography:

Much of the upland area of the compartment sits on Rubicon, Au Gres, and Croswell sands with various muck soils filling the lowland areas. Much of the compartment is flat, lowland areas through the Manistee River valley. It rises to gentle hills in Section 34, near the county line.

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

Most of the compartment is state-owned land except for a couple privately owned parcels along the Manistee River and a private forty in Section 27 SENE. Most of the compartment is surrounded by state-owned land with the exception of the north boundary of Section 28 which is privately owned yet mostly undeveloped. Much of this compartment was acquired as former Consumers Energy Company leases. Consumers retained the mineral rights on that land.

Unique Natural Features:

No Unique Natural Features known.

Archeological, Historical, and Cultural Features:

No Archeological, Historical, or Cultural Features known.

Special Management Designations or Considerations:

The Manistee River and its tributaries are protected by Natural Rivers designation. Visual management is especially important along the main stem of the Manistee River.

Watershed and Fisheries Considerations:

The main stem of the Manistee River runs along and through the northwest edge of the compartment. It also contains several perennial and intermittent tributaries including Little Cannon Creek. [The latter is dammed at Goulant Dam.] All of these are designated trout streams. The Manistee River is a nationally recognized trout stream with naturally reproducing populations of brook, brown and rainbow trout. There are two small oxbow lakes in Section 27.

Wildlife Habitat Considerations:

Featured wildlife species for this management area include: black bear, golden-winged warbler, pileated woodpecker, ruffed grouse, snowshoe hare, and white-tailed deer. Some of the most significant wildlife management issues will be maintenance of young forest, large open grassland complexes and marsh/grassland complexes; the retention of large, over-mature trees and snags; and the maintenance and expansion of hard mast and mesic conifer components.

Mineral Resource and Development Concerns and/or Restrictions

Surface sediments consist of ice-contact and glacial outwash sand and gravel and postglacial alluvium. The glacial drift thickness varies between 200 and 600 feet. Beneath the glacial drift is the Mississippian Michigan Formation. The

Michigan is quarried for gypsum elsewhere in the state. Gravel pits are not located in the area, but the potential is good on the uplands. This area is located one mile west of the Cannon Creek Field. The field produced gas from the Devonian Traverse and oil from the Detroit River Formation. There are currently no leases within the compartment.

Vehicle Access:

M-66 runs through Section 33 and there is sufficient vehicle access throughout the rest of the compartment. Some two-tracks that were closed after timber sales may need to be closed again.

Survey Needs:

There are no survey needs at this time.

Recreational Facilities and Opportunities:

The North Missaukee Motorcycle Trail winds through Section 34 in the Southeast portion of this compartment. Motorcycle trails are best kept narrow to reduce mis-use by larger ORV's. Appropriate trail protection specifications should be included in the timber sale contracts to reduce potential trail impacts where trail is adjacent to prescribed forest treatments. The Manistee River is popular for paddling but there are no recreational facilities within the compartment. Other recreational opportunities include hunting and fishing. (t.M.N. 5/15/14)

Fire Protection:

Given the large proportion of this compartment that is lowland, wildfire risk in this compartment is relatively low. Fire protection would be provided by the Kalkaska FRD office and the Garfield Fire Department.

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**

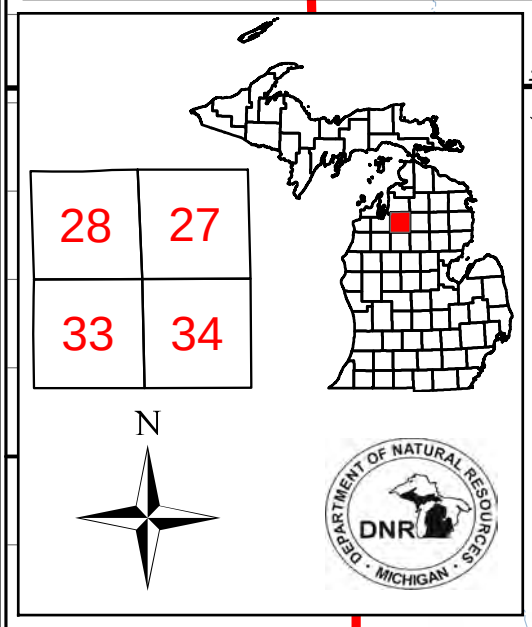
The following information is displayed, where pertinent, on the attached compartment maps:

- **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: 245
T25N R07W
Sections: 27, 28, 33, 34
County: Kalkaska
Unit: Traverse City
Management Area: Manistee River Valley
YOE: 2016
Acres: 1,941 GIS Calculated
Examiner: Steve Crigier
Map Revised: 06/19/2014
Map Phase: Web Post

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



85°9'0"W
85°8'0"W
44°33'0"N
44°32'0"N
44°31'0"N
44°30'0"N
85°10'0"W

22
28
27
33
34
35

Donathan Rd SE
Dutch John Rd SE
Lund Rd SE
Water Ho
Manistee River
Little Cannon Creek
Dutch John Rd SE
Harmony Ln SE
Vandermullen Rd SE
N De Young Rd
N Van Dermullen Rd
Unknown

52 4133-A6
45 6117-E6
32 500-Z0
56 4211-R6
53 310-G0
74 429 -MC9
80 6120-C4
83 6120-C6
22 6120-C5
67 4319-UM6
75 500-Z0
85 4211-R6
24 4136-A6
30 6115-E4
57 61 4229-MC9
47 4229-MC9
34 4234-F5
79 6120-C6
19 4220-W9
66 4229-MC9
15 6115-E5
46 6115-E5
89 4133-A6
25 429 -MC6
13 500-Z0
29 4136-A5
54 4191-MD5
4 6129-Q6
11 4131-A6
4130-A6
8 6115-E5
21 623-N0
2 622-D0
20 623-N0
28 4133-A3
42 429 -MC6
6 6115-E5
3 6128-Q5
31 6122-S5
37 429 -MC6
63 623-N0
68 6129-Q6
90 4211-R6
5 6115-E9
23 6120-C6
7 6117-E6
18 4239-MC6
48 6120-C5
76 4130-A3
10 6115-E5
14 6128-Q6
12 4191-MD5
16 6120-C4
73 6117-E6
81 4221-R9
43 6128-Q9
59 4229-MC9
9 6115-E8
27 6132-LM6
93 4220-W9
17 6117-E5
58 4130-A3
88 6120-C6
33 4311-UM6
41 6129-Q4
26 4221-R9
44 4319-UM6
35 4211-R6
55 4220-W9
51 6132-LM6
64 6120-C6
39 4134-A6
38 6122-S5
77 4229-MC9
36 500-Z0
49 623-N0
40 6120-C6
70 4191-MD6
91 4229-MC4
95 4130-A6
96 4191-MD2
97 4310-UM5
50 4220-W6
60 6129-Q4
69 4221-R6
62 6129-Q5
94 4123-O9
72 6120-C6
71 6120-C6
82 4310-UM9
92 4229-MC8
87 4311-UM6
98 4199-MD9
99 4220-W6
84 6122-S5
78 6128-Q6
86 4221-R9
65 122-X0

Legend

- Miris Corners
- Remonumented Section Corners
- Gate
- Highway
- County Paved Roads
- Paved Roads
- County Gravel Roads
- Gravel Roads
- Poor Dirt Roads
- County Poor Dirt Roads
- Trail (Non-Recreation)
- Pipeline
- Powerline
- Stream
- Intermittent Stream
- Lakes and Rivers

- MCCCT Trails
- ORV Trails
- ORV Routes
- Snowmobile Trails
- Motorcycle (DNR Sticker)
- ORV Trail
- ORV Route
- Snowmobile Trail
- MCCCT Trail

Planned Regeneration
- Natural
- Planted

Treatments
- Clearcut (w/Reserves, Patch/Strip)
- Seed Tree (w/Reserves)
- Shelter Wood (w/Reserves)
- Thinning (Crown, Low, Systematic)
- Selection (Group, Single Tree)
- Treatments w/ Site Condition

Forest Stands
- 412 - Oak Types
- 413 - Aspen Types
- 419 - Mixed Upland Deciduous
- 421 - Planted Pines
- 422 - Natural Pines
- 423 - Other Upland Conifers
- 429 - Mixed Upland Conifers
- 431 - Upland Mixed Forest
- 611 - Lowland Deciduous Forest
- 612 - Lowland Coniferous Forest
- 613 - Lowland Mixed Forest

Non-Forest Stands
- 122 - Road/Parking Lot
- 310 - Herbaceous Openland
- 500 - Water
- 622 - Lowland Shrub
- 623 - Emergent Wetland
- State Forest Land

1 0.5 0 1 Miles

Stand Boundary Map

Compartment: 245
T25N R07W
Sections: 27, 28, 33, 34
County: Kalkaska
Unit: Traverse City
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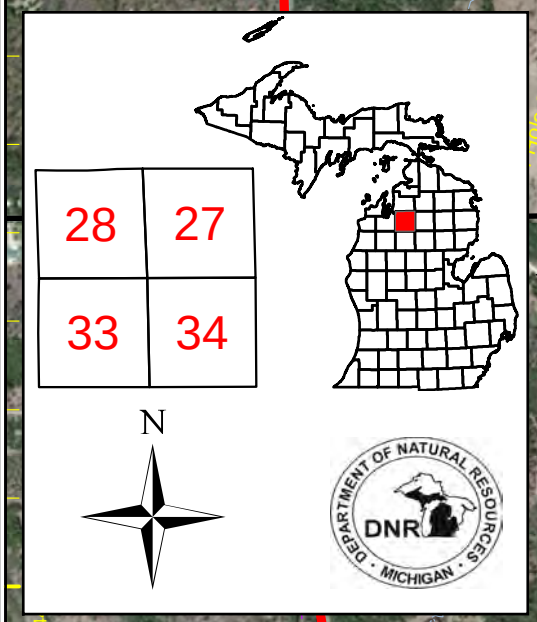

Stand # 23 — Stocking Density
(412)0) - A7
Level 3 Level 4 — OI Code
Cover Type Code

85°9'0"W
85°8'0"W
44°33'0"N
44°32'0"N
44°31'0"N
44°30'0"N

22
28
27
33
34
35

Donathan Rd SE
Lund Rd SE
Dutch John Rd SE
Harmony Ln SE
Van Dermullen Rd SE
N Van Dermullen Rd
N Bush John Rd SE
N Dr Young Rd
N Burk
Unknown 57 11 02

52 4133-A6
45 6117-E6
56 4211-R6
53 310-G0
74 429 -MC9
80 6120-C4
83 6120-C6
32 500-Z0
22 6120-C5
67 4319-UM6
75 500-Z0
85 4211-R6
24 4136-A6
30 6115-E4
57 61 4229-MC9
79 6120-C6
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47 4229-MC9
19 4220-W9
66 4229-MC9
15 6115-E5
46 6115-E5
89 4133-A6
25 429 -MC6
13 500-Z0
29 4136-A5
57 4191-MD5
4 6129-Q6
11 4131-A6
4130-A6
8 6115-E5
21 623-N0
23 4133-A3
42 429 -MC6
6 6115-E5
2 622-D0
3 6128-Q5
20 623-N0
68 6129-Q6
31 6122-S5
37 429 -MC6
63 623-N0
90 4211-R6
5 6115-E9
23 6120-C6
10 6115-E5
7 6117-E6
18 4239-MC6
48 6120-C5
76 4130-A3
14 6128-Q6
12 4191-MD5
16 6120-C4
73 6117-E6
81 4221-R9
9 6115-E8
43 6128-Q9
59 4229-MC9
27 6132-LM6
93 4220-W9
17 6117-E5
58 4130-A3
33 4311-UM6
41 6129-Q4
88 6120-C6
26 4221-R9
44 4319-UM6
35 4211-R6
51 6132-LM6
55 4220-W9
64 6120-C6
39 4134-A6
38 6122-S5
77 4229-MC9
36 500-Z0
49 623-N0
70 4191-MD6
91 4229-MC4
95 4130-A6
96 4191-MD2
97 4310-UM5
50 4220-W6
60 6129-Q4
69 4221-R6
62 6129-Q5
94 4123-O9
72 6120-C6
71 6120-C6
82 4310-UM9
92 4229-MC8
98 4199-MD9
99 4220-W6
84 6122-S5
78 6128-Q6
86 4221-R9
65 122-X0
4311-UM6

Legend

- Miris Corners
- Remonumented Section Corners
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- Paved Roads
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- Stand Boundaries

1 0.5 0 1 Miles

Special Conservation Areas & Site Conditions Map

Compartment: 245
T25N R07W
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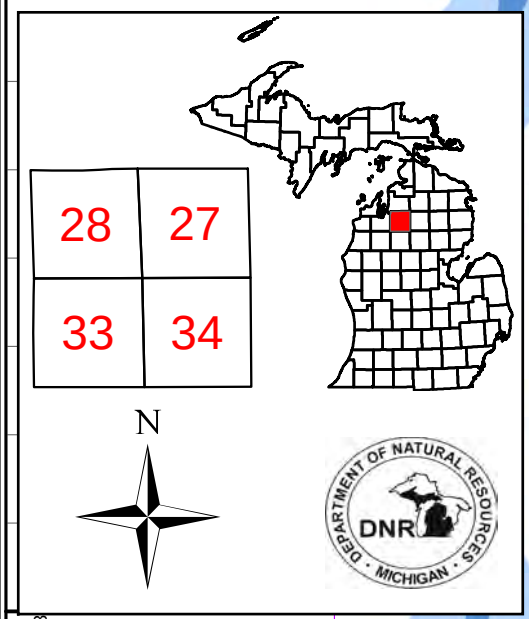

Stand # 23 — Stocking Density (412)0) - A7 — Level 3 OI — Level 4 Code — Cover Type Code

Legend

- Miris Corners
- Remonumented Section Corners

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

Reviewable SCAs
- Proposed SCA
- SCA Removal

Dedicated Special Conservation Areas
- Natural Rivers Vegetative Buffer
- Natural Rivers Zoning District
- Cold Water Streams
- Cold Water Lakes
- High Priority Trout Stream Buffer
- Stand Boundaries

1 0.5 0 1 Miles

Report 1 – Total Acres by Cover Type and Age Class

Traverse City Mgt. Unit **Compartment 245 Year of Entry 2016**

Steven Crigier : 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	30	91	0	2	68	86	0	0	7	0	0	0	0	0	**284**
Cedar	0	0	0	0	0	0	2	0	22	131	116	0	0	0	**271**
Herbaceous Openland	1	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**
Lowland Conifers	0	0	0	0	0	0	0	0	19	124	94	0	0	0	**237**
Lowland Deciduous	0	0	0	0	14	15	47	0	12	0	0	0	0	0	**88**
Lowland Mixed Forest	0	0	0	0	0	0	0	33	0	0	0	0	0	0	**33**
Lowland Spruce/Fir	0	0	0	0	0	0	0	8	0	15	9	0	0	0	**33**
Marsh	26	0	0	0	0	0	0	0	0	0	0	0	0	0	**26**
Mixed Upland Deciduous	0	3	0	0	0	0	33	21	0	0	55	0	0	0	**113**
Natural Mixed Pines	0	0	0	0	37	36	45	39	0	0	0	0	0	0	**157**
Oak	0	0	0	0	0	0	0	0	0	0	97	0	0	0	**97**
Red Pine	0	0	0	0	204	53	18	0	0	0	0	0	0	0	**275**
Treed Bog	3	0	0	0	0	0	0	0	0	0	0	0	0	0	**3**
Upland Conifers	0	0	0	0	0	7	10	12	4	0	0	0	0	0	**32**
Upland Mixed Forest	0	0	0	0	22	91	0	13	0	28	0	0	0	0	**154**
Upland Spruce/Fir	0	0	0	0	0	8	0	0	0	0	0	0	0	0	**8**
Urban	20	0	0	0	0	0	0	0	0	0	0	0	0	0	**20**
Water	36	0	0	0	0	0	0	0	0	0	0	0	0	0	**36**
White Pine	0	0	0	0	2	20	31	0	2	19	0	0	0	0	**74**
Total	**116**	**93**	**0**	**2**	**346**	**315**	**186**	**127**	**65**	**318**	**372**	**0**	**0**	**0**	**1941**

Report 2 – Proposed Treatment Summaries

Traverse City Mgt. Unit
Year of Entry 2016

Compartment 245
Total Compartment Acres: 1,941

Acres by Treatment Type

Commercial Harvest - 377	Tree Planting - 0	Other - 0
Habitat Cut - 0	Opening Maintenance - 92	

Cover Type by Harvest Method

	Clearcut	Selection	Seed Tree	Shelterwood	Thinning	Other - Specify	Total Acres
	0	0	0	0	2	0	**2**
Aspen Types	64	0	0	0	0	0	**64**
Lowland Coniferous Forest	0	0	12	23	0	0	**35**
Lowland Mixed Forest	0	0	0	14	0	0	**14**
Mixed Upland Conifers	0	4	0	0	0	0	**4**
Mixed Upland Deciduous	13	0	0	0	0	0	**13**
Natural Pines	0	99	0	0	0	0	**99**
Oak Types	0	0	0	97	0	0	**97**
Planted Pines	0	0	0	0	0	0	**0**
Upland Mixed Forest	13	22	14	0	0	0	**49**
Total	**90**	**126**	**26**	**133**	**2**	**0**	**377**

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
	61245_OutOfYOE_1-Cut	1.7					Harvest	Crown Thinning	42110 - Planted Red Pine	Fld. Tr. Bdy.

Prescription Specs: Thin stand to remove defective and suppressed individuals.

Other Comments:

Next Steps:

Proposed Start Date: 10/01/2012

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
26	**61245026-Cut**	2.3	42210 - Natural Red Pine	High Density Log	65	111-140	Harvest	Single Tree Selection	4221 - Natural Red Pine	Cmpt. Review Proposal

Prescription Specs: Select cut stand. Target the trees to cut that have thin tops and are overmature. Also harvest and black spruce along the swamp edge to encourage regeneration. Target BA around 100.

Other Comments: Harvest stand with adjacent aspen stand. Access off M-66

Next Steps:

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
27	**61245027-Cut**	13.9	6132 - Mixed Lowland Forest with Cedar	High Density Pole	74		Harvest	Shelterwood	613 - Lowland Mixed Forest	Cmpt. Review Proposal

Prescription Specs: Shelterwood harvest stand with a target residual BA around 30sqft. Leave the majority of the cedar and also leave a decent amount of the white pine. Please include CWD (drumming log spec) in sale. Leave tops unchipped as much as possible, especially in lowland stands and aspen adjacent to lowlands, to provide horizontal habitat component for wildlife. Please leave tops in scattered piles for wildlife habitat as much as possible. Any aspen or other cuts that are adjacent to a lowland stand please at conclusion of the sale have the logger fell the marked boundary trees in the adjoining lowland stand for hare habitat. Leave younger balsam for wildlife cover.

Other Comments: There is a drain that runs near the south line of the stand. Possibly sell with stand 43.

Next Steps:

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
29	**61245029-Cut**	31.8	4136 - Aspen, Mixed Conifer	Medium Density Pole	50		Harvest	Clearcut with Reserves	413 - Aspen	Cmpt. Review Proposal

Prescription Specs: Final harvest a portion of the stand (east of powerline). Will also need to apply appropriate buffer to Little Cannon Cr and the Manistee River. Mark some white pine to leave. Please include CWD (drumming log spec) in sale. Leave tops unchipped as much as possible, especially in lowland stands and aspen adjacent to lowlands, to provide horizontal habitat component for wildlife. Please leave tops in scattered piles for wildlife habitat as much as possible. Any aspen or other cuts that are adjacent to a lowland stand please at conclusion of the sale have the logger fell the marked boundary trees in the adjoining lowland stand for hare habitat. Leave younger balsam for wildlife cover.

Other Comments: Ground is hummocky so it could be soft. I only saw it with snow on. Need to find property corner also. I would recommend a cut to length operation for minimal ground disturbance.

Next Steps:

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
39	61245039-Cut	32.5	4134 - Aspen, Spruce/Fir	High Density Pole	55		Harvest	Clearcut with Reserves	413 - Aspen	Cmpt. Review Proposal

Prescription Specs: Clearcut stand with reserves. Leave some of the oak and white pine for retention. Concentrate some retention around the small drains. Buffer Filer Cr. Please include CWD (drumming log spec) in sale. Leave tops unchipped as much as possible, especially in lowland stands and aspen adjacent to lowlands, to provide horizontal habitat component for wildlife. Please leave tops in scattered piles for wildlife habitat as much as possible. Any aspen or other cuts that are adjacent to a lowland stand please at conclusion of the sale have the logger fell the marked boundary trees in the adjoining lowland stand for hare habitat. Leave younger balsam for wildlife cover.

Other Comments: Will need to verify some property corners. (original compartment boundary appears to be off). Blue line will need to be established. Part of this stand is lowland especially in the spring/breakup (Class-A access)! Lots of small drains running through the stand. Some of them will need to be left out of sale area.

Next Steps:

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
43	61245043-Cut	14.7	6128 - Lowland Coniferous, Mixed Deciduous	High Density Log	88	111-140	Harvest	Shelterwood	613 - Lowland Mixed Forest	Cmpt. Review Proposal

Prescription Specs: Looks very operable. Possible heavy select cut/ light shelterwood harvest removing most of the balsam fir, paper birch and spruce. Mark the red maple and white pine to cut. Please include CWD (drumming log spec) in sale. Leave tops unchipped as much as possible, especially in lowland stands and aspen adjacent to lowlands, to provide horizontal habitat component for wildlife. Please leave tops in scattered piles for wildlife habitat as much as possible. Any aspen or other cuts that are adjacent to a lowland stand please at conclusion of the sale have the logger fell the marked boundary trees in the adjoining lowland stand for hare habitat. Leave younger balsam for wildlife cover.

Other Comments: Stand is on soft ground, but appears to be operable. Put with stand 27 for a sale? There is a small drain on the east boundary of the stand.

Next Steps:

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	61245044-Cut	13.0	4319 - Mixed Upland Forest	High Density Pole	72	51-80	Harvest	Clearcut with Reserves	4190 - Mixed Upland Deciduous with Cedar	Cmpt. Review Proposal

Prescription Specs: Clear cut stand but leave a few white pine/ac as well as all the hemlock. Buffer the creek to the north. Please include CWD (drumming log spec) in sale. Leave tops unchipped as much as possible, especially in lowland stands and aspen adjacent to lowlands, to provide horizontal habitat component for wildlife. Please leave tops in scattered piles for wildlife habitat as much as possible. Any aspen or other cuts that are adjacent to a lowland stand please at conclusion of the sale have the logger fell the marked boundary trees in the adjoining lowland stand for hare habitat. Leave younger balsam for wildlife cover.

Other Comments: Run stand boundary into the edges of the lowland as much as possible (but stay on operable ground).

Next Steps:

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
47	61245047-Cut	15.1	42290 - Natural Mixed Pine	High Density Log	64	171-200	Harvest	Single Tree Selection	42290 - Natural Mixed Pine	Cmpt. Review Proposal

Prescription Specs: Select cut stand, target residual BA around 100-120. Big tree management. Harvest the majority of the spruce but leave a few for seed especially along the southern edge. Management of the pine stands here should consider incorporating small (1 acre) islands that are left relatively un-thinned within mature stands to provide winter roosting cover for turkeys. Deciduous species should be encouraged within conifer plantations for diversity.

Other Comments: North property line will need to be established (I haven't checked for survey corners yet). South end is more white pine and spruce, north end is more red pine.

Next Steps:

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
54	61245054-Cut	13.1	4191 - Mixed Upland Deciduous with Conifer	Medium Density Pole	73	51-80	Harvest	Clearcut with Reserves	4191 - Mixed Upland Deciduous with Conifer	Cmpt. Review Proposal

Prescription Specs: Clearcut with reserves. Leave conifers less than 2". Mark to leave some of the oak and pine as retention. Buffer the Little Cannon appropriately. Please include CWD (drumming log spec) in sale. Leave tops unchipped as much as possible, especially in lowland stands and aspen adjacent to lowlands, to provide horizontal habitat component for wildlife. Please leave tops in scattered piles for wildlife habitat as much as possible. Any aspen or other cuts that are adjacent to a lowland stand please at conclusion of the sale have the logger fell the marked boundary trees in the adjoining lowland stand for hare habitat. Leave younger balsam for wildlife cover.

Other Comments: The boundary of the stand might vary quite a bit. Try to include as much of the adjacent Q type that is operational (spruce and balsam component). Access comes from the southeast trail road (wet). Will probably need some dry or cold weather to skid and haul out.

Next Steps:

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
55	61245055-Cut	19.4	42200 - Natural White Pine	High Density Log	90	81-110	Harvest	Single Tree Selection	42290 - Natural Mixed Pine	Cmpt. Review Proposal

Prescription Specs: Light select cut to remove some of the red pine that have thinning tops. Reduce white pine BA to 120-140 where needed. Big tree type managment. Make a few regen gaps for the white pine regen. Management of the pine stands here should consider incorporating small (1 acre) islands that are left relatively un-thinned within mature stands to provide winter roosting cover for turkeys. Deciduous species should be encouraged within conifer plantations for diversity.

Other Comments: There is a narrow vain of hemlock and cedar (lowland) that runs through the northern portion of the stand.

Next Steps:

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
61	61245061-Cut	8.1	42290 - Natural Mixed Pine	High Density Log	78	111-140	Harvest	Single Tree Selection	42290 - Natural Mixed Pine	Cmpt. Review Proposal

Prescription Specs: Select cut stand. The north end of the stand remove high risk trees, don't be too concern with residual BA but target around leaving 70 sq or so. The south end BA target should be 100-120sqft/ac. Remove most of the spruce but leave a few for seed. Also try to protect the advanced regen. Don't cut conifers less than 4". Management of the pine stands here should consider incorporating small (1 acre) islands that are left relatively un-thinned within mature stands to provide winter roosting cover for turkeys. Deciduous species should be encouraged within conifer plantations for diversity.

Other Comments: South end of the stand might be on softer ground. Treat with adjacent pine thinnings.

Next Steps:

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
66	61245066-Cut	7.7	42290 - Natural Mixed Pine	High Density Log	62	111-140	Harvest	Single Tree Selection	42290 - Natural Mixed Pine	Cmpt. Review Proposal

Prescription Specs: Select cut stand. Target residual some where around 100sqft/ac. Protect advanced regen, don't cut any conifers under 4". Management of the pine stands here should consider incorporating small (1 acre) islands that are left relatively un-thinned within mature stands to provide winter roosting cover for turkeys. Deciduous species should be encouraged within conifer plantations for diversity.

Other Comments: South end of the stand might be on softer ground. Treat with adjacent pine thinnings. South property line will need to be established, I haven't looked for corners yet or check records. Heavier to white pine in the south end and more of a red pine component in the north.

Next Steps:

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
67	61245067-Cut_small	13.6	4319 - Mixed Upland Forest	High Density Pole	52	81-110	Harvest	Seed Tree with Reserves	4191 - Mixed Upland Deciduous with Conifer	Cmpt. Review Proposal

Prescription Specs: Seed harvest the western fingers with the adjacent pine thinninings (west of Dutch John Rd). Mark to leave some white pine and leave the cedar and hemlock. Please include CWD (drumming log spec) in sale. Leave tops unchipped as much as possible, especially in lowland stands and aspen adjacent to lowlands, to provide horizontal habitat component for wildlife. Please leave tops in scattered piles for wildlife habitat as much as possible. Any aspen or other cuts that are adjacent to a lowland stand please at conclusion of the sale have the logger fell the marked boundary trees in the adjoining lowland stand for hare habitat. Leave younger balsam for wildlife cover.

Other Comments: Make sure to buffer the Little Cannon and sell with the adjacent pine stands. Ground is hummocky and appears to be soft in areas.

Next Steps:

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
68	61245068-Cut_small	7.9	6129 - Mixed Coniferous Lowland Forest	High Density Pole	99		Harvest	Seed Tree with Reserves	6129 - Mixed Coniferous Lowland Forest	Cmpt. Review Proposal

Prescription Specs: Harvest a few pockets of this stand where there is more of a spruce, maple, fir component. Mark to leave some of the hemlock, cedar and white pine. No target residual BA, just best judgment when setting up the sale. Leave the conifers less than 4''.

Other Comments: Keep the sale boundary in the well stocked timber. Stand also has a intermitten cr running through the middle of it. wet ground.

Next Steps:

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
68	61245068-Cut_small_1	4.5	6129 - Mixed Coniferous Lowland Forest	High Density Pole	99		Harvest	Seed Tree with Reserves	6129 - Mixed Coniferous Lowland Forest	Cmpt. Review Proposal

Prescription Specs: Harvest a few pockets of this stand where there is more of a spruce, maple, fir component. Mark to leave some of the hemlock, cedar and white pine. No target residual BA, just best judgment when setting up the sale. Leave the conifers less than 4''. Please include CWD (drumming log spec) in sale. Leave tops unchipped as much as possible, especially in lowland stands and aspen adjacent to lowlands, to provide horizontal habitat component for wildlife. Please leave tops in scattered piles for wildlife habitat as much as possible. Any aspen or other cuts that are adjacent to a lowland stand please at conclusion of the sale have the logger fell the marked boundary trees in the adjoining lowland stand for hare habitat. Leave younger balsam for wildlife cover.

Other Comments: Keep the sale boundary in the well stocked timber. Stand also has a intermitten cr running through the middle of it. Wet gound.

Next Steps:

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
74	61245074-Cut	4.0	429 - Mixed Upland Conifers	High Density Log	82	81-110	Harvest	Single Tree Selection	42290 - Natural Mixed Pine	Cmpt. Review Proposal

Prescription Specs: ake out the short lived species and thin the rest down... Green tree or orange tree mark, target BA 80-140BA post harvest. OK to put in a few regen holes but overall more of a thin. Pine stand goes slightly into compartment to the north, thin this portion as well.

Other Comments:

Next Steps:

Proposed Start Date: 05/13/2014

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
77	61245077-Cut	31.2	42290 - Natural Mixed Pine	High Density Log	78	111-140	Harvest	Single Tree Selection	42290 - Natural Mixed Pine	Cmpt. Review Proposal

Prescription Specs: Select cut stand to remove some of the high risk red pine and to give some of the crop white pine trees some more room to grow. Stand looks like it wants to grow white pine, so try to protect the advanced regen during the harvest. Management of the pine stands here should consider incorporating small (2-5 acre) islands that are left relatively un-thinned within mature stands to provide winter roosting cover for turkeys. Deciduous species should be encouraged within conifer plantations for diversity.

Other Comments:

Next Steps:

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
78	61245078-Cut	7.9	6128 - Lowland Coniferous, Mixed Deciduous	High Density Pole	95		Harvest	Shelterwood	613 - Lowland Mixed Forest	Cmpt. Review Proposal

Prescription Specs: Shelterwood cut stand. Mark to leave about 20sqft of cedar and pine to leave. Run redline against the solid pockets of cedar, chase the aspen, maple, spruce and balsam fir. Please include CWD (drumming log spec) in sale. Leave tops unchipped as much as possible, especially in lowland stands and aspen adjacent to lowlands, to provide horizontal habitat component for wildlife. Please leave tops in scattered piles for wildlife habitat as much as possible. Any aspen or other cuts that are adjacent to a lowland stand please at conclusion of the sale have the logger fell the marked boundary trees in the adjoining lowland stand for hare habitat. Leave younger balsam for wildlife cover.

Other Comments: Set up with adjacent pine thinning. Low ground, will want to cut with dry or frozen but it is Class-A so producer may want to cut during break-up

Next Steps:

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
81	61245081-Cut	4.8	42210 - Natural Red Pine	High Density Log	69	111-140	Harvest	Single Tree Selection	42290 - Natural Mixed Pine	Cmpt. Review Proposal

Prescription Specs: Select cut stand. Keep residual BA around 80-100. Try to establish some regeneration gaps

Other Comments: Add in a portion of the Q6 type to the west, harvest as much as possible. Sell with the Stands to the north.

Next Steps:

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
82	61245082-Cut	22.3	4310 - Pine, Oak Mix	High Density Log	96	81-110	Harvest	Single Tree Selection	4122 - Oak, Pine	Cmpt. Review Proposal

Prescription Specs: Select harvest stand. Target mature red pine to harvest. Also harvest some of the oak and create canopy gaps to provide for oak stump sprouts. Harvest all the aspen. Leave tops unchipped as much as possible to provide horizontal habitat component for wildlife. Please leave tops in scattered piles for wildlife habitat as much as possible. Wildlife considerations regarding oak types include retaining mature mast-producing trees, protection of den/nest trees, regenerating oak in mature stands, maintaining the diversity of tree species within the stand.

Other Comments: Buffer drains and creek appropriately. Use old trail road on Old 66 for access.

Next Steps:

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
85	61245085-Cut	0.1	42110 - Planted Red Pine	High Density Pole	47	111-140	Harvest	Crown Thinning	4211 - Planted Red Pine	Cmpt. Review Proposal

Prescription Specs: Mark to thin stand by removing defected and suppressed individuals. If thinning is decided on-should focus on removing 1/4-1/3 of overall volume. Mark to cut white pine, designate red maple for removal.

Other Comments: Stand is already on proposal 'Little Cannon Red' 61-025-13-01)

Next Steps:

Proposed Start Date: 07/01/2014

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
86	61245086-Cut	10.7	42210 - Natural Red Pine	High Density Log	69	111-140	Harvest	Single Tree Selection	42290 - Natural Mixed Pine	Cmpt. Review Proposal

Prescription Specs: Select cut stand. Don't worry too much about residual BA but in areas where it is dense mark down to 100sqft or so. Mark to cut the trees that are thin topped.

Other Comments: Will need an MDOT permit. Blue line will need to be established. There is a pin on the west side of the stand to tie into.

Next Steps:

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
94	61245094-Cut	96.6	4123 - Red Oak	High Density Log	103	81-110	Harvest	Shelterwood	412 - Oak	Cmpt. Review Proposal

Prescription Specs: Seed Tree/shelterwood stand. Mark to leave a residual BA around 20sqft/ac or less. Leaving the BA in clumps might give larger canopy gaps for stump sprouts. Leave tops unchipped as much as possible to provide horizontal habitat component for wildlife. Please leave tops in scattered piles for wildlife habitat as much as possible. Wildlife considerations regarding oak types include retaining mature mast-producing trees, protection of den/nest trees, regenerating oak in mature stands, maintaining the diversity of tree species within the stand.

Other Comments: North end of the stand has some terrain. Will also need to protect the ORV trail. Look at rerouting the dirt bike trail to the north line so that it would be out of the sale area. This would be a permanent reroute along the covertype change.

Next Steps: Monitor oak regen.

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
58	61245058-NonFor	62.0	4130 - Aspen	High Density Sapling	16		Non-Forest Management	Brush Cutting	3301 - Low Density Deciduous Trees	Cmpt. Review Proposal

Prescription Specs: If FRD agrees, work around aspen regen and other existing beneficial vegetation to create a wildlife food plot of appropriate herbaceous species suited to site and soil conditions, with fertilization.

Other Comments:

Next Steps: Maintain as needed with mowing, seeding of native grasses and forbs, fertilizing, burning, or removal of woody encroachment.

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
76	61245076-NonFor	30.2	4130 - Aspen	High Density Sapling	6		Non-Forest Management	Brush Cutting	3301 - Low Density Deciduous Trees	Cmpt. Review Proposal

Prescription Specs: If FRD agrees, work around aspen regen and other existing beneficial vegetation to create a wildlife food plot of appropriate herbaceous species suited to site and soil conditions, with fertilization.

Other Comments:

Next Steps: Maintain as needed with mowing, seeding of native grasses and forbs, fertilizing, burning, or removal of woody encroachment.

Proposed Start Date: 10/01/2015

Total Treatment Acreage Proposed: 469.1

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
		#Type!	#Type!							

Prescription Specs:

Other Comment:

Next Steps:

Proposed Start Date: #Type!

Limiting Factor

Total Treatment Acreage Proposed: **0.0**

Report 5 – Site Conditions

Traverse City Mgt. Unit | **Compartment 245**

Steve Crigier : Examiner | **Year of Entry 2016**

Availability for Management

Total Acres	Acres Available	Acres Not Available	Dominant Site Conditions	Un	No	5C	3J	2H	2G	2D	2B	2A
284	273	12	**Aspen**		257		5				15	7
271	193	77	**Cedar**		193		64		14			
237	72	165	**Lowland Conifers**		49	22		19	99			47
88	29	59	**Lowland Deciduous**	11	29		48					
33	33		**Lowland Mixed Forest**		33							
33	18	15	**Lowland Spruce/Fir**		8				15	9		
113	113		**Mixed Upland Deciduous**		113							
157	157	0	**Natural Mixed Pines**		157		0					
97	97		**Oak**		97							
275	275		**Red Pine**		275							
32	16	16	**Upland Conifers**		16		16					
154	151	3	**Upland Mixed Forest**		151		3					
8	8		**Upland Spruce/Fir**			8						
74	72	2	**White Pine**		72		2					
1,854	1,505	349	Total Forested Acres	11	1,450	30	137	19	128	9	15	54
	81%	19%	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	**Available**	**2B: Unknown if access through adjacent landowner(s) is possible**	15				
	Comments:						
003	**Not Available**	**2H: Blocked by physical obstacle (e.g. upland stand in a lowland area)**	19	2G: Too wet (sensitive soils, does not include access issues)			
	Comments:						

Report 5 – Site Conditions

Traverse City Mgt. Unit **Compartment 245**

Steve Crigier : Examiner **Year of Entry 2016**

004	**Not Available**	**2A: Adjacent landowner denied access**	47	2G: Too wet (sensitive soils, does not include access issues)	

Comments:

005	**Not Available**	**2A: Adjacent landowner denied access**	7	2G: Too wet (sensitive soils, does not include access issues)	

Comments:

006	**Not Available**	**3J: Water quality / BMPs (stream, river, or lake)**	5		

Comments:

007	**Available**	**5C: Delay treatment for age/size class diversity or exceptional site quality**	8		

Comments:

008	**Not Available**	**2G: Too wet (sensitive soils, does not include access issues)**	51		

Comments:

009	**Available**	**2D: Portable Bridge Needed (Dept. bridge will be adequate)**	9		

Comments:

010	Available	5C: Delay treatment for age/size class diversity or exceptional site quality	22

Comments:

011	Not Available	2G: Too wet (sensitive soils, does not include access issues)	18

Comments:

012	Not Available	2G: Too wet (sensitive soils, does not include access issues)	19

Comments:

013	Not Available	2G: Too wet (sensitive soils, does not include access issues)	12

Comments:

014	Not Available	2G: Too wet (sensitive soils, does not include access issues)	15

Comments:

015	Not Available	3J: Water quality / BMPs (stream, river, or lake)	49

Comments:

016	Not Available	2G: Too wet (sensitive soils, does not include access issues)	14	

Comments:

017	Not Available	Unspecified	11	

Comments:

018	Not Available	3J: Water quality / BMPs (stream, river, or lake)	8	

Comments:

019	Not Available	3J: Water quality / BMPs (stream, river, or lake)	7	

Comments:

020	Not Available	3J: Water quality / BMPs (stream, river, or lake)	7	

Comments:

021	Not Available	3J: Water quality / BMPs (stream, river, or lake)	9	

Comments:

022	**Not Available**	**3J: Water quality / BMPs (stream, river, or lake)**	9

Comments:

023	**Not Available**	**3J: Water quality / BMPs (stream, river, or lake)**	10

Comments:

024	**Not Available**	**3J: Water quality / BMPs (stream, river, or lake)**	8

Comments:

025	**Not Available**	**3J: Water quality / BMPs (stream, river, or lake)**	2

Comments:

026	**Not Available**	**3J: Water quality / BMPs (stream, river, or lake)**	7

Comments:

027	**Not Available**	**3J: Water quality / BMPs (stream, river, or lake)**	12

Comments:

Report 5 – Site Conditions

Traverse City Mgt. Unit **Compartment 245**

Steve Crigier : Examiner **Year of Entry 2016**

030	**Not Available**	**3J: Water quality / BMPs (stream, river, or lake)**	11

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

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 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.
HCVA	Natural Rivers	There are two Natural Rivers datasets which are derived from spatial buffers set from an established and approved distance from the river centerlines. The Natural Rivers Zoning District is a 400 foot buffer for most Natural Rivers. The Vegetative Buffer ranges from 25 to 100 feet. To view specific Zoning Districts and Vegetative Buffers for each Natural River see the table located on the I:\Documentation\GDSE data folder.

Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
1	4130 - Aspen	High Density Pole	6.7	87		
3	6128 - Lowland Coniferous, Mixed Deciduous	Medium Density Pole	47.1	105		
4	6129 - Mixed Coniferous Lowland Forest	High Density Pole	19.0	95		
5	6115 - Lowland Ash	High Density Log	8.9	81		Larger diameter ash and red maple. Flood plain of the Manistee River.
6	6115 - Lowland Ash	Medium Density Pole	0.8	60		
7	6117 - Lowland Deciduous, Mixed Coniferous	High Density Pole	7.4	65		Some pockets are heavy to aspen others are more of a red maple balsam fir mix. There are also some cedar along the river and some interior pockets. Thornapple underneath as well as balsam fir.
8	6115 - Lowland Ash	Medium Density Pole	8.6	69		Black ash stand that sits on the rivers flood plain.
9	6115 - Lowland Ash	Medium Density Log	7.9	60		Flood plain.
10	6115 - Lowland Ash	Medium Density Pole	6.9	60		flood plain of river.
11	4131 - Aspen, Oak	High Density Pole	15.3	57		Just looked at from across the river. Aspen looks to be mature.
12	4191 - Mixed Upland Deciduous with Conifer	Medium Density Pole	4.3	70	51-80	Stand is an upland ridge with lots of species diversity. Old red paint is on the boundary of this stand. Some upland cedar is on this knoll. A few super canopy white pine are in the overstory. Heavy balsam fir understory most of the which is well established.
14	6128 - Lowland Coniferous, Mixed Deciduous	High Density Pole	22.4	97		Decent quality of cedar and hemlock which is overtopped by some red maple and birch (western portion). There are some pockets of dense cedar and hemlock but the majority of the stand is pretty well mixed. The western portion of the stand is more moderately stocked.
15	6115 - Lowland Ash	Medium Density Pole	8.3	58	1-50	Stand is in the flood plain of the Manistee River. Mostly black ash with tag alder underneath. Stand is a part of a consumers lease that expired in 2011 (M-117).
16	6120 - Lowland Cedar	Low Density Pole	13.7	88		small diameter trees. poorly stocked. looks like it might be flooded boarder line non-forested.
17	6117 - Lowland Deciduous, Mixed Coniferous	Medium Density Pole	10.8	44		North end of the stand is a mostly small diameter ash and balsam fir with some scattered aspen.

Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
18	42390 - Mixed Non-Pine Upland Conifers	High Density Pole	7.9	74	81-110	Stand is a highly variable stands with lots of different species. It is also hard to tell if it is upland or lowland. There is a creek along the east boundary of the stand. It also looks like there is are some perrienal drains that feed into the creek. There are Groves of large diameter white pine (24").
19	42201 - Natural White Pine, Mixed Deciduous	High Density Log	1.6	85	81-110	Big white pine.
22	6120 - Lowland Cedar	Medium Density Pole	5.2	90		
23	6120 - Lowland Cedar	High Density Pole	10.6	103		Stand has creek along the west side. Stocking appears more variable in the eastern portion of the stand.
24	4136 - Aspen, Mixed Conifer	High Density Pole	9.4	43		Nice bigtooth aspen, Healthy stand of timber, some pockets of balsam fir. Stand has more of a conifer component along the river. This stand was a part of a consumers lease parcel (M-114) that expired in 2011.
25	429 - Mixed Upland Conifers	High Density Pole	9.6	62	51-80	Stand is on the bank of the Little Cannon Cr and serves as a riparian buffer.
26	42210 - Natural Red Pine	High Density Log	2.3	65	111-140	Natural red pine stand found on the transition ground.
27	6132 - Mixed Lowland Forest with Cedar	High Density Pole	18.6	74		Stand is very diverse. Lot of pocket and vains of cedar but it is prodominately maple, aspen and balsam fir. Aspen and Balsam fir are mature.
28	4133 - Aspen, Mixed Pine	High Density Sapling	28.7	17		Regen is about 20' tall and is a couple of inches in diameter. Regen is in pockets/clones.
29	4136 - Aspen, Mixed Conifer	Medium Density Pole	38.6	50		The stand stocking is variable. Thick balsam fir understory. Ground appears to be upland although is very hummocky. Some of the birch and aspen are starting to die out. Stand include an old camp site in the southwest corner that was a part of a consumers lease (m-117) that expired in 2011. The stand has more of a white pine component in the northern part, along the Manistee R.
30	6115 - Lowland Ash	Low Density Pole	3.5	43	1-50	Stand is a narrow perennial drain that stretches from Lund Rd down to the Little Cannon.
31	6122 - Black Spruce	Medium Density Pole	9.3	103		Tall spruce with quite a bit of balsam in the understory. Stocking is variable and appear to be less dense in the south end of the stand.
33	4311 - Pine, Aspen Mix	High Density Pole	6.0	52	81-110	Stand has more red pine in the southern portion of the stand. A even mix of pine, aspen, maple balsam fir.
34	42340 - Upland Spruce/Fir	Medium Density Pole	7.8	52		

Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
35	42110 - Planted Red Pine	High Density Pole	0.9	55	81-110	narrow strip of red pine along road.
37	429 - Mixed Upland Conifers	High Density Pole	3.6	71	51-80	Stand is on the transition ground. Is a red maple/white pine mix.
38	6122 - Black Spruce	Medium Density Pole	8.4	71		
39	4134 - Aspen, Spruce/Fir	High Density Pole	32.5	55		Heavy balsam understory. Some of the aspen is starting to die out, areas are filling in with balsam. Several small drains run through the stand. Far northeast part as well as the very southern tip of stand become more open/less stocked with some scattered red pine. Looks like parts of the stand could be on wet ground.
40	6120 - Lowland Cedar	High Density Pole	49.1	98		northern tip is a knoll of balsam and maple. The rest of the stand is decent quality cedar. Stand has an intermittent stream running through it.
41	6129 - Mixed Coniferous Lowland Forest	Low Density Pole	5.9	100		
42	429 - Mixed Upland Conifers	High Density Pole	6.7	58	51-80	Stand has lots of species diveristy but is mostly balsam fir and white pine in a narrow strip along Cannon. Thick balsam understory.
43	6128 - Lowland Coniferous, Mixed Deciduous	High Density Log	18.9	88	111-140	Stand is made up of large white pine (24"+) and red maple that is over top of cedar and hemlock. Also some balsam fir and black spruce. Stand is on transition ground from the upland to the swamp. Stand has intermittent creek in the eastern part. Eastern part of stand is more balsam fir and red maple. W8 overtop of a Q6 with soft maple.
44	4319 - Mixed Upland Forest	High Density Pole	13.0	72	51-80	Transition ground heading down to the creek. A real mix of species (fir, maple, apsen, white pine and birch). Aspen is starting to fall apart. Some pocket of decent quality balsam fir. Thick balam understory. Stand delineation was difficult.
45	6117 - Lowland Deciduous, Mixed Coniferous	High Density Pole	3.4	85		
46	6115 - Lowland Ash	Medium Density Pole	6.7	52		
47	42290 - Natural Mixed Pine	High Density Log	15.1	64	171-200	Nice quality white pine fairly straight and clean. 5-6+ stick trees. Stand has a healthy component of black spruce in the southern portion of the stand. Northern portion of the stand is heavier to red pine.
48	6120 - Lowland Cedar	Medium Density Pole	105.8	108		Stand contains some regen pockets of balsam, birch, aspen, red maple that must be from pockets of windthrow. Regen pockets are well stocked trees are about 2" in diameter and about 20' tall. Stand also has a creek running through it north to south. Nice spruce and cedar along the creek edge but stocking dwindles as you get away from the creek.

Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
50	42200 - Natural White Pine	High Density Pole	2.8	52	81-110	Heaviest to pine along Filer Cr. More aspen on the west side of the stand.
51	6132 - Mixed Lowland Forest with Cedar	High Density Pole	14.4	74		Red maple with white pine overtop of hemlock and cedar. Stand has a drain that runs through it South east to north west. Northern edge is more of the red maple and birch where as when you get farther to the south there is more of the conifer component. Fairly thick balsam fir understory.
52	4133 - Aspen, Mixed Pine	High Density Pole	2.5	38		Decent quality aspen. White pine might be slightly older.
54	4191 - Mixed Upland Deciduous with Conifer	Medium Density Pole	17.1	73	51-80	Stand is mostly red maple, birch and balsam fir. Birch is starting to die out. There are some pockets of red maple logs although they are poor quality trees. Stand has some pockets of low ground with cedar and b. spruce. Stocking is variable. There is a perrenial drain near the east boundary of the stand. Some scattered red oak.
55	42200 - Natural White Pine	High Density Log	19.4	90	81-110	Lots of large white pine. Low amounts of white pine in the understory. Stocking is variable. Lots of white pine over 24" in diameter. Lots of 8 + stick trees. Decent quality white and red pine. There is also a narrow vain of hemlock and cedar (lowland) that runs through the northern portion of the sale. Seeing some mortality in red pine.
56	42110 - Planted Red Pine	High Density Pole	4.7	50	141-170	Thinned in 2008 for the 2nd time. Nice quality red pine, 6 stick trees. Canopies are grown in tight.
57	42200 - Natural White Pine	Medium Density Pole	1.9	41	1-50	Stand is filling in with smaller jack pine and white pine.
58	4130 - Aspen	High Density Sapling	62.0	16		Trees are 20-30' tall and are a couple of inches in diameter. Stocking kinda sparse on the far western edge.
59	42290 - Natural Mixed Pine	High Density Log	22.4	67	111-140	Natural pine stand that is slightly heavier to white pine. Small amount of aspen and maple present also. Stand appers to have been thinned in the past 20-30 years ago. Red pine is beginning to get topped out.
60	6129 - Mixed Coniferous Lowland Forest	Low Density Pole	12.0	95		
61	42290 - Natural Mixed Pine	High Density Log	8.1	78	111-140	Large diameter pine in the north end. Red pine tops in the north are rounded and starting to thin out. Quite a bit of advanced white pine regen. South end of the stand is a dense pole timber stand canopies are tight and the BA is a lot higher. Also there is some black spruce in the south part of the stand.
62	6129 - Mixed Coniferous Lowland Forest	Medium Density Pole	41.1	100		
64	6120 - Lowland Cedar	High Density Pole	30.5	96		Very dense, well stocked cedar stand. Lots of deer use.

Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
66	42290 - Natural Mixed Pine	High Density Log	7.7	62	111-140	Heavier to white pine in the south end and more of a red pine component in the north. Decent quality pine.
67	4319 - Mixed Upland Forest	High Density Pole	38.2	52	81-110	Ground is hummocky. Stand is a real mix of species Aspen, Maple, Birch, white pine, with quite a bit of balsam fir in the understory. Paper birch is starting to die out.
68	6129 - Mixed Coniferous Lowland Forest	High Density Pole	62.9	99		Some decent quality balsam fir and pockets of black spruce. Stand has more of a cedar component in the northern part of the stand. Deer are using the stand a lot. Stock becomes less dense to the west along the flooding. Stand also has a intermitten cr running through the middle of it. There are also parts of the stand along the east line that have a higher decidous component.
69	42210 - Natural Red Pine	High Density Pole	47.3	59	111-140	extra ba 140. Stand is on the verge of being a log stand. Stocking is variable. Some pockets of maple and oak. Lots of age and size class diversity. There is even a trace of some red pine regeneration in the understory!!
70	4191 - Mixed Upland Deciduous with Conifer	High Density Pole	33.2	68	81-110	Stand is like a W over top of a M6/A6. However there is more maple and aspen then white pine. White pine are very large in the overstory. Ground is very hummocky. The aspen is starting to die out. Stand contains a small Qtype pocket in the eastern central part of the stand (retention). Stand has more of white pine component in the east.
71	6120 - Lowland Cedar	High Density Pole	15.3	95		Dense cedar stand.
72	6120 - Lowland Cedar	High Density Pole	16.4	95		
73	6117 - Lowland Deciduous, Mixed Coniferous	High Density Pole	15.0	62		Stand has at least 2 intermittent creeks. Some pockets of nice mature red and white pine logs. Aspen is deteriorating. Stand has less TPA in the western 1/2.
74	429 - Mixed Upland Conifers	High Density Log	4.0	82	81-110	Stand has some larger white pine in the overstory. Ground is hummocky and is upland/lowland. Quite a bit of advanced white pine regeneration.
76	4130 - Aspen	High Density Sapling	30.2	6		Stand was clear cut in 2008, left the oak. Trees are about 10' tall. Lots of deer browse along the west line. Small amount of balsam fir and white pine are coming up with aspen.
77	42290 - Natural Mixed Pine	High Density Log	31.2	78	111-140	Stand is unevenaged mixed pine stand with small amount of aspen, oak and maple. Lots of size classes. A few large super canopy white and red pine (18'' +) trees. Stand has a higher component of white pine in the west part of the stand. Some of the red pine are getting topped out. Small pocket of jack pine out by Dutch John.
78	6128 - Lowland Coniferous, Mixed Deciduous	High Density Pole	7.9	95		Stand has scattered large white pine as super canopy trees. Decent size and quality to the red maple. Ground is soft but appears operable. Aspen is on it last leg.

Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
79	6120 - Lowland Cedar	High Density Pole	5.4	85		Stand is on transition ground, some of it is upland but the majority of it is lowland. There are also a few seeps/drains that flow into the Little Cannon.
80	6120 - Lowland Cedar	Low Density Pole	2.5	68		Stand has a perenial creek running through it.
81	42210 - Natural Red Pine	High Density Log	4.8	69	111-140	Decent quality pine, white pine is fairly clean. Good diameter developement, height are ok (6 sticks). Stand doesn't have much for advanced regen. Red pine is getting round topped and canopies are looking thin.
82	4310 - Pine, Oak Mix	High Density Log	28.2	96	81-110	Lots of mature red pine some of which are starting to top out. Stand has a couple of dry drains running through it. Large white pine along the drains.
83	6120 - Lowland Cedar	High Density Pole	2.5	85		Some super canopy white pine scattered throughout. Some balsam fir regeneration on the edges of the stand.
84	6122 - Black Spruce	Medium Density Pole	15.3	95		
85	42110 - Planted Red Pine	High Density Pole	1.8	47	111-140	
86	42210 - Natural Red Pine	High Density Log	10.7	69	111-140	An uneven aged mixed natural pine stand. Stand is made up of some limby/poor quality white pine in the eastern tip that transitions to a higher quality stand towards the west made up of more clean red and white pine (6+ stick trees). Large diameter red and white pine mixed in amongst the stand as super canopy trees some of which are starting to get thin tops.
87	4311 - Pine, Aspen Mix	High Density Pole	21.8	40	1-50	Stand has mature pine in the overstory with younger aspen and softmaple mixed in (2-aged stand). Aspen and maple appear to be around 30 years old. Pockets of A5/R5/W5.
88	6120 - Lowland Cedar	High Density Pole	14.1	90		Stand has a small creek running through the northern portion. Stand has less stocking in the eastern portion.
89	4133 - Aspen, Mixed Pine	High Density Pole	3.3	40		
90	42110 - Planted Red Pine	High Density Pole	202.3	47	111-140	Stand was row thinned in 2009. Tops have room to grow.
91	42290 - Natural Mixed Pine	Low Density Pole	36.5	48	1-50	Stand had all the decidious tree removed in 2009, left all pine. Mixed red and white pine pole timber with an understory of aspen, oak, maple.
92	42290 - Natural Mixed Pine	Medium Density Log	35.9	58	51-80	Stand appears to have a lot of 20-30 year old aspen and soft maple amongst the pine. Has pockets of W6 and R6 throughout.

Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
93	42200 - Natural White Pine	High Density Log	31.5	64	81-110	Open grown white pine stand. Poor quality white pine, very limby.
94	4123 - Red Oak	High Density Log	96.6	103	81-110	Stand was harvested (shelterwood) 16 years ago cutting everything but the oak. Stand is now 2 aged with young aspen in the understory. extra ba 150. Quite a bit of red maple in the understory. Some white pine in the slopes and in the vallies. Some hilly terrain sloping to the west and to the north. A mix of pole and log sized trees. Poorer quality oak, rough and a lot of low forks (2-3 logs). Some individual tree die back. A vain of A3 in the eastern part of the stand. Northern portion of the stand has better stocking 100+ BA.
95	4130 - Aspen	High Density Pole	55.2	40		Stand has an oak component scattered through the canopy that was left when the aspen was cut 40 years ago. There is also a lot of recent windthrown trees in the stand and a .5ac pocket or so in the northeast. Northwest part of the stand has a more of a pine component. Lots of old burned stumps out through out. White pine is the only advanced regen present (low).
96	4191 - Mixed Upland Deciduous with Conifer	Medium Density	2.7	17		
97	4310 - Pine, Oak Mix	Medium Density Pole	46.9	53	1-50	Stand looks like it originated from a pretty intense burn and is filling back in. Stand is mostly scattered oak logs, white pine and red maple. There are some clones of bigtooth aspen and pockets of Jack pine (J6). Lots of old stumps with fire scars.
98	4199 - Other Mixed Upland Deciduous	High Density Log	55.3	103	81-110	Stand has a large oak component. It looks like all the oak was left stand when the aspen was cut 40 years ago hence there is O8 and O7 pockets as well as oak lightly scattered in the overstory. Aspen is of pretty good quality.
99	42200 - Natural White Pine	High Density Pole	16.7	53	111-140	OK quality white pine. Northern portion was better stocked thant the southern. Trees are mostly 4-5 sticks tall. Some scattered oak throughout.

Report 9 – Nonforested Stands

Stand	Cover Type	Acres	Managed Site	Management Priority (Objective)	General Comments:
2	6224 - Treed Bog	3.1	No	Unspecified	
13	50 - Water	23.4	Unspecified	Unspecified	
20	6239 - Mixed Emergent Wetland	1.6	Unspecified	Unspecified	
21	6239 - Mixed Emergent Wetland	0.6	Unspecified	Unspecified	
32	50 - Water	6.8	Unspecified	Unspecified	
36	50 - Water	4.2	Unspecified	Unspecified	
49	6239 - Mixed Emergent Wetland	1.4	Unspecified	Unspecified	
53	3105 - Mixed Upland Herbaceous	0.6	No	Unspecified	
63	623 - Emergent Wetland	22.8	Unspecified	Unspecified	
65	122 - Road/Parking Lot	19.8	Unspecified	Unspecified	
75	50 - Water	1.6	Unspecified	Unspecified	