



**TRAVERSE CITY FOREST MANAGEMENT UNIT
COMPARTMENT REVIEW PRESENTATION**

COMPARTMENT # 22 ENTRY YEAR: 2014

Compartment Acreage: 1,659 County: Benzie

Revision Date: 05/22/12

Stand Examiner: Craig Allen

Legal Description: T25N- R13W; Sections 4, 5, 6, 7, 8, 9, 16, 17, 18

Management Goals: This compartment consists of several scattered blocks of state land vegetated with various timber types. There are many hardwood stands of variable size, density, species mix and timber quality. Some of these hardwood stands will be prescribed for select thinnings to strive toward uneven-age structure while creating healthier stands allowing more vibrant growth. Some of these stands may have areas that are inoperable for thinning due to steep terrain.

Aspen stands or stands that contain a mix of hardwood types with a large aspen component will be examined to perpetuate a unbalanced age class distribution in the area. Variable age classes of aspen-mix stands are highly desirable for wildlife habitat management purposes as well as sustainable pulp and paper fiber production.

A few red pine plantations exist within the compartment. The age classes of red pine on a statewide basis are heavily concentrated around the original plantings of the 1930's and 1950's. A major effort (the "Red Pine Project") is now underway to restart a large amount of these plantations to begin diversifying the age classes of state owned red pine plantations creating more sustainable management. You may notice many plantations in Benzie County that are being restarted under this program.

There is one jack pine plantation within the compartment on Milnichol road that contains a large amount of hardwood regeneration in the understory (including oak). This jack pine is in poor quality and health. In order to protect the young hardwood saplings from logging damage, the jack pine will be left to naturally die and succeed allowing the hardwoods to slowly release over time taking control of the overstory.

Soil and Topography: The topography is mostly level with some rolling hills in sections 4, 5, and 8. the upland soils consist of Leelanau, Emmet, and Kalkaska. The lowlands consist of Roscommon, Au Gres, and Coswell soils.

Ownership Patterns, Development, and Land Use in and Around the Compartment: The compartment is broken into four main blocks of State land. The surrounding private lands contain some residences, but the land is mostly undeveloped. The land surrounding the compartment is mostly solid blocks of State ownership, consisting of upland types except to the south where there are some areas of lowland hardwoods.

Unique, Natural Features (include only non-site specific and non-sensitive information): The Betsie River is a "Michigan Natural River" that flows through sections 9 and 16 of this compartment.

Archeological, Historical, and Cultural Features (include only non-site specific and non-sensitive information): There are no known sites within the compartment.

Special Management Designations or Considerations: Protecting the vegetative cover on the banks of the Betsie River, and the encouragement of long lived species will be a priority. Visual management will be important along pathway and snowmobile trails.

Watershed and Fisheries Considerations: The Betsie River flows through Compartment 22. The Betsie River is a Designated Trout Stream, and is a Natural River. The Betsie River has excellent fishing for chinook salmon, coho salmon, steelhead, and brown trout. Fisheries Division stocks steelhead and brown trout in the Betsie River. Due to Natural Rivers considerations, a buffer of 100' should be left on either side of the river. (Comments by Mark Tonello and Heather Hettinger, DNR Fisheries Biologists, 5/22/2012).

Wildlife Habitat Considerations: This compartment lies entirely within a broad, flat outwash plain which covers almost ½ of Benzie County. This is a particularly wildfire prone and fire driven landscape, occupied in presettlement times by jack pine forests, oak and pine barrens, mixed pine forests, and beech-maple in more successional advanced areas. As there are few natural fire breaks (e.g. ridges, floodplains) upwind, this compartment must have been particularly subject to relatively frequent, intense burns, especially north of the Betsie River. An exception is the small moraine area in the northeast corner of the compartment, which probably was and still is dominated by northern hardwood forest.

Consequently, wildlife adapted to this dynamic landscape will benefit from maintenance of early successional forest via timber harvesting which mimics the effects of wildfire. Harvesting small to medium stands of jack pine and aspen, and small patches within hardwood stands, will produce suitable habitat for chestnut-sided warbler, ruffed grouse, brown thrasher, deer, red fox, red-tailed hawk, and brown snake. Such cutting should incorporate a variety of leave trees (especially adjacent to wetlands), snags, and down logs for within-stand habitat diversity. Grass and brush openings should be maintained, preferably with fire, for species such as badger, wild turkey, eastern bluebird, meadow vole, cedar waxwing, American kestrel, and green snake. Larger openings in section 16 could be rotationally burned.

The hardwood forest on the small moraine in section 4 should be maintained in hardwoods. Treatments should be planned to maintain tree species and size diversity, cavity trees, vertical structure, and a steady supply of down logs. Species such as wood frog, white-breasted nuthatch, red-bellied woodpecker, and gray squirrel will benefit. There is also a history of nesting raptors in these hardwood ridges.

Poorly drained areas just southeast of the moraine have been harvested in small blocks in the past to create grouse habitat. Some of these have not regenerated well. Cuttings in the lowland deciduous forest should be limited to small patch cuts mimicking wind throws.

Red pine and spruce plantations throughout the compartment can be improved for wildlife through thinning, which will allow more species and structural diversity. Forest along the Betsie River should be managed for long lived species including a conifer component to provide habitat for riparian wildlife and protect the water quality and scenic values along the river. (Comments by Steve Griffith, Wildlife Biologist, 5/22/2012).

Mineral Resource and Development Concerns and/or Restrictions: Surface sediments consist of glacial outwash sand and gravel and postglacial alluvium, coarse-textured glacial till and lacustrine (lake) sand and gravel. The glacial drift thickness varies between 400 and 800 feet. Beneath the glacial drift is the Devonian Ellsworth Shale that is quarried for cement. A gravel pit is in Section 8 and potential is considered good on the uplands. This area is located northwest of the current Antrim Shale gas play. Part of the Compartment is leased for oil and gas development and the Antrim appears to have potential. (Comments by Tom Hoane, DNR Geologist, 4/17/2012).

Vehicle Access: There are good gravel and paved county roads throughout this compartment, offering very good and easy access to State lands. There are also many forest “2-track” roads in various areas of the compartment that are in good condition and are used for public and land management accessibility.

Survey Needs: There may be survey needs in section 4 to help establish private corners for timber sale thinning operations.

Recreational Facilities and Opportunities: The state snowmobile trail meanders through section 16. The Betsie River provides fishing and canoeing opportunities. Hunting, trapping, and dispersed camping are just a few of the popular recreational activities that occur in this compartment.

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

Additional Compartment Information:

* **Cover type details and proposed treatments are listed in the attached reports:**

Cover Type by Age Class

Proposed Treatments – No Limiting Factors

Proposed Treatments – With Limiting Factors

* **The following information is displayed on the attached compartment maps:**

Base feature information, stand numbers, cover types

Proposed treatments

Proposed SCAs

Cover Type & Treatment Map

Compartment: 022
 T25N R13W Sec. 4-9, 16-18
 County: Benzie
 Unit: Traverse City
 YOE: 2014
 Acres: 1,659 GIS Calculated
 Examiner: Craig Allen
 Map Revised: 5/22/2012
 Map Phase: Pre-Review

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

Legend

- Miris Corners
- Paved Roads
- Gravel Roads
- Poor Dirt Roads
- Stream
- Intermittent Stream
- Snowmobile Trails
- Snowmobile Trail
- State Forest Land

Treatments

- Clearcut (w/Reserves, Patch/Strip)
- Thinning (Crown, Low, Systematic)
- Selection (Group, Single Tree)
- Other Treatment - See Comments
- Planned Regeneration
- Planted

Forest Stands

Level 3

- 411 - Northern Hardwood
- 413 - Aspen Types
- 421 - Planted Pines
- 422 - Natural Pines
- 423 - Other Upland Conifers
- 611 - Lowland Deciduous Forest
- 613 - Lowland Mixed Forest

Non-Forest Stands

Level 3

- 122 - Road/Parking Lot
- 310 - Herbaceous Openland
- 330 - Low-Density Trees
- 500 - Water
- 623 - Emergent Wetland
- 629 - Mixed non-forested wetland
- 710 - Sand, Soil

6 5 4
 7 8 9
 18 17 16

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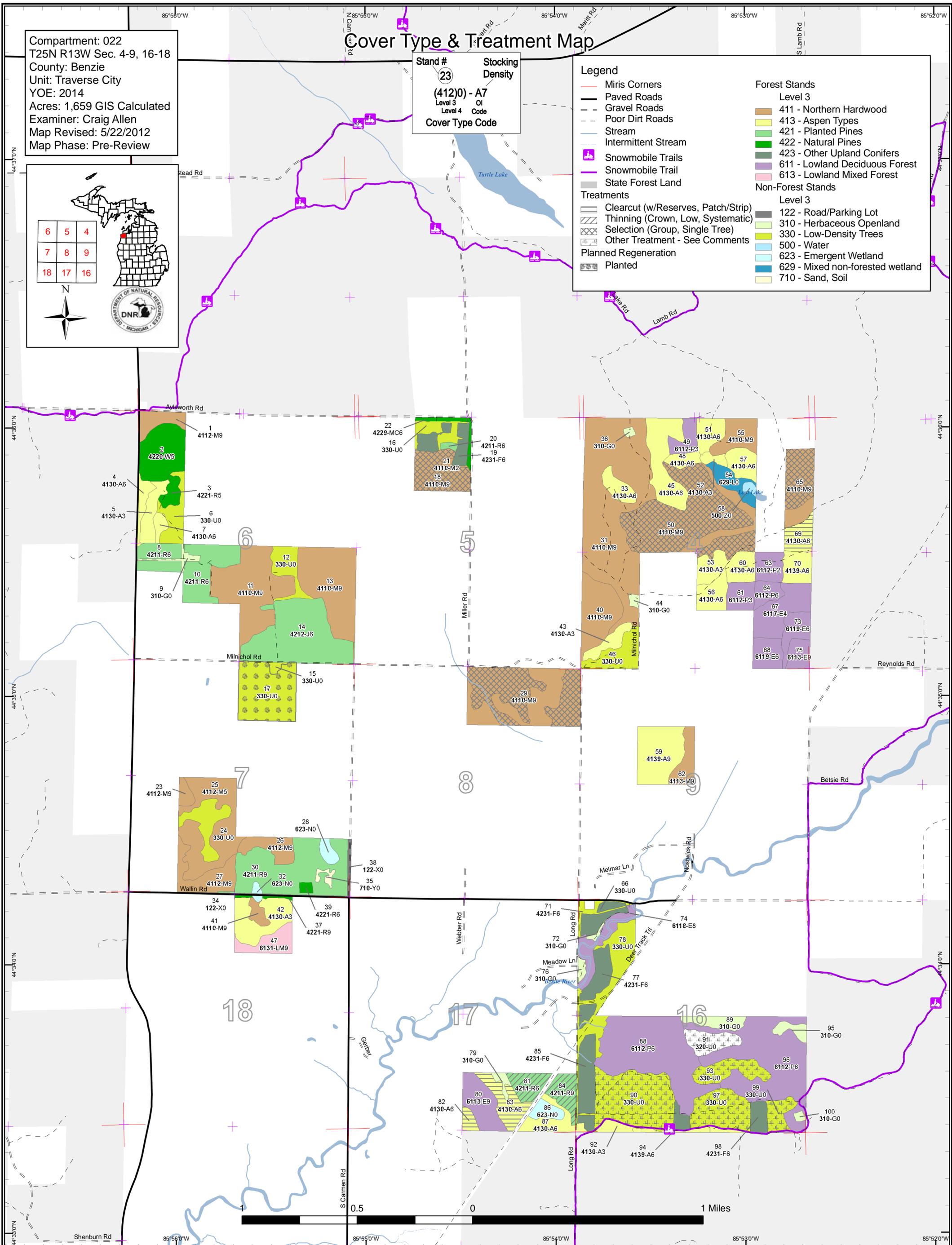


Table 1 – Total Acres by Cover Type and Age Class



	Age Class													Total	
	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
Aspen	48	9	17	56	35	19	14	29	0	0	0	0	0	0	228
Herbaceous Openland	25	0	0	0	0	0	0	0	0	0	0	0	0	0	25
Jack Pine	0	0	0	0	0	0	60	0	0	0	0	0	0	0	60
Low-Density Trees	233	0	0	0	0	0	0	0	0	0	0	0	0	0	233
Lowland Aspen/Balsam Poplar	0	27	73	7	74	0	0	0	0	0	0	0	0	0	181
Lowland Deciduous	0	0	21	0	0	0	0	23	14	26	0	0	0	0	84
Lowland Mixed Forest	0	0	0	0	0	0	0	0	0	12	0	0	0	0	12
Lowland Shrub	9	0	0	0	0	0	0	0	0	0	0	0	0	0	9
Marsh	11	0	0	0	0	0	0	0	0	0	0	0	0	0	11
Natural Mixed Pines	0	0	0	0	0	4	0	0	0	0	0	0	0	0	4
Northern Hardwood	0	0	44	0	0	0	0	20	172	317	23	0	0	0	577
Red Pine	0	0	2	5	1	60	56	0	0	0	0	0	0	0	125
Sand, Soil	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Upland Shrub	11	0	0	0	0	0	0	0	0	0	0	0	0	0	11
Upland Spruce/Fir	0	0	0	0	12	51	0	0	0	0	0	0	0	0	62
Urban	5	0	0	0	0	0	0	0	0	0	0	0	0	0	5
Water	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2
White Pine	0	0	0	0	0	0	27	0	0	0	0	0	0	0	27
Total	346	36	157	68	122	135	158	72	187	355	23	0	0	0	1659



Table 2 – Proposed Treatment Summaries

Traverse City Mgt. Unit
Year of Entry 2014

Compartment 022
Total Compartment Acres: 1659

Acres by Treatment Type

Commercial Harvest - 220	Site Prep - 0	Tree Planting - 0	Prescribed Burn - 0	Other - 0
Habitat Cut - 0	Opening Maintenance - 11	Tree Seeding - 0	Pesticide - 0	

Cover Type by Harvest Method

		Clearcut	Selection	Seed Tree	Shelterwood	Thinning	Other - Specify	Total Acres
Aspen		28	0	0	0	0	0	28
Northern Hardwood		0	171	0	0	0	0	171
Red Pine		0	0	0	0	21	0	21
	Total	28	171	0	0	21	0	220



S t a n d	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
18	61022018-Cut	22.6	4110 - Sugar Maple Association	High Density Log	105	111-140	Harvest	Single Tree Selection	4110 - Sugar Maple Association	Cmpt. Review Proposal
<p><u>Prescription</u> Select thin the stand to promote growth of better quality trees and may possibly create openings for sugar maple regeneration to seed in. <u>Specs:</u> Reduce average volume to approximately 85 BA and follow compleat marker guidelines.</p> <p><u>Other Comments:</u></p> <p><u>Next Steps:</u></p> <p><u>Proposed Start Date:</u> 10/01/2013</p>										
29	61022029-Cut	47.6	4110 - Sugar Maple Association	High Density Log	80	111-140	Harvest	Single Tree Selection	4110 - Sugar Maple Association	Cmpt. Review Proposal
<p><u>Prescription</u> Select thin the stand to promote growth of better quality trees and may possibly create openings for sugar maple regeneration to seed in. <u>Specs:</u> Reduce average volume to approximately 85 BA and follow compleat marker guidelines.</p> <p><u>Other Comments:</u></p> <p><u>Next Steps:</u></p> <p><u>Proposed Start Date:</u> 10/01/2013</p>										
50	61022050-Cut	82.1	4110 - Sugar Maple Association	High Density Log	90	111-140	Harvest	Single Tree Selection	4110 - Sugar Maple Association	Cmpt. Review Proposal
<p><u>Prescription</u> Select thin the stand to promote growth of better quality trees and may possibly create openings for sugar maple regeneration to seed in. <u>Specs:</u> Reduce average volume to approximately 85 BA and follow compleat marker guidelines.</p> <p><u>Other Comments:</u></p> <p><u>Next Steps:</u></p> <p><u>Proposed Start Date:</u> 10/01/2013</p>										
65	61022065-Cut	18.9	4110 - Sugar Maple Association	High Density Log	80	111-140	Harvest	Single Tree Selection	4110 - Sugar Maple Association	Cmpt. Review Proposal
<p><u>Prescription</u> Select thin the stand to promote growth of better quality trees and may possibly create openings for sugar maple regeneration to seed in. <u>Specs:</u> Reduce average volume to approximately 85 BA and follow compleat marker guidelines.</p> <p><u>Other Comments:</u> --Stephen Griffith : 05/21/2012 comments: Potential for nesting goshawks or red-shouldered hawks in this stand.</p> <p><u>Next Steps:</u></p> <p><u>Proposed Start Date:</u> 10/01/2013</p>										
69	61022069-Cut	9.8	4130 - Aspen	High Density Pole	55		Harvest	Clearcut with Reserves	4130 - Aspen	Cmpt. Review Proposal
<p><u>Prescription</u> Cut all hardwoods to expand and regenerate aspen. Leave any conifer species. Mark to leave a few individual large red maple, cherry and <u>Specs:</u> aspen for retention. Retain any other species that may be on site.</p> <p><u>Other Comments:</u></p> <p><u>Next Steps:</u></p> <p><u>Proposed Start Date:</u> 10/01/2013</p>										



S t a n d	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
81	61022081-Cut	10.1	42110 - Planted Red Pine	High Density Pole	56		Harvest	Systematic Thinning	42110 - Planted Red Pine	Cmpt. Review Proposal
<p><u>Prescription</u> Parcel is landlocked by private landowner. If access is ever granted, this red pine plantation is in serious need of thinning. Will need 1/3 removal <u>Specs:</u> of volume by row thinning. If access is not granted soon, this plantation may have to be clear-cut and regenerated as it may be too late for a proper thinning to maintain a healthy stand.</p> <p><u>Other</u> <u>Comments:</u></p> <p><u>Next</u> <u>Steps:</u></p> <p><u>Proposed</u> <u>Start Date:</u> 10/01/2013</p>										
82	61022082-Cut	3.5	4130 - Aspen	High Density Pole	52		Harvest	Clearcut with Reserves	4130 - Aspen	Cmpt. Review Proposal
<p><u>Prescription</u> This parcel is completely landlocked by private land. If access is ever granted, clearcut all hardwoods to regenerate and expand aspen <u>Specs:</u> component. Retain a few retention islands within the sale. Also, retain and oak or conifer species that may be on site.</p> <p><u>Other</u> <u>Comments:</u></p> <p><u>Next</u> <u>Steps:</u></p> <p><u>Proposed</u> <u>Start Date:</u> 10/01/2013</p>										
83	61022083-Cut	14.2	4130 - Aspen	High Density Pole	62		Harvest	Clearcut with Reserves	4130 - Aspen	Cmpt. Review Proposal
<p><u>Prescription</u> This parcel is completely landlocked by private land and was prescribed for harvest in 2002 as well. If access is ever granted, this aspen stand is <u>Specs:</u> past due to clearcut all hardwoods to regenerate and expand aspen component. Retain a few retention islands within the sale. Also, retain and oak or conifer species that may be on site.</p> <p><u>Other</u> <u>Comments:</u></p> <p><u>Next</u> <u>Steps:</u></p> <p><u>Proposed</u> <u>Start Date:</u> 10/01/2013</p>										
84	61022084-Cut	11.1	42110 - Planted Red Pine	High Density Log	56	171-200	Harvest	Systematic Thinning	42110 - Planted Red Pine	Cmpt. Review Proposal
<p><u>Prescription</u> Thin plantation by select marking. Thin approximately 1/3 of volume. <u>Specs:</u></p> <p><u>Other</u> <u>Comments:</u></p> <p><u>Next</u> <u>Steps:</u></p> <p><u>Proposed</u> <u>Start Date:</u> 10/01/2013</p>										



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Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
90 NF_61022090-NonFor	50.2	3303 - Mixed Low Density Trees				Non-Forest Management	Other - Specify	3105 - Mixed Upland Herbaceous	Cmpt. Review Proposal
<p><u>Prescription</u> This opening previously had a prescribed burn prescription. However, habitat inventory notes from 2002 recorded a high level of bracken fern.</p> <p><u>Specs:</u> This opening should be treated to remove bracken fern and then planted to herbaceous cover. Disk or cultivate at least twice during the growing season to deplete food reserves in rhizomes. Then plant to annual cereal rye that fall.</p> <p><u>Other Comments:</u> May need to plant to rye or oats for several seasons to enrich soil, then establish perennial herbaceous species for forage and cover.</p> <p><u>Next Steps:</u> Maintain as needed with mowing, seeding, fertilizing, burning, or removal of woody encroachment.</p> <p><u>Proposed Start Date:</u> Unspecified</p>									

91 NF_61022091-NonFor	11.5	3205 - Mixed Upland Shrub				Non-Forest Management	Other - Specify	3105 - Mixed Upland Herbaceous	Cmpt. Review Proposal
<p><u>Prescription</u> This opening previously had a prescribed burn prescription. However, habitat inventory notes from 2002 recorded a high level of bracken fern.</p> <p><u>Specs:</u> This opening should be treated to remove bracken fern and then planted to herbaceous cover. Disk or cultivate at least twice during the growing season to deplete food reserves in rhizomes. Then plant to annual cereal rye that fall.</p> <p><u>Other Comments:</u> May need to plant to rye or oats for several seasons to enrich soil, then establish perennial herbaceous species for forage and cover. May need to treat with quad instead of tractor.</p> <p><u>Next Steps:</u> Maintain as needed with mowing, seeding, fertilizing, burning, or removal of woody encroachment.</p> <p><u>Proposed Start Date:</u> Unspecified</p>									

93 NF_61022093-NonFor	14.8	3303 - Mixed Low Density Trees				Non-Forest Management	Other - Specify	3105 - Mixed Upland Herbaceous	Cmpt. Review Proposal
<p><u>Prescription</u> This opening previously had a prescribed burn prescription. However, habitat inventory notes from 2002 recorded a high level of bracken fern.</p> <p><u>Specs:</u> This opening should be treated to remove bracken fern and then planted to herbaceous cover. Disk or cultivate at least twice during the growing season to deplete food reserves in rhizomes. Then plant to annual cereal rye that fall.</p> <p><u>Other Comments:</u> May need to plant to rye or oats for several seasons to enrich soil, then establish perennial herbaceous species for forage and cover. May need to treat with quad instead of tractor.</p> <p><u>Next Steps:</u> Maintain as needed with mowing, seeding, fertilizing, burning, or removal of woody encroachment.</p> <p><u>Proposed Start Date:</u> Unspecified</p>									

97 NF_61022097-NonFor	24.6	3303 - Mixed Low Density Trees				Non-Forest Management	Other - Specify	3105 - Mixed Upland Herbaceous	Cmpt. Review Proposal
<p><u>Prescription</u> This opening previously had a prescribed burn prescription. However, habitat inventory notes from 2002 recorded a high level of bracken fern.</p> <p><u>Specs:</u> This opening should be treated to remove bracken fern and then planted to herbaceous cover. Disk or cultivate at least twice during the growing season to deplete food reserves in rhizomes. Then plant to annual cereal rye that fall.</p> <p><u>Other Comments:</u> May need to plant to rye or oats for several seasons to enrich soil, then establish perennial herbaceous species for forage and cover.</p> <p><u>Next Steps:</u> Maintain as needed with mowing, seeding, fertilizing, burning, or removal of woody encroachment.</p> <p><u>Proposed Start Date:</u> Unspecified</p>									

**Table 3 -- Treatments Prescribed
with No Limiting Factor**



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Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
99 NF_61022099-NonFor	8.6	3303 - Mixed Low Density Trees				Non-Forest Management	Other - Specify	3105 - Mixed Upland Herbaceous	Cmpt. Review Proposal

Prescription This opening previously had a prescribed burn prescription. However, habitat inventory notes from 2002 recorded a high level of bracken fern.
Specs: This opening should be treated to remove bracken fern and then planted to herbaceous cover. Disk or cultivate at least twice during the growing season to deplete food reserves in rhizomes. Then plant to annual cereal rye that fall.

Other Comments: May need to plant to rye or oats for several seasons to enrich soil, then establish perennial herbaceous species for forage and cover.

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

Proposed Start Date: Unspecified

Total Treatment Acreage Proposed: 329.6

**Table 4 -- Treatments Prescribed with
a Limiting Factor**



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

Prescription
Specs:

Other
Comment:

Next
Steps:

Proposed
Start Date: #Error

Limiting Factor and No
Treatment Reason

**Total Treatment
Acreage Proposed: 0**

**Out of YOE -- Treatments
Prescribed with No Limiting Factor**

Year of Entry: 2014



Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
61043_OutOfY OE-Cut	2.1					Harvest	Clearcut with Reserves	4131 - Aspen, Oak	Cmpt. Review Proposal - Incomplete
<u>Prescription</u> <u>Specs:</u> retain some pine and osk for mast and seed production, Follwo WLD guidance for CWD creation. Harvest all stems that are not retained. <u>Other</u> New stand should have mix of oak, pine, aspen and maple. <u>Comments:</u> <u>Next Steps:</u> <u>Proposed Start Date:</u> 09/01/2009									
61231_OutOfY OE-Thin	4.6			0		Harvest	Low Thinning	4122 - Oak, Pine	Cmpt. Review Proposal
<u>Prescription</u> Within harvest area, remove all aspen. Heavily thin oak and maple to a residual BA of about 50 sf. Leave retention in patches or strips sufficient <u>Specs:</u> to meet minimum retention goals. <u>Other</u> Topography is rather hilly. Combine with treatment in Compartment 133. <u>Comments:</u> <u>Next Steps:</u> <u>Proposed Start Date:</u> 10/01/2013									
Total Treatment Acreage Proposed:		6.7							



Stand	Traverse City Mgt. Unit			5 – Forested Stands		Compartment: 022 Year of Entry: 2014
	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
1	4112 - Maple, Beech, Cherry Association	High Density Log	9.5	75	81-110	
2	42200 - Natural White Pine	Medium Density Pole	27.1	61	51-80	Red maple cut out of stand in Dec.2004. Fair quality natural white pine with some weevil damage, but not too bad.
3	42210 - Natural Red Pine	Medium Density Pole	5.3	35	1-50	nice young natural red pine stand. slowly filling in gaps with pine regen
4	4130 - Aspen	High Density Pole	5.9	52		
5	4130 - Aspen	High Density Sapling	9.9	8		Was clearcut in Dec.2004. for regen and expansion of aspen. Some scattered white pine pole and saw log trees were retained.
7	4130 - Aspen	High Density Pole	3.3	28		
8	42110 - Planted Red Pine	High Density Pole	13.7	56	111-140	Row thinned in 1994. Select thinned approx. 1/3 volume of lower quality in spring 2006.
10	42110 - Planted Red Pine	High Density Pole	25.5	56	111-140	Was row thinned in 1994. Was thinned again in spring 2006.
11	4110 - Sugar Maple Association	High Density Log	52.6	90	81-110	Stand was thinned in 1947, 1978 and most recently in Spring of 2005. Medium quality Hardwoods. Better quality located middle to west.
13	4110 - Sugar Maple Association	High Density Log	47.5	85	81-110	Stand had TSI commercial cut in 1978. Then, 35 acres were thinned in 1997. Hilly
14	42120 - Planted Jack Pine	High Density Pole	60.4	62	1-50	Allow jack pine overstory to naturally fall out of stand to let hardwood understory to continue to nurse in and takeover the stand. Getting quite a bit of windthrow and dieoff of jack pine overstory.
18	4110 - Sugar Maple Association	High Density Log	22.6	105	111-140	Commercial TSI cut in 1977, Understory mostly beech.
19	42310 - Planted Spruce	High Density Pole	11.6	49	51-80	
20	42110 - Planted Red Pine	High Density Pole	1.4	42	51-80	
21	4110 - Sugar Maple Association	Medium Density	1.5	25		
22	42290 - Natural Mixed Pine	High Density Pole	4.3	55	1-50	

S t a n d	Traverse City Mgt. Unit		5 – Forested Stands			Compartment: 022	General Comments:
	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	Year of Entry: 2014	
23	4112 - Maple, Beech, Cherry Association	High Density Log	4.0	90	81-110		
25	4112 - Maple, Beech, Cherry Association	Medium Density Pole	42.9	28			Was cut in 1984.
26	4112 - Maple, Beech, Cherry Association	High Density Log	11.6	90	81-110		variable volume density
27	4112 - Maple, Beech, Cherry Association	High Density Log	18.3	80	81-110		
29	4110 - Sugar Maple Association	High Density Log	77.9	80	111-140		select thin
30	42110 - Planted Red Pine	High Density Log	55.2	63	141-170		Was thinned in Feb. of 2005.
31	4110 - Sugar Maple Association	High Density Log	112.8	90	81-110		
33	4130 - Aspen	High Density Pole	7.7	42			Also has a trace of oak plus some ash
37	42210 - Natural Red Pine	High Density Log	1.3	63			small strip of trees left along Wallin road and adjacent cut.
39	42210 - Natural Red Pine	High Density Pole	1.7	27			
40	4110 - Sugar Maple Association	High Density Log	26.8	90	111-140		
41	4110 - Sugar Maple Association	High Density Log	4.0	80	51-80		Was thinned in 2006.
42	4130 - Aspen	High Density Sapling	21.6	6			Was clearcut in 2006 to regenerate and expand aspen component. Various trees retained out in sale area...mostly maple and some white pine a few red oak.
43	4130 - Aspen	High Density Sapling	7.3	4			Clearcut in late summer early fall of 2008. Was cut to expand and regenerate aspen component.
45	4130 - Aspen	High Density Pole	27.3	40			clearcut in 1972
47	6131 - Hemlock, White Pine, Maple, Birch	High Density Log	11.8	90	81-110		
48	4130 - Aspen	High Density Pole	5.1	31			
49	6112 - Lowland Aspen	High Density Sapling	8.2	16			



S t a n d	Traverse City Mgt. Unit		5 – Forested Stands			Compartment: 022	General Comments:
	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	Year of Entry: 2014	
50	4110 - Sugar Maple Association	High Density Log	95.2	90	111-140		
51	4130 - Aspen	High Density Pole	9.6	31			
52	4130 - Aspen	High Density Sapling	3.0	16			also contains some scattered red oak leave trees
53	4130 - Aspen	High Density Sapling	9.0	4			
55	4110 - Sugar Maple Association	High Density Log	14.3	90	51-80		Thinned in 1996
56	4130 - Aspen	High Density Pole	11.0	31			
57	4130 - Aspen	High Density Pole	9.8	31			steep slopes
59	4139 - Aspen, Mixed Deciduous	High Density Log	28.9	70			Canopy species information is an estimate of what may possibly be there based on stands nearby and using imagery.
60	4130 - Aspen	High Density Pole	9.7	31			
61	6112 - Lowland Aspen	High Density Sapling	9.2	16			
62	4113 - R.Maple, Conifer	High Density Log	10.3	75			Stand canopy information is an estimate based on imagery and surrounding stands.
63	6112 - Lowland Aspen	Medium Density	9.9	16			
64	6112 - Lowland Aspen	High Density Pole	6.9	31			
65	4110 - Sugar Maple Association	High Density Log	24.7	80	111-140		quality and volumes are variable
67	6117 - Lowland Deciduous, Mixed Coniferous	Low Density Pole	22.8	75			
68	6119 - Mixed Lowland Deciduous Forest	High Density Pole	10.7	24			wet year round
69	4130 - Aspen	High Density Pole	9.8	55			
70	4139 - Aspen, Mixed Deciduous	High Density Pole	10.8	31			



S t a n d	Traverse City Mgt. Unit		5 – Forested Stands			Compartment: 022	General Comments:
	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	Year of Entry: 2014	
71	42310 - Planted Spruce	High Density Pole	8.9	51	1-50		
73	6119 - Mixed Lowland Deciduous Forest	High Density Pole	10.3	24			
74	6118 - Lowland Deciduous with Cedar	Medium Density Log	14.2	85	1-50		Narrow corridor and banks along both sides of Betsie River. Some bur oak along river bank area east side of river in south end of stand...most likely planted by wildlife div and has had some natural regen since.
75	6113 - Lowland Maple	High Density Log	7.6	91	111-140		
77	42310 - Planted Spruce	High Density Pole	14.2	51	1-50		
80	6113 - Lowland Maple	High Density Log	18.1	91			
81	42110 - Planted Red Pine	High Density Pole	10.1	56			Needs 1/3 volume thinning, systematic. Never thinned due to access problem.
82	4130 - Aspen	High Density Pole	3.5	52			
83	4130 - Aspen	High Density Pole	14.2	62			
84	42110 - Planted Red Pine	High Density Log	11.1	56	171-200		Row thinned in 1995. Needs another thinning. thin by select marking remove approximately 1/3 volume.
85	42310 - Planted Spruce	High Density Pole	17.7	51	81-110		
87	4130 - Aspen	High Density Pole	11.3	26			
88	6112 - Lowland Aspen	High Density Pole	72.9	26			also contains some scattered spruce and burr oak (Oak = most are small dbh but a few mature)
92	4130 - Aspen	High Density Sapling	6.2	17			
94	4139 - Aspen, Mixed Deciduous	High Density Pole	2.4	28			
96	6112 - Lowland Aspen	High Density Pole	73.7	41			
98	42310 - Planted Spruce	High Density Pole	9.9	51	81-110		Originally planted for wildlife cover.





Stand	Cover Type	Acres	Managed Site	Management Priority (Objective)	General Comments:
6	3301 - Low Density Deciduous Tree	12.0	N/A	Unspecified	
9	3102 - Grass	3.4	N/A	Unspecified	
12	330 - Low-Density Trees	11.7	N/A	Unspecified	
15	330 - Low-Density Trees	1.6	N/A	Unspecified	
16	330 - Low-Density Trees	8.2	N/A	Unspecified	
17	3302 - Low Density Conifer Trees	38.7	Planted	Red Pine	Stand has been trenched and will be hand-planted by contract to red pine seedlings in spring of 2012.
24	3301 - Low Density Deciduous Tree	14.4	N/A	Unspecified	
28	623 - Emergent Wetland	4.0	N/A	Unspecified	
32	623 - Emergent Wetland	1.7	N/A	Unspecified	
34	122 - Road/Parking Lot	2.6	N/A	Unspecified	
35	710 - Sand, Soil	1.9	N/A	Unspecified	
36	3102 - Grass	1.1	N/A	Unspecified	
38	122 - Road/Parking Lot	2.3	N/A	Unspecified	
44	3102 - Grass	1.5	N/A	Unspecified	
46	330 - Low-Density Trees	14.9	N/A	Unspecified	
54	629 - Mixed non-forested wetland	9.5	N/A	Unspecified	
58	50 - Water	1.7	N/A	Unspecified	
66	330 - Low-Density Trees	4.4	N/A	Unspecified	



Stand	Cover Type	Acres	Managed Site	Management Priority (Objective)	General Comments:
72	310 - Herbaceous Openland	1.1	N/A	Unspecified	
76	310 - Herbaceous Openland	2.0	N/A	Unspecified	
78	330 - Low-Density Trees	28.6	N/A	Unspecified	
79	310 - Herbaceous Openland	2.5	N/A	Unspecified	
86	623 - Emergent Wetland	5.6	N/A	Unspecified	
89	310 - Herbaceous Openland	8.1	N/A	Unspecified	
90	3303 - Mixed Low Density Trees	50.2	No	High (NonForested)	This opening is part of a series of openings in the compartment and is adjacent to a large, semi-remote tract of land along the Betsie and Little Betsie Rivers.
91	3205 - Mixed Upland Shrub	11.5	No	High (NonForested)	This opening is part of a series of openings in the compartment and is adjacent to a large, semi-remote tract of land along the Betsie and Little Betsie Rivers.
93	3303 - Mixed Low Density Trees	14.8	No	High (NonForested)	This opening is part of a series of openings in the compartment and is adjacent to a large, semi-remote tract of land along the Betsie and Little Betsie Rivers.
95	310 - Herbaceous Openland	4.4	N/A	Unspecified	
97	3303 - Mixed Low Density Trees	24.6	No	High (NonForested)	This opening is part of a series of openings in the compartment and is adjacent to a large, semi-remote tract of land along the Betsie and Little Betsie Rivers.
99	3303 - Mixed Low Density Trees	8.6	No	Medium (NonForested)	This opening is part of a series of openings in the compartment and is adjacent to a large, semi-remote tract of land along the Betsie and Little Betsie Rivers.
100	3102 - Grass	1.2	N/A	Unspecified	



7 – 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.

Stand	SCA Type	SCA Name	Acres	Comments
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8 – DEDICATED CONSERVATION AREA DETAILS

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

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

Conservation Area	Type	Description
SCA	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.
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.