

Report 1 – Compartment Review Presentation

Traverse City Forest Management Unit

Compartment 103 Entry Year 2015 Acreage: 1,619

County Kalkaska

Management Area: Grayling Outwash

Revision Date: 04/18/2013

Stand Examiner: Steve Crigier

Legal Description:

T28N R6W, Sec 1, 11, 12, 23, 25, 26

Identified Planning Goals:

Maintain the health, structural integrity and diversity of the cover types that exist on the landscape. The compartment is dominated by aspen and hardwood timber types with some red pine plantations also. Through select cutting some of the hardwood stands we will maintain a healthy forest while growing better quality sawtimber. Amongst the aspen stands we will create some more age class diversity through final harvesting some stands. The compartment emcompasses several lakes and ponds which will need to be appropriately buffered to maintain their unique natural features. The recreation trails will need to be properly addressed with the near by timber harvesting activities to provide a safe and enjoyable experience for its users.

Soil and topography:

The land in compartment 103 is mostly flat although there are a few areas with some rolling terrain in section 11. Most of the upland hardwood stands are on Kalkaska Sand or Island lake Loamy Sand. The majority of the compartment is on Island Lake Sand which is excessivly drained.

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

Ownership around the compartment is mostly forested private property. The majority of the private property is used seasonally for recreation especially around the lakes. Forestry and oil and gas development are the more industrial uses of the land in and around the compartment.

Unique, Natural Features:

Archeological, Historical, and Cultural Features:

Special Management Designations or Considerations:

Pickerel Lake State Forest Campground, in section 25 is proposed as a Special Conservation Area (Concentrated Recreational area).

Watershed and Fisheries Considerations:

Parts of Pickerel and Oxbow Lakes lie within Compartment 103. Pickerel Lake is a very good fishing lake, with good populations of bluegill, largemouth bass, pumpkinseed sunfish, and northern pike. Fisheries Division has also been stocking Pickerel Lake with walleye. Oxbow Lake also has bass and panfish, but is not heavily fished due to difficult access. BMPs should be followed for any cuts done near these lakes, and an appropriate buffer strip left. Woody debris is very important habitat for fish in inland lakes.

Wildlife Habitat Considerations:

Mineral Resource and Development Concerns and/or Restrictions

Surface sediments consist of glacial outwash sand and gravel and post glacial alluvium. The glacial drift thickness varies between 400 and 800 feet. Beneath the glacial drift is the Mississippian Coldwater Shale. The Coldwater does not have an economic use. A gravel pit is located in Section 24 and potential is considered good. This area is located in the center of the Guelph (Niagaran) reef trend and south of the current Antrim Shale gas play. The Compartment is currently leased for oil and gas development and most is held by production. Two large underground gas storage fields are located in Sections 1 and 12.

Vehicle Access:

The compartment has good vehicle access by paved county roads in the north 1/2 and good gravel roads throughout the southern portion (see map).

Survey Needs:

Recreational Facilities and Opportunities:

The northern portion of this compartment contains no recreational facilities; however the southern portion contains Pickerel Lake State Forest Campground, the Michigan Cross-Country Cycle Trail (MCCCT), Kalkaska ORV trail and a section of the non-motorized North Country Hiking Trail. Proposed timber management activities should include trail protection specifications to reduce impacts, as well as serve as an example of how silviculturally sound timber harvesting practices can co-exist, and often improve recreation and hunting experiences for future generations. Treatments proposed directly adjacent to motorized trail treads should include either a "flush cut" specification, or be stumped high enough (3 feet) to avoid being hidden by perennial flora (ferns). Any forest treatments within Pickerel Lake State Forest Campground should include: collaboration with PRD to develop timber harvest plan; specifications that will lessen impacts on users during camping season (winter cut only); "short-log" requirement to lessen potential damage to campground infrastructure and desirable understory vegetation; slash management to reduce logging debris on campsites, removal of hazard trees; and "flush-cut" stump requirement to reduce tripping/vehicle hazards in concentrated use areas. (TMN 3/13)

Fire Protection:

The compartment has good vehicle access through out the compartment which should help with response time to a fire in the area. The soils are also very shallow and the fuels are grass or leaf litter which should mean lead to short and fast burns. The ground is very level and is very workable for fire trucks and tractor plows. The near by lakes and ponds will provide water sources for the firefighters on the scene. There are lots of homes and seasonal residents around the compartment that will have to be defended in the event of a fire.

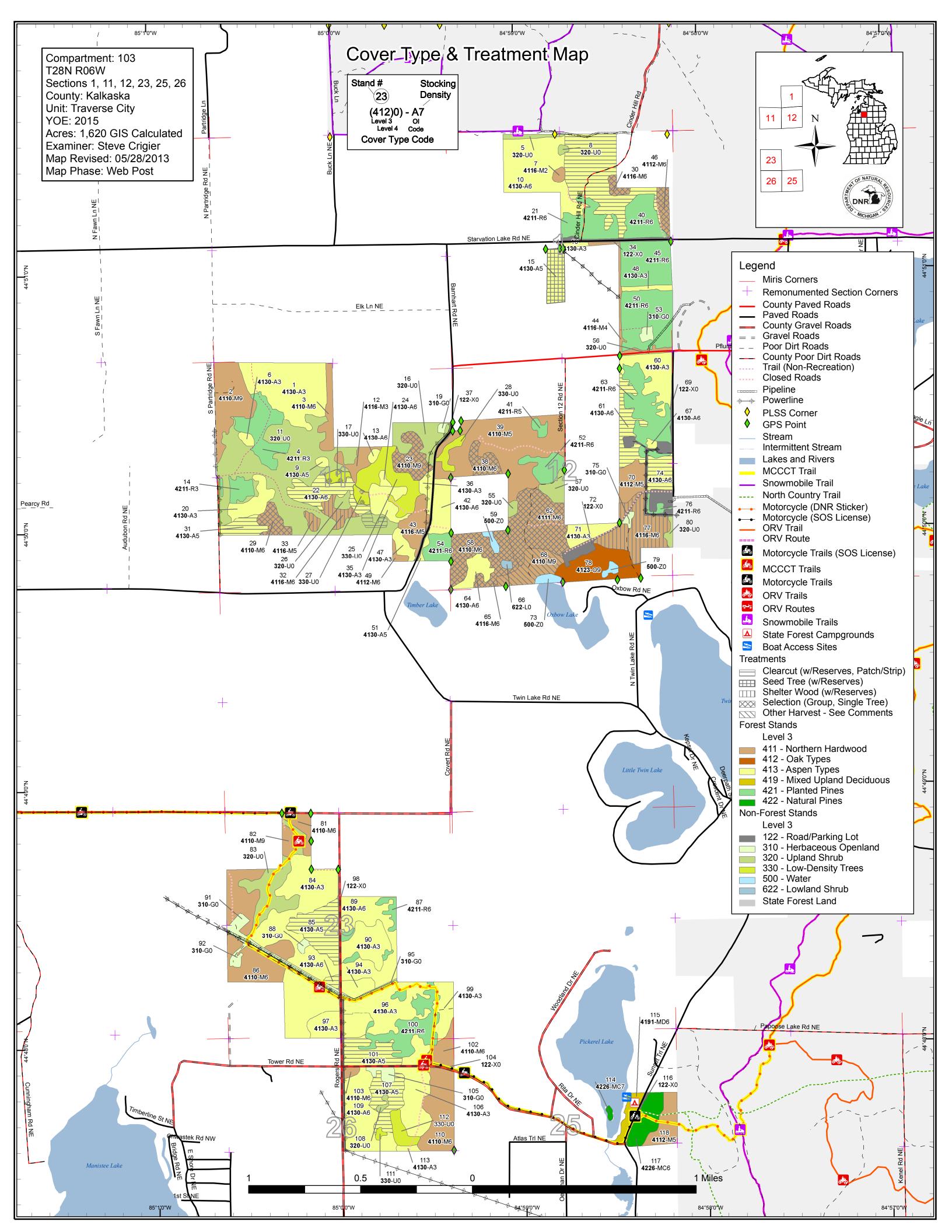
Additional Compartment Information:

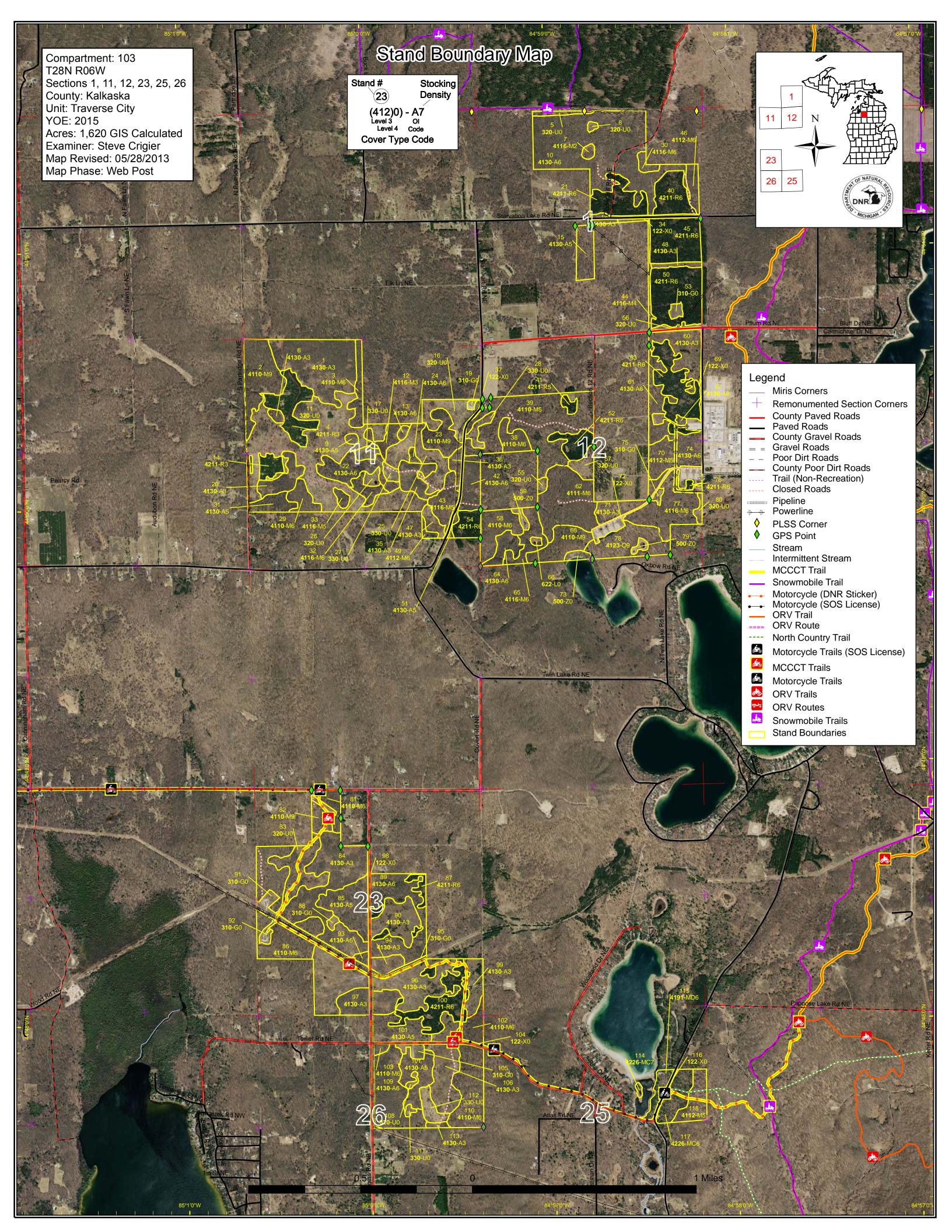
The following reports from the Inventory are attached:

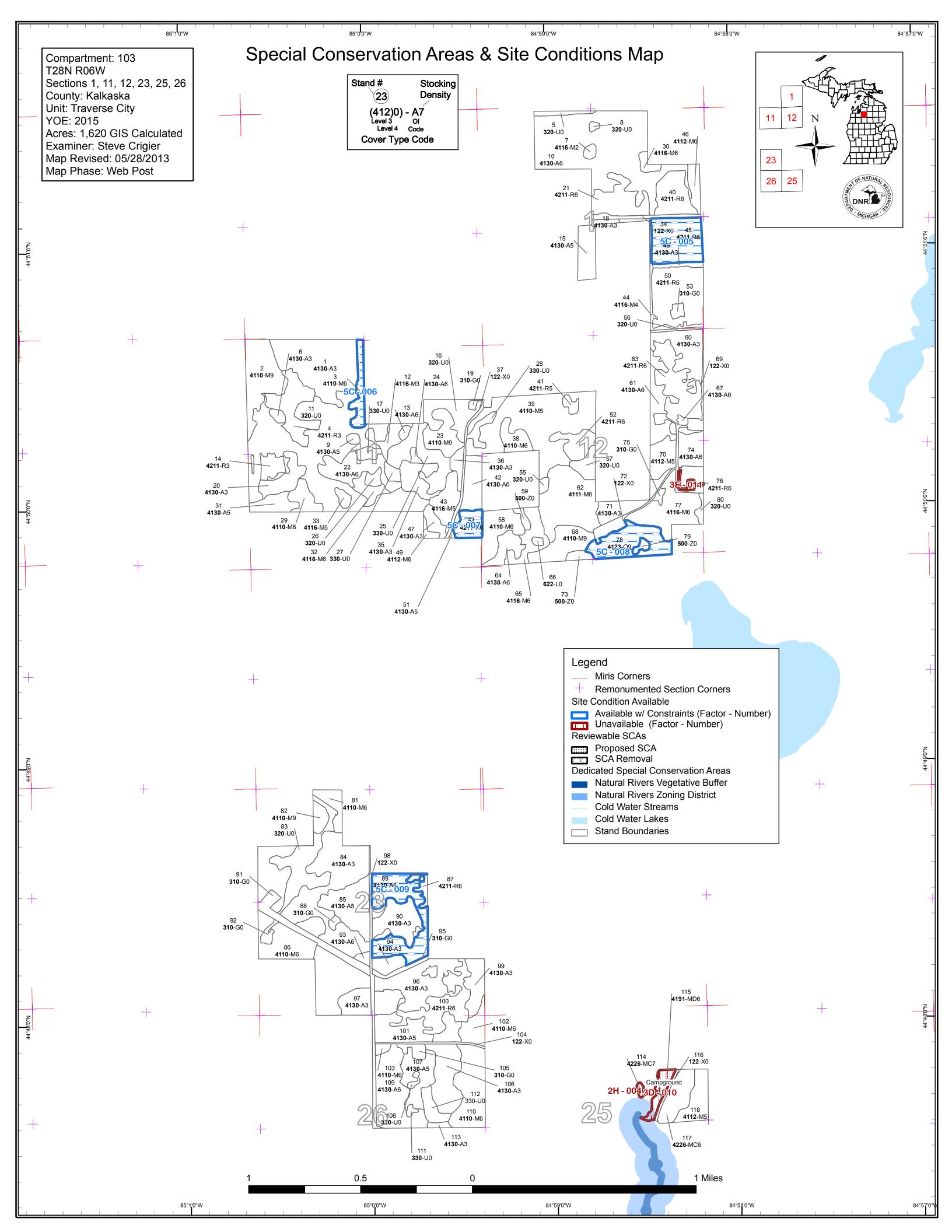
Total Acres by Cover Type and Age Class
Cover Type by Harvest Method
Proposed Treatments – No Limiting Factors
Proposed Treatments – With Limiting Factors
Stand Details (Forested and Nonforested)
Dedicated and Proposed Special Conservation Areas
Site Condition Details

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







Compartment 103 Year of Entry 2015

Traverse City Mgt. Unit Steven Crigier : Examiner



Age Class																
		000	va zo	Sep.	Now No.	A LOVE	å å	88	'a Vo	80 6	8 /	0,00	70,70	No X	A A	, do la company de la company
Aspen	161	15	145	54	119	77	50	16	0	0	0	0	0	0	639	
Herbaceous Openland	28	0	0	0	0	0	0	0	0	0	0	0	0	0	28	
Low-Density Trees	41	0	0	0	0	0	0	0	0	0	0	0	0	0	41	
Lowland Shrub	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
Mixed Upland Deciduous	0	0	0	0	0	0	0	0	7	0	0	0	0	0	7	
Natural Mixed Pines	0	0	0	0	0	0	14	0	1	0	0	0	0	0	15	
Northern Hardwood	0	0	15	0	12	16	164	174	17	0	0	0	0	30	428	
Oak	0	0	0	0	0	0	0	0	25	0	0	0	0	0	25	
Red Pine	0	29	0	78	9	101	0	0	0	0	0	0	0	0	216	
Upland Shrub	166	0	0	0	0	0	0	0	0	0	0	0	0	0	166	
Urban	46	0	0	0	0	0	0	0	0	0	0	0	0	0	46	
Water	7	0	0	0	0	0	0	0	0	0	0	0	0	0	7	
Total	450	44	160	132	141	194	229	190	50	0	0	0	0	30	1620	



Report 3 – Proposed Treatment Summaries

Traverse City Mgt. Unit Year of Entry 2015

Compartment 103 Total Compartment Acres: 1620

Acres by Treatment Type

Commercial Harvest - 342 Tree Planting - 0

Other - 0

Habitat Cut - 6

Opening Maintenance - 0

Cover Type by Harvest Method Tion of the second seco to its of the second se Linuis (Habitat Cut)Northern Hardwood 169 12 0 0 0 **Aspen Types** 0 181 0 104 0 40 0 **Northern Hardwood** 17 161 Total 169 110 12 40 17 348

Report 4 -- Treatments Prescribed with No Limiting Factor

Compartment: 103 Year of Entry 2015

DEPARTMEN	DNR
1	MICHIGAN

a n d	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
10	61103010-Cut	53.9	4130 - Aspen	High Density Pole	44		Harvest	Clearcut with Reserves	4130 - Aspen	Cmpt. Review Proposal

Prescription Clear-cut the eastern half of the stand, cut the western half in 10 years. Try to protect the sugar maple regen, juneberry, and elm during harvest. Specs

Other

Will need to establish private property boundary (need to check for survey). Also, consider private residents along the east boundary, might do a Comments: winter cut only to minimize road disturbance and traffic from residents? Note that snowmobile trail is along the north boundary of stand

<u>Next</u> Steps:

S

<u>Proposed</u>

Start Date: 10/01/2014

61103015-Cut 12.0 4130 - Aspen Medium 53 1-50 Harvest Seed Tree with 4116 - Mixed N. Cmpt. Review Proposal Density Reserves Hardwood - Aspen Pole

Prescription Seed tree stand mark to leave about 10sqft/ac of red maple and cherry or less. Would recommend going with a cut to length operation to minimize damage to advanced regeneration. Also, don't cut any trees less than 4" in diameter. Specs:

<u>Other</u> North property corners are in, I didn't look for the south ones yet. Access will be off Starvation Lake road through the narrow sliver of state ownership. Powerline looks to be high enough. Comments:

Next Steps:

Proposed

10/01/2014 Start Date:

61103022-Cut 22.1 4130 - Aspen High 57 Harvest Clearcut with 4139 - Aspen. 22 Cmpt. Review Density Reserves Mixed Deciduous Proposal Pole

Prescription Cut the aspen, leave some sugar maple and cherry for retention. Try to protect the advance hardwood regeneration with using a cut to length Specs: operation and not cutting maple less than 4".

Other Access stand off Joe's Rd and the trail through the opening. FYI Stand 17 has planted spruce in it if that area is used for an opening. If possible Comments: extend the treatment area into the UO type to the southeast to do some opening maintence.

Next Steps:

Proposed

10/01/2014 Start Date:

61103023-Cut High 81-110 Single Tree 4110 - Sugar Maple Cmpt. Review 23 14.2 4110 - Sugar Maple 72 Harvest Association Density Log Selection Association Proposal

Prescription Thin stand down to 80sqft/ac, spec out all merchantable ironwood and aspen. Specs:

Use the opening to the north for access and a landing area. Might have to establish the private property line in the north west part of the stand. **Other** Comments:

Next Steps:

Proposed

10/01/2014 Start Date:

Tra	verse City	Mgt. Uni

Report 4 -- Treatments Prescribed

Compartment: 103

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S t			, .		with	Year of Entry 2015	DNR			
a n d	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
29	61103029-Cut	8.3	4110 - Sugar Maple Association	High Density Pole	76	111-140	Harvest	Single Tree Selection	4110 - Sugar Maple Association	Cmpt. Review Proposal
Preso Spec		nd down t	to 80sqft/ac. Remove th	ne aspen.						
Other Com	r Need to ments:	check for	property corners yet. S	Sell with the	stand to	the west.				
Next Steps										
Propo Start I		14								
30	61103030-Cut	3.1	4116 - Mixed N. Hardwood - Aspen	High Density Pole	59	81-110	Harvest	Single Tree Selection	4116 - Mixed N. Hardwood - Aspen	Cmpt. Review Proposal
Preso Spec		ut stand,	removing the aspen and	d thinning o	ut the po	or quality s	tems. Residual l	BA should be arou	und 80sqft/ac.	

Will need to establish some property lines, no corners found yet. Set stand up with adjacent aspen harvest. Stand will act as a nice buffer to the Other aspen clearcut along the private property. Comments:

<u>Next</u> Steps:

Proposed

Start Date: 10/01/2014

31 61103031-Cut 8.7 4130 - Aspen Medium 57 Harvest Clearcut with 4116 - Mixed N. Cmpt. Review Density Reserves Hardwood - Aspen Proposal Pole

Prescription Clear cut stand, try to protect the advanced regen. Leave some scattered cherry and sugar maple for retention.

Specs:

<u>Other</u> Not sure if corners are in or not for the property line work.

Comments:

Next Steps:

Proposed

10/01/2014 Start Date:

32 61103032-Cut 6.6 4116 - Mixed N. High 72 81-110 Harvest Shelterwood 4116 - Mixed N. Cmpt. Review Hardwood - Aspen Density Hardwood - Aspen Proposal Pole

Prescription Shelterwood stand, remove the aspen, and take the areas of hardwood down to a BA of 60sqft/ac to 70. Target the basswood logs for removal. Specs:

Other Treat with the adjacent aspen stand. Try to protect advanced regen, maybe use a cut to length operation and don't cut maple less than 4".

Comments:

Next Steps:

Proposed

10/01/2014 Start Date:

Report 4 -- Treatments Prescribed with No Limiting Factor

Compartment: 103 Year of Entry 2015

DNR DNR
Approval

а **Treatment** n d Name

61103033-Cut

2.6 4116 - Mixed N Hardwood - Aspen

CoverType

Medium Density Pole

Size

Density

51-80

Age

76

BA

Range

Harvest

Treatment

Type

Shelterwood

Treatment

Method

4116 - Mixed N. Hardwood - Aspen

Cover Type

Objective

Cmpt. Review Proposal

Status

Prescription Shelterwood stand, remove the aspen and take out the high risk basswood and maple.

Specs:

s t

33

Other Comments: Treat with the stands to the north.

Acres

<u>Next</u> Steps:

<u>Proposed</u>

Start Date: 10/01/2014

61103038-Cut

8.7 4110 - Sugar Maple Association

High Density Pole

111-140

Harvest

Single Tree Selection

4110 - Sugar Maple Association

Cmpt. Review Proposal

Prescription Thin stand down to 80sqft/ac. Try to maintain a component of cherry and also remove the majority of the aspen as it is starting to die.

Specs:

38

Access stand off Section 12 Rd through the closed 2 track. We do have corner data for the property line work. <u>Other</u>

Comments:

<u>Next</u> Steps:

Proposed

Start Date: 10/01/2014

> 61103046-Cut 6.3

4112 - Maple, Beech, Cherry

Association

High Density Pole

67 111-140 Harvest

Single Tree Selection

Association

4110 - Sugar Maple Cmpt. Review Proposal

Prescription Thin stand down to 80sqft/ac. Remove the majority of the beech, no scale noted but it is in the area.

Specs:

46

<u>Other</u>

Use the closed 2-track trail for access and reclose. Will need to establish north property line.

Comments:

Next Steps:

Proposed

10/01/2014 Start Date:

58 61103058-Cut 17.0 4110 - Sugar Maple Association

High Density Pole

111-140

Harvest

Single Tree Selection

Association

4110 - Sugar Maple Cmpt. Review Proposal

Prescription Thin stand down to 80sqft/ac. Cut the majority of the aspen.

Specs:

Other

Access from closed two track to the west or might be easier to skid the wood to the east with the stand 62 harvest. The corners are in for the Comments: property line work.

Next Steps:

Proposed

Start Date: 10/01/2014

Report 4 -- Treatments Prescribed with No Limiting Factor

Compartment: 103 Year of Entry 2015

a n d	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
61	61103061-Cut	15.3	4130 - Aspen	High Density Pole	46	81-110	Harvest	Clearcut with Reserves	4139 - Aspen, Mixed Deciduous	Cmpt. Review Proposal

Prescription Clearcut stand. Mark to leave a few cherry trees acre. Try to protect hard maple regen during harvest.

Specs:

S

Other Records show the corners being in on the north end of the stand, don't know about the corners to the south. Will need to talk to Transcanada about access into their well pad for a landing site. Currently the well pad is not being used. Put together with aspen stand to the southeast (74). Comments:

<u>Next</u> Steps:

<u>Proposed</u>

Start Date: 10/01/2014

61103062-Cut 40.0 4111 - S.Maple, High 111-140 Harvest Single Tree 4110 - Sugar Maple Cmpt. Review Hard Mast Selection Proposal Density Association Association Pole

Prescription Thin stand down to 80sqft/ac. Leave the majority of the oak but harvest the high risk ones.

Specs:

<u>Other</u> Access off Section 12 road. Corners are in for the property line.

Comments:

<u>Next</u> Steps:

Proposed

Start Date: 10/01/2014

61103065-Cut 12.5 4116 - Mixed N. High 57 81-110 Harvest **Group Selection** 4116 - Mixed N. Cmpt. Review 65 Hardwood - Aspen Density Hardwood - Aspen Proposal

Pole

Prescription Remove the aspen from the stand and mark some of the poor quality hardwoods to remove. Protect the advanced regeneration as well as we

Specs: can during harvest.

<u>Other</u>

Sell stand with 62 and 58.

Comments:

Next Steps:

Proposed

10/01/2014 Start Date:

61103068-Cut 4110 - Sugar Maple High 81-110 Other - Specify 4110 - Sugar Maple Cmpt. Review 68 17.4 83 Harvest Association Density Log in Comments Association Proposal

Prescription Salvage the beech out of the stand. The BAs incidate that stand isn't ready for treatment but mark to leave a few beech trees and harvest the

Specs: rest.

Sell with adjacent hardwood stands. **Other**

Comments:

Next Steps:

Proposed

10/01/2014 Start Date:

Report 4 -- Treatments Prescribed with No Limiting Factor

Compartment: 103 Year of Entry 2015

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a n d	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
74	61103074-Cut	10.8	4130 - Aspen	High Density Pole	57		Harvest	Clearcut with Reserves	4130 - Aspen	Cmpt. Review Proposal

Prescription Clearcut stand. Leave the sugar maple and mark to leave some cherry also.

Specs:

s

Other Protect the sugar maple regen during the harvest. Looks like there is a natural opening in stand along the east boundary off the road. Will need

Comments: to notify Transcanada about plans to use their road.

<u>Next</u> Steps:

<u>Proposed</u>

Start Date: 10/01/2014

61103077-Cut

30.5 4116 - Mixed N.

High Hardwood - Aspen Density 81-110

Harvest

Shelterwood

4116 - Mixed N. Hardwood - Aspen Cmpt. Review Proposal

Prescription Salvage the aspen, try a shelterwood cut leaving about 40sqft/ac of maple and oak. Try to open up around some oak seed trees. Protect the

Specs: advanced regen leave the the maple greater than 4".

Will need to contact TransCanada about use of the lease road. The lease road is gated at the south end of the processing facilaty.

Comments:

<u>Next</u> Steps:

<u>Other</u>

Proposed

Start Date: 10/01/2014

85 61103085-Cut 23.7 4130 - Aspen Medium 53 Harvest Clearcut with 4139 - Aspen. Cmpt. Review Density Reserves Mixed Deciduous Proposal Pole

Prescription Clearcut stand. Try to protect advanced regen don't cut maple less than 4". Leave some cherry and sugar maple for retention. Specs:

<u>Other</u>

Comments: Next

Steps:

Proposed

10/01/2014 Start Date:

93 61103093-Cut 1.9 4130 - Aspen High 53 Harvest Clearcut 4130 - Aspen Cmpt. Review Density Proposal

Pole

Prescription Clearcut patch of aspen with the treatment to the north. No retetion due to small size. Specs:

Other

Comments:

Next Steps:

Proposed

Start Date: 10/01/2014

Report 4 -- Treatments Prescribed with No Limiting Factor

Compartment: 103
Year of Entry 2015

DEPARTME	DNR MICHIGAN	100000000000000000000000000000000000000
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t a n d	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
101	61103101-Cut	16.5	4130 - Aspen	Medium Density Pole	68		Harvest	Clearcut with Reserves	4130 - Aspen	Cmpt. Review Proposal

<u>Prescription</u> Clearcut stand, leave any pine that is present for retention along with some scattered cherry. Landing and access road I think would be best off <u>Specs:</u> Tower Rd.

<u>Other</u>

Comments:

Next
Steps:

s

Proposed

Start Date: 10/01/2014

10761103107-Cut16.34130 - AspenMedium73HarvestClearcut with4130 - AspenCmpt. ReviewDensityReservesProposalPole

<u>Prescription</u> Clearcut stand. Leave some scattered sugar maple and cherry, also leave all the elm. Protect the juneberry in the understory during harvest. <u>Specs:</u>

<u>Other</u>

Set up with aspen stand on the north side of Tower road. Include the small U0 types along the west edge in the sale area.

Comments:

Next Steps:

Proposed

Start Date: 10/01/2014

Total Treatment

Acreage Proposed: 348.3

Traverse City Mgt. Unit Report 5 -- Treatments Prescribed with Compartment: 103 a Limiting Factor s Year of Entry 2015 t **Treatment** Acres CoverType Size Stand ВА **Treatment Treatment Cover Type Approval** n Method Objective Status Name Density Age Range Type #Type! **Prescription** Specs: Other Comment: **Next** Steps: Proposed #Type!

Total Treatment
Acreage Proposed:

Start Date: # Limiting Factor

0

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

Year of Entry: 2015

cres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
- 0								Otatas
5.9	Unspecified				Harvest	Other - Specify in Comments	Unspecified	Cmpt. Review Proposal
7.2	Unspecified				Harvest	Other - Specify in Comments	Unspecified	Cmpt. Review Proposal - Incomplete
2.1					Harvest	Clearcut with Reserves	4131 - Aspen, Oak	Cmpt. Review Proposal - Incomplete
							7.2 Unspecified Harvest Other - Specify in Comments 2.1 Harvest Clearcut with	7.2 Unspecified Harvest Other - Specify Unspecified in Comments 2.1 Harvest Clearcut with 4131 - Aspen, Oak

Steps:

<u>Next</u>

<u>Proposed</u>

Start Date: 09/01/2009

Total Treatment

Acreage Proposed: 15.3

Steve Crigier: Examiner

Compartment 103 Year of Entry 2015

Availa	ability for I	Vianagement						
Total	Acres	Acres		Domina	nt Site	Cond	ditions	s
Acres	Available	Not Available		No	5C	3E	3D	2H
639	639		Aspen	605	34			
7		7	Mixed Upland Deciduous				7	
15	14	1	Natural Mixed Pines	14				1
428	428		Northern Hardwood	419	9			
25	25		Oak		25			
216	214	2	Red Pine	177	38	2		
1,330	1,320	9	Total Forested Acres	1,215	106	2	7	1
	99%	1%	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.

	Dominant Site Cond Availability	Dominant Site Condition	Acres	Other Site Condition	Other Site Condition	Other Site Condition	Other Site Condition
004	Not Available	2H: Blocked by physical obstacle (e.g. upland stand in a lowland area)	1				
	omments: tand is an island ir	n Pickerel Lake					
005	Available	5C: Delay treatment for age/size class diversity or exceptional site quality	29				
C	omments:						
006	Available	5C: Delay treatment for age/size class diversity or exceptional site quality	9				
C	omments:						

Report 7 – Site Conditions

Traverse City Mgt. Unit Steve Crigier: Examiner Compartment 103 Year of Entry 2015

007	Available	5C: Delay treatment for age/size class diversity or exceptional site quality	9				
Co	omments:						
008	Available	5C: Delay treatment for age/size class diversity or exceptional site quality	25				
Co	omments:						
009	Available	5C: Delay treatment for age/size class diversity or exceptional site quality	34				
Co	omments:						
010	Not Available	3D: Recreational / Scenic values	7				
	Comments: Area is a buffer to Pickerel lake. North end of the stand is Pickerel Lake State Forest Campground.						
011	Not Available	3E: Easement / lease, non- military (e.g Consumers Power red pine, etc)	2				
Co	omments:						

Compartment: 103
Year of Entry: 2015



Report 8 - PROPOSED SPECIAL CONSERVATION AREA* (SCA) DETAILS

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

SCA Name	SCA Category	Detail Type	Recommendation	Acres
Campground	Concentrated Recreation Area	State Forest Campground	SCA	4.2
Comments boat launch				
- Doat lauffelf				

Compartment: 103
Year of Entry 2015



Report 9 - DEDICATED CONSERVATION AREA DETAILS

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

Conservation	on Type	Description ERA = Ecological Reference Area HCVA = High Conservation Value Area SCA = Special Conservation Area							
SCA	Cold Water Lake	stocked trout populations and those of other coldwater fish speci conditions for coldwater fishes may occur in Michigan lakes if the	lake has temperature and dissolved oxygen conditions that allow naturally-reproduced or to populations and those of other coldwater fish species to persist from year to year. Suitable or coldwater fishes may occur in Michigan lakes if they are relatively deep, have substantial inflows, or are located in colder (northern) areas of the state. Such lakes are established by the tion 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.							
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.							

S t	Traverse Cit		Report 10	– Forested	Stands Compartment: 103 Year of Entry: 2015	
a n d	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
1	4130 - Aspen	High Density Sapling	50.9	28		Stocking is heavy in the north end of the stand but is more variable, clumpy, in the south end therefore, there is more of a component of cherry in the south end of the stand. Stand is converting from a sapling stand to a pole stand.
2	4110 - Sugar Maple Association	High Density Log	28.9	78	81-110	Stand was thinned in 1998. Lots of beech and ironwood advance regen with a bit of sugar maple. Some clones of quaking aspen is mixed into the south end of the stand. The quality of log trees are ok, fairly rough/limby wood. North end of the stand seems to have larger diameter wood. Extra BA s 110, 110.
3	4110 - Sugar Maple Association	High Density Pole	9.2	78	111-140	Stand has a lot of basswood logs in it with lots of sugar maple regen in understory. Aspen is mature and is starting to decline. Overall quality of the hardwood timber is poor.
4	42110 - Planted Red Pine	High Density Sapling	22.2	18		Trees are 15-20' tall, they have been putting on a lot of height in the last couple of years. Stand is about ready to convert to a pole stand.
6	4130 - Aspen	High Density Sapling	2.1	28		
7	4116 - Mixed N. Hardwood - Aspen	Medium Density	1.9	26		Stand is a U0 type that has filled in. Some areas are regenerating well others still look like a brush type
9	4130 - Aspen	Medium Density Pole	1.6	58		Poor quality aspen with maple regen in the understory.
10	4130 - Aspen	High Density Pole	98.8	44		Stand is dominateed by quaking aspen 4-5 sticks tall. Western portion of stand seems to have more advanced red and sugar maple regen. Also, not that there is some scattered red elm in the stand. Stand has a good amount of maple regen understory throughout the stand
12	4116 - Mixed N. Hardwood - Aspen	High Density Sapling	7.0	28		Trees are about 20' tall. Stand is mixed with lots of species. Ol notes that the stand was originally a poor quality hardwood stand that was cut to salvage poor quality basswood. North end of the stand is heavier to aspen.
13	4130 - Aspen	High Density Pole	1.5	45		Trees are about 4 sticks tall, decent quality.
14	42110 - Planted Red Pine	High Density Sapling	7.0	18		Trees are 15-20' tall. They have been putting on a lot of growth in the last 2 to 3 years. Stand is about ready to convert to a pole stand.
15	4130 - Aspen	Medium Density Pole	12.0	53	1-50	Stand has scattered aspen and maple pole timber with very thick red and sugar maple advanced regen. Looks like this stand was formerly land locked but a land exchanged gave us the sliver off Starvation lake Rd. Open grown timber and the aspen is starting to fall out. Nice sugar maple regen.
18	4130 - Aspen	High Density Sapling	1.6	10		Stand is a small A3 pocket. Not sure about the history of the cut. Thick regeneration about 10-15' tall.

S t	Traverse Cit	Traverse City Mgt. Unit			– Forested	Stands Compartment: 103 Year of Entry: 2015
a n d	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
20	4130 - Aspen	High Density Sapling	11.7	28		Trees are 20-30' tall. East end of the stand is fully stocked but out by the road is a more sparse.
21	42110 - Planted Red Pine	High Density Pole	19.0	52	141-170	Stand was row thinned in 2006. Understory is filling in with red maple regeneration. Good diameter developement most stems are 8-10" and around 6 sticks tall. Canopies have room to expand. Some A3 pockets where aspen was harvested out of the stand in 06. Hold on thinning for 10 years
22	4130 - Aspen	High Density Pole	18.7	57		Stand is a mix of aspen with hardwood pockets. Stand is on a ridge with slopes on the north end of the stand. There is lots of hardwood regeneration in the understory.
23	4110 - Sugar Maple Association	High Density Log	14.2	72	81-110	Poor quality logs, some of them are starting to fall down. Lots of Ironwood in the understory. There is some sugar maple regen in the understory also.
24	4130 - Aspen	High Density Pole	1.6	45		
29	4110 - Sugar Maple Association	High Density Pole	8.3	76	111-140	Good amount of hardwood regen. Stand has some potential but currently has some trees that are rough and limby. Aspen is on its way out.
30	4116 - Mixed N. Hardwood - Aspen	High Density Pole	3.1	59	81-110	Stand is a small pocket of mostly red maple pole/log timber. Fairly clumpy.
31	4130 - Aspen	Medium Density Pole	8.7	57		Lots of nice sugar maple advanced regen. The eastern portion of the stand slowly transitions into a hardwood stand. Aspen is starting to die out.
32	4116 - Mixed N. Hardwood - Aspen	High Density Pole	6.6	72	81-110	The stand is a mixture of aspen and hardwoods. Basswood is getting over mature and is declining. Nice sugar maple regen on the edges of the stand. Stand has medium quality timber.
33	4116 - Mixed N. Hardwood - Aspen	Medium Density Pole	2.6	76	51-80	North end of the stand is more of a hardwood stand and south is heavier to aspen. Lots of advance regen some of which is sugar maple. Poor quality timber some of it is starting to decline.
35	4130 - Aspen	High Density Sapling	12.1	17		
36	4130 - Aspen	High Density Sapling	4.5	6		regen is about 10' tall and is well stocked
38	4110 - Sugar Maple Association	High Density Pole	8.7	67	111-140	Terrain is slightly rolling. Timber is fairly limby and rough.
39	4110 - Sugar Maple Association	Medium Density Pole	71.3	67	51-80	Stand was thinned in 2007, also had the the aspen cut out of it. Residual timber is pretty good quality with lots of aspen and maple regen underneath. Stand won't be ready for another 20-30 years.

S t	Traverse City Mgt. Unit			Report 10	– Forested	Stands Compartment: 103 Year of Entry: 2015
a n d	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
40	42110 - Planted Red Pine	High Density Pole	17.2	52	111-140	Stand was row thinned in 2006. RP is about 6 sticks tall, canopies have room to grow. Some sugar maple is seeding into the eastern part of the stand in the understory. In the center of the stand is a dead pocket, not too large, and have submitted the forest health data into the GDSE. Hold on second thinning for another 10 years.
41	42110 - Planted Red Pine	Medium Density Pole	2.5	37	51-80	Stand has a lot of hardwood competition and is of pretty poor quality. For now it is adding a bit of diversity from the mostly hardwood landscape. I don't think it is a good idea to crush all the new regen in stand 36 to get to 3 acres of poor quality redpine. Final harvest the pine next time the hardwood stand is treated
42	4130 - Aspen	High Density Pole	12.8	36		Stand is immature, but is healthy. Trees are 3-4 sticks tall and is converting from a sapling stand to a pole stand.
43	4116 - Mixed N. Hardwood - Aspen	Medium Density Pole	12.2	43	51-80	Stand is a young maple stand with a decent amount of aspen also. Stand has lots of advance red maple regeneration. Stand also has a slope off to the west. The timber on the slope seems to be older and is more of a M6 stand with mostly red maple in the overstory. East end of the stand looks to be more of a sapling/pole stand. Stand is in the midst of convertin from saplings to poles.
44	4116 - Mixed N. Hardwood - Aspen	Low Density Pole	6.2	27	1-50	Stand is a U0 Type that is filling in over time.
45	42110 - Planted Red Pine	High Density Pole	28.8	52	171-200	Stand thinned in 2006. 5-6 stick trees. Heavy soft maple understory. Some A3 pockets. Stand has a small dieback pocket in the center of stand. I did do the forest health app. into R. Mech. Extra BA: 110, 130,
46	4112 - Maple, Beech, Cherry Association	High Density Pole	6.3	67	111-140	Stand is on a slight hill. Small pocket of stand was harvested with the hardwoods to the east. Timber is medium quality it could definelty benefit from thinning out deformed stems.
47	4130 - Aspen	High Density Sapling	5.2	6		Stand was cut in 2008. Stand is on rolling terrain. Regeneration is about 10 ft tall.
48	4130 - Aspen	High Density Sapling	3.0	7		Stand was cut in 2006 as a part of the red pine thinnings.
49	4112 - Maple, Beech, Cherry Association	High Density Pole	2.3	74	111-140	
50	42110 - Planted Red Pine	High Density Pole	35.6	52	111-140	Row thinned in 2006. Trees are of good quality about 5-6 sticks tall. Some porcupine damage in pockets. Hardwoods are coming in thick in the understory. Extra BA: 170, 160.

4130 - Aspen

51

Medium Density Pole

1.2

47

Aspen is deteriorating, lots of hardwoods in the understory.

s t	Traverse Cit	Traverse City Mgt. Unit			– Forested	d Stands Compartment: 103 Year of Entry: 2015
a n d	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
52	42110 - Planted Red Pine	High Density Pole	10.4	37	141-170	Rows are crooked and are on some hilly terrain. Trees are about 4-5 sticks tall however, there are some pockets that aren't doing as well and are more like 3 sticks.
54	42110 - Planted Red Pine	High Density Pole	8.9	47	171-200	Stand was 3rd row thinned in 2007. Stand has some rolling terrain. Trees are 6-7 sticks tall. Nice quality redpine. Rows are straight and plenty wide. Canopies appear to be closed in.
58	4110 - Sugar Maple Association	High Density Pole	17.0	67	111-140	Extra ba 140. Stand has a decent amount of aspen. North end of the stand seems to have larger diameter and better quality. South end is small timber and the stocking is lower.
60	4130 - Aspen	High Density Sapling	20.8	6		Stand was cut in 2007. Regen is about 10' tall and is well stocked.
61	4130 - Aspen	High Density Pole	15.3	46	81-110	Aspen is starting to deteriorate, Stocking is variable is spots. Some areas are more of an red maple M5 type. South of well pad there some nice sugar maple regen.
62	4111 - S.Maple, Hard Mast Association	High Density Pole	40.0	68	111-140	West end of stand is poor quality stems, kind of open grown looking. East half is nice straight single stem trees.
63	42110 - Planted Red Pine	High Density Pole	28.6	36	111-140	Red pine is short, about 3 sticks, and limby overall pretty poor quality. Stocking is variable, stand has quite a few pockets of aspen (A4/A5). Rows are fairly wide. Hold on thinning to get some more height development. Long term plan may want to push stand to aspen??
64	4130 - Aspen	High Density Pole	8.5	30		Stand is converting into a pole stand. Down the hill from the hardwoods.
65	4116 - Mixed N. Hardwood - Aspen	High Density Pole	12.5	57	81-110	Lots of sugar maple regen in the understory in on the east end of the stand. Fairly hilly terrain, aspen is starting to fall apart.
67	4130 - Aspen	High Density Pole	1.1	48		
68	4110 - Sugar Maple Association	High Density Log	17.4	83	81-110	Stand was harvested along with 'Oxbox Lake Oak' to the east but this portion is more of a sugar maple stand. Quality of the trees are variable. Some of the residual trees are of pretty poor form.
70	4112 - Maple, Beech, Cherry Association	Medium Density Pole	11.1	66	51-80	Stand has variable overstory stocking. Lots of maple in the understory. Maple is open grown and limby overall poor quality timber.
71	4130 - Aspen	High Density Sapling	9.2	6		Was cut in 2007, OI noted an SI of 62. Stand is regenerating well, trees are about 5-10ft tall.
74	4130 - Aspen	High Density Pole	10.8	57		Aspen is starting to deteriorate. Thick advanced maple regeneration. Stand looks like it wants to convert to hardwoods.

S t	Traverse Cit	ty Mgt. Unit		Report 10 -	- Forested	Stands Compartment: 103 Year of Entry: 2015
a n d	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
76	42110 - Planted Red Pine	High Density Pole	1.8	30	111-140	Inside the ANR fence of their storage facilaty.
77	4116 - Mixed N. Hardwood - Aspen	High Density Pole	30.5	Uneven Age	81-110	Stand is a mix of aspen and maple with lots of hardwood understory. Aspen is deteriorating and the maple is of poor quality. Stocking is variable, a few pockets of nothing but 15' tall ironwood.
78	4123 - Red Oak	High Density Log	24.7	85	81-110	Stand was thinned in 2007, High to medium quality red oak logs left. Red maple sprouts are coming back thick. Stand has a small bluff leading down to Oxbow lake. The old timber sale didn't extend south of the bluff. West end of the stand has a higher component of sugar maple, along with more advanced regen.
81	4110 - Sugar Maple Association	High Density Pole	7.4	78	81-110	This is a hardwood stand with an aspen component. ORV trail runs through the stand. Aspen is overmature. Stems are medium to poor quality. South finger of the stand is better quality timber, was marked and set up last YOE but wasn't cut?
82	4110 - Sugar Maple Association	High Density Log	4.9	78	81-110	Stand was thinned in 2008. Beech and ironwood advanced regen is present. Medium quality timber. Hold on thinning for 10-20 years.
84	4130 - Aspen	High Density Sapling	56.9	28		Stand is converting into a pole stand. Trees are 20-30' tall. Some of the areas with big tooth present are pole sized timber.
85	4130 - Aspen	Medium Density Pole	23.7	53		Past inventory notes says a fire in the area might explains some of the different ages in the aspen. Some A6 pockets and some A4 or A5. Stand has thick hardwood regen in the understory. Lots of aspen tops dying. Stand has a few hardwood pockets.
86	4110 - Sugar Maple Association	High Density Pole	45.2	75	81-110	Stand was thinned in 2008. South and west property lines appears to be established. Some areas have large canopy gaps. West end of stand is decent quality timber but drops off to poor quality on the east side. Canopies still have room to expand. Hold for 10 years. Extra BAs 110, 90.
87	42110 - Planted Red Pine	High Density Pole	7.0	36	111-140	
89	4130 - Aspen	High Density Pole	33.9	60		Stand has scattered red pine throughout the stand. Stand has hardwood advanced regen in the understory. Some pockets look like they can hold for 10 year others are already starting to fall down.
90	4130 - Aspen	High Density Sapling	18.9	3		Stand was cut in 2010, and has scattered red pine pole timber scattered through it. Regen is about 10' tall.
93	4130 - Aspen	High Density Pole	1.9	53		Poor quality aspen.
94	4130 - Aspen	High Density Sapling	6.3	27		Stand is converting into a pole stand just not quite there yet. Trees are 20-30' tall.

S t	Traverse Cit	y Mgt. Unit		Report 10	– Forested	d Stands Compartment: 103 Year of Entry: 2015
a n d	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
96	4130 - Aspen	High Density Sapling	59.2	3		Stand was cut in 2010. Was originally poor quality aspen. Regen is about 10' tall
97	4130 - Aspen	High Density Sapling	17.3	27		Stand is converting into a pole stand just not quite there yet. Trees are 20-30' tall.
99	4130 - Aspen	High Density Sapling	11.5	3		Stand was cut in 2010. Regen is about 10' tall. There is some scattered white pine pole/log sized trees in the stand also
100	42111 - Planted Red Pine, Mixed Deciduous	High Density Pole	27.3	36	141-170	Stand is an odd shaped plantation, wide rows, with some pockets of aspen and hardwood. Trees are about 4 sticks tall limby open grown timber. Hold for 10 years Stand provides some diversity to a hardwood/aspen landscape.
101	4130 - Aspen	Medium Density Pole	16.5	68		South end of stand is more of a U0 type but should be included in stand it will just have more of a cherry component in the south. Timber is overmature and need to be regenerated. Stand has advanced hardwood regeneration in the understory.
102	4110 - Sugar Maple Association	High Density Pole	9.4	67	81-110	Poor quality timber. Lots of ironwood and beech in the understory. Stand has some beech mostly in the east part of stand, and the beech does have the scale.
103	4110 - Sugar Maple Association	High Density Pole	1.8	72	51-80	Stand had the aspen removed in 2010, 'Tower Rd Aspen'.
106	4130 - Aspen	High Density Sapling	28.8	3		Stand was cut in 2010. Has ORV trail running through the north part of the stand. Regen is about 10' tall.
107	4130 - Aspen	Medium Density Pole	16.3	73		Poor quality quaking aspen, good bird country. Lots of tops dying out. Juneberry is present in the understory. Stand also has some scattered elm.
109	4130 - Aspen	High Density Pole	32.5	36		OI notes indicate that the northend of the stand was harvested in 1960 and the south portion was harvested in 1977. Aspen is about 4-5 stick tall, decent quality. Lots of hardwood and juneberry in the understory.
110	4110 - Sugar Maple Association	High Density Pole	29.3	72	51-80	Stand was thinned in 2008. Poor quality timber and stocking is clumpy. There is beech scale present. Stand is up on a hill that slopes down to the west. Stand won't be ready for 10-20 year.
113	4130 - Aspen	High Density Sapling	1.6	16		Stand was originate from a timber trespass.

42260 - Natural Pine, Mixed Deciduous

114

Low Density

Log

0.9

88

1-50

Stand is an island in Pickerel lake made up of some white pine logs sized trees with birch and red maple poles also.

S t a n d	Traverse City	Report 10 – Forested Stands				Compartment: 103 Year of Entry: 2015	DNR DNR	
	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range		General Comments:	MICHIGAN
115	4191 - Mixed Upland Deciduous with Conifer	High Density Pole	6.7	82	51-80	Stand has Pickerel Lake State Forest Campground in it and is along the southeast shore of Pickerel Lake. There is a slight slope down to the lake. Dominant species appears to be birch but has a good mix of oak, maple and white pine also. Some large, log sized, white pine next to the lake. Some of birch is starting to die out.		
117	42260 - Natural Pine, Mixed Deciduous	High Density Pole	14.4	68	51-80	Stand had the aspen removed from it in 2010. ORV and NCT pass through the stand. Aspen regen is about 10' tall.		
118	4112 - Maple, Beech, Cherry Association	Medium Density Pole	13.1	72	51-80	has the north country a	errain. Stand was thinned in and ORV trail running througl er. Beech regen is very thick 30 years.	h it. Stand is

Compartment: 103 Year of Entry: 2015



Stand	Cover Type	Acres	Managed Site	Management Priority (Objective)	General Comments:
5	320 - Upland Shrub	3.0	No	Unspecified	
8	320 - Upland Shrub	1.0	No	Unspecified	
11	320 - Upland Shrub	106.2	No	Unspecified	
16	320 - Upland Shrub	15.6	No	Unspecified	
17	3302 - Low Density Conifer Trees	3.4	Planted	Upland Spruce/Fir	
19	3105 - Mixed Upland Herbaceous	0.9	No	Unspecified	
25	3301 - Low Density Deciduous Tree	22.3	No	Unspecified	
26	320 - Upland Shrub	2.8	No	Unspecified	
27	3302 - Low Density Conifer Trees	2.9	Planted	Upland Spruce/Fir	
28	330 - Low-Density Trees	4.6	No	Unspecified	
34	122 - Road/Parking Lot	5.3	No	Unspecified	
37	122 - Road/Parking Lot	4.5	No	Unspecified	
53	310 - Herbaceous Openland	2.2	No	Unspecified	
55	320 - Upland Shrub	1.7	No	Unspecified	
56	320 - Upland Shrub	1.5	No	Unspecified	
57	320 - Upland Shrub	6.4	No	Unspecified	
59	50 - Water	2.1	No	Unspecified	
66	622 - Lowland Shrub	1.1	No	Unspecified	
			<u></u>		

Compartment: 103 Year of Entry: 2015



Cover Type	Acres	Managed Site	Management Priority (Objective)	General Comments:	MICHIGAN
122 - Road/Parking Lot	3.7	No	Unspecified		
122 - Road/Parking Lot	17.3	No	Unspecified		
50 - Water	2.8	No	Unspecified		
310 - Herbaceous Openland	1.4	No	Unspecified		
50 - Water	1.8	No	Unspecified		
320 - Upland Shrub	2.0	No	Unspecified		
320 - Upland Shrub	25.0	No	Unspecified		
310 - Herbaceous Openland	1.4	No	Unspecified		
310 - Herbaceous Openland	13.3	No	Unspecified		
310 - Herbaceous Openland	2.4	No	Unspecified		
310 - Herbaceous Openland	3.2	No	Unspecified		
122 - Road/Parking Lot	10.1	N\A	Unspecified		
122 - Road/Parking Lot	2.7	No	Unspecified		
310 - Herbaceous Openland	3.6	No	Unspecified		
320 - Upland Shrub	1.2	No	Unspecified		
330 - Low-Density Trees	1.1	No	Unspecified		
330 - Low-Density Trees	6.7	No	Unspecified		
122 - Road/Parking Lot	2.1	No	Unspecified		
	122 - Road/Parking Lot 122 - Road/Parking Lot 50 - Water 310 - Herbaceous Openland 50 - Water 320 - Upland Shrub 310 - Herbaceous Openland 310 - Herbaceous Openland 310 - Herbaceous Openland 310 - Herbaceous Openland 122 - Road/Parking Lot 122 - Road/Parking Lot 320 - Upland Shrub 330 - Low-Density Trees 330 - Low-Density Trees	122 - Road/Parking Lot 3.7 122 - Road/Parking Lot 17.3 50 - Water 2.8 310 - Herbaceous Openland 1.4 50 - Water 1.8 320 - Upland Shrub 2.0 320 - Upland Shrub 25.0 310 - Herbaceous Openland 1.4 310 - Herbaceous Openland 13.3 310 - Herbaceous Openland 2.4 310 - Herbaceous Openland 3.2 122 - Road/Parking Lot 10.1 122 - Road/Parking Lot 2.7 310 - Herbaceous Openland 3.6 320 - Upland Shrub 1.2 330 - Low-Density Trees 1.1 330 - Low-Density Trees 6.7	Cover Type Acres Site 122 - Road/Parking Lot 3.7 No 122 - Road/Parking Lot 17.3 No 50 - Water 2.8 No 310 - Herbaceous Openland 1.4 No 320 - Upland Shrub 2.0 No 320 - Upland Shrub 25.0 No 310 - Herbaceous Openland 1.4 No 310 - Herbaceous Openland 13.3 No 310 - Herbaceous Openland 2.4 No 310 - Herbaceous Openland 3.2 No 122 - Road/Parking Lot 10.1 NNA 122 - Road/Parking Lot 2.7 No 310 - Herbaceous Openland 3.6 No 320 - Upland Shrub 1.2 No 320 - Upland Shrub 1.2 No 330 - Low-Density Trees 1.1 No	Lover Type Acres Site (Objective) 122 - Road/Parking Lot 3.7 No Unspecified 122 - Road/Parking Lot 17.3 No Unspecified 50 - Water 2.8 No Unspecified 310 - Herbaceous Openland 1.4 No Unspecified 320 - Upland Shrub 2.0 No Unspecified 320 - Upland Shrub 25.0 No Unspecified 310 - Herbaceous Openland 1.4 No Unspecified 310 - Herbaceous Openland 13.3 No Unspecified 310 - Herbaceous Openland 3.2 No Unspecified 122 - Road/Parking Lot 10.1 NVA Unspecified 122 - Road/Parking Lot 2.7 No Unspecified 310 - Herbaceous Openland 3.6 No Unspecified 320 - Upland Shrub 1.2 No Unspecified 320 - Upland Shrub 1.2 No Unspecified 330 - Low-Density Trees 1.1 No Unspecified <	122 - Road/Parking Lot 17.3 No Unspecified