



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

COMPARTMENT # 244 ENTRY YEAR: 2013

Compartment Acreage: 2380 County: Kalkaska

Stand Examiner: Patrick Cotant

Legal Description: Sections 25, 26, 35 and 36, T25N-R7W, Kalkaska County

Management Goals: Visual management is important along Little Cannon Creek and Silver Creek corridor, as is erosion control. Maintain or improve aesthetics. In addition, aesthetics should be taken into account when making management decisions along the travel corridors throughout the compartment including Dutch John Rd, Silver Creek Rd and Beaver Dam Rd.

Soil and Topography: The dominant soil types within the compartment are Rubicon Sand and Lupton Muck. Rubicon is limited to the more upland areas while Mucks are present along creek/stream corridors and in both forested and non-forested lowland stands.

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

State land lays to the north and east and private land lays to the south and west. Changes (additions and deletions) have been made to the Miss.-Kal. ORV Trail in this compartment. (See map.) Main uses are timber and recreation. Small private holdings that have small camps on them are within compartment.

Unique, Natural Features (include only non-site specific and non-sensitive information):

There is a northern wet meadow just E of section 25. Red-shouldered hawk have been identified to S and E. Numerous wood turtle records to E, also to N. Blanding's turtle to NW. Kirtland's warbler mapped throughout much of vicinity to NE along with Massasauga to SE. Potential for red-shouldered hawk and goshawk. Potential for great blue heron rookery, eagle, and osprey. Potential for Blanding's turtle, massasauga, wood turtle, and spotted turtle. Potential for eastern flat-whorl (snail) in Cedar Swamps. Potential for marsh birds: Amercian bittern, least bittern, northern harrier, marsh wren, common moorhen, and black tern. Potential for Hill's thistle and Alleghany plum in dry grassy openings. Potential for calypso and ram's head lady's slipper in mixed conifer swamps. Potential for marsh plants such as Hill's pondweed.

This compartment falls within landtype association (LTA) 5131 of sub-subsection VII.2.2. This LTA, a broad flat outwash plain with poorly drained sand or sandy loam, is one of the least homogeneous LTAs mapped within Subsection VII.2.2. The lack of homogeneity results from a complicated topography and an intricate mosaic of excessively drained sand, poorly drained sand, and very poorly drained organic soils. In general, topography is level. However, the land surface is often undulating to hummocky and, in these areas, alternates from poorly drained and very poorly drained to well and excessively well drained sands over relatively short distances. The most common soil of the LTA is Saugatuck sand, which is poorly drained. However, soils are extremely variable and inclusions within the LTA range from deep, excessively drained, acidic sands to very poorly drained organic mucks and peats, e.g. Rubicon sand, Lupton muck and Rifle peat, respectively. The variety of precolonial types which occur reflect the LTAs complexity. Forests of hemlock, usually mixed white pine or American beech, were common on poorly drained sands whereas mixed conifer

swamps dominated very poorly drained organic soils. Finally, well drained inclusions supported northern hardwood forests of American beech and sugar maple while forests of mixed red and white pine occurred on excessively drained, fire-prone areas within the LTA. The LTA has become quite fragmented and 23% of its surface area now supports cover types with less than 5% individual cover. Hemlock dominated forests have been virtually eliminated whereas aspen/white birch forests, rare in precolonial times, have become the predominant cover type (35%). Conifer dominated wetlands, which covered more than one quarter of the LTA in precolonial times, have been reduced to about 8% cover, while formerly absent hardwood and shrub/scrub swamps now collectively cover 24% of the area. The remaining northern hardwood forests, which now occur on only about 5% of the LTA, are second growth, often fragmented, woodlots that lack the original white pine or hemlock component. Finally, another 6% of the LTA is in old fields.

Archeological, Historical, and Cultural Features (include only non-site specific and non-sensitive information): Some archeological sites of unknown significance exist within this compartment.

Special Management Designations or Considerations: Natural River Restrictions apply to Little Cannon Creek.

Watershed and Fisheries Considerations: Little Cannon Creek, Silver Creek, and an unnamed tributary to Silver Creek flow through Compartment 244. All are Designated Trout Streams. All have populations of naturally reproducing brook trout, while Little Cannon Creek also supports brown trout. The Natural Rivers natural vegetation buffer for these streams is 75', so no cutting should occur within that zone on any of these streams

Wildlife Habitat Considerations:

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. The nearest gravel pit is six miles to the west. Gravel potential in the compartment is considered good in the southwest. The abandoned Cannon Creek Field is located in the Compartment. The field produced over 850,000 mcf gas from the Traverse Limestone. All of the State land, with mineral rights, is currently leased for oil and gas development. There may be potential for oil and gas in this area.

Vehicle Access: Access to compartment is good via county maintained roads and seasonal forest roads. Access to interior of compartment is limited however during winter months as no county maintained roads traverse compartment. No bridge needs at this time. Road closures should be done where appropriate following all management operations.

Survey Needs: Survey is needed to delineate private boundary in Section 36, specifically the NE of the SW. In addition, a survey should be conducted to delineate private boundaries in the northern portion of section 25 of this compartment.

Recreational Facilities and Opportunities: The Miss-Kal Snowmobile trails runs through the southern portions of sections 35 and 36. The North Missaukee ORV trail traverses sections 25, 35 and 36.

Fire Protection: Fire protection for this area is carried out by the Fire Management division, specifically the Traverse City FMU, Kalkaska Field Office with assistance from local volunteer fire departments in the area. Additional DNR fire suppression resources are available from Manton and the Regional DNR Office. Good water points are nearby to be utilized for rapid turn around time during fire suppression activities. Road

access in the compartment is also good. (Comments by Rod Rader, DNR Fire Supervisor, Traverse City Field Office.)

Additional Compartment Information:

****** Cover type details, proposed treatments and stands designated as FDF are listed in the attached reports:**

Cover Type by Age Class
Cover Type by Management Objective
Compartment Volume Summary
Proposed Treatments – No Limiting Factors
Proposed Treatments – With Limiting Factors

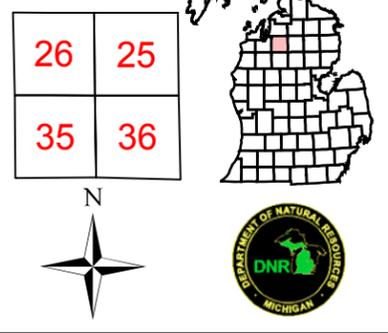
****** The following information is displayed on the attached compartment maps:**

Base feature information, stand numbers, cover types
Proposed treatments
Proposed road access system
Suggested potential old growth

Cover Type & Treatment Map

Compartment 244
 T25N, R07W, Sec. 25-26, 35-36
 County: Kalkaska
 Unit: Traverse City
 YOE: 2013
 Acres: 2,380 GIS Calculated
 Stand Examiner: Patrick Cotant
 Map Revised: 6/7/2011
 Map Phase: Pre-Review

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



Legend

- Highway
- Paved Roads
- Gravel Roads
- Poor Dirt Roads
- Trail (Non-Recreation)
- Intermittent Stream/Drain
- Stream
- Lakes and Rivers
- Motorcycle Trails (DNR License)
- ORV Routes
- ORV Trails
- Snowmobile Trails
- Motorcycle (DNR License)
- ORV Route
- ORV Trail
- Snowmobile Trail

Treatments

- Thinning (Crown, Low, Systematic)
- Clearcut (w/Reserves, Patch/Strip)

Forest Stands

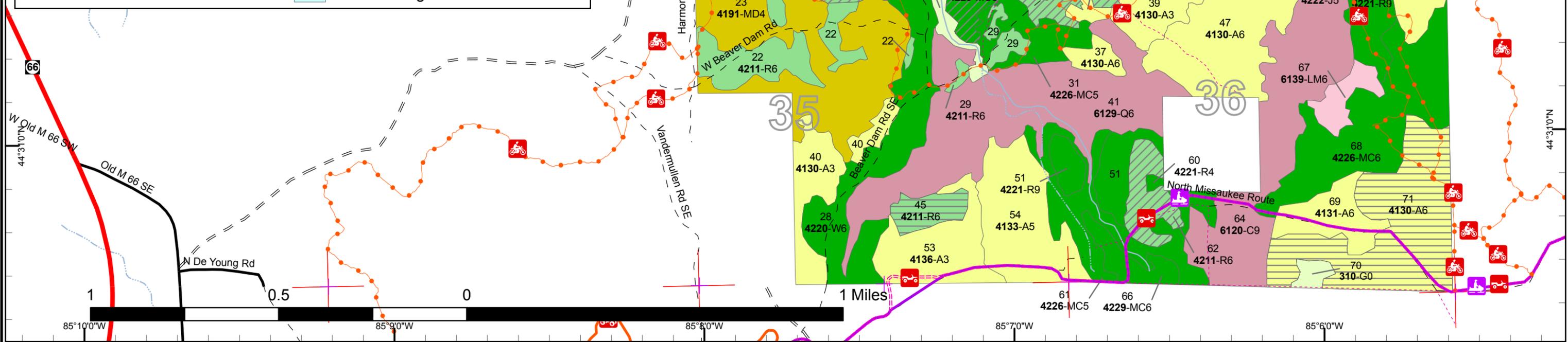
Level 3

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

Non-Forest Stands

Level 3

- 310 - Herbaceous Openland
- 500 - Water
- 623 - Emergent Wetland



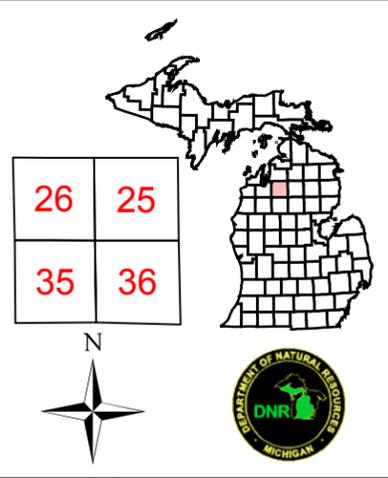
85°10'0"W 85°9'0"W 85°8'0"W 85°7'0"W 85°6'0"W

44°3'10"N 44°3'20"N 44°3'10"N

Stand Boundary Map

Compartment 244
 T25N, R07W, Sec. 25-26, 35-36
 County: Kalkaska
 Unit: Traverse City
 YOE: 2013
 Acres: 2,380 GIS Calculated
 Stand Examiner: Patrick Cotant
 Map Revised: 5/24/2011
 Map Phase: Pre-Review

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



Legend

- Miris Corners
- Highway
- Paved Roads
- Gravel Roads
- Poor Dirt Roads
- Trail (Non-Recreation)
- Intermittent Stream/Drain
- Stream
- Motorcycle Trails (DNR License)
- ORV Routes
- ORV Trails
- Snowmobile Trails
- Motorcycle (DNR License)
- ORV Route
- ORV Trail
- Snowmobile Trail
- Stand Boundaries

Forest Stands

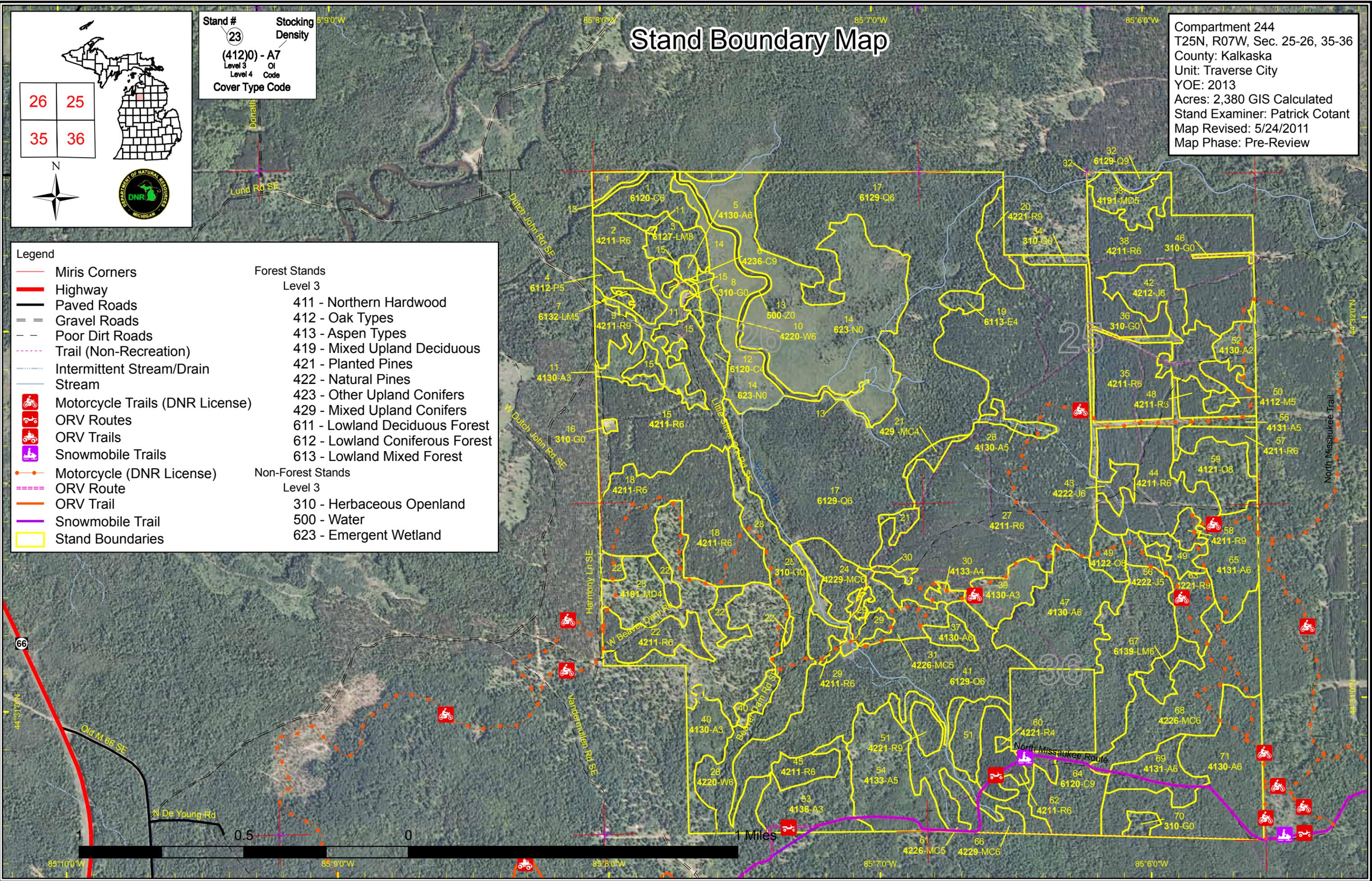
Level 3

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Non-Forest Stands

Level 3

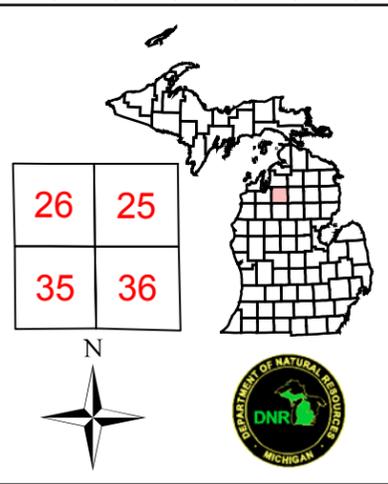
- 310 - Herbaceous Openland
- 500 - Water
- 623 - Emergent Wetland



Dedicated & Proposed Special Conservation Area Map

Compartment 244
 T25N, R07W, Sec. 25-26, 35-36
 County: Kalkaska
 Unit: Traverse City
 YOE: 2013
 Acres: 2,380 GIS Calculated
 Stand Examiner: Patrick Cotant
 Map Revised: 5/24/2011
 Map Phase: Pre-Review

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



- Legend**
- Miris Corners
 - Stand Boundaries
- Forest Stands**
- Level 3
- 411 - Northern Hardwood
 - 412 - Oak Types
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 - 419 - Mixed Upland Deciduous
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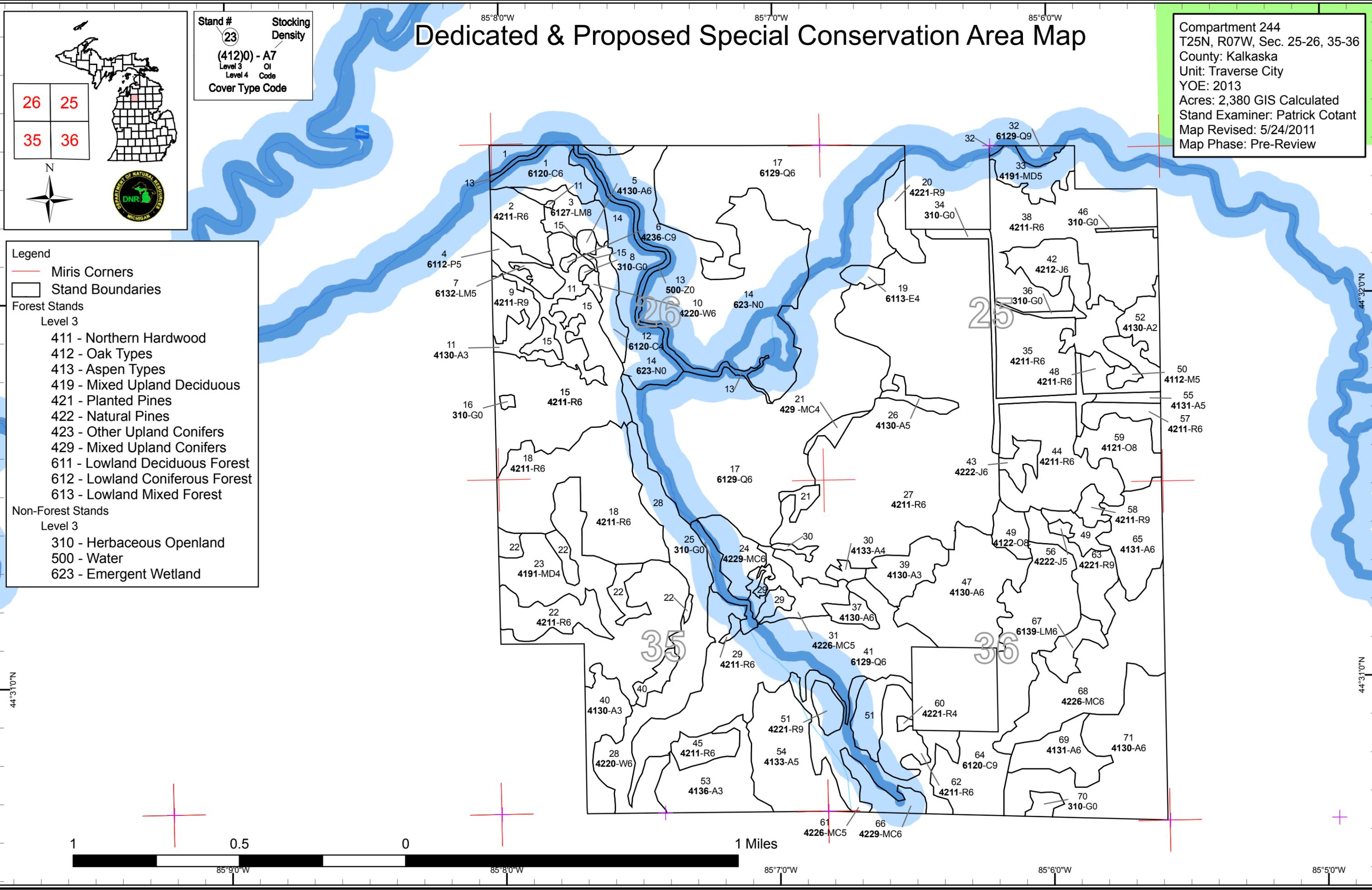


Table 1 – Total Acres by Cover Type and Age Class



	Age Class														Total	
	Non-Forested	1-9	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100-109	110-119	120 +		Unreven Age
Aspen	0	0	87	32	5	232	10	0	0	0	0	0	0	0	0	365
Cedar	0	0	0	0	0	0	0	11	82	25	0	0	0	0	0	118
Herbaceous Openland	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	33
Jack Pine	0	0	0	0	0	41	0	0	0	0	0	0	0	0	0	41
Lowland Aspen/Balsam Poplar	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	6
Lowland Conifers	0	0	0	0	0	0	0	327	4	110	0	0	0	0	0	442
Lowland Deciduous	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	4
Lowland Mixed Forest	0	0	0	10	0	0	0	0	5	0	0	0	0	0	0	16
Marsh	178	0	0	0	0	0	0	0	0	0	0	0	0	0	0	178
Mixed Upland Deciduous	0	0	0	0	0	107	0	0	0	0	0	0	0	0	0	107
Natural Mixed Pines	0	0	0	0	65	30	15	38	0	0	0	0	0	0	0	149
Northern Hardwood	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	3
Oak	0	0	0	0	0	0	0	0	40	0	0	0	0	0	0	40
Red Pine	0	0	0	0	36	568	122	20	26	13	0	0	0	0	0	783
Upland Conifers	0	0	0	0	0	8	0	0	0	0	0	0	0	0	0	8
Water	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13
White Pine	0	0	0	0	0	2	70	0	0	0	0	0	0	0	0	72
Total	225	0	87	43	106	995	217	403	157	147	0	0	0	0	0	2380



Table 2 – Proposed Treatment Summaries

Traverse City Mgt. Unit
Year of Entry 2013

Compartment 244
Total Compartment Acres: 2380

Acres by Treatment Type

Commercial Harvest - 790	Site Prep - 0	Tree Planting - 0	Prescribed Burn - 0	Other - 0
Habitat Cut - 0	Opening Maintenance - 0	Tree Seeding - 0	Pesticide - 0	

Cover Type by Harvest Method

	Clearcut	Selection	Seed Tree	Shelterwood	Thinning	Other - Specify	Total Acres
Aspen	76	0	0	0	0	0	76
Jack Pine	33	0	0	0	0	0	33
Natural Mixed Pines	0	0	0	0	15	0	15
Red Pine	10	0	0	0	654	0	665
Total	120	0	0	0	670	0	790



S t a n d	Treatment Name	Acres	Stage1 CoverType	Size Density	Stand Age	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
2	61244002-Cut	17.9	42110 - Planted Red Pine	High Density Pole	57	Harvest	Low Thinning	42110 - Planted Red Pine	Cmpt. Review Proposal
<p><u>Prescription</u> Mark to thin stand by removing defected and suppressed individuals. Focus on removing 1/4-1/3 of overall volume. Mark to cut white pine, <u>Specs:</u> designate red maple for removal.</p> <p><u>Other</u> Stand has some more open areas. Avoid thinning too heavily in these locations. <u>Comments:</u></p> <p><u>Next</u> <u>Steps:</u></p>									
5	61244005-Cut	2.4	4130 - Aspen	High Density Pole	48	Harvest	Clearcut	4130 - Aspen	Cmpt. Review Proposal
<p><u>Prescription</u> Final harvest stand, remove all aspen and red maple. Leave all other species present. Attempt to make northern boundary variable, entering <u>Specs:</u> stand 2 in order to increase edge affect. Use down woody debris spec for grouse/hare habitat.</p> <p><u>Other</u> Avoid any seasonally wet areas. <u>Comments:</u></p> <p><u>Next</u> Monitor success of regeneration following harvest. <u>Steps:</u></p>									
9	61244009-Cut	11.1	42110 - Planted Red Pine	High Density Log	59	Harvest	Low Thinning	42110 - Planted Red Pine	Cmpt. Review Proposal
<p><u>Prescription</u> Thin by removing approximtely a third or slightly less of the overall volume. Focus on removing suppressed, defected or otherwise poorly formed <u>Specs:</u> trees. Harvest all red maple. Much of the red maple has defect and a fair amount has died.</p> <p><u>Other</u> Private boundary along western edge needs to be determined prior to harvest. Some signs that post private property may be inaccurate. <u>Comments:</u></p> <p><u>Next</u> <u>Steps:</u></p>									
15	61244015_exp -1-Cut	4.1	42110 - Planted Red Pine	High Density Pole	54	Harvest	Low Thinning	42110 - Planted Red Pine	Cmpt. Review Proposal
<p><u>Prescription</u> Thin to more desirable overall basal area, Focus on removing defected and suppressed trees. Cut red maple and mark to cut white pine as well. <u>Specs:</u></p> <p><u>Other</u> Could final harvest this portion and either allow to regenerate to red maple/aspen mixture or replant to red pine. Should discuss at CR. <u>Comments:</u></p> <p><u>Next</u> <u>Steps:</u></p>									
15	61244015-Cut	71.3	42110 - Planted Red Pine	High Density Pole	54	Harvest	Low Thinning	42110 - Planted Red Pine	Cmpt. Review Proposal
<p><u>Prescription</u> Thin to more desirable overall basal area by removing 1/4 to 1/3 of the overall volume. Focus on removing defected and suppressed trees. Mark <u>Specs:</u> to cut white pine throughout stand as well and deisgnate all red maple for harvest.</p> <p><u>Other</u> Some more open areas in areas throughout stand. Avoid thinning too heavily in these places. <u>Comments:</u></p> <p><u>Next</u> <u>Steps:</u></p>									
18	61244018-Cut	80.1	42110 - Planted Red Pine	High Density Pole	41	Harvest	Systematic Thinning	42110 - Planted Red Pine	Cmpt. Review Proposal
<p><u>Prescription</u> Remove every third row. Specify hardwood species to retain or remove depending on abundance throughout stand when cruised. Fair amount of <u>Specs:</u> open areas and areas of lower than average stocking. Relatively minor amount of deciduous species found during inventory, Expect to find more during sale prep.</p> <p><u>Other</u> Narrow rows in places, expect producer to have some difficulty during row thinning operation. May need to be flexible during harvest if this is the <u>Comments:</u> case.</p> <p><u>Next</u> <u>Steps:</u></p>									



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Treatment Name	Acres	Stage1 CoverType	Size Density	Stand Age	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
24 61244024-Cut	15.4	42290 - Natural Mixed Pine	High Density Pole	56	Harvest	Crown Thinning	42260 - Natural Pine, Mixed Deciduous	Cmpt. Review Proposal

Prescription Could thin white and red pine to improve overall quality. Remove aspen, red maple and jack pine. Goal would be to remove approx 1/3-1/4 of white/red pine, with focus on releasing better quality trees and achieving natural regeneration in pockets. Some areas of less BA, in these spots attempt to release smaller dbh trees by removing portions of overstory.

Other Thinning will be variable, with more of a shelterwood approach in places.

Comments:

Next Steps: Evaluate success of regeneration and release of smaller DBH individuals.

27 61244027-Cut	265.6	42110 - Planted Red Pine	High Density Pole	45	Harvest	Systematic Thinning	42110 - Planted Red Pine	Cmpt. Review Proposal
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Prescription Large red pine stand, some variability throughout stand. Some variability along western edge where stand fazes into adjacent q-type. Scattered pockets of aspen/red maple. In these pockets, harvest all merchantable aspen/red maple. Treat plantation by removing every third row. Within plantation, cut white pine, red maple and aspen if in designated rows, otherwise leave. Do not harvest oak. Motorcycle trail runs through stand and should be protected during harvest operations. Apply appropriate spec's to sale to accomplish this.

Other Narrow rows in places may make harvest operations difficult. May need to flexible during harvest.

Comments:

Next Steps: Evaluate red pine response to thinning. Also monitor aspen and red maple regeneration following harvest.

35 61244035-Cut	36.2	42110 - Planted Red Pine	High Density Pole	45	Harvest	Systematic Thinning	42110 - Planted Red Pine	Cmpt. Review Proposal
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Prescription Third row thin stand. Cut all jack pine within rows. Some small pockets of Jack pine present-final harvest any pockets of jack pine found throughout stand. Leave red pine in these pockets-essentially harvest all jack pine within stand.

Other
Comments:

Next
Steps:

38 61244038-Cut	91.8	42110 - Planted Red Pine	High Density Pole	45	Harvest	Systematic Thinning	42110 - Planted Red Pine	Cmpt. Review Proposal
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Prescription Recommend third row thin for release. Remove all jack pine regardless of what row they fall into. Leave deciduous species until next thin.

Specs: Some rows are tight which may make maintaining third row integrity difficult.

Other Narrow rows in places may make operations difficult.

Comments:

Next
Steps:

42 61244042-Cut	33.3	42120 - Planted Jack Pine	High Density Pole	45	Harvest	Clearcut with Reserves	42260 - Natural Pine, Mixed Deciduous	Cmpt. Review Proposal
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Prescription Final harvest stand, leave all red pine. Delineate 1-2 one acre islands as retention of jack pine component. Allow to naturally regenerate to mix of jack pine and red pine with additional deciduous species inevitably being in the mix of overall regeneration. Apply specs to encourage jp regen, i.e. scattering tops, getting cones in contact with mineral soil, etc.

Other Expect jack pine and red pine regeneration of moderate stocking. Some open areas are expected as regen establishes. Also expect deciduous species to regenerate as well.

Comments:

Next Steps: Monitor regeneration of all species throughout stand. If regeneration is inadequate, replant stand to jack pine around existing residual.



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Treatment Name	Acres	Stage1 CoverType	Size Density	Stand Age	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
44 61244044-Cut	50.2	42110 - Planted Red Pine	High Density Pole	45	Harvest	Systematic Thinning	42110 - Planted Red Pine	Cmpt. Review Proposal

Prescription Third row thin stand, remove all jack pine and red maple as well. Leave oak throughout stand unless trees present operability issues for harvest operations.
Specs:

Other
Comments:

Next Monitor response of red pine to thinning/release.
Steps:

45 61244045-Cut	10.5	42110 - Planted Red Pine	High Density Pole	48	Harvest	Clearcut	42110 - Planted Red Pine	Cmpt. Review Proposal
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Prescription Recommend final harvest and replant to red pine. Plantation growing poorly, hopefully will have better results on site which should be expected to grow fairly good quality rp. No retention applied to stand due to small acreage and the ultimate goal of reestablishing red pine through planting.
Specs:

Other Looks like stand was damaged at some point, many of the trees have noticeable defect near base; slight curve in first 8-10 feet of bole.
Comments:

Next Replant to red pine following harvest.
Steps:

57 61244057-Cut	9.6	42110 - Planted Red Pine	High Density Pole	45	Harvest	Systematic Thinning	42110 - Planted Red Pine	Cmpt. Review Proposal
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Prescription Third row thin stand, Remove all red maple, aspen and jack pine, leave oak. Final harvest small N/S finger at SE side of stand when treating.
Specs: Stand may be low density in spots however should hold up fairly well following harvest. May need to wait longer than normal to conduct second thinning.

Other Stand is of lower quality and slightly more variable in terms of stocking than surrounding plantations that have not been 1/3 row thinned yet. May consider final harvest of entire stand, evaluate at CR.
Comments:

Next Depending on CR decision, monitor red pine response to thinning. If stand does not respond well to release then consider final harvesting next YOY.
Steps:

62 61244062-Cut	16.5	42110 - Planted Red Pine	High Density Pole	52	Harvest	Systematic Thinning	42110 - Planted Red Pine	Cmpt. Review Proposal
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Prescription Third row thin. May need to remove more trees in places for operability purposes. Determining row direction/location will be difficult in places.
Specs:

Other Some narrow rows may make harvest operations difficult.
Comments:

Next
Steps:

71 61244071-Cut	73.7	4130 - Aspen	High Density Pole	48	Harvest	Clearcut with Reserves	4131 - Aspen, Oak	Cmpt. Review Proposal
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Prescription Final harvest, leaving most red and white pine and scattered oak which should be marked to leave (<10BA) for residual. Specify; harvest all asp/rm 2"+. In addition, there is a concentration of hardwoods in the northern portion of the stand. In the harvest to the east hardwoods were left while aspen was harvested. Left a nice mixture of overstory hardwood component with aspen and hardwood regeneration throughout the understory. Recommend leaving the majority of hardwoods in this stand.
Specs:

Other
Comments:

Next
Steps:

**Total Treatment
Acreage Proposed: 789.7**

Table 4 -- Treatments Prescribed with a Limiting Factor



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Treatment Name	Acres	Stage1 CoverType	Size Density	Stand Age	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
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#Error

Prescription Specs:

Other Comment:

Next Steps:

Limiting Factor and No Treatment Reason

Total Treatment Acreage Proposed: 0



Stand	Traverse City Mgt. Unit			5 – Forested Stands		Compartment: 244	Year of Entry: 2013
	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:	
1	6120 - Lowland Cedar	High Density Pole	24.8	85	200+	Dense cedar stand in western portion, less cedar and more supercanopy red and white pine in eastern parts of stand. Other lowland conifers present. Lots of seeps to little cannon creek which runs through stand. Some blowdown areas, regenerating to fir. Any cedar regen is heavily browsed. Occasional large white and red pine in western portion but again, concentrated most in eastern area of stand, near transition to stand 2.	
2	42110 - Planted Red Pine	High Density Pole	17.9	57	141-170	Third row thinned last YOY, has responded fairly well to previous treatment. BA is not as high as would be expected, most likely because of variable stand density. Descent amount of red maple and white pine scattered throughout stand.	
3	6127 - Lowland Pine	Medium Density Log	15.3	60	51-80	Variable stand, dominated by white pine in most areas. Variable edge to adjacent stands. Small pockets of l-type and pockets of cedar. Lowland aspen present in pockets.	
4	6112 - Lowland Aspen	Medium Density Pole	6.3	65		Mixed stand of red maple and aspen with conifers throughout. Aspen dominant along northern edge. Some large white pine and oak. Scattered ironwood in understory. Creek/seep runs through center of stand.	
5	4130 - Aspen	High Density Pole	2.4	48	81-110	Aspen (A6) stand, good quality. Overall stand is relatively uniform throughout in terms of height, dbh and species composition. White pine present in understory along w/ few rm in overstory. New stand added.	
6	42360 - Upland Cedar	High Density Log	1.0	70	141-170	Island of cedar and aspen in center of stand 6. Lots of browse and general deer activity. Paper birch scattered, some balsam fir throughout. New stand added.	
7	6132 - Mixed Lowland Forest with Cedar	Medium Density Pole	5.4	75		Cedar stand with mixed conifer and some deciduous. Heavy browse and deer activity throughout. White pine present are quite large. Quite a bit of red maple along with a descent amount of paper birch. New stand added.	
9	42110 - Planted Red Pine	High Density Log	11.1	59	171-200	Red pine plantation, responding well to thin. Lots of defect/suppressed individuals remain. Red maple present, scattered balsam fir in understory. Variable size red pine throughout stand along with some areas of lower basal area.	
10	42200 - Natural White Pine	High Density Pole	1.8	48	111-140	Small white pine pole stand, dense. Red pine present along with aspen in low numbers. New stand added.	
11	4130 - Aspen	High Density Sapling	30.5	10		Young aspen stand (A3) of big tooth aspen. Growing well, quite dense overall. White pine scattered throughout, occasional red pine in over and understory. Some cherry regen as well, <2%.	
12	6120 - Lowland Cedar	Low Density Pole	11.5	60		Lowland cedar/alder stand with other species scattered throughout. Stand contains pockets of lowly stocked trees surrounded by l-type areas. Could almost be non-forested but estimated cover at approx 25%. New stand added.	



Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
15	42110 - Planted Red Pine	High Density Pole	76.2	54	141-170	Red pine stand, thinned previous yoe and is currently responding well. Some areas more open. Red maple scattered as well as white pine
17	6129 - Mixed Coniferous Lowland Forest	High Density Pole	311.7	68		Cedar stand with fair amount of lowland conifer species throughout. Stand is very dense in places with pole sized cedar, balsam fir and tamarack. Seeps and small flowing creeks can be found in several locations throughout the stand, all of which flow to little cannon and silver creeks. Lots of wildlife activity. Fair amount of browse in places, Not very many deciduous stems within stand. Some paper birch, red maple and scattered lowland aspen present.
18	42110 - Planted Red Pine	High Density Pole	80.1	41	171-200	Red pine stand, overall small pole sized dbh. Ready to be third row thinned. Has not been thinned previously. Quite a few open areas and pockets of slightly lower density.
19	6113 - Lowland Maple	Low Density Pole	4.3	40		Small, low quality stand of lowland deciduous species. Poor quality throughout, lots of deer browse. Some large red pine on east and west end of stand.
20	42210 - Natural Red Pine	High Density Log	12.6	84	171-200	Small stand of large red pine, Understory is very open except for scattered spruce/fir, some planted spruce as well. Looks like PVT may be encroaching on state land in this area with fence posts. Stand blends into adjacent lowland conifer stand along western edge. Nice stand, has been treated in the past.
21	429 - Mixed Upland Conifers	Low Density Pole	7.8	40	1-50	Relatively open stand of spruce/fir with red and white pine, oak, red maple and aspen in lower numbers. Small amount of slop-over from plantation included in stand-all these areas have lower density than plantation.
22	42110 - Planted Red Pine	High Density Pole	35.8	33	111-140	Red pine plantation, growing fairly well. Has not been thinned however recommend waiting until next yoe. Has not self pruned very much yet and in addition is small in terms of dbh and height. Many areas of lower stocking where plantation was less successful.
23	4191 - Mixed Upland Deciduous with Conifer	Low Density Pole	91.2	45	1-50	Open stand of white pine, aspen, red maple and occasional oak. Aspen are mostly small dbh with occasional clones having larger trees. Oak are scattered. White pine regenerating heavily in places along with some aspen and red maple regeneration. Scattered oak saplings present, mostly white oak but some red oak developing as well.
24	42290 - Natural Mixed Pine	High Density Pole	15.4	56	141-170	Mixed stand of white and red pine logs and poles. Descent quality throughout. Lots of suppressed white pine poles. Aspen and red maple scattered throughout. New stand added.
26	4130 - Aspen	Medium Density Pole	5.6	44	1-50	Narrow aspen stand, seasonal drainage. Some large red and white pine. Aspen is variable in terms of size, overall lower quality and density. New stand added.
27	42110 - Planted Red Pine	High Density Pole	265.6	45	141-170	Red pine plantation with some white pine, red maple and scattered red oak. Some variation in density and size of red pine however overall, ready to treat.



	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
28	42200 - Natural White Pine	High Density Pole	70.2	53	81-110	Variable stand in terms of density and species composition. Lumped together some areas that might otherwise be separated. Overall it is a white pine stand with red maple and aspen along with scattered red pine and balsam fir. Lowland pockets w/ fir in places, no evidence of standing water. Topo drops slightly to stand, approx 10 ft. Scattered red oak, all of which are concentrated on portions of stand higher in elevation with a more significant pocket in the northern/central portion of the stand. Pockets of lower density in western areas of stand. Red pine rows separate from adjacent plantations are present in areas. Small seeps in se areas of stand are present and make their way to join silver cr.
29	42110 - Planted Red Pine	High Density Pole	7.0	47	141-170	Red pine plantation, has not been thinned, growing fairly well albeit suppressed. Multi part stand, NW portion is more variable and lower stocked. If harvest takes place, exclude this portion from sale. Could merge w/ stand 21. Variable rows, edge of stand is variable as well-rows trail off to adjacent stands and blend with white pine to create a mixed red/white pine edge.
30	4133 - Aspen, Mixed Pine	Low Density Pole	4.9	30		Low stocked stand of poor quality aspen and white pine. Open, low density. Balsam fir scattered. Small trickle of water flows from adjacent stand 34 and disappears under 26. Drain can be followed in a northwesterly direction but water does not appear again until stand 13.
31	42260 - Natural Pine, Mixed Deciduous	Medium Density Pole	19.0	42	51-80	Mixed stand of white pine and aspen with other species present in descent numbers. Some more pure pockets of both white pine and aspen in places. Overall relatively small dbh, lower stocking in places. Some red pine where adjacent plantations fade into stand. Small diameter overall, some areas of high water table.
32	6129 - Mixed Coniferous Lowland Forest	High Density Log	4.5	70		Mixed stand of lowland conifers dominated by cedar and white pine with balsam fir, red pine red maple and birch present in fair numbers. Little cannon cr runs along southern edge of stand-wide, braided, choked w/ deadfall. Steep slope to creek on south side. New stand added.
33	4191 - Mixed Upland Deciduous with Conifer	Medium Density Pole	15.9	45		Mixed stand, dominated by red maple, white pine, pockets of aspen and scattered oak. White pine is main component of low density understory. Overall low density throughout stand with some pockets exhibiting higher basal area.
35	42110 - Planted Red Pine	High Density Pole	36.2	45	141-170	Red pine stand that has not been third row thinned. growing well albeit suppressed
37	4130 - Aspen	High Density Pole	6.2	54	81-110	Mixed stand, aspen dominant. Mix of upland/lowland ground, high water table in many areas of stand. Some cedar near edges of adjacent stands, large white and red pine present in lower numbers.
38	42110 - Planted Red Pine	High Density Pole	91.8	45	171-200	Red pine plantation, has not been thinned as of yet. Scattered large jack pine and red maple throughout. Occasional aspen and scattered oak.
39	4130 - Aspen	High Density Sapling	17.8	12		Young bigtooth aspen stand (A3) added, with scattered oak and white pine. Stand growing well.



Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
40	4130 - Aspen	High Density Sapling	26.9	16		Young aspen stand (A3), growing well. Red oak were left during previous harvest along w/ scattered white pine poles. White pine is regenerating in understory of aspen saplings.
41	6129 - Mixed Coniferous Lowland Forest	High Density Pole	110.1	80	141-170	Mixed lowland conifer stand. Silver creek in center of stand. Pockets of pure cedar, other areas of spruce/fir/cedar. Scattered pockets of birch, balsam poplar, red maple and balsam fir. Some very large red and white pine on scattered hummocks which can be found throughout stand. There is a great deal of winter deer activity in stand. Lots of browse on cedar, very little coniferous regen aside from scattered balsam fir thickets and occasional white pine. Hemlock can be found in spots. Tamarack present throughout stand with dense pockets found in places.
42	42120 - Planted Jack Pine	High Density Pole	33.3	45		Jack pine stand with scattered throughout. Occasional red maple, some variability throughout in terms of size and stocking.
43	42220 - Natural Jack Pine	High Density Pole	6.5	40		Jack pine stand, growing fairly well. Scattered red pine throughout, Similar to stand 36.
44	42110 - Planted Red Pine	High Density Pole	50.2	45	141-170	Red pine plantation growing fairly well, suppressed at this time. Some jack pine scattered throughout. Scattered large oak and pole size red maple in southeastern corner.
45	42110 - Planted Red Pine	High Density Pole	10.5	48	111-140	Red pine plantation, growing poorly. Stand has erratic spacing/rows and is not self pruning much. Fair amount of forked trees, also notable defect near base of many trees-slight curve in first stick. Plantation was planted around Remnant rp/wp stumps.
47	4130 - Aspen	High Density Pole	55.2	47	111-140	Variable aspen stand in terms of size, density and overall quality. white pine present along with red pine balsam fir and scattered oak. White pine is much more prevalent in eastern portions of stand, some transition areas to adjacent stands to the east where species composition is much more variable.
48	42110 - Planted Red Pine	High Density Pole	15.5	40	81-110	Lower in terms of density, quality and dbh than surrounding plantations, More of a deciduous component as well.
49	4122 - Oak, Pine	Medium Density Log	16.5	78	51-80	Oak stand with white pine throughout. Looks to be an old logging camp foundation, square, about 25' across with depression. Oak are of fair quality, red maple and aspen present in lower numbers. Stand is denser in southern portions, more species variability. Some aspen pockets, stand is quite a mixture.
50	4112 - Maple, Beech, Cherry Association	Medium Density Pole	3.0	49	51-80	Low density red maple stand with larger red and white oak present. Oak regeneration throughout understory in relatively low density, however growing fairly well. New stand added.
51	42210 - Natural Red Pine	High Density Log	19.9	66	111-140	Multi part stand-Isolated red pine stand, believed to be a natural stand, could not find definitive evidence of plantation. Some plantation portions were excluded from stand 52 because of low stocking and poor quality and were lumped with this stand. White pine and red maple mixed throughout. Limited access to western portion because this part of stand lies between the two drainages, possibly access from south. New stand added.



Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
52	4130 - Aspen	Medium Density	11.5	10		Young, fully stocked aspen (A3) stand with occasional large white oak and pole sized red pine. Jack pine saplings throughout in low numbers.
53	4136 - Aspen, Mixed Conifer	High Density Sapling	32.3	25		Aspen stand moving from sapling to pole sized stand with some individuals and pockets of trees being merchantable in the 5-6" range. growing well with white pine, balsam fir and red maple present throughout. Both big tooth and quaking aspen present. Remnant white pine stumps throughout. New stand added.
54	4133 - Aspen, Mixed Pine	Medium Density Pole	46.4	46	51-80	Western part of original stand 46. Aspen stand, possibly 2 aged. Consists of scattered clones separated by smaller dbh aspen in conjunction w/ white pine, balsam fir, oak and red maple. Aspen is variable in terms of size, quality and overall stocking. Stand is patchy in places with open areas and pockets of unmerchantable aspen.
55	4131 - Aspen, Oak	Medium Density Pole	3.8	50	51-80	Small, low density aspen stand with oaks and red maple throughout. Open areas, some more dense clones of aspen. New stand added.
56	42220 - Natural Jack Pine	Medium Density Pole	1.7	44	81-110	Small jack pine stand with red pine, white pine and red maple present. Jack pine growing well.
57	42110 - Planted Red Pine	High Density Pole	9.6	45	141-170	Red pine plantation, has not been thinned. Some patchy spots with low density, most notably in finger jutting off southeastern corner of stand, Some variable size. N/S finger has lower density than bulk of stand, consider final harvesting this portion of stand and 1/3 row thin the rest.
58	42110 - Planted Red Pine	High Density Log	5.0	76	200+	Old plantation, really nice red pine. Large white pine scattered throughout as well. Has been treated. Some oak in understory. New stand added.
59	4121 - Oak, Aspen	Medium Density Log	23.7	78	51-80	Oak stand overall with some variability in terms of species makeup throughout, Aspen clone, small dbh in western part of stand. Overall low density, not great quality.
60	42210 - Natural Red Pine	Low Density Pole	1.0	48	1-50	Small pocket in stand 52, failed portion of plantation or was not planted for some reason. Has scattered red pine throughout along with a small amount of aspen. Open for the most part-low stocking.
61	42260 - Natural Pine, Mixed Deciduous	Medium Density Pole	38.4	60	51-80	Variable stand, transition between red pine plantations and natural red pine stands with adjacent q-type. White pine and red pine with mixed deciduous. Contains two feeder creeks to silver cr. Scattered hemlock and cedar near creeks. Some lowland areas, occasional openings.
62	42110 - Planted Red Pine	High Density Pole	16.5	52	171-200	Red pine plantation, has not been thinned. Descent quality, fair dbh, has not self pruned much and was planted around remnant stumps so therefore rows are erratic/variable in many areas of stand, most notably in north. White pine, aspen and red maple present in low numbers.



	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
63	42210 - Natural Red Pine	High Density Log	20.5	77	141-170	Mixed stand of red and white pine with aspen throughout. High water table in places, some wet areas, especially in northern and western portions of stand. Red pine is variable in size with some variability in density. Aspen heavier in areas where clones are dominant.
64	6120 - Lowland Cedar	High Density Log	80.9	70	141-170	Cedar stand with multiple other lowland species present in relatively low numbers. Some openings, areas of standing water in understory. Some blowdown. Occasional seeps, flowing northward. Pockets of E-type, some areas of aspen/red maple. Pockets of pole sized white pine.
65	4131 - Aspen, Oak	High Density Pole	28.4	46		Aspen/Oak stand, Many pockets more pure to aspen. Red pine more prevalent in central/southern parts of stand along with increase in density of white pine. Aspen growing well, minimal mortality, tall but relatively small dbh.
66	42290 - Natural Mixed Pine	High Density Pole	11.1	45	111-140	Variable stand of white pine, red pine and aspen. Overall pole sized with some larger trees present. Some lowland conifers present as well. Pockets of low ground, mainly along edges of stand where higher water table influence can be seen. Stand is variable overall in terms of species composition as well however white pine seem to be dominant throughout.
67	6139 - Mixed Lowland Forest	High Density Pole	10.2	25	51-80	Mixed stand of small dbh red maple, aspen, balsam fir and white pine with scattered overstory trees of same species. Occasional oak, mostly around edges, some concentrated pockets. Occasional large white pine present. Variable stand in terms of size, stocking and species composition.
68	42260 - Natural Pine, Mixed Deciduous	High Density Pole	64.9	35	1-50	Mixed stand of aspen and white and red pine. Aspen is of sapling/pole size, growing fairly well. Red and white pine is variable in size, good quality. Some large white and red pine present. Overall small dbh.
69	4131 - Aspen, Oak	High Density Pole	20.1	44		Western portion of original stand 58. Lower density, overall lower size and slightly less quality than eastern portion. Red oak present throughout. Aspen variable in terms of size.
71	4130 - Aspen	High Density Pole	73.7	48	141-170	Aspen stand, good quality. Oak scattered in pretty uniform density throughout. Stand has some variability in terms of stocking and average dbh. Red pine and white pine present as well, large dbh. New stand added.



Stand	Cover Type	Acres	Managed Site	Management Priority (Objective)	General Comments:
8	310 - Herbaceous Openland	0.8	No	Unspecified	Small grassy opening, surrounded by A3 and W6. Some wildlife use along edges, browse of aspen in places.
13	50 - Water	13.2	No	Unspecified	Little cannon creek throughout compartment.
14	6239 - Mixed Emergent Wetland	178.2	No	Low (NonForested)	Large tag-alder swamp, very difficult access. Scattered birch, tamarack, black ash, cedar and spruce/fir.
16	310 - Herbaceous Openland	1.0	No	Unspecified	Small grassy opening, old well site most likely.
25	3102 - Grass	8.0	No	Unspecified	Lowland area, open, surrounding portion of silver creek. Result of a small beaver dam possibly. Vegetation consists mainly of tag alder with black ash and red maple present along with some lowland conifer snags.
34	310 - Herbaceous Openland	15.5	No	Low (NonForested)	What looks to be an old fire lane opening, Scattered cherry, occasional large overstory red pine. ORV trail runs through portions of stand. Some areas of stand are more heavily treed, representing more of a u-type.
36	310 - Herbaceous Openland	2.6	No	Low (NonForested)	Old fire lane, scattered trees throughout.
46	310 - Herbaceous Openland	1.3	No	Unspecified	Similar to stand 32, what looks to be an old fire lane. Some scattered cherry, white pine and occasional naturally regenerated red pine. Helps to provide a nice break in the plantations of the area.
70	310 - Herbaceous Openland	4.0	No	Low (NonForested)	low density aspen, wp, rm with gtass as groundcover.



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



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	Designated Critical Habitat	Critical habitat areas are established via a consultative and cooperative process between the DNR and the U.S. Fish and Wildlife service for the recovery of threatened and endangered species, as governed by Part 365, Endangered Species Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, and the Federal Endangered Species Act of 1973. This is an active program, with proposed species plans in various stages of review. As of now only two exist, Kirtland Warbler Habitat and Piping Plover Habitat.
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.