



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

COMPARTMENT # 115 ENTRY YEAR: 2013

Compartment Acreage: 1831 County: Kalkaska

Stand Examiner: Patrick Cotant

Legal Description: T27N-R5W, Section 19 & T27N-R6W, Sections 21-24, Kalkaska County, Bear Lake and Excelsior Townships

Management Goals: Visual management is important along the Little Manistee River as well as along the travel corridors throughout the compartment including M-72, Baker Rd and Sunset Tr. In addition, aesthetics along both the snowmobile and ORV trails should be maintained or improved following any management operations that occur within the compartment.

Soil and Topography: Mainly Kalkaska Sandy Loam with Roselawn, Emmet, and Saugetuck Sands along with pockets of Lupton Muck in many of the lowland areas of the compartment. .

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

A mixture of state and private lands with farming being done on the north, west, and south. Hunting and snowmobiling is the major recreational use. A 20' easement was granted to a Mr. Deater for access into his property in section 22. See map.

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

Rich conifer Swamp to S. Wet-mesic sand prairie to SE. Great blue heron rookery just south of section 22. Bald eagle to S. Loon to N. Osprey to NW. Red-shouldered hawk, Blanding's turtle, dusted skipper, and American bittern to S. Hill's thistle to E. Hill's pondweed to NW. Prairie dropseed, Vasey's rush, Houghton's goldenrod, Clinton's bulrush, and New England violet all to SE. Potential for red-shouldered hawk and goshawk. Potential for loon, bald eagle, osprey, and great blue heron rookery. Potential for box turtle. Potential for Blanding's turtle. Potential for ebony boghaunter in bogs. Potential for Hill's pondweed. Limited potential for Hill's thistle and Alleghany plum. Limited potential for ginseng, goblin moonwort, and showy orchis in mature mesic hardwoods.

This compartment falls within landtype associations (LTAs) 3211, 5149, and 5211 of sub-subsection VII.2.2. LTA 3211, which occurs in the eastern two-thirds of section 24, is characterized by large, irregular ice-contact ridges, many kettle lakes and excessively drained sandy soil. Mixed forests of red and white pine covered almost one half of the LTA circa 1800. White pine also occurred as co-dominant with eastern hemlock in forests that covered another 7% of the area. Forests of eastern hemlock mixed with American beech were comparatively extensive, covering about 32% of the LTA. Lastly, northern hardwood forests of American beech and sugar maple occurred in localized areas, while mixed conifer and cedar swamps dominated wetlands areas. Fragmentation into numerous cover types has occurred, with 21% of the land area supporting numerous types of limited areal extent. The conifer-dominated forests of precolonial times have been virtually eliminated, while aspen/white birch forests, which did not occur in mappable sized areas in precolonial times, now occur on 48% of the LTA. Northern and central hardwoods (both dominated by

American beech and sugar maple with the latter type containing more oak) collectively cover most of the remaining area (32%).

LTA 5149, a broad flat outwash plain with very poorly drained peat or muck, occurs on the western edge of section 24, the eastern edge of section 23 and the southwestern half of section 22. Circa 1800, almost 70% of the LTA supported conifer-dominated wetlands (7% of this area was bog and muskeg). Forests of white pine with red pine or hemlock collectively covered another 11% of the LTA and occurred on better-drained, sandy inclusions often within the extensive peatlands. In addition, both white pine and hemlock were probably also important components of the American beech/sugar maple forests that covered another 6% of the LTA. The remainder of the LTA supported small amounts of pure hemlock forests, alder/willow thickets, marshes, and aspen/white birch forests. Lowland-conifer forests, which once covered almost 70% of the LTA, now occur on only 22% of the landtype. Conversely, lowland hardwood swamps and shrub/scrub wetlands, which did not occur here in precolonial times, now cover about 16% and 15% of the LTA, respectively. Further, aspen/white birch forests have increased from about 1% precolonial to 21% cover today. Pine-dominated forests persist on only about 6% of the LTA and northern hardwoods on another 5%. The remainder of the area supports a variety of cover types of minor areal extent.

LTA 5211, a pitted outwash plain with excessively drained sand, occurs in the remainder of the compartment. Northern hardwood forests, which were concentrated in the northwestern portion of the sub-subsection where fire-protection is greatest, occupied 34% of the LTA prior to settlement. The entire spectrum of conifer-dominated forests occurred elsewhere, and collectively covered 53% of the LTA. Forty-seven percent of this area supported forests of red pine mixed with either white pine, jack pine, or (less commonly) oak. Another 23% of the conifer-dominated area supported hemlock mixed with American beech, white pine, or (rarely) in pure stands. Jack pine, occurring in pure stands or in open, savanna-like pine and oak/ pine barrens covered another 25% of this area. The remainder of the upland conifer-dominated portion of the LTA supported localized forests of white pine, American beech, and red maple. Finally, wetland portions of the LTA supported mixed conifer and northern white cedar swamps. The LTA has become quite fragmented and 19% of its area supports cover types with less than 5% individual cover. Upland-conifer forests, which once covered more than one half of the LTA, now occur on about 19% of its area. Further, much of these remaining forests are red or jack pine plantations, while oak and pine barrens and forests co-dominated by hemlock have been virtually eliminated. In contrast, aspen/white birch forests, which covered about 3% of the LTA in precolonial times, have increased to about 20% cover today. Another 28% of the LTA supports northern and central hardwood forests (the latter type containing a high component of oak). Lowland hardwood forests, which covered no mappable areas in precolonial times, now cover about the same area as lowland conifers. Finally, about 5% of the LTA has been converted to agriculture, while another 7% is in unmanaged shrublands. GLO surveyors commonly reported evidence of large wildfires and, less frequently, windfalls within LTA 5211.

Archeological, Historical, and Cultural Features (include only non-site specific and non-sensitive information): There was a HAL hit in section 24 of the compartment. Aside from this, no archeological, historical or cultural features are identified.

Special Management Designations or Considerations: N/A

Watershed and Fisheries Considerations: The two forks of forks of The North Branch of the Manistee River combine in Compartment 115. Both forks are Designated Trout Streams. The North Branch of the Manistee River has naturally reproducing populations of brook and brown trout. The Natural Rivers native vegetation buffer for the North Branch of the Manistee River is 175', so no cutting should occur within 175' of either stream. Also, BMPS should be followed when working in wet areas near the 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 and an end moraine of coarse-textured till. The glacial drift thickness varies between 400 and 600 feet. Beneath the glacial drift is the Mississippian Coldwater Shale. The Coldwater does not have an economic use. The nearest gravel pit is State Pit #245 located in Section 31-T27N-R5W. Gravel potential in the compartment is considered good in Section 19 and 24. This area is located south of Niagaran reef trend and the Antrim Shale gas play. All of the compartment is leased for oil and gas.

Vehicle Access: Access is adequate throughout compartment via county maintained roads and forest trails and 2-tracks.

Survey Needs: No immediate survey needs at this time.

Recreational Facilities and Opportunities: The combined Blue Bear & Cranberry Lake Snowmobile Trail and Kalkaska ORV Trail parking lot is located in section 19, just north of M-72. Approximately 1 mile of both trails run through sections 19 & 24 of this compartment.

Fire Protection: Fire protection for this area of state land is carried out by the Fire Management division of the MDNR, specifically the Traverse City Unit, Kalkaska Field Office. Assistance from the Grayling DNR Office and local Volunteer Fire Departments is also available and would be utilized for any major fire event. Water access is nearby for fire suppression use and road access is acceptable but limited. (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:

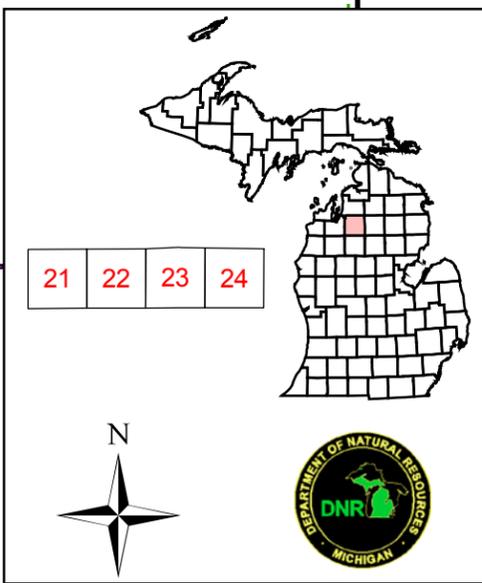
- Cover Type by Age Class**
- Cover Type by Management Objective**
- Compartment Volume Summary**
- Proposed Treatments – No Limiting Factors**
- Proposed Treatments – With Limiting Factors**

**** 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 115
 T27N, R06W, Sec. 19, 21-24
 County: Kalkaska
 Unit: Traverse City
 YOE: 2013
 Acres: 1,831 GIS Calculated
 Stand Examiner: Patrick Cotant
 Map Revised: 6/7/2011
 Map Phase: Pre-Review



Stand #
 23
 Stocking Density
 (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
- Hiking Trails
- Horse Trails
- ORV Routes
- ORV Trails
- Snowmobile Trails
- Hiking Trail
- Horse Trail
- ORV Route
- ORV Trail
- Snowmobile Trail

Forest Stands

Level 3

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

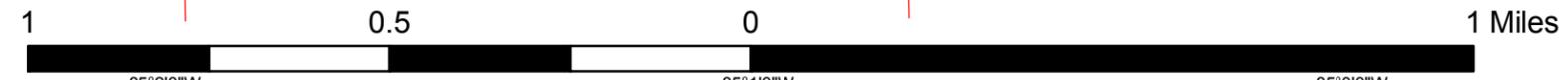
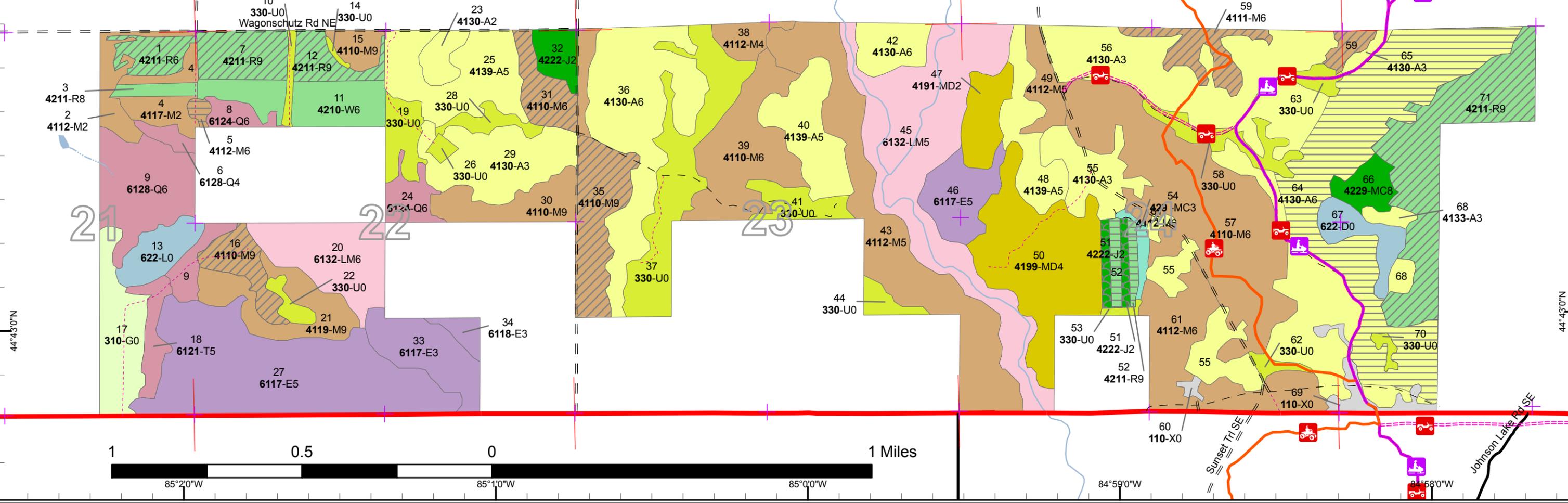
Non-Forest Stands

Level 3

- 110 - Low Intensity Urban
- 310 - Herbaceous Openland
- 330 - Low-Density Trees
- 622 - Lowland Shrub

Treatments

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



Stand Boundary Map

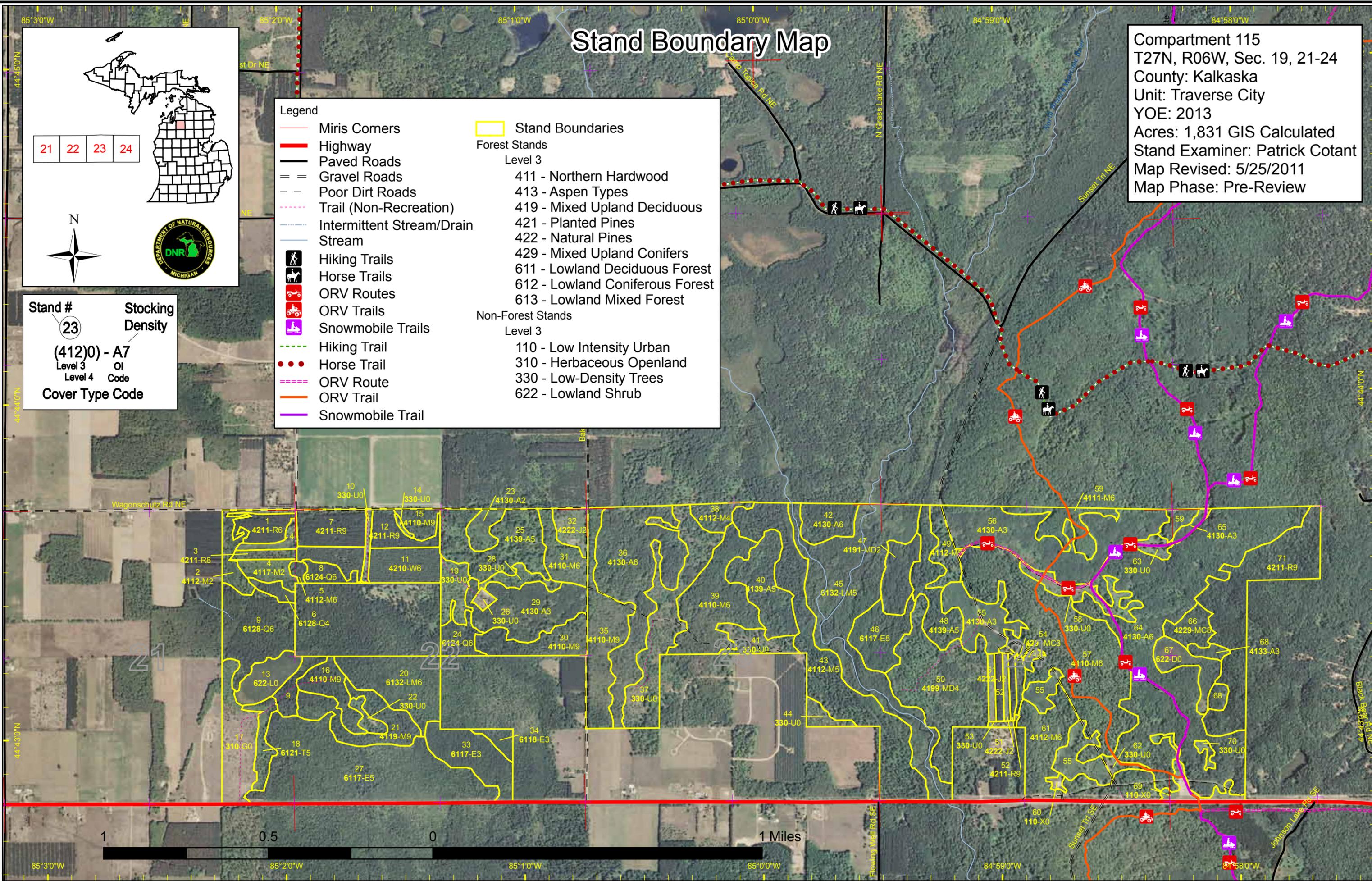
Compartment 115
 T27N, R06W, Sec. 19, 21-24
 County: Kalkaska
 Unit: Traverse City
 YOE: 2013
 Acres: 1,831 GIS Calculated
 Stand Examiner: Patrick Cotant
 Map Revised: 5/25/2011
 Map Phase: Pre-Review

Legend

	Miris Corners		Stand Boundaries
	Highway	Forest Stands	
	Paved Roads	Level 3	
	Gravel Roads		411 - Northern Hardwood
	Poor Dirt Roads		413 - Aspen Types
	Trail (Non-Recreation)		419 - Mixed Upland Deciduous
	Intermittent Stream/Drain		421 - Planted Pines
	Stream		422 - Natural Pines
	Hiking Trails		429 - Mixed Upland Conifers
	Horse Trails		611 - Lowland Deciduous Forest
	ORV Routes		612 - Lowland Coniferous Forest
	ORV Trails		613 - Lowland Mixed Forest
	Snowmobile Trails	Non-Forest Stands	
	Hiking Trail	Level 3	
	Horse Trail		110 - Low Intensity Urban
	ORV Route		310 - Herbaceous Openland
	ORV Trail		330 - Low-Density Trees
	Snowmobile Trail		622 - Lowland Shrub

21 22 23 24

Stand #
 23
Stocking Density
 (4120) - A7
 Level 3 OI
 Level 4 Code
Cover Type Code



85°3'0"W 85°2'0"W 85°1'0"W 85°0'0"W 84°59'0"W 84°58'0"W
 44°45'0"N 44°44'0"N 44°43'0"N

Dedicated & Proposed Special Conservation Area Map

Compartment 115
 T27N, R06W, Sec. 19, 21-24
 County: Kalkaska
 Unit: Traverse City
 YOE: 2013
 Acres: 1,831 GIS Calculated
 Stand Examiner: Patrick Cotant
 Map Revised: 5/25/2011
 Map Phase: Pre-Review

Legend

— Miris Corners

Special Conservation Areas

— Cold Water Streams

High Conservation Value Areas

■ Natural Rivers Vegetative Buffer

■ Natural Rivers Zoning District

□ Stand Boundaries

Forest Stands
 Level 3

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

Non-Forest Stands
 Level 3

- 110 - Low Intensity Urban
- 310 - Herbaceous Openland
- 330 - Low-Density Trees
- 622 - Lowland Shrub

21 22 23 24

Stand #
 23
(4120) - A7
 Level 3
 Level 4
Cover Type Code

Stocking Density
 OI
 Code

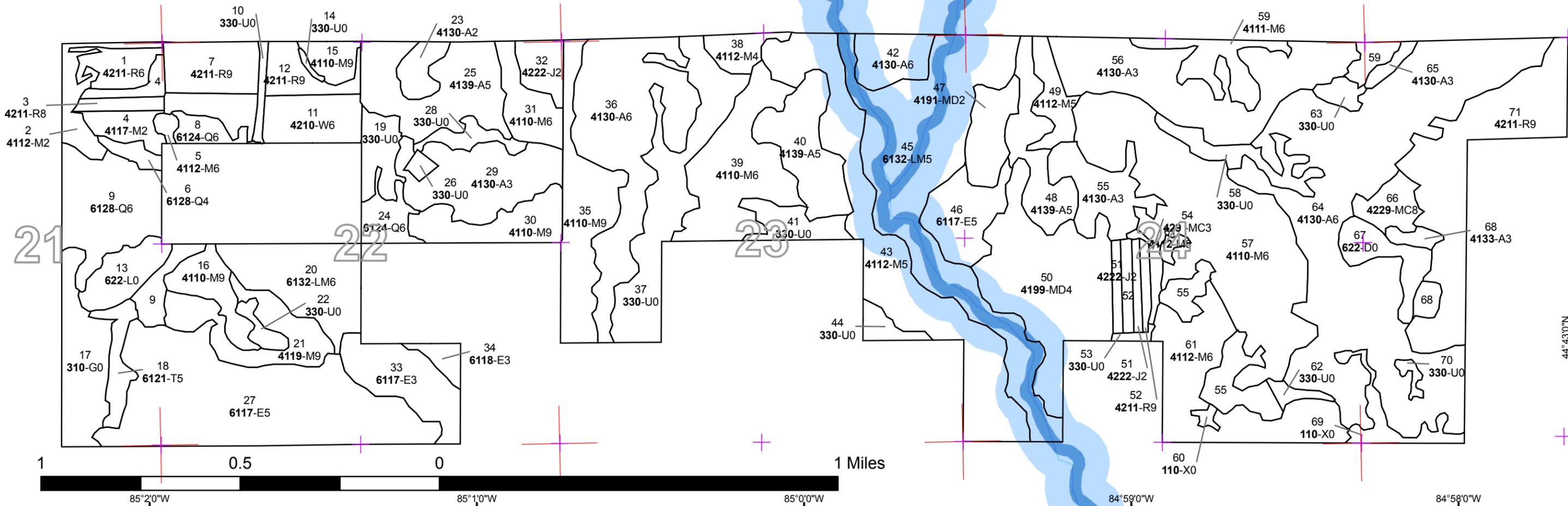


Table 1 – Total Acres by Cover Type and Age Class



	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 +		Unretn Age
Aspen	0	0	118	48	29	39	250	40	0	0	0	0	0	0	0	525
Herbaceous Openland	29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	29
Jack Pine	0	10	7	0	0	0	0	0	0	0	0	0	0	0	0	16
Low-Density Trees	121	0	0	0	0	0	0	0	0	0	0	0	0	0	0	121
Lowland Conifers	0	0	0	0	0	56	4	7	0	0	0	0	0	0	0	67
Lowland Deciduous	0	0	0	26	5	0	0	126	0	0	0	0	0	0	0	157
Lowland Mixed Forest	0	0	0	0	0	0	37	0	0	103	0	0	0	0	0	140
Lowland Shrub	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15
Mixed Upland Deciduous	0	0	0	0	83	0	0	0	0	0	0	0	0	0	0	83
Natural Mixed Pines	0	0	0	0	0	0	0	10	0	0	0	0	0	0	0	10
Northern Hardwood	0	14	0	12	0	12	8	51	339	41	0	0	0	0	0	477
Red Pine	0	0	0	0	0	0	31	80	12	0	0	0	0	0	0	122
Tamarack	0	0	0	0	0	0	10	0	0	0	0	0	0	0	0	10
Treed Bog	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14
Upland Conifers	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	4
Urban	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12
White Pine	0	0	0	0	0	0	0	29	0	0	0	0	0	0	0	29
Total	190	24	125	91	117	106	340	343	350	144	0	0	0	0	0	1831



Table 2 – Proposed Treatment Summaries

Traverse City Mgt. Unit
Year of Entry 2013

Compartment 115
Total Compartment Acres: 1831

Acres by Treatment Type

Commercial Harvest - 315	Site Prep - 7	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	112	0	0	0	0	0	112
Northern Hardwood	2	0	0	0	83	0	85
Red Pine	7	0	0	0	110	0	117
Total	122	0	0	0	193	0	315



S t a n d	Treatment Name	Acres	Stage1 CoverType	Size Density	Stand Age	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
1	61115001-Cut	11.2	42110 - Planted Red Pine	High Density Pole	57	Harvest	Crown Thinning	42110 - Planted Red Pine	Cmpt. Review Proposal
<p><u>Prescription:</u> Thin stand by removing forked, suppressed or otherwise poorly formed individuals. Focus on removing approximately 1/3 of the overall volume. <u>Specs:</u> This will be variable in some areas which may have slightly more volume removed because of areas of insect and/or disease damage. In addition remove individuals for spacing purposes while also harvesting some higher quality trees that may be in the utility pole size class.</p> <p><u>Other Comments:</u></p> <p><u>Next Steps:</u></p>									
5	61115005-Cut	2.1	4112 - Maple, Beech, Cherry Association	High Density Pole	60	Harvest	Clearcut with Reserves	4113 - R.Maple, Conifer	Cmpt. Review Proposal
<p><u>Prescription:</u> Final harvest stand by removing all red maple and all balsam fir greater than 4" DBH. Leave all balsam fir less than 4" DBH, a few scattered <u>Specs:</u> larger red maple along and the few other conifer species present (larger white pine, hemlock, etc.) to account for retention within stand. This will also help to address visual concerns near the private boundary.</p> <p><u>Other Comments:</u></p> <p><u>Next Steps:</u> Evaluate regeneration of stand following harvest. Expect stand to regenerate to red maple and balsam fir with balsam fir continuing to occupy the sapling and overstory layer. White pine is expected to regenerate within stand as well.</p>									
7	61115007-Cut	19.5	42110 - Planted Red Pine	High Density Log	57	Harvest	Crown Thinning	42110 - Planted Red Pine	Cmpt. Review Proposal
<p><u>Prescription:</u> Thin stand by removing forked, suppressed or otherwise poorly formed individuals. Focus on removing approximately 1/3 or slightly less of the <u>Specs:</u> overall volume. Remove other individual trees for spacing purposes while also selecting trees that have reached utility pole size class.</p> <p><u>Other Comments:</u></p> <p><u>Next Steps:</u> Evaluate condition of hardwood regeneration following harvest.</p>									
12	61115012-Cut	11.6	42110 - Planted Red Pine	High Density Log	70	Harvest	Crown Thinning	42110 - Planted Red Pine	Cmpt. Review Proposal
<p><u>Prescription:</u> Stand is very similar in overall makeup to stand 7 however rows are oriented N/S rather than E/W. Treat stand by thinning to remove forked, <u>Specs:</u> suppressed or otherwise poorly formed individuals. In addition, remove trees for spacing purposes, again selecting individuals that have entered the utility pole size class where possible.</p> <p><u>Other Comments:</u></p> <p><u>Next Steps:</u> Pockets of hardwood regen are present, evaluate condition of regen following harvest.</p>									
16	61115016-Cut	14.6	4110 - Sugar Maple Association	High Density Log	80	Harvest	Systematic Thinning	4110 - Sugar Maple Association	Cmpt. Review Proposal
<p><u>Prescription:</u> Thin stand by removing defected individuals while also focusing on spacing to achieve a more desirable stocking level overall. Aim for BA of 70- <u>Specs:</u> 80 sq ft/acre for residual. Some pockets of stand are wet and therefore treatment area size may be reduced slightly during sale setup. These areas should be avoided if it is determined that harvest operations within them would cause excessive rutting and soil disturbance.</p> <p><u>Other Comments:</u> In addition, a few canopy gaps should be placed within stand in an attempt to get more regeneration going while also increasing age class diversity. Note that access may be difficult through stands 9 and 18 because of wet soils. Temporary bridge may be needed. Stand has been treated previously using access from M-72 through stand 17.</p> <p><u>Next Steps:</u> It is expected that ironwood and beech will continue to be a major component in understory with cherry and sugar maple present, most likely in lower numbers.</p>									



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Treatment Name	Acres	Stage1 CoverType	Size Density	Stand Age	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
31 61115031-Cut	15.1	4110 - Sugar Maple Association	High Density Pole	70	Harvest	Systematic Thinning	4110 - Sugar Maple Association	Cmpt. Review Proposal
<p><u>Prescription</u> Thin stand to remove defect while also releasing residual throughout. Aim to thin stand to approximately 70-80 sq ft/acre. Some variability in residual stocking is expected because of overall stand differences. This is most probable along the western edge of the stand. Sugar maple is consistently of the highest quality and should be favored to leave as residual where possible.</p> <p><u>Specs:</u></p> <p><u>Other Comments:</u> Place a few canopy gaps within stand to increase diversity of regeneration and improve overall vertical structure.</p> <p><u>Next Steps:</u></p>								
35 61115035-Cut	31.8	4110 - Sugar Maple Association	High Density Log	70	Harvest	Systematic Thinning	4110 - Sugar Maple Association	Cmpt. Review Proposal
<p><u>Prescription</u> Treat stand by thinning to release residual trees while also removing defected individuals to improve overall quality. Do not treat narrow area north of 2-track that traverses stand from E/W. Focus on thinning to approximately 70-80 sq ft/ac, recognizing that this number will be different in places because of stand variability. Do not cut hemlock and designate all aspen for harvest.</p> <p><u>Specs:</u></p> <p><u>Other Comments:</u> Place 2-3 canopy gaps within stand in order to improve regeneration probability while also enhancing vertical structure. Could apply dead and down specification to place nurse logs near hemlock pockets in an attempt to get hemlock regeneration to occur within stand-canopy gaps should not be located near hemlock pockets.</p> <p><u>Next Steps:</u></p>								
52 61115052-Cut	7.4	42110 - Planted Red Pine	High Density Log	60	Harvest	Clearcut	42110 - Planted Red Pine	Cmpt. Review Proposal
<p><u>Prescription</u> After pre-review it was decided that this stand should be final harvested and the adjacent jack pine/mixed deciduous strips be roller chopped/site prepped and the entire area be planted to red pine.</p> <p><u>Specs:</u></p> <p><u>Other Comments:</u></p> <p><u>Next Steps:</u> Once harvest is complete, this stand along with adjacent stand 51 should be site-prepped for planting red pine, i.e. roller chop and trench/plant.</p>								
59 61115059-Cut	21.3	4111 - S.Maple, Hard Mast Association	High Density Pole	70	Harvest	Systematic Thinning	4111 - S.Maple, Hard Mast Association	Cmpt. Review Proposal
<p><u>Prescription</u> Stand was treated out of YOE with stands to the north in compartment 115 by marking to thin. Has been placed on proposal 61-045-10-01; Career Hardwoods.</p> <p><u>Specs:</u></p> <p><u>Other Comments:</u> Treated out of YOE.</p> <p><u>Next Steps:</u></p>								
64 61115064-Cut	112.5	4130 - Aspen	High Density Pole	51	Harvest	Clearcut with Reserves	4130 - Aspen	Cmpt. Review Proposal
<p><u>Prescription</u> Large, variable aspen stand. Treat stand by harvesting portions in order to break up age classes and begin to regenerate parts of stand. In addition, would like to only treat parts of stand so that visual impact will not be as great along snowmobile trail corridor. (Should consider treating remaining areas of stand next YOE.) Specifics for treatment include harvesting pockets of larger aspen east of the snowmobile trail. Portions of AOI were left out of treatment area. This may differ from what is set up on the ground but should provide somewhat of a guide. Avoid slopes leading to stand 67. Leave red pine in transition area where stand abuts adjacent stand 71. There is a small red pine pocket on the northwest side of the snowmobile trailhead, these red pine should not be cut during harvest operations. The snowmobile trail and ORV trailhead will inevitably be affected by harvest operations. Sale spec's should be applied to minimize damage.</p> <p><u>Specs:</u></p> <p><u>Other Comments:</u> Areas of treatment should be laid out to address both visual and silvicultural objectives. Total treatment area should be approximately 2/3 of overall stand area. Avoid areas of smaller DBH aspen. Pocket(s) in southern portion of stand could cross to west side of snowmobile trail. Leave oak and other hardwood species within stand. Mark to leave or spec balsam fir along trail to increase species diversity and further address visual concerns.</p> <p><u>Next Steps:</u> Evaluate for success of aspen regeneration following harvest.</p>								

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



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	Treatment Name	Acres	Stage1 CoverType	Size Density	Stand Age	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
71	61115071-Cut	67.8	42110 - Planted Red Pine	High Density Log	68	Harvest	Crown Thinning	42110 - Planted Red Pine	Cmpt. Review Proposal

Prescription Stand was called a red pine plantation however areas of natural red pine exist along with pockets of older supercanopy individuals. Treat stand by thinning red and white pine to release higher quality individuals while also attempting to achieve a more natural looking stand, some areas being more open than others. In addition, remove all aspen and red maple during harvest. Some aspen pockets could be expanded. Note that white pine are much more prevalent in southern portions of stand.

Other Comments: The treatment boundary for western edge of the stand may be variable because this area blends into the adjacent aspen stand in spots and because of stocking discrepancies, it may not be appropriate to include some of these areas in harvest boundary.

Next Steps:

51	61115051-Prep	6.6	42220 - Natural Jack Pine	Medium Density Saplin	10	Site Prep	Chopping	42110 - Planted Red Pine	Cmpt. Review Proposal
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Prescription stand is to be roller chopped following final harvest of adjacent stand 52. Currently, this stand is forested and is dominated by young jack pine along with mixed deciduous trees of sapling size.

Other Comments:

Next Steps:

**Total Treatment
Acreage Proposed: 321.4**

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	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
1	42110 - Planted Red Pine	High Density Pole	11.2	57	200+	Red pine plantation, 3rd row thinned. Responded well and is ready for 2nd thinning. Overall high stocking. Some hwdw regen in understory, Beech, ironwood and occasional bf.
2	4112 - Maple, Beech, Cherry Association	Medium Density	12.5	26		Small M-type/U-type stand with cherry being dominant. Red maple, balsam fir and sugar maple also present in fair numbers. Some edges are slightly wet, most notably adjacent to stands 6 and 8.
3	42110 - Planted Red Pine	Medium Density Log	4.7	60	1-50	New stand added. Stand was harvested w/ stand 3 but was separated because overstory red pine were left in this area. Regen is thick w/ sugar maple and jack pine dominant. Some balsam fir and ironwood present throughout stand.
4	4117 - Mixed N. Hardwood - Pine	Medium Density	14.1	8		Stand harvested in 04. Regenerating to a mix of of sugar maple, cherry and jack pine w/ some balsam fir.
5	4112 - Maple, Beech, Cherry Association	High Density Pole	2.1	60	141-170	Red maple stand w/ bf present in low numbers in canopy but high numbers in understory. Occasional cherry along w/ other conifers, most of which are concentrated near edges.
6	6128 - Lowland Coniferous, Mixed Deciduous	Low Density Pole	4.2	50		Lowland stand with low overall canopy closure of fir/spruce, red maple and tamarack. Lots of alder in open pocket near central part of stand. Seasonally wet in many spots.
7	42110 - Planted Red Pine	High Density Log	19.5	57	200+	Nice log size red pine stand, third row thinned, growing well. Deciduous regeneration thick throughout, some areas more open. Some hardwood regen and occasional overstory trees on northern edge of stand, adjacent to Wagenschutz road.
8	6124 - Lowland Spruce-Fir	High Density Pole	6.5	60	51-80	Mixed lowland conifer, mainly fir, with red maple present in fair numbers. Other swamp hardwood species present in low numbers.
9	6128 - Lowland Coniferous, Mixed Deciduous	High Density Pole	46.2	40		Mixed stand of fir/spruce and swamp hwdw. Many open areas, small in size, occupied by alder and other lowland shrubs. Narrow gauge railroad grade traverses central western portion of stand. Scattered large white pine and pole-sized paper birch present mainly concentrated around openings.
11	42100 - Planted White Pine	High Density Pole	29.4	60	81-110	White pine planted, was row thinned in 1993. Stand is regenerating between rows to thick red maple, a very small amount of red and white pine regen present, short in height.
12	42110 - Planted Red Pine	High Density Log	11.6	70	200+	Red Pine stand, 1/3 row thinned previously. Stand is growing well, good quality, uniform density. Very similar to stand 7 to the west however some slight differences including density and the rows being oriented n/s rather than e/w are reasoning for separating stand.
15	4110 - Sugar Maple Association	High Density Log	7.7	75	81-110	Nice sugar maple stand, thinned last yoe. Some sugar maple regen, mostly ironwood. Crowns still free for the most part, stocking a little low to warrant another treatment. Will be ready next yoe. Some defect remains, some providing good habitat. Fair amt of browse on sugar maple.



	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
16	4110 - Sugar Maple Association	High Density Log	14.6	80	141-170	Nice hardwood stand w/ sugar maple and black cherry dominant. Very nice black cherry throughout. Some descent sugar maple regen, fair amt of ironwood regen. Hemlock scattered throughout stand.
18	6121 - Tamarack	Medium Density Pole	10.1	50		Tamarack stand w/ balsam fir present in low numbers in overstory. Balsam fir is dense in understory. A few white pine along edge. Some openings w/ alder and cherry. Stand swapped from Non-Forested to Forested.
20	6132 - Mixed Lowland Forest with Cedar	High Density Pole	36.7	50	81-110	Lowland conifer stand, inventoried in southern portion. Blowdown and dense cover made accessing northern portions difficult. Hemlock concentrated along southern edge. Some large red maple. Overall size class is variable.
21	4119 - Mixed Northern Hardwoods	High Density Log	26.6	85	111-140	More influence from surrounding wet areas in this stand as opposed to stand 19. Some large white pine near southern eastern edge and near opening in center are having a major influence on regeneration within stand. Hemlock occurs throughout stand in lower numbers but is regenerating in places, albeit in very small amounts. Red maple is large, fair quality, overall stand is descent quality.
23	4130 - Aspen	Medium Density	7.9	10		A3 stand regenerating fairly well. Lots of dwd, quite a bit of red maple and ironwood.
24	6124 - Lowland Spruce-Fir	High Density Pole	9.9	45		Spruce/fir w/ aspen, red maple and white pine throughout. Birch near edges. Some open pockets and transition zones between this stand and adjacent types.
25	4139 - Aspen, Mixed Deciduous	Medium Density Pole	40.3	65	51-80	Variable stand dominated by aspen and suagr maple. Small openings throughout. Cherry, ironwood and a small amount of conifers present as well. Low density overall. Some pockets dominated by ironwood regen.
27	6117 - Lowland Deciduous, Mixed Coniferous	Medium Density Pole	104.3	65		Wet stand w/ deciduous species most common including black ash, red maple and cherry. Alder species present in more open areas. Pockets of conifers mixed in including white pine, cedar, balsam fir and tamarack. Wet in many areas of stand that were accessed. Includes small pocket of large wp/hemlock in se corner along m-72.
29	4130 - Aspen	High Density Sapling	38.3	20		A3 stand w/ hdwd species throughout. Many areas of more pure aspen. Occasional conifers, most notably balsam fir. some small pockets w/ variable stocking most likely resulting from skid trails established during previous harvest. Aspen growing fairly well.
30	4110 - Sugar Maple Association	High Density Log	21.1	70	81-110	Hdwd stand thinned in 04. responding fairly well. Regen consists of heavy beech and ironwood, some sugar maple and cherry present. Openings also have fair amiant of rubus spp throughout. Fair quality tress overall, limby individuals around edges. Hemlock providing nice diversity and a thermal and protective cover source.



Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
31	4110 - Sugar Maple Association	High Density Pole	15.1	70	111-140	Sugar maple stand, thinned in 93. Regenerating to mainly ironwood. Sugar maple quality is somewhat variable, better in southern portion.
32	42220 - Natural Jack Pine	Medium Density	9.8	7		Young jp stand, growing well. Balsam fir scattered throughout stand along with red/white oak, sm, beech and occasional aspen. Not sure whether stand was planted/seeded or regenerated naturally following harvest.
33	6117 - Lowland Deciduous, Mixed Coniferous	High Density Sapling	26.1	25		Aspen, red maple and balsam fir stand, lowland. Scattered pockets of cherry, occasional hemlock. Some size variation of aspen. Sugar maple and occasional yellow birch in northern parts of stand.
34	6118 - Lowland Deciduous with Cedar	High Density Sapling	4.9	30		Lowland stand dominated by black ash. very dense, Descent amount of conifers throughout. Some aspen and red maple pockets.
35	4110 - Sugar Maple Association	High Density Log	37.7	70	141-170	Hdwd stand dominated by descent quality sm. Density is slightly more variable in north but overall uniform. Hemlock, Yellow Birch and larger beech present in moderate numbers. Beech seem to be producing fair amount of mast, lots of wildlife activity around these larger trees. Occasional larger aspen scattered as well. Understory is thick w/ beech in places, some sm.
36	4130 - Aspen	High Density Pole	70.9	50	81-110	Aspen stand w/ somewhat dense hdwd regen in places, 1-3"dbh. Aspen is beginning to break up a bit, should be removed to allow for regen of aspen and release of denser hdwd regen pockets, see management considerations.
38	4112 - Maple, Beech, Cherry Association	Low Density Pole	8.4	50	1-50	low density ov4rstory of bc and rm, regen is mostly rm, relatively thick.
39	4110 - Sugar Maple Association	High Density Pole	45.7	70	111-140	lower quality in sothern portion of stand. hdwd stand dominated by sm w/ fair amount of cherry as well. basswood present, some aspen, elm and ironwood pockets. larger rm present moreeso in central part of sstand.
40	4139 - Aspen, Mixed Deciduous	Medium Density Pole	29.0	30		variable stand in terms of stocking, quality ans species composition. mixture of lower quality pole sized aspen, mixed hdwd overstory and areas of 2-3" hdwd regen.
42	4130 - Aspen	High Density Pole	14.9	42		Stand was inventoried from the edge, difficult to access. Used previous inventory along with views of stand from edge to determine stocking and species composition.
43	4112 - Maple, Beech, Cherry Association	Medium Density Pole	79.1	70	51-80	Stand was shelterwood harvested last yoe. Heavy amount of beech/iw regen throughout understory. Stand is of fair quality, some defect remains. Regen is thick in many areas, some sm. Influence from river corridor can be seen along east edge of stand, more conifers. overall species makeup is vsriable, more sm in south, dominated by rm throughout, fair amt of cherry, trace bc.



	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
45	6132 - Mixed Lowland Forest with Cedar	Medium Density Pole	103.3	80		mixed lowland stand along river corridor. difficult to access portions of stand because of wet ground/creeks but found cedar to be dominant w/ other conifers present along w/ lowland deciduous spp. nice stand, steps down from surrounding stands about 10-15'. Stand swapped from Non-Forested to Forested.
46	6117 - Lowland Deciduous, Mixed Coniferous	Medium Density Pole	21.9	64		Lowland stand with some higher points, most notably along eastern edge. Black ash, red maple and balsam fir most common. Occasional cedar and hemlock where stand blends into stand 46 and pockets in center of stand. Drainage through center of stand.
47	4191 - Mixed Upland Deciduous with Conifer	Medium Density	16.0	30		Sapling/pole stand of aspen, cherry, balsam fir and some red maple resulting from harvest. DBH varies throughout w/ aspen largest in size, 4-5"
48	4139 - Aspen, Mixed Deciduous	Medium Density Pole	23.6	41		asp stand w/ variable size and stocking. some open areas and scattered low quality hdwd pockets. smaller dbh overall, think about treating some asp clones next yoe. crew was active harvesting opening for gas well on border of stand.
49	4112 - Maple, Beech, Cherry Association	Medium Density Pole	11.8	40	51-80	mixed low quality hdwd stand w/ cherry, rm, bw, sm and asp present. open in places, variable ba throughout.
50	4199 - Other Mixed Upland Deciduous	Low Density Pole	67.1	30		very mixed stand w/ asp, cherry, oaks, fir, wp and other spp in lesser numbers present. open/u-type in many areas, overall quite low stocking. Stand swapped from Non-Forested to Forested.
51	42220 - Natural Jack Pine	Medium Density	6.6	10		Naturally regenerating jack pine stand, resulting from harvest. Jack pine growing well. Some mixed deciduous present.
52	42110 - Planted Red Pine	High Density Log	7.4	60	171-200	Red pine plantation, growing well. Has been thinned twice, beginning to get crowded in crowns. ba is getting up there. oak/beech in understory
54	429 - Mixed Upland Conifers	High Density Sapling	3.8	20		Mixed stand of regen including jack pine, red maple, aspen, ironwood, balsam fir and oaks.
55	4130 - Aspen	High Density Sapling	44.6	10		Multi part aspen (A3) stand regenerating well. Mixture of other deciduous species distributed throughout.
56	4130 - Aspen	High Density Sapling	66.0	16		Aspen (A3) stand growing well. Some oaks throughout along with white pine, cherry and red maple.
57	4110 - Sugar Maple Association	High Density Pole	111.1	70	81-110	Hardwood stand thinned 05, responding well. Pole sized overall but quickly transitioning to log. Sugar maple and basswood are most common. Quality lessens in southern part of stand. Much more limby with lower overall density. Some aspen regen from harvest in this area. Looks like sale boundary may have picked up some of the adjacent aspen cover type in places. Overall size decreases as well. rm more prevalent along western edge, closer to sunset tr.



Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
59	4111 - S.Maple, Hard Mast Association	High Density Pole	21.3	70	111-140	Hardwood stand, included in sale with comp to the north. Marked to thin, fair quality pole stand. Sale is 'Career Hardwoods', sale # 61-045-10-01.
61	4112 - Maple, Beech, Cherry Association	High Density Pole	48.6	60	81-110	Mediocre quality hdwd stand, some pockets of descent form. Some areas heavier to rm, others more typical hdwd assoc. Pocket of wp, hdwd regen near Sunset tr. Small amt of overstory asp present.
64	4130 - Aspen	High Density Pole	179.1	51		Aspen stand with both big tooth aspen and quaking aspen common. Occasional oaks, significant hardwood species in pockets. Balsam fir in low numbers scattered throughout. Some hardwood regen including red maple, sugar maple, beech and a small number of oak seedlings. Stand is quite variable in places in terms of size, composition and overall density-some open areas. Snowmobile trail runs through center of stand from north to south so visual is a concern in this area.
65	4130 - Aspen	High Density Sapling	3.1	22		aspen stand, overall a large sapling size class w/ trees getting close to small pole size, some 5+ inches. some hdwd species present. snow trail adjacent.
66	42290 - Natural Mixed Pine	Medium Density Log	10.5	64	81-110	Mixed rp/wp stand. red maple and aspen removed in previous treatment, Regenerating in understory. Pine has descent form. Overall stand has light stocking, variable spp commposition, Some openings. Occasional oak in understory.
68	4133 - Aspen, Mixed Pine	High Density Sapling	6.9	25		Aspen stand with variable size throughout both portions. Some areas contain more small pole sized timber than others. Red pine and white pine are mixed throughout, each are variable in terms of size.
71	42110 - Planted Red Pine	High Density Log	67.8	68	171-200	Red pine stand, called plantation however there are areas of natural rp along w/ scattered older supercanopy individuals. Interesting stand, mixed size classes. Some open areas, some areas heavy to aspen, some areas w/ heavy hdwd regen in understory. Scattered oaks present as well. White pine also a significant component, most notable in southern portions of stand and near treed bog to the west. Terrain is hilly in spots. Western edge of stand fades into aspen cover type in places.



Stand	Cover Type	Acres	Managed Site	Management Priority (Objective)	General Comments:
10	3303 - Mixed Low Density Trees	3.2	No	Low (NonForested)	open stand, some asp, rp and cherry throughout. 2track is a granted easement to private 80 to the south.
13	6223 - Inundated Shrub Swamp	14.8	No	Low (NonForested)	lowland shrub, some larger trees included in stand near perimeter. Stand swapped from Forested to Non-Forested.
14	3301 - Low Density Deciduous Tree	0.8	No	Low (NonForested)	small opening between hdwd and pine stand. low quality cherry along edges.
17	3102 - Grass	28.6	No	Medium (NonForested)	openland consisting of grasses and scattered wp, rp and cherry seedlings. rx burn?
19	3303 - Mixed Low Density Trees	12.1	No	Low (NonForested)	opening w/ evenly distributed small dbh cherry, aspen and wp.
22	3303 - Mixed Low Density Trees	4.2	No	Low (NonForested)	opening w/ large wp around perimeter that are seeding wp regen into opening. wp are slowly reforesting opening, some cherry present.
26	3301 - Low Density Deciduous Tree	2.2	No	Low (NonForested)	opening w/ scattered cherry.
28	3301 - Low Density Deciduous Tree	6.7	No	Low (NonForested)	opening w/ scattered cherry. looks like opening was furrowed at some point. some small pockets of iw regen.
37	3301 - Low Density Deciduous Tree	50.1	No	Low (NonForested)	opening with cherry throughout.
41	3303 - Mixed Low Density Trees	11.6	No	Unspecified	
44	3301 - Low Density Deciduous Tree	5.3	No	Unspecified	
53	3303 - Mixed Low Density Trees	1.5	No	Unspecified	Mix of some conifers and cherry/red maple. Low density trees.
58	3303 - Mixed Low Density Trees	13.6	No	Low (NonForested)	Narrow opening w/ cherry, white pine and aspen present in low numbers. 2-track traverses through center of stand.
60	11 - Low Intensity Urban	1.4	No	Low (NonForested)	Opening contains AT&T tower. Grasses predominant, some seedlings around edges.
62	3301 - Low Density Deciduous Tree	3.2	No	Low (NonForested)	Opening, red maple scattered. Stand 65 is nonforested stand east of sunset tr. Area west is aspen (A3), harvested with A3 pockets to the north. Stand swapped from Forested to Non-Forested.



Stand	Cover Type	Acres	Managed Site	Management Priority (Objective)	General Comments:
63	3303 - Mixed Low Density Trees	4.5	No	Unspecified	
67	6224 - Treed Bog	14.2	No	Low (NonForested)	Treed bog with tamarack and black spruce of variable size most common. Trees heavier in eastern finger of stand. Alder around perimeter, leatherleaf throughout. Some areas look to have standing water.
69	11 - Low Intensity Urban	10.3	Yes	Medium (NonForested)	Snow trail parking lot and surrounding opening. Some seedlings around edges. Grasses common along w/ ferns
70	3303 - Mixed Low Density Trees	2.0	No	Low (NonForested)	Small opening w/ saplings encroaching around perimeter. Some aspen regen scattered around stand.



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	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.