



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

COMPARTMENT # 160 ENTRY YEAR: 2014

Compartment Acreage: 2614 County: Kalkaska

Stand Examiner: Patrick Cotant

Legal Description: T27N–R8W, Section's 19, 20, 21, 28, 29 & 30, Kalkaska County, Kalkaska Township.

Management Goals: Visual management is important along the Boardman River as well as along the travel corridors throughout the compartment and adjacent to the Sand Lakes Quiet Area which is a Special Conservation Area (SCA). In addition, aesthetics along the snowmobile trail corridor should be maintained or improved following any management operations that occur within the compartment.

Soil and Topography: Soils are made up primarily of Rubicon Sand and Island Lake Sand with pockets of Lupton Muck in many of the lowland areas of the compartment. Inclusions of Kalkaska Sand exist throughout in small areas.

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

Compartment is made up predominantly of state owned land with private ownership much more common along Boardman River corridor. Hunting and snowmobiling are the major recreational uses in the area. Fishing is also common on the small lakes scattered throughout the compartment. Oil and gas development is prevalent within the compartment, most notably in section 28.

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

Loon element occurrence on Guernsey Lake. Goshawk and Red-legged spittlebug to the north. Kirtland's Warbler to the east. Northern Fen and Dry Mesic Northern Forest to the west. VII.2.2 5111: broad flat outwash plain with excessively drained sand and few kettle lakes.

White pine, red pine, beech, sugar maple, hemlock, cedar, shrub swamp/emergent.

Archeological, Historical, and Cultural Features (include only non-site specific and non-sensitive information): No archeological, historical or cultural features are identified in the HAL database.

Special Management Designations or Considerations: N/A

Watershed and Fisheries Considerations: The North Branch of the Boardman River is located within the compartment and is a Designated Trout Stream and is protected by the Natural Rivers Act. The North Branch of the Boardman River has naturally reproducing populations of brook and brown trout. The Natural Rivers native vegetation buffer for the North Branch of the Boardman 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: The local Land Type Association, a pitted outwash plain (LTA 5211), shows a history of wildfires and less frequently, windfalls. Consequently, in the past a variety of forest types and age classes were found, including: the entire spectrum of conifer dominated forests, jack pine and oak/pine savannas, to northern hardwoods in “fire shadow” areas. Presently, this area supports a mixture of oak stands (with a strong component of white pine), red and jack pine plantations, scattered aspen stands, upland brush and grass types, as well as several lakes and wetlands situated in ice block depressions. There are 2 natural stands of red pine in this compartment that should be maintained as potential sources of genetic diversity as well as important mature pine habitat. Future management of the several pine stands here should consider incorporating small (2-5 acre) islands that are left relatively un-thinned within mature stands to provide winter roosting cover for turkeys. Deciduous species should be encouraged within conifer plantations for diversity. This area should continue to be managed to perpetuate a variety of forest types and successional stages related to a fire prone community. This type of habitat mosaic supports wildlife species such as black bear, white-tailed deer, wild turkeys, pine warblers, northern goshawks, and box turtles. Several upland brush types and grassy openings have been prescribed for burning to promote existing native warm season grasses and additional seeding to native species as needed. Timber prescriptions should be designed to incorporate leave trees and snags, as well as some downed logs, to mimic fire disturbance.

The southeast portion of the compartment is situated on a flat, excessively well drained outwash plain (LTA 5111). This LTA is also a fire driven landscape supporting a similar mosaic of forest types and wildlife species as described above. Cuts in this community type should also be designed to leave all standing dead timber and scattered leave trees/islands for a component of structural diversity in regenerating stands of timber. Several openings will be treated with prescribed burns to stimulate existing little blue stem and other native species.

Mineral Resource and Development Concerns and/or Restrictions:

Surface sediments consist of glacial outwash sand and gravel and postglacial alluvium. The glacial drift thickness varies between 400 and 600 feet. Beneath the glacial drift is the Mississippian Coldwater Shale that does not have a current economic use. The nearest gravel pit is one and one-half miles to the north and potential is questionable. The Compartment lies within the prolific Guelph (Niagaran) reef trend. Several reef wells still produce in the Compartment. All State minerals are currently leased and an underground gas storage lease is also in this Compartment in Section 30.

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: Snowmobile Trail #55 traverses the southern portion of the compartment. In addition, the Kalkaska to TC/North Country hiking Trail/Shore to Shore trail is located within the 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

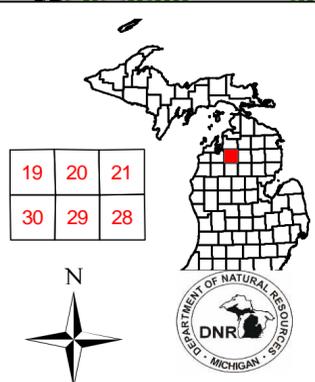
****** The following information is displayed on the attached compartment maps:**

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

Cover Type & Treatment Map

Compartment: 160
 T27N R08W 19, 20, 21, 28, 29, 30
 County: Kalkaska
 Unit: Traverse City
 YOE: 2014
 Acres: 2,633 GIS Calculated
 Examiner: Patrick Cotant
 Map Revised: 5/21/2012
 Map Phase: Pre-Review

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



Legend

- Miris Corners
- Paved Roads
- County Gravel Roads
- Gravel Roads
- Poor Dirt Roads
- County Poor Dirt Roads
- Powerline
- Stream
- Intermittent Stream
- Lakes and Rivers
- Bike Trails
- Motorcycle Trails (SOS License)
- Hiking Trails
- Horse Trails
- MCCCT Trails
- Ski Trails
- Snowmobile Trails
- Bike Trail
- Horse Trail
- Ski Trail
- Hiking Trail
- Motorcycle (SOS License)
- Snowmobile Trail
- MCCCT Trail
- State Forest Land
- Clearcut (w/Reserves, Patch/Strip)
- Thinning (Crown, Low, Systematic)
- Selection (Group, Single Tree)
- Shelter Wood (w/Reserves)
- Seed Tree (w/Reserves)

Forest Stands

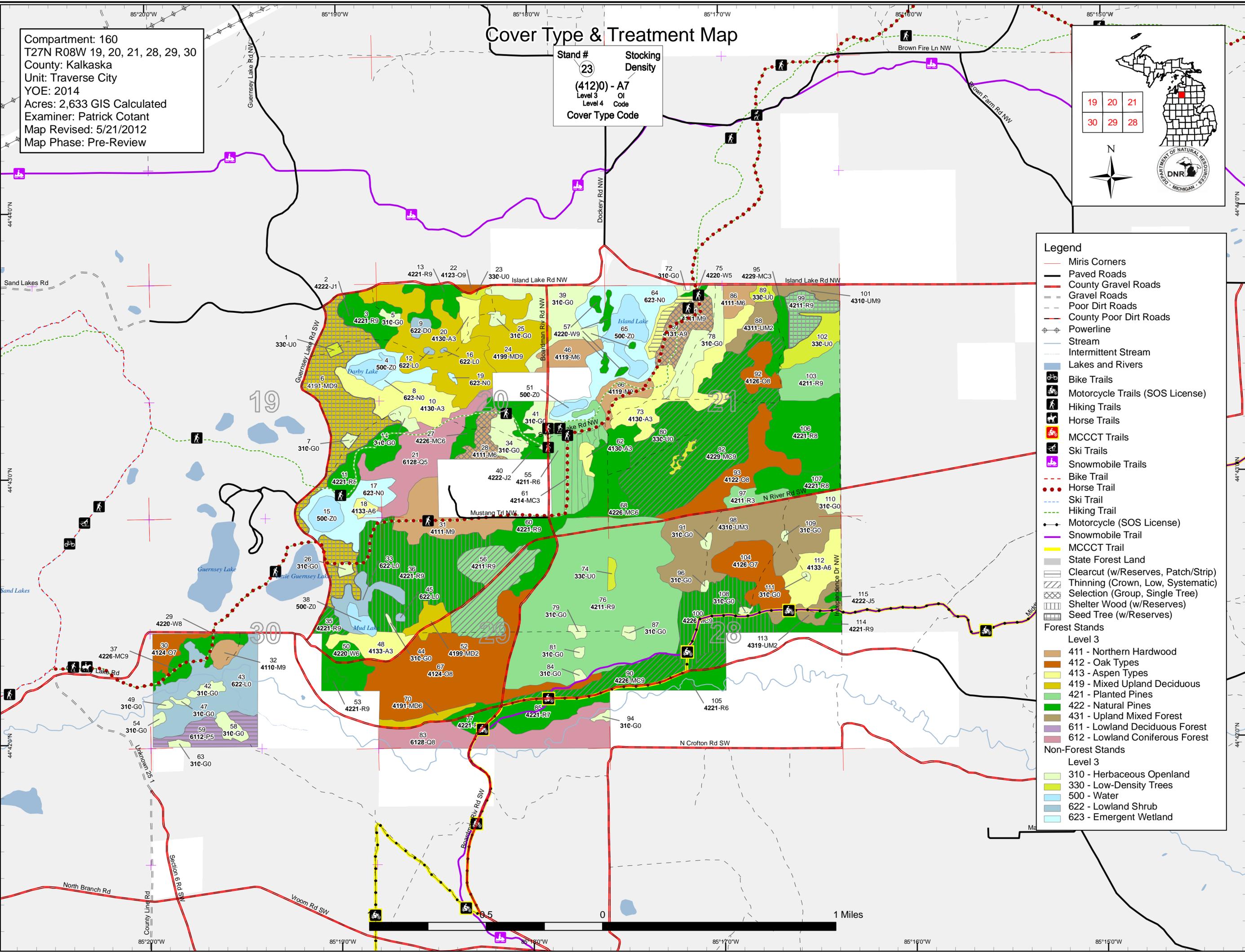
Level 3

- 411 - Northern Hardwood
- 412 - Oak Types
- 413 - Aspen Types
- 419 - Mixed Upland Deciduous
- 421 - Planted Pines
- 422 - Natural Pines
- 431 - Upland Mixed Forest
- 611 - Lowland Deciduous Forest
- 612 - Lowland Coniferous Forest

Non-Forest Stands

Level 3

- 310 - Herbaceous Openland
- 330 - Low-Density Trees
- 500 - Water
- 622 - Lowland Shrub
- 623 - Emergent Wetland

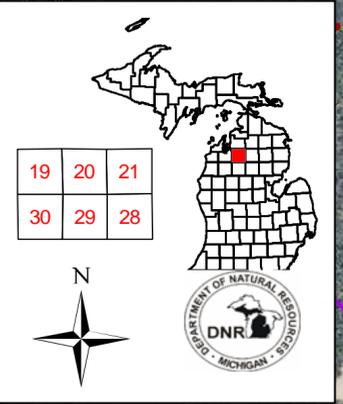


1 Miles

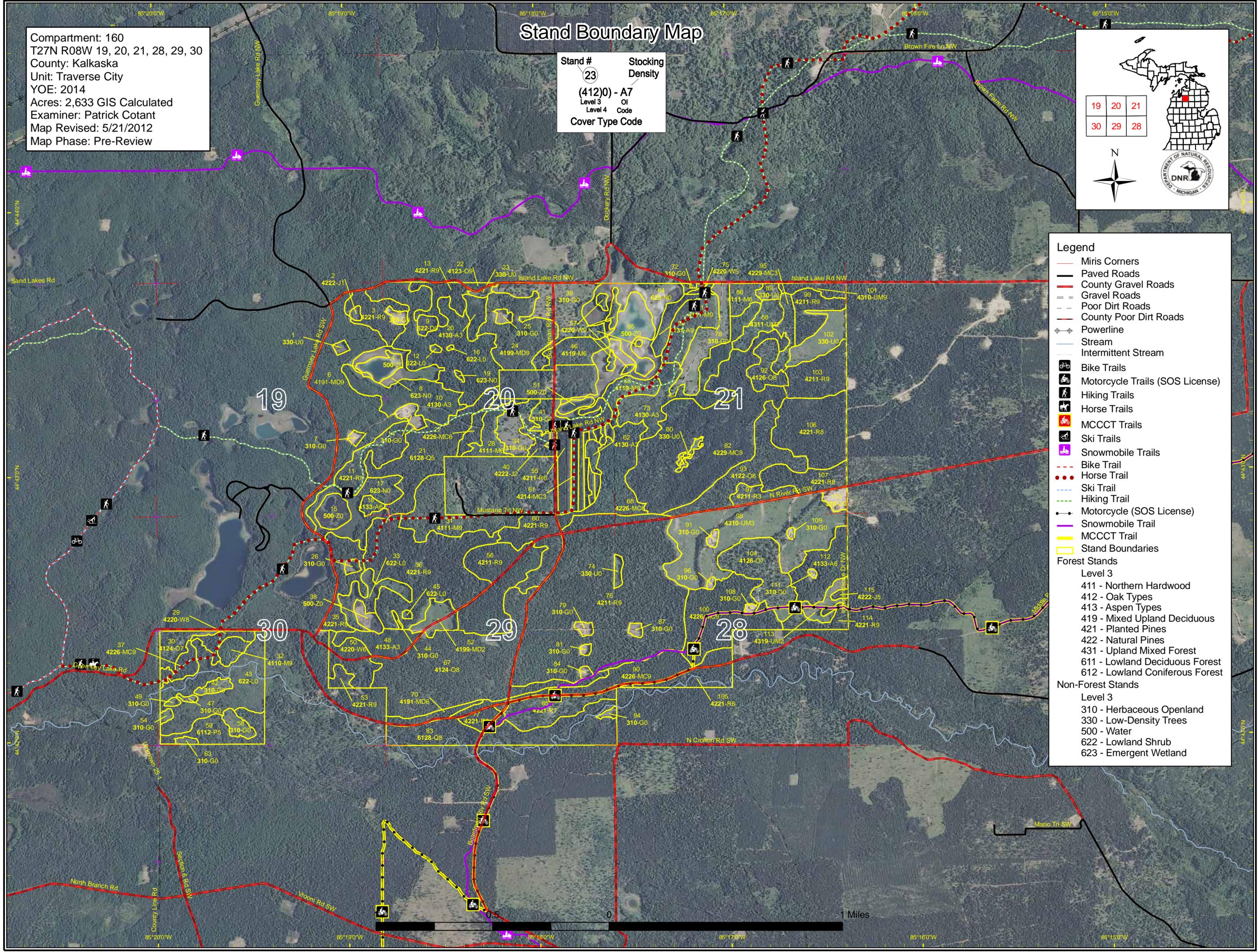
Stand Boundary Map

Compartment: 160
 T27N R08W 19, 20, 21, 28, 29, 30
 County: Kalkaska
 Unit: Traverse City
 YOY: 2014
 Acres: 2,633 GIS Calculated
 Examiner: Patrick Cotant
 Map Revised: 5/21/2012
 Map Phase: Pre-Review

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



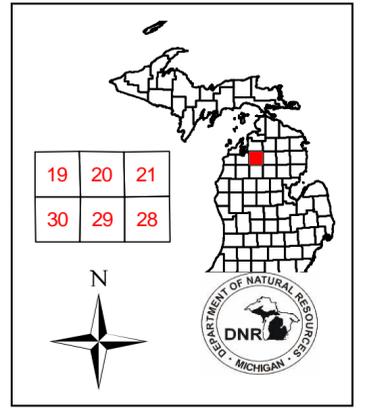
- ### Legend
- Miris Corners
 - Paved Roads
 - County Gravel Roads
 - Gravel Roads
 - - - Poor Dirt Roads
 - - - County Poor Dirt Roads
 - Powerline
 - Stream
 - - - Intermittent Stream
 - Bike Trails
 - Motorcycle Trails (SOS License)
 - Hiking Trails
 - Horse Trails
 - MCCCT Trails
 - Ski Trails
 - Snowmobile Trails
 - - - Bike Trail
 - Horse Trail
 - - - Ski Trail
 - - - Hiking Trail
 - Motorcycle (SOS License)
 - Snowmobile Trail
 - MCCCT Trail
 - Stand Boundaries
- ### Forest Stands
- Level 3
- 411 - Northern Hardwood
 - 412 - Oak Types
 - 413 - Aspen Types
 - 419 - Mixed Upland Deciduous
 - 421 - Planted Pines
 - 422 - Natural Pines
 - 431 - Upland Mixed Forest
 - 611 - Lowland Deciduous Forest
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- ### Non-Forest Stands
- Level 3
- 310 - Herbaceous Openland
 - 330 - Low-Density Trees
 - 500 - Water
 - 622 - Lowland Shrub
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Dedicated & Proposed Special Conservation Area Map

Compartment: 160
 T27N R08W 19, 20, 21, 28, 29, 30
 County: Kalkaska
 Unit: Traverse City
 YOE: 2014
 Acres: 2,633 GIS Calculated
 Examiner: Patrick Cotant
 Map Revised: 5/21/2012
 Map Phase: Pre-Review

Stand #
 23
Stocking Density
 (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
 - 413 - Aspen Types
 - 419 - Mixed Upland Deciduous
 - 421 - Planted Pines
 - 422 - Natural Pines
 - 431 - Upland Mixed Forest
 - 611 - Lowland Deciduous Forest
 - 612 - Lowland Coniferous Forest
 - Non-Forest Stands**
 - Level 3
 - 310 - Herbaceous Openland
 - 330 - Low-Density Trees
 - 500 - Water
 - 622 - Lowland Shrub
 - 623 - Emergent Wetland
 - Special Conservation Areas**
 - Ecological Reference Areas
 - Natural Rivers Vegetative Buffer
 - Natural Rivers Zoning District
 - Dedicated Management Areas
 - ▲ Campgrounds
 - Boat Access Sites
 - Cold Water Streams
 - Cold Water Lakes

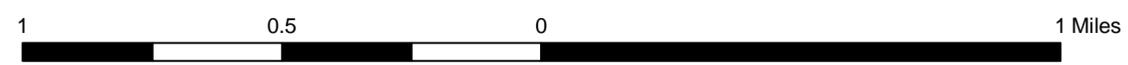
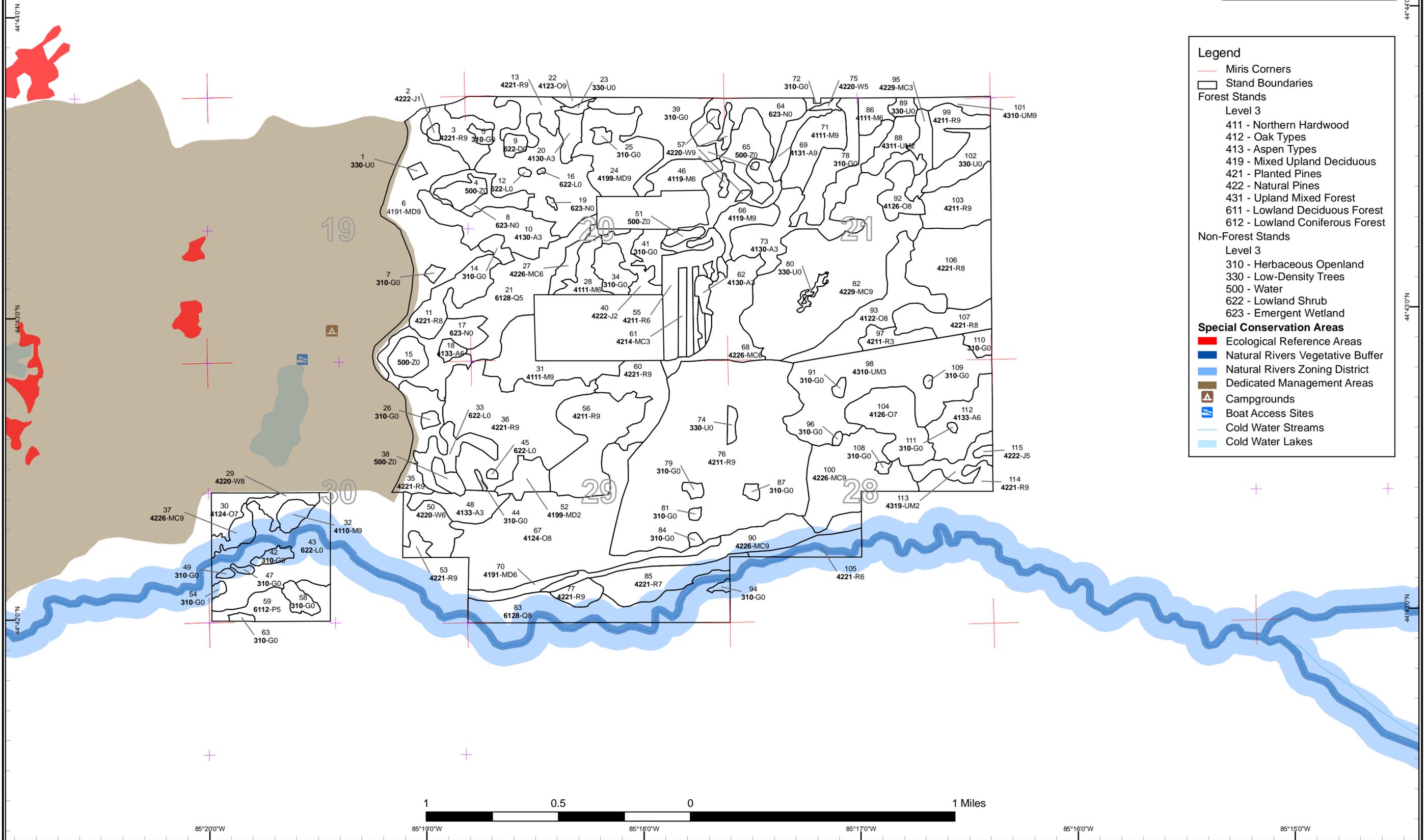


Table 1 – Total Acres by Cover Type and Age Class



	Age Class													Total	
	0-9	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100-109	110-119	120 +		Uneven Age
Aspen	0	9	138	0	0	4	9	0	0	0	0	0	0	0	160
Herbaceous Openland	148	0	0	0	0	0	0	0	0	0	0	0	0	0	148
Jack Pine	0	15	0	2	0	0	0	0	0	0	0	0	0	0	16
Low-Density Trees	33	0	0	0	0	0	0	0	0	0	0	0	0	0	33
Lowland Aspen/Balsam Poplar	0	0	0	0	22	0	0	0	0	0	0	0	0	0	22
Lowland Conifers	0	0	0	0	0	66	55	0	0	0	0	0	0	0	121
Lowland Shrub	85	0	0	0	0	0	0	0	0	0	0	0	0	0	85
Marsh	100	0	0	0	0	0	0	0	0	0	0	0	0	0	100
Mixed Upland Deciduous	13	0	0	0	0	0	9	63	178	0	0	0	0	0	262
Natural Mixed Pines	0	11	0	0	0	10	291	9	0	0	0	0	0	0	322
Northern Hardwood	0	0	0	9	0	0	26	88	0	0	0	0	0	0	124
Oak	0	0	0	0	0	0	0	203	37	0	0	0	0	0	241
Planted Mixed Pines	0	14	0	0	0	0	0	0	0	0	0	0	0	0	14
Red Pine	0	10	0	0	0	190	488	31	23	0	0	0	0	0	743
Treed Bog	4	0	0	0	0	0	0	0	0	0	0	0	0	0	4
Upland Mixed Forest	123	0	14	0	0	9	0	0	0	0	0	0	0	0	145
Water	53	0	0	0	0	0	0	0	0	0	0	0	0	0	53
White Pine	0	0	0	20	2	0	8	8	0	0	0	0	0	0	38
Total	559	59	152	31	24	279	887	402	238	0	0	0	0	0	2633



Table 2 – Proposed Treatment Summaries

Traverse City Mgt. Unit
Year of Entry 2014

Compartment 160
Total Compartment Acres: 2633

Acres by Treatment Type

Commercial Harvest - 592	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	7	0	0	0	0	0	7
Lowland Aspen/Balsam Poplar	22	0	0	0	0	0	22
Mixed Upland Deciduous	0	0	98	0	0	0	98
Natural Mixed Pines	0	0	0	60	185	0	244
Northern Hardwood	0	38	0	0	0	0	38
Red Pine	0	0	19	103	60	0	183
Total	29	38	117	163	245	0	592



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Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
6 61160006_6-Cut	97.8	4191 - Mixed Upland Deciduous with Conifer	High Density Log	87	81-110	Harvest	Seed Tree with Reserves	4122 - Oak, Pine	Cmpt. Review Proposal

Prescription Treat stand by marking to leave approximately 10-20 BA of oak. Leave red and white pine except in areas where BA is high enough to warrant more of a thinning treatment. In addition, all aspen, red maple and jack pine are to be harvested within stand. Focus on leaving the highest quality oak as residual. Release white pine regeneration when possible and attempt to open up areas where oak regeneration is present. Stand will resemble a seed tree/shelterwood harvest with some areas of denser pine present. Expect to get some oak stump sprouting, hoping that red and white pine overstory will act as a shelterwood for this regeneration following harvest. Portions of stand will inevitably convert to white pine as well. Split stand and treat western portion. Wait and see results of regeneration success and treat remainder of stand next YOY. Residual following harvest should be considered retention.

Other Comments: Specifications to protect the north country trail during harvest operations should be applied.

Next Steps:

Proposed Start Date: 10/01/2013

28 61160028-Cut	12.6	4111 - S.Maple, Hard Mast Association	High Density Pole	65	111-140	Harvest	Single Tree Selection	4111 - S.Maple, Hard Mast Association	Cmpt. Review Proposal
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Prescription Thin stand to 80 ba. Focus on removal of lower quality/defected trees and retention of sugar maple and oak. Remove majority of ash which is declining rapidly. Open up some canopy gaps-5 or 6 throughout stand, especially around oaks, to encourage natural regen. Do not cut hemlock.

Other Comments:

Next Steps:

Proposed Start Date: 10/01/2013

35 61160035-Cut	6.5	42210 - Natural Red Pine	High Density Log	71	111-140	Harvest	Crown Thinning	42210 - Natural Red Pine	Cmpt. Review Proposal
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Prescription Treat stand by removing all jack pine and aspen and thinning red pine down to 80ish, attempting to get natural regen while also moving stand towards more of a big tree management area.

Other Comments:

Next Steps:

Proposed Start Date: 10/01/2013

36 61160036-Cut	103.1	42210 - Natural Red Pine	High Density Log	56	111-140	Harvest	Shelterwood	42111 - Planted Red Pine, Mixed Deciduous	Cmpt. Review Proposal
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Prescription Shelterwood stand, leaving approximately 50-60 BA of red pine, white pine and oak species. Remove all jack pine along with any merchantable aspen. Treatment could be classified as a heavy thinning but shelterwood treatment type seems appropriate. Consider leaving southwestern portion-adjacent to stands 33 and 45-of stand out of harvest to provide for retention. Residual left following harvest should also be considered retention.

Other Comments:

Next Steps: Jack pine regeneration is expected to be thick in places. If red pine regeneration is not sufficient, consider methods to scarify soil surface via trenching or dragging anchor chains.

Proposed Start Date: 10/01/2013



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Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
56 61160056-Cut	53.6	42110 - Planted Red Pine	High Density Log	62	141-170	Harvest	Low Thinning	42111 - Planted Red Pine, Mixed Deciduous	Cmpt. Review Proposal

Prescription Treat stand by removing all aspen and jack pine. thin red pine and oak. Remove between 1/3-1/2 of rp volume. Areas where thinning is heavier
Specs: should be concentrated on portions of stand that have the greatest amount of oak regeneration. In these pockets, treatment should resemble more of a shelterwood harvest. Residual left from harvest should be considered ample retention. Leave scattered aspen to diversify retention.

Other Comments:

Next Steps:

Proposed Start Date: 10/01/2013

59 61160059-Cut	22.5	6112 - Lowland Aspen	Medium Density Pole	44	51-80	Harvest	Clearcut	4130 - Aspen	Cmpt. Review Proposal
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Prescription Harvest all aspen within stand, avoid areas that are excessively wet. Concentrate harvest on areas with higher density, avoid areas where trees
Specs: are scattered and overall stocking is minimal. May want to consider a spec for no tree length harvesting and make harvest during the winter months only to take advantage of frozen conditions and also to avoid rutting issues and increased recreational use on river and surrounding area. Areas left out of harvest because of being too wet should be considered retention.

Other Comments:

Next Steps:

Proposed Start Date: 10/01/2013

69 61160069-Cut	6.6	4131 - Aspen, Oak	High Density Log	60		Harvest	Clearcut with Reserves	4131 - Aspen, Oak	Cmpt. Review Proposal
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Prescription Treat stand by harvesting all aspen and red maple. Leave all oak and pine within stand. Treatment area was reduced in an attempt to establish
Specs: an appropriate RMZ along Island Lake Basin, however western boundary of stand may change slightly during timber sale preparation. This area will serve as appropriate long term retention for stand and will help to reduce visual impact of sale operations while also serving the purposes of a riparian buffer and increasing edge effect within stand. Haul route will have to be established through the northern portion of stand 71. Consider harvesting this stand with stand 71.

Other Comments:

Next Steps:

Proposed Start Date: 10/01/2013

71 61160071-Cut	25.3	4111 - S.Maple, Hard Mast Association	High Density Log	70	111-140	Harvest	Single Tree Selection	4111 - S.Maple, Hard Mast Association	Cmpt. Review Proposal
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Prescription Thin stand by removing defected and suppressed individuals while maintaining approx 70 sq ft of BA throughout. Focus on maintaining sugar
Specs: maple and scattered oak while removing all aspen, red maple and the majority of basswood. Create canopy gaps, approximately 80'-100' in crown to crown diameter to encourage natural regeneration. Place canopy gaps within concentrations of defect and around healthy oak trees. Portions of stand will resemble a shelterwood type harvest, majority of stand should be treated with a typical thinning/selection procedure. Exclude any portions of the hillside on western edge of stand that is deemed necessary to avoid BMP/erosion issues. Do not cut hemlock.

Other Comments: Specifications to protect the north country trail during harvest operations should be applied.

Next Steps:

Proposed Start Date: 10/01/2013



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Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
82 61160082-Cut	148.4	42290 - Natural Mixed Pine	High Density Log	60	81-110	Harvest	Low Thinning	42210 - Natural Red Pine	Cmpt. Review Proposal

Prescription Harvest all jack pine, aspen and red maple, leaving scattered trees of each species to account for early successional species retention, and thin denser pockets of red pine where crowns are competing and BA warrants more of a thinning treatment. If red pine is marked in some areas, attempt to remove approximately 1/3 of the volume. In areas where jack pine is more of a component and is removed, red pine will act as a shelterwood for natural regeneration. Based on similar surrounding stands, jack pine is expected to regenerate well and should fill in around red pine in areas where spacing is greater between residual trees. Focus on removing only defected red pine trees within areas where marking occurs. Red pine residual should be considered retention-recommend not leaving early successional species as retention in order to maximize regeneration of these species throughout stand.

Other Comments: Species composition is variable in places, western stand boundary blends into adjacent stand. Focus on following areas of highest red and jack pine stocking.

Next Steps:

Proposed Start Date: 10/01/2013

90 61160090-Cut	36.3	42260 - Natural Pine, Mixed Deciduous	High Density Log	60	81-110	Harvest	Low Thinning	42210 - Natural Red Pine	Cmpt. Review Proposal
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Prescription Treat stand by removing all jack pine and aspen, leaving scattered trees of each species to account for early successional species retention.
Specs: Mark to leave white pine and oak, approx 10 BA of each. Leave all red pine, some trees may need to be harvested so as not to restrict operations within stand. Should expect some understory damage. Residual left following harvest should be considered retention.

Other Comments: Slope through stand leads to road and is steep in places. Should not present a problem during harvest but if it is deemed necessary during sale set up, exclude areas from sale.

Next Steps:

Proposed Start Date: 10/01/2013

99 61160099-Cut	19.3	42110 - Planted Red Pine	High Density Log	61	81-110	Harvest	Seed Tree with Reserves	42110 - Planted Red Pine	Cmpt. Review Proposal
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Prescription Seed tree harvest red pine in hopes that existing regeneration will respond and red pine will seed in. To increase the likelihood of this, encourage scarification during harvest operations with equipment. Regeneration present is minimal overall. Focus on leaving approximately 30 BA of higher quality individuals. Residual BA of red pine should be considered retention.

Other Comments:

Next Steps: Evaluate next yoe to determine regeneration response. If inadequate could underplant with red and/or white pine. Stand 103 to the south is very similar. After seeing results of treatment, may want to treat that stand similarly.

Proposed Start Date: 10/01/2013

100 61160100-Cut	59.7	42260 - Natural Pine, Mixed Deciduous	High Density Log	60	111-140	Harvest	Shelter Wood with Reserves	42260 - Natural Pine, Mixed Deciduous	Cmpt. Review Proposal
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Prescription Treat by removing jack pine and aspen, leaving scattered trees of each species to account for early successional species retention, and mark to leave or cut (determine which method would be most efficient) red pine, white pine and oaks. Red pine should constitute majority of leave tree species composition. Open up/remove overstory in areas of denser regeneration. Leave approx 50 BA overall. Some pockets may be more or less depending on species composition, quality, etc. Higher pockets should also be localized along snowmobile trail. Some damage is expected in areas of thick regen.

Other Comments:

Next Steps:

Proposed Start Date: 10/01/2013

**Total Treatment
Acreage Proposed: 591.7**

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



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

Prescription
Specs:

Other
Comment:

Next
Steps:

Proposed
Start Date: #Error

Limiting Factor and No
Treatment Reason

**Total Treatment
Acreage Proposed: 0**

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

Year of Entry: 2014



Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
61043_OutOfY OE-Cut	2.1					Harvest	Clearcut with Reserves	4131 - Aspen, Oak	Cmpt. Review Proposal - Incomplete

Prescription

Specs: retain some pine and oak for mast and seed production, Follow WLD guidance for CWD creation. Harvest all stems that are not retained.

Other New stand should have mix of oak, pine, aspen and maple.

Comments:

Next

Steps:

Proposed

Start Date: 09/01/2009

61231_OutOfY OE-Thin	4.6			0		Harvest	Low Thinning	4122 - Oak, Pine	Cmpt. Review Proposal - Incomplete
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Prescription Within harvest area, remove all aspen. Heavily thin oak and maple to a residual BA of about 50 sf. Leave retention by acreage sufficient to meet minimum retention goals.

Other Topography is rather hilly. Combine with treatment in Compartment 133.

Comments:

Next

Steps:

Proposed

Start Date: 10/01/2013

**Total Treatment
Acreage Proposed: 6.7**



Stand	Traverse City Mgt. Unit			5 – Forested Stands		Compartment: 160 Year of Entry: 2014
	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
2	42220 - Natural Jack Pine	Low Density Sapling	1.6	15		small opening, old gas well. filling in w/mjp volunteers.
3	42210 - Natural Red Pine	High Density Log	19.7	75	111-140	Red and white pine stand, treated last YOY? Good quality, both pine species, growing well. Oak is of descent quality.
6	4191 - Mixed Upland Deciduous with Conifer	High Density Log	178.3	87	81-110	Oak and pine stand, fair quality. Oak is declining slightly, red and white pine are growing well throughout. White pine is regenerating heavily in places, portions of stand are in the process of converting to a more white pine dominated system. Some scattered oak regeneration. Aspen clones and some red pine pockets, most along Guernsey Lake road. Jack pine present in some of the areas more heavily dominated by red pine.
10	4130 - Aspen	High Density Sapling	37.6	20		Aspen stand (A3) with white pine scattered throughout. White pine is mainly sapling size but stand also includes a pocket of larger white pine north of well site.
11	42210 - Natural Red Pine	Medium Density Log	26.1	63	51-80	Stand that was treated last YOY and is responding well in terms of regeneration. White pine and oak is somewhat dense in spots, scattered red pine regen present also.
13	42210 - Natural Red Pine	High Density Log	14.7	61	111-140	Mixed stand of red and white pine with oak throughout. Scattered hemlock present. Both pine species are variable in terms of size. Growing well. Some areas look like remnant plantations, most notably in central/eastern portion of stand.
18	4133 - Aspen, Mixed Pine	High Density Pole	3.8	54		Aspen/white pine stand with aspen dominant, growing fairly well but beginning to break up.
20	4130 - Aspen	High Density Sapling	8.5	16		A3 stand with oak saplings present and pine throughout stand. Growing well overall, good quality.
21	6128 - Lowland Coniferous, Mixed Deciduous	Medium Density Pole	55.0	65	51-80	Lowland stand, boundary includes upland edges of larger red and white pine. Stand is a seep, draining towards Guernsey Lake. Central portion is mainly cedar with e-type species at edges. Some dense pockets of paper birch throughout.
22	4123 - Red Oak	High Density Log	2.2	70	111-140	nice stand, large trees. oak is descent quality as are pine species. isolated from rest of compartment by island rd, stand is on steep north facing hill. New stand added.
24	4199 - Other Mixed Upland Deciduous	High Density Log	62.9	70	111-140	Mixed oak, sugar maple stand with each species more dominant in places. Stand was treated in the mid 90's by thinning. Ironwood regen very common along with beach regen in places. Pockets of sugar maple regen present but not very thick. Some browse on seedlings/saplings although not very heavy overall. Stand line may not be perfect along southwestern edge where stand fades into adjacent larger oak stand.
27	42260 - Natural Pine, Mixed Deciduous	High Density Pole	10.1	55	81-110	Mixed pine stand, variable density and composition in places. Longer lived species are larger dbh, growing well. Aspen and Jack pine are ok in terms of quality, currently smaller dbh than other species present. New stand added.



Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
28	4111 - S.Maple, Hard Mast Association	High Density Pole	12.6	65	111-140	Hardwood stand with a descent amount of oak and scattered pockets of red maple concentrations. Scattered hemlock.
29	42200 - Natural White Pine	Medium Density Log	8.2	61	51-80	Mixed stand, dominated by white pine in variable size classes. Aspen throughout, smaller diameter, mediocre quality. White and red oak present in low numbers. Eastern finger of stand is more uniform size and stocking. Stand varies between 50-100% canopy closure, typed as 50-75%. BA is variable also.
30	4124 - Red with White Oak	Low Density Log	12.3	70	1-50	Stand was treated last yoe, regenerating fairly well. Stand is two aged, overstory oak were left as shelterwood. Aspen, red maple and oaks are regenerating from harvest.
31	4111 - S.Maple, Hard Mast Association	High Density Log	39.0	70	81-110	Hardwood stand treated last yoe. Growing/responding pretty well. Beech regen is thick, remaining species are not regenerating or have a minimal presence in the understory. Stand includes a pocket of smaller, sap/pole sized trees in eastern finger near private boundary.
32	4110 - Sugar Maple Association	High Density Log	7.2	70	81-110	Small hardwood stand, pretty descent quality. Areas of regen, albeit light and scattered. Stand encompasses an area use for camping along river. Portion of stand lies within Natural River riparian zone. Hemlock is relatively dense in the intermediate layer, most notably along northern edge of stand. Small trail/opening exists within stand where camping area is located.
35	42210 - Natural Red Pine	High Density Log	6.5	71	111-140	Small stand of larger red pine, growing well. Jack pine and aspen mixed throughout, beginning to break apart.
36	42210 - Natural Red Pine	High Density Log	103.1	56	111-140	Large rp stand, growing fairly well. Portions treated by removal harvest, jp, rm and asp removed. maybe two yoe ago? Other areas of stand have remnant jack pine, broke up for the most part. New stand added.
37	42260 - Natural Pine, Mixed Deciduous	High Density Log	9.2	78	81-110	Mixed red/white pine stand with oak throughout, along with scattered aspen and a few red maple. Stand provides a nice buffer along Boardman River corridor. Some large red and white pine within stand. Horse Trail traverses stand. New stand added. Stand to the North/West was treated last YOE, wait to evaluate treatment options for this stand.
40	42220 - Natural Jack Pine	Medium Density	13.0	15		Narrow, relatively open jack pine stand, filling in with natural regen/volunteers. Stand creates a nice north/south breakup of grassy opening on either side.
46	4119 - Mixed Northern Hardwoods	High Density Pole	16.7	70	81-110	Oak and sugar maple stand with other hardwood species mixed throughout. Most of stand treated last yoe, growing ok. Portion of stand on the west side of Boardman River Rd. was not treated. Variable in terms of stocking and overall quality.
48	4133 - Aspen, Mixed Pine	High Density Sapling	18.4	26		Young aspen stand (A3), growing well. Sapling white pine mixed throughout canopy and in understory. Occasional pole sized aspen, developing toward an A6 stand relatively quickly.

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Traverse City Mgt. Unit

5 – Forested Stands

Compartment: 160

Year of Entry: 2014



	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
50	42200 - Natural White Pine	High Density Pole	20.1	36	81-110	White pine stand with red pine and aspen relatively common throughout. White pine is variable in terms of size and density. Stocking is especially variable south of road that traverse stand. Pockets of stand are more dominated by red pine. Aspen is smaller diameter with saps and poles present. A small low spot exists within the stand in the southern portion, just south of the road. This spot may be seasonally wet, difficult to tell during the winter.
52	4199 - Other Mixed Upland Deciduous	Medium Density	12.7	4		Young aspen, red mape, oak stand (R/M/A3) stand with scattered pine. Stand is a mixture resulting from final harvest area and is regenerating well.
53	42210 - Natural Red Pine	High Density Log	4.7	78	81-110	Small mixed pine stand with red and white pine dominant. Some large oak present along with red maple, aspen and paper birch. Red pine is variable in terms of size with large individuals along with intermediate and pole sized trees present as well.
55	42110 - Planted Red Pine	High Density Pole	33.8	58	111-140	Red pine plantation, thinned last yoe. Responding ok. Wide rows, some spacing variability. BA averages around 140ish. crowns beginning to crowd slightly but still have some space.
56	42110 - Planted Red Pine	High Density Log	53.6	62	141-170	rp stand, good quality overall. oak throughout. jp too, beginning to break up. some aspen pockets, most common in southern portions of stand and along road. similar to surrounding stands. some vatiation in rp density. some pockets of more dense asp, rm and oak. New stand added.
57	42200 - Natural White Pine	High Density Log	7.8	78	81-110	Multi polygon stand, made up of islands within historic Island Lake basin. Stands contain of mixture of conifers including white pine, red pine and hemlock, along with some deciduous species including red maple and paper birch. Nice isolated stands, some jack pine regen on edges of stand.
59	6112 - Lowland Aspen	Medium Density Pole	22.5	44	51-80	Mixed upland/lowland stand, typed as lowland aspen. Scattered white pine throughout stand. Few jack pine at edges, especially adjacent to openings in area. Some areas seem like they would be very wet. Aspen is in need of a treatment, winter weather should allow for a harvest.
60	42210 - Natural Red Pine	High Density Log	29.4	60	111-140	nice quality rp stand treated w/ a removal/thinning last yoe. growing well. some stocking variability throughout, size pretty uniform. New stand added.
61	42140 - Planted Mixed Pine	High Density Sapling	14.4	12		Young red pine plantation, growing ok however heavy volunteer regeneration of jack pine, white pine, cherry and aspen in places is leading to some inconsistent red pine stocking throughout, along with more of a mixed stand in places. Expect some of these trees to die out over time leading to more of a pure red pine platation.
62	4130 - Aspen	High Density Sapling	4.3	22		Young aspen stand (A3/A4) with scattered hardwood species throughout. Some white pine scattered as well.



	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
66	4119 - Mixed Northern Hardwoods	High Density Log	13.7	65	111-140	Hardwood stand, descent quality. Sugar maple is dominant overall however paper birch is a major component closer to lake. Stand topo slopes directly towards island lake so harvest is not recommended at this time. overall BA is also spotty. New stand added.
67	4124 - Red with White Oak	Medium Density Log	132.1	70	1-50	Mixed stand of oak/pine. Some areas heavier to pine, overall seems like stand is oak dominated but red pine and occasional white pine are definitely a major component. White pine regeneration is thick, some pockets seem to be in the process of converting to conifer dominated stand. Northwest corner of stand has a higher concentration of red pine.
68	42260 - Natural Pine, Mixed Deciduous	High Density Pole	42.4	60	81-110	Mixed stand with white pine dominant overall. Aspen and red maple prevalent throughout, smaller size classes. Some pockets, most notably where stand shares boundary with stand to the east, red pine becomes more of a component. New stand added.
69	4131 - Aspen, Oak	High Density Log	9.5	60		Aspen stand with red oak throughout. Aspen is nice quality, growing well with good form. Same with oak. New stand added.
70	4191 - Mixed Upland Deciduous with Conifer	High Density Pole	8.6	65	51-80	Oak, pine stand on south facing slope along south river rd. Was left as retention, a buffer when large oak stand to the north was harvested. Stand is mediocre quality, some variability in terms of stocking, species composition and overall quality.
71	4111 - S.Maple, Hard Mast Association	High Density Log	25.3	70	111-140	Hardwood stand with sugar maple dominant in multiple size classes. Red oak a major component throughout-large diameter, fair quality. Overall stand has a descent amount of defect, needs a thinning even though some pockets are smaller dbh and variable density.
73	4130 - Aspen	High Density Sapling	48.5	25		Younger aspen (A3/A4) stand, growing fairly well. Some pockets of merchantable aspen. Included buffer along island lake where this stand borders adjacent lake basin. Scattered red and white pine throughout, Left as residual during past harvest. Some patchy spots where pine is dominant, mostly along edges of stand where it blends into adjacent areas. New stand added.
75	42200 - Natural White Pine	Medium Density Pole	1.8	40	51-80	Natural white pine stand, mixture of pole and some logs, occasional pockets of saplings.
76	42111 - Planted Red Pine, Mixed Deciduous	High Density Log	248.8	64	81-110	Mixed pine stand, removal carried out on stand 15-20 years ago. Lots of diverse regen, doing fairly well. Red pine holding up well.
77	42210 - Natural Red Pine	High Density Log	8.7	69	81-110	Nice red pine stand with scattered white pine. Stand is adjacent to Boardman River corridor and has a high water table in places. Scattered red maple present. Cedar and fir in under and mid layer of stand, especially along southern edge where stand blends into adjacent lowland area. Stand was treated last YOE with a thinning.

S t a n d	Traverse City Mgt. Unit		5 – Forested Stands			Compartment: 160	General Comments:
	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	Year of Entry: 2014	
82	42290 - Natural Mixed Pine	High Density Log	148.4	60	81-110		Mixed red and jack pine stand with oak scattered throughout. Red and jack vary in dominance in pockets but overall red pine is most numerous. Some white pine, most notably along western edge of stand. New stand added.
83	6128 - Lowland Coniferous, Mixed Deciduous	Medium Density Log	66.2	55	81-110		Mixed stand of cedar/spruce/fir and other conifers including white and red pine. Aspen and red maple also make up major components of the stand. Stand includes some small grassy openings at rivers edge. Typed stand as lowland but portions of stand include river bank which technically is upland. These areas are where higher concentrations of larger red and white pine are found.
85	42210 - Natural Red Pine	Low Density Log	29.7	64	1-50		Red pine stand, treated last yoe by removing jack pine. Lots of white pine regen, along with some jack pine coming back. Open in places, overall stand equates to an R7 stand.
86	4111 - S.Maple, Hard Mast Association	High Density Pole	9.5	35	51-80		Looks like a two aged stand, mix of overstory larger hardwoods and sap/pole sized sugar maple. Clumpy, variable quality, overall not great. Very northwest corner of stand may have been thinned/treated in the past.
88	4311 - Pine, Aspen Mix	Medium Density	13.5	20	1-50		Aspen stand with red and white pine throughout. Lower quality, lots of spindly aspen. Looks like white pine was left the last time stand was treated.
90	42260 - Natural Pine, Mixed Deciduous	High Density Log	40.9	60	81-110		Mixed pine/oak stand with aspen scattered throughout. Stand is in good shape, some variability in terms of species composition but overall pretty consistent.
92	4126 - White, Black, N. Pin Oak	Medium Density Log	14.4	70	1-50		White oak stand, treated last yoe by shelterwood/thinning method. Regen is responding OK, lots of browse on red maple and oak, white pine regen doing fairly well.
93	4122 - Oak, Pine	Medium Density Log	42.3	75	51-80		White oak, red oak and red/white pine stand, treated last yoe. Regen/understory is thick in places, diverse in terms of species. Stand/overstory is variable in spots, pockets of more pure red pine in places and also areas of pure oak.
95	42290 - Natural Mixed Pine	High Density Sapling	11.3	15	1-50		Mixed pine stand. When stand was harvested overstory red and white pine were left, about 10 ba or less in most places. Jack pine and white pine regeneration dominates the canopy. Stand is two aged, found jack pine regeneration to be dominant.
97	42110 - Planted Red Pine	High Density Sapling	10.4	15			Young red pine (R3) stand with jack pine and white pine component. growing ok, Some open areas, not uniform species composition. New stand added.
98	4310 - Pine, Oak Mix	High Density Sapling	109.5	4			Jack pine plantation with dense oak and red maple regen throughout. Stand includes two retention/visual vortices.
99	42110 - Planted Red Pine	High Density Log	19.3	61	81-110		Red pine stand growing well. Stand has been thinned a couple times. Jack pine, white pine and oak in understory, concentrated in areas of canopy openings. Some ba variability however overall stand is hovering around 110ish. New stand added.





	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
100	42260 - Natural Pine, Mixed Deciduous	High Density Log	59.7	60	111-140	Mixed pine stand with oak and aspen throughout. Stand growing well, descent regen-dense in places. Jack pine and aspen beginning to break up slightly.
101	4310 - Pine, Oak Mix	High Density Log	8.7	55	51-80	Mixed oak pine stand, treated last yoe, growing well. Regeneration is limited in places but will hopefully respond. Pockets of more dense red pine with other open areas around larger oaks that were left. Oak regen is fair in places, often times heavily browsed.
103	42110 - Planted Red Pine	High Density Log	29.0	61	111-140	Red pine stand, has been thinned 2-3 times. Descent quality overall, not great height. Some white pine and oak regen along with jack pine in more open areas. Scattered oak in overstory. New stand added.
104	4126 - White, Black, N. Pin Oak	Low Density Log	37.3	80	1-50	Oak stand that was thinned or shelterwood harvested. Overstory growing well, understory responding very well. Diverse regen of oak, red maple and conifers.
105	42210 - Natural Red Pine	High Density Pole	16.7	66	111-140	Red pine/conifer stand along Boardman River, Includes Natural Rivers corridor. Stand includes lowland/rivers edge which has cedar and fir, occasional aspen throughout.
106	42210 - Natural Red Pine	Medium Density Log	53.6	55	51-80	rp stand, multiple size classes of all species w/in stand. rp log sized trees make up majority of canopy w/ rp/wp pole/saps in intermediate layer. stand equates to a r8/r7 stand w/ stocking variability in places. jp scattered, in descent shape. New stand added.
107	42210 - Natural Red Pine	Medium Density Log	22.7	81	51-80	Open red pine stand (R7/8) with oak and white pine throughout. Some descent oak regen in understory along with pockets of dense jack pine regen. New stand added.
112	4133 - Aspen, Mixed Pine	High Density Pole	29.8	25	1-50	Mixed stand of pole/sapling sized aspen with red pine and oak log sized trees. Stand resulting from an aspen and jack pine removal where red pine and oak were left as residual.
113	4319 - Mixed Upland Forest	Medium Density	13.7	5		jp plantation w/ deciduous species thick throughout resulting from stump sprouts when harvested.
114	42210 - Natural Red Pine	High Density Log	12.3	65	81-110	Red pine stand, continuation of stand to the west, however no jack present and overall density is lower and more variable throughout. New stand added.
115	42220 - Natural Jack Pine	Medium Density Pole	1.7	36	1-50	Small jack pine stand with cherry throughout. Low quality, overall low density. Possible retention area for stand to south.



Stand	Cover Type	Acres	Managed Site	Management Priority (Objective)	General Comments:
1	330 - Low-Density Trees	1.8	N/A	Unspecified	Stand is an old well site being encroached upon by low density conifer trees. Will probably have 25%+ cover next YOY and will therefore be typed as a forested stand at that point in time.
4	50 - Water	9.6	N/A	Unspecified	Stand contains main basin of Darby Lake.
5	310 - Herbaceous Openland	2.8	N/A	Unspecified	Well site and storage tanks.
7	310 - Herbaceous Openland	1.9	N/A	Unspecified	well site, permit#31211.
8	623 - Emergent Wetland	14.2	N/A	Unspecified	Stand contains historic Darby Lake basin.
9	6224 - Treed Bog	4.0	N/A	Unspecified	
12	622 - Lowland Shrub	0.8	N/A	Unspecified	Small stand, emergent wetland in area of higher water table.
14	310 - Herbaceous Openland	5.2	N/A	Unspecified	well site, permit#30473
15	50 - Water	11.1	N/A	Unspecified	Main basin of lake, with seasonal connection to Little Guernsey Lake.
16	622 - Lowland Shrub	0.3	N/A	Unspecified	Small lowland stand in area of higher water table.
17	623 - Emergent Wetland	30.7	N/A	Unspecified	Emergent wetland, stand is historic basin of lake which it surrounds.
19	623 - Emergent Wetland	0.7	N/A	Unspecified	Small lowland/emergent wetland stand in area of higher water table.
23	330 - Low-Density Trees	2.1	N/A	Unspecified	Small opening with white pine scattered throughout.
25	310 - Herbaceous Openland	2.4	N/A	Unspecified	Small opening, looks to be an old landing and/or well site.
26	310 - Herbaceous Openland	2.3	N/A	Unspecified	Old well site? Stand is a pure grassy opening.
33	622 - Lowland Shrub	17.9	N/A	Unspecified	Historic basin of mud lake, now should be considered more of an emergent wetland because of recent drying trends.
34	310 - Herbaceous Openland	13.6	N/A	Unspecified	Opening with a couple jack pine pockets throughout. NCT runs through center of stand.



Stand	Cover Type	Acres	Managed Site	Management Priority (Objective)	General Comments:
38	50 - Water	6.2	N/A	Unspecified	Main portion of Mud Lake. Shallow water body, pockets of vegetation throughout.
39	310 - Herbaceous Openland	42.7	N/A	Unspecified	Grass opening. White pine, cherry, oak and scattered hwdws throughout. Occasional jack pine as well.
41	310 - Herbaceous Openland	11.4	N/A	Unspecified	Relatively open stand with scattered trees throughout. Portions have pockets of lightly stocked hardwoods, most notably cherry. Scattered jack pine present as well.
42	310 - Herbaceous Openland	4.4	N/A	Unspecified	Grass opening, south side of boardman river.
43	622 - Lowland Shrub	64.9	N/A	Unspecified	lowland stand w/ some trees scattered around on hummocks and higher areas. stand contains boardman river corridor which may have some higher/upland banks included.
44	310 - Herbaceous Openland	0.9	N/A	Unspecified	Small, narrow grassy opening. Possible high water table.
45	622 - Lowland Shrub	0.9	N/A	Unspecified	Small lowland pocket, lowland shrub/emergent wetland type.
47	310 - Herbaceous Openland	1.3	N/A	Unspecified	Small grass opening on south side of Boardman river.
49	310 - Herbaceous Openland	1.2	N/A	Unspecified	Small opening, some lowland aspen at north edge of stand.
51	50 - Water	3.9	N/A	Unspecified	Portion of island lake that has been isolated from main body of water by recent drying trend.
54	310 - Herbaceous Openland	1.7	N/A	Unspecified	Grassy opening at compartment edge, some scattered saps.
58	310 - Herbaceous Openland	6.6	N/A	Unspecified	Larger opening in this area, scattered saplings throughout stand.
63	310 - Herbaceous Openland	1.7	N/A	Unspecified	Small opening on southern compartment edge, saplings scattered throughout.
64	623 - Emergent Wetland	54.0	N/A	Unspecified	Historic island lake basin, currently contains isolated shallow wet spots however overall stand should be considered an emergent wetland.
65	50 - Water	22.4	N/A	Unspecified	Main portion of island lake.
72	310 - Herbaceous Openland	1.5	N/A	Unspecified	Small grassy opening, upland adjacent to island lake basin.



Stand	Cover Type	Acres	Managed Site	Management Priority (Objective)	General Comments:
74	330 - Low-Density Trees	2.9	N/A	Unspecified	Small opening, conifer species encroaching throughout, stand close to having 25% coverage and therefore being classified as a forested stand.
78	310 - Herbaceous Openland	26.8	N/A	Unspecified	Long/narrow opening, grasses are full coverage with scattered u-type saplings.
79	310 - Herbaceous Openland	2.4	N/A	Unspecified	Well site, storage basin.
80	330 - Low-Density Trees	2.6	N/A	Unspecified	Small narrow opening in shallow valley with jack pine barren type cover throughout. Nice breakup to larger pine stand surrounding this area.
81	310 - Herbaceous Openland	1.3	N/A	Unspecified	Old well site, north/south trail running directly through stand.
84	310 - Herbaceous Openland	1.5	N/A	Unspecified	Well site
87	310 - Herbaceous Openland	2.0	N/A	Unspecified	Small opening, old well site? Conifer species volunteering along eastern edge.
89	330 - Low-Density Trees	4.1	N/A	Unspecified	Small grass stand with white pine, jack pine and red maple in clumps. Stand swapped from Forested to Non-Forested.
91	310 - Herbaceous Openland	1.7	N/A	Unspecified	Well site/facility, retention strip borders western edge.
94	310 - Herbaceous Openland	1.6	N/A	Unspecified	small opening, looks to have been maintained by private-mowing, brushing?
96	310 - Herbaceous Openland	1.0	N/A	Unspecified	Well site
102	330 - Low-Density Trees	19.6	N/A	Unspecified	stand was fh recently and I believe will be replanted soon. some jp throughout, pocket in western fingers. Stand swapped from Forested to Non-Forested.
108	310 - Herbaceous Openland	1.4	N/A	Unspecified	Well site, grassy opening otherwise. Some seedlings at southern edge.
109	310 - Herbaceous Openland	0.9	N/A	Unspecified	Well site. Intersection of two roads creating an opening.
110	310 - Herbaceous Openland	5.7	N/A	Unspecified	Gas well/compression station.
111	310 - Herbaceous Openland	0.7	N/A	Unspecified	Well site



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 Lake	A coldwater lake has temperature and dissolved oxygen conditions that allow naturally-reproduced or stocked trout populations and those of other coldwater fish species to persist from year to year. Suitable conditions for coldwater fishes may occur in Michigan lakes if they are relatively deep, have substantial groundwater inflows, or are located in colder (northern) areas of the state. Such lakes are established by Director's action and designated as trout resources by Fisheries Order 200.
SCA	Cold Water Stream	A coldwater stream has temperature and dissolved oxygen conditions that allow naturally-reproduced or stocked trout populations and those of other coldwater fish species (e.g., slimy sculpin) to persist from year to year. Coldwater streams in Michigan typically provide these conditions due to substantial contributions of groundwater to their stream flows. Such streams are established by Director's action and designated as trout resources by Fisheries Order 210.
SCA	Concentrated Recreation Area	Facilities that are designed and maintained for routine or heavy recreational use, including State Parks, State Forest campgrounds, motorized and non-motorized trails, trailheads, staging areas and public access sites.
HCVA	Dedicated Management Areas	Such areas are dedicated by the DNR Director for specific management uses through the promulgation of rules, as governed by Part 5, Department of Natural Resources, of the NREPA (MCL 324.502(2) and 324.504). Section 38 of the Administrative Procedures Act (MCL 24.238) provides for public requests for the promulgation of rules. This is an active program, with one proposed site currently under review by the DNR.
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.