



Compartment Review Presentation

Traverse City Forest Management Unit

Compartment 35

Entry Year 2016

Acreage: 2,754

County Manistee

Management Area: Manistee Plains

Revision Date: 04/01/2014

Stand Examiner: Patrick Cotant

Legal Description:

T24N, R14W, sections: 20, 21, 28, 29, 32, 33

Identified Planning Goals:

This compartment is designated as mixed use in the Regional State Forest Management Plan and more specifically the Manistee Plains Management Area guidance. This designation places equal importance on the production of wood fiber, wildlife habitat, recreation and scenic and aesthetic values.

Soil and topography:

Major soil types for this Compartment include Roscommon-AuGres-Croswell - poorly drained sands; Montcalm-McBride-Kalkaska, Kalkaska-Rubicon - deep, droughty sands; Carlisle-Carbondale-Karston - mucks; Saigatuck - somewhat poorly drained. Terrain is level to gently rolling.

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

Compartment 35 of the Manistee Plains MA is a fairly solid block of state ownership in northern Manistee county. State ownership within the compartment is contiguous with the exception of 2 isolated private parcels located in the northern 2 sections of the compartment. The perimeter of the compartment alternates between state and private land interface.

Unique Natural Features:

Bear Creek and Lemon Creek flow through the compartment. Healy Lake is located in the southeast corner of the compartment in Section 33.

Archeological, Historical, and Cultural Features:

There are known concerns within the compartment. All proposed management activities have taken these concerns into consideration.

Special Management Designations or Considerations:

Bear Creek is a designated trout stream.

Watershed and Fisheries Considerations:

Bear Creek, Lemon Creek, the Healy Lake Outlet and a number of smaller tributaries flow through Compartment 35. All are Designated Trout Streams. Bear Creek has self-sustaining populations of brook trout, brown trout, steelhead, coho salmon, and chinook salmon. Lemon Creek has a self-sustaining population of brook trout, and also supports seasonal runs of salmon and steelhead. No trout or salmon are stocked in any of these streams. Because these streams support populations of wild trout and salmon, they require the utmost protection. Aspen clear cuts close to small trout streams create conditions ripe for beaver over-colonization and resulting habitat degradation, including erosion, sedimentation, blocked fish passage, and warming of the water. Therefore, in Stand 128, no clear cutting should take place within 300' of Lemon Creek, and not within 100' of either of the two smaller tributaries that flow through the stand. For Stand 153, no cutting should take place within 100' of the Healy Lake Outlet.

Wildlife Habitat Considerations:

Located in north-central Manistee County, the glacial geology of Compartment 35 consists of two different Land Type Associations (LTA); a broad, flat lake plain with excessively drained soils (LTA 6111) and a broad, flat lake plain with poorly drained soils (LTA 6131). Bear Creek flows through the NW portion of the compartment, Lemon Creek flows through the south, and Healy Lake is located to the southeast.

The majority of Sections 21, 28, and 33 is excessively drained and loamy sand (LTA 6111). Presettlement vegetation consists mostly of hardwood forests. Current vegetation within this compartment is comprised of pine plantations, aspen, and some hardwood stands. The soils within this area is ideal for red pine. Since timber management is the main goal in this portion of the compartment, management practices should focus on timber harvest. Within the hardwood stands, maintaining forest diversification and the creation/leaving of coarse woody debris (CWD) is a priority.

The west portion of this compartment is a flat, outwash plain with poorly drained or loamy sand (LTA 6131). Soils are level, poorly drained, mucky, and sandy. Presettlement vegetation was mainly lowland conifers and forested swamp communities. No natural disturbances were noted by the General Land Office. Present vegetation can be characterized by lowland hardwoods. Available aspen should be managed for variable age classes and the inclusion of large coarse woody debris (CWD). Animals that may be found here include red-shouldered hawk, spotted salamander, black bear, and ribbon snake.

Priority wildlife species within this compartment is white-tailed deer, ruffed grouse, and wild turkey.

Mineral Resource and Development Concerns and/or Restrictions

Surface sediments consist of lacustrine sand and gravel. The glacial drift and thickness varies between 400 and 800 feet. Beneath the glacial drift is the Devonian Ellsworth Shale. The Ellsworth is used for cement products. The nearest gravel pit is located two miles to the north and potential may be limited. This area is located within the Niagaran reef trend and also has Antrim Shale gas production. Most of the State land is currently leased for gas and oil development.

Vehicle Access:

The road along the east edge of section 29 that also serves as the snowmobile trail has several low, muddy spots that collect water. Clean fill and gravel should be placed and spread to repair this stretch of road/snowmobile trail. The undesignated boat access site on the north end of Healy Lake which receives a moderate amount of use should be graveled and seeded to minimize sand run-off into Healy Lake.

Survey Needs:

Recreational Facilities and Opportunities:

The Bear Lake Spur of the Betsie Valley Snowmobile Trail crosses the compartment. Snowmobile trail protection specifications should be added to the timber sale contract where treatments will impact the trail system. Healy Lake Campground, operated by Springdale Township is located on the east side of Healy Lake, just outside of the compartment boundary. Remnant paint marks from the Crokey Lake Pathway, abandoned by FRD, can still be seen in sections 28 and 33. There is an undesignated boat launch site on the north end of Healy Lake. This site receives a fair amount of use which is resulting in some erosion of the slope into the lake. Dispersed recreation is common throughout the compartment during the firearms deer season. There are also numerous access points utilized by anglers along Bear Creek throughout the year, but these sites receive increased use during salmon and steelhead runs. (T.M.N. 4/14/14)

Fire Protection:

Copemish-Cleon Volunteer Fire Department, Department of Natural Resources coverage provided from the Platte River Field Office (when staffed), Traverse City Management Unit.

Additional Compartment Information:

30 acres was purchased in the NWSE of section 21 since the last time this compartment was inventoried in 2004-2005.

The following reports from the Inventory are attached:

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

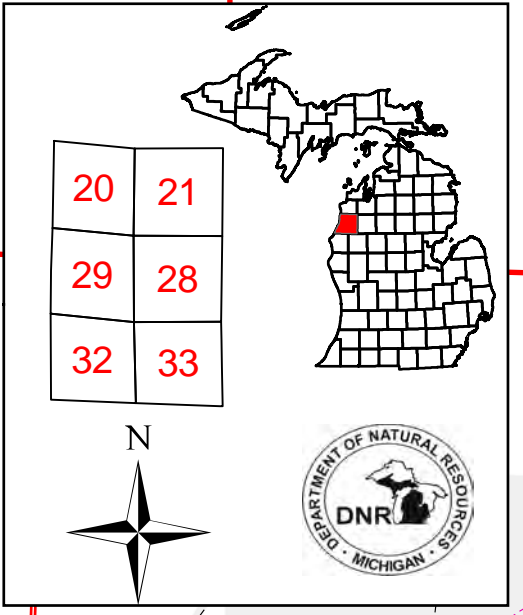
The following information is displayed, where pertinent, on the attached compartment maps:

- Base feature information, stand boundaries, cover types, and numbers**
- Proposed treatments**
- Site condition boundaries**
- Details on the road access system**

Cover Type & Treatment Map

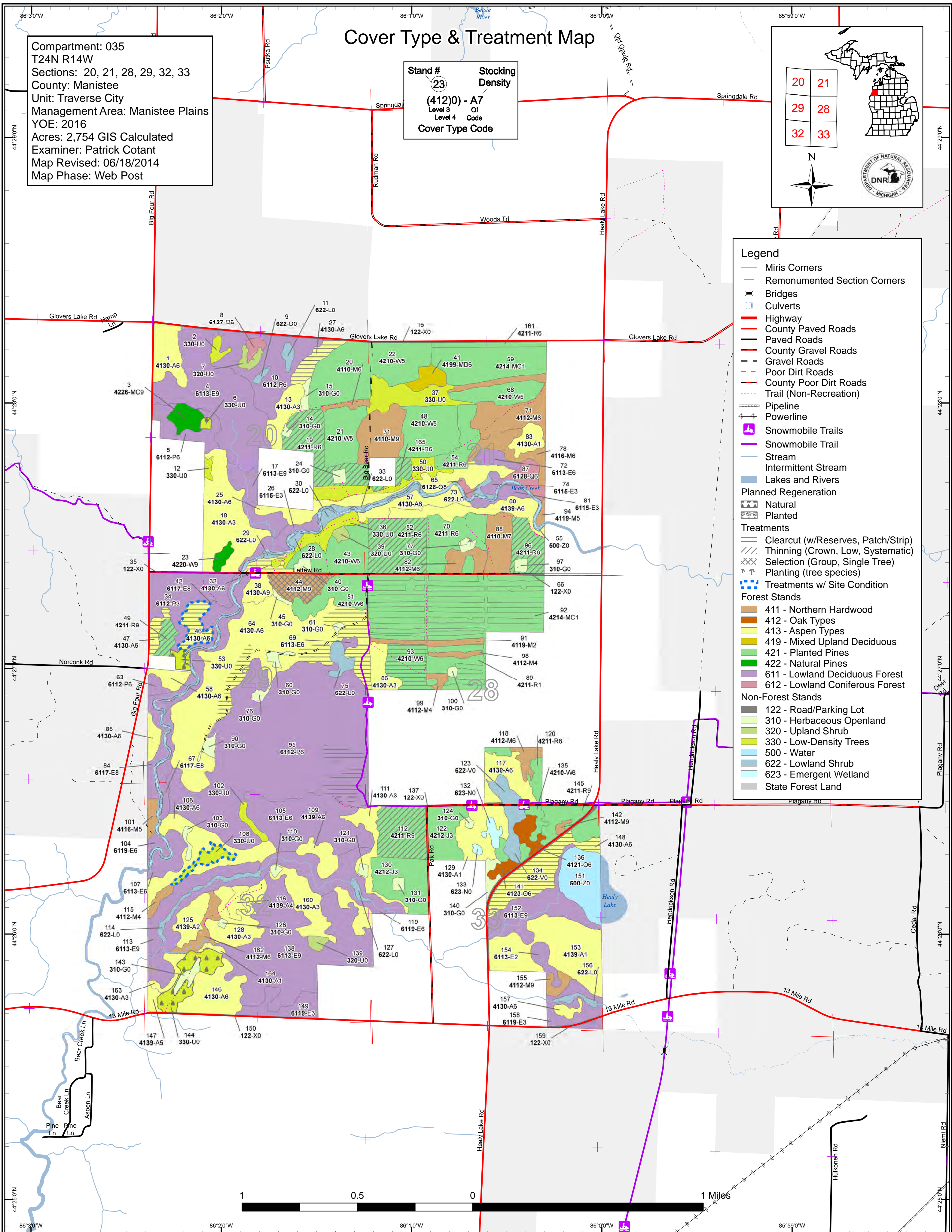
Compartment: 035
 T24N R14W
 Sections: 20, 21, 28, 29, 32, 33
 County: Manistee
 Unit: Traverse City
 Management Area: Manistee Plains
 YOE: 2016
 Acres: 2,754 GIS Calculated
 Examiner: Patrick Cotant
 Map Revised: 06/18/2014
 Map Phase: Web Post

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



Legend

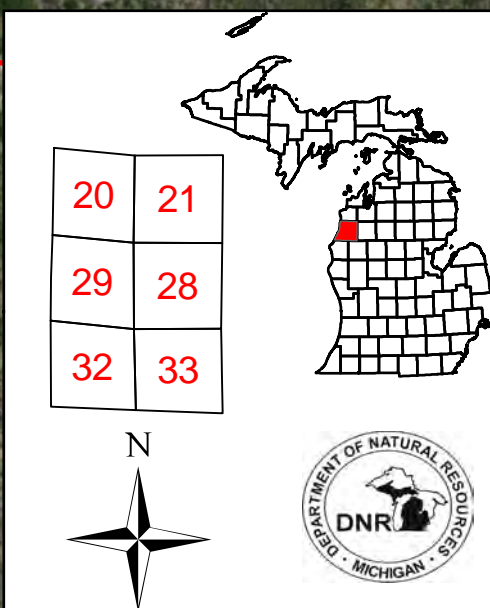
- Miris Corners
- Remonumented Section Corners
- Bridges
- Culverts
- Highway
- County Paved Roads
- Paved Roads
- County Gravel Roads
- Gravel Roads
- Poor Dirt Roads
- County Poor Dirt Roads
- Trail (Non-Recreation)
- Pipeline
- Powerline
- Snowmobile Trails
- Snowmobile Trail
- Stream
- Intermittent Stream
- Lakes and Rivers
- Planned Regeneration
 - Natural
 - Planted
- Treatments
 - Clearcut (w/Reserves, Patch/Strip)
 - Thinning (Crown, Low, Systematic)
 - Selection (Group, Single Tree)
 - Planting (tree species)
 - Treatments w/ Site Condition
- Forest Stands
 - 411 - Northern Hardwood
 - 412 - Oak Types
 - 413 - Aspen Types
 - 419 - Mixed Upland Deciduous
 - 421 - Planted Pines
 - 422 - Natural Pines
 - 611 - Lowland Deciduous Forest
 - 612 - Lowland Coniferous Forest
- Non-Forest Stands
 - 122 - Road/Parking Lot
 - 310 - Herbaceous Openland
 - 320 - Upland Shrub
 - 330 - Low-Density Trees
 - 500 - Water
 - 622 - Lowland Shrub
 - 623 - Emergent Wetland
 - State Forest Land



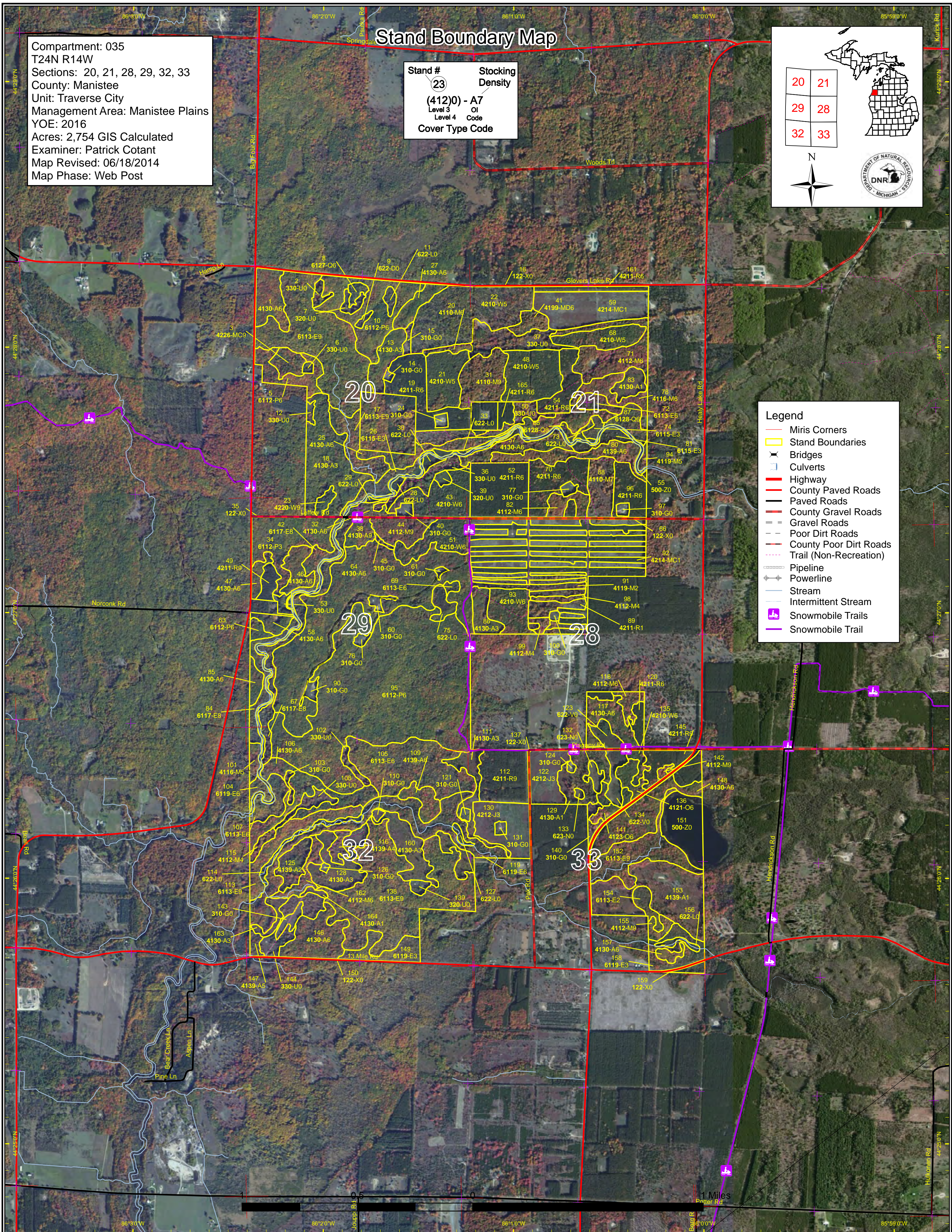
Stand Boundary Map

Compartment: 035
 T24N R14W
 Sections: 20, 21, 28, 29, 32, 33
 County: Manistee
 Unit: Traverse City
 Management Area: Manistee Plains
 YOE: 2016
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Stand #
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Stocking Density
 (412)0 - A7
 Level 3 OI
 Level 4 Code
Cover Type Code



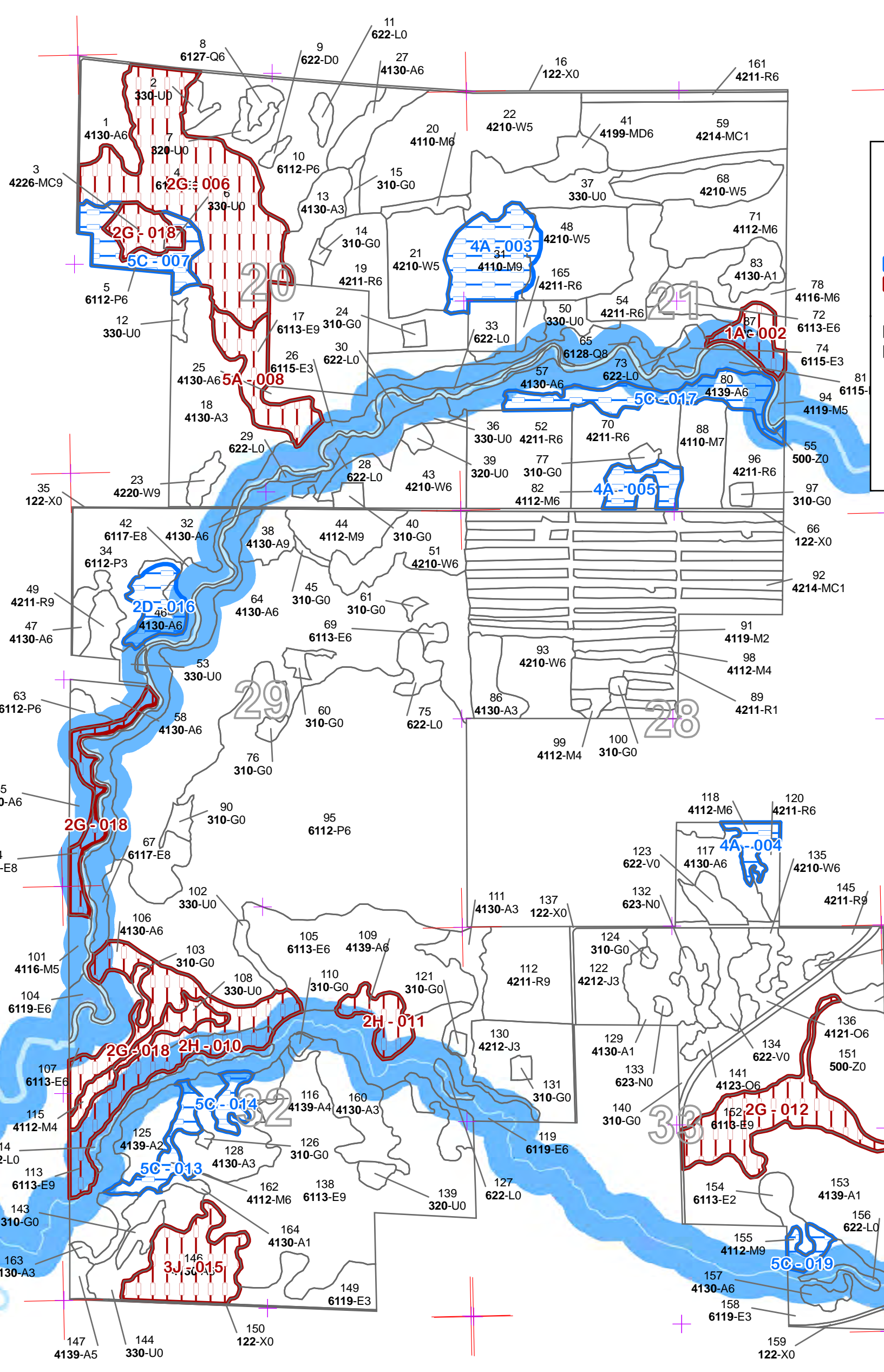
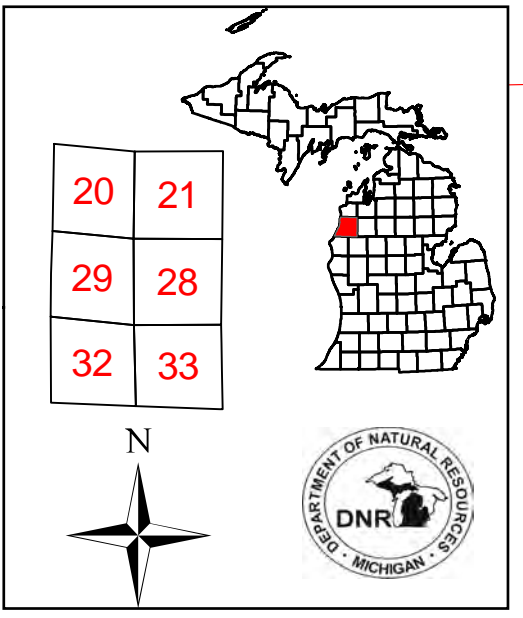
- Legend**
- Miris Corners
 - Stand Boundaries
 -
 -
 - Highway
 - County Paved Roads
 - Paved Roads
 - County Gravel Roads
 - Gravel Roads
 - Poor Dirt Roads
 - County Poor Dirt Roads
 - Trail (Non-Recreation)
 - Pipeline
 -
 - Stream
 - Intermittent Stream
 -
 - Snowmobile Trail



Special Conservation Areas & Site Conditions Map

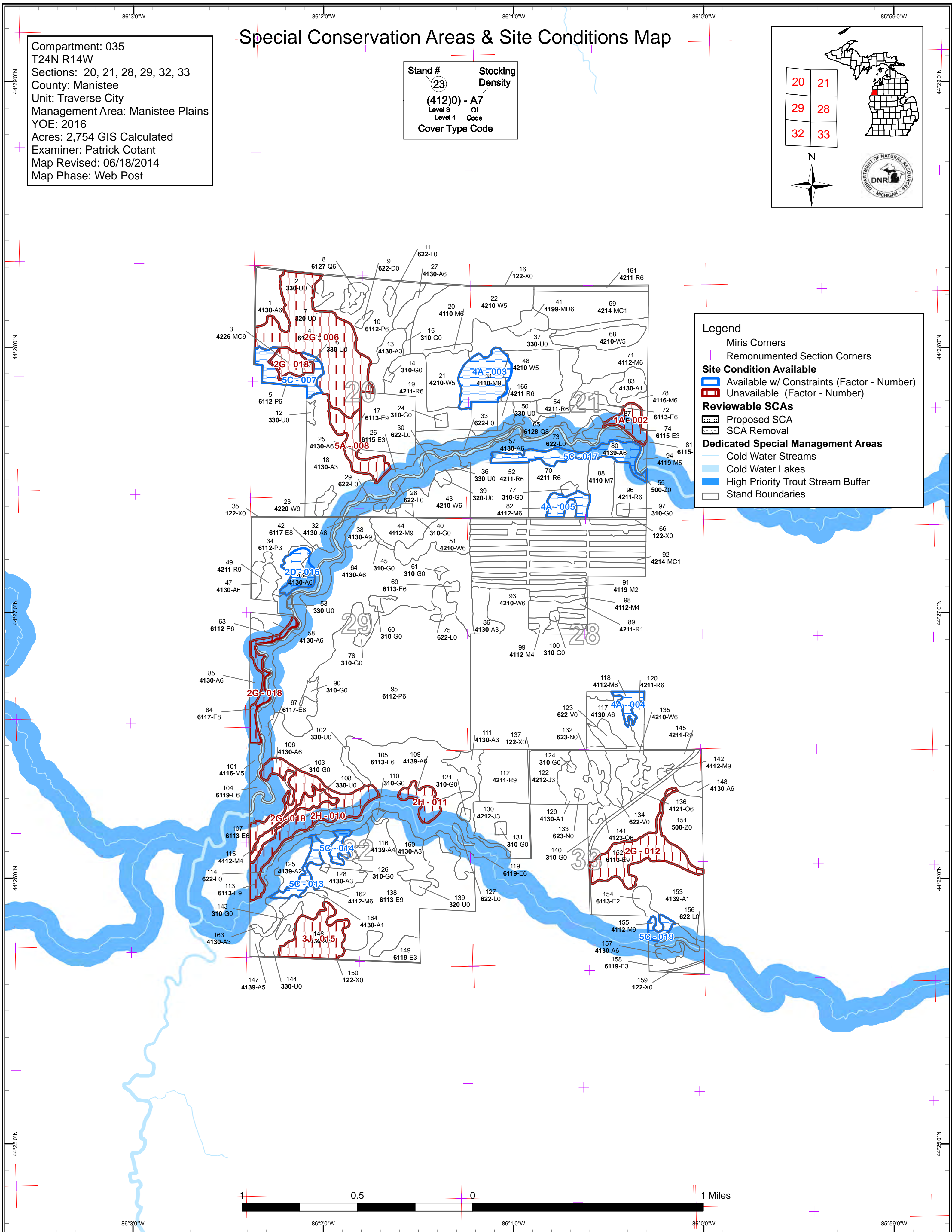
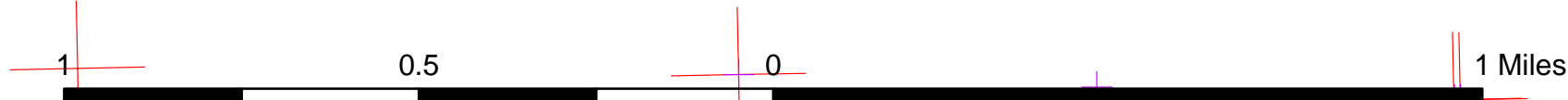
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Stand #
 23
Stocking Density
 (412)0 - A7
 Level 3 OI
 Level 4 Code
Cover Type Code



Legend

- Miris Corners
- Remonumented Section Corners
- Site Condition Available**
 - Available w/ Constraints (Factor - Number)
 - Unavailable (Factor - Number)
- Reviewable SCAs**
 - Proposed SCA
 - SCA Removal
- Dedicated Special Management Areas**
 - Cold Water Streams
 - Cold Water Lakes
 - High Priority Trout Stream Buffer
 - Stand Boundaries



Report 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	167	38	52	7	301	126	0	0	0	0	0	0	0	0	691
Bog	15	0	0	0	0	0	0	0	0	0	0	0	0	0	15
Herbaceous Openland	39	0	0	0	0	0	0	0	0	0	0	0	0	0	39
Jack Pine	50	0	0	0	0	0	0	0	0	0	0	0	0	0	50
Low-Density Trees	89	0	0	0	0	0	0	0	0	0	0	0	0	0	89
Lowland Aspen/Balsam Poplar	0	0	0	4	350	16	0	0	0	0	0	0	0	0	370
Lowland Conifers	0	0	0	0	3	0	0	0	0	12	0	0	0	0	15
Lowland Deciduous	0	0	0	18	7	99	78	58	13	0	122	0	0	137	533
Lowland Shrub	31	0	0	0	0	0	0	0	0	0	0	0	0	0	31
Marsh	5	0	0	0	0	0	0	0	0	0	0	0	0	0	5
Mixed Upland Deciduous	0	0	0	0	0	0	8	0	0	0	0	0	0	0	8
Natural Mixed Pines	0	0	0	0	0	0	0	0	9	0	0	0	0	0	9
Northern Hardwood	0	8	0	0	7	7	58	46	0	26	4	0	0	9	165
Oak	0	0	0	0	0	11	0	0	0	0	0	0	0	0	11
Planted Mixed Pines	43	74	0	0	0	0	0	0	0	0	0	0	0	0	117
Red Pine	81	0	0	0	0	153	56	0	0	0	0	0	0	0	290
Treed Bog	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Upland Shrub	9	0	0	0	0	0	0	0	0	0	0	0	0	0	9
Urban	27	0	0	0	0	0	0	0	0	0	0	0	0	0	27
Water	54	0	0	0	0	0	0	0	0	0	0	0	0	0	54
White Pine	0	0	0	0	0	136	85	0	0	4	0	0	0	0	224
Total	612	120	52	29	668	548	278	112	13	38	137	0	0	146	2754



Report 2 – Proposed Treatment Summaries

Traverse City Mgt. Unit
Year of Entry 2016

Compartment 035
Total Compartment Acres: 2,754

Acres by Treatment Type

Commercial Harvest - 288 Tree Planting - 2 Other - 0
Habitat Cut - 0 Opening Maintenance - 10

Cover Type by Harvest Method

	<i>Clearcut</i>	<i>Selection</i>	<i>Seed Tree</i>	<i>Shelterwood</i>	<i>Thinning</i>	<i>Other - Specify</i>	<i>Total Acres</i>
Aspen Types	106	0	0	0	0	0	106
Lowland Deciduous Forest	17	0	0	0	0	0	17
Northern Hardwood	0	16	0	0	0	0	16
Planted Pines	20	0	0	0	130	0	149
Total	143	16	0	0	130	0	288



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Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
19 61035019-Cut1	31.8	42110 - Planted Red Pine	High Density Pole	55	171-200	Harvest	Crown Thinning	4211 - Planted Red Pine	Cmpt. Review Proposal

Prescription Specs: Mark to thin stand removing approximately 1/3 of overall volume. Target suppressed, forked or otherwise poorly formed trees for removal. Remove appropriate trees in and adjacent to any bark beetle pockets.

Other Comments: Row spacing is adequate for operation.

Next Steps:

Proposed Start Date: 10/01/2015

27 61035027-Cut	10.1	4130 - Aspen	High Density Pole	45		Harvest	Clearcut	413 - Aspen	Cmpt. Review Proposal
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Prescription Specs: Recommend final harvest of small stand to regenerate aspen. Leave trace conifer component in north central portion of stand and a few scattered larger diameter red maple. Avoid excessively wet areas, however dip treatment area into adjacent stand where possible - this will likely be a very small amount of stand 10 but should allow for some lowland harvest. Please include CWD (drumming log spec) in sale. Leave tops unchipped as much as possible to provide horizontal habitat component for wildlife. Please leave tops in scattered piles for wildlife habitat as much as possible. Any aspen cuts that are adjacent to a lowland stand please at conclusion of the sale have the logger fell the marked boundary trees in the adjoining lowland stand for hare habitat.

Other Comments: Landing option at northeastern portion of stand.

Next Steps:

Proposed Start Date: 10/01/2015

32 61035032-Cut1	6.0	4130 - Aspen	High Density Pole	48		Harvest	Clearcut with Reserves	413 - Aspen	Cmpt. Review Proposal
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Prescription Specs: Recommend harvesting all aspen in stand and any red maple present. Leave remaining species throughout and conifers in more open portions of stand - between clones. Please include CWD (drumming log spec) in sale. Leave tops unchipped as much as possible to provide horizontal habitat component for wildlife. Please leave tops in scattered piles for wildlife habitat as much as possible. Any aspen cuts that are adjacent to a lowland stand please at conclusion of the sale have the logger fell the marked boundary trees in the adjoining lowland stand for hare habitat.

Other Comments: Treat with adjacent stand 44 to the south. Determine at time of sale set up the viability of ash species within stand. If still alive harvest all ash - if declining or it is deemed suitable ash could be left to develop into snags or felled to create improved DWD in this area.

Next Steps:

Proposed Start Date: 10/01/2015

44 61035044-Cut	15.9	4112 - Maple, Beech, Cherry Association	High Density Log	76	141-170	Harvest	Single Tree Selection	4116 - Mixed N. Hardwood - Aspen	Cmpt. Review Proposal
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Prescription Specs: Consider treating stand by removing all beech and aspen. Either mark to leave or to cut red maple and black cherry - whichever approach makes the most sense considering that target residual including these three species should be in the 20-50BA range with pockets being more/less. Attempting to treat aggressively in order to achieve more desirable regen of BC and SM. Vernal feature/possible seep along western edge of stand should be avoided/buffered during sale set up. Please include CWD in sale. Leave tops unchipped as much as possible to provide horizontal habitat component for wildlife. Please leave tops in scattered piles for wildlife habitat as much as possible.

Other Comments: Old comments show red shouldered hawk nest in stand, did not see stand during inventory but will monitor during sale set up if treatment is deemed desirable.

Next Steps:

Proposed Start Date: 10/01/2015



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Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
47 61035047-Cut	5.4	4130 - Aspen	High Density Pole	47		Harvest	Clearcut with Reserves	413 - Aspen	Cmpt. Review Proposal

Prescription Recommend final harvesting stand with adjacent red pine stand and aspen stand further to the east if temporary bridge is deemed appropriate.
Specs: Leave some/all conifers for retention and aesthetic purposes. Late summer harvest would most likely be the best approach to accessing southern parts of this stand to avoid rutting issues. Please include CWD (drumming log spec) in sale. Leave tops unchipped as much as possible to provide horizontal habitat component for wildlife. Please leave tops in scattered piles for wildlife habitat as much as possible. Any aspen cuts that are adjacent to a lowland stand please at conclusion of the sale have the logger fell the marked boundary trees in the adjoining lowland stand for hare habitat.

Other
Comments:

Next
Steps:

Proposed
Start Date: 10/01/2015

49 61035049-Cut	6.5	42110 - Planted Red Pine	High Density Log	61	171-200	Harvest	Crown Thinning	4211 - Planted Red Pine	Cmpt. Review Proposal
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Prescription Recommend thinning stand by removing 1/3-1/2 of overall volume, some portions more volume should be removed - more of a shelterwood type of approach, most notably along west edge adjacent to aspen stand so that some aspen regen can creep into stand. Goal of harvest would be to steer stand towards more of a natural looking stand since final harvest/replant is not desirable due to small size of stand and it's proximity to PVT and Bear Creek corridor.

Other Likely landing area at northern end of sale will require some fill/gravel in ditch along Big Four Rd to access this and adjacent aspen stands. This fill
Comments: should be removed following harvest.

Next
Steps:

Proposed
Start Date: 10/01/2015

52 61035052-Cut1	38.2	42110 - Planted Red Pine	High Density Pole	55	171-200	Harvest	Low Thinning	4211 - Planted Red Pine	Cmpt. Review Proposal
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Prescription Recommend second thinning, with focus being on removing defected and poorly formed individuals while further releasing good quality individual
Specs: trees. Attempt to remove approximately 1/3 of overall volume.

Other
Comments:

Next
Steps:

Proposed
Start Date: 10/01/2015

64 61035064-Cut_small	39.3	4130 - Aspen	High Density Pole	41		Harvest	Clearcut with Reserves	413 - Aspen	Cmpt. Review Proposal
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Prescription Harvest portions/islands of stand along access road which runs through stand. Concentrate harvest areas along access road for access and landing
Specs: purposes. Target larger diameter aspen/clones while avoiding excessively wet areas. Harvest all aspen in treatment areas along with red maple. Leave conifers and majority, if not all black cherry. Expand treatment areas where possible into adjacent portions of stand and adjacent P-type stand if not deemed too wet during sale set up. Please include CWD (drumming log spec) in sale. Leave tops unchipped as much as possible to provide horizontal habitat component for wildlife. Please leave tops in scattered piles for wildlife habitat as much as possible. Any aspen cuts that are adjacent to a lowland stand please at conclusion of the sale have the logger fell the marked boundary trees in the adjoining lowland stand for hare habitat.

Other Treatment area may be adjusted during sale set up if wet areas are encountered.
Comments:

Next
Steps:

Proposed
Start Date: 10/01/2015



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Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
93 61035093-Cut1	20.0	42101 - Planted White Pine, Mixed Deciduous	High Density Pole	62	111-140	Harvest	Clearcut with Reserves	4191 - Mixed Upland Deciduous with Conifer	Cmpt. Review Proposal

Prescription Recommend removal harvest, taking white pine, red maple and aspen and leaving sugar maple and black cherry, some of which is good quality.
Specs: Mark to leave scattered high quality white pine throughout stand. No overall target white pine residual is recommended, shoot for 10-20 BA or less throughout. Some areas will have no white pine where overstory hardwoods are denser, other portions of stand may have higher white pine residual. In addition, pockets of stand will resemble more of a seed tree/final harvest where aspen densities are higher in order to achieve more diverse regeneration within stand.

Other Comments:

Next Steps:

Proposed Start Date: 10/01/2015

95 61035095-Cut_small	17.1	6112 - Lowland Aspen	High Density Pole	41		Harvest	Clearcut with Reserves	6112 - Lowland Aspen	Cmpt. Review Proposal
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Prescription Final harvest portion of stand in SE corner, near snowmobile trail. Majority of stand is quite wet, both year round and seasonally. Treatment area attempts to target parts of stand that are slightly more upland while also harvesting small pockets of adjacent lowland. Treatment specifics include leaving all conifers within treatment area which may include all of the following depending where treatment lines end up; cedar, hemlock, balsam fir and white pine. Harvest all aspen and red maple - could mark a few red maple to leave for aesthetics and seed source closer to snow trail. Please include CWD (drumming log spec) in sale. Leave tops unchipped as much as possible to provide horizontal habitat component for wildlife. Please leave tops in scattered piles for wildlife habitat as much as possible. Any aspen cuts that are adjacent to a lowland stand please at conclusion of the sale have the logger fell the marked boundary trees in the adjoining lowland stand for hare habitat.

Other Comments:

Next Steps:

Proposed Start Date: 10/01/2015

96 61035096-Cut1	17.0	42110 - Planted Red Pine	High Density Pole	55	171-200	Harvest	Low Thinning	4211 - Planted Red Pine	Cmpt. Review Proposal
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Prescription Treat stand by removing defected and poorly formed individuals. Thin strip between well site and Leffew road a bit heavier, more like a shelterwood.
Specs: Be mindful of stands proximity to Bear Creek during sale set up. Treat with stand 52 to the west

Other Comments:

Next Steps:

Proposed Start Date: 10/01/2015

112 61035112-Cut1	30.6	42110 - Planted Red Pine	High Density Log	64	171-200	Harvest	Crown Thinning	4211 - Planted Red Pine	Cmpt. Review Proposal
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Prescription Thin stand by removing 1/3 of overall volume, focusing on removing intermediate trees and any remaining defect in order to get stocking levels to more appropriate levels.

Other Comments: Snowmobile trail runs adjacent to northern edge of stand - protect trail using appropriate VMS specs for timber sale contract.

Next Steps:

Proposed Start Date: 10/01/2015



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Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
148 61035148-Cut	33.0	4130 - Aspen	High Density Pole	56		Harvest	Clearcut with Reserves	413 - Aspen	Cmpt. Review Proposal

Prescription Recommend harvesting portion of stand ~20-25 acres, leaving appropriate buffer along Healy Lake and some clumps along Healy Lake road created by variations in red line. Remove all aspen and red maple, leave red oak and black cherry. In addition, mark to leave 20-40 BA of red pine in northern portion of stand, along Healy Lake road for aesthetic purposes. Excessively wet areas should be avoided during sale set up or excluded from treatment area. Please include CWD (drumming log spec) in sale. Leave tops unchipped as much as possible to provide horizontal habitat component for wildlife. Please leave tops in scattered piles for wildlife habitat as much as possible. Any aspen cuts that are adjacent to a lowland stand please at conclusion of the sale have the logger fell the marked boundary trees in the adjoining lowland stand for hare habitat.

Other Comments: Per retention of red pine along Healy Lake which areremnant from adjacent red pine plantation but have mixed deciduous species scattered throughout - this will help to address aesthetics of sale along road.

Next Steps:

Proposed Start Date: 10/01/2015

165 61035165-Cut	5.3	42110 - Planted Red Pine	High Density Pole	54	171-200	Harvest	Systematic Thinning	4211 - Planted Red Pine	Cmpt. Review Proposal
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Prescription Recommend 3rd row thinning stand. Straight rows. Treat with stand 19 to the west.

Other Comments: Corners are present along western edge of stand to allow for PVT boundary delineation.

Next Steps:

Proposed Start Date: 10/01/2015

77 NF_61035077-Plant	2.1	3104 - Degraded				Tree Planting	Machine Plant	42110 - Planted Red Pine	Fld. Tr. Bdy. - Incomplete
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Prescription Revegetate. Plant to conifer-of-choice by FMFM. or use as timber landing.

Other Comments:

Next Steps: replant with conifer at time of planting stand 89

Proposed Start Date: Unspecified

15 NF_61035015-NonFor	2.4	3103 - Rubus-Fern				Non-Forest Management	Mowing	310 - Herbaceous Openland	Cmpt. Review Proposal
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Prescription Seed in forage crop appropriate for site location and seasonal (i.e. summer vs. winter forage) wildlife uses. May want/need to work around existing beneficial vegetation (i.e. blackberry).

Other Comments:

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

Proposed Start Date: 10/01/2015



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Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
28 NF_61035028-NonFor	1.5	6220 - Alder/willow				Non-Forest Management	Brush Cutting	622 - Lowland Shrub	Cmpt. Review Proposal

Prescription Cut declining alder and willow in order to stimulate regeneration of these lowland shrubs. Cut should take place during the dormant season.
Specs:

Other Comments:

Next Steps:

Proposed Start Date: 10/01/2015

29 NF_61035029-NonFor	0.8	6220 - Alder/willow				Non-Forest Management	Brush Cutting	622 - Lowland Shrub	Cmpt. Review Proposal
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Prescription Cut declining alder and willow in order to stimulate regeneration of these lowland shrubs. Cut should take place during the dormant season.
Specs:

Other Comments:

Next Steps:

Proposed Start Date: 10/01/2015

30 NF_61035030-NonFor	2.5	6220 - Alder/willow				Non-Forest Management	Brush Cutting	622 - Lowland Shrub	Cmpt. Review Proposal
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Prescription Cut declining alder and willow in order to stimulate regeneration of these lowland shrubs. Cut should take place during the dormant season.
Specs:

Other Comments:

Next Steps:

Proposed Start Date: 10/01/2015

33 NF_61035033-NonFor	4.4	6220 - Alder/willow				Non-Forest Management	Brush Cutting	622 - Lowland Shrub	Cmpt. Review Proposal
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Prescription Cut declining alder and willow in order to stimulate regeneration of these lowland shrubs. Cut should take place during the dormant season.
Specs:

Other Comments:

Next Steps:

Proposed Start Date: 10/01/2015

36 NF_61035036-NonFor	12.4	3301 - Low Density Deciduous Trees				Non-Forest Management	Mowing	31021 - Cool Season Grass	Cmpt. Review Proposal
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Prescription This opening was a traditional wildlife planting. May need some dozer work to pop some stumps. Disk in crab/quack grass, plant to annual rye for several years and then convert back to a pasture mix (i.e. clover/alfalfa).
Specs:

Other Comments:

Next Steps: Periodic maintenance such as mowing, fertilization, reseeding, and/or removal of woody encroachment. Could plant site appropriate native shrubs and/or mast producing trees for wildlife food and cover.

Proposed Start Date: 10/01/2015



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Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
37 NF_61035037-NonFor	22.8	3301 - Low Density Deciduous Trees				Non-Forest Management	Brush Cutting	320 - Upland Shrub	Cmpt. Review Proposal

Prescription If FRD agrees, include this stand in adjacent timber sale and, harvest woody encroachment to maintain upland brush/grassland community. Leave scattered mast producing trees and shrubs and/or conifers for wildlife food and cover. WLD can mark trees to cut or to leave. Hand fell if not commercially operable.

Other Comments:

Next Steps:

Proposed Start Date: 10/01/2015

45 NF_61035045-NonFor	1.1	3103 - Rubus-Fern				Non-Forest Management	Brush Cutting	320 - Upland Shrub	Cmpt. Review Proposal
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Prescription Selectively hand fell woody encroachment to maintain upland brush/grassland community. Leave scattered mast producing trees and shrubs and/or conifers for wildlife food and cover.

Other Comments:

Next Steps:

Proposed Start Date: 10/01/2015

50 NF_61035050-NonFor	16.8	3301 - Low Density Deciduous Trees				Non-Forest Management	Brush Cutting	320 - Upland Shrub	Cmpt. Review Proposal
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Prescription Would be nice to brush hog around select leave trees and/or patches. If unable to brush hog, selectively hand fell woody encroachment to maintain upland brush/grassland community. Leave scattered mast producing trees and shrubs and/or conifers for wildlife food and cover.

Other Comments:

Next Steps:

Proposed Start Date: 10/01/2015

75 NF_61035075-NonFor	6.4	6220 - Alder/willow				Non-Forest Management	Brush Cutting	622 - Lowland Shrub	Cmpt. Review Proposal
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Prescription Cut declining alder and willow in order to stimulate regeneration of these lowland shrubs. Cut should take place during the dormant season.

Other Comments:

Next Steps:

Proposed Start Date: 10/01/2015

102 NF_61035102-NonFor	3.7	3301 - Low Density Deciduous Trees				Non-Forest Management	Mowing	310 - Herbaceous Openland	Cmpt. Review Proposal
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Prescription This opening was a traditional wildlife planting. May need some dozer work to pop some stumps. Disk in crab/quack grass, plant to annual rye for several years and then convert back to a pasture mix (i.e. clover/alfalfa).

Other Comments:

Next Steps: Periodic maintenance such as mowing, fertilization, reseeding, and/or removal of woody encroachment. Could plant site appropriate native shrubs and/or mast producing trees for wildlife food and cover.

Proposed Start Date: 10/01/2015



S t a n d	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
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103	NF_61035103- NonFor	2.0	3103 - Rubus-Fern				Non-Forest Management	Mowing	310 - Herbaceous Openland	Cmpt. Review Proposal
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Prescription This opening was a traditional wildlife planting. May need some dozer work to pop some stumps. Disk in crab/quack grass, plant to annual rye for
Specs: several years and then convert back to a pasture mix (i.e. clover/alfalfa).

Other
Comments:

Next Periodic maintenance such as mowing, fertilization, reseeding, and/or removal of woody encroachment. Could plant site appropriate native shrubs
Steps: and/or mast producing trees for wildlife food and cover.

Proposed
Start Date: 10/01/2015

139	NF_61035139- NonFor	2.8	3202 - Autumn Olive/Honeysuckle				Non-Forest Management	Brush Cutting	320 - Upland Shrub	Cmpt. Review Proposal
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Prescription Selectively hand fell woody encroachment to maintain upland brush/grassland community. Leave scattered mast producing trees and shrubs and/or
Specs: conifers for wildlife food and cover. Could plant site appropriate native shrubs and/or mast producing trees for wildlife food and cover.

Other
Comments:

Next
Steps:

Proposed
Start Date: 10/01/2015

143	NF_61035143- NonFor	4.1	3104 - Degraded				Non-Forest Management	Brush Cutting	310 - Herbaceous Openland	Cmpt. Review Proposal
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Prescription Remove exotics as needed by herbiciding, or other methods. Seed in forage crop appropriate for site location and seasonal (i.e. summer vs. winter
Specs: forage) wildlife uses. May want/need to work around existing beneficial vegetation (i.e. blackberry).

Other
Comments:

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

Proposed
Start Date: 10/01/2015

144	NF_61035144- NonFor	16.2	3303 - Mixed Low Density Trees				Non-Forest Management	Brush Cutting	310 - Herbaceous Openland	Cmpt. Review Proposal
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Prescription Remove exotics as needed by herbiciding, or other methods. Seed in forage crop appropriate for site location and seasonal (i.e. summer vs. winter
Specs: forage) wildlife uses. May want/need to work around existing beneficial vegetation (i.e. blackberry).

Other
Comments:

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

Proposed
Start Date: 10/01/2015

**Total Treatment
Acreage Proposed: 378.3**



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Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
46 61035046-Cut	11.8	4130 - Aspen	High Density Pole	47		Harvest	Clearcut with Reserves	413 - Aspen	Cmpt. Review Proposal

Prescription Specs: If doable, recommend final harvesting aspen and red maple regardless of size. Leave all conifers for retention. Lobe in SE edge of stand may need to be excluded from treatment area if determined to be too wet during sale set up. Attempt to harvest pockets of aspen/red maple in adjacent lowland stand to the north if deemed appropriate during sale set up. Please include CWD (drumming log spec) in sale. Leave tops unchipped as much as possible to provide horizontal habitat component for wildlife. Please leave tops in scattered piles for wildlife habitat as much as possible. Any aspen cuts that are adjacent to a lowland stand please at conclusion of the sale have the logger fell the marked boundary trees in the adjoining lowland stand for hare habitat.

Other Comment: Need to determine if temporary bridge would be a viable option to access stand across small creek between this stand and stand 49 to the west. Access from north off Leffew Rd might also be a possibility however this would also require a creek/drainage/wet area crossing. Lots of wildlife activity throughout stand. Be mindful of setback from Bear Creek during sale set up. SW lobe is mainly red pine so this will address aesthetic concerns closer to PVT property while also leaving portion of stand closer to Bear Creek with a higher percentage of remaining canopy cover.

Next Steps:
Proposed Start Date: 10/01/2015

Limiting Factor 2D: Portable Bridge Needed (Dept. bridge will be adequate)

108 NF_61035108-NonFor	6.8	3301 - Low Density Deciduous Trees				Non-Forest Management	Mowing	310 - Herbaceous Openland	Cmpt. Review Proposal
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Prescription Specs: This opening was a traditional wildlife planting. May need some dozer work to pop some stumps. Disk in crab/quack grass, plant to annual rye for several years and then convert back to a pasture mix (i.e. clover/alfalfa).

Other Comment:
Next Steps: Periodic maintenance such as mowing, fertilization, reseeding, and/or removal of woody encroachment. Could plant site appropriate native shrubs and/or mast producing trees for wildlife food and cover.

Proposed Start Date: 10/01/2015

Limiting Factor 2G: Too wet (sensitive soils, does not include access issues)

Total Treatment Acreage Proposed: 18.6

Report 5 – Site Conditions

Traverse City Mgt. Unit

Compartment 035

Patrick Cotant : Examiner

Year of Entry 2016

Availability for Management

Total Acres	Acres		Dominant Site Conditions	Dominant Site Conditions									
	Available	Not Available		No	5C	5A	4A	3J	2H	2G	2D	1A	
691	619	71	Aspen	581	28			28	44		11		
50	50		Jack Pine	50									
370	370		Lowland Aspen/Balsam Poplar	354	16								
15	5	10	Lowland Conifers	5								10	
533	359	174	Lowland Deciduous	357		19			22	133	2		
8	8		Mixed Upland Deciduous	8									
9		9	Natural Mixed Pines							9			
164	161	4	Northern Hardwood	106	14		41			4			
11	11		Oak	11									
117	117		Planted Mixed Pines	117									
290	290		Red Pine	290									
224	224		White Pine	223			2						
2,482	2,215	267	Total Forested Acres	2,102	58	19	42	28	66	145	12	10	
	89%	11%	Relative Percent										

**Due to limitations in the current Site Conditions Analysis tool, all nonforested acres are considered available. Future development will enable analysis of nonforested types.*

Site No.	Dominant Site Availability	Dominant Site Condition	Acres	Other Site Condition	Other Site Condition	Other Site Condition	Other Site Condition
002	Not Available	1A: Federal/State/Local Law	10				
Comments:							
003	Available	4A: No merchantable products (see product standards)	27				
Comments:							

Report 5 – Site Conditions

Traverse City Mgt. Unit

Compartment 035

Patrick Cotant : Examiner

Year of Entry 2016

004	Available	4A: No merchantable products (see product standards)	6	
Comments:				
005	Available	4A: No merchantable products (see product standards)	9	
Comments:				
006	Not Available	2G: Too wet (sensitive soils, does not include access issues)	87	
Comments:				
007	Available	5C: Delay treatment for age/size class diversity or exceptional site quality	16	
Comments:				
008	Not Available	5A: Not able to obtain desirable regeneration	19	
Comments:				
010	Not Available	2H: Blocked by physical obstacle (e.g. upland stand in a lowland area)	56	3J: Water quality / BMPs (stream, river, or lake)
Comments:				
No viable access due to creeks blocking access and portable bridges not being an option due to lowland approaches.				

Report 5 – Site Conditions

Traverse City Mgt. Unit

Compartment 035

Patrick Cotant : Examiner

Year of Entry 2016

011	Not Available	2H: Blocked by physical obstacle (e.g. upland stand in a lowland area)	10	
Comments:				
012	Not Available	2G: Too wet (sensitive soils, does not include access issues)	35	3J: Water quality / BMPs (stream, river, or lake)
Comments:				
013	Available	5C: Delay treatment for age/size class diversity or exceptional site quality	10	
Comments: Stand acted as retention when surrounding areas were harvested last YOE. Recommend retaining stand for another YOE.				
014	Available	5C: Delay treatment for age/size class diversity or exceptional site quality	5	
Comments: Stand was retention during last YOE when surrounding stands were harvested.				
015	Not Available	3J: Water quality / BMPs (stream, river, or lake)	28	2G: Too wet (sensitive soils, does not include access issues)
Comments: Stand contains many wet areas. Flow heads in a southerly direction to creek on south side of 13 mile rd., recommend leaving stand as is and allowing to convert to red maple with aspen continuing to be a component. There are dry/upland areas w/in stand however these areas are small and therefore it would not be a viable option to commercially harvest. Could reevaluate during a dry year/late summer-fall to see status of stand for possible management.				

Report 5 – Site Conditions

Traverse City Mgt. Unit

Compartment 035

Patrick Cotant : Examiner

Year of Entry 2016

016	Available	2D: Portable Bridge Needed (Dept. bridge will be adequate)	12	
Comments: Evaluate viability of DNR temporary bridge to access stand and if deemed suitable, treat with 2 stands to the west.				
017	Available	5C: Delay treatment for age/size class diversity or exceptional site quality	23	
Comments: consider treating next YOY - aspen holding on fine.				
018	Not Available	2G: Too wet (sensitive soils, does not include access issues)	32	3J: Water quality / BMPs (stream, river, or lake)
Comments: Natural river zone along bear creek - lowland stand, quite wet throughout the year.				
019	Available	5C: Delay treatment for age/size class diversity or exceptional site quality	5	
Comments:				



Report 6 – PROPOSED SPECIAL CONSERVATION AREA* (SCA) DETAILS

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

SCA Name	SCA Category	Detail Type	Recommendation	Acres
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Comments



Report 7 – EXISTING SPECIAL CONSERVATION AREA DETAILS

* This is a list of SCA's for this compartment along with a 1/4 mile buffer surrounding the compartment. Refer to the Special Conservation Area Map for locations of the below listed Conservation Areas.

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	Riparian Area	A transitional area between aquatic and terrestrial ecosystems in which the terrestrial ecosystem influences the aquatic ecosystem and vice-versa. Because of the unique conditions adjacent to lakes, streams and open water wetlands, riparian areas harbor a high diversity of plants and wildlife. Riparian communities are ecologically and socially significant in their effects on water quality and quantity, as well as aesthetics, habitat, bank stability, timber production, and their contribution to overall biodiversity.



Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
1	4130 - Aspen	High Density Pole	18.5	45		trace canopy spp: yellow birch
3	42260 - Natural Pine, Mixed Deciduous	High Density Log	8.7	96	111-140	hummocky ground
4	6113 - Lowland Maple	High Density Log	87.0	107		hummocky and wet (bayou). previous O.I. data was excellent on a compartment level, so this age was used.
5	6112 - Lowland Aspen	High Density Pole	16.2	59		Difficult access, small unimproved two track enters stand off Big Four but is rutted and in general pretty wet. More upland to the west where aspen % is greater, much of it is decadent and many individual trees are providing cavity opportunities for wildlife. Descent amount of white pine around perimeter of stand especially near transition to adjacent MC9 stand.
8	6127 - Lowland Pine	High Density Pole	3.4	45	51-80	Small Natural Pine stand, two aged, dominated by 35 yr. age class.
10	6112 - Lowland Aspen	High Density Pole	44.1	45		Areas of upland throughout, but predominantly lowland.
13	4130 - Aspen	High Density Sapling	14.2	17		Transitions to lowland on west end.
17	6113 - Lowland Maple	High Density Log	19.1	Uneven Age	51-80	Year-round stream (w/bed&banks) flowing on south and west edge of stand.
18	4130 - Aspen	High Density Sapling	51.8	22		Roughly 60% of the stand is upland and 40% is lowland. Stand is a result of a previous harvest.
19	42110 - Planted Red Pine	High Density Pole	31.8	55	171-200	Stand responding well to thinning, overall quality is descent however suppressed and poorly formed trees are present - this along with BA levels warrants treatment on this stand. (old) hardwood understory increases in density as you head north. North part of stand has white pine as every third row in the edges of the plantation.
20	4110 - Sugar Maple Association	High Density Pole	3.5	106	81-110	Age taken from adjacent hardwood stand. Old railroad right-of-way passes through this stand. Trace of yellow birch, red maple, and white ash in canopy.
21	42100 - Planted White Pine	Medium Density Pole	24.2	55	51-80	Variable density in some places - more open or dense depending on quality and stocking prior to harvest. (old comment) Likely AFO or > habitat type. Avg. Ht.: 52'. Trace of white ash in canopy.
22	42100 - Planted White Pine	Medium Density Pole	65.0	62	51-80	Portion of the plantation west of the two-track has an age (planting record) of 46. Well developed sub-canopy in the east, somewhat less developed in the west. Height ranges from 63' (east) to 54' (west).
23	42200 - Natural White Pine	High Density Log	3.8	94	81-110	Fringes had aspen removed with a previous harvest. High water table (likely ParVCO habitat type).



	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
25	4130 - Aspen	High Density Pole	32.2	42		Remnant older aspen clones at the west end of stand 2nd age was taken on an older clone to the west end of the stand (away from the creek) and it was 45 years old.
26	6115 - Lowland Ash	High Density Sapling	10.8	53		Stand is on the floodplain for Bear Creek.
27	4130 - Aspen	High Density Pole	10.1	45		Upland portion, originally part of stand 10. Dominated by aspen with scattered red maple and black cherry poles. Western edge of stand tapers to adjacent lowland. Areas of upland throughout, but predominantly lowland.
31	4110 - Sugar Maple Association	High Density Log	25.8	91	81-110	Fair quality hardwood stand, significant ironwood and beech regeneration in portions of stand. Trace sugar maple regen along with pockets of ash regen in areas of stand with less stocking density and larger gaps in canopy. Some defect in larger diameter trees, some of this is being utilized by wildlife as den trees. Stand was select cut last yoe. Trace of big-tooth aspen, white ash, paper birch, beech, and basswood in the canopy.
32	4130 - Aspen	High Density Pole	6.0	48		Majority of stand is upland, slopes towards creek along western edge, small vernal pond/seep present in this area. Aspen is present in separate clones, with more open areas present in between. Vernal pond in west end on the creek bench.
34	6112 - Lowland Aspen	High Density Sapling	38.9	46		pocket of hemlock along Lefew Rd just west of Bear Creek, upland ridge with two track used by fisherman for river access and dispersed camping, rest of stand is lowland
38	4130 - Aspen	High Density Log	8.1	41		Some wet spots throughout stand, descent quality aspen, somewhat close proximity to Bear Creek and on a west facing slope towards creek/riparian area. Eastern edge of stand contains a shallow valley with standing water oriented in a N/S direction. Limits area of stand that can be harvested. (old comment) stand is hummocky with standing water in spots, bigtooth is along drier eastern part of the stand.
41	4199 - Other Mixed Upland Deciduous	High Density Pole	7.7	75	51-80	Interesting spp. combination (likely due to early successional nature of stand).
42	6117 - Lowland Deciduous, Mixed Coniferous	Medium Density Log	9.5	75		riparian area along creek
43	42100 - Planted White Pine	High Density Pole	28.4	56	81-110	Varying development of understory across stand. lots of sapling ash a the east end. Trace of white ash and red maple in canopy.



	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
44	4112 - Maple, Beech, Cherry Association	High Density Log	15.9	76	141-170	Moderate quality hardwood stand (15 ac) with RM, BC, SM and BTA (clone concentrated along western edge) being significant components. Beech, yellow birch and scattered white pine around the perimeter make up trace components. Much of the black cherry is of quite good quality. The sugar maple is of moderate quality as is the red maple - much of the RM is multiple stemmed but well-formed pole/log sized trees are common. Understory consists of scattered beech saplings in the 5-15' range. Black cherry regen is present where larger canopy gaps exist. BA ranges from 100-200 with the average in the 140-150 range. (old comment) generally low quality red maple, a few nicer quality B. cherry and s. maple, several large crowned beech with some aspen along southern edges
46	4130 - Aspen	High Density Pole	11.8	47		Aspen stand with red maple common throughout, some variability in overall size of aspen and red maple. Scattered white pine throughout along with some red pine in southern finger. Eastern portion of stand drops off towards creek and contains hummocky ground with high water table. Recommend placing harvest boundary at top of slope which would reduce treatment area of overall stand. traces of log size white pine
47	4130 - Aspen	High Density Pole	5.4	47		Aspen stand with descent volume and fair quality. As previous comments note stand is slightly wet seasonally in southern portion. (old) north end is a high ridge (access to pre-inv stand 49), south of that ridge stand drops off with a few lower areas that are seasonally wet, but not a true lowland.
48	42100 - Planted White Pine	Medium Density Pole	33.1	55	81-110	Heavy thinning conducted on stand, some areas more representative of a shelterwood harvest, some dense pockets of white pine present. Less developed sub-canopy in the east of the stand. Trace of sugar maple in canopy.
49	42110 - Planted Red Pine	High Density Log	6.5	61	171-200	Nice red pine stand growing well following previous treatment. (old) Tall trees 6-7 sticks, dump site old rusty five gallon cans and bottles, cans appear to be industrial in nature (fuel or possibly pesticides, possibly remnants from the old Bear Creek Fisheries Rearing Station (?) noted in OFS
51	42101 - Planted White Pine, Mixed Deciduous	High Density Pole	22.9	56	111-140	poor quality white pine, heavy weevil damage, several very large black cherry trees scattered throughout, (good source of cwd and den trees)
52	42110 - Planted Red Pine	High Density Pole	38.2	55	171-200	Stand is responding well to thinning last YO. Crowns are tight in most portions of stand, density is at a level where a thinning would be desirable. No sub-canopy
54	42110 - Planted Red Pine	High Density Pole	16.4	55	111-140	Small aspen habitat cut inclusion in stand.
57	4130 - Aspen	High Density Pole	16.5	46		Riparian edge, w/ hemlock and cedar along creek.
58	4130 - Aspen	High Density Pole	6.6	37		
59	42140 - Planted Mixed Pine	Low Density Sapling	42.6	5		



	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
63	6112 - Lowland Aspen	High Density Pole	3.8	37		
64	4130 - Aspen	High Density Pole	155.6	41		Aspen stand with red maple and black cherry common throughout, sometimes concentrated in high densities. Black cherry is of descent quality. Portions of stand are entirely upland with other areas being hummocky with occasional wet spots present. Large stand, would be beneficial to harvest portions in order to break up stand and create some variability in aspen age classes. (old comment) stand is generally upland with numerous springs, vernal ponds, and other seasonally low spots
65	6128 - Lowland Coniferous, Mixed Deciduous	Medium Density Log	1.9	101		
67	6117 - Lowland Deciduous, Mixed Coniferous	Medium Density Log	24.9	76	1-50	riparian area along Bear Creek
68	42100 - Planted White Pine	Medium Density Pole	18.5	53	81-110	AFO or higher habitat type. Ht. range 54'-56' (avg. 55').
69	6113 - Lowland Maple	High Density Pole	1.8	78		standed is a forested lowland area adjacent to bog, edge call because of standing water
70	42110 - Planted Red Pine	High Density Pole	29.5	55	111-140	Stand responding relatively well to thinning last YOE. Pretty significant hardwood regen in understory when compared to both red pine stands to the east and west. Quality is not as good overall compared to surrounding red pine stands - overall stocking is not as uniform/high either.
71	4112 - Maple, Beech, Cherry Association	High Density Pole	32.0	64	81-110	
72	6113 - Lowland Maple	High Density Pole	6.8	59		Hummocky, seasonally wet. Trace of yellow birch, hemlock and cedar in canopy.
74	6115 - Lowland Ash	High Density Sapling	3.3	58		Stand lies within the Bear creek floodplain (seasonally wet). Trace of yellow birch and red maple in the canopy.
78	4116 - Mixed N. Hardwood - Aspen	High Density Pole	14.9	64	81-110	
80	4139 - Aspen, Mixed Deciduous	High Density Pole	22.8	58		Immature un-even aged northern hardwood with a significant aspen component. Trace of white ash in canopy (aged at 51yrs.). Mixed ages on aspen clones. Hemlock on creek bluff face to north.
81	6115 - Lowland Ash	High Density Sapling	6.8	45		scattered cedar and hemlock in the canopy.
82	4112 - Maple, Beech, Cherry Association	High Density Pole	9.2	Uneven Age	111-140	



Stand	Traverse City Mgt. Unit		Report 8 – Forested Stands			Compartment: 035 Year of Entry: 2016	
	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:	
83	4130 - Aspen	Low Density Sapling	8.8	6		canopy data estimated from cutting records.	
84	6117 - Lowland Deciduous, Mixed Coniferous	Medium Density Log	13.4	85		riparian area along creek	
85	4130 - Aspen	High Density Pole	5.4	46			
86	4130 - Aspen	High Density Sapling	11.1	17		a few residual white pine in southeast part of stand, also a small inclusion of hardwood poles (<5 acres) in the south east visible in imagery	
87	6128 - Lowland Coniferous, Mixed Deciduous	High Density Pole	9.6	105		Trace of red maple and basswood in canopy.	
88	4110 - Sugar Maple Association	Low Density Log	18.2	79	1-50	Low density stand, just above 25% threshold. Lvl. 4 call/name isn't an accurate descriptor of stand.	
89	42110 - Planted Red Pine	Low Density Sapling	80.7	5			
91	4119 - Mixed Northern Hardwoods	Medium Density	7.6	17		was a jack pine strip final harvested in 1997, aspen and cherry are pole size residuals, hardwood encroachment was heavy enough that this stand was allowed to convert and was not replanted to red pine, light jack pine regen. heavy browse on red maple seedlings	
92	42141 - Planted Mixed Pine, Mixed Deciduous	Low Density Sapling	74.2	16		saps are 4 feet tall and beginning to fill in, also numerous jack pine volunteers and although it looks non-forested on the imagery, it definitely "looks" forested on the ground, so am assuming it is right at that 25% cc to qualify as forested,	
93	42101 - Planted White Pine, Mixed Deciduous	High Density Pole	20.0	62	111-140	Mixed stand of planted white pine and mixed deciduous. Many portions of stand are very mixed with hardwood present in high numbers along with dense regeneration of hardwoods in understory. Stand area is a hardwood site according to Kotar classification. (old comment) lots of deciduous in canopy	
94	4119 - Mixed Northern Hardwoods	Medium Density Pole	1.9	69	81-110	Beaver have worked the aspen in places, and the sprouts have been browsed. Trace of beech and sugar maple.	
95	6112 - Lowland Aspen	High Density Pole	266.8	41		Mixed stand with aspen being dominant. Red maple present in descent numbers along with pockets of cedar, hemlock and black ash throughout. Stand is wet with standing water present throughout much of stand at time of inventory. Southern edge of stand contains some springs leading to Lemon creek which have definitive flow to them. Pockets of stand are upland however these remain very difficult to access without causing significant rutting damage. Some ORV damage has been caused along old trail leading from southern end of access road within stand 64, rutting remains and is quite deep. (old comment) stand is generally lowland with some minor upland inclusions	



	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
96	42110 - Planted Red Pine	High Density Pole	17.0	55	171-200	Stand was row thinned last YOE and is responding well. Some irregularity in rows. (old comment) Ht range: 57-60'; avg ht: 58'.
98	4112 - Maple, Beech, Cherry Association	Low Density Pole	3.2	58	1-50	area not originally planted to jack pine, hardwood occupied site at time of planting and has continued to colonize stand (multiple ages)
99	4112 - Maple, Beech, Cherry Association	Low Density Pole	2.7	41	1-50	same as 92, with the exception of a few jack pine rows along the north edge that were cleared in 1997, area was hardwood residuals plus encroachment, all size classes present, manage in conjunction with adjacent red pine strips, by either promoting hardwood, or by final harvest, herbicide, and replant to red pine
101	4116 - Mixed N. Hardwood - Aspen	Medium Density Pole	4.5	46	1-50	don't like estimated level 4 call...we need an upland red maple type
104	6119 - Mixed Lowland Deciduous Forest	High Density Pole	4.0	66		traces of cedar, hemlock, and balsam fir
105	6113 - Lowland Maple	High Density Pole	62.6	66		west end a few larger log sized trees and very little conifer
106	4130 - Aspen	High Density Pole	33.5	53		mostly quaking w/ some bigtooth, stand is comprised of the "ridge tops" just coming up out of the adjoining lowland types
107	6113 - Lowland Maple	High Density Pole	11.8	66		standing water, moss, cattails, many snags, cinnamon fern, springs, skunk cabbage, very wet, pink lady slippers around edges, traces of hemlock, balsam fir, cedar
109	4139 - Aspen, Mixed Deciduous	High Density Pole	10.1	48		canopy data was lost during inventory update process for nearby stand, canopy data needs to be field verified when possible this is just an estimate.
111	4130 - Aspen	High Density Sapling	14.2	6		Canopy species composition estimated from treatment report.
112	42110 - Planted Red Pine	High Density Log	30.6	64	171-200	Stand treated last YOE. Growing well, high quality stand. BA ranges from 150-210.
113	6113 - Lowland Maple	High Density Log	22.2	78	81-110	stand contains a few upland areas, undulates between upland and lowland, but lowland dominates, sugar maple and beech confined to the upland areas
115	4112 - Maple, Beech, Cherry Association	Low Density Pole	3.6	55	1-50	don't like level 4 call, need upland red maple type
116	4139 - Aspen, Mixed Deciduous	Low Density Pole	5.2	56		formerly an opening
117	4130 - Aspen	High Density Pole	18.1	46		old blue paint markings through stand (remnants of the Crokey Lake Pathway), old white pine stumps throughout stand, quaking aspen is poor quality, starting to die even though relatively small size, check site suitability for aspen



	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
118	4112 - Maple, Beech, Cherry Association	High Density Pole	6.1	75	81-110	low quality stand, suppressed planted white pine throughout, red maple mostly multiple stem, a few good quality s. maple and b. cherry, WLD may want to retain for habitat (structural diversity w/ subcanopy) because this is not a common type in this area, traces of beech in the canopy
119	6119 - Mixed Lowland Deciduous Forest	High Density Pole	56.6	58		riparian area along Lemon Creek, good wooden bridge over Lemon Creek, looks like it is possibly used by ATV's during hunting season (no evidence of erosion or recent activity)
120	42110 - Planted Red Pine	High Density Pole	7.8	53	111-140	
122	42120 - Planted Jack Pine	High Density Sapling	21.3	5		Red pine growing fairly well, large amount of jack pine volunteers however have changed this stand from R3 to J3. (old comment) numerous natural regeneration jack pine seedlings present
125	4139 - Aspen, Mixed Deciduous	Medium Density	13.0	17		Survey type changed to edge/treatment report, because canopy data was lost during inventory update of adjacent stand. Canopy data was recreated from field notes and local knowledge of stand. It needs to be field verified and updated in the future.
128	4130 - Aspen	High Density Sapling	25.8	6		
129	4130 - Aspen	Low Density Sapling	21.3	6		old white pine stumps present in stand, oak confined to east half,
130	42120 - Planted Jack Pine	High Density Sapling	28.9	5		Red pine growing well, jack pine volunteers have taken over stand and changed type from R3 to J3. (old comment) numerous jack pine, natural regeneration along with the planted red pine
135	42101 - Planted White Pine, Mixed Deciduous	High Density Pole	8.5	54	141-170	
136	4121 - Oak, Aspen	High Density Pole	7.5	50	111-140	Oak/aspen stand with oak saps/poles constituting slight majority of stand with bigtooth aspen a significant component. Oak are most prevalent in stand along Healy Lake rd and as you move NW through stand. Aspen clones are located in larger lobe of stand, a great deal of which is directly adjacent to lowland stand to the west, however oak continues to be the dominant species. Red oak saps and poles are of relatively good quality. (old comment) several large log size mast producing oaks in southwest part of stand, aspen is healthy and vigorous (good site)
138	6113 - Lowland Maple	High Density Log	117.9	Uneven Age		stand encompasses areas of log and pole size trees, overall log size, standing water throughout, call made from numerous edge visits, traces of cedar
141	4123 - Red Oak	High Density Pole	3.6	51	51-80	aspen is old, poor health declining, fair number of snags, oak saps also present in stand, some of the log size red maple in the southwest part of stand are probably older, stand is a result of continued encroachment of adjacent open area
142	4112 - Maple, Beech, Cherry Association	High Density Log	1.4	76	81-110	suppressed red pine planted understory



	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
145	42110 - Planted Red Pine	High Density Log	19.1	64	141-170	Stand treated last YOY, responding well, stocking levels are again at a point where a thinning of defected and intermediate trees would be appropriate. Small bark beetle pocket in eastern portion of stand exists. few scattered large black cherry
146	4130 - Aspen	High Density Pole	27.8	56		Stand is quite wet with seeps/flows present heading from NE to SW through stand leaving small lenses/ridge of upland aspen/red maple. Western edge is relatively dry however this pocket combined with other small harvestable pockets within stand would not amount to much area. In addition, as stated in the old comments, red maple saps are very dense in places and may outcompete aspen regen - not sure of success of aspen regen. (old comment) heavy red maple regen. throughout, stand appears to be succeeding to red maple, not sure how well aspen would regen. with all this red maple, unidentified shrub species in the sub canopy
147	4139 - Aspen, Mixed Deciduous	Medium Density Pole	3.3	48		
148	4130 - Aspen	High Density Pole	33.0	56		Aspen is in good shape, small area of blow down (red maple & aspen) in center of stand. (old comment) red pine confined to area along road, could be thinned with stand to the north, ash saps in spots, red maple is clumpy and low quality, red oak poles are good quality, a few large mast producing oaks present in stand
149	6119 - Mixed Lowland Deciduous Forest	High Density Sapling	15.3	57		good regen for a lowland type, ash dominates east end, red maple dominates west end, heavy grass (may be causing some of the blue tint visible in the imagery)
152	6113 - Lowland Maple	High Density Log	34.6	101		lowland stand including transition areas to upland adjacent aspen (this is where s. maple and w. ash occur) with creek running through center, creek originates at Healy Lake and flows into Lemon Creek, small area of saplings near west of stand visible on imagery probably some type of disturbance
153	4139 - Aspen, Mixed Deciduous	Low Density Sapling	61.6	4		
154	6113 - Lowland Maple	Medium Density	6.7	56		previous inventory age was probably obtained in winter (high confidence in previous examiner) ground cover was water and moss
155	4112 - Maple, Beech, Cherry Association	High Density Log	4.6	78	111-140	stand is on two small upland ridges between adjacent lowland stands
157	4130 - Aspen	High Density Pole	3.3	56		
158	6119 - Mixed Lowland Deciduous Forest	High Density Sapling	18.4	30		a mixture of lowland forest species and sizes, conifers do not account for much in the way of canopy percentage, but number of different coniferous species seems significant in someway, thus the estimated cover type 6117
160	4130 - Aspen	High Density Sapling	28.9	6		

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Traverse City Mgt. Unit

Report 8 – Forested Stands

Compartment: 035
Year of Entry: 2016

	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
161	42110 - Planted Red Pine	High Density Pole	7.2	58	111-140	
162	4112 - Maple, Beech, Cherry Association	High Density Pole	9.6	61	81-110	Stand consists of red maple with some aspen throughout along with black cherry. Southern portion of stand borders creek bed and northern portion of stand is bordered on both sides by past harvests - this stand was used as retention when surrounding areas were harvested. Variability in terms of species make-up and stocking throughout.
163	4130 - Aspen	High Density Sapling	5.1	6		
164	4130 - Aspen	Low Density Sapling	1.7	6		
165	42110 - Planted Red Pine	High Density Pole	5.3	54	171-200	Small red pine plantation, adjacent to privately owned plantation of the same origin. No understory.



Stand	Cover Type	Acres	Managed Site	Management Priority (Objective)	General Comments:
2	3301 - Low Density Deciduous Trees	3.4	No	Low	2 clumps of aspen with occasional red maple and single paper birch. Some aspen seedlings. Some rubus, not raspberry/blackberry. North and east finger is a little wetter soils.
6	3301 - Low Density Deciduous Trees	1.4	Natural Regen	Low	Old well pad growing in. Mostly balsam poplar with a few white pine mixed in. Let succeed.
7	3203 - Upland Blueberry	3.7	No	Low	NW finger, the north 1/2 is blueberry, south 1/2 is chokeberry/sphagnum moss. Areas of chokeberry/willow/moss suggests some wet spots. Approximately 50-60% blueberry. Unlisted is unknown rubus specie.
9	6224 - Treed Bog	1.4	No	Low	Seasonally wet. Poor aspen. Allot of leatherleaf, chokeberry, and viburdam. Unknown lowland shrub.
11	6229 - Mixed lowland shrub	2.9	No	Low	Similar to other stand in area, except no leatherleaf and more blueberry. Good amount of viburnum.
12	3301 - Low Density Deciduous Trees	1.9	No	Low	Landowner planted a small patch of rye on state land next to his hunting stand. Mostly cool summer grasses and goldenrods. Unlisted one is goldenrod. Unlisted two is hawkweed.
14	3104 - Degraded	1.1	No	High	Degraded well site. MPSC 8978, just a pipe in the ground. Barren with st. johns wort, poverty grass, and rubus. One large cherry and one large red maple along perimeter.
15	3103 - Rubus-Fern	2.4	No	Low	Large black cherries with maple saplings underneath. Ground cover is dominated by bracken fern.
16	122 - Road/Parking Lot	6.4			
24	31021 - Cool Season Grass	2.1	No	Low	Mixed grasses with spotted knapweed/st. johns wort/milkweed/spurge/hoary alysum.
28	6220 - Alder/willow	1.5	No	Low	From edge, looks like it is a little more varied then stand 29. Full of tag alder. Black ash, some cedar and hemlock along perimeter. Ground cover is mixed forbs and grasses.
29	6220 - Alder/willow	0.8	No	Low	Mostly tag alders. Some cedar and hemlock along perimeter. Ground cover is mixed forbs, ferns, mixed grasses, joe pye weed, mosses, and various rubus species.
30	6220 - Alder/willow	2.5	No	Low	A mixture of lowland deciduous species (basswood, black ash, aspen) with some red maple. Surveyed from edge, could not tell what type(s) of trees made up the large canopy near river.



Stand	Cover Type	Acres	Managed Site	Management Priority (Objective)	General Comments:
33	6220 - Alder/willow	4.4	No	Low	Viewed from stand 30, across from Bear Crk. Tag alders, lowland deciduous, mixed grasses and forbs.
35	122 - Road/Parking Lot	1.2			
36	3301 - Low Density Deciduous Trees	12.4	No	Low	
37	3301 - Low Density Deciduous Trees	22.8	No	Low	
39	3202 - Autumn Olive/Honeysuckle	2.3	No	Low	An old well pad that was planted with autumn olive.
40	3104 - Degraded	2.6	No	Low	
45	3103 - Rubus-Fern	1.1	No	Low	Nice opening divided into 3 sections by clumps of black cherries/red maple. All bracken fern. Some cherry seedlings and one big juneberry SW side. Unlisted specie is hawkweed.
50	3301 - Low Density Deciduous Trees	16.8	No	Low	One large ash tree and one large juniper. A couple large black cherry mixed in with pole & sapling cherries.
53	3303 - Mixed Low Density Trees	3.5	Natural Regen	Low	Some red pine regeneration in center. Allot of goldenrod.
55	50 - Water	25.5	Plantation	Low	Tag alders along perimeter. Oyster fern, rubus species, mixed grasses, white cedar, patches of bulrush and joe pye weed.
60	3104 - Degraded	2.5	No	Medium	Unlisted specie is goldenrod.
61	3104 - Degraded	1.0	No	High	70% of opening is spotted knapweed and st. john's wort.
66	122 - Road/Parking Lot	5.2			
73	622 - Lowland Shrub	2.1			
75	6220 - Alder/willow	6.4	No	Low	Tag alders and black ash, some maple mixed in, along with white pine. Ground cover is a mixture of forbs and ferns. Very wet and buggy.
76	3104 - Degraded	1.9	No	High	Old oil pad is all spotted knapweed. Some oyster fern along perimeter. Some milkweed.



Stand	Cover Type	Acres	Managed Site	Management Priority (Objective)	General Comments:
77	3104 - Degraded	2.1	No	High	Degraded site. Unlisted one is hoary alysum. Unlisted two is mullein.
90	3104 - Degraded	2.9	No	High	85% degraded. North 15% is goldenrod. Unlisted one is hoary alysum, while unlisted two is goldenrod.
97	31021 - Cool Season Grass	1.9	No	Medium	Keep notes on the condition of this opening. Most well pads convert to degraded sites. Unlisted species is hoary alysum.
100	3104 - Degraded	1.1	No	High	40-50% mixed grasses, rest is st. johns wort and spotted knapweed. Mullein present.
102	3301 - Low Density Deciduous Trees	3.7	No	Low	Clumps of aspen saplings under a few pole aspen. Clumps of red maple with occasional cherry. Bracken fern groundcover.
103	3103 - Rubus-Fern	2.0	No	Low	
108	3301 - Low Density Deciduous Trees	6.8	No	Low	One apple tree along perimeter. Multiple clumps of witch hazel, different then other low density tree stands within area. Mostly pole/log black cherry. One clump of balsam poplar along south side.
110	3103 - Rubus-Fern	1.3	No	Low	
114	6220 - Alder/willow	6.1	No	Low	A mixture of tag alders with black ash. Ground cover is mostly lowland rubus species (gooseberry?), fern, mixed forbs, and jewelweed.
121	3105 - Mixed Upland Herbaceous	1.3	No	Low	Autumn olive in decline, but good bunch of it around perimeter. An old well site, growing in with mixed grasses and bracken fern. Still a pretty good amount of st. johns wort and spotted knapweed and hoary alysum.
123	6225 - Bog	6.6	No	Low	Unlisted specie is an unknown shrub, maybe mountain holly?
124	3104 - Degraded	1.0	No	High	60% spotted knapweed/st. john's wort/barren. Unlisted specie is mullein.
126	3105 - Mixed Upland Herbaceous	0.8	No	Low	
127	6220 - Alder/willow	2.0	No	Low	Inspected NW portion from edge. Looks like a tag alders, some cedar along the perimeter, white pine, mixed forbs, oyster ferns, bulrushes, and joe pye weed.



Stand	Cover Type	Acres	Managed Site	Management Priority (Objective)	General Comments:
131	3105 - Mixed Upland Herbaceous	1.8	No	Medium	At first glance, looks degraded. Amount of poverty grass/mixed grasses makes this opening mixed upland. Some pine regeneration along the south perimeter. Trace amount of mullein.
132	6233 - Wet Meadow	3.9	No	Low	Wet. Mixture of bulrush/sedges and grasses. Leatherleaf/blueberry/unknown shrub along perimeter.
133	6233 - Wet Meadow	1.0	No	Low	Wet. Lots of bulrushes/sedges. East portion has more mixed grasses.
134	6225 - Bog	8.9	No	Low	From aerial photo, looks like there is a wet meadow in center with lots of bulrush. The rest is a leatherleaf bog. Unknown shrub is the unlisted specie.
137	122 - Road/Parking Lot	11.6			
139	3202 - Autumn Olive/Honeysuckle	2.8	No	Low	Autumn olive. Family group (3-4 birds) of red-shouldered hawks on east side.
140	3103 - Rubus-Fern	3.8	No	Low	A few red pine seedling growing in.
143	3104 - Degraded	4.1	No	High	Seedling cherries evenly distributed. Lots of st. johns wort and spotted knapweed. Flat terrain.
144	3303 - Mixed Low Density Trees	16.2	Natural Regen	Low	Large clumps of trees are mostly aspen. Natural regenerating jack pine in pockets. Open areas has mixed grasses, st. johns wort, and spotted knapweed.
150	122 - Road/Parking Lot	1.7			
151	50 - Water	28.7			
156	622 - Lowland Shrub	2.8			
159	122 - Road/Parking Lot	1.1			