



Compartment Review Presentation

Atlanta Forest Management Unit

Compartment 172

Entry Year 2016

Acreage: 2,192

County Cheboygan

Management Area: Hammond Bay Lake Plain

Revision Date: 07/21/2014

Stand Examiner: John St. Pierre

Legal Description:

T37N, R1E, Sec. 20,21,28,&33.

Identified Planning Goals:

Within the Hammond Bay Lake Plain management area, 10-year harvest projections indicate that red pine and aspen cover types will be the primary focus for treatments (final and partial harvests). Management will strive to balance cover type age classes, produce sustainable forest products, enhance game and non-game wildlife habitat, protect areas of unique character and provide for forest-based recreational uses

Soil and topography:

Landtype Associations (LTAs) include East Lake (26%), Rubicon (15%), Au Gres (13%), and Croswell sands (7%). Lower lying areas feature Lupton (7%), Kinross (7%), and Roscommon mucks (2%) as well as Tawas peat (3%). Lesser prevalent sand and muck soil types populate the remainder of the compartment. Topography is generally flat with areas of slight undulation. The associated habitat types are PARVVb/AFO, PARVVb, PARVCo, and PARVHa. These habitat types lend themselves to succession toward White/Red Pine, Red Maple, Sugar Maple, and American Beech forests. Sandy lake plain over limestone bedrock near the surface is the dominant landform within this compartment.

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

Compartment 172 has both state and private-land interfaces on its extremities. Privately owned property bordering state land exists along the northern border of Section 21 and the entire southern border of Section 33.

Unique Natural Features:

MNFI known occurrence in the northeast portion of the compartment within Section 21. MNFI "community" hit for a 2011 survey that highlighted the features of this unique scrub bog. Management comments stated; "The main management recommendations are to allow natural processes to operate unhindered and to retain an intact buffer of natural communities surrounding the wetland to minimize the threat of hydrological alteration. In the event of wildfire, establishment of new fire lines should be avoided and existing fire breaks (i.e. roads and wetlands) should be used.

Archeological, Historical, and Cultural Features:

No Archeological, Historical, or Cultural Features known.

Special Management Designations or Considerations:

General forest health concerns and issues are present but not prevalent within this compartment. Beech Bark Disease (BBD), Emerald Ash Borer (EAB), and White Trunk Rot are present yet the cover types they affect are quite limited (beech & ash) within the compartment or haven't yet reached an age when most signs/symptoms appear (aspen). Almost no non-native/invasive flora was observed during the inventory process. Spotted Knapweed can be found along regularly traveled two-tracks and poor dirt roads but native flora remains dominant throughout compartment 172. It should be noted that inventory for this compartment was primarily conducted during the late winter months with two-plus feet of snow on the ground. These conditions weren't conducive to identifying all potential forest health issues and invasive flora present.

Watershed and Fisheries Considerations:

Wildlife Habitat Considerations:

The primary focus of wildlife habitat management will be to address the habitat requirements identified for the listed featured species found in this compartment. These species include American woodcock, pileated woodpecker, ruffed grouse, and white-tailed deer. Based on the selected featured species, some of the most significant wildlife management issues in the management area are the maintenance of young forest; the retention of large, over-mature trees and snags; and the maintenance and expansion of hard-mast and mesic conifer components.

Mineral Resource and Development Concerns and/or Restrictions

Surface sediments consist of lacustrine (lake) sand and gravel. The glacial drift thickness varies between 100 and 400 feet. Beneath the glacial drift is the Devonian Detroit River Group, used for dolomite/stone. A gravel pit is located one mile to the east and there may be some potential in the compartment. This area has had little drilling for oil and gas and potential appears to be limited. None of the State land is leased for oil and gas development.

Vehicle Access:

Seasonal county roads provide decent/good access into the compartment during snow-off conditions. Several poor-dirt and two-track roads exist offering further access during snow-off conditions. In winter, only Orchard Beach Rd is plowed by the county. In short, snowmobiles or snowshoes are the two means of getting into the majority of compartment 172 during heavy snow winters. Snowmobile Trail #99 is kept groomed during snowmobile season and breaks up very slowly following springs arrival (because of densely packed snow). The portion of Lake 16 Rd that crosses the large bog complex would currently have difficulty supporting anything larger than a standard work truck. Although, the forested area east of the bog has been treated in the past using the access Lake 16 Rd provides.

Survey Needs:

None.

Recreational Facilities and Opportunities:

Snowmobile Trail #99 and Black Lake ORV Trail(s) both wind through portions of compartment 172. Both of these trail systems are widely used by recreationists. Snowmobiles, ORVs, dirtbiking, hunting, and general meandering are extremely popular during the appropriate seasons.

Fire Protection:

A large component of natural and planted red pine cover types are found in compartment 172. The natural stands of red pine are undoubtedly of fire origin. Burn scar stumps are prolific throughout the compartment as well. This suggests that fire is a natural regime that has and will most likely occur again within the localized area. A small wildlife swept across a portion of C169, Stand 34 in 2009. This stand shares the northern boundary of compartment 172. Fire access into the compartment is generally suitable during snow-off conditions. Lake 16 and the open water portion of the bog southeast of Lake 16 Rd are the closest watering points. The small no-name lake south of Orchard Beach Rd in section 33 could be utilized, but access to the lake itself would be difficult.

Additional Compartment Information:

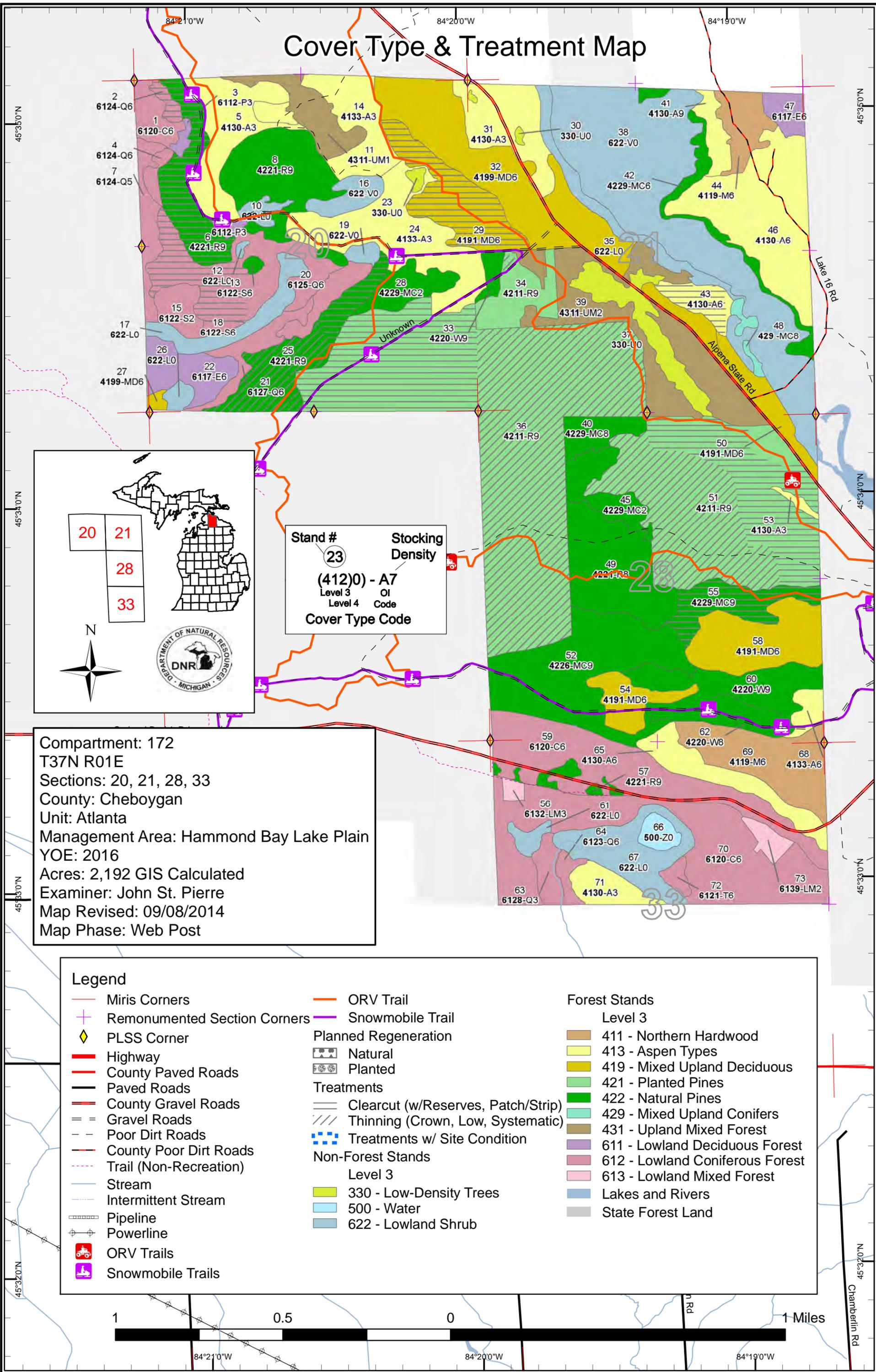
The following reports from the Inventory are attached:

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

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

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

Cover Type & Treatment Map



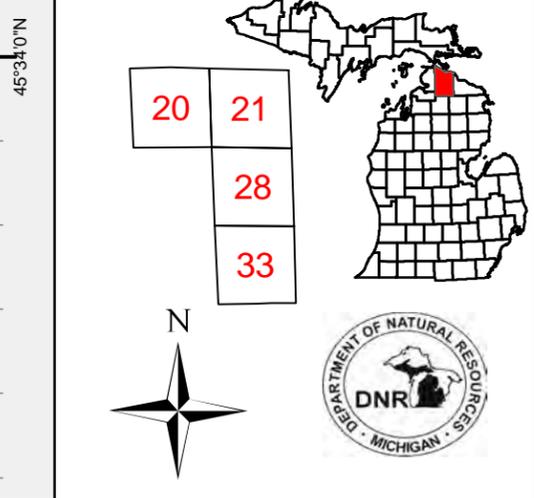
Stand #
 23
 (412)0 - A7
 Level 3 OI
 Level 4 Code
 Cover Type Code

Compartment: 172
 T37N R01E
 Sections: 20, 21, 28, 33
 County: Cheboygan
 Unit: Atlanta
 Management Area: Hammond Bay Lake Plain
 YOE: 2016
 Acres: 2,192 GIS Calculated
 Examiner: John St. Pierre
 Map Revised: 09/08/2014
 Map Phase: Web Post

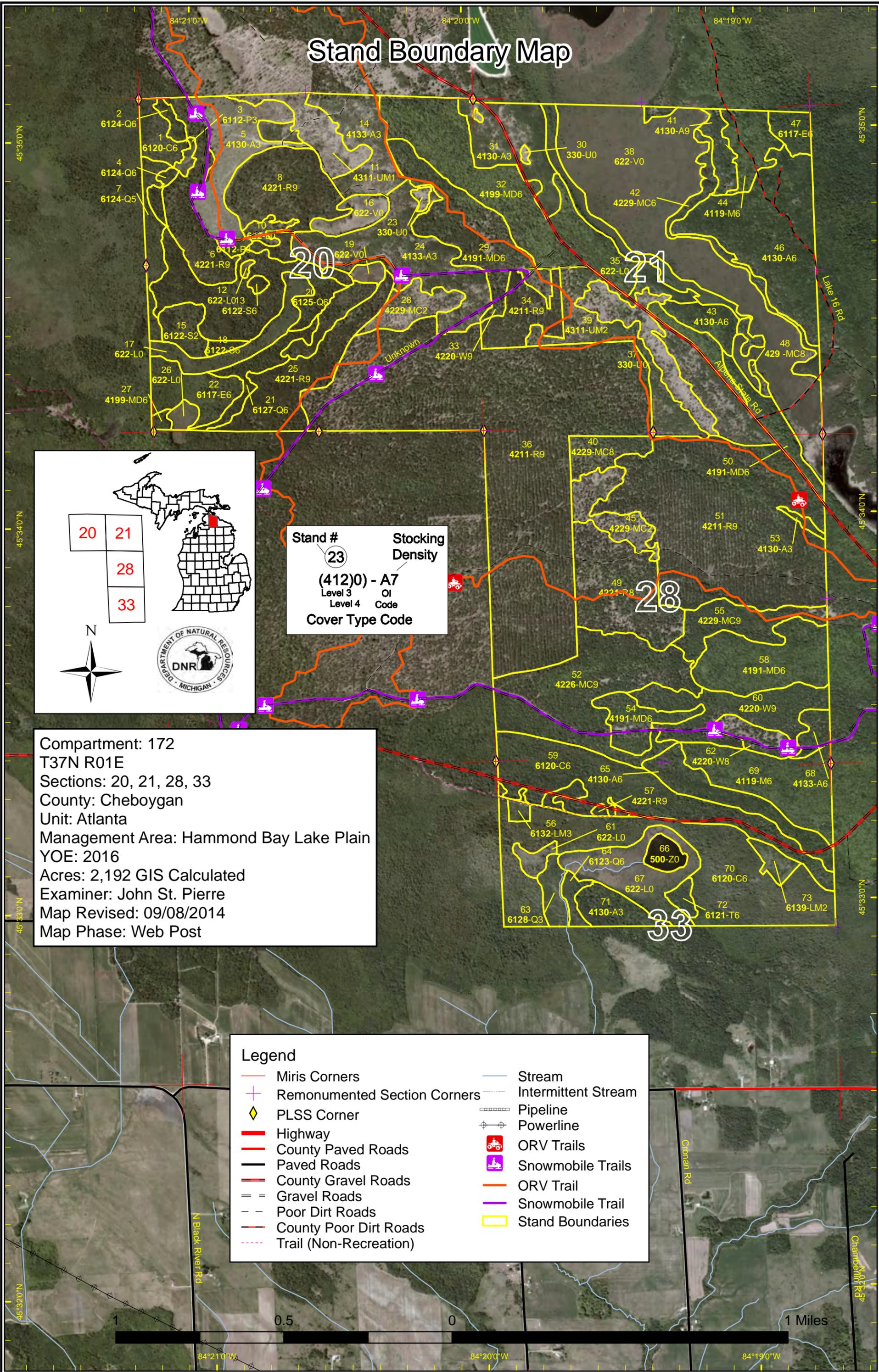
- Legend**
- Miris Corners
 - Remonumented Section Corners
 - PLSS Corner
 - Highway
 - County Paved Roads
 - Paved Roads
 - County Gravel Roads
 - Gravel Roads
 - Poor Dirt Roads
 - County Poor Dirt Roads
 - Trail (Non-Recreation)
 - Stream
 - Intermittent Stream
 - Pipeline
 - Powerline
 - ORV Trails
 - Snowmobile Trails
 - ORV Trail
 - Snowmobile Trail
 - Planned Regeneration
 - Natural
 - Planted
 - Treatments
 - Clearcut (w/Reserves, Patch/Strip)
 - Thinning (Crown, Low, Systematic)
 - Treatments w/ Site Condition
 - Non-Forest Stands
 - Level 3
 - 330 - Low-Density Trees
 - 500 - Water
 - 622 - Lowland Shrub
 - Forest Stands
 - Level 3
 - 411 - Northern Hardwood
 - 413 - Aspen Types
 - 419 - Mixed Upland Deciduous
 - 421 - Planted Pines
 - 422 - Natural Pines
 - 429 - Mixed Upland Conifers
 - 431 - Upland Mixed Forest
 - 611 - Lowland Deciduous Forest
 - 612 - Lowland Coniferous Forest
 - 613 - Lowland Mixed Forest
 - Lakes and Rivers
 - State Forest Land



84°21'0"W 84°20'0"W 84°19'0"W



Stand Boundary Map

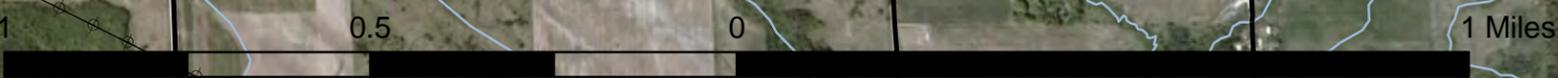


Stand #	Stocking Density
23	(412)0 - A7
	Level 3 OI
	Level 4 Code
	Cover Type Code

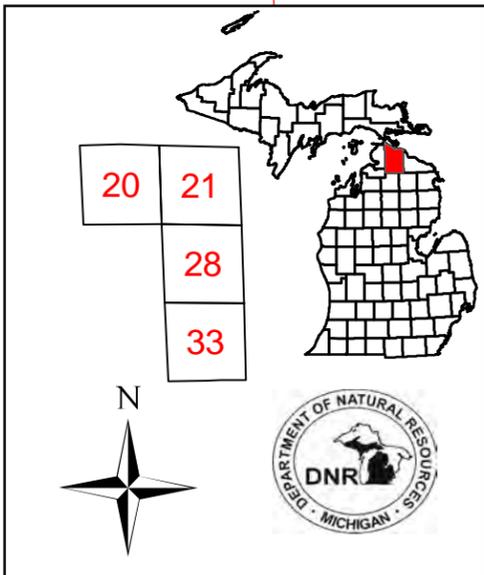
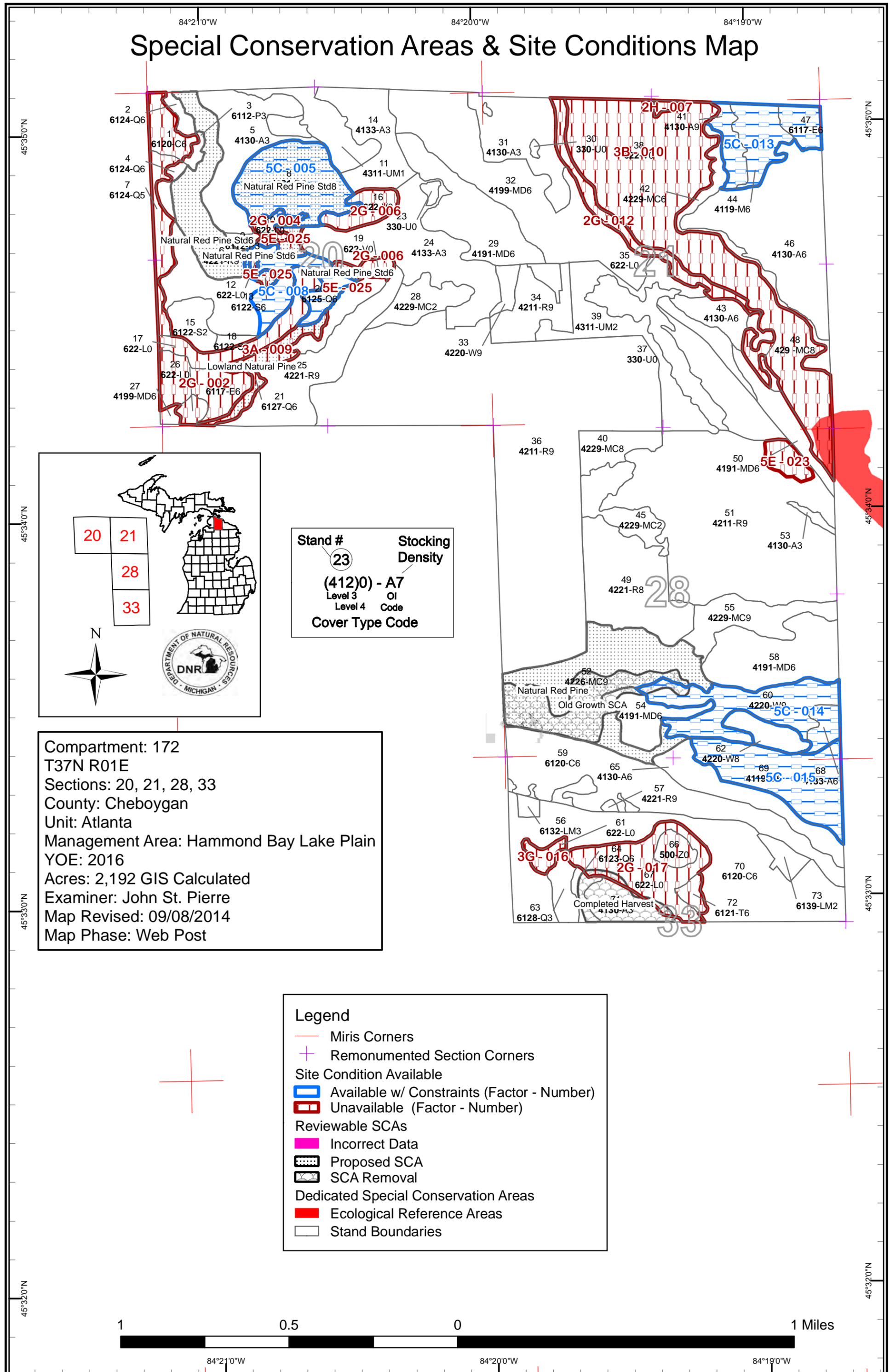
Compartment: 172
 T37N R01E
 Sections: 20, 21, 28, 33
 County: Cheboygan
 Unit: Atlanta
 Management Area: Hammond Bay Lake Plain
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 Acres: 2,192 GIS Calculated
 Examiner: John St. Pierre
 Map Revised: 09/08/2014
 Map Phase: Web Post

Legend

Miris Corners	Stream
Remonumented Section Corners	Intermittent Stream
PLSS Corner	Pipeline
Highway	Powerline
County Paved Roads	ORV Trails
Paved Roads	Snowmobile Trails
County Gravel Roads	ORV Trail
Gravel Roads	Snowmobile Trail
Poor Dirt Roads	Stand Boundaries
County Poor Dirt Roads	
Trail (Non-Recreation)	



Special Conservation Areas & Site Conditions Map

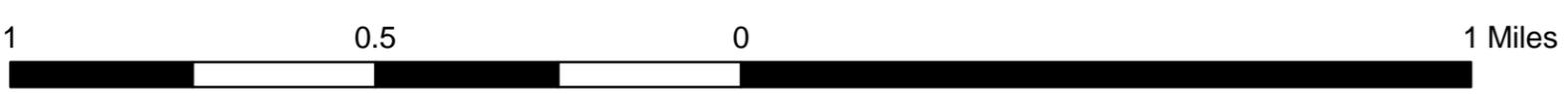


Stand #
23
Stocking Density
(412)0 - A7
Level 3 OI
Level 4 Code
Cover Type Code

Compartment: 172
T37N R01E
Sections: 20, 21, 28, 33
County: Cheboygan
Unit: Atlanta
Management Area: Hammond Bay Lake Plain
YOE: 2016
Acres: 2,192 GIS Calculated
Examiner: John St. Pierre
Map Revised: 09/08/2014
Map Phase: Web Post

Legend

- Miris Corners
- + Remonumented Section Corners
- Site Condition Available
- Available w/ Constraints (Factor - Number)
- Unavailable (Factor - Number)
- Reviewable SCAs
- Incorrect Data
- Proposed SCA
- SCA Removal
- Dedicated Special Conservation Areas
- Ecological Reference Areas
- 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	52	68	59	0	100	19	0	10	0	0	0	0	0	0	309
Bog	165	0	0	0	0	0	0	0	0	0	0	0	0	0	165
Cedar	0	0	0	0	0	0	0	0	0	113	0	73	0	0	187
Low-Density Trees	28	0	0	0	0	0	0	0	0	0	0	0	0	0	28
Lowland Aspen/Balsam Poplar	0	5	0	0	0	0	0	0	0	0	0	0	0	0	5
Lowland Conifers	0	0	0	9	11	5	31	0	4	0	0	0	0	0	59
Lowland Deciduous	0	0	0	21	0	0	0	0	8	0	0	0	0	0	30
Lowland Mixed Forest	0	0	8	0	0	0	0	0	0	0	0	0	0	0	8
Lowland Shrub	84	0	0	0	0	0	0	0	0	0	0	0	0	0	84
Lowland Spruce/Fir	0	0	0	11	2	0	0	0	0	52	0	0	0	0	66
Mixed Upland Deciduous	0	0	0	0	17	0	42	148	0	0	0	0	0	0	207
Natural Mixed Pines	0	19	15	17	0	0	24	94	0	0	0	0	0	0	169
Northern Hardwood	0	0	0	0	0	0	0	17	44	0	0	0	0	0	61
Red Pine	0	0	0	0	0	22	51	540	41	0	0	0	0	0	655
Tamarack	0	0	0	0	0	0	0	0	4	0	0	0	0	0	4
Upland Conifers	0	0	0	0	0	0	0	4	0	0	0	0	0	0	4
Upland Mixed Forest	0	20	70	0	0	0	0	0	0	0	0	0	0	0	90
Water	6	0	0	0	0	0	0	0	0	0	0	0	0	0	6
White Pine	0	0	0	0	0	0	0	51	5	0	0	0	0	0	56
Total	336	112	153	58	130	46	149	864	105	166	0	73	0	0	2192



Report 2 – Proposed Treatment Summaries

Atlanta Mgt. Unit
Year of Entry 2016

Compartment 172
Total Compartment Acres: 2,192

Acres by Treatment Type

Commercial Harvest - 626 Tree Planting - 202 Other - 0
 Habitat Cut - 0 Opening Maintenance - 0

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	11	0	0	0	0	0	0	11
Lowland Coniferous Forest	32	0	0	0	0	0	0	32
Mixed Upland Deciduous	40	0	0	0	0	0	0	40
Natural Pines	67	0	0	0	30	0	0	97
Planted Pines	159	0	0	0	288	0	0	447
Total	309	0	0	0	317	0	0	626



S t a n d	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
2	54172002-Cut	3.6	6124 - Lowland Spruce-Fir	High Density Pole	81	81-110	Harvest	Clearcut	6128 - Lowland Coniferous, Mixed Deciduous	Cmpt. Review Proposal

Prescription: Clearcut. TREAT CONCURRENT WITH Stand 13.

- Specs:
- Do not cut sub-merchantable spruce
 - No retention required to maximize regeneration
 - Require producer to lop and scatter spruce tops throughout the stand (as a seed source)
 - Conduct harvest during frozen winter (preferably Dec.15th - Mar.1st) or extremely dry summer months
 - Consider making this sale a 4-year contract

Other: Hauling operations will be accomplished using Snowmobile Trail 99.

Comments: Use current, standard trail specifications for safety and infrastructure protection.

Next Steps: Natural regen survey at 5-years and/or during 2024 inventory cycle. Natural regen goal is primarily black spruce but a mixture of spruce, pine, tamarack, cedar, soft maple, and aspen is acceptable.

Proposed Start Date: 10/01/2015

6	54172006-Cut	32.0	42210 - Natural Red Pine	High Density Log	78	111-140	Harvest	Clearcut with Reserves	4211 - Planted Red Pine	Cmpt. Review Proposal
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Prescription: Clearcut with Reserves. Use 2-inch spec. Replant to Red Pine. Consider treating concurrent with Stand 25 & 36's CCR/Replant RP prescriptions.

- Specs:
- Conduct harvest during frozen winter or dry summer months
 - Include 6-inch stump height spec in proposal (for trenching operations)
 - Require producer to chip tops

Other: Minimum retention for this stand will have already been met prior to sale prep (Site Condition 5E-025). However, consider placing a small retention island at the northern end of parent Stand 6 near OFS point "White Pine Pocket". This area features a representative mix of red/white pine and spruce.

Comments: Protect Black Lake ORV Trail and Snowmobile Trail 99 during treatment
Use current, standard trail specifications for safety and infrastructure protection.

Next Steps: Herbicide/Roller-Chop, Trench, and Replant. Post treatment site prep is likely. Heavy pockets of aspen and softwood saplings are present (and quite prolific) throughout treatment area.

Proposed Start Date: 10/01/2015

13	54172013-Cut	28.0	6122 - Black Spruce	High Density Pole	91	141-170	Harvest	Clearcut with Reserves	6128 - Lowland Coniferous, Mixed Deciduous	Cmpt. Review Proposal
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Prescription: Clearcut with Reserves. Partial treatment of Stand 13. TREAT CONCURRENT WITH Stand 2.

- Specs:
- Do not cut sub-merchantable spruce
 - Use 10-12% retention to create 5-7 Black Spruce seed source pockets. This roughly equates to half-acre size pockets. Orient these to maximize prevailing westerly winds and Black Spruce seed dispersal.
 - Include some Xlog red pine near Stand 6 within retention
 - Require producer to lop and scatter spruce tops throughout the stand (as a seed source)
 - Do not cut the limited red maple and aspen. The intent being to limit competition that black spruce may face after seeding in.
 - Harvest during frozen winter (preferably Dec.15th - Mar.1st) or extremely dry summer months
 - Consider making this sale a 4-year contract

Other: Hauling operations will be accomplished using Snowmobile Trail 99.

Comments: Use current, standard trail specifications for safety and infrastructure protection.

Next Steps: Natural regen survey at 5-years and/or during 2024 inventory cycle. Natural regen goal is primarily black spruce but a mixture of spruce, pine, tamarack, soft maple, and aspen is acceptable.

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
25	54172025-Cut	29.5	42210 - Natural Red Pine	High Density Log	78	171-200	Harvest	Crown Thinning	42210 - Natural Red Pine	Cmpt. Review Proposal

Prescription Free-Thin this natural red pine stand down to 130 BA.

Specs:

- Higher BA will help negate blow down atop this stands low and seasonally saturated soils
- Mark red pine of all diameter classes. Mark other species present if necessary.
- Focus marking defect prone pole and log size red pine and those with poor crown development. Large log size red pine should also be marked in areas to promote growing space for residuals with healthy crowns.
- Consider using "Hub and Spoke" marking to facilitate equipment mobility in densely stocked areas.
- Conduct harvest during frozen winter or dry summer months

Other Black Lake ORV Trail runs through treatment area.

Comments: Use current, standard trail specifications for safety and infrastructure protection.

Next Steps:

Proposed Start Date: 10/01/2015

25	54172025-Cut Clearcut/ Replant	10.9	42210 - Natural Red Pine	High Density Log	78	171-200	Harvest	Clearcut with Reserves	42110 - Planted Red Pine	Cmpt. Review Proposal
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Prescription Clearcut with Reserves. Use 2-inch spec. Replant to Red Pine. TREAT CONCURRENT WITH Stand 34's 3rd row thin & 36's CCR/Replant RP prescriptions.

Specs:

- Follow retention guidelines leaving 3-10% in islands. Focus retention island(s) along the northern boundary near bog.
- Include 6-inch stump height spec in proposal (for trenching operations)
- Require producer to chip tops

Other Black Lake ORV Trail skirts the southern boundary.

Comments: Use current, standard trail specifications for safety and infrastructure protection.

Next Steps: Trench and Replant. Herbicide and/or roller chopping prior to replant is unlikely. Current understory is negligible. Verify this before any adjacent site prep applications begin.

Proposed Start Date: 10/01/2015

29	54172029-Cut	40.5	4191 - Mixed Upland Deciduous with Conifer	High Density Pole	69	141-170	Harvest	Clearcut with Reserves	4133 - Aspen, Mixed Pine	Cmpt. Review Proposal
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Prescription Clearcut with Reserves. Use 2-inch spec.

Specs:

- Follow retention guidelines leaving 3-10% in islands
- Create at least two retention islands and focus one along Black Lake ORV Trail
- A prominent patch of pine (red/white) is found within the northern finger. Consider including all or a portion of this within the second retention island.
- Leave (not to exceed 10 BA) a limited number of open grown & limby RP/WP for structural/species diversity and wildlife utilization
- Do not cut the limited amount of red oak for current and future mast production
- Do not cut red pine less than 4.5" DBH during treatment
- Whole tree skid when ground is not frozen to promote scarification

Other Black Lake ORV Trail runs through the treatment area.

Comments: Use current, standard trail specifications for safety and infrastructure protection.

Next Steps: Natural regen survey. Acceptable regeneration includes a mixture of aspen, red/white pine, and northern hardwood species.

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
34	54172034-Cut	0.8	42110 - Planted Red Pine	High Density Log	59	141-170	Harvest	Systematic Thinning	4211 - Planted Red Pine	Cmpt. Review Proposal
<p><u>Prescription</u> Systematic 3rd row thin of planted Red Pine. TREAT CONCURRENT WITH Stand 25 & 36's CCR/Replant Red Pine prescriptions.</p> <p><u>Specs:</u></p> <ul style="list-style-type: none"> - Identify appropriate rows for operator to harvest - Manually mark red pine to facilitate equipment mobility if necessary <p><u>Other</u> Remainder of this stand was 3rd row thinned in 2007.</p> <p><u>Comments:</u> Snowmobile Trail 99 runs along treatments southern boundary. Use current, standard trail specifications for safety and infrastructure protection.</p> <p><u>Next Steps:</u></p> <p><u>Proposed Start Date:</u> 10/01/2015</p>										

36	54172036_Cle arcut-Cut	91.1	42110 - Planted Red Pine	High Density Log	75	111-140	Harvest	Clearcut with Reserves	42110 - Planted Red Pine	Cmpt. Review Proposal
<p><u>Prescription</u> Clearcut with Reserves. Use 2-inch spec. Replant to Red Pine. TREAT CONCURRENT WITH Stand 25's CCR/Replant RP & 34's 3rd row thin.</p> <p><u>Specs:</u></p> <ul style="list-style-type: none"> - Follow normal retention guidelines leaving 3-10% in islands. Focus retention island(s) near the treatment boundary to facilitate aerial spraying. Where possible; place retention around oak sapling, pole, and log production to promote current and future mast crops. - Include 6-inch stump height spec in proposal (for trenching operations) - Require producer to chip tops <p><u>Other</u> Black Lake ORV Trail and Snowmobile Trail 99 run through the treatment area.</p> <p><u>Comments:</u> Use current, standard trail specifications for safety and infrastructure protection.</p> <p><u>Next Steps:</u> Following clearcut and prior to replanting site prep, identify pockets of oak to exclude from chemical/mechanical treatment. These could supplement oak retention created prior to harvest. Herbicide/Roller-Chop, Trench, and Replant. Post treatment site prep is likely. Heavy pockets of aspen and hardwood saplings are present (but not always prolific) throughout treatment area.</p> <p><u>Proposed Start Date:</u> 10/01/2015</p>										

36	54172036_Thi n-Cut	198.2	42110 - Planted Red Pine	High Density Log	75	111-140	Harvest	Crown Thinning	4211 - Planted Red Pine	Cmpt. Review Proposal
<p><u>Prescription</u> Marking Thin down to 120 BA.</p> <p><u>Specs:</u></p> <ul style="list-style-type: none"> - BA ranges vary depending on where swings are taken (see Stand History below). Focus swings within the stocked/uncut rows of RP when marking down to 120 BA. - Mark defect prone pole and log size RP and those with poor crown development. Larger log size planted RP should also be marked to promote growing space for residuals with healthy crowns. - Retain the few super-canopy natural RP's present for structural diversity - Marking during leaf-off season is recommended <p><u>Other</u> Black Lake ORV Trail runs through the treatment area.</p> <p><u>Comments:</u> Use current, standard trail specifications for safety and infrastructure protection. Stand History: Planted 5-rows of RP and 2-rows of JP in 39-40'. Species thin removed the 2-rows of JP, aspen, and mixed-hardwood in 96-98'. Now 5-row RP remain (separated by the 2-rows of JP that were cut).</p> <p><u>Next Steps:</u> Allow this stand (and the thinned portion of Stand 51) to develop for the at least the next 15-20 years before applying a final harvest/replant operation.</p> <p><u>Proposed Start Date:</u> 10/01/2015</p>										

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Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
43 54172043-Cut	10.7	4130 - Aspen	High Density Pole	50	141-170	Harvest	Clearcut	413 - Aspen	Cmpt. Review Proposal

Prescription Clearcut. Use 2-inch spec.

Specs:

- No retention* (see spec below) to maximize regeneration
- Exclude hemlock seedlings/saps/logs from falling within the western boundary of the treatment area. If unable to exclude hemlock, create small retention pockets around seedlings/saplings and do not cut pole/log size hemlock.
- Do not cut the few pine species 18" or greater to enhance structural diversity
- Recommend harvesting during frozen winter or dry summer months on this transitional ground

Other

Comments:

Next Steps: Natural regen survey. Acceptable regeneration includes a mixture of aspen, pine, and deciduous species (primarily red maple).

Proposed

Start Date: 10/01/2015

51 54172051_Cle arcut/Replant	68.3	42110 - Planted Red Pine	High Density Log	75	111-140	Harvest	Clearcut with Reserves	4211 - Planted Red Pine	Cmpt. Review Proposal
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Prescription Clearcut with Reserves. Use 2-inch spec. Replant to Red Pine. Consider treating concurrent with Stand 25 & 36's CCR/Replant RP

Specs:

- prescriptions.
- Include 6-inch stump height spec in proposal (for trenching operations)
- Require producer to chip tops

Other Minimum retention for this stand will have already been met prior to sale prep (Site Condition 5E-023).

Comments: Black Lake ORV Trail and Snowmobile Trail 99 both run through the treatment area.
Use current, standard trail specifications for safety and infrastructure protection.

Next Steps: Following clearcut and prior to replanting site prep, identify pockets of oak to exclude from chemical/mechanical treatment. These could supplement the Oak, RP, WP retention created in the stands northeast corner (5E-023).
Herbicide/Roller-Chop, Trench, and Replant. Post treatment site prep is likely. Heavy pockets of aspen and hardwood saplings are present (and prolific) throughout treatment area.

Proposed
Start Date: 10/01/2015

51 54172051_Thi n-Cut	88.6	42110 - Planted Red Pine	High Density Log	75	111-140	Harvest	Crown Thinning	4211 - Planted Red Pine	Cmpt. Review Proposal
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Prescription Marking Thin down to 120 BA.

Specs:

- BA ranges vary depending on where swings are taken (similar "Stand History" as Std.36). Focus swings within the stocked/uncut rows of RP when marking down to 120 BA.
- Mark defect prone pole and log size RP and those with poor crown development. Larger log size planted RP should also be marked to promote growing space for residuals with healthy crowns.
- The irregular shaped, northwest portion (~16ac) of this stand wasn't thinned in 96-98' and contains a larger component of white pine. Focus marking RP first in order to meet the 120 BA target.
- Retain the few super-canopy natural RP's present for structural diversity
- Marking during leaf-off season is recommended

Other Black Lake ORV Trail runs through the treatment area.

Comments: Use current, standard trail specifications for safety and infrastructure protection.

Next Steps: Allow this stand (and the thinned portion of Stand 36) to develop for the at least the next 15-20 years before applying a final harvest/replant operation.

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
55	54172055-Cut	24.4	42290 - Natural Mixed Pine	High Density Log	69	141-170	Harvest	Clearcut with Reserves	4191 - Mixed Upland Deciduous with Conifer	Cmpt. Review Proposal

Prescription Clearcut with Reserves. Use 2-inch spec.

Specs:

- Follow retention guidelines leaving 7-10% in islands
- Create at least two retention islands and focus one along Black Lake ORV Trail
- Include representative examples of Xlog RP/WP within retention
- Exclude Hemlock saps/poles/logs from treatment area when running the southern boundary line
- Do not cut the limited amount of oak for current and future mast production
- Whole tree skid when ground is not frozen to promote scarification

Other Black Lake ORV Trail runs through treatment area.

Comments: Use current, standard trail specifications for safety and infrastructure protection.

Next Natural regen survey. Acceptable regeneration includes a mixture of red/white pine, soft maple, and aspen.

Steps:

Proposed

Start Date: 10/01/2015

**Total Treatment
Acreage Proposed: 626.5**

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

Prescription
Specs:

Other
Comment:

Next
Steps:

Proposed
Start Date: #Type!

Limiting Factor

Total Treatment
Acreage Proposed: 0.0

Report 5 – Site Conditions

Atlanta Mgt. Unit
John St. Pierre : Examiner

Compartment 172
Year of Entry 2016

Availability for Management

Total Acres	Acres		Dominant Site Conditions	No	5E	5C	3A	2H	2G
	Available	Not Available							
308	308		Aspen	291		17			
186	176	11	Cedar	176					11
5	5		Lowland Aspen/Balsam Poplar	5					
58	32	27	Lowland Conifers	32			13		13
30	8	21	Lowland Deciduous			8			21
8	8		Lowland Mixed Forest	8					
65	65	0	Lowland Spruce/Fir	41		24			0
207	207		Mixed Upland Deciduous	207					
169	167	2	Natural Mixed Pines	167				2	
60	60		Northern Hardwood			60			
654	639	15	Red Pine	598	15	41			
4		4	Tamarack						4
4	4		Upland Conifers	4					
90	90		Upland Mixed Forest	90					
55	55		White Pine	15		40			
1,904	1,825	79	Total Forested Acres	1,634	15	191	13	2	49
	96%	4%	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 Cond Availability	Dominant Site Condition	Acres	Other Site Condition	Other Site Condition	Other Site Condition	Other Site Condition
002	Not Available	2G: Too wet (sensitive soils, does not include access issues)	68	3A: Potential old growth / biodiversity			
Comments: Too wet and areas with non-merchantable forest products.							
004	Not Available	2G: Too wet (sensitive soils, does not include access issues)	5				
Comments: Lowland with non-merchantable products.							

Report 5 – Site Conditions

Atlanta Mgt. Unit
John St. Pierre : Examiner

Compartment 172
Year of Entry 2016

005	Available	5C: Delay treatment for age/size class diversity or exceptional site quality	41	No Limiting Factor	
Comments: Fire origin natural red pine. Thinned during the late 90's and is currently putting on good diameter growth. Most RP is still large pole/small log size even though it's the (was) same age as the RP found in Stand 6. Allow the stand to do its thing.					
006	Not Available	2G: Too wet (sensitive soils, does not include access issues)	14		
Comments: Small Bogs.					
007	Not Available	2H: Blocked by physical obstacle (e.g. upland stand in a lowland area)	2		
Comments:					
008	Available	5C: Delay treatment for age/size class diversity or exceptional site quality	24		
Comments: 31-acres of this Black Spruce stand (Stand 13) are being treated. Regeneration of the harvested portion will be surveyed before any further treatment is proposed within this stand.					
009	Not Available	3A: Potential old growth / biodiversity	14	5A: Not able to obtain desirable regeneration	No Limiting Factor
Comments: A unique lowland natural pine site featuring Red Pine, White Pine, and Black Spruce. Unlikely that if a treatment took place that the species present would regenerate back to present composition.					

Report 5 – Site Conditions

Atlanta Mgt. Unit
John St. Pierre : Examiner

Compartment 172
Year of Entry 2016

010	Not Available	3B: Threatened, endangered, and special concern species/communities	151	2G: Too wet (sensitive soils, does not include access issues)	4A: No merchantable products (see product standards)
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Comments:

MNFI "community" hit for a 2011 survey that highlighted the features of this unique scrub bog. Management comments stated; "The main management recommendations are to allow natural processes to operate unhindered and to retain an intact buffer of natural communities surrounding the wetland to minimize the threat of hydrological alteration. In the event of wildfire, establishment of new fire lines should be avoided and existing fire breaks (i.e. roads and wetlands) should be used.

012	Not Available	2G: Too wet (sensitive soils, does not include access issues)	18	4A: No merchantable products (see product standards)	
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Comments:

Too wet and primarily dominated by tag alder and lowland brush. Also serves as a buffer and filter strip for adjacent bog.

013	Available	5C: Delay treatment for age/size class diversity or exceptional site quality	35		
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Comments:

Access into the area east of bog is not optimal but can and has been done. Cody said Lake16 Rd across bog would need to be froze in to treat areas east of bog. Wait to treat Stands 41, 44, and 47 until the aspen in Stand 46 has reached economic and developmental maturity. Consult Stage 1 data for stand data and future treatment comments.

014	Available	5C: Delay treatment for age/size class diversity or exceptional site quality	47	No Limiting Factor	
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Comments:

Natural white pine stand that connects to a significant amount of natural red pine found within Stand 52. Maintain this natural pine corridor indefinitely or until pine regeneration results can be assessed following the treatment in Stand 55. Treat Stand 68 following next inventory cycle as it could use the time to mature further.

Report 5 – Site Conditions

Atlanta Mgt. Unit
John St. Pierre : Examiner

Compartment 172
Year of Entry 2016

015	Available	5C: Delay treatment for age/size class diversity or exceptional site quality	43	5B: Maintain for regeneration purposes
Comments: Exceptional Eastern Hemlock sapling/seedlings regeneration present. Average diameters of most species present are still only pole size, despite the stands age. Allow American beech to fall out of the stand. The bulk of the beech observed is of pulpwood size and quality. Eastern hemlock seedlings will benefit from increased nurse log material and sugar maple will grow into canopy gaps vacated by American beech.				
016	Not Available	3G: Other Influence zones - See comments	5	5B: Maintain for regeneration purposes
Comments: Large cedar blow down that is a complete tangle making the area inoperable. Will most likely promote regeneration of lowland species over time.				
017	Not Available	2G: Too wet (sensitive soils, does not include access issues)	44	3A: Potential old growth / biodiversity
Comments: Small no-named lake (Stand 66), brushy lowland (Stand 67), and small but pure pole sized tamarack stand (Stand 72). Stand 72 is the only tamarack stand within the compartment. It would be difficult to treat given its location, operational difficulties, and small stand size.				
023	Not Available	5E: Long Term Retention	7	
Comments: Long term retention created for clearcut and replant portion of Stand 51.				
025	Not Available	5E: Long Term Retention	8	
Comments: Long term retention for natural red pine Stand 6.				



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
Lowland Natural Pine	Habitat Areas or Corridors	Other Habitat Area	SCA	13.5
Comments A unique lowland natural pine site featuring Red Pine, White Pine, and Black Spruce. Unlikely that if a treatment took place that the species present would regenerate back to present composition.				
Natural Red Pine Std6	Habitat Areas or Corridors	Other Habitat Area	SCA	39.8
Comments Tied to the SCA Nomination.				
Natural Red Pine Std8	Habitat Areas or Corridors	Other Habitat Area	SCA	41.3
Comments Fire origin natural red pine. Looking for specialist input.				
Natural Red Pine	Habitat Areas or Corridors	Other Habitat Area	SCA	80.4
Comments				
Old Growth SCA	Habitat Areas or Corridors	Other Habitat Area	SCA Removal	36.3
Comments POTENTIAL OLD GROWTH				



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
ERA	Ecological Reference Areas	Ecological Reference Areas (ERAs) are high quality examples of natural communities that have been identified as Element Occurrences (EOs) by the Michigan Natural Features Inventory (MNFI) within the context of their natural community classification system. Element Occurrences with viability ranks of A (Excellent) or B (Good) and a Global (G) or State (S) element (rarity) ranking of endangered (1), threatened (2), or rare (3) serve as an initial base of ERAs. They may be located upon any ownership in the State. The system is comprised of individual or associations of natural community types that are managed for restoration and maintenance of natural ecological processes and values. The public may submit recommendations for lands as ERAs using the DNR Conservation Area Recommendation Form.



	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
1	6120 - Lowland Cedar	High Density Pole	11.0	95	111-140	The southernmost portion of this stand is a transition zone with a deciduous/conifer mix. Nearly pure northern white cedar (pole size) begins north of the transition zone. Overstory black spruce is common throughout. Some cedar is losing foliage on upper most tops/branches. This is allowing limited sunlight to reach the forest floor. Balsam fir is taking advantage of increased sunlight, but isn't overly abundant as a sub-canopy species. Single stem blow down is common throughout. Small group blow down is less common. Two core samples taken from cedar. Both cores were solid and aged at 95 and 78 years old.
2	6124 - Lowland Spruce- Fir	High Density Pole	3.6	81	81-110	This stand is heavier to pole size black/white spruce within the eastern half of stand. Eastern half also appears dryer. Log/XL Log size red pine from Stand 6 are sprinkled into the eastern half of this stand as well. The western portion is a more or less a transition zone before getting into nearly pure cedar (Stand 1). Western half has more of a conifer/deciduous mixture including spruce, cedar, balsam fir, red maple, paper birch, etc. This smaller acreage stand was split out of Stand 1.
3	6112 - Lowland Aspen	High Density Sapling	2.3	19		Clearcut pocket that I believe was cut when Stand 6 was treated in 98-99'. Sandwiched between R9 Stand 6 to the east and lowland C6 Stand 1 to the west. Regeneration is mainly sapling size quaking aspen, red maple, and paper birch. Lesser components of red pine, black spruce, and red oak scattered throughout. A few remaining overstory red pine within this gap as well. Some tag alder present.
4	6124 - Lowland Spruce- Fir	High Density Pole	4.0	64	111-140	This stand borders natural red pine Stand 6 to the east, and lowland conifer/deciduous Stand 7 to the west. A heavy component of white pine is found within. White pine is a mix of log/pole/XL log. Pole size black and white spruce are the dominant species. A limited component of log size red pine is present throughout as well.
5	4130 - Aspen	High Density Sapling	38.4	7		Harvested in 2007-08', with the goal to regenerate paper birch. Now an aspen sapling stand (quaking & big tooth) with red maple and red oak. Red oak saplings heavily browsed. Snow limited seedling layer visibility. Scattered log/pole size red oak leave trees throughout. Trace amounts of pole red pine & jack pine in northeast corner. Trace amount of red pine sapling observed as well. Northeast corner of this stand was affected by wildlife about 5-years ago (along with former red pine stand to the north). Unsure if salvage took place here but aspen sapling regeneration density is lower in this area. Black Lake ORV Trail runs through this stand.
6	42210 - Natural Red Pine	High Density Log	39.8	78	111-140	Overall, a good looking stand of 70-80 year old fire origin red pine (I believe). This stand sits atop an area with a high water table. White pine has a strong presence in the overstory. Basal area average calculated at 114 ft ² /ac after conducting 30-swings. Average diameter was calculated to be 13.7 DBH after measuring twenty-nine individual red pine. Average diameter for white pine was between 12-14 DBH. RP and WP were marked/thinned in 1998-99'. All other species, except oak, were harvested during the same treatment. Some damage from previous entries was observed on RP/WP. Aspen (BTA & QA) and RM saplings are well represented throughout. Both in dense clone pockets and general scattering. The understory removal helped spur this production. Red pine in this stand (6) has had better growing conditions than those found in Stand 8 (given both stands are the same age). Some black spruce from Stand 13 has snuck into areas of this stand.



Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
7	6124 - Lowland Spruce-Fir	Medium Density Pole	13.7	61	1-50	A general mix of lowland species, both conifer and deciduous. Higher density and canopy closures in some areas and lower in others. Snow limited seedling layer visibility.
8	42210 - Natural Red Pine	High Density Log	41.3	80	111-140	A natural red pine stand believed to be of fire origin (burn scars observed). Western 2/3's of this stand is located atop of seasonal lowland and or partial bog (high water table regardless). A significant amount of stunted red pine growth and blow down in this area. East edge of stand also suffers from the same problem because of proximity to small bog. The eastern 1/3 of the stand enjoys better growing conditions because of higher ground/reduced seasonal flooding. The majority of red pine in this stand hasn't developed as well as those found in Stand 6. Pole sizes far more common within this stand. Average basal area was calculated to be 117 ft ² /ac after conducting 30-swings. An average diameter of 10.1" DBH was calculated after measuring 30-red pine. RP and WP marked/thinned in 1998-99'. Understory removal during same treatment removed all species except oak. Areas of dense sapling production (BTA, QA, RM, RO, nannyberry) now prevalent throughout.
9	6112 - Lowland Aspen	High Density Sapling	2.5	16		Small aspen stand (mainly QA) that was clearcut in 1998-99' during part of the understory removal that took place in Stands 6/8. Lowland appearance based upon species present (black spruce, QA, RM, BF, etc). Location is adjacent to seasonal lowland as well. Overstory red pine from Stand 6 sneak their way into this small stand. The opposite is occurring as well, aspen is invading the red pine in Stand 6 to the west. Stocking level is quite good (75-100%).
11	4311 - Pine, Aspen Mix	Low Density Sapling	19.8	17		Low density stand bordering on non-forested in areas. Patchy pockets of BTA clones make up the majority of the canopy. Natural pole/sapling RP is making a strong go at being the dominant species. Red pine is 10-15 years older than the aspen. Its stout, open grown appearance suggests it had little growing competition when it naturally seeded in. This particular area has probably had lower stocking for some time. JP and WP scattered throughout as well. The northwest sliver of this stand experienced wildlife (charred bark visible). This stand was part of a clearcut that took place in 1997 (and extended into all of Stand 14).
13	6122 - Black Spruce	High Density Pole	52.4	91	141-170	Three-quarters of this stand is composed of nearly uniform (age and species) pole size black spruce with a small but strong component of natural red pine as you near Stand 6. Areas along the boundary of Stands 7&17 are much more "lowland" in appearance. Sphagnum mosses blanket the forest floor in these areas. The remainder of the stand appears more "upland", especially as you near Stand 6. Red pine is found mainly along the borders of Stand 6. A small red pine island that is part of Stand 6 is located within this stands interior. Pole Black spruce has now thoroughly come in beneath the areas with a red pine presence (except the Stand 6 island). A band of lowland deciduous/conifer runs along Stand 17's northern boundary. The smaller portion east of non-forested Stand 17 reverts back to mainly black spruce.



	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
14	4133 - Aspen, Mixed Pine	High Density Sapling	32.8	17		A BTA sapling dominated stand. A limited amount of pole size RP and WP scattered throughout. Clone pockets of quaking aspen saplings observed. A good representation of natural sapling/pole red pine present. Minor components of sapling size beech, pin cherry, red oak (browsed), and red maple prevalent beneath aspen. Stocking density varies from 75-100% canopy closure in the southern portion to 50-75% (in areas) in northern half. This stand was clearcut (along with Stand 11) in 1997. Black Lake ORV Trail is the eastern boundary of this stand.
15	6122 - Black Spruce	Medium Density	11.0	38	1-50	Lowland stand dominated by sapling size black spruce. Pockets and scattered pole size black spruce are found within this stand (reason why second age is 75 years). Limited representation of log/pole size white pine present and a small amount of pole tamarack. Trace amounts of sapling size red pine observed.
18	6122 - Black Spruce	High Density Pole	2.4	49	81-110	Small stand mainly dominated by sapling/pole black spruce but with a strong presence of log/pole/XL log white pine. Black spruce is about half the age as those found in Stand 13. Scattered log/XL log red pine present too. Considered merging with Stand 13 and leaving as retention if 13 is treated. Decided to leave it as its own stand.
20	6125 - Lowland Black Spruce, Jack Pine	High Density Pole	11.0	40	51-80	Located along an intermittent/seasonal drainage that begins at the small scrub bog and then extends southwest. This drainage looks like a ridgeline on imagery. I visited this stand in late April and it was inundated with water because of recent snow melt. Given the presence of jack pine and red pine, it seems reasonable to believe this stand dries out further into the summer months. Recruitment of natural pine into the overstory was a welcome site.
21	6127 - Lowland Pine	High Density Pole	13.3	68	141-170	A natural stand of red and white pine with black spruce mixed in throughout. Red pine is more prevalent in the eastern 2/3's of the stand while white pine dominates the western 1/3. Black spruce is found at varying densities throughout and ranges from pole to sapling size. A bit challenging to determine if this stand is truly lowland. It's definitely intermittently/seasonally wet. Southern portions of lowland Stand 20 could be merged into this stand. Seasonal variability appears to join and separate the two. A unique stand to visit.
22	6117 - Lowland Deciduous, Mixed Coniferous	High Density Pole	21.4	37	51-80	Species east of and in areas northwest of the non-forested wetland (Stand 26) are pole, sometimes log size. Species directly north of and west of Stand 26 are primarily sapling size with some poles. A broad mixture of size classes as a whole within this lowland stand. Evenaged in some areas while two-aged in others. Sapling and pole sizes tend to dominate.
24	4133 - Aspen, Mixed Pine	High Density Sapling	59.3	27	1-50	Very similar in species composition to Stand 14 but 10-years older. This stand was clearcut in 1986-87'. Sapling sizes are beginning to give way to pole size throughout the stand. Natural RP and WP have a strong presence. Canopy closure does not fluctuate as much as Stand 14. Northern hardwood saplings found primarily along the eastern boundary. Black Lake ORV Trail makes a brief appearance along the southern boundary.



	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
25	42210 - Natural Red Pine	High Density Log	40.4	78	171-200	Natural red pine stand, probably of fire origin (my opinion). According to available cutting records, portions of this stand may have been marked/thinned in 1987-88'. All aspen was cut out as well. Stumps are visible but areas of the stand don't appear to have been treated. The western-half of the stand has much higher BA values than the eastern-half. Average basal area after conducting 14-swings was 182 ft ² /ac and average DBH was 12.2" (14 RP's measured). Average age of 75-yrs after coring 4-red pine. RP has self-pruned nicely up to this point and a thinning would allow diameter growth to resume. This stand runs into low/transitional ground as you move toward the northern boundary line.
27	4199 - Other Mixed Upland Deciduous	High Density Pole	1.8	60	81-110	Small stand of upland mixed deciduous with limited balsam fir component.
28	42290 - Natural Mixed Pine	Medium Density	15.1	21		Sapling, nearing pole size, stand of natural red/white pine, jack pine, aspen, and some oak. Areas lightly forested and nature openings are prevalent within this small stand. This stand is a good representation of the potential to regenerate natural red pine within this compartment. Believe this area was part of the clearcut that took place in 87-88'.
29	4191 - Mixed Upland Deciduous with Conifer	High Density Pole	40.5	69	141-170	I'd imagine that this stand (29) closely resembles what Stands 14/24 looked like before treatment. Predominantly a BTA stand with a strong natural RP/WP presence. RP is generally log/pole size and seedlings/saplings were observed. The same goes for WP. The eastern half is less dense in areas and is generally of a smaller size class than the west half. East half borders northern hardwood so its features more overstory SM, RM, beech, and ironwood. A prominent patch of pine (RP/WP) exists in the northern portion of the stand. West half is denser and generally of log/pole size BTA and pine. The limited amount of oak observed was mainly seedling/sap/pole size. NOTE: Black Lake ORV Trail runs through a portion of this stand.
31	4130 - Aspen	High Density Sapling	33.5	17		A clearcut took place in this stand in 1997. It's now dominated by sapling size BTA with lesser components of QA, red oak, paper birch, sugar maple, red maple, ironwood, beech, choke cherry, and pin cherry. Did not see any log size leave trees in the overstory even though cut record stated "leave all hemlock". Some non-forested and low density tree areas present.
32	4199 - Other Mixed Upland Deciduous	High Density Pole	91.0	74	81-110	Generally a pole size mixed northern hardwood stand featuring components of overstory BTA, WP, RP, and red oak. Northern hardwood quality appeared marginal at best. Common northern hardwood species observed included SM, RM, American beech, ironwood, and basswood. The larger portion west of Alpena State Rd. is more of your classic northern hardwood stand. The area east of Alpena State Rd. but still part of the larger polygon has a high representation of overstory red oak mixed in. Red oak seedling/sapling production observed here too. Sugar maple throughout is 70+ years old on average yet still primarily pole size. Pockets and individual BTA are found throughout the entire stand. Beech scale is prevalent. Ironwood and beech seedling/saps are dominating understory. The smaller and separate polygon furthest south is generally of a smaller size class (sap/pole) than remainder of stand. This polygon was part of a clearcut that took place in 86-87' (based on cut records).



Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
33	42200 - Natural White Pine	High Density Log	4.8	80	81-110	A small stand of overstory WP mixed with RP, BTA, and red oak. This area missed being treated while all stands surrounding it have been managed over the years. May have been some form of retention in the past. Canopy closure is on the lower end of 75-100% in areas. WP and RP look good and are growing well. Aspen is of marginal/poorer quality. Consider leaving this small stand as long term retention. It provides a good visual buffer along snowmobile trail.
34	42110 - Planted Red Pine	High Density Log	22.0	59	141-170	Plantation red pine stand that according to available records was established in 1955. The area south of the snowmobile trail was third row thinned by Biewer in 07'. The small acre size clump of plantation red pine north of the snowmobile trail wasn't treated (not sure why). An understory removal harvest that left all RP, WP, and oak apparently took place here between 1996-98'. Average BA calculated at 145 ft ² /ac after conducting 24-swings. Average DBH calculated at 10.5" after measuring 15-red pine. Within the planted area, sub-canopy sapling species aren't overly aggressive until you move towards the eastern portions of the stand. Higher density red oak, red maple, and beech sapling production can be found in this area. A prominent BTA clone pocket is located in the northeastern area of the stand. This pocket is part of Stand 39. Trace amounts of overstory red oak observed.
36	42110 - Planted Red Pine	High Density Log	289.3	75	111-140	Plantation red pine established in 1939. Minimal amount of overstory WP and JP present. Twenty-six BA swings conducted and representative RP measured at DBH. Average BA calculated at 130 ft ² /ac and an average DBH of 12". Density and canopy closure vary. The smaller area north of the snowmobile trail (and just south) is closer to 50-75% closure. The remainder is 75-100% but still with an open appearance. Burn scare stumps and fallen-out JP observed. Understory removal conducted between 96-98'. All species with 100" stick cut, except RP, WP, and Oak. Areas are now flush with sapling production, especially along the border of Stand 39. BTA, RM, and RO saps dominate. Row thin appears to of occurred, yet located no record. Core samples suggest Late 80's - Early 90's. RP is self-pruning well in the areas with more canopy closure while limby and stouter RP present in open areas. RP seeding/sapling regeneration is outstanding in scarified areas and on old haul roads.
39	4311 - Pine, Aspen Mix	Medium Density	70.0	28	51-80	Primarily a sap/pole size stand dominated by a mixture of BTA, RP, and WP. A limited overstory of what appears to be former leave trees can be found along the northern boundary and areas east of Stand 36. RP, red oak, and WP make up these log/XL log sized "leave trees". Density is quite variable throughout. Densely forested patches can quickly move to nearly non-forested. Imagery and ground observation confirms this as well. Ring counts of sapling size species ranged from 15-30 years old. This area was obviously treated in the past. A cutting record suggests it (this stand & 32/37) was clearcut in 1986-87'. Re-visit in 10-years and consider splitting into different stands based on development and competition outcomes at that time.



	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
40	42290 - Natural Mixed Pine	Medium Density Log	13.4	77	81-110	Overstory WP/RP stand with red oak mixed in. Difficult to determine whether RP is natural or formerly part of adjacent plantation(s). It's probably a combination. Removal harvest that cut all species except RP, WP, and red oak was conducted in 97'. The sub-canopy is now a thick sapling blanket of primarily BTA, RM, and red oak. Other conifer (RP, JP, WP) and deciduous (beech, ironwood, sugar maple) sapling species present at lower densities. BTA saplings suppressed and of poor quality. Canopy closure can vary from 50% to 100%. Sub-canopy species have filled in larger open areas. RP/WP is quite limby suggesting this particular area has had lower stocking levels in the past. Overstory red oak appears healthy. Trace amounts of SM/RM observed in the overstory.
41	4130 - Aspen	High Density Log	9.6	73	81-110	Small aspen (BTA) stand located between northern hardwood Stand 44 and conifer band Stand 42. Aspen is primarily large log size. Some overstory hardwood species mixed in along the eastern boundary. Good red oak sapling layer throughout that is mainly above browse line. The western boundary runs into a wall of WP and RP saplings/poles. Aspen will probably fall out in the next 10-20 years. This should allow red oak, WP, RP, and RM to recruit well into overstory positions. Trace amounts of pole size beech, black spruce, balsam fir, and pole/log red pine present.
42	42290 - Natural Mixed Pine	High Density Pole	16.9	39	51-80	A band of conifer skirting the bog to the west and stands 41/46 to the east. Natural red pine is the most prevalent species and can be found in seedling through log sizes. Pole/sap tends to be most common. Black spruce and white pine are mixed in throughout as well. Aspen from stands 41 & 46 sneak into the eastern edges of this thin stand. The southernmost portion is 2.5-acres of what appears to be natural red pine of log size. It may also be plantation RP but didn't find a planting record. Good to see natural red pine seedling/sapling production. Scattered log and sapling red oak observed as well.
43	4130 - Aspen	High Density Pole	11.8	50	141-170	This stand is located on transitional ground and becomes softer as you move east towards the large bog complex. Nearly pure pole size BTA stand with log size mixed in. White trunk rot observed on BTA. Pole/log RM has a strong presence. Extensive seedling/sapling layer of red maple observed. Northern hardwood species are mixed along the western boundary where the hardwood stand begins. Scattered log/XL log overstory WP, RP, and pole red oak present. Trace amounts of eastern hemlock seedling/saplings exist along western boundary.
44	4119 - Mixed Northern Hardwoods	High Density Pole	17.0	79	111-140	A pole/limited log size northern hardwood stand featuring a strong component of log/XL log BTA. A small clump of log red pine exists just south of the private gate near the compartment line (appears planted). Northern hardwood species quality is ok/marginal. Decent RM/SM sapling production in the sub-canopy. Beech and ironwood are also quite prevalent in the sapling layer. BTA is quite large and quality is fairly good. It will soon be reaching its "fall out" age. Beech scale is prevalent within this stand but the overstory beech component isn't overly significant. Trace amounts of overstory QA, eastern hemlock saplings, and log/pole red oak observed.



Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
45	42290 - Natural Mixed Pine	Medium Density	19.0	17	1-50	A bit going on in this stand. Primarily dominated by sapling/nearing pole size JP with a strong component of sapling through log size RP. BTA and QA saplings well represented in clone pockets throughout. Log/pole WP prevalent too. An understory removal harvest in 97' cut all species except RP, WP, and red oak. Scarification/dragging tops must have spurred on good seeding in of JP and RP volunteers following treatment. An intermediate age class of RP (30-40 years old) is also present. This could be used this to justify classifying this stand as multistoried (3 or more age classes).
46	4130 - Aspen	High Density Pole	75.1	42	81-110	Mainly a pole size (some log) BTA stand with northern hardwood species mixed in. White trunk rot observed on BTA. This stand is even-aged and based on available cutting records a clearcut took place here during 1971-73'. Aspen poles dominate throughout yet composition of hardwood species (saps/poles) increases as you move north. Heavy RM sapling production in some areas. Majority of American beech observed has scale and appear to of been leave trees during last treatment. Beech are primarily log size. Scattered log size RP remain as well. My impression is to allow this stand to mature 10-20 years and then treat with Stand 44 to the north. Lake 16 Rd is currently the only available access into this area. Treating this stand and Stand 44 at the same seems like the best option based on the likely need to improve the condition of Lake 16 Rd before any proposed treatment(s) can begin.
47	6117 - Lowland Deciduous, Mixed Coniferous	High Density Pole	8.4	81	81-110	Upland ground transitioning to lowland featuring a mix of deciduous with limited conifer. Pole/log/sap RM seems to dominate while large and elderly BTA/QA has an overstory presence. Paper birch is common and a few overstory yellow birch were observed. Also stumbled upon a nice pocket of yellow birch saplings and created an OFS point. Balsam fir sapling through pole common. A few clumps of northern white cedar and scattered black ash (with EAB) observed. Two red maples cored providing 1st and 2nd ages.
48	429 - Mixed Upland Conifers	Medium Density Log	4.1	72	81-110	A unique set of upland islands that extend out into the large bog complex surrounding them. White pine takes the top seat with black spruce, red maple, paper birch, and big tooth aspen as associates.
49	42210 - Natural Red Pine	Medium Density Log	51.3	64	81-110	A natural mixed pine stand with some areas of planted RP that sneak in from adjacent plantations. Density varies across stand from 50-100% closure. RP is most prevalent with strong components of JP and WP. Overstory red oak scattered throughout and log/pole BTA present south of Black Lake ORV trail. Removal harvest in 97' occurred north of ORV trail that cut all species except RP, WP, and Oak. This area now has pockets of high density BTA saps. RP has open grown appearance but looks healthy, as do all other species except BTA. Cored aspen had rot and most are poor form/health. Trace amounts of pole RM, BF, and QA observed. Pine is regenerating well in areas and 2+ age's classes were observed within this stand. If treated; do not cut overstory aspen south of Black Lake ORV Trail. Let it die out, giving RP seedlings a competitive edge. Aspen is already regenerating on its own. Averages after taking 10-swings and 10-RP diameters: BA=109, RP DBH=12". Average age after coring 4-RP: 64yrs.



	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
50	4191 - Mixed Upland Deciduous with Conifer	High Density Pole	14.8	75	81-110	A thoroughly mixed stand featuring RP (appears natural), WP, red oak, BTA, RM, and SM as the dominant species. Pine, red oak, and BTA are primarily log/pole/XL log size. This stand has a two-aged appearance in areas and the northern hardwood species make up the smaller size classes, sub-canopy, and understory. Moderate sloping towards the bog occurs in the southern portion of the stand east of Alpena State Rd. Large (18"+ DBH) RP, WP, and red oak scattered throughout. Red oak is more prevalent south of the bog access road. A prominent vein of pine extends north of and just south of the Lake 16 Rd.
51	42110 - Planted Red Pine	High Density Log	164.5	75	111-140	Red pine plantation established in 1939. Identical in age and nearly identical in composition to Stand 36. An understory removal took place in 97' that cut all species except RP, WP, and Oak. The north half and east half have a thick sapling layer of mainly RM, BTA, Red Oak, and northern hardwood species. Sapling production is significantly less in the remainder of the stand. RP is a bit knotty/limby but has achieved decent self-pruning. A row thinning took place in the past (no cutting record of this) and is apparent on the ground and on imagery. Core samples suggest this may have occurred in the Late 80's - Early 90's. Overstory red oak present throughout, especially in the northeast corner. Average BA after 20-swings calculated at 135 ft ² /ac and average DBH calculated at 12.3". The irregular shaped, northwest portion of the stand wasn't row thinned and contains a larger component of white pine.
52	42260 - Natural Pine, Mixed Deciduous	High Density Log	80.5	76	81-110	A variable stand in terms of species dominance, canopy closure, and understory composition. Natural red pine is the most prevalent species. WP, red oak, BTA, and RM have a strong presence in the overstory throughout the stand. A ~4-acre pocket heavy to red oak is found just south of the southeast corner of Stand 36. A prominent ridge line extends along the southern boundary before meeting up with lowland cedar Stand 59. The ridgeline drops down into an area further dominated by natural RP and mixed with deciduous and conifer species. RP looks quite healthy. Burn scar stumps observed and is my belief this stand is of fire origin. Trace amounts of overstory SM, black spruce, hemlock, and cedar present.
53	4130 - Aspen	High Density Sapling	2.0	14		A sapling size BTA regeneration island within the red pine plantation (Stand 51). Most likely the result of the species removal harvest that took place in 1997. Scattered log/pole red pine present. Small amount of log/pole white pine present and trace amount of log/XL log red oak observed.
54	4191 - Mixed Upland Deciduous with Conifer	High Density Pole	16.7	46	81-110	Predominantly a pole size stand featuring a mix of deciduous and conifer species. Canopy closure can be on the lower side end of 75-100% in areas. RP, WP, and red oak are of a larger diameter class than the rest of the species present. Observed pockets of sapling/pole RP advanced regeneration in reduced canopy locations. Trace amounts of pole size American beech present (no scale observed). The area just north of the snowmobile trail is very lightly forested.



	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
55	42290 - Natural Mixed Pine	High Density Log	24.4	69	141-170	Natural mixed pine stand with overstory WP as the dominant species. Strong natural RP presence as well. The northern boundary picks up planted RP from Stand 51. Stand appears to be of fire origin. Burned stumps observed and believe an old trench/plow line is still visible. Deciduous overstory species include BTA, RM, SM, and Red Oak. BTA has the strongest presence but is of poor quality and beginning to fall out. Some sapling/seedling hemlock from Stand 58 makes its way into the southern boundary. Far eastern portion is lightly forested and features jack pine. Black Lake ORV Trail cuts through the eastern portion of this stand.
56	6132 - Mixed Lowland Forest with Cedar	High Density Sapling	2.5	28		Based on available records, I believe this was a 1989 or 87' wildlife FTP cedar cut to put forage on the ground. It's the same type of (and age) FTP wildlife cut as Stand 73. A decent mix of sapling size balsam fir, northern white cedar, black spruce, paper birch, and red maple throughout. Smaller components of sapling size quaking aspen, tamarack, and tag alder. Trace amounts of sapling/pole size red and white pine along northern boundary. This regeneration is generally what to expect if treating Stand 70, a nearly pure cedar stand.
57	42210 - Natural Red Pine	High Density Log	5.9	71	111-140	A stand of upland fingers dominated by natural red pine. These fingers protrude along Orchard Beach Rd. The five polygons that make up this stand present quite a difference in species dominance than what is found in lowland Stands 59/70.
58	4191 - Mixed Upland Deciduous with Conifer	High Density Pole	42.6	76	81-110	A pole size northern hardwood stand with terrific eastern hemlock regeneration. The stand appears to of been clearcut some time ago (my opinion and no cutting record). Large remnant hemlock and WP/RP of XL log size found throughout. Sugar maple most prevalent and of decent form and quality thus far. Beech scale present on the second most common species. The remainder is a mix of mainly pole size BTA, basswood, ironwood, red maple, and scattered red oak. Hemlock sapling/seedlings prolific throughout, especially in northern half of the stand. Hemlock poles present but not at sap/seedling level. An XL hemlock DBH - 31.2".
59	6120 - Lowland Cedar	High Density Pole	73.4	114	200+	A cedar dominated stand with some species and structural variability throughout. Age class of cedar can vary from 110+ years to 70+ years old. It appears the younger cedar established later in areas and possibly within old blow down sites. Centers weren't rotten on the three cedars cored. Where more sunlight and canopy gaps occur, you'll find examples of the many other species listed in this stand. Black spruce, balsam fir, and red maple are represented throughout. The eastern sliver with Orchard Beach Rd. cutting through the middle has more species variability and isn't a solid wall of cedar. This area is heavier to QA, BTA, RM, balsam fir, paper birch, and other mixed conifer. Trace amounts of overstory red oak, yellow birch, and hemlock observed throughout.
60	42200 - Natural White Pine	High Density Log	40.5	76	171-200	Areas of this stand were difficult to delineate, the goal being to isolate white pine. The majority of this stand (eastern 2/3's) is a fairly solid wall of overstory WP with BTA mixed in. The oddly shaped western portion is still heavy to WP, yet has more RP, Red Oak, BTA, RM, and SM mixed in. Burn scar stumps observed and my opinion is this stand (and general area) is of fire origin. Most WP is still holding onto to live/dead branching that extends nearly down to the ground. WP and most other species present appear healthy. Overstory BTA is of marginal quality.



Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
62	42200 - Natural White Pine	Medium Density Log	10.4	70	1-50	A general mix of WP, RP, BTA, JP, and trace amounts of balsam fir and quaking aspen. Canopy closure varies from 50-75%. WP, RP, and BTA are mainly log size yet did observe clumps of pole sizes. A handful of hemlock sap/poles present.
63	6128 - Lowland Coniferous, Mixed Deciduous	High Density Sapling	8.6	33		Lowland area primarily dominated by sapling size balsam fir, northern white cedar, black spruce, paper birch, and tag alder. Smaller components of tamarack and red maple throughout. Limited overstory of pole size northern white cedar, balsam fir, and tamarack throughout that appear to have survived blow down over the years. Areas in the northeast and southern boundary of this stand feature pockets of pole size trees of the aforementioned species. Saplings are mixed into those pockets as well.
64	6123 - Lowland Fir	High Density Pole	4.6	56	81-110	Just west of Stand 71 that was clearcut in 2012, and east of intermittent stream. Primarily sapling/pole size balsam fir mixed with black spruce, white spruce, limited northern white cedar, and overtopped by elderly log size quaking aspen. Spruce is log size while northern white cedar are mainly sapling and some pole sized. This area serves as retention for Stand 71 that was clearcut.
65	4130 - Aspen	High Density Pole	25.3	46	111-140	A prominent ridge line along this stand's northern boundary marks the transition between northern hardwood (Stand 69) and aspen (this stand). This stand appears to have been clearcut right up to Stand 70 in the past (no cut record found). A wall of balsam fir seems to define the southern boundary with Stand 70. Southern boundary also picks up other lowland types (cedar, black spruce, quaking aspen, red maple) as the ground begins to transition. Trace amounts of overstory RP and WP along the northern boundary and western most area.
68	4133 - Aspen, Mixed Pine	High Density Pole	7.0	50	81-110	BTA dominated stand with a strong component of overstory WP. Canopy closure is on the lower end of 75-100%. Aspen is of marginal quality and most white pine has live/dead limbs right down to the ground. Burn scar stumps and a few hemlock saplings observed as well.
69	4119 - Mixed Northern Hardwoods	High Density Pole	43.5	85	111-140	A pole size northern hardwood stand mixed with big tooth aspen. Diameter of most species is still quite small given the stand's age. Good hemlock sapling/seedling regeneration observed. Scale present on the majority of American beech in the stand. Overstory contains a small conifer component of WP, Hemlock, and balsam fir. Overstory hemlock is providing the seed source for volunteer hemlock. Northern hardwood species are of marginal quality but are fairly straight and somewhat clean. Areas are heavier mixed with BTA, especially western portions. Red oak begins to appear more in the western portion as well. Trace amount of white ash present (with EAB).



Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
70	6120 - Lowland Cedar	High Density Pole	102.5	96	200+	Nearly pure pole sized northern white cedar stand with scattered log throughout. Cedar quality is ok/good and core samples were solid. Black spruce is a common associate at varying densities throughout the stand. It too is pole/log size. Blow downs can be found throughout. Balsam Fir is aggressively populating the blow down areas and range from seedling to sapling size. Limited cedar regeneration observed when nearing no named lake and within blow down areas. Otherwise almost no cedar regen in closed canopy portions (snow depth limited seedling layer visibility). Trace amounts of sapling size paper birch, red maple, and balsam poplar observed. Little deer sign/browse (snow might be too deep in stand this year for them). Almost no understory outside of blow down areas. A handful of super canopy white pine are dotted across the stand.
71	4130 - Aspen	High Density Sapling	13.6	2		Stand harvested in 2012 using privately granted access. Viewed this stand in early fall, 2013, while looking for corners. Regeneration of quaking aspen looked quite good. Snow limited in March 2014 during inventory, yet could still see aspen regen atop snow. Unable to view any other regen below 3ft of snow. Stand was coded as a P9 prior to 2012 harvest.
72	6121 - Tamarack	High Density Pole	3.9	86	81-110	Nearly pure pole size tamarack stand with small component of sapling/pole balsam fir, northern white cedar, and red maple. Majority of stand appears healthy. Prolific tag alder understory, 5-10ft tall.
73	6139 - Mixed Lowland Forest	Medium Density	6.0	21		Based on available records, I believe this was a 1987 or 89' wildlife FTP cedar cut to put forage on the ground. OIPC data lists 1987 being the stands year of origin. I found a cutting record for Stand 56 from 1989. It's the same type of FTP wildlife cut. A decent mix of sapling size balsam fir, northern white cedar, black spruce, paper birch, and red maple throughout. Smaller components of sapling size quaking aspen, tamarack, and tag alder. Trace amounts of sapling/pole size red and white pine along northern boundary. This regeneration is generally what to expect if treating Stand 70, a nearly pure cedar stand.



Stand	Cover Type	Acres	Managed Site	Management Priority (Objective)	General Comments:
10	6229 - Mixed lowland shrub	4.4	Unspecified	Unspecified	
12	6229 - Mixed lowland shrub	0.8	No	Unspecified	New Stand 110 added. Primarily lowland shrub with a very limited amount of sapling black spruce, red pine, jack pine, and aspen. Some pole examples of the aforementioned species observed as well.
16	6225 - Bog	10.6	No	Unspecified	Small bog lined with log size red pine.
17	6229 - Mixed lowland shrub	18.9	No	Low	Nearing the 25% forested threshold. Appears to be an intermittent water flow/drainage corridor. Red maple saplings most common tree species with some black spruce, balsam fir, and tamarack scattered within. Tag alder and lowland shrubs, 5-15ft tall, heavily populates this corridor.
19	6225 - Bog	3.4	No	Unspecified	Small bog lined with log size red pine.
23	3303 - Mixed Low Density Trees	1.7	No	Unspecified	Low density mix of pole/sapling size red pine, white pine, and big tooth aspen.
26	6229 - Mixed lowland shrub	3.7	No	Unspecified	Lowland area featuring mixed lowland shrubs.
30	330 - Low-Density Trees	1.2	Unspecified	Unspecified	
35	6229 - Mixed lowland shrub	17.8	No	Low	A clumpy mix of seedling/sapling/pole size black spruce, tamarack, white pine, red pine, and tag alder. Some areas are more dense with conifer, while other areas are dominated by tag alder. Conifer more prevalent as you move into bog. Tag alder more prevalent as you move toward upland. Was able to view first hand from snowmobile.
37	3303 - Mixed Low Density Trees	24.9	No	Unspecified	A mix of low density sapling/pole red pine, white pine, big tooth aspen, oak, red maple, and cherry brush. Some hemlock seedlings/saplings observed along western boundary.
38	6225 - Bog	151.2	No	Unspecified	Pockets of seedling/sapling/pole conifer throughout this bog complex. Mainly black spruce with tamarack, white pine, and red pine. Forested portion appeared to be less than 10%, both in the field and on the imagery. MNFI "community" hit for a 2011 survey that highlighted the features of this unique scrub bog. Management comments stated; "The main management recommendations are to allow natural processes to operate unhindered and to retain an intact buffer of natural communities surrounding the wetland to minimize the threat of hydrological alteration. In the event of wildfire, establishment of new fire lines should be avoided and existing fire breaks (i.e. roads and wetlands) should be used.



Stand	Cover Type	Acres	Managed Site	Management Priority (Objective)	General Comments:
61	6229 - Mixed lowland shrub	4.6	No	Low	Five plus acre area of Northern white cedar blowdown. Very few cedar left standing. Snow depths were quite deep yet could still observe green foilage on some of the downed cedar. Sapling size paper birch, red maple, balsam fir, and spruce observed throughout. This understory is nearing 25% ground cover. Tag alder and red osier dogwood present at lesser density as well. Quite an impressive blowdown site.
66	50 - Water	6.4	No	Unspecified	Small no-named lake.
67	6229 - Mixed lowland shrub	33.8	No	Low	Low density tree in this lowland area. Scattered sapling/pole size Northern White Cedar, Tamarack, Balsam Fir, live/dead Black Spruce, Red Maple, dead Black Ash (EAB), Balsam Poplar, Tag Alder, and Red Osier Dogwood. Vegetation increase in height as you move away from no-name lake.