SAULT FOREST MANAGEMENT UNIT
COMPARTMENT REVIEW PRESENTATION

COMPARTMENT # 154 ENTRY YEAR: 2010

Compartment Acreage: 1,906 County: Mackinac

Revision Date: 8/11/2008

Stand Examiner: Karen Rodock

Legal Description: T44N-R08W Sections 8, 9 & 10; Hudson Township

RMU (if applicable):

Management Goals: This area is located 4 miles north of Garnet. This compartment is in the proposed Sage Truck Trail Management Area. The plans for this management area are currently in the draft process. The southern and western portion of this compartment shows to be in a wintering deer area. Close to one half of the compartment is composed of cedar, mixed swamp conifer, lowland shrub, bogs and water. Some past harvesting in the cedar/swamp conifer stands has shown little benefit due to the poor timber quality of the stands and lack of reproduction in previously cut stands. Focus remains on the aspen/birch and mixed deciduous component of the compartment, which has been actively managed for the past 30 years. To increase the age class diversity, stands of aspen/birch and mixed upland and lowland deciduous and conifer are proposed for treatment. Currently, two of the aspen/birch stands are under timber sale contract. Some of the proposed treatments are within stands which can be difficult to access. Most of the grassy openings have been filling in with other species over the years and have been incorporated into adjacent stands. The 28 year old red pine plantations are proposed for thinning. The younger red pine plantations are scheduled for release work and one stand is scheduled for site prep for planting to red pine.

Soil and Topography: The majority of the lowlands are Markey-Spot-Finch complex associated with the lowland conifer and deciduous stands with higher islands of Paquin sand and Pullup fine sand; and Dawson and Loxley peats associated with the bogs. Upland areas are generally flat to very rolling and include Paquin and Wallace sands and Paquin-Spot and Paquin-Finch complex, with smaller areas of Ingalls fine sand, Borgstrom sand and Glawe silt.

Ownership Patterns, Development, and Land Use in and Around the Compartment: The compartment is entirely in state ownership. The surrounding compartments are in state ownership except for two private forties in one compartment. The private forties have seasonal camps. There are no permanent residences within the surrounding area.

Unique, Natural Features (include only non-site specific and non-sensitive information): Headwaters of a tributary of the East Branch Sage River. There is a potential for rare, threatened or endangered plant and animal species and natural communities within this compartment.

Archeological, Historical, and Cultural Features (include only non-site specific and non-sensitive information): Old logging camp found within compartment.

Special Management Designations or Considerations: Buffer left along East Branch Sage River. The southern and western portion of the compartment is within the deer wintering area.

Watershed and Fisheries Considerations: Marginal. All sections of the Sage River system are classified SQCW. They should be protected for the natural trout they support.

Wildlife Habitat Considerations: A large portion of this compartment lies within the Hendricks Quarry deeryard. Retention of cedar within the area is important because of its value to wintering deer and other wildlife. Spruce and fir also provide important canopy structure. Retention of these species increases habitat value within deer yards.

Several ephemeral wetlands and streams and permanent wetlands are within this compartment including the headwaters of the East branch of the Sage River.

Retention of large tracts of undisturbed mature forest stands containing large trees will provide suitable nesting habitat for northern goshawk. Creation of larger openings within these contiguous stands would favor nest competitors and predators such as the red-tailed hawk and great-horned owl.

General Wildlife Objectives and Considerations:

1. Ephemeral wetlands/intermittent streams

Despite their small size, ephemeral wetlands and intermittent streams are critically important to reptile and amphibians and contribute to the overall forest biodiversity (MI Wildlife Action Plan – wetlands: ephemeral wetlands).

Terrestrial habitats within 100 ft of ephemeral wetlands and intermittent streams will be left uncut following to protect water quality BMP guidelines. Mature, undisturbed forests surrounding wetlands are important because harvest practices can degrade habitat suitability for dependent wildlife species, particularly reptiles and amphibians. Soil temperatures increase and humidity decreases with loss of canopy closure, rutting in low areas can disrupt species movement, harvested areas have lower dead and down woody debris, and exposed soils combined with large rain events after harvest can introduce sedimentation impacting water quality and quickly fill in small isolated wetlands.

Adjacent to the water quality buffer, management of the adjacent terrestrial habitat up to 500 ft will incorporate the life requirements of reptile and amphibian species. Harvest within this core habitat zone will avoid peak breeding periods of Apr. 15 – July 15th, when logistically feasible. Retention patches, particularly with clear cut stands, will be placed adjacent to wetland buffers or between wetlands within a stand to increase protection and connectivity.

2. River/Marsh

Maintaining mature, closed canopy forest types adjacent to rivers, lakes, ponds will benefit numerous wildlife species. Wood ducks, hooded mergansers, bald eagle, osprey, numerous passerines, red-shouldered hawk, black bear, fisher, marten, and other aquatic fur bearers are some species which utilize mature forests adjacent to water bodies.

Emphasis of mature forest community elements adjacent to water quality buffers will maximize wildlife value. Retention patches, particularly with clear cuts, will be placed adjacent to or between wetlands within a stand increase protection and connectivity. Harvest within 500 ft will avoid peak breeding reptile and amphibian breeding periods of Apr. 15 – July 15th, when logistically feasible.

3. Oak

Retention of oak is now particularly important given the significant loss of beech across the landscape. Management which encourages and protects mast producing species such as oak will benefit numerous wildlife species such as white-tailed deer, grouse, bear, rodents, and wild turkey.

4. Cedar/conifer/fir/spruce within deer yards

One of the primary objectives within deer yards is to maintain a dense canopy cover which serves as an intercept to snow accumulation during winter. To maintain this cover, retention of these species is important. Because of the low probability of cedar regeneration within concentrated areas of deer use, harvest should be avoided. If harvest of cedar has been conducted within the yard, evaluating harvest techniques and regeneration will be critical to the success of future management.

5. Cedar management outside of deer yard boundaries with regeneration challenges

Where cedar is not regenerating outside of deer yards, clear criteria should be developed to judge adequate regeneration and appropriated actions to correct understocked areas (SFI Performance Measure 2.1). It must be determined where and how much this lower stocking rate is acceptable. Because of the high economic and ecological value of cedar, the priority should be to evaluate regeneration of past harvest areas and to limit or clearly define sustainable harvest levels until status within these areas is determined. Monitoring results will take time (30 - 50 yrs) but will not jeopardize cedar communities as they are long-lived.

In stands where cedar is harvested, actions will be taken to protect desirable or planned advanced natural regeneration during harvest (SFI Performance Measure 2.1):

1) Leave cedar seed trees every 30 ft.
2) Avoid cutting leaning cedar ($\sim \leq 45^{\circ}$) - trees provide better opportunities for vegetative regeneration.
3) Avoid harvesting large trees (> 12"dbh) - good seed dispersal.
4) Create slash piles and downed whole trees adjacent to retained cedar.
5) Avoid harvesting in low areas with hummock microtopography as equipment can flatten and result in site conversion to species that are more adapted to wet areas.
6) Clearcutting of cedar on shallow organic soils, poorly decomposed acid peats, or wet mineral soils frequently result in inadequate regeneration. Harvest should be restricted to the most productive organic soils.

Citation:

Chimner, R.A., and J.B. Hart 1996. Hydrology and microtopography effects on northern white-cedar regeneration in Michigan's Upper Peninsula. Can. J. For. Res. 26:389-393.

Lanasa, M. 1989. Northern white-cedar management and whitetail deer habitat. In: Proceedings of the National Silvicultural Workshop: Silviculture for all resources; 1987 May 11-14; Sacramento, CA. Washington, DC: U.S. Department of Agriculture, Forest Service, Timber Management: 19-24.

Verme, L.J., and W.F. Johnson. 1986. Regeneration of Northern white cedar deeryards in upper Michigan. J. Wild. Manag. 50:307-313.

6. Northern hardwood

Retention of large diameter living trees and snags will provide cavity, den, and foraging habitat and future dead and down woody debris for numerous wildlife species.

7. Hemlock

Hemlock communities provide habitat for rare raptor species such as red-shouldered hawk and Northern goshawk and is also important to black-throated blue, cerulean, black-throated green warblers, and scarlet tanagers, black bear, moose and marten.

Closed canopy structure results in lower snow levels and lower energy expenditures for deer. When harvesting other trees species within a stand where hemlock is retained, equipment should refrain from removing trees from hemlock inclusions to avoid damaging the canopy.

8. Poor conifer swamp

This natural community is dominated by black spruce, Labrador tea, and sphagnum mosses and is important to many rare plants and animals such as the yellow pitcher plant, black crowberry, spruce grouse, wood turtle, and merlin. When managing for biodiversity within poor conifer swamps, large unharvested tracts may be left to allow natural processes to operate unhindered to generate a range of successional stages. Examples of this community with late successional characteristics are relatively rare and should be considered for retention with the presence of large trees, treefall gaps, snags and downed wood.

Dead and dying wood will be retained to become snags, stumps, and fallen logs. Long rotation periods (over 100 years) will favor numerous species, such as epiphytic lichen and trunk foraging birds that depend on old, large trees.

Where management does occur, patches of residual trees, all snags, and dead and downed wood will be retained. High retention (> 20 %) will be important because spruce is not very windfirm, thus isolated retention patches blow over easily. Retention of both spruce and fir is important to maintain the multi-storied structure within the stand.

Citation:

Kost, M.A., D.A. Albert, J.G. Cohen, B.S. Slaughter, R.K. Schillo, C.R. Weber, and K.A. Chapman. 2007. Natural Communities of Michigan: Classification and Description. Michigan Natural Features Inventory, Report No. 2007-21, Lansing, MI.

MDNR FMFM Within-Stand Retention Guidelines. 2006. Cover type specific considerations – spruce-fir. Pgs. 25-26.

9. Aspen

Maintaining a component of interspersed large (saw log) living aspen or aspen patches within managed stands will provide for future snag age class and a food resource for ruffed grouse. This aspen multi-age class juxtaposition also provides benefits for deer and hare.

Oak and cherry retained within aspen stands serve as important mast producers.

Retention of longer-lived species such as maple, oak, cedar, and white pine enhance vertical structure and assure a steady supply of snags and downed woody debris.

Retention of conifer < 4" dbh within stands provides cover for ruffed grouse.

10. Red pine

Retention of some red pine at final harvest in plantation stands provide wildlife values in terms of super-canopy nesting trees, a good long-term cavity resource, and live/wood legacy tree retention. The benefit of these patches to wildlife will be maximized by placing retention of red pine adjacent to 100 ft, unharvested, water quality buffers.

The retention zone beyond the buffer can be managed to maximize ecological complexity and natural plant diversity with variable density thinning and longer rotations. Retention within this zone of 60 – 80 ft^2 per acre of residual red pine at the initial harvest will result in development of two-age cohort stands and potentially multi-cohort stands when this level of harvest is repeated in the future. Economic rotation ages of 50 – 90 years are shorter than those to develop complex stand structures (120 – 200 years). Thus the primary

determinant of harvest within the retention zone will be the acceptable level of structural complexity and within-stand heterogeneity.

Because large continuous stands of red pine of the same age are susceptible to severe pest outbreaks, having zones of red pine of varying age classes broken up with alternate non-pine species will prove beneficial.

Management within red pine plantations will enhance and perpetuate oak components which are an important hard mast source for numerous wildlife species.

Citation:
Gilmore, D. W., and B. J. Palik. 2006. A revised manager's handbook for red pine in the North Central Region. Gen. Tech. Rep. NC-264. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Research Station. 55 p.

MDNR FMFM Within-Stand Retention Guidelines. 2006. Cover type specific considerations – red pine. Pgs. 22-23.

Michigan State Forest Red Pine Management Guidelines. 1991.

Nicholls, T. H., and D. D. Skillings. 1997. Pocket guide to red pine diseases and their management. U.S. Department of Agriculture, Forest Service, North Central Research Station.

11. Limestone Boulders

These unique geologic features serve as micro-habitat for several rare plant species including Hart's tongue fern, green spleenwort, and walking fern. Harvesting too close to these boulders can interrupt the canopy cover and micro-climate for these plants. In areas where plants have been found, retention guidelines will be followed (pg. 15). In areas within the plant species distribution (see MNFI summaries) harvest will not occur at a minimum of 10 ft of large boulders (approximately ≥ 4 x 4 ft) to protect micro-climate and possible future colonization sites.

12. Retention considerations

- Retention patches placed within a stand for water quality, inoperability, or protection of sensitive habitat can contribute toward but not fully satisfy retention requirements (pg. 10).

- Important to vary retention patterns across the landscape to encourage structural diversity (pg. 11).
  - When retaining scattered trees, important to capture the size diversity by assuring that large diameter trees / trees with desirable wildlife characteristics are included.
  - For stands greater than 10 acres, patches are recommended. This also assures that a representation of the current species community is retained.

Mineral Resource and Development Concerns and/or Restrictions: Surface sediments consist of lacustrine (lake) sand & gravel and peat and muck. There is insufficient data to determine the glacial drift thickness. The Silurian Burnt Bluff and Manistique Groups subcrop below the glacial drift. The Burnt Bluff is quarried for stone/limestone in the UP. The Dollar Lake gravel pit is located in Section 20, but potential in the Compartment appears to be limited. There is no current economic oil and gas production in the UP.

Vehicle Access: Most upland areas have road access. Borgstrom Road, a paved county all season road which was renovated within the past 5 years, runs through compartment. Old drainage ditches running parallel to the road, approximately 60 feet in on either side, make access difficult to stands adjacent to the road. Some access to proposed harvest stands will need permission from the Mackinac County Road Commission to open old roads off the Borgstrom Road. Dollar Lake Road (Old Hendricks Road) is a non-maintained

county road in fair to poor condition. Access to the east side of the compartment is from the Pat Road, off the Giddings Road. This road was put in by Wildlife Division to help access and manage the aspen areas.

Survey Needs: No survey needs.

Recreational Facilities and Opportunities: The area is used for a variety of hunting, trapping, berry picking, and vehicle recreation activities.

Fire Protection: This compartment is a low fire danger area. The area is normally wet with a low potential for a fire start. The muck soils will make mop-up difficult if there was a start in the lowlands. The vehicle access for part of the compartment is difficult but the upland areas are accessible. Moderate response times to the compartment because of county and state road access.

Additional Compartment Information:

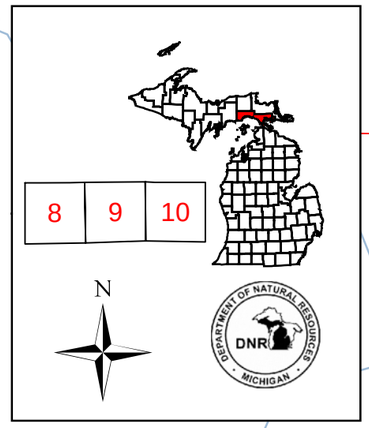
- **Cover Type details, Proposed Treatments, and Stand listings are listed in the attached reports:**
  - **Proposed Treatments – No Limiting Factors**
  - **Proposed Treatments – With Limiting Factors**
  - **Stand Listing – Forested**
  - **Stand Listing – Non Forested**
  - **Special Conservation Area (SCA) Details**

- **The following information is displayed, where pertinent, on the attached compartment maps:**
  - **Base feature information, stand numbers, cover types**
  - **Proposed treatments**
  - **Proposed road access system**
  - **SCA – Special Conservation Areas**

Cover Type & Treatment Map

Compartment 154
T44N, R08W, Sec. 8-10
County: Mackinac
Unit: Sault Ste. Marie
YOE: 2010
Acres: 1,906 GIS Calculated
Stand Examiner: Karen Rodock
Map Revised: 8/11/2008
Map Phase: Pre-review

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



Legend

- RLS Corners
- Miris Corners
- County Paved Road
- County Gravel Road
- Public Gravel Road
- Gravel Road
- Public Poor Dirt Road
- Poor Dirt Road
- Closed Roads
- Intermittent Stream/Drain
- Stream
- Lakes and Rivers All
- Berms
- Pesticide
- Prescribed Burn
- Thinning (Crown, Low, Systematic)
- Clearcut (w/Reserves Patch\Strip)

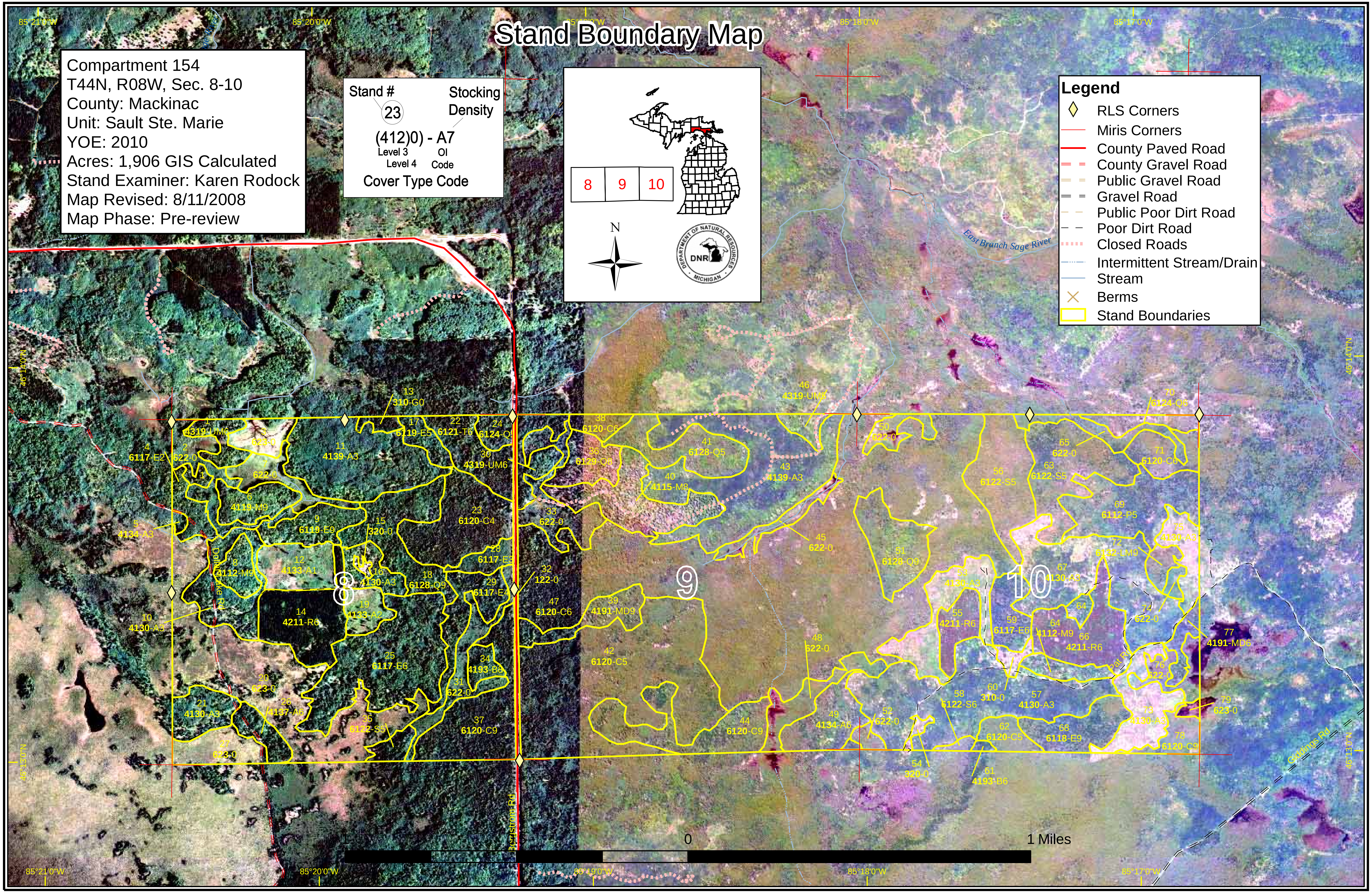
Forest Stands
LVL3COVER
- 411 - Northern Hardwood
- 413 - Aspen Types
- 419 - Mixed Upland Deciduous
- 421 - Planted Pines
- 430 - Upland Mixed Forest
- 611 - Lowland Deciduous Forest
- 612 - Lowland Coniferous Forest
- 613 - Lowland Mixed Forest

Non-Forest Stands
LVL3COVER
- 122 - Road/Parking Lot
- 310 - Herbaceous Openland
- 320 - Upland Shrub
- 622 - Lowland Shrub
- 623 - Emergent Wetland
- Stand Boundaries

1 Miles 0.5 0 1

Dollarlake Rd
Borgstrom Rd
Pat Rd
Giddings Rd

85°20'0"W 85°19'0"W 85°18'0"W 85°17'0"W 85°16'0"W
46°15'0"N 46°14'0"N 46°13'0"N

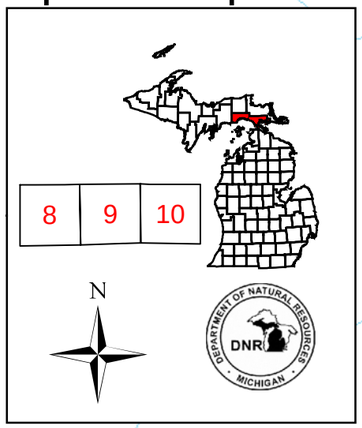


Stand Boundary Map
Compartment 154
T44N, R08W, Sec. 8-10
County: Mackinac
Unit: Sault Ste. Marie
YOE: 2010
Acres: 1,906 GIS Calculated
Stand Examiner: Karen Rodock
Map Revised: 8/11/2008
Map Phase: Pre-review
Stand #
23
Stocking Density
(412)0) - A7
Level 3
Level 4
OI Code
Cover Type Code
8
9
10
N
DEPARTMENT OF NATURAL RESOURCES
DNR
MICHIGAN
Legend
RLS Corners
Miris Corners
County Paved Road
County Gravel Road
Public Gravel Road
Gravel Road
Public Poor Dirt Road
Poor Dirt Road
Closed Roads
Intermittent Stream/Drain
Stream
Berms
Stand Boundaries
East Branch Sage River
0
1 Miles

Dedicated & Proposed Special Conservation Area Map

Compartment 154
T44N, R08W, Sec. 8-10
County: Mackinac
Unit: Sault Ste. Marie
YOE: 2010
Acres: 1,906 GIS Calculated
Stand Examiner: Karen Rodock
Map Revised: 8/11/2008
Map Phase: Pre-review

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



Legend
- Miris Corners
- Stand Boundaries
- Cold Water Streams
- Deer Wintering Areas

85°21'0"W 85°20'0"W 85°19'0"W 85°18'0"W 85°17'0"W
46°14'0"N
46°13'0"N

1 4319-UM6; 2 622-0; 3 623-0; 4 6117-E2; 5 4134-A3; 6 4119-M9; 7 622-0; 8 4112-M9; 9 6119-E9; 10 4130-A3; 11 4139-A3; 12 4133-A1; 13 310-G0; 14 4211-R6; 15 320-0; 16 4130-A3; 17 6119-E5; 18 6128-Q9; 19 4133-A2; 20 623-0; 21 4130-A3; 22 6121-T6; 23 6120-C4; 24 6124-Q5; 25 6117-E6; 26 4137-A6; 27 623-0; 28 6117-E3; 29 6117-E4; 30 4319-UM6; 31 622-0; 32 122-0; 33 622-0; 34 4193-B8; 35 6122-S5; 36 6129-Q8; 37 6120-C9; 38 6120-C6; 39 4191-MD9; 40 4115-M8; 41 6128-Q5; 42 6120-C5; 43 4139-A3; 44 6120-C9; 45 622-0; 46 4319-UM5; 47 6120-C6; 48 622-0; 49 4134-A6; 50 622-0; 51 6128-Q9; 52 622-0; 53 4130-A3; 54 320-0; 55 4211-R6; 56 6122-S5; 57 4130-A3; 58 6122-S6; 59 6117-E6; 60 310-0; 61 4193-B6; 62 6120-C5; 63 6122-S5; 64 4112-M9; 65 622-0; 66 4211-R6; 67 4130-A3; 68 6118-E9; 69 6112-P5; 70 6124-Q6; 71 6120-C6; 72 6132-LM9; 73 4130-A3; 74 622-0; 75 4130-A3; 76 622-0; 77 4191-MD6; 78 6120-C9; 79 623-0

1 0.5 0 1 Miles

Covertype, Acres, and Age summary

(Level 3 Cover Type)

Sault Ste. Marie Mgt. Unit

Compartment 154 Year of Entry 2010

Report Date: 08/07/2008

Age Class

	Non-Forested	1-9	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100-109	110-119	120 +	Uneven Age	Total
Aspen Types	0	90.2	109.3	213.5	0	0	20.2	0	5.5	9.3	0	0	0	0	0	**447.9**
Emergent Wetland	120.7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**120.7**
Herbaceous Openland	6.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**6.6**
Lowland Coniferous Forest	0	0	0	0	0	8.2	0	0	25.9	26.5	97.0	44.2	476.0	118.7	0	**796.4**
Lowland Deciduous Forest	0	8.8	0	0	7.0	0	38.2	13.9	0	80.5	43.2	0	0	0	0	**191.6**
Lowland Mixed Forest	0	0	0	0	0	0	0	0	0	0	5.7	0	0	0	0	**5.7**
Lowland Shrub	129.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**129.6**
Mixed Upland Deciduous	0	0	0	0	0	0	0	0	0	21.4	8.0	0	0	0	0	**29.4**
Northern Hardwood	0	0	0	0	0	0	0	0	0	11.1	23.3	33.3	0	0	0	**67.7**
Planted Pines	0	0	0	43.3	0	31.9	0	0	0	0	0	0	0	0	0	**75.2**
Road/Parking Lot	7.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**7.4**
Upland Mixed Forest	0	0	0	0	0	0	0	0	0	13.3	0	0	11.5	0	0	**24.9**
Upland Shrub	2.9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**2.9**
Total	**267.2**	**99.0**	**109.3**	**256.8**	**7.0**	**40.1**	**58.4**	**13.9**	**31.4**	**162.2**	**177.2**	**77.5**	**487.5**	**118.7**	**0**	**1906.0**

Stand	Treatment Name	Acres	Stage1 CoverType	Size Density	Stand Age	Treatment Type	Treatment Method	Cover Type Objective
9	45154009-Cut	15.8	6119 - Mixed Lowland Deciduous Forest	High Density Log	91	Harvest	Clearcut with Reserves	Mixed Lowland Deciduous Forest

Rev Cmnt: Under t/s contract 45-118-05-01 Limping Brad Birch with stand 25.

Rev Spec: Cut all deciduous 2" or more and conifer 4" or more except leave all green marked paper birch and white pine.

Next Steps: Follow-up treatment with regeneration survey within 4 years after the timber cutting report. Acceptable regeneration is aspen, maple, cherry, cedar, yellow and paper birch, balsam fir, white spruce, black spruce and white pine in various amounts.

Stand	Treatment Name	Acres	Stage1 CoverType	Size Density	Stand Age	Treatment Type	Treatment Method	Cover Type Objective
25	45154025-Cut	61.5	6117 - Lowland Deciduous, Mixed Coniferous	High Density Pole	88	Harvest	Clearcut with Reserves	Lowland Deciduous, Mixed Coniferous

Rev Cmnt: Under t/s contract 45-118-05-01 Limping Brad Birch with stand 9.

Rev Spec: Cut all deciduous 2" or more and conifer 4" or more except leave all green marked paper birch and white pine.

Next Steps: Followup treatment with regeneration survey within 4 years after the timber cutting report. Acceptable regeneration is aspen, maple, cherry, cedar, yellow and paper birch, balsam fir, white spruce, black spruce and white pine.

Stand	Treatment Name	Acres	Stage1 CoverType	Size Density	Stand Age	Treatment Type	Treatment Method	Cover Type Objective
26	45154026-Cut	9.3	4137 - Aspen, Birch	High Density Pole	82	Harvest	Clearcut with Reserves	Aspen, Birch

Rev Cmnt: The stand is a ridge in the swamp with overmature aspen and paper birch.

Rev Spec: Clearcut with reserves of white pine and paper birch. Some trees should be retained along the edge of the stand along with some white pine and paper birch within the stand. Should be put up with stands 7, 8 and 11 of compartment 155.

Next Steps: Follow-up treatment with regeneration survey within 4 years after the timber cutting report. Acceptable regeneration is aspen, maple, cherry, beech, yellow and paper birch, ironwood, balsam fir, white spruce and white pine.

Stand	Treatment Name	Acres	Stage1 CoverType	Size Density	Stand Age	Treatment Type	Treatment Method	Cover Type Objective
34	45154034-Cut	5.8	4193 - Birch, Aspen	Medium Density Log	81	Harvest	Clearcut with Reserves	Mixed Upland Deciduous with Conifer

Rev Cmnt: The stand has difficult (wet) access off the Borgstrom Road. Will need MCRC permission to improve old existing access road.

Rev Spec: Clearcut with reserves following the retention guideline. Some paper birch and white pine should be retained for seed trees and future snags.

Next Steps: Follow-up treatment with regeneration survey within 4 years after the timber cutting report. Acceptable regeneration is aspen, maple, cherry, yellow and paper birch, cedar, balsam fir, white spruce and white pine.

Stand	Treatment Name	Acres	Stage1 CoverType	Size Density	Stand Age	Treatment Type	Treatment Method	Cover Type Objective
39	45154039-Cut	15.6	4191 - Mixed Upland Deciduous with Conifer	High Density Log	89	Harvest	Clearcut with Reserves	Mixed Upland Deciduous with Conifer

Rev Cmnt: The access is difficult (wet) into this stand. Permission from MCRC is necessary to improve old access road into stand.

Rev Spec: Clearcut with reserves following the retention guideline. Some paper birch and white pine should be retained for seed trees and future snags. Other species may be left as appropriate to follow retention guidelines. As per wildlife, no cedar (10% of canopy) or white pine (5% of canopy) are to be harvested and buffer ephemeral wetlands by 100'.

Next Steps: Follow-up treatment with regeneration survey within 4 years after the timber cutting report. Acceptable regeneration is aspen, maple, cherry, cedar, yellow and paper birch, balsam fir, white spruce, black spruce and white pine.

Stand	Treatment Name	Acres	Stage1 CoverType	Size Density	Stand Age	Treatment Type	Treatment Method	Cover Type Objective
49	**45154049-Cut**	20.2	4134 - Aspen, Spruce/Fir	High Density Pole	56	Harvest	Clearcut with Reserves	Mixed Upland Deciduous with Conifer

Rev Cmnt: Cut with stand 55 in compartment 155 (2009 YOE). MIxed and variable species components within the stand.

Rev Spec: Cut this stand with adjacent stand 55 in compartment 155 because of access. Some areas will not be harvested for retention. Budding trees will be left along edges, especially against the younger aspen age classes. Vernal ponds found within the stand will be buffered appropriately as per wildlife 100' away from edge. Cedar and white pine could be left if needed for retention. All conifer < 4 inches at dbh will be left. Leave some wolfy aspen. As per wildlife, all white pine (<2% of canopy), cedar (<2% of canopy) and white spruce (20% of canopy) will be left.

Next Steps: Follow-up treatment with regeneration survey within 4 years after the timber cutting report. Acceptable regeneration is aspen, maple, cherry, cedar, yellow and paper birch, balsam fir, white spruce, black spruce and white pine.

Stand	Treatment Name	Acres	Stage1 CoverType	Size Density	Stand Age	Treatment Type	Treatment Method	Cover Type Objective
55	**45154055-Cut**	12.4	42110 - Planted Red Pine	High Density Pole	24	Harvest	Systematic Thinning	Planted Red Pine

Rev Cmnt: The plantation has good rows running north to south. Some sawlog trees are present.

Rev Spec: Third row thin the plantation. Leave cherry, aspen and hardwood trees species where feasible.

Next Steps: None needed.

Stand	Treatment Name	Acres	Stage1 CoverType	Size Density	Stand Age	Treatment Type	Treatment Method	Cover Type Objective
58	**45154058-Cut**	1.9	6122 - Black Spruce	High Density Pole	87	Harvest	Clearcut with Reserves	Lowland Coniferous, Mixed Deciduous

Rev Cmnt: Cut with stand 61 and with stand 55 in compartment 155 (2009 YOE). Mostly a black spruce stand with some other components within the stand.

Rev Spec: Cut this stand with adjacent stand 61 and with stand 55 in compartment 155 because of access. Some areas will not be harvested for retention. Vernal ponds found within the stand will be buffered appropriately as per wildlife 100' away from edge). Cedar and white pine could be left if needed for retention. All conifer < 4 inches at dbh will be left. As per wildlife, all white pine (10% of canopy) and cedar (2% of canopy) are to be left.

Next Steps: Follow-up treatment with regeneration survey within 4 years after the timber cutting report. Acceptable regeneration is black spruce, white spruce, white pine, balsam fir, aspen, maple, cherry, cedar, yellow and paper birch in various amounts.

Stand	Treatment Name	Acres	Stage1 CoverType	Size Density	Stand Age	Treatment Type	Treatment Method	Cover Type Objective
61	**45154061-Cut**	1.1	4193 - Birch, Aspen	High Density Pole	96	Harvest	Clearcut with Reserves	Mixed Upland Forest

Rev Cmnt: Cut with stand 58 and with stand 55 in compartment 155 (2009 YOE). Mixed and variable species components within the stand.

Rev Spec: Cut this stand with stand 58 and with adjacent stand 55 in compartment 155 because of access. Some areas will not be harvested for retention. Budding trees will be left along edges, especially against the younger aspen age classes. Vernal ponds found within the stand will be buffered appropriately as per wildlife 100' away from edge). Cedar and white pine could be left if needed for retention. All conifer < 4 inches at dbh will be left. Leave some wolfy aspen. As per wildlife, all white pine (<2% of canopy) and cedar (<2% of canopy) are to left.

Next Steps: Followup treatment with regeneration survey within 4 years after the timber cutting report. Acceptable regeneration is aspen, maple, cherry, cedar, yellow and paper birch, balsam fir, white spruce, black spruce and white pine in various amounts.

Stand	Treatment Name	Acres	Stage1 CoverType	Size Density	Stand Age	Treatment Type	Treatment Method	Cover Type Objective
66	**45154066-Cut**	30.9	42110 - Planted Red Pine	High Density Pole	24	Harvest	Systematic Thinning	Planted Red Pine

Rev Cmnt: The plantation has good rows running north to south. Some sawlog trees are present. Some porcupine damage has occurred within the stand.

Rev Spec: Third row thin the plantation. Leave cherry, aspen and hardwood trees species where feasible.

Next Steps: None needed.

Stand	Treatment Name	Acres	Stage1 CoverType	Size Density	Stand Age	Treatment Type	Treatment Method	Cover Type Objective
77	**45154077-Cut**	4.4	4191 - Mixed Upland Deciduous with Conifer	High Density Pole	92	Harvest	Clearcut with Reserves	Mixed Upland Deciduous with Conifer

Rev Cmnt: Small stand with a very small portion into compartment 151. Very diverse species components within this stand. There is heavy balsam fir and maple regeneration in areas.

Rev Spec: Some areas will not be harvested for retention. Budding trees will be left along edges, especially against the younger aspen age classes. White pine could be left if needed for retention. All conifer < 4 inches at dbh will be left. Leave some wolfy aspen. South portion between wetland stand will not be cut for retention as per wildlife.

Next Steps: Follow-up treatment with regeneration survey within 4 years after the timber cutting report. Acceptable regeneration is aspen, maple, cherry, cedar, yellow and paper birch, balsam fir, white spruce, black spruce and white pine.

13	**NF_45154013-Burn**	3.0	Unspecified		0	Prescribed Burn	Unspecified	Planted Red Pine

Rev Cmnt: The harvest was completed in May of 2008 on Short Work Pine t/s contract.

Rev Spec: The stand may be prescribed burned for site prep depending on amount of slash left on site. The TMS will make the final determination if burning is necessary.

Next Steps: Trenching and hand planting of red pine seedling to acceptable regeneration levels will need to be completed within 2 years of the Timber Cutting Report date. After establishment of red pine regeneration, regeneration surveys need to be scheduled for 1 year and 3 years for monitoring of regeneration. Release as necessary determined by TMS.

12	**45154012-Spray**	18.4	4133 - Aspen, Mixed Pine		6	Pesticide	Other - Specify in Comments	Planted Red Pine

Rev Cmnt: There is aspen and cherry competing with the planted red pine.

Rev Spec: Release planted red pine with proper herbicide and method as determined by the TMS.

Next Steps: Monitor effects of release and treat as necessary. Monitor for RHPS and if monitoring shows that treatment is recommended, then spray when/if necessary with appropriate insecticide recommended by Forest Health Specialist/TMS.

19	**45154019-Spray**	9.9	4133 - Aspen, Mixed Pine		6	Pesticide	Other - Specify in Comments	Planted Red Pine

Rev Cmnt: The red pine has some cherry and aspen competing.

Rev Spec: Release planted red pine with proper herbicide and method as determined by the TMS.

Next Steps: Monitor effects of release and treat as necessary. Monitor for RHPS and if monitoring shows that treatment is recommended, then spray when/if necessary with appropriate insecticide recommended by Forest Health Specialist/TMS.

Total Treatment Acreage Proposed: **210.0**

Sault Ste. Marie Mgt. Unit
Inventory Method: IFMAP

PROPOSED TREATMENTS WITH LIMITING FACTORS

Compartment: 154 Entry Yr: 2010
Date 08/07/2008

Stand	Treatment Name	Acres	Stage1 Cover Type	Size Density	Stand Age	Treatment Type	Treatment Method	Cover Type Objective

Limiting Factor and Comment:

Rev Cmnt:

Rev Spec:

Next Steps:

No Treatment Reason

Total Treatment Acreage Proposed: **0**

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.

Inventory Method: IFMAP

Stand	SCA Name	Acres	Comments

DEDICATED CONSERVATION AREA DETAILS

* This is a list of Dedicated Biodiversity Areas for this compartment along with a 1/4 mile buffer surrounding the compartment.
Refer to Dedicated Conservation Area Map for areas that the below listed Conservation Areas are located.

ERA = Ecological Reference Area
HCVA = High Conservation Value Area
SCA = Special Conservation Area

Conservation Area	Type	Description
SCA	Cold Water Stream	A coldwater stream has temperature and dissolved oxygen conditions that allow naturally-reproduced or stocked trout populations and those of other coldwater fish species (e.g., slimy sculpin) to persist from year to year. Coldwater streams in Michigan typically provide these conditions due to substantial contributions of groundwater to their stream flows. Such streams are established by Director's action and designated as trout resources by Fisheries Order 210.
SCA	Habitat Area	An area that provide some specific need for the life cycle of wildlife species, including State Wildlife Areas and Waterfowl Production Areas, deer wintering complexes in lowland conifer communities, grassland openings and savannas. Habitat areas are distinct from critical habitat designated for recovery of endangered or threatened species (such as Kirtland's warbler or piping plover areas) in that they are more general in nature, are not primarily associated with threatened or endangered species, and are not covered by species recovery plans that are developed in cooperation with Federal agencies.