



Compartment Review Presentation

Traverse City Forest Management Unit

Compartment 61164

Entry Year 2018

Acreage: 1,841

County Kalkaska

Management Area: Boardman Plains

Revision Date: 2016-06-03

Stand Examiner: Katie Armstrong

Legal Description:

T27N 7W Section 18; T27N R8W Sections 13, 14, and 15

Identified Planning Goals:

This compartment is part of the Boardman Plains Management Area (MA). Management goals for this MA include balancing the age-class structure of aspen and red pine; increasing regeneration of oak; managing the northern hardwood resource for stand quality, age, and species diversity; enhancing wildlife values; and continued production of wood products. Wildlife habitat management objectives include perpetuating early successional communities for species adapted to young forests for hunting and other wildlife-related recreation opportunity. Management challenges include increased recreational pressure, increased oil and gas development; increased urban-wildland interface; invasive plant control; control of forest diseases and pests including oak wilt; and conversion or poor oak sites to mixed pine/oak sites.

Soil and topography:

Almost all of the compartment sits on sand, especially Rubicon sand, with isolated areas of histosols or mucks around the water bodies. The compartment is generally flat with some moderate slopes around the water bodies.

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

The Village of Kalkaska is adjacent to the compartment on the east end. There is a fair amount of State land surrounding the compartment as well as some private parcels. Since the last inventory, the State acquired a small parcel in Section 18 to connect the State land in sections 13 and 18. Given the similar management goals and heavy recreational use, the state land in Section 18 was transferred from Compartment 163 to 164. There are several active wells and pipelines in the compartment as well as many abandoned sites, many of which have been reforested by volunteer efforts.

Unique Natural Features:

An historical EO for a state Special Concern species encompasses a large portion of the county including this compartment.

Archeological, Historical, and Cultural Features:

None identified.

Special Management Designations or Considerations:

None.

Watershed and Fisheries Considerations:

This compartment is within the Rapid River watershed. Smith Lake, Milk Lake, and some smaller ponds are located in this compartment; existing buffers appear to be appropriate for the proposed treatments. Reasonable buffers (as outlined in Water Quality Management Practices on Forest Land) should be adhered to around waterbodies in this compartment. Water levels in these lakes appear to fluctuate from year to year so buffers should protect higher levels.

Wildlife Habitat Considerations:

Most of compartment 164 is underlain by excessively drained, acidic sands. Consequently, wildfire was an important natural process on this landscape. Ice-block depressions can be found throughout most of this landscape and may contain poorly drained organic soils. These depressions often support lakes and other wetland communities.

Some depressions function as frost pockets or cold air drainages and support open or semi-open communities. Selective cutting and burning have been prescribed for management of the larger upland brush communities. Burning will stimulate native herbaceous vegetation, set back encroachment, recycle nutrients, and create a seedbed necessary for some plants to germinate. Grasshopper sparrows, sharp-shinned hawks, wild turkeys, deer, badgers, Eastern box turtles, and numerous species of plants and invertebrates make use of, or are dependent on these fire driven communities. Other opening maintenance projects include selective hand felling, mowing and fertilizing existing grasses, and establishing new

patches of herbaceous cover.

Oak and pine make up a large percentage of the forested habitats here. Several northern hardwood stands can also be found here. Proposed oak treatments are intended to promote oak regeneration and create a diversity of oak age classes. This will ensure a continuous presence of mature mast producing trees on the landscape. Critical habitat components will be provided by the retention of mature mast producing trees, protection of snags and den trees, and creation of woody debris during or after harvest. Wild turkeys, broad-winged hawks, scarlet tanagers, deer, bear, American toads, and hog-nosed snakes are examples of the many species that will benefit from oak management.

Aspen communities are an important component of this fire prone early successional landscape. Timber harvests are typically used in lieu of stand replacing fires, which were once common. The incorporation of snags, live residual trees, and downed material in these cuts are used help to increase wildlife use and to replicate a wildfire-altered forest. Several proposed non-aspen dominated timber treatments will incorporate the regeneration and expansion of scattered aspen. Many early successional dependent wildlife species will benefit from aspen management, including, ruffed grouse, woodcock, deer, mourning warblers, yellow-billed cuckoos, and indigo buntings.

Mineral Resource and Development Concerns and/or Restrictions

Surface sediments consist of glacial outwash sand and gravel and postglacial alluvium. The glacial drift thickness varies between 400 and 600 feet. Beneath the glacial drift is the Mississippian Coldwater Shale. The Coldwater does not have a current economic use. A State leased pit is located in Section 14 and potential is considered good on the uplands. The Compartment is within the prolific Niagaran reef trend and all State minerals are leased. [2006]

Vehicle Access:

There is good vehicle access throughout the compartment. Smith Lake Road and Island Lake Road are year-round county roads. Brown Farm Road is a seasonal county road but oil/gas companies plow it in the winter. There is an old road through an abandoned well site (now Stand 405) that should be blocked since it is eroding a steep, sandy hillside and is not necessary for access.

Survey Needs:

Adjacent treatments will require setting a corner at the center of Section 15 and the north edge of the private 40 in Section 14.

Recreational Facilities and Opportunities:

Snowmobile Trail #55 runs E/W through the compartment and the Michigan Cross Country Cycle Trail (MCCCT) utilizes state forest two-tracks, as well as Smith Lake Rd within this compartment. Trail protection specifications should be considered if either trail is potentially impacted by treatment methods. (T.N. 1/28/16) Due to its proximity to the Village of Kalkaska, this compartment is also popular with non-motorized trail users. The North Country Trail crosses the compartment on two-tracks or singletrack trail and there is a designated camping site on the south shore of Smith Lake. A recently approved singletrack mountain bike trail winds through Section 13 and part of 14. The rest of the mountain bike trail system is also in development. Other events including Kalkaska Winterfest (dogsled), Iceman Cometh (mountain bike) and Arbor Day Enduro (dirt bike) use trails and/or existing roads in this compartment.

Fire Protection:

There is a moderate risk of wildfire potential, mostly in the older jack pine stands in the western half. Heavier recreational use may mean fire is more likely to start but close proximity to the DNR office and Village fire departments will ensure rapid response.

Additional Compartment Information:

Oak wilt was found in (near Smith Lake) and adjacent to the compartment in 2015 and treated in 2016.

The following reports from the Inventory are attached:

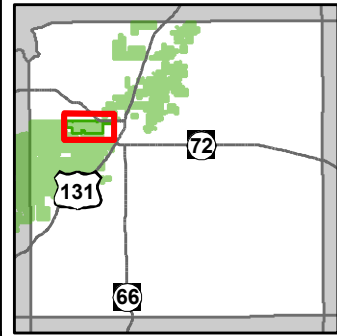
- Total Acres by Cover Type and Age Class**
- Cover Type by Harvest Method**
- Proposed Treatments – No Limiting Factors**
- Proposed Treatments – With Limiting Factors**
- Stand Details (Forested and Nonforested)**
- Dedicated and Proposed Special Conservation Areas**
- Site Condition Details**

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

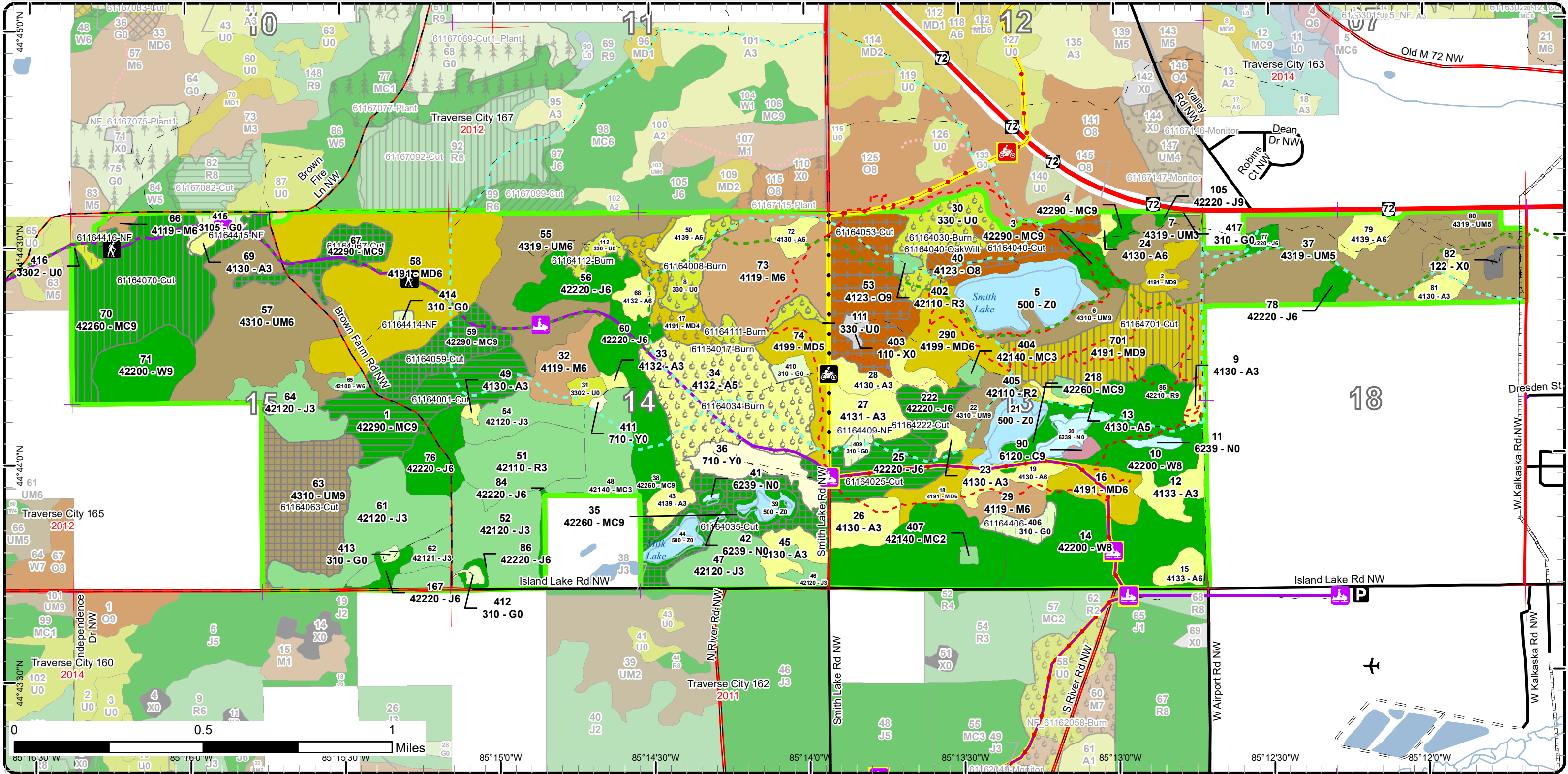
- Base feature information, stand boundaries, cover types, and numbers**
- Proposed treatments**
- Site condition boundaries**
- Details on the road access system**

Cover Type & Treatment Map

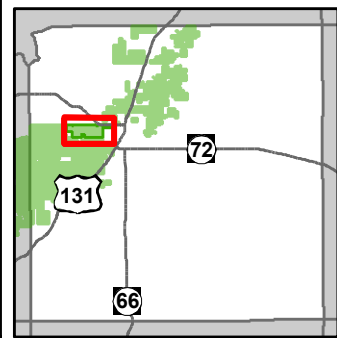
Compartment: 164
 T27N 07W Sec. 18
 County: Kalkaska
 Unit: Traverse City
 Mgmt Area: Boardman Plains
 YOE: 2018
 Acres: 1841 GIS Calculated
 Examiner: Katie Armstrong
 Map Revised: 6/9/2016
 Map Phase: Pre-Review



- Miris Corners
- ✚ Remonumented Section Corners
- ✈ Airport
- P Parking Lot
- 🏍 Motorcycle Trails (SOS License)
- 👤 Hiking Trails
- 🚴 MCCCT Trails
- 🏠 Snowmobile Trails
- Designated Hiking Trails
- - Designated Bicycle Trails
- - Designated Ski Trails
- ORV License
- ORV License & Trail Permit
- Designated Snowmobile Trails
- Michigan Cross Country Cycle Trail (MCCCT)
- Highway
- County Paved Roads
- Paved Roads
- County Gravel Roads
- Gravel Roads
- Poor Dirt Roads
- County Poor Dirt Roads
- Trail (Non-Recreation)
- Closed Roads
- Rivers
- Pipeline
- Compartment Boundary
- Clearcut (w/Reserves)
- Prescribed Burn
- Opening Maintenance
- Harvest, Overstory Removal
- Other Harvest - See Comments
- Shelter Wood (w/Reserves)
- Seed Tree (w/Reserves)
- 411 - Northern Hardwood
- 412 - Oak Types
- 413 - Aspen Types
- 419 - Mixed Upland Deciduous
- 421 - Planted Pines
- 422 - Natural Pines
- 430 - Upland Mixed Forest
- 612 - Lowland Coniferous Forest
- 110 - Low Intensity Urban
- 122 - Roads/Parking Lot
- 310 - Herbaceous Openland
- 330 - Low Density Trees
- 500 - Water
- 623 - Emergent Wetland
- 710 - Sand/Soil
- Lakes

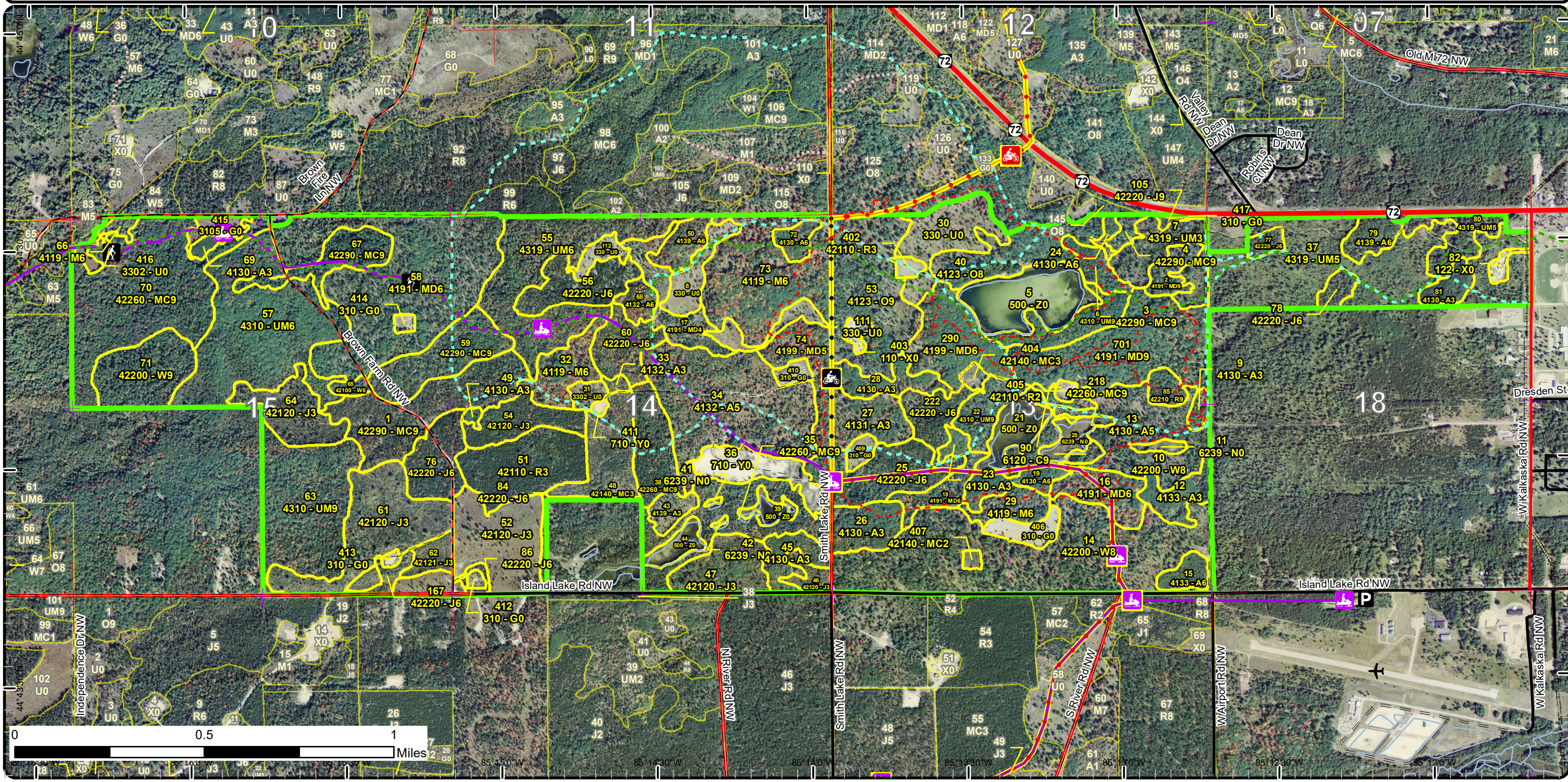


Stand Boundary



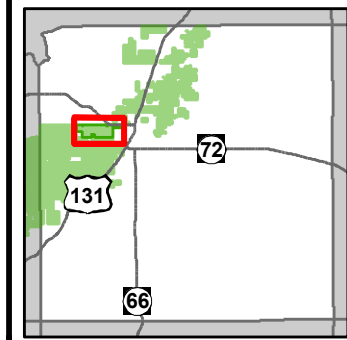
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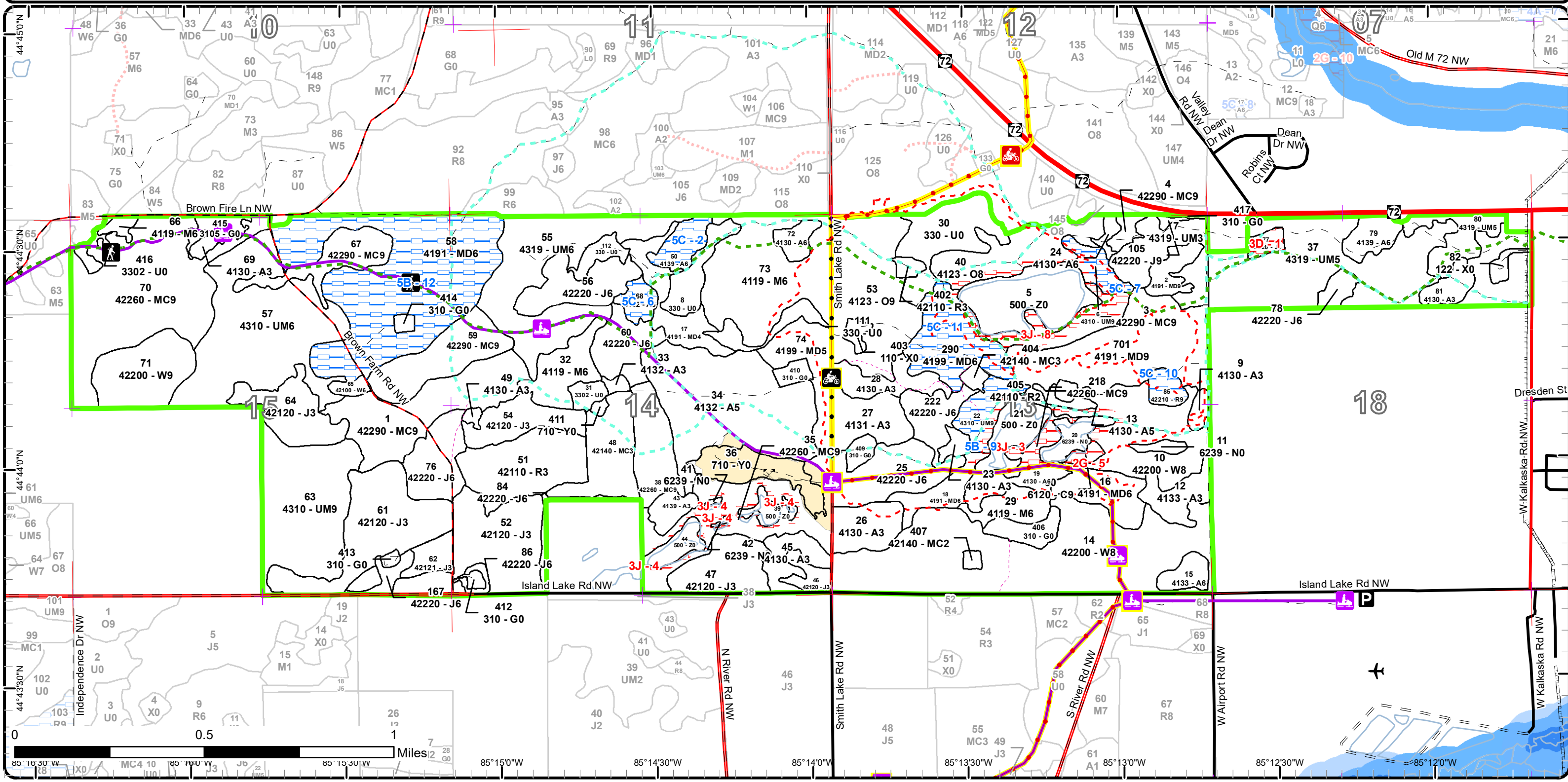


Special Conservation Areas & Site Conditions Map

Compartment: 164
 T27N 07W Sec. 18
 County: Kalkaska
 Unit: Traverse City
 Mgmt Area: Boardman Plains
 YOE: 2018
 Acres: 1841 GIS Calculated
 Examiner: Katie Armstrong
 Map Revised: 6/9/2016
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- Miris Corners
- + Remonumented Section Corners
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- Highway
- County Paved Roads
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- County Gravel Roads
- Gravel Roads
- - - Poor Dirt Roads
- County Poor Dirt Roads
- - - Trail (Non-Recreation)
- - - Closed Roads
- Rivers
- - - Pipeline
- Compartment Boundary
- Available w/ Constraints
- - - Unavailable
- 5B: Maintain for regeneration purposes
- 5C: Delay treatment for age/size class diversity or exceptional site quality
- 2G: Too wet (sensitive soils, does not include access issues)
- 3D: Recreational / Scenic values
- 3J: Water quality / BMPs (stream, river, or lake)
- Stand Boundaries
- Special Conservation Areas
- Natural Rivers Vegetative Buffer
- Natural Rivers Zoning District
- Cold Water Streams
- High Priority Trout Stream Buffer
- Sand or Gravel Pit
- Sand or Gravel Pit



Report 1 – Total Acres by Cover Type and Age Class

Traverse City Mgt. Unit

Compartment 164 Year of Entry 2018

Katie Armstrong : Examiner



Age Class

	Non-Forest	0-9	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100-109	110-119	120-129	130-139	140-149	150+	Uneven-Aged	Total
Aspen	0	0	25	80	78	9	14	0	0	0	0	0	0	0	0	0	0	0	206
Cedar	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	2
Herbaceous Openland	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24
Jack Pine	0	41	95	16	0	47	61	0	0	0	0	0	0	0	0	0	0	0	260
Low-Density Trees	53	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	53
Marsh	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10
Mixed Upland Deciduous	0	0	0	0	45	0	0	8	0	125	56	0	0	0	0	0	0	15	249
Natural Mixed Pines	0	0	0	0	0	163	43	27	0	0	0	0	0	0	0	0	0	0	233
Northern Hardwood	0	0	0	0	10	16	52	0	0	0	0	0	0	0	0	0	0	3	81
Oak	0	0	0	0	0	0	0	0	0	26	0	49	0	0	0	0	0	0	75
Planted Mixed Pines	0	3	23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	26
Red Pine	0	4	0	32	0	0	0	0	0	0	5	0	0	0	0	0	0	0	41
Sand, Soil	18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18
Upland Mixed Forest	0	0	21	54	0	85	13	0	52	15	12	0	0	0	0	0	0	75	327
Urban	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
Water	53	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	53
White Pine	0	0	0	0	3	110	0	0	0	39	27	0	0	0	0	0	0	0	179
Total	163	48	164	182	136	267	303	51	79	207	100	49	0	0	0	0	0	93	1842



Report 2 – Treatment Summary

Traverse City Mgt. Unit
Year of Entry: 2018

Compartment 164
Total Compartment Acres: 1,841

Acres of Harvest

Commercial Harvest - 399
Harvests with Site Condition - 0
Next Step Harvest - 0
Habitat Cut - 0

Cover Type by Harvest Method

	Clearcut	Selection	Patch Clearcut	Seed Tree	Shelterwood	Thinning	Overstory Removal	Salvage	Other	Total Acres
Jack Pine	37	0	0	0	0	0	0	0	0	37
Mixed Upland Deciduous	0	0	0	0	54	0	0	0	0	54
Natural Mixed Pines	42	0	0	69	76	0	0	0	0	187
Oak	0	0	0	0	0	64	0	4	0	68
Upland Mixed Forest	0	0	0	52	0	0	0	0	0	52
Total	79	0	0	121	131	0	64	0	4	399

Proposed and Next Step Treatments by Method

	Harvest	Site Prep	Planting	Seeding	Burning	Pesticide	Monitoring	Other	Non-Forest Mgt.	Total Acres
Current	399	0	0	0	131	0	0	0	21	551
Next Step	0	0	0	0	0	0	395	0	131	527
Total	399	0	0	0	131	0	395	0	152	1078



Stand	Treatment Name	Acres	Stand CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Age Structure	Approval Status
1	61164001-Cut	41.8	42290 - Natural Mixed Pine	Sawtimber Well	56	111-140	Harvest	Clearcut with Retention	429 - Mixed Upland Conifers	Even-Aged	Proposal

Habitat Cut: No**Site Condition:**

Prescription Specs: Final harvest, leaving retention as scattered trees or small pockets of red pine, white pine, and/or oak. multiple old railroad grades. Dogsled loop goes through stand; include appropriate trail protection/safety specs.

Next Step: Monitoring, Natural Regen (Re-Inventry)

Treatments:

Acceptable Regen: Red pine, white pine, jack pine with lesser amounts of oak, aspen, and red maple.

Other:

Comment:

Proposed Start Date: 10/01/2017

8	61164008-Burn	10.7	330 - Low-Density Trees	Nonstocked		Unspecified	Burn	Opening	3204 - Mast Producing Shrub		Proposal
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Habitat Cut: No**Site Condition:**

Prescription Specs: Selectively remove woody encroachment via Hydro-axe or a small fire wood sale (?) to remove mainly red maple. May need to mechanically treat bracken fern.

The main treatment of this stand will be to burn it at least once per entry period in order to set back bracken and woody encroachment, increase species diversity, stimulate native herbaceous vegetation, promote berry production, and recycle nutrients.

Burning for bracken and woody encroachment should take place late spring or early summer post emergence of fronds and leaves.

Next Step: NonForestMgt, Brush Cutting

Treatments:

Acceptable Regen:

Other:

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

Comment:

Proposed Start Date: 10/01/2017

17	61164017-Burn	16.1	4191 - Mixed Upland Deciduous with Conifer	Poletimber Poor	30	1-50	Burn	Opening	3204 - Mast Producing Shrub		Proposal
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Habitat Cut: No**Site Condition:**

Prescription Specs: Selectively remove woody encroachment via Hydro-axe or a small fire wood sale (?) to remove mainly red maple. May need to mechanically treat bracken fern.

The main treatment of this stand will be to burn it at least once per entry period in order to set back bracken and woody encroachment, increase species diversity, stimulate native herbaceous vegetation, promote berry production, and recycle nutrients.

Burning for bracken and woody encroachment should take place late spring or early summer post emergence of fronds and leaves.

Next Step: NonForestMgt, Brush Cutting

Treatments:

Acceptable Regen:

Other:

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

Comment:

Proposed Start Date: 10/01/2017

25	61164025-Cut	23.2	42220 - Natural Jack Pine	Poletimber Well	59	Unspecified	Harvest	Clearcut with Retention	4222 - Natural Jack Pine	Even-Aged	Proposal
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Habitat Cut: No**Site Condition:**

Prescription Specs: Final harvest leaving residual as pockets or individual longer-lived species along the snowmobile trail. Include appropriate trail protection/safety specs for snowmobile trail/MCCCT.

Next Step: Monitoring, Natural Regen (Re-Inventry)

Treatments:

Acceptable Regen: Jack pine with lesser amounts of red pine, white pine, aspen, red maple, and oak.

Other:

Comment:

Proposed Start Date: 10/01/2017



Stand Name	Acres	Stand CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Age Structure	Approval Status
30 61164030-Burn	24.0	330 - Low-Density Trees	Nonstocked	0	Unspecified	Burn	Opening	3205 - Mixed Upland Shrub		Proposal

Habitat Cut: No

Site Condition:

Prescription Selectively remove woody encroachment via Hydro-axe or a small fire wood sale (?) to remove mainly red maple. May need to mechanically treat bracken fern.

Specs: The main treatment of this stand will be to burn it at least once per entry period in order to set back bracken and woody encroachment, increase species diversity, stimulate native herbaceous vegetation, promote berry production, and recycle nutrients.

Burning for bracken and woody encroachment should take place late spring or early summer post emergence of fronds and leaves.

Next Step NonForestMgt, Brush Cutting

Treatments:

Acceptable

Regen:

Other

Comment:

Proposed Start Date: 10/01/2017

34 61164034-Burn	68.2	4132 - Aspen, Jack Pine	Poletimber Medium	35	81-110	Burn	Opening	3204 - Mast Producing Shrub		Proposal
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Habitat Cut: No

Site Condition:

Prescription Selectively remove woody encroachment via Hydro-axe or a small fire wood sale (?) to remove mainly red maple. May need to mechanically treat bracken fern.

Specs: The main treatment of this stand will be to burn it at least once per entry period in order to set back bracken and woody encroachment, increase species diversity, stimulate native herbaceous vegetation, promote berry production, and recycle nutrients.

Burning for bracken and woody encroachment should take place late spring or early summer post emergence of fronds and leaves.

Next Step NonForestMgt, Brush Cutting

Treatments:

Acceptable

Regen:

Other

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

Comment:

Proposed Start Date: 10/01/2017

35 61164035-Cut	27.0	42260 - Natural Pine, Mixed Deciduous	Sawtimber Well	60	111-140	Harvest	Seed Tree	4319 - Mixed Upland Forest	Even-Aged	Proposal
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Habitat Cut: No

Site Condition:

Prescription Final harvest leaving scattered overstory trees for seed, diversity and wildlife. Residual BA will be variable: 0-30 sf/acre. Buffers along ponds have been removed from treatment area but should be verified in the field. Snowmobile trail runs along northeast edge; include appropriate trail protection/safety specs. Uncertain if corners are in for private line on west end.

Next Step Monitoring, Natural Regen (Re-Inventory)

Treatments:

Acceptable Red pine, white pine, jack pine, with oak, aspen, red maple.

Regen:

Other

Comment:

Proposed Start Date: 10/01/2017



S t a n d	Treatment Name	Acres	Stand CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Age Structure	Approval Status
40	61164040-Cut	18.0	4123 - Red Oak	Sawtimber Medium	80	51-80	Harvest	Overstory Removal	4199 - Other Mixed Upland Deciduous	Even-Aged	Proposal

Habitat Cut: No

Site Condition:

Prescription Specs: Stand was treated last YOE but did not remove much oak. Regen has been mostly red maple. Oak wilt found in west end of stand in 2015 and storm in August 2015 brought down/damaged some of residual. Treatment should remove much of overstory oak to promote oak regeneration (TMS says ideal BA is 40 sf). Either leave heavier overstory along trails or excludes portions of stands. Include appropriate trail protection/safety specs. Buffer around Smith Lake has been removed from treatment area but should be verified based on slope in the field.

Next Step Treatments: Monitoring, Natural Regen (Intermediate)

Acceptable Regen: Oak, aspen, red maple, white pine.

Other Comment:

Proposed Start Date: 10/01/2016

40	61164040-OakWilt	3.6	4123 - Red Oak	Sawtimber Medium	80	51-80	Harvest	Other - Specify	4199 - Other Mixed Upland Deciduous	Even-Aged	Approved Proposal
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Habitat Cut: No

Site Condition:

Prescription Specs: Oak-wilt found and plow line put in summer 2015. Remove and properly dispose of marked spore-producing trees by April 2016.

Next Step Treatments:

Acceptable Regen:

Other Comment:

Proposed Start Date: 01/19/2016

53	61164053-Cut	46.5	4123 - Red Oak	Sawtimber Well	100	81-110	Harvest	Overstory Removal	4199 - Other Mixed Upland Deciduous	Even-Aged	Proposal
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Habitat Cut: No

Site Condition:

Prescription Specs: Stand was treated last YOE but did not remove much oak. Regen has been mostly red maple. Oak wilt found nearby in 2015 and storm in August 2015 brought down/damaged some of residual. Treatment should remove much of overstory oak to promote oak regeneration (TMS says ideal residual BA is 40 sf). Either leave heavier overstory along trails or excludes portions of stands. Include appropriate trail protection/safety specs.

Next Step Treatments: Monitoring, Natural Regen (Intermediate)

Acceptable Regen: Oak, aspen, red maple, white pine.

Other Comment:

Proposed Start Date: 10/01/2017

59	61164059-Cut	25.5	42290 - Natural Mixed Pine	Sawtimber Well	56	111-140	Harvest	Seed Tree	429 - Mixed Upland Conifers	Even-Aged	Proposal
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Habitat Cut: No

Site Condition:

Prescription Specs: Seed tree harvest to release white pine, promote other conifer regeneration and maintain species diversity. Mark scattered red pine, white pine and oak to leave. Protect desirable advanced regen. Snowmobile trail runs through northeast corner of stand; include appropriate trail protection/safety specs.

Next Step Treatments: Monitoring, Natural Regen (Re-Inventry)

Acceptable Regen: White pine, red pine, jack pine with lesser amounts of deciduous species.

Other Comment:

Proposed Start Date: 10/01/2017



S t a n d	Treatment Name	Acres	Stand CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Age Structure	Approval Status
63	61164063-Cut	52.3	4310 - Pine, Oak Mix	Sawtimber Well	70	141-170	Harvest	Seed Tree	4319 - Mixed Upland Forest	Even-Aged	Proposal

Habitat Cut: No Site Condition:

Prescription Seedtree harvest to promote conifer regeneration and maintainance of species diversity. Generally mark to leave with residual BA varying from 0 to 30. Uncertain if corners are in place for private line.

Next Step Monitoring, Natural Regen (Re-Inventory)
Treatments:

Acceptable Regen: Red pine, white pine, jack pine, oak with pockets of red maple and aspen.

Other Comment:

Proposed Start Date: 10/01/2017

67	61164067-Cut	16.5	42290 - Natural Mixed Pine	Sawtimber Well	73	141-170	Harvest	Seed Tree	429 - Mixed Upland Conifers	Even-Aged	Proposal
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Habitat Cut: No Site Condition:

Prescription Seed tree harvest to release white pine in understory and hopefully get some red pine and oak for diversity. Mark approximately 10 sf/acre of red pine, white pine and oak to leave. Snowmobile trail runs through stand; include appropriate trail protection/safety specs.

Next Step Monitoring, Natural Regen (Re-Inventory)
Treatments:

Acceptable Regen: White pine, red pine and oak with lesser amounts of red maple and aspen.

Other Comment:

Proposed Start Date: 10/01/2017

70	61164070-Cut	76.4	42260 - Natural Pine, Mixed Deciduous	Sawtimber Well	56	141-170	Harvest	Shelterwood	429 - Mixed Upland Conifers	Even-Aged	Proposal
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Habitat Cut: No Site Condition:

Prescription Shelterwood harvest to promote conifer regeneration and maintainance of species diversity. Generally mark to leave with residual BA varying from 0 to 50, depending on local canopy cover, e.g. thin denser pine pockets versus seed tree in others. Leave some of the better formed individuals in the hardwood pockets. East edge of stand is a fuzzy transition. Generally aim to remove parts of stand 57 if they will not hold ~ 10 years. Snowmobile trail/NCT runs through northern part of stand; include appropriate trail protection/safety specifications. Uncertain if corners are in place for private line.

Next Step Monitoring, Natural Regen (Re-Inventory)
Treatments:

Acceptable Regen: Mostly white pine, red pine and jack pine with pockets of hardwoods and aspen.

Other Comment:

Proposed Start Date: 10/01/2017

111	61164111-Burn	7.2	330 - Low-Density Trees	Nonstocked	0	Unspecified	Burn	Opening	3204 - Mast Producing Shrub		Proposal
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Habitat Cut: No Site Condition:

Prescription Selectively remove woody encroachment via Hydro-axe or a small fire wood sale (?) to remove mainly red maple. May need to mechanically treat bracken fern.
Specs: The main treatment of this stand will be to burn it at least once per entry period in order to set back bracken and woody encroachment, increase species diversity, stimulate native herbaceous vegetation, promote berry production, and recycle nutrients. Burning for bracken and woody encroachment should take place late spring or early summer post emergence of fronds and leaves.

Next Step NonForestMgt, Brush Cutting
Treatments:

Acceptable Regen:

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

Proposed Start Date: 10/01/2017



S t a n d	Treatment Name	Acres	Stand CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Age Structure	Approval Status
112	61164112-Burn	5.0	330 - Low-Density Trees	Nonstocked		Unspecified	Burn	Opening	3204 - Mast Producing Shrub		Proposal

Habitat Cut: No

Site Condition:

Prescription Selectively remove woody encroachment via Hydro-axe or a small fire wood sale (?) to remove mainly red maple. May need to mechanically treat bracken fern.

Specs: The main treatment of this stand will be to burn it at least once per entry period in order to set back bracken and woody encroachment, increase species diversity, stimulate native herbaceous vegetation, promote berry production, and recycle nutrients.

Burning for bracken and woody encroachment should take place late spring or early summer post emergence of fronds and leaves.

Next Step NonForestMgt, Brush Cutting

Treatments:

Acceptable

Regen:

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

Comment:

Proposed Start Date: 10/01/2017

222	61164222-Cut	13.6	42220 - Natural Jack Pine	Poetimber Well	59	Unspecified	Harvest	Clearcut with Retention	4222 - Natural Jack Pine	Even-Aged	Proposal
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Habitat Cut: No

Site Condition:

Prescription Final harvest marking a few red pine or longer-lived species to leave, especially at the south edge along the snowmobile trail. Also consider dogsled loop. Include appropriate trail protection/safety specs.

Next Step Monitoring, Natural Regen (Re-Inventory)

Treatments:

Acceptable Jack pine with lesser amounts of red pine, white pine, oak, aspen and red maple.

Regen:

Other

Comment:

Proposed Start Date: 10/01/2017

406	61164406-NF	7.5	310 - Herbaceous Openland	Nonstocked		Unspecified	NonForestMgt	Herbaceous/Crop/ Grass Planting	310 - Herbaceous Openland		Proposal
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Habitat Cut: No

Site Condition:

Prescription This opening is a traditional wildlife planting. Plant to annual rye for several years and then convert to a pasture mix (i.e. clover/alfalfa) if soil will support it. Periodic maintenance such as mowing, fertilization, reseeding, and/or removal of woody encroachment.

Next Step

Treatments:

Acceptable

Regen:

Other

Comment:

Proposed Start Date: 10/01/2017

409	61164409-NF	3.4	310 - Herbaceous Openland	Nonstocked		Unspecified	NonForestMgt	Herbaceous/Crop/ Grass Planting	310 - Herbaceous Openland		Proposal
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Habitat Cut: No

Site Condition:

Prescription This opening is a traditional wildlife planting. Plant to annual rye for several years and then convert to a pasture mix (i.e. clover/alfalfa) if soil will support it. Periodic maintenance such as mowing, fertilization, reseeding, and/or removal of woody encroachment.

Next Step

Treatments:

Acceptable

Regen:

Other

Comment:

Proposed Start Date: 10/01/2017



Stand Name	Acres	Stand CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Age Structure	Approval Status
414 61164414-NF	1.5	310 - Herbaceous Openland	Nonstocked		Unspecified	NonForestMgt	Herbaceous/Crop/Grass Planting	310 - Herbaceous Openland		Proposal

Habitat Cut: No

Site Condition:

Prescription This opening would make a nice wildlife planting. Plant to annual rye for several years and then convert to a pasture mix (i.e. clover/alfalfa) if soil will support it. Specs: Periodic maintenance such as mowing, fertilization, reseeding, and/or removal of woody encroachment.

Next Step
Treatments:

Acceptable
Regen:

Other
Comment:

Proposed Start Date: 10/01/2017

415 61164415-NF	5.7	3105 - Mixed Upland Herbaceous	Nonstocked		Unspecified	NonForestMgt	Herbaceous/Crop/Grass Planting	310 - Herbaceous Openland		Draft Proposal
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Habitat Cut: No

Site Condition:

Prescription This opening was a traditional wildlife planting. Plant to annual rye for several years and then convert to a pasture mix (i.e. clover/alfalfa) if soil will support it. Specs: Periodic maintenance such as mowing, fertilization, reseeding, and/or removal of woody encroachment.

Next Step
Treatments:

Acceptable
Regen:

Other
Comment:

Proposed Start Date: 10/01/2017

416 61164416-NF	2.8	3302 - Low Density Conifer Trees	Nonstocked		Unspecified	NonForestMgt	Herbaceous/Crop/Grass Planting	310 - Herbaceous Openland		Draft Proposal
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Habitat Cut: No

Site Condition:

Prescription This opening is a traditional wildlife planting. Plant to annual rye for several years and then convert to a pasture mix (i.e. clover/alfalfa) if soil will support it. Specs: Periodic maintenance such as mowing, fertilization, reseeding, and/or removal of woody encroachment.

Next Step
Treatments:

Acceptable
Regen:

Other
Comment:

Proposed Start Date: 10/01/2017

701 61164701-Cut	54.5	4191 - Mixed Upland Deciduous with Conifer	Sawtimber Well	92	81-110	Harvest	Shelterwood	4199 - Other Mixed Upland Deciduous	Even-Aged	Proposal
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Habitat Cut: No

Site Condition:

Prescription Treatment should remove some oak to try to get better oak regeneration but residual BA will be variable to maintain cover over trails. Either mark leave trees along trails or exclude patches with boundary line. Leave heavier residual on steeper slopes, in pine clumps, or for visual concerns. Specs: Treatment area may be smaller. Might extend treatment into flatter parts of Stand 6 to pick up storm damage. Consider treating early to capture value of damaged trees. Include appropriate trail protection/safety specs.

Next Step Monitoring, Natural Regen (Intermediate)
Treatments:

Acceptable Oak, red pine, white pine, red maple, aspen.
Regen:

Other
Comment:

Proposed Start Date: 10/01/2016



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Treatment Name	Acres	Stand CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Age Structure	Approval Status
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Total Treatment Acreage Proposed: 551.1

Report 4 – Site Conditions

Traverse City Mgt. Unit
Katie Armstrong : Examiner

Compartment: 164
Year of Entry: 2018

Availability for Management

Total Acres	Acres Available	Acres Avail		Dominant Site Conditions	Dominant Site Conditions					
		With Condition	Not Available		5B	5C	2G	3D	3J	
205	190	14	0	Aspen		14				0
2	0	0	2	Cedar			2			
24	24	0	0	Herbaceous Openland						
260	256	0	4	Jack Pine					4	
53	53	0	0	Low-Density Trees						
10	10	0	0	Marsh						
249	122	123	3	Mixed Upland Deciduous	97	26				3
233	210	7	17	Natural Mixed Pines		7				17
80	80	0	0	Northern Hardwood						
75	71	0	5	Oak						5
26	26	0	0	Planted Mixed Pines						
41	36	5	0	Red Pine		5				
18	18	0	0	Sand, Soil						
327	305	9	13	Upland Mixed Forest	9					13
5	5	0	0	Urban						
53	53	0	0	Water						
178	174	0	4	White Pine						4
1,841	1,634	159	48	Total Forested Acres	107	52	2	4		42
	89%	9%	3%	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
1	Unavailable	3D: Recreational / Scenic values	4	Unspecified	Unspecified	Unspecified	Unspecified
Comments:							
2	Available	5C: Delay treatment for age/size class diversity or exceptional site quality	9	Unspecified	Unspecified	Unspecified	Unspecified
Comments:							

Report 4 – Site Conditions

Traverse City Mgt. Unit
Katie Armstrong : Examiner

Compartment: 164
Year of Entry: 2018

3	Unavailable	3J: Water quality / BMPs (stream, river, or lake)	14	Unspecified	Unspecified	Unspecified	Unspecified
Comments: Buffer around ponds.							
4	Unavailable	3J: Water quality / BMPs (stream, river, or lake)	10	Unspecified	Unspecified	Unspecified	Unspecified
Comments:							
5	Unavailable	2G: Too wet (sensitive soils, does not include access issues)	2	3J: Water quality / BMPs (stream, river, or lake)	Unspecified	Unspecified	Unspecified
Comments:							
6	Available	5C: Delay treatment for age/size class diversity or exceptional site quality	6	Unspecified	Unspecified	Unspecified	Unspecified
Comments: Hold until 2028 YOE to treat with adjacent stands 56 & 60.							
7	Available	5C: Delay treatment for age/size class diversity or exceptional site quality	7	Unspecified	Unspecified	Unspecified	Unspecified
Comments: Heavy recreational use in this area.							
8	Unavailable	3J: Water quality / BMPs (stream, river, or lake)	18	Unspecified	Unspecified	Unspecified	Unspecified
Comments:							

Report 4 – Site Conditions

Traverse City Mgt. Unit
Katie Armstrong : Examiner

Compartment: 164
Year of Entry: 2018

9	Available	5B: Maintain for regeneration purposes	10	Unspecified	Unspecified	Unspecified	Unspecified
Comments:							
10	Available	5C: Delay treatment for age/size class diversity or exceptional site quality	5	Unspecified	Unspecified	Unspecified	Unspecified
Comments: Unusual stand. Leave due to heavy recreational use.							
11	Available	5C: Delay treatment for age/size class diversity or exceptional site quality	26	Unspecified	Unspecified	Unspecified	Unspecified
Comments: Hold for 10 years.							
12	Available	5B: Maintain for regeneration purposes	98	Unspecified	Unspecified	Unspecified	Unspecified
Comments:							

Mgt. Unit

Compartment: #Type!

Year of Entry:



Report 5 – PROPOSED SPECIAL CONSERVATION AREA* (SCA) DETAILS

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

SCA Name	SCA Category	Detail Type	Recommendation	Acres
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Comments

Mgt. Unit

Compartment:

Year of Entry



Report 6 – 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
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	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
1	42290 - Natural Mixed Pine	Sawtimber Well	41.8	56	111-140	Variable stand. Red pine is patchy. Jack pine is in very poor shape. East part has Breitburn natural gas and water pipelines that are part of the dogsled loop.
2	4191 - Mixed Upland Deciduous with Conifer	Sawtimber Well	7.6	60	51-80	Shelterwood cut winter 2012-13 as part of Comp 164 East Side Oak, 61-048-09-01. Removed all RM, aspen, JP, and marked oak and pine.
3	42290 - Natural Mixed Pine	Sawtimber Well	7.6	75	111-140	Variable BAs. Denser pine is mostly in the north end. Old grade and MTB trail run through stand. Slopes down towards Smith Lake. Aspen and jack pine is basically gone.
4	42290 - Natural Mixed Pine	Sawtimber Well	3.4	70	81-110	Thinned to ~70 sf/acre winter 2012-13. Comp 164 East Side Oak, 61-048-09-01. Removed all RM, aspen, JP, and marked pine and oak. Good visual/noise buffer in area of heavy recreational use.
6	4310 - Pine, Oak Mix	Sawtimber Well	14.6	81	111-140	Mostly healthy oak and pine with relatively dense white pine in the understory. Moderate slope down to lake. Fair amount of storm damage from August 2015.
7	4319 - Mixed Upland Forest	Sapling Well	21.4	13	Immature	Winterfest Jack Pine, sale 61-114-98-01, completed June 1999. Might be FTP C62-674, completed 5/2002. A few overstory oaks and pines. Red maple is taller than jack pine. Some pockets of jack pine are doing ok. Decent oak regen in spots (2-8" diameter).
9	4130 - Aspen	Sapling Well	3.0	27	Immature	Airport Aspen, sale 61-052-87-01, completed June 1988. Variable stocking. Sparse at north end.
10	42200 - Natural White Pine	Sawtimber Medium	39.0	80	51-80	Cut in 2011-2012 by Lutke. Comp 164 RP Release. 61-025-09-01. Removed RM, aspen and JP. ~8.6 cords/acre. Residual is highly variable. Canopy cover is on the high side of 50-75% range. Mostly white pine over red maple stump sprouts. Some of sapling-sized red maple is in the canopy with nothing over it. Probably should have removed more volume last time to release more of the white pine. Scattered denser areas that did not get thinned. Small pocket of cedar/spruce at southeast end of stand 11 and other wet edges. Some old railroad grades.
12	4133 - Aspen, Mixed Pine	Sapling Well	11.1	27	Immature	Airport Aspen, sale 61-052-87-01, completed June 1988. Variable stand. More conifer towards south end.
13	4130 - Aspen	Poletimber Medium	2.8	27	Immature	Hayfever sale, 61-053-87-01, completed June 1988. Variable stocking with open area on the east end.
14	42200 - Natural White Pine	Sawtimber Medium	109.8	40	81-110	Island Lake Pine, 61-024-09-01. Cut November 2010 by Tree Doc. Removed RM, JP and aspen. Left RP, WP, and oak. Only cut ~5.4 cords/acre. Chipped. Originally prescribed to plant jack pine following sale but residual was too thick so Chapter 7 was approved to leave as is. Stand is variable with scattered open parts, pockets of dense uneven-aged red pine, and other areas that are dense white pine regen. Stand is almost three-aged now with older red pine, white pine and oak, middle-aged white pine, and new red maple in some of the canopy gaps.



	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
15	4133 - Aspen, Mixed Pine	Poletimber Well	6.1	27	Immature	Airport Aspen, sale 61-052-87-01, completed June 1988. More conifers towards north and west sides of stand.
16	4191 - Mixed Upland Deciduous with Conifer	Poletimber Well	14.9	60	81-110	Patchy, variable stand. Some storm damage. Mediocre quality.
17	4191 - Mixed Upland Deciduous with Conifer	Poletimber Poor	16.1	30	1-50	Hodge podge. Poor quality and not merchantable. A few small pockets of pole-sized jack pine (6", 3 sticks). Rest is scattered cherry and aspen. In a slight valley.
18	4191 - Mixed Upland Deciduous with Conifer	Poletimber Well	9.8	30	51-80	BA highly variable. Generally older pine and oak over younger red maple and aspen, but even aspen seems to be of more than one age. Jack pine has almost completely fallen out of canopy.
19	4130 - Aspen	Poletimber Well	9.9	36	Unspecified	61-044-77-01. A few old, fire-scarred red and white pines.
22	4310 - Pine, Oak Mix	Sawtimber Well	11.7	90	51-80	Shelterwood cut winter 2012-13 as 61-048009-01, Comp 164 East Side Oak. Removed all RM, aspen, JP, and marked oak and pine. Oak is fair to good quality. BA is variable, ~80 sf/ac. More white pine in understory towards the south end, which will hopefully recruit into the canopy. Some oak stump sprouts. Some damage from August 2015 storm.
23	4130 - Aspen	Sapling Well	3.0	27	Immature	Hayfever sale, 61-053-87-01, completed June 1988. Some aspen just reaching pole size.
24	4130 - Aspen	Poletimber Well	2.3	27	Immature	Hayfever sale, 61-053-87-01, completed June 1988. Aspen just starting to reach pole size.
25	42220 - Natural Jack Pine	Poletimber Well	23.2	59	Unspecified	Variable stand. Jack pine diameters range from 3" to 14". Some mortality. Old grade runs through stand. At least 1 wet area south of snowmobile trail in central part of stand.
26	4130 - Aspen	Sapling Well	14.1	27	Immature	Indian Summer Sale, 61-063-87-01, completed March 1988. Trees are about 25' tall. Some older trees along the road.
27	4131 - Aspen, Oak	Sapling Well	16.6	17	Immature	Smith Lake Road Aspen, sale 61-113-98-01. Scattered oak appears to be suppressing aspen growth. A few pole-sized oaks and a few oak saplings.
28	4130 - Aspen	Sapling Well	12.2	27	Immature	Hayfever sale, 61-053-87-01, completed June 1988. Good regeneration with a few overstory oaks and jack pine.
29	4119 - Mixed Northern Hardwoods	Poletimber Well	9.9	36	81-110	
32	4119 - Mixed Northern Hardwoods	Poletimber Well	15.9	45	81-110	Variable stand. Mostly red maple sprouts just reaching pole size with scattered larger trees. Sizeable pocket of oak blowdown north of pipeline, in south-central part of stand. South of pipeline seems younger, perhaps part of 54 that didn't get planted.



	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
33	4132 - Aspen, Jack Pine	Sapling Well	1.6	17	Immature	Originally included in plantation that is stand 48 but did not get trenched. Has pipeline through the middle.
34	4132 - Aspen, Jack Pine	Poletimber Medium	68.2	35	81-110	Variable stand. Poorly stocked with scattered openings. Poor quality timber with scrappy aspen and red maple sprouts. Some jack pine is taller than aspen. Sizeable openings and sparser canopy in the southeast.
35	42260 - Natural Pine, Mixed Deciduous	Sawtimber Well	37.0	60	111-140	Variable stand. Seems almost two-aged with older red and white pine over younger aspen and red maple. Jack pine and some of the aspen are falling over. More deciduous at south end. Decent pocket of merchantable aspen between 42 and 47. Red pine can be patchy and is dense in some pockets. Multiple old grades run through stand. Topography is rolling hills, often sloping towards the lakes.
37	4319 - Mixed Upland Forest	Poletimber Medium	85.4	45	1-50	Stand was harvested in 2005. All red pine, white pine and oak were left as residual. Regeneration is fair, some browse throughout. Red maple is the most dominant species as far as regeneration goes. White pine and jack pine also make up a significant portion of the species coming back. Oak regen is minimal, often times heavily browsed. North country trail and winterfest/dogsled event trail are within stand boundary. [Survey date: 1/3/2012]
38	42260 - Natural Pine, Mixed Deciduous	Sawtimber Well	18.7	56	81-110	Variable stand with clumpy pockets of red pine surrounded by jack pine. Jack pine seems small but is not in good shape. Low end of BA range. Red pine diameters are variable.
40	4123 - Red Oak	Sawtimber Medium	26.5	80	51-80	Shelterwood cut winter 2012-13 as Comp 164 East Side Oak, 61-048-09-01. Removed all RM, aspen, JP and marked oak and pine. Oak BA is higher in a few spots. Only a few oak stump sprouts. A little bit of aspen at edges. Eastern tip has a little more pine in canopy and much more white pine in understory. Oak wilt found 2015 in southwest part of stand. Plow line put in fall 2015. Scattered blowdown from August 2015 storm. Contains new MTB trail, Iceman route, Winterfest dogsled trail, and old RR grade. RDR project in spring 2015 to block off old road that used to be at edge of lake and contain vehicle traffic on north side of lake.
43	4139 - Aspen, Mixed Deciduous	Sapling Well	6.0	16	Immature	Milk Lake Jack/Aspen, 61-116-98-01, completed April 2000. Cut everything except red pine > 10" dbh and left all oak. Old grade runs along southeastern edge.
45	4130 - Aspen	Sapling Well	10.8	27	Immature	Indian Summer Sale, 61-063-87-01, completed March 1988. Well-stocked with scattered overstory conifers.
46	42120 - Planted Jack Pine	Sapling Well	5.1	13	Immature	Milk Lake Jack/Aspen, sale 61-116-98-01, completed April 2000. FTP C62-671. Trenched in fall 2001 and planted May 2002. Jack pine is 6-12' tall.
47	42120 - Planted Jack Pine	Sapling Well	19.7	13	Immature	Milk Lake Jack/Aspen, sale 61-116-98-01. FTP C62-671. Trenched in fall 2001 and planted May 2002. Jack pine is 6-12'



	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
48	42140 - Planted Mixed Pine	Sapling Well	22.6	13	Immature	Section 14 Jack Pine, sale 61-193-98-01. FTP C62-659. Trenched in summer 2000, planted red pine in September 2000 but not very successful. Supplemental planting in May 2002. Heavy competition from jack pine. Scattered overstory oak.
49	4130 - Aspen	Sapling Well	1.2	27	Immature	Failed part of adjacent jack pine plantation that regenerated to aspen? Aspen is about 25' tall and somewhat sparse. Some is just reaching pole size.
50	4139 - Aspen, Mixed Deciduous	Poletimber Well	8.7	45	111-140	Some poles in subcanopy.
51	42110 - Planted Red Pine	Sapling Well	31.7	26	Immature	Timber sale 61-004-88-01. FTP C62-408. Planted May 1989. Red pine just reaching pole size. Fair amount of competition. Some poorly stocked areas, especially along north edge.
52	42120 - Planted Jack Pine	Sapling Well	40.6	5	Immature	Feet First Pine, 61-023-09-01, completed Oct-Nov 2009. Left all red pine, oak and cherry. FTP C62-801, trenched 2010 and planted May 2011. [FTP shows MO of JP but says RP was planted. This is definitely JP.] Scattered pockets of aspen. Decent amount of residual pine in southeast corner of stand. Left sliver along private boundary.
53	4123 - Red Oak	Sawtimber Well	48.6	100	81-110	Shelterwood cut winter 2012-13. Comp 164 East Side Oak, 61-048-09-01. Removed all RM, aspen, JP and marked oak and pine. NCT, Kalkaska MTB trail, Iceman, and Winterfest dogsled trail go through this stand.
54	42120 - Planted Jack Pine	Sapling Well	16.1	27	Immature	FTP C62-409. Harvested in 1988. Planted May 1989. Trees are about 20' tall. Well stocked. Most of aspen appears to be in the west end. Some scattered residual oak.
55	4319 - Mixed Upland Forest	Poletimber Well	53.6	25	51-80	Variable stand. Scattered residual red pine with red maple and aspen restarted in gaps. Red pine is clumpy. Large old pine stumps. Small openings with reindeer lichen. South part has more jack pine which is falling over.
56	42220 - Natural Jack Pine	Poletimber Well	19.1	49	Unspecified	Mostly open-grown, fairly limby jack pine. More deciduous on the west end. Slightly hilly.
57	4310 - Pine, Oak Mix	Poletimber Well	75.1	60	111-140	Variable stand. Like 63 but less white pine. Fire scars. Red pine diameters varies from 1-18".
58	4191 - Mixed Upland Deciduous with Conifer	Poletimber Well	97.5	81	51-80	Mid Winter Oak, 61-020-09-01. Completed Fall 2011. Removed all aspen, RM, beech and oak > 12" except green-painted trees. Extremely variable residual. Parts are still thick with white pine pole/saps and others have heavy red maple regen under scattered oak. Contains snowmobile and dogsled trails.
59	42290 - Natural Mixed Pine	Sawtimber Well	25.5	56	111-140	Variable stand. Generally heavy white pine in the understory which varies from sapling to almost pole-sized.
60	42220 - Natural Jack Pine	Poletimber Well	15.5	50	Unspecified	NCT.



	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
61	42120 - Planted Jack Pine	Sapling Well	41.7	15	Immature	Feet First Pine, Sale 61-116-98-01. FTP C62-672. Trenched fall 2001, planted May 2002. Replanted in 2004 "to supplement the seedlings/acre numbers." Jack pine has nearly taken over the red pine. Scattered overstory oaks and a few seedlings. Flat or south aspect.
62	42121 - Planted Jack Pine, Mixed Deciduous	Sapling Well	8.7	14	Immature	Yard Chicken Jack Pine, sale 61-116-98-01. FTP C62-672. Trenched fall 2001, planted May 2002. Jack pine doing better than some of nearby stands, especially east half.
63	4310 - Pine, Oak Mix	Sawtimber Well	52.3	70	141-170	Variable stand, some areas have little red pine in overstory. Fire scars on red pines. Aspen and jack pine are dying out. Slight slope at north end. Contains unofficial recreational trail which is probably event trail that got adopted by mountain bikers. Porcupine den. BA by spp: 1: rp 130, ro 10, wo 10, jp 10, total 160; 2: rp 40, wo 40, jp 10, rm 10, total 100; 3: rp 60, ro 10, wo 10, bt 50, rm 20, total 150. OPIC - FMD: 4/2/2006 Old white pine stumps. Two age stand. Let go for ten years & look at again. Selection cut in 10 years. Tops of red pine have rounded off. Looks like they stopped growing at around fifty years. Could take a selection cut on red pine logs right now, but I would like the white pine understorey to get a little bigger. (Grieve)
64	42120 - Planted Jack Pine	Sapling Well	19.9	12	Immature	Yard Chicken Jack Pine, sale 62-021-98-01, completed April 2000, left all red pine and oak. Probably planted at the same time as 61, which was planted in 2002 and supplemented in 2004. Planted to mostly jack pine with some red pine. Red pine shown in subcanopy should really be in canopy (10%). Scattered overstory pine and oak.
65	42100 - Planted White Pine	Poletimber Well	2.6	30	81-110	Poor quality.
66	4119 - Mixed Northern Hardwoods	Poletimber Well	2.5	60	51-80	Small pocket of hardwoods. Manage with stand 85 in comp 167. Poor quality. Lots of ironwood in understorey and some in canopy.
67	42290 - Natural Mixed Pine	Sawtimber Well	16.5	73	141-170	Unusual natural pine stand with uncommonly large trees, but there is a fair amount of windthrow and some mortality. White pine understorey is very thick and 5-10' tall in some places and still a carpet of seedlings in others. Fire scars on pine. Thinned as part of Lost Pine II, sale 61-037-01-01, completed July 2003.
68	4132 - Aspen, Jack Pine	Poletimber Well	5.8	50	81-110	Aspen is mostly merchantable or declining. Fuzzy transition to adjacent stands.
69	4130 - Aspen	Sapling Well	1.9	27	Immature	
70	42260 - Natural Pine, Mixed Deciduous	Sawtimber Well	76.4	56	141-170	Variable stand. Some parts are heavier to pine but other parts are small hardwood or aspen pockets with scattered pine. Fuzzy boundary to the east - less aspen here. Hardwoods are relatively poor quality. Some pockets of white pine have decent form and could be thinned. Surprising amount of ironwood in the understorey. Heavy browse on the red maple. Rolling hills.



	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
71	42200 - Natural White Pine	Sawtimber Well	26.5	95	81-110	Lost Pine II, sale 61-037-01-01, completed July 2003. Cannot find access road. Will need to find corners. Fair amount of oak stump sprouts and pockets of red maple saplings. BA is variable (50-120). Some mortality and broken tops. BA by spp: 1: wp 100, rp 20; 2: wp 50, rp 20; 3: wp 80, rp 60.
72	4130 - Aspen	Poletimber Well	5.3	27	Immature	Indian Summer Sale, 61-063-87-01, completed March 1988. Good regeneration.
73	4119 - Mixed Northern Hardwoods	Poletimber Well	51.9	50	81-110	Variable stand but generally denser in the southern half. Scattered canopy gaps. Not enough aspen to chase. Not good enough quality to mark. Red maple is mostly not merchantable. Old railroad grade along north edge.
74	4199 - Other Mixed Upland Deciduous	Poletimber Medium	19.5	30	51-80	Variable stand. Generally poor quality and fairly open with gradual transition into adjacent more open area. Includes a fair amount of storm damage which may get cleaned up by firewood permits.
76	42220 - Natural Jack Pine	Poletimber Well	18.2	40	Unspecified	Roller-chopped and scarified in 1975 (FTP C-225). Jack pine is still small. North edge of stand is fuzzy.
77	42220 - Natural Jack Pine	Poletimber Well	3.5	50	Unspecified	small jp stand w/ rp, oak and asp scattered throughout. bordered on northern edge by dogsled tr. old rr grade runs n/s through stand.
78	42220 - Natural Jack Pine	Poletimber Well	4.5	47	Unspecified	
79	4139 - Aspen, Mixed Deciduous	Poletimber Well	8.1	57	Unspecified	asp, rm stand. aspen concentrated in east, rm in west. a few large rp along northern edge, scattered jp along west edge. asp/rm is fair quality.
80	4319 - Mixed Upland Forest	Poletimber Medium	13.0	55	81-110	wp, rm stand, variable density. wp seems to be 2 aged. some red pine and red oak throughout, scattered pole asp. Stand was left as retention/buffer during harvest of stand 23.
81	4130 - Aspen	Sapling Well	6.4	20	Unspecified	Nicely stocked A3 stand, growing well. Harvested last year of entry and is fully stocked, moving towards an A5 stand by next YOY.
84	42220 - Natural Jack Pine	Poletimber Well	3.4	45	Unspecified	Edge strip between private property and two plantations.
85	42210 - Natural Red Pine	Sawtimber Well	5.2	90	81-110	Small pocket of older red pine. BA varies from 30-150 sf/acre and red pine diameters vary from 4-20". Pockets of dense white pine in parts of understory. Some areas more open. Some red pine has been removed. Older white pine stumps and fire scars on larger red pine.
86	42220 - Natural Jack Pine	Poletimber Well	1.9	40	Unspecified	Appears to have been left as a buffer/windbreak around oil well. Poor quality timber.



	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
90	6120 - Lowland Cedar	Sawtimber Well	2.4	80	81-110	Small pocket of dense cedar between pond and old railroad grade.
105	42220 - Natural Jack Pine	Sawtimber Well	1.0	50	111-140	Good visual/noise buffer for M72 in area of heavy recreational use. Good understory density.
167	42220 - Natural Jack Pine	Poletimber Well	4.3	50	Unspecified	Hodgepodge stand, remnant from adjacent stands.
218	42260 - Natural Pine, Mixed Deciduous	Sawtimber Well	6.5	60	51-80	Variable stand. Small isthmus of upland between two ponds. Flowing channel connects the two ponds. Small ear that sticks into western pond is wet jack pine. More deciduous in the south end. Lots of blowdown. Left for BMPs.
222	42220 - Natural Jack Pine	Poletimber Well	13.6	59	Unspecified	Jack pine and aspen are declining.
290	4199 - Other Mixed Upland Deciduous	Poletimber Well	27.9	80	81-110	Variable stand. Tends to have more aspen in the north half and more oak in the south. Oak is fair to poor quality. Some mortality. Some red maple in understory is just reaching pole size. Scattered blowdown from August 2015 storm. Contains new MTB trail, NCT, Iceman route, and Winterfest trail. Oak wilt plow line may just barely come into this stand on north end.
402	42110 - Planted Red Pine	Sapling Well	2.3	9	Immature	Abandoned well site and facility although there is still some infrastructure in the ground. Red pine planted in fall of 2006 or 2007.
404	42140 - Planted Mixed Pine	Sapling Well	2.3	9	Immature	Abandoned well site. Planted to mixture of red pine and jack pine as part of rehab.
405	42110 - Planted Red Pine	Sapling Medium	1.7	9	Immature	Abandoned well site that was planted to red pine as part of Arbor Day volunteer effort. Age is estimate. There is still a road running through the site with a sandy hill on the north end that could use some more rehab. The road through the site is being used for target practice and/or dumping. Pine is growing well with little competition.
407	42140 - Planted Mixed Pine	Sapling Medium	1.4	9	Immature	Abandoned well site. Planted as rehab project.
701	4191 - Mixed Upland Deciduous with Conifer	Sawtimber Well	55.8	92	81-110	Most of stand treated with Winterfest Oak, sale 61-168-98-01, completed September 1999. Cut marked oak, all aspen and red maple. Variable stand (BA ~30-150). Mostly oak and pine over red maple sprouts (2-8" diameter) and younger white pine. More white pine in canopy at stand edges. Some storm damage from August 2015. Oak may not hold on much longer but there are multiple trails to consider. Little to no oak regen.



Stand	Cover Type	Acres	Managed Site	General Comments:
5	500 - Water	29.6	No	Smith Lake. Water level fluctuates significantly from year to year.
8	330 - Low-Density Trees	10.7	No	
11	6239 - Mixed Emergent Wetland	2.3	No	Water level varies from year to year.
20	6239 - Mixed Emergent Wetland	7.3	No	Water level fluctuates from year to year. Small channel connects this to larger pond to the west.
21	500 - Water	12.8	No	Water level fluctuates from year to year. Emergent vegetation at the edges. Small channel connects this lake to smaller one to the east.
30	330 - Low-Density Trees	24.0	No	Opening that is filling in with black cherry, jack pine and a few scrubby oaks.
31	3302 - Low Density Conifer Trees	3.7	No	Originally included in plantation in stand 48. Sparse natural jack pine, white pine and scattered deciduous trees.
36	710 - Sand, Soil	16.7	No	County sand pit on long term lease with DNR.
39	500 - Water	4.1	No	Intermittently fills with water. Emergent vegetation at edges.
41	6239 - Mixed Emergent Wetland	0.4	No	Intermittently fills with water. Decent patch of young aspen along north edge.
42	6239 - Mixed Emergent Wetland	0.4	No	Intermittently fills with water.
44	500 - Water	6.2	No	Milk Lake. Water level fluctuates from year to year. Includes a small island of jack pine.
82	122 - Road/Parking Lot	2.5	No	well site-schmude oil inc. state kalkaska townsite 1-17HD pn39888
111	330 - Low-Density Trees	7.2	No	Scattered trees.
112	330 - Low-Density Trees	5.0	No	
403	110 - Low Intensity Urban	2.5	No	Active oil and gas facility with significant amount of infrastructure.
406	310 - Herbaceous Openland	7.5	Yes	Scattered trees. Aerial photo shows recent cultivation.



Stand	Cover Type	Acres	Managed Site	General Comments:
409	310 - Herbaceous Openland	3.4	No	Abandoned oil well? Has a moderate south aspect.
410	310 - Herbaceous Openland	3.3	No	Abandoned well site.
411	710 - Sand, Soil	0.9	No	No well. Only pipeline infrastructure.
412	310 - Herbaceous Openland	1.4	No	Oil or gas well. Appears inactive but there is still infrastructure in the ground.
413	310 - Herbaceous Openland	1.1	No	Active well site.
414	310 - Herbaceous Openland	1.5	No	Abandoned well site. Scattered trees with reindeer lichen, bracken fern and grasses.
415	3105 - Mixed Upland Herbaceous	5.7	No	Mostly open with scattered white pine and jack pine. At least 2 pipelines run through it (Breitburn gas, electric).
416	3302 - Low Density Conifer Trees	2.8	No	Scattered trees.
417	310 - Herbaceous Openland	0.5	No	Grassy opening that is part of M72 right-of-way.