



# Compartment Review Presentation

## Traverse City Forest Management Unit

Compartment 61045

Entry Year 2018

Acreage: 2,995

County Grand Traverse

Management Area: Boardman Plains

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**Revision Date:** 2016-05-10

**Stand Examiner:** Pat Ruppen

### Legal Description:

T27N R8W Sections 19,30

T27N R9W Sections 13,23,24,25,26

### Identified Planning Goals:

No Forest Management activities are prescribed at this time. Since the early 1980s forest and habitat management activities have been limited or absent in the Sand Lakes Quiet Area. This area has a history of forest management activities beginning with an intensive pine planting effort in the years of 1928-32. Numerous other treatments were carried out as early as the 1940's and peaking in the 1960s. Most of these treatment involved crown release thinning and removal of dead trees. Management activities were limited after the Sand Lakes Quiet Area was dedicated in 1973 but concerns were raised in the 1980's about the effects of the lack of management, especially the loss of diversity as the stands aged. Aspen and jack pine stands were of particular concern. Several aspen and jack pine harvest were prescribed and completed at that time. The current lack of active forest management while allowing natural processes to occur, also raises concerns. Many stands are old, overstocked and stagnant. This can be seen in both the pine and oak dominated areas. As stands lose vigor they are more susceptible to insect and pathogen attacks.

General decline was noted in the oak stands but no Oak Wilt infection centers were found at this time. Stressed oak is susceptible to attack from Gypsy Moth, Two-lined Chestnut Borer and Armillaria Root Rot and many other pathogens. The oak in this compartment will continue to age and die out with likely stand replacement from white pine and red maple. Although the white pine understory is thick in areas, due to it's whippy form, it has also been heavily damaged by snows. This slash load on and near the ground could result in intense fire behavior. Opportunities exist to reduce the crown closure on some of these oak stands which would allow the advanced white pine understory to grow through. In addition, it should be possible to crown thin some areas by removing stagnant, suppressed trees to increase vigor on the remaining stems.

The jack pine in this compartment continues to die and fall out of the canopy. Stands that formerly had a heavy jack pine component now have a large slash load of down and standing dead trees resulting an elevated opportunity for extreme fire behavior. Fires in these stands will likely be difficult to control and would result in stand replacement. Jack pine budworm and pine bark beetles are also associated with these over-aged, stressed jack pine stands which could impact nearby pine stands.

The Red and White Pine groves in this compartment are generally nearing 90 yrs old. Little diameter growth has occurred in the last 30 years. These areas have a beautiful, old, natural pine appearance, although a trained forester may see old, over-stocked, and stagnant! Most stands would benefit from crown release thinning which could increase the vigor of the remaining stems and increase their resistance to insect and pathogen attacks. The beautiful old pine look could surely be maintained.

As predicted, other than the aspen stands that were re-started in the 1980s, most of the aspen component in this compartment has died and fallen. Aspens stands are generally being replaced by red maple and white pine.

One of the attributes that was valued in the Sand Lakes Area was the variety of habitat types and the species of wildlife present. As the stands have aged and the management decreased, the variety of habitats has also decreased.

### Soil and topography:

The topography is gently rolling to moderately steep. Small pot-hole lakes and marshes are scattered throughout the area. Several of the lakes are particularly noteworthy because they possess thick, pure deposits are marl (calcium carbonate) on the lake bed and shores. The remaining soils in this compartment are almost entirely rubicon.

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

Extensive State Ownership surrounds this compartment both in Grand Traverse and Kalkaska Counties. Private holdings border in three locations: two in section 23 Grand Traverse County and one in section 30 Kalkaska County. One of these parcels extends into the Quiet Area---section 23 (23 acres). Mixed pine and aspen types lie to the south, oak types lie to the west, northern hardwoods border on the north, and a mixture of pine-oak-aspen adjoin on the east.

### Unique Natural Features:

This Compartment contains numerous northern fens that occur along the margins of seven alkaline kettle lakes. The surrounding forests are dominated by high-quality dry-mesic northern forest. The eastern part of the Compartment has areas heavily stocked in pine planted in the CCC era. Most was planted 1928-31. Several smaller areas of older natural pine can be found scattered around in this part of the Compartment along with scattered legacy trees. The entire compartment has been designated as the Sand lakes quiet Area. Under this designation, the use of motorized recreational vehicles has been excluded from the area.

Summertime recreation centers around the Sand Lakes in the form of camping and fishing. fall recreation mainly involves hunting with moderate camping. Heavy use is made of the ski trails in the winter, and spring is mainly a time of fishing. Camping occurs in winter and spring but to a lesser degree than in the summer.

A State Forest Campground is located on big Guernsey lake. Through within the Quiet Area, outboard motors are allowed on both big and Little Guernsey Lakes.

Roots Lake road, the northern compartment boundary, is a designated Department snowmobile trail.

### **Archeological, Historical, and Cultural Features:**

Archeological sites have been identified in this compartment.

### **Special Management Designations or Considerations:**

The Sand Lakes Quiet Area was dedicated by the Natural Resources commission in 1973. A major purpose of that dedication was to emphasize non-motorized dispersed recreation and other quiet recreational activities within the Quiet Area. Since that time, public access to the Area with motorized vehicles has been limited. The public continues to have motorized access to the Guernsey Lake Campground for rustic camping and access to boat launching facilities on big Guernsey lake. There has also been motorized access by Department of Natural Resources personnel and by others as needed to manage the resources of the Quiet Area this is in conformance with the 1973 approved plan. This area has also been designated as a High Conservation Value area.

### **Watershed and Fisheries Considerations:**

The North Branch of the Boardman River and numerous small lakes are found near this compartment. One of those lakes, Guernsey Lake, is a designated trout lake which is stocked annually with brown trout. Appropriate buffers (as outlined in Water Quality Management Practices on Forest Land) should be adhered to around all streams in this compartment. Existing buffers appear to be appropriate for the proposed treatments.

### **Wildlife Habitat Considerations:**

The western 20% of the compartment falls within a broad, flat outwash plain landscape (Land Type Association 5111); the remainder is on a pitted outwash plain (LTA 5211). Both of these landscapes are wildfire prone and have been shaped ecologically for centuries by relatively frequent, intense fires. As a result, forests here in the 1800's were dominated by jack pine, mixed pine forests and some beach-maple. Less fire prone areas occur in the lee of the Boardman River and numerous lakes in the compartment.

Ecologically, the compartment could benefit from judicious forest management allowing some continued succession toward mature pine forest or perhaps beech-dominated hardwood, while setting back some stands successional, consistent with the fire-driven dynamics of this landscape. Wildlife benefitting from a variety of successional states of pine-oak-aspen forests in this landscape include pine warbler, red squirrel, scarlet tanager, box turtle, coyote, hog-nosed snake, Cooper's hawk, red-backed salamander, and deer. Maintenance of oak forests is vital to myriad acorn users. If these oak forests are not regenerated (either naturally or through harvest) there will be a gradual loss of an important resource here.

Openings in the form of savanna-like barrens were once relatively common on these two types of dry and sandy outwash plains. These types of fire-dependent communities have become rare and are listed as S1 (Imperiled in the state because of rarity due to very restricted range, very few occurrences, steep declines, or other factors making it very vulnerable to extirpation from the state, such as modern wildfire suppression.) Several locations on the perimeter of the Sand Lakes Quiet Area have been proposed for barrens management. These areas already exhibit many barrens characteristics and with the application of controlled burns and/or limited tree removal/planting would provide habitat for common species of plants and animals as well as many rare species.

Red-shouldered hawks have been recorded in the compartment where mature forest is associated with wetlands and lakes. Loons may be using these lakes as well, so protection of the water bodies and associated riparian cover is important.

### **Mineral Resource and Development Concerns and/or Restrictions**

Surface sediments consist of glacial outwash sand and gravel and postglacial alluvium. Glacial drift thickness varies between 400 and 600 feet. There is over 100 feet of local relief within the compartment. Beneath the glacial drift is the Mississippian Coldwater Shale. There is no current economic use for the Coldwater. The nearest gravel pit is one and one half miles to the north. Gravel potential in the compartment may be good. This area is located within the prolific Silurian

Niagaran reef trend The Kalkaska County portion is leased and has a productive oil well. In the Grand Traverse portion, only an old Amoco lease holds a small part. Additional reefs are very likely to be found in the Compartment, however, exploration is not allowed. The Antrim Shale has not been developed in this area but may have future potential.

#### **Vehicle Access:**

Vehicle access is limited for general public but is available for official use by the DNR and other public agencies. Existing roadways have been well maintained in recent years but are blocked in places by fallen trees from recent storms. An effort could be made to make these roads passable for emergency use.

#### **Survey Needs:**

#### **Recreational Facilities and Opportunities:**

Summertime recreation centers around the Sand Lakes in the form of camping and fishing. Fall recreation mainly involves hunting with moderate camping. Heavy use is made of the ski trails in the winter, and spring is mainly a time of fishing. Camping occurs in winter and spring but to a lesser degree than in the summer.

2016: FMD Parts of this compartment are very beautiful especially the areas around the lakes and the sections with the older planted pine. The terrain is rolling which causes limited sight distance in many areas. The opportunity seems to exist for expanded recreational use with the addition of new or expanded trails for walking, biking or skiing.

A State Forest Campground is located on big Guernsey lake. Through within the Quiet Area, outboard motors are allowed on both big and Little Guernsey Lakes. Roots Lake road, the northern compartment boundary, is a designated Department snowmobile trail. The Shore to Shore equestrian and hiking trail, along with the North Country Trail are located within this compartment. Trail protection specifications related to non-motorized trails should be considered when setting up any treatments within this compartment. (T.M.N. 1/26/16)

#### **Fire Protection:**

#### **Additional Compartment Information:**

#### **The following reports from the Inventory are attached:**

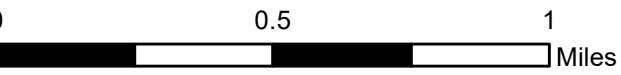
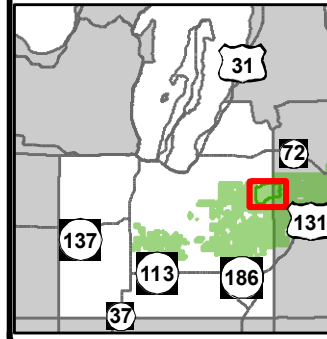
- Total Acres by Cover Type and Age Class**
- Cover Type by Harvest Method**
- Proposed Treatments – No Limiting Factors**
- Proposed Treatments – With Limiting Factors**
- Stand Details (Forested and Nonforested)**
- Dedicated and Proposed Special Conservation Areas**
- Site Condition Details**

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

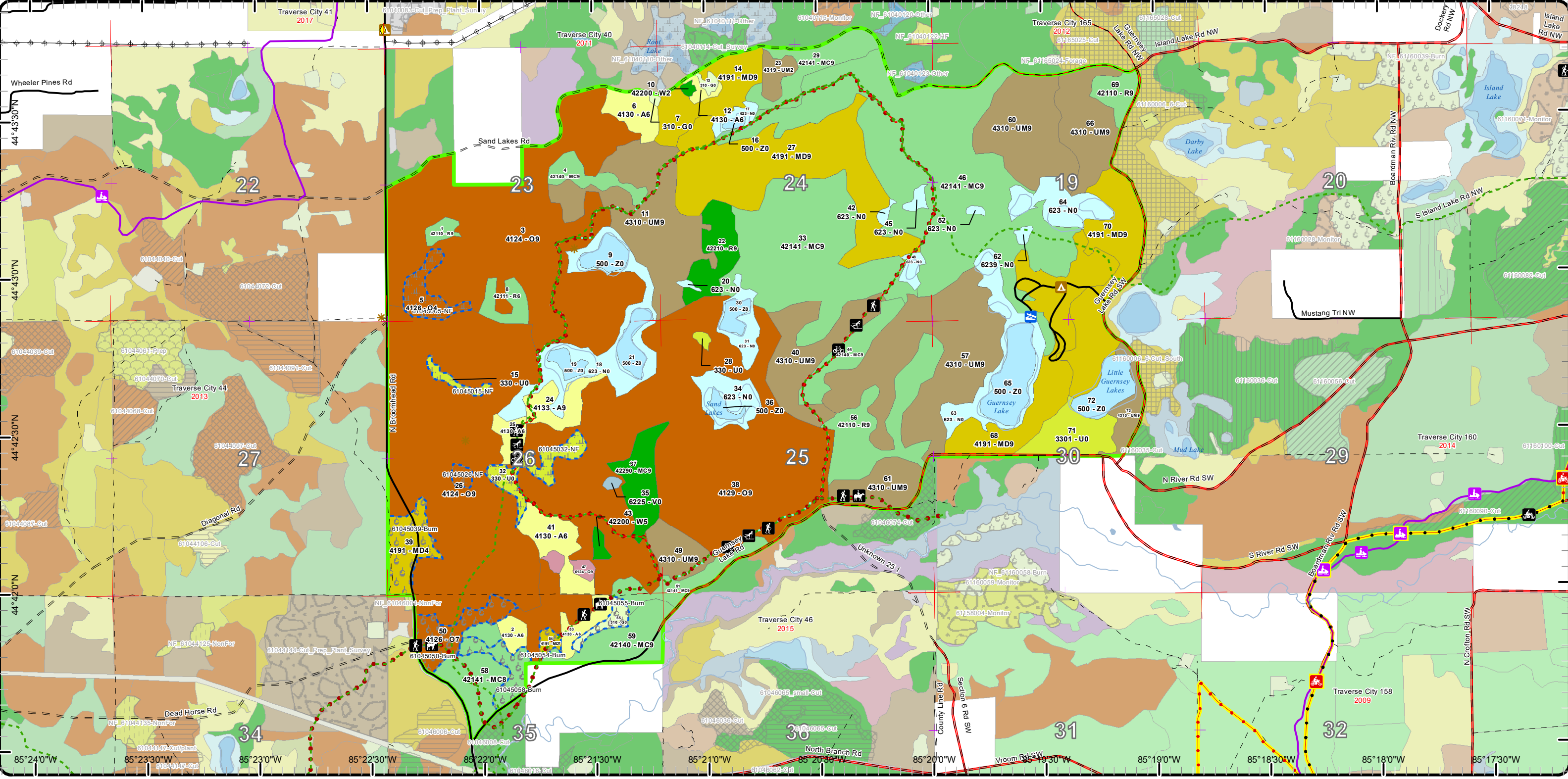
- Base feature information, stand boundaries, cover types, and numbers**
- Proposed treatments**
- Site condition boundaries**
- Details on the road access system**

# Cover Type & Treatments Map

Compartment: 45  
 T27N R09W Sec. 13,23-26  
 T27N R08W 19, 30  
 County: Grand Traverse  
 Unit: Traverse City  
 Mgmt Area: Boardman Plains  
 YOE: 2018  
 Acres: 2995 GIS Calculated  
 Examiner: Pat Ruppen  
 Map Revised: 6/9/2016  
 Map Phase: Web - Post

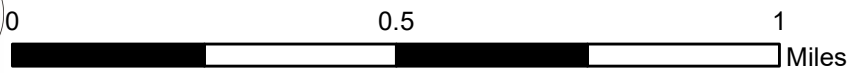
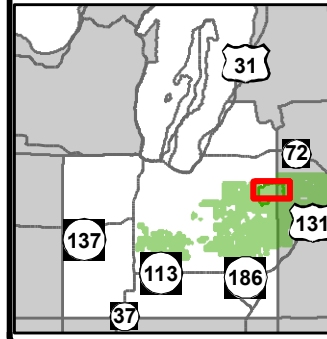


- Miris Corners
- + Remonumented Section Corners
- ◆ Survey Grade GPS Corners
- Culverts
- ▭ Boating Access Site
- ▲ Campground
- ★ Trailhead
- 🚲 Bike Trails
- 🚶 Hiking Trails
- 🐎 Horse Trails
- 🚲 MCCCT Trails
- 🚶 Ski Trails
- 🚲 Snowmobile Trails
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- Gravel Roads
- Poor Dirt Roads
- County Poor Dirt Roads
- Rivers
- ⊕ Powerline
- ▭ Compartment Boundary
- ▭ Treatments with Site Conditions
- ▭ Other Treatment - See Comments
- ▭ Prescribed Burn
- ▭ 412 - Oak Types
- ▭ 413 - Aspen Types
- ▭ 419 - Mixed Upland Deciduous
- ▭ 421 - Planted Pines
- ▭ 422 - Natural Pines
- ▭ 430 - Upland Mixed Forest
- ▭ 612 - Lowland Coniferous Forest
- ▭ 310 - Herbaceous Openland
- ▭ 330 - Low Density Trees
- ▭ 500 - Water
- ▭ 622 - Lowland Shrub
- ▭ 623 - Emergent Wetland
- ▭ Lakes

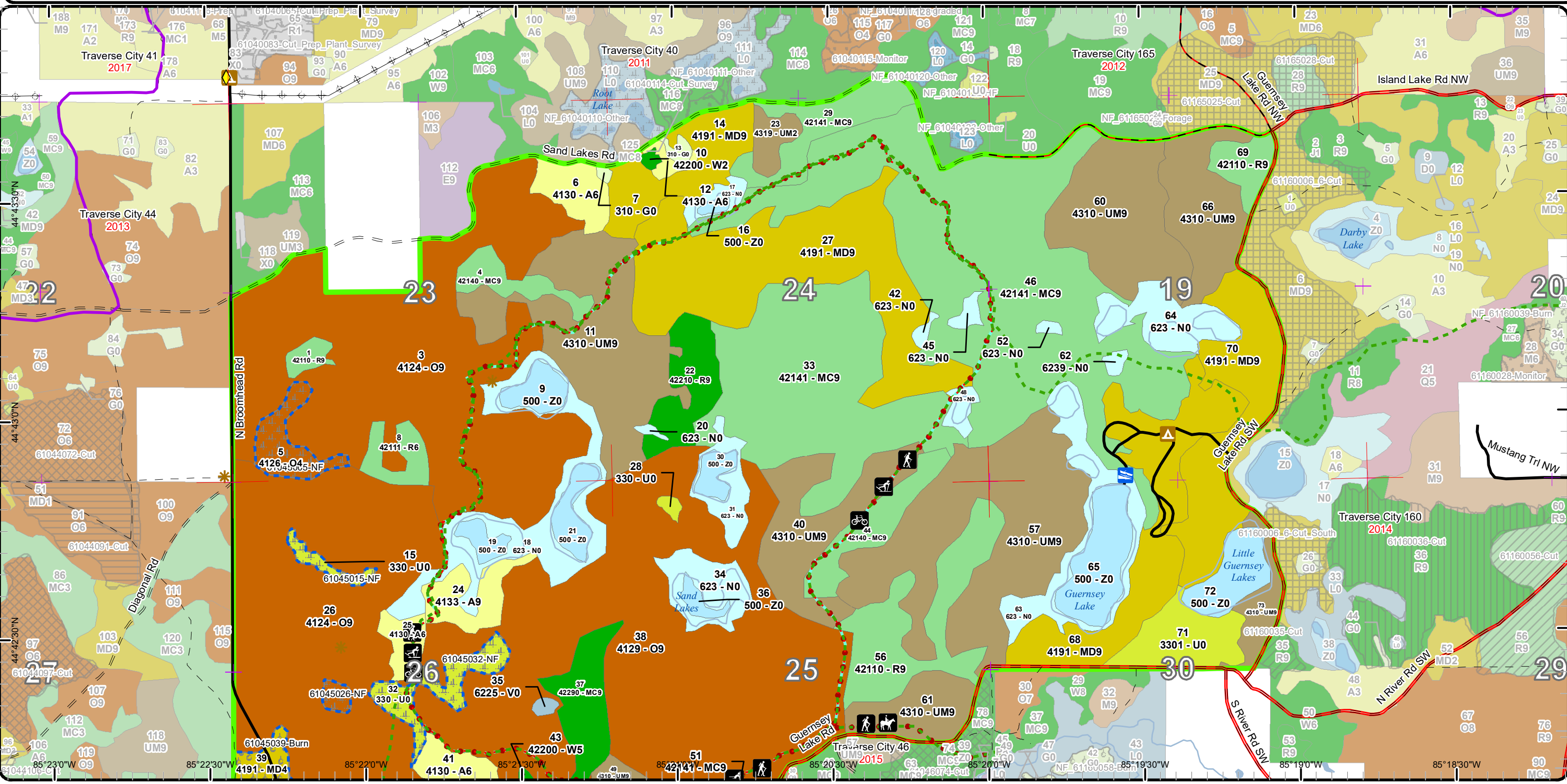


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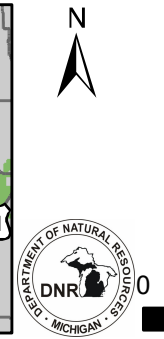
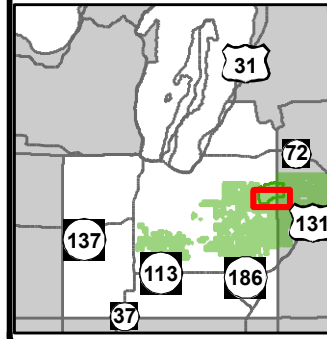


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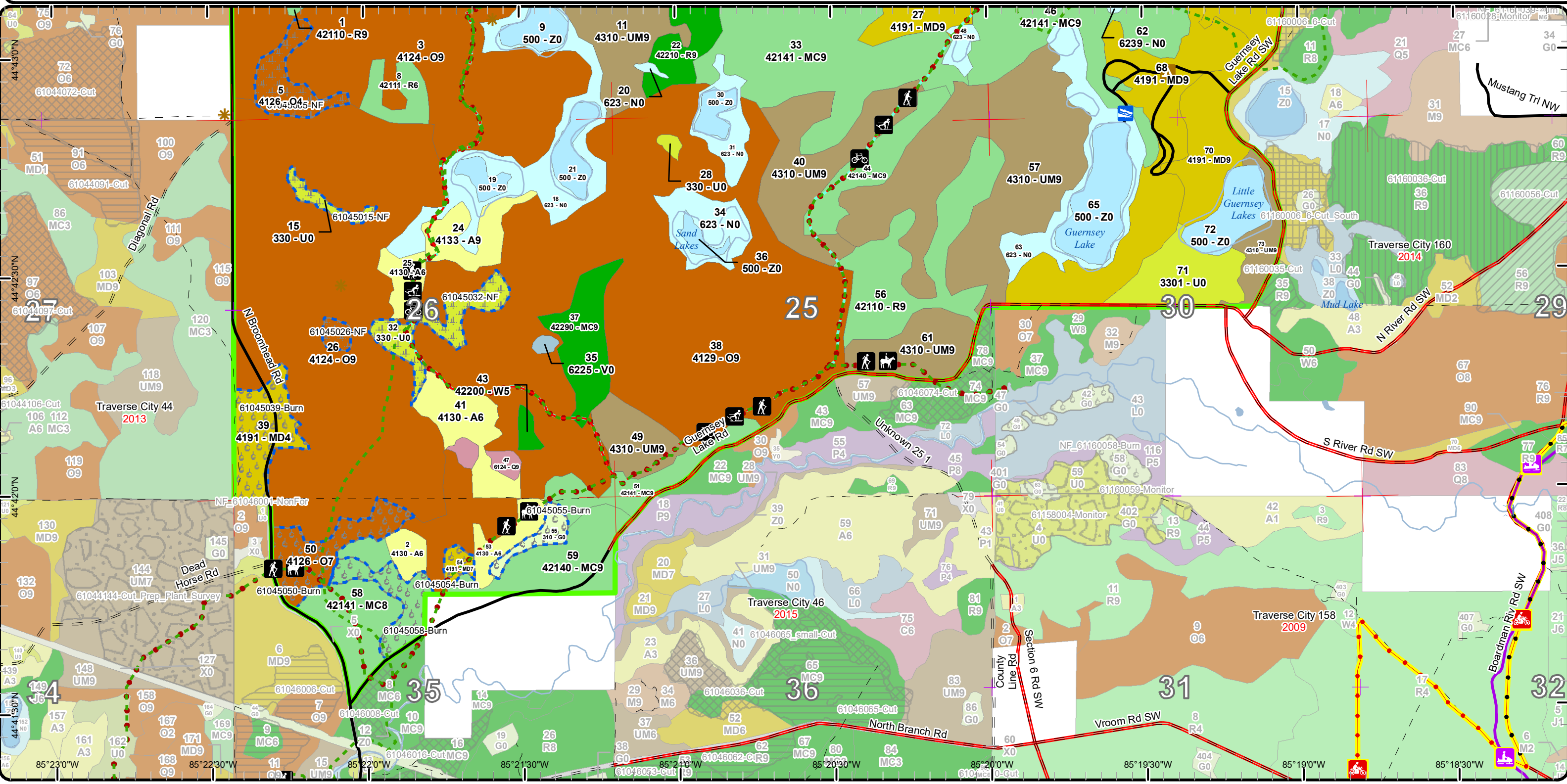


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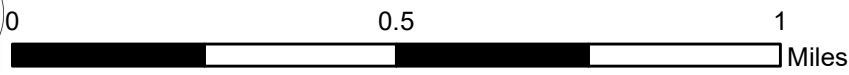
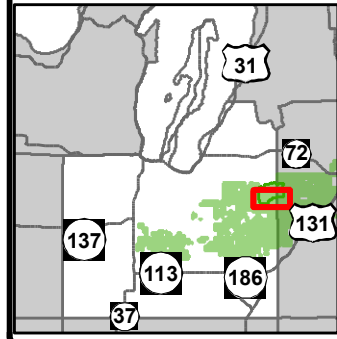
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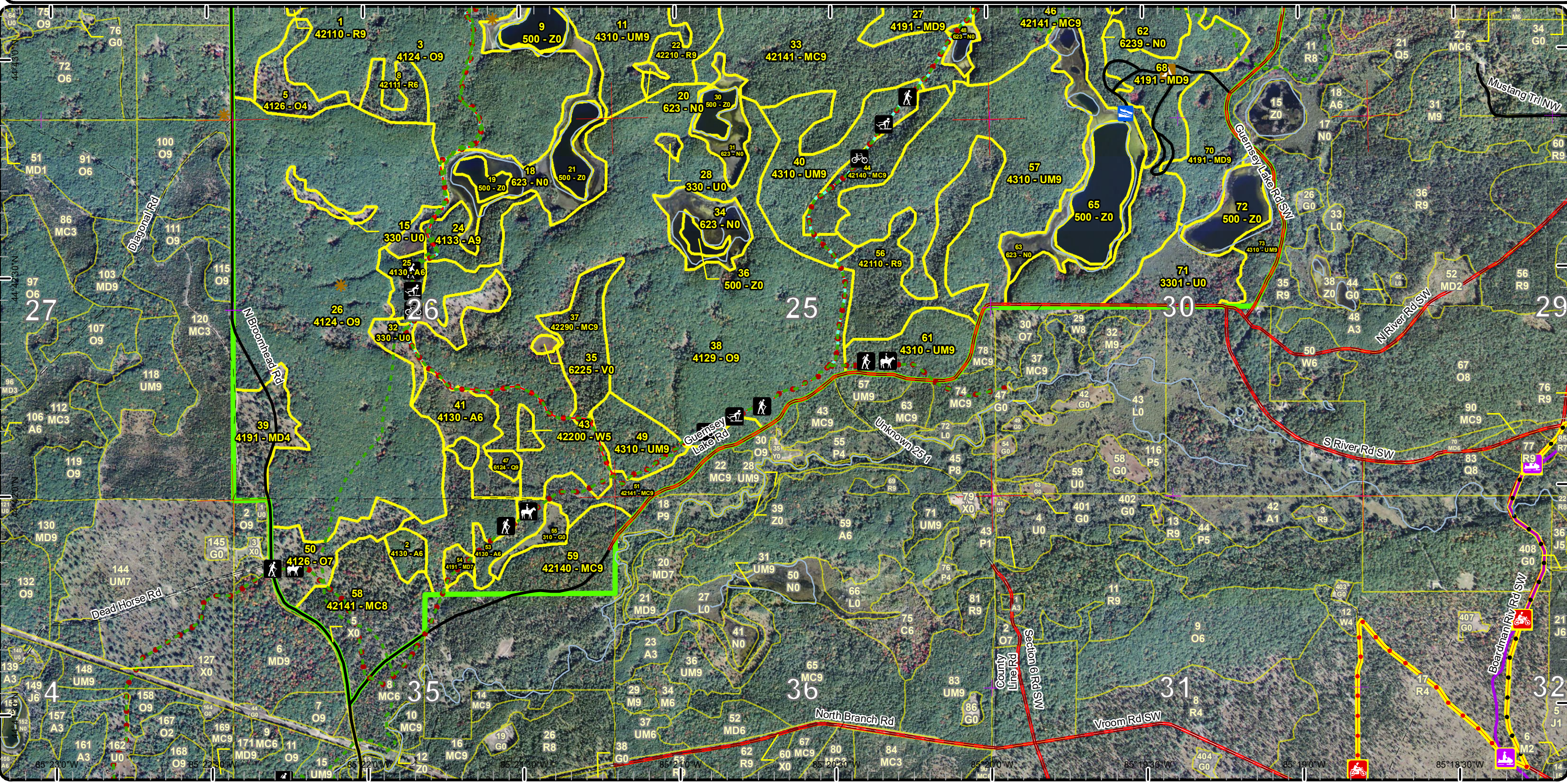


# Stand Boundary Map

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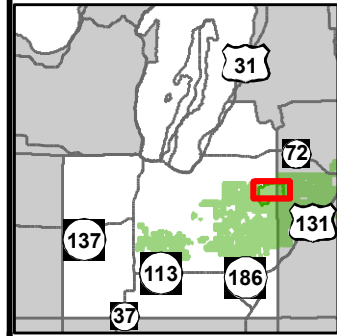
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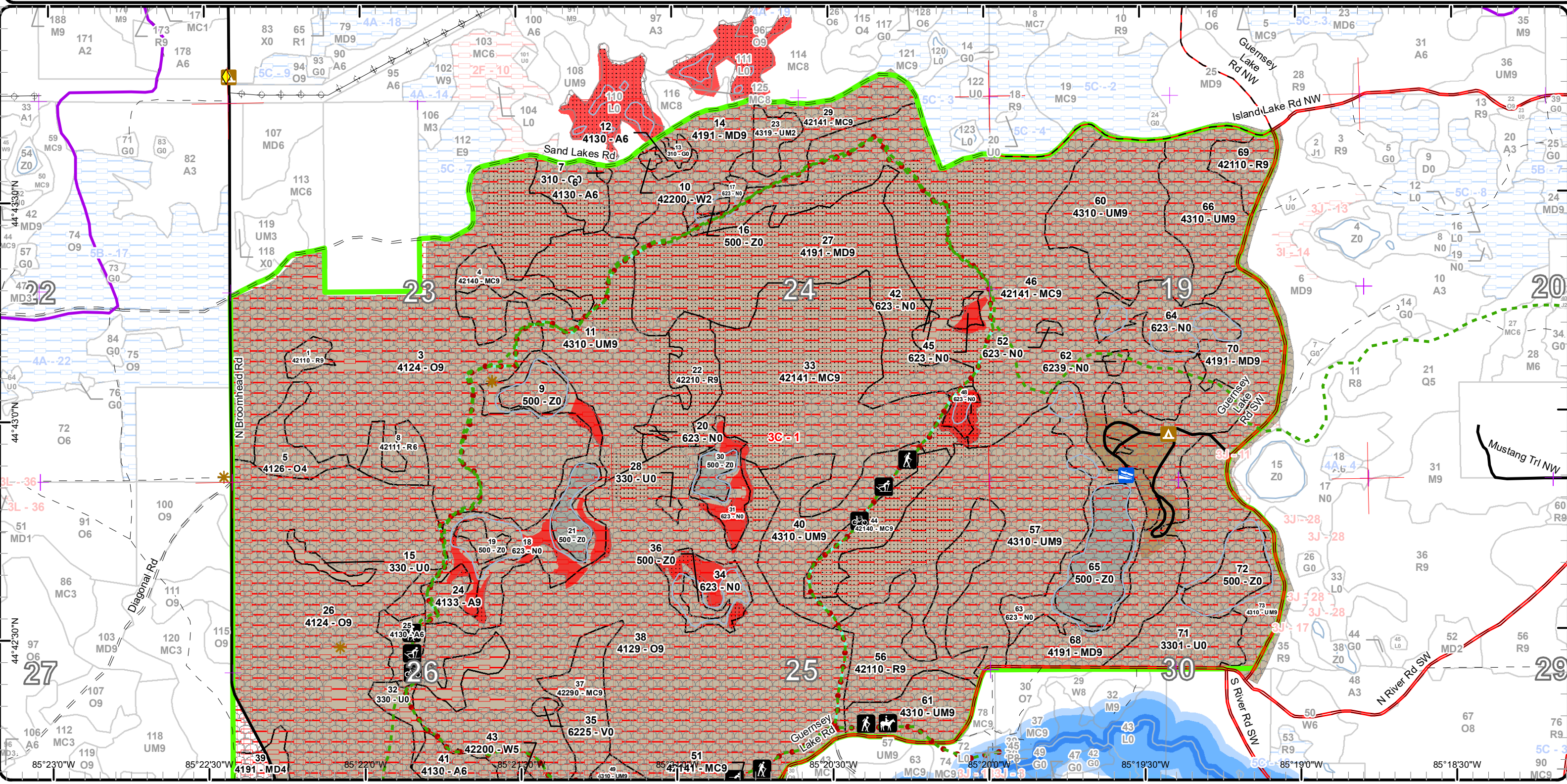


# Special Conservation Areas & Site Conditions Map

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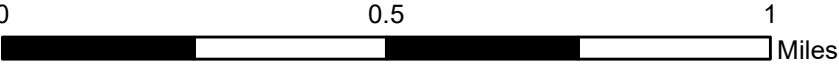
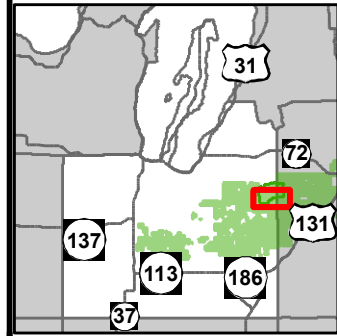


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- 3C: Legally Designated Quiet Area, Natural Area, or Wilderness
- Stand Boundaries
- Special Conservation Areas
- Ecological Reference Areas
- Natural Rivers Vegetative Buffer
- Natural Rivers Zoning District
- Dedicated Management Areas
- Cold Water Streams
- Cold Water Lakes
- High Priority Trout Stream Buffer
- State Forest Campground
- Other SCA (No Category Assigned)

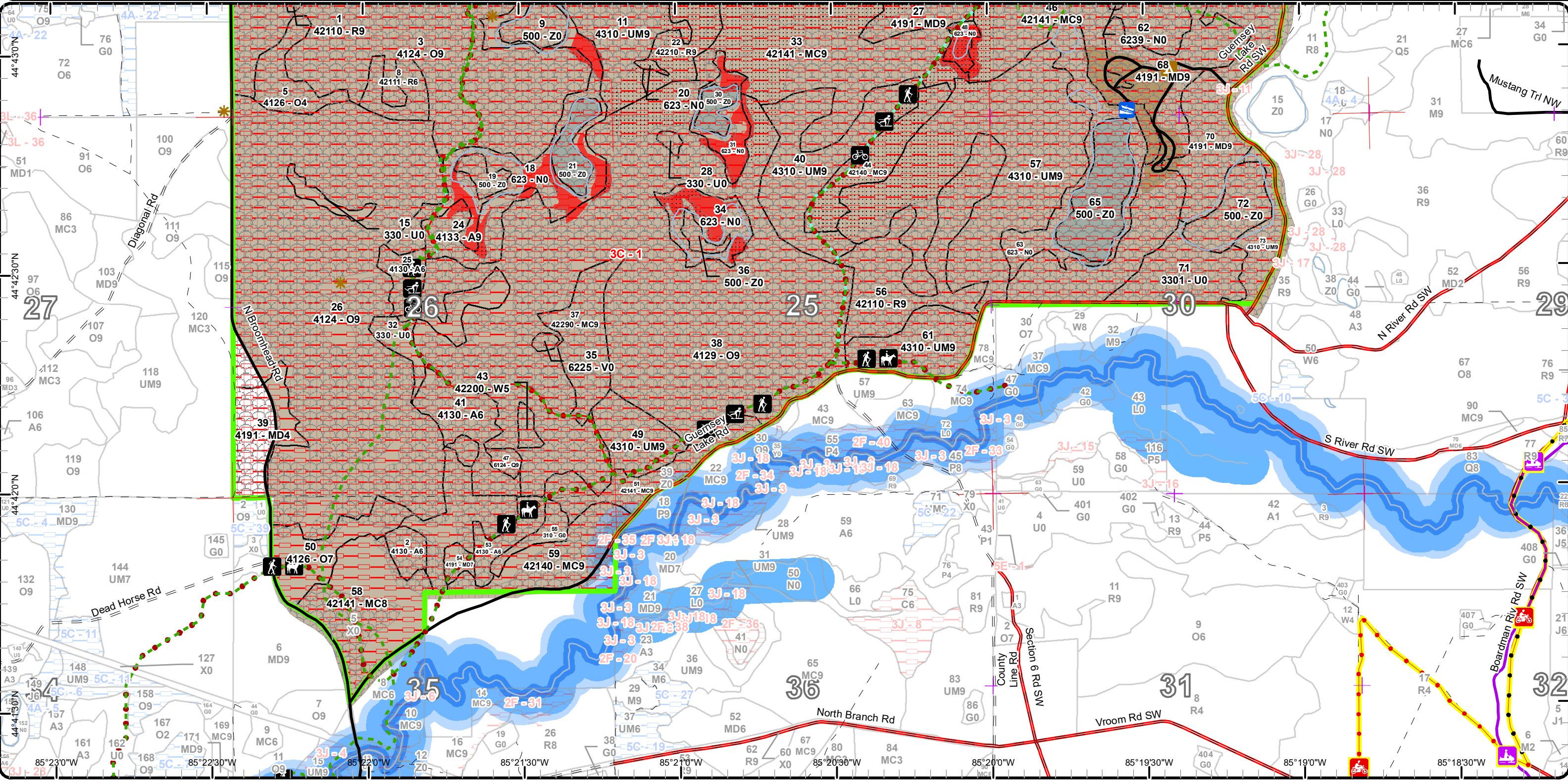


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Report 1 – Total Acres by Cover Type and Age Class



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	0	18	54	0	0	0	0	18	0	0	0	0	0	0	0	0	90
Bog	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Herbaceous Openland	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10
Low-Density Trees	55	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	55
Lowland Conifers	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	6
Marsh	158	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	158
Mixed Upland Deciduous	0	0	0	0	0	0	0	0	0	43	137	82	0	71	0	0	0	26	359
Natural Mixed Pines	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	27	27
Oak	0	0	0	0	0	0	0	0	0	25	300	702	0	0	0	0	0	0	1027
Planted Mixed Pines	0	0	0	0	0	0	0	0	0	539	0	0	50	0	0	0	0	0	589
Red Pine	0	0	0	0	0	0	0	0	0	86	0	0	0	27	0	0	0	0	113
Upland Mixed Forest	0	0	0	10	0	0	0	0	0	410	52	0	0	0	0	0	0	0	472
Water	85	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	85
White Pine	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	3	4
<b>Total</b>	<b>310</b>	<b>0</b>	<b>0</b>	<b>29</b>	<b>54</b>	<b>0</b>	<b>0</b>	<b>6</b>	<b>0</b>	<b>1121</b>	<b>489</b>	<b>784</b>	<b>50</b>	<b>98</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>56</b>	<b>2997</b>



## Report 2 – Treatment Summary

Traverse City Mgt. Unit  
Year of Entry: 2018

Acres of Harvest

Compartment 45  
Total Compartment Acres: 2,995

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

### Proposed and Next Step Treatments by Method

	Harvest	Site Prep	Planting	Seeding	Burning	Pesticide	Monitoring	Other	Non-Forest Mgt.	Total Acres
<b>Current</b>	0	0	0	0	78	0	0	0	44	122
<b>Next Step</b>	0	0	0	0	0	0	0	0	78	78
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>78</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>122</b>	<b>199</b>



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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
5 61045005-NF	16.4	4126 - White, Black, N. Pin Oak	Poletimber Poor	97	1-50	NonForestMgt	Other - Specify	3303 - Mixed Low Density Trees		Proposal

**Habitat Cut:** No      **Site Condition:** Natural/Quiet/Wilderness Area

Prescription Maintain as needed with mowing, seeding of native grasses and forbs, fertilizing, burning, or removal of woody encroachment and exotic plants.  
Specs: Plant site appropriate native shrubs and/or mast producing trees for wildlife food and cover. Fertilize plantings and protect with wire cages or tubex.

Next Step  
Treatments:

Acceptable  
Regen:

Other Management of these stands will include prescribed burning. The appropriate use of fire in grassland ecosystems kills encroaching hardwood species, prevents or slows the establishment of some invasive plants, promote berry production, and recycle nutrients to the soil. The timing and frequency of the burns will be based on currents needs of restoration such as reducing woody encroachment or promoting grasses versus forbs.

Proposed Start Date: 10/01/2017

15 61045015-NF	4.8	330 - Low-Density Trees	Nonstocked			NonForestMgt	Other - Specify	3303 - Mixed Low Density Trees		Proposal
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**Habitat Cut:** No      **Site Condition:** Natural/Quiet/Wilderness Area

Prescription Maintain as needed with mowing, seeding of native grasses and forbs, fertilizing, burning, or removal of woody encroachment and exotic plants.  
Specs: Plant site appropriate native shrubs and/or mast producing trees for wildlife food and cover. Fertilize plantings and protect with wire cages or tubex.

Next Step  
Treatments:

Acceptable  
Regen:

Other Management of these stands will include prescribed burning. The appropriate use of fire in grassland ecosystems kills encroaching hardwood species, prevents or slows the establishment of some invasive plants, promote berry production, and recycle nutrients to the soil. The timing and frequency of the burns will be based on currents needs of restoration such as reducing woody encroachment or promoting grasses versus forbs.

Proposed Start Date: 10/01/2017

26 61045026-NF	3.4	4124 - Red with White Oak	Sawtimber Well	102	111-140	NonForestMgt	Other - Specify	3303 - Mixed Low Density Trees		Proposal
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**Habitat Cut:** No      **Site Condition:** Natural/Quiet/Wilderness Area

Prescription Maintain as needed with mowing, seeding of native grasses and forbs, fertilizing, burning, or removal of woody encroachment and exotic plants.  
Specs: Plant site appropriate native shrubs and/or mast producing trees for wildlife food and cover. Fertilize plantings and protect with wire cages or tubex.

Next Step  
Treatments:

Acceptable  
Regen:

Other Management of these stands will include prescribed burning. The appropriate use of fire in grassland ecosystems kills encroaching hardwood species, prevents or slows the establishment of some invasive plants, promote berry production, and recycle nutrients to the soil. The timing and frequency of the burns will be based on currents needs of restoration such as reducing woody encroachment or promoting grasses versus forbs.

Proposed Start Date: 10/01/2017



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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
32 61045032-NF	19.3	330 - Low-Density Trees	Nonstocked			NonForestMgt	Other - Specify	3303 - Mixed Low Density Trees		Proposal

**Habitat Cut:** No      **Site Condition:** Natural/Quiet/Wilderness Area

Prescription Maintain as needed with mowing, seeding of native grasses and forbs, fertilizing, burning, or removal of woody encroachment and exotic plants.  
Specs: Plant site appropriate native shrubs and/or mast producing trees for wildlife food and cover. Fertilize plantings and protect with wire cages or tubex.

Next Step  
Treatments:

Acceptable  
Regen:

Other Management of these stands will include prescribed burning. The appropriate use of fire in grassland ecosystems kills encroaching hardwood species, prevents or slows the establishment of some invasive plants, promote berry production, and recycle nutrients to the soil. The timing and frequency of the burns will be based on currents needs of restoration such as reducing woody encroachment or promoting grasses versus forbs.

Proposed Start Date: 10/01/2017

39 61045039-Burn	25.6	4191 - Mixed Upland Deciduous with Conifer	Poletimber Poor	55	1-50	Burn	Opening	3303 - Mixed Low Density Trees		Proposal
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**Habitat Cut:** No      **Site Condition:** Natural/Quiet/Wilderness Area

Prescription Management of these stands will include prescribed burning. The appropriate use of fire in grassland ecosystems kills encroaching hardwood species, prevents or slows the establishment of some invasive plants, promote berry production, and recycle nutrients to the soil. The timing and frequency of the burns will be based on currents needs of restoration such as reducing woody encroachment or promoting grasses versus forbs.

Next Step NonForestMgt, Other - Specify  
Treatments:

Acceptable  
Regen:

Other Maintain as needed with mowing, seeding of native grasses and forbs, fertilizing, burning, or removal of woody encroachment and exotic plants.  
Comment: Plant site appropriate native shrubs and/or mast producing trees for wildlife food and cover. Fertilize plantings and protect with wire cages or tubex.

Proposed Start Date: 10/01/2017

50 61045050-Burn	25.0	4126 - White, Black, N. Pin Oak	Sawtimber Poor	86	1-50	Burn	Opening	3303 - Mixed Low Density Trees		Proposal
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**Habitat Cut:** No      **Site Condition:** Natural/Quiet/Wilderness Area

Prescription Management of these stands will include prescribed burning. The appropriate use of fire in grassland ecosystems kills encroaching hardwood species, prevents or slows the establishment of some invasive plants, promote berry production, and recycle nutrients to the soil. The timing and frequency of the burns will be based on currents needs of restoration such as reducing woody encroachment or promoting grasses versus forbs.

Next Step NonForestMgt, Other - Specify  
Treatments:

Acceptable  
Regen:

Other Maintain as needed with mowing, seeding of native grasses and forbs, fertilizing, burning, or removal of woody encroachment and exotic plants.  
Comment: Plant site appropriate native shrubs and/or mast producing trees for wildlife food and cover. Fertilize plantings and protect with wire cages or tubex.

Proposed Start Date: 10/01/2017



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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
54 61045054-Burn	3.9	4191 - Mixed Upland Deciduous with Conifer	Sawtimber Poor	86	1-50	Burn	Opening	3303 - Mixed Low Density Trees		Proposal

**Habitat Cut:** No      **Site Condition:** Natural/Quiet/Wilderness Area

Prescription Specs: Management of these stands will include prescribed burning. The appropriate use of fire in grassland ecosystems kills encroaching hardwood species, prevents or slows the establishment of some invasive plants, promote berry production, and recycle nutrients to the soil. The timing and frequency of the burns will be based on currents needs of restoration such as reducing woody encroachment or promoting grasses versus forbs.

Next Step Treatments: NonForestMgt, Other - Specify

Acceptable Regen:

Other Comment: Maintain as needed with mowing, seeding of native grasses and forbs, fertilizing, burning, or removal of woody encroachment and exotic plants. Plant site appropriate native shrubs and/or mast producing trees for wildlife food and cover. Fertilize plantings and protect with wire cages or tubex.

Proposed Start Date: 10/01/2017

55 61045055-Burn	6.8	310 - Herbaceous Openland	Nonstocked			Burn	Opening	3303 - Mixed Low Density Trees		Proposal
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**Habitat Cut:** No      **Site Condition:** Natural/Quiet/Wilderness Area

Prescription Specs: Maintain as needed with mowing, seeding of native grasses and forbs, fertilizing, burning, or removal of woody encroachment and exotic plants. Plant site appropriate native shrubs and/or mast producing trees for wildlife food and cover. Fertilize plantings and protect with wire cages or tubex.

Next Step Treatments: NonForestMgt, Other - Specify

Acceptable Regen:

Other Comment: Management of these stands will include prescribed burning. The appropriate use of fire in grassland ecosystems kills encroaching hardwood species, prevents or slows the establishment of some invasive plants, promote berry production, and recycle nutrients to the soil. The timing and frequency of the burns will be based on currents needs of restoration such as reducing woody encroachment or promoting grasses versus forbs.

Proposed Start Date: 10/01/2017

58 61045058-Burn	16.5	42141 - Planted Mixed Pine, Mixed Deciduous	Sawtimber Medium	81	51-80	Burn	Opening	3303 - Mixed Low Density Trees		Proposal
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**Habitat Cut:** No      **Site Condition:** Natural/Quiet/Wilderness Area

Prescription Specs: Management of these stands will include prescribed burning. The appropriate use of fire in grassland ecosystems kills encroaching hardwood species, prevents or slows the establishment of some invasive plants, promote berry production, and recycle nutrients to the soil. The timing and frequency of the burns will be based on currents needs of restoration such as reducing woody encroachment or promoting grasses versus forbs.

Next Step Treatments: NonForestMgt, Other - Specify

Acceptable Regen:

Other Comment: Maintain as needed with mowing, seeding of native grasses and forbs, fertilizing, burning, or removal of woody encroachment and exotic plants. Plant site appropriate native shrubs and/or mast producing trees for wildlife food and cover. Fertilize plantings and protect with wire cages or tubex.

Proposed Start Date: 10/01/2017

**Total Treatment Acreage Proposed: 121.6**

## Report 4 – Site Conditions

Traverse City Mgt. Unit

Pat Ruppen : Examiner

Compartment: 45

Year of Entry: 2018

### Availability for Management

Total Acres	Acres Available	Acres Available With Condition	Acres Not Available	Dominant Site Conditions	3C
90	0	0	90	Aspen	90
2	0	0	2	Bog	2
10	0	0	10	Herbaceous Openland	10
55	0	0	55	Low-Density Trees	55
6	0	0	6	Lowland Conifers	6
158	0	0	158	Marsh	158
357	0	0	357	Mixed Upland Deciduous	357
27	0	0	27	Natural Mixed Pines	27
1028	0	0	1028	Oak	1,028
588	0	0	588	Planted Mixed Pines	588
113	0	0	113	Red Pine	113
471	0	0	471	Upland Mixed Forest	471
85	0	0	85	Water	85
5	0	0	5	White Pine	5
2,995	0		2,995	Total Forested Acres	2,995
	0%		100%	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	Dominant Site Availability	Dominant Site Condition	Acres	Other Site Condition	Other Site Condition	Other Site Condition	Other Site Condition
1	Unavailable		3C: Legally Designated Quiet Area, Natural Area, or Wilderness	2,996	Unspecified	Unspecified	Unspecified	Unspecified
<b>Comments:</b> Sand Lakes Quiet Area								





**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
	Potential Old Growth		<b>SCA Removal</b>	21
<b>Comments</b> This area no longer meets the criteria to be classified as a Special Conservation Area.				
	Potential Old Growth		<b>SCA Removal</b>	2151
<b>Comments</b> This area no longer meets the criteria to be classified as a Special Conservation Area.				
	Potential Old Growth		<b>SCA Removal</b>	10
<b>Comments</b> This area no longer meets the criteria to be classified as a Special Conservation Area.				
	Potential Old Growth		<b>SCA Removal</b>	153
<b>Comments</b> This area no longer meets the criteria to be classified as a Special Conservation Area.				



**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
SCA	Cold Water Lake	A coldwater lake has temperature and dissolved oxygen conditions that allow naturally-reproduced or stocked trout populations and those of other coldwater fish species to persist from year to year. Suitable conditions for coldwater fishes may occur in Michigan lakes if they are relatively deep, have substantial groundwater inflows, or are located in colder (northern) areas of the state. Such lakes are established by Director's action and designated as trout resources by Fisheries Order 200.
SCA	Cold Water Stream	A coldwater stream has temperature and dissolved oxygen conditions that allow naturally-reproduced or stocked trout populations and those of other coldwater fish species (e.g., slimy sculpin) to persist from year to year. Coldwater streams in Michigan typically provide these conditions due to substantial contributions of groundwater to their stream flows. Such streams are established by Director's action and designated as trout resources by Fisheries Order 210.
SCA	Riparian Area	A transitional area between aquatic and terrestrial ecosystems in which the terrestrial ecosystem influences the aquatic ecosystem and vice-versa. Because of the unique conditions adjacent to lakes, streams and open water wetlands, riparian areas harbor a high diversity of plants and wildlife. Riparian communities are ecologically and socially significant in their effects on water quality and quantity, as well as aesthetics, habitat, bank stability, timber production, and their contribution to overall biodiversity.
HCVA	Dedicated Management Areas	Such areas are dedicated by the DNR Director for specific management uses through the promulgation of rules, as governed by Part 5, Department of Natural Resources, of the NREPA (MCL 324.502(2) and 324.504). Section 38 of the Administrative Procedures Act (MCL 24.238) provides for public requests for the promulgation of rules. This is an active program, with one proposed site currently under review by the DNR.
HCVA	Natural Rivers	There are two Natural Rivers datasets which are derived from spatial buffers set from an established and approved distance from the river centerlines. The Natural Rivers Zoning District is a 400 foot buffer for most Natural Rivers. The Vegetative Buffer ranges from 25 to 100 feet. To view specific Zoning Districts and Vegetative Buffers for each Natural River see the table located on the I:\Documentation\GDSE data folder.
ERA	Ecological Reference Areas	Ecological Reference Areas (ERAs) are high quality examples of natural communities that have been identified as Element Occurrences (EOs) by the Michigan Natural Features Inventory (MNFI) within the context of their natural community classification system. Element Occurrences with viability ranks of A (Excellent) or B (Good) and a Global (G) or State (S) element (rarity) ranking of endangered (1), threatened (2), or rare (3) serve as an initial base of ERAs. They may be located upon any ownership in the State. The system is comprised of individual or associations of natural community types that are managed for restoration and maintenance of natural ecological processes and values. The public may submit recommendations for lands as ERAs using the DNR Conservation Area Recommendation Form.



	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
1	42110 - Planted Red Pine	Sawtimber Well	5.3	85	81-110	2010: Large amount of old jack pine blown over. 2016: Planted 1931 red and jack pine. Jp is falling out of stand. Stocking on remaining red pine is not high. Should be free to grow. Natural look.
2	4130 - Aspen	Poletimber Well	6.9	29	51-80	Quarter quarter quad planted with red, white pine in 1932. TS# 020-84. TCR 1987. Cut all merchantable. Was A6. New stand created from cutting records. Cut did cross trail on north side,
3	4124 - Red with White Oak	Sawtimber Well	284.5	97	81-110	2016: Mixed oak with pine, red maple and aspen. Some older age scattered around. White pine coming in under. Stand will trend toward pine as oak/ aspen and maple drop out.
4	42140 - Planted Mixed Pine	Sawtimber Well	14.5	111	111-140	2011: Small area of exceedingly large red pine could be an old growth stand. 2016: This stand is not unique for this compartment. Stand is in good condition. Pine has been stagnant in diameter growth for many years.
5	4126 - White, Black, N. Pin Oak	Poletimber Poor	16.4	97	1-50	This is somewhat of a frost pocket. Most of the Red/pin oak is dead. Possibly oak wilt but may be decline.
6	4130 - Aspen	Poletimber Well	16.6	33	Immature	2016: Good growth on aspen. Must have left small pine, oak and red maple when this aspen was harvested.
8	42111 - Planted Red Pine, Mixed Deciduous	Poletimber Well	12.1	87	1-50	Most of the jack pine has fallen out of stand. White pine and oak coming in to understory.
10	42200 - Natural White Pine	Sapling Medium	1.4	25	Immature	2011: Lots of autumn olive. Young naturally regenerating stand of white pine with a few red pine mixed in. 2016: Still autumn Olive. This may have been planted to re-claim well pad.
11	4310 - Pine, Oak Mix	Sawtimber Well	97.7	87	111-140	2016: Stand varies between pine & oak. Heavy white pine understory but a lot of damage from snow. Some of this was planted red pine 1929. Stand looks good. Will likely trend toward multi aged pine. Some older large pine scattered around in stand.
12	4130 - Aspen	Poletimber Well	3.6	33	Immature	
14	4191 - Mixed Upland Deciduous with Conifer	Sawtimber Well	38.6	87	171-200	Mixed oak/pine with wp understory. Low quality overstocked oak. May self thin as suppressed trees fall out of stand. Part of this stand burned in 1999. Eastern half. Some small salvage must have been done. A small cut 1.5-2 acres, NW of Stand 17.
22	42210 - Natural Red Pine	Sawtimber Well	27.1	120	171-200	2011: Very dense-high quality red pine. 2016: Older than planted pine in this area which was planted in 1929. This looks like older natural pine that was left behind in the day because it was small and then it didn't burn up. It grew well for 45-50 yrs but has been stagnant now for many years.



	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
23	4319 - Mixed Upland Forest	Sapling Medium	9.7	29	51-80	2010:Hemlock understory on north facing slope. Part of stand includes a small burn area from 1998. 2016: Switched main age and canopy to younger age generated after last harvest. Regenerated to aspen, wo, ro, rm, wp with some rp. Good regeneration -some areas thick to wp saps/poles while other areas are rm with oak, aspen and pine. Estimated age. Likely harvested @ 1987. Retention of wp, rm, oak, and hemlock from last harvest.
24	4133 - Aspen, Mixed Pine	Sawtimber Well	18.0	87	111-140	2006 could be treated if there is a desire to regenerate aspen. However, this stand surrounds a large portion of a small lake and is in the interior of the compartment with no roads leading to the . 2016 Blow down are on slope south of lake finger. Aspen starting to drop out of canopy. Red pine is stagnant.
25	4130 - Aspen	Poletimber Well	9.5	33	51-80	High stem density of small diameter aspen and red maple.
26	4124 - Red with White Oak	Sawtimber Well	300.8	102	111-140	Lower quality overstocked oak with some WP,RP,BA. Some WP coming in under. More suppressed stems will likely continue to fall out of canopy layer and white pine will continue to develop in the understory and grow through. White oak has better form and quality than red oak in general. Some well formed red maple in stand.
27	4191 - Mixed Upland Deciduous with Conifer	Sawtimber Well	136.7	92	81-110	2006: Quarter quarter quad near this stand was planted in white pine in 1929. 2016: low quality oak mixed with pine. White pine coming in under.
29	42141 - Planted Mixed Pine, Mixed Deciduous	Sawtimber Well	29.7	87	111-140	Trace of hemlock on north side of stand in the understory. Stump sprouts of oak and red maple in understory. Must have been logged at some point.
33	42141 - Planted Mixed Pine, Mixed Deciduous	Sawtimber Well	144.2	87	111-140	Stand varies between pine and oak percentages. Stocking is lower than surrounding stands, trees are large in diameter and white pine understory is thicker. Area of younger red pine (age 55-60) near SW tip of stand 27.
37	42290 - Natural Mixed Pine	Sawtimber Well	27.2	48	111-140	Drainage with older pine with oak around edges. Mixed ages in drainage with a good big of age 48 on the white pine.
38	4129 - Mixed Oak	Sawtimber Well	401.5	102	111-140	No record of planting in this area. Species mix is variable throughout stand. Drains and depressions tend toward heavier pine mixes and ridges are more toward oak/pine mixes. Some aspen clones will also be found scattered around.
39	4191 - Mixed Upland Deciduous with Conifer	Poletimber Poor	25.6	55	1-50	Appears to be a frost pocket. Large scattered oak and pine filling in with JP,wp,BA,OAK
40	4310 - Pine, Oak Mix	Sawtimber Well	52.0	96	111-140	Straddles 2 quarter-quarter quads. One planted in red & jack pine in 1929 and the other planted in red and white pine in 1932. Trace hemlock in stand.
41	4130 - Aspen	Poletimber Well	23.9	33		



	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
43	42200 - Natural White Pine	Poletimber Medium	3.3	35	51-80	scattered older oak & pine with WP poles under
44	42140 - Planted Mixed Pine	Sawtimber Well	23.6	87	141-170	Area planted with Red and Jack pine in 1929. Larger diameter pine and red oak on NW slope
46	42141 - Planted Mixed Pine, Mixed Deciduous	Sawtimber Well	267.1	87	81-110	Quarter quad near stand planted in 1928 & 1931 with red and jack pine. Small pocket of hemlock on north end of the stand facing the road. 2016: Nice pine mixed with oak
47	6124 - Lowland Spruce-Fir	Sawtimber Well	5.9	60		East part of this multipart stand is generally younger but the same species mix. Nice pockets of spruce. Good diversity
49	4310 - Pine, Oak Mix	Sawtimber Well	21.1	86	111-140	Area planted in red and jack pine in 1929 2016: Jack pine falling out. Nice pine oak mix
50	4126 - White, Black, N. Pin Oak	Sawtimber Poor	25.0	86	1-50	Low stocked forested stand.
51	42141 - Planted Mixed Pine, Mixed Deciduous	Sawtimber Well	24.1	87	111-140	2012 Area planted with red, jack and white pine in 1929. May want to consider removing jack pine. 2016 JP Falling out of stand
53	4130 - Aspen	Poletimber Well	11.0	29	Immature	2016: TS# 020-84. Cut all merchantable. TCR 1987 Was A6 prior to last harvest. Parch aspen regeneration with wp, rp, cherry
54	4191 - Mixed Upland Deciduous with Conifer	Sawtimber Poor	3.9	86	1-50	Small stand-nearly non forested low density trees. Poor quality cherry and maple with oak and wp.
56	42110 - Planted Red Pine	Sawtimber Well	54.7	87	111-140	Area planted in red and jack pine in 1929. May want to consider removal of jack pine and white pine. 2016: Jack pine is falling out. Heavy fuels under red pine. Some WP growing through. Some area are almost RP 100 percent. Species mix varies through stand
57	4310 - Pine, Oak Mix	Sawtimber Well	133.6	87	111-140	Stand straddles quarter-quarter section planted in red, jack and white pine in 1928 & 1929. Lower quality oak with pine. White pine under Species mix varies between pine and oak
58	42141 - Planted Mixed Pine, Mixed Deciduous	Sawtimber Medium	50.0	81	51-80	Jack pine is falling out of stand. Pine barrens look. red pine has grown well.
59	42140 - Planted Mixed Pine	Sawtimber Well	34.9	119	81-110	Quarter-quarter section planted in 1932 with red and white pine. Trace of aspen in stand. 2016: JP falling out of stand. Larger red and white pine scattered throughout stand must have been present when this stand was planted. Nice older big pine. Seems to be trespass behind house. Backyard sprawl onto state lands. Some points staked on line and on ROW out near road. Investigate with snow off.
60	4310 - Pine, Oak Mix	Sawtimber Well	68.2	88	111-140	Stand straddles two quarter sections. One planted in 1928 with white pine and the other planted in 1928 with red and jack pine.



	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
<b>61</b>	4310 - Pine, Oak Mix	Sawtimber Well	28.8	87	81-110	Quarter-quarter section planted in red and jack pine in 1929.
<b>66</b>	4310 - Pine, Oak Mix	Sawtimber Well	44.6	88	111-140	Quarter section were planted in 1928 with red and jack pine. Some areas heavily stocked rp. Other areas are mainly oak and some mixed.
<b>68</b>	4191 - Mixed Upland Deciduous with Conifer	Sawtimber Well	81.9	101	81-110	Quarter-quarter section planted in 1929 with white pine
<b>69</b>	42110 - Planted Red Pine	Sawtimber Well	14.1	88	81-110	Quarter-quarter section planted in 1928 with red and jack pine. 2016; jack pine is falling out of stand
<b>70</b>	4191 - Mixed Upland Deciduous with Conifer	Sawtimber Well	70.7	120	111-140	This is the picnic area for the Guernsey Lake Campground. Quarter quarter quad planted in 1928 with white pine. 2016: old natural pine (most is red pine) mixed through with aspen grown in. Aspen will fall out soon. Pine is more common in north part of stand.
<b>73</b>	4310 - Pine, Oak Mix	Sawtimber Well	15.7	86	111-140	There is a small private property at the intersection for Guernsey Lake Road that should have been left out of the boundary for the compartment. Planted RP on upland. Slopes down to lake.



Stand	Cover Type	Acres	Managed Site	General Comments:
7	310 - Herbaceous Openland	0.9	No	
9	500 - Water	10.0	No	
13	310 - Herbaceous Openland	2.5	No	
15	330 - Low-Density Trees	4.8	No	
16	500 - Water	1.6	No	
17	623 - Emergent Wetland	5.3	No	
18	623 - Emergent Wetland	48.2	No	
19	500 - Water	5.6	No	
20	623 - Emergent Wetland	1.0	No	
21	500 - Water	10.7	No	
28	330 - Low-Density Trees	1.7	No	Low area naturally regenerating to white pine.
30	500 - Water	6.2	No	
31	623 - Emergent Wetland	12.4	No	
32	330 - Low-Density Trees	19.3	No	
34	623 - Emergent Wetland	19.3	No	
35	6225 - Bog	1.6	No	
36	500 - Water	3.7	No	
42	623 - Emergent Wetland	1.7	No	



Stand	Cover Type	Acres	Managed Site	General Comments:
45	623 - Emergent Wetland	3.1	No	
48	623 - Emergent Wetland	4.9	No	
52	623 - Emergent Wetland	1.2	No	
55	310 - Herbaceous Openland	6.8	No	
62	6239 - Mixed Emergent Wetland	2.0	No	
63	623 - Emergent Wetland	32.7	No	
64	623 - Emergent Wetland	25.9	No	
65	500 - Water	28.5	No	
71	3301 - Low Density Deciduous Trees	29.3	No	Tag alder with scattered low-density aspen.
72	500 - Water	19.1	No	