



Compartment Review Presentation

Traverse City Forest Management Unit

Compartment 61048

Entry Year 2028

Acreage: 1,797

County: Grand Traverse

Management Area: Kalkaska Sandy Moraines

Stand Examiner: Patrick Cotant

Legal Description:

T26N R10W Sections 1,2,3,4,12 T27N R10W Sections 34,35,36

Identified Planning Goals:

This compartment is located within the Kalkaska Sandy Moraines Management Area. Vegetation management in the Kalkaska Sandy Moraines management area (Figure 4.1) will provide forest products; maintain or enhance wildlife habitat; protect areas of unique character including the Boardman River (a designated natural river) and the Sand Lakes Quiet area (a designated high conservation value area), threatened, endangered and special concern species; and provide for forest-based recreational uses. Timber management objectives for this 10-year planning period include improving the age-class structure of aspen; increasing regeneration of oak; working toward balancing the red pine age-class structure; continuing emphasis on managing the northern hardwood resource for stand quality, age, and species diversity; 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. Expected trends within this 10-year planning period are: increased recreational pressure, especially on the Muncie Lakes pathway, North Country and other established trails; increased oil and gas development; an increased wildland/urban interface; a need to restore oak/pine barrens communities; invasive plant control; and the conversion of poor oaks sites to mixed pine/oak sites. This compartment is primarily described by LTA 5211 which is glacial outwash plain pitted with ice block depressions. In pre-settlement times, large areas of this LTA were covered by the entire spectrum of conifer-dominated forests with red pine as the predominant species. Pine/oak barrens covered 25% of this area and were the dominant vegetation form in this compartment. Large wildfires were common and maintained the oak/pine barrens. Due to fire suppression the extent of natural xeric pine associations, Pine Barrens and dry prairie openings have been greatly reduced. Forest associations formed after the last cycle of extensive fires (1920-1930) are present in this compartment. These are generally stands with an oak dominated canopy and a pine component. The most common under story species is white pine which is heavily stocked in places with an under represented red pine component. An attempt should be made through vegetative management and/or the use of prescribed fire to re-set the clock on some of these stands and recreate some new natural pine/oak/aspen mixes or to re-establish pine/oak barrens. Due to local population density, prescribed fire is not a feasible tool in much of this compartment so red pine inter-planting will be necessary to return this disturbance dependent species to the vegetative mix. Oak should be maintained in some areas as a canopy species to provide mast. Some jack pine stands in this compartment are older and declining. These stands are converting to oak. It is recommended that the jack pine over-story be removed to release the advanced oak understory. New, young oak stands are important in this area as most of the oak is old and declining in vigor and quality. Two areas of this older oak are recommended for harvest, followed by planting with red pine. This is expected to create a new stand with mixed oak and pine along with red maple and aspen. Another area of older overstocked oak is recommended for crown thinning to try to improve the health and vigor of an area dominated by oak. Some likely oak wilt pockets have been found in this compartment and will be considered in treatments.

Soil and topography:

Level to rolling with pothole marshes and ice block depression lakes. Soils are described as deep, excessively drained acidic sands- mainly Rubicon.

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

There is rapid residential expansion and development in this area of Grand Traverse County. A number of new homes and neighborhoods have been established adjacent to state land. Many of the boundary lines between state and private have been surveyed with county monuments and private survey markers.

Unique Natural Features:

Ice depression lakes and small depression are common in this compartment. Arbutus, Spider, Vandervoight, Indian, Bass, and Rennie Lakes all have State owned shoreline. Past observations and current potential for Hills Thistle, Bald Eagle, Wood Turtle.

Archeological, Historical, and Cultural Features:

Old Indian trail noted in GLO notes in Section 36. Other known archeological sites in compartment.

Special Management Designations or Considerations:

Heavy recreation use along with heavy recreation development. State ownership around Arbutus Lake Campground which includes stands 19, 18, 22, 15 and 13 should be managed with a recreation emphasis. The east half of stand 22 has an area of old aged red and white pine which had been nominated for old growth designation. Recommend designating this as an SCA managed for old aged pine.

Watershed and Fisheries Considerations:

This compartment is within the Boardman River watershed, and contains many of the more popular kettle lakes that are found in this area. Appropriate buffers (as outlined in 'Michigan Forestry Best Management Practices For Soil and Water Quality') should be adhered to around all lakes within this compartment. Existing buffers appear to be appropriate for the proposed treatments.

Wildlife Habitat Considerations:

Wildfire was a common natural disturbance of this area's sandy glacial outwash soils. Consequently, many of the communities found here are comprised of fire dependent species. Present habitat types are oak or aspen communities with scattered natural pine stands as well as several plantations. Small lakes, ponds, and wetlands are found in ice block depressions scattered about this area. Other depressions function as frost pockets or cold air drainages and support open or semi-open communities. Prescribed fire is an important tool in maintaining the vigor of these habitats. Opportunities to re-establish the currently rare barrens communities should be pursued when identified. Selective cutting and controlled burning are vital tools for barrens restoration projects. A large number of both common and rare species are associated with various barrens communities. 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 barrens communities. Aspen communities are another 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. This will result in a wildlife friendly matrix of aspen, oak and pines. Conversion of some stands to aspen dominated communities is ecologically appropriate on this landscape and should be pursued when possible. Many early successional dependent wildlife species will benefit from aspen management, including, ruffed grouse, woodcock, deer, mourning warblers, yellow-billed cuckoos, and indigo buntings. 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.

Mineral Resource and Development Concerns and/or Restrictions

There is no known potential for the occurrence of economic deposits of metallic minerals in this part of the state. The closest known active sand/gravel pit is greater than two miles west. There appears to be good potential for the occurrence of sand & gravel within the compartment, with some potential for development on the uplands. The compartment is within the Silurian reef hydrocarbon play, and significant amounts of exploration and development have occurred in the southern half of the compartment. Some State-owned mineral rights within the compartment are currently under lease and held by production. Depleted reef reservoirs in the area also have the potential for future underground gas storage or sequestration operations.

Vehicle Access:

Access is generally good via county roads and a number of two tracks that traverse the compartment.

Survey Needs:

In general, much of this compartment and the interface between state and private is well surveyed. One area where some attention is needed is around the Spider Lake Boating Access Site. Some corners exist but this is a heavily used site surrounded by private land and some encroachment may be occurring. A survey request has been submitted for this parcel and once completed, the compartment boundary will be updated accurately and if any trespass is occurring, it will be addressed at that time.

Recreational Facilities and Opportunities:

A segment of the Vasa non-motorized Pathway dips into the north central part of this compartment. Snowmobile Trail #5 is located in the NW corner of this compartment. Trail protection specifications for both these trails should be considered when setting up forest treatments in this compartment. This portion of the Vasa Single Track is used throughout the year, being groomed for fat-biking in the winter and heavily used for mountain biking the remainder of the year. In addition, in stand 19 and small portions of adjacent stands, a pathway connects Arbutus Lake CG with Chandler Lake to the north, providing walk-in access to a unique area of this compartment.

Fire Protection:

This area is protected by the Grand Traverse Fire Department and DNR fire protection is from the Traverse City Unit. Most of this compartment is small blocks of state land, with many two tracks and forest roads throughout. Urban interface can be an issue in some parts of this compartment with scattered ownership of private land. Access is acceptable. The SE corner of Section 12 is within Zone 6. This section is located close to our standby location, so travel time on standby days is

acceptable. There have been several fires throughout this compartment over the years.

Additional Compartment Information:

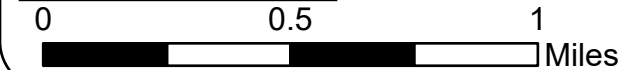
The following reports from the Inventory are attached:

- 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**

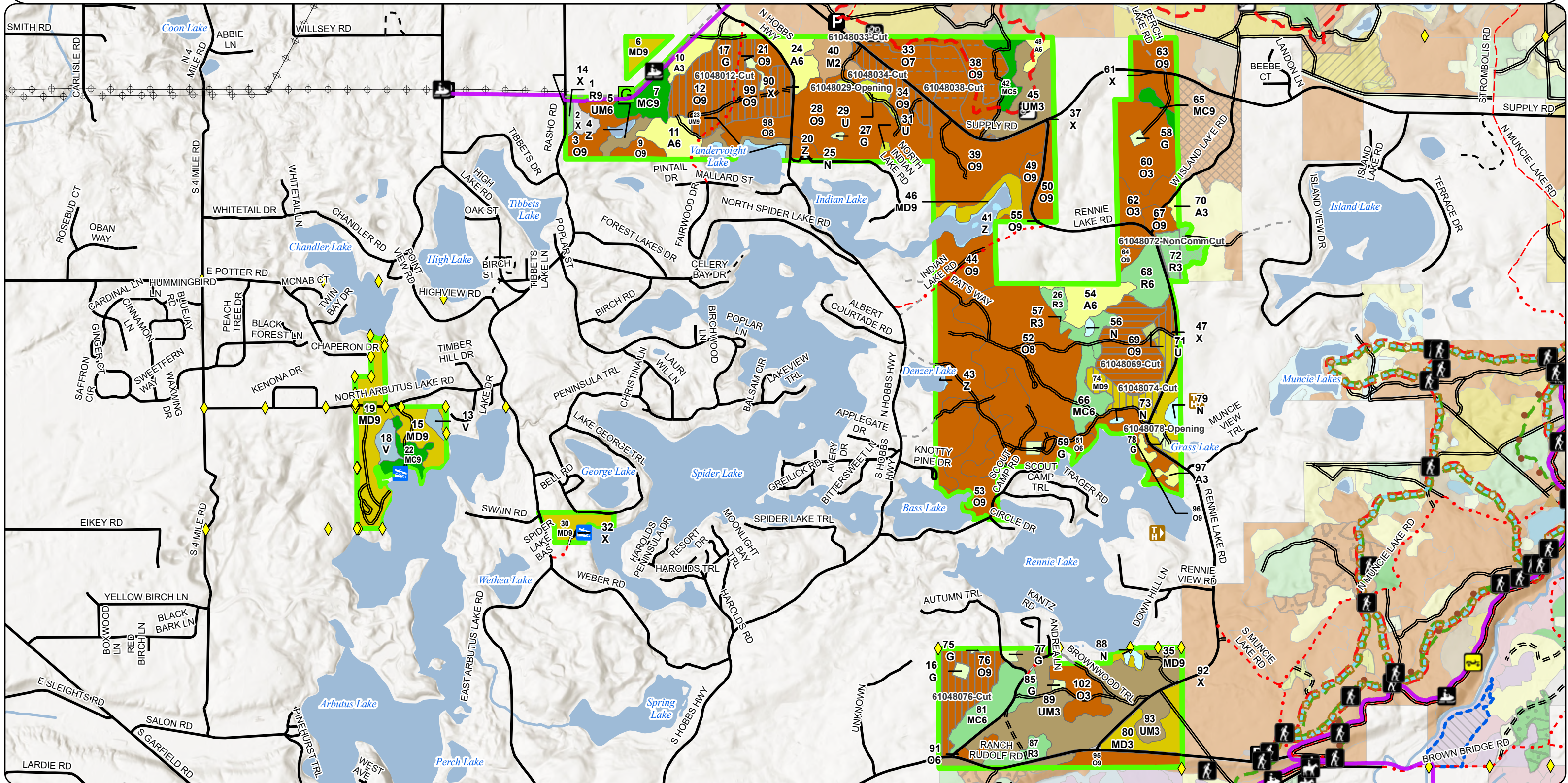
The following information is displayed, where pertinent, on the attached compartment maps:

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

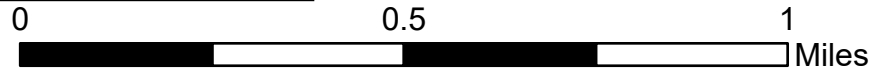
A map of the Grand Traverse area. A red rectangle highlights the location of Grand Traverse. To the right of the rectangle is the town of Kalkaska. Highway 131 is shown running vertically on the right side of the map. Highway 72 is shown running horizontally at the top. Highway 31 is shown running horizontally at the bottom left.



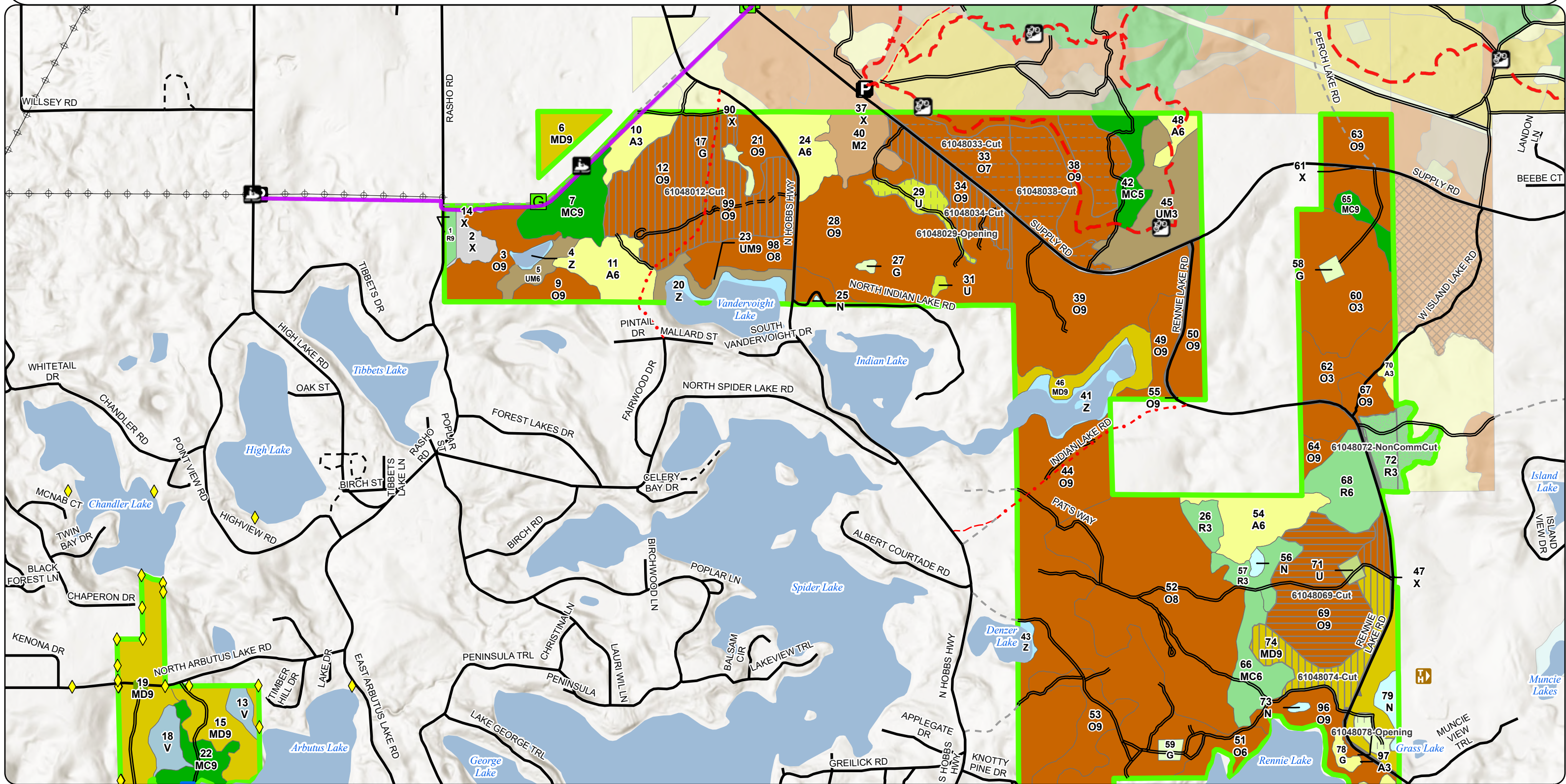
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|---|---------------------------|---|---------------------------------------|---|---------------------------------|---|------------------------------|---|---------------------------|
|  | Survey Grade Corners |  | Designated Equestrian Trails |  | County - Gravel Road |  | Shelterwood |  | 430 - Upland Mixed Forest |
|  | Parking Lot |  | Designated Ski Trails |  | County - Dirt Road (Seasonal) |  | Overstory Removal |  | 500 - Water |
|  | Boating Access Site |  | Designated Snowshoe Trails |  | Private - Paved Road |  | Non-Comm. Tree Cutting |  | 110 - Low Intensity Urban |
|  | State Forest Campground |  | Designated ORV Routes |  | Private - Dirt / Gravel Road |  | Openings Mgmt. |  | 122 - Road/Parking Lot |
|  | Trailhead |  | Designated Snowmobile |  | Streams |  | 411 - Northern Hardwood |  | 310 - Herbaceous Openland |
|  | Berm |  | DNR - Primary Forest Road |  | Lakes and Rivers |  | 412 - Oak Types |  | 320 - Upland Shrub |
|  | Gate |  | DNR - Secondary Forest Road |  | Electric |  | 413 - Aspen |  | 330 - Low Density Trees |
|  | Designated Hiking Pathway |  | DNR - Forest Access Route |  | Compartment Boundary |  | 419 - Mixed Upland Deciduous |  | 622 - Lowland Shrub |
|  | Designated Bicycle Trails |  | Federal / State / County - Paved Road |  | Treatments with Site Conditions |  | 421 - Planted Pines |  | 623 - Emergent Wetland |
| | | | |  | Clearcut |  | 422 - Natural Pines | | |

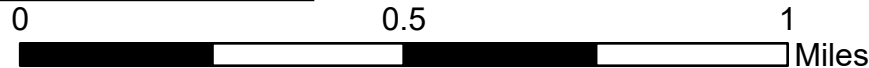


A map of the Grand Traverse area. A red rectangle highlights the study area, which is located south of Grand Traverse. The map shows a road network with route markers for 31 and 72. The text 'Grand Traverse' is written above the red rectangle.

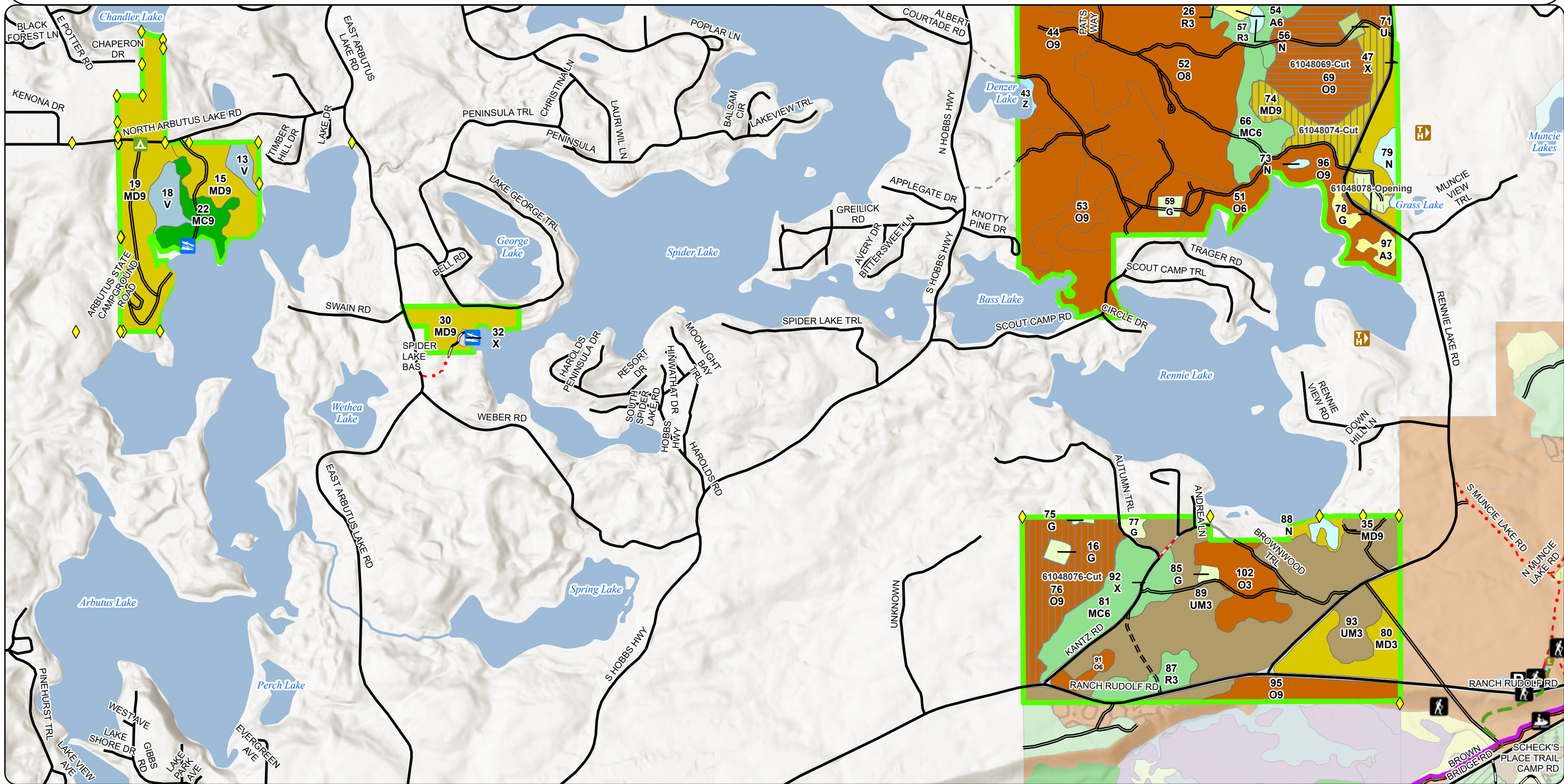


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|---|-----------------------------|---|---------------------------------------|---|------------------------------|---|---------------------------|
|  | Survey Grade Corners |  | DNR - Forest Access Route |  | Shelterwood |  | 430 - Upland Mixed Forest |
|  | Parking Lot |  | Federal / State / County - Paved Road |  | Overstory Removal |  | 500 - Water |
|  | Boating Access Site |  | Federal / State - Dirt / Gravel Road |  | Non-Comm. Tree Cutting |  | 110 - Low Intensity Urban |
|  | State Forest Campground |  | County - Gravel Road |  | Openings Mgmt. |  | 122 - Road/Parking Lot |
|  | Trailhead |  | County - Dirt Road (Seasonal) |  | 411 - Northern Hardwood |  | 310 - Herbaceous Openland |
|  | Gate |  | Private - Dirt / Gravel Road |  | 412 - Oak Types |  | 320 - Upland Shrub |
|  | Designated Bicycle Trails |  | Lakes and Rivers |  | 413 - Aspen |  | 330 - Low Density Trees |
|  | Designated Snowmobile |  | Electric |  | 419 - Mixed Upland Deciduous |  | 622 - Lowland Shrub |
|  | DNR - Secondary Forest Road |  | Compartment Boundary |  | 421 - Planted Pines |  | 623 - Emergent Wetland |
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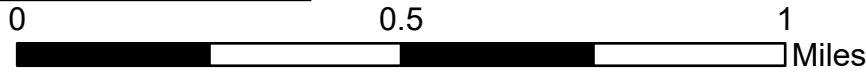


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|---|----------------------------|---|---------------------------------------|---|------------------------------|---|---------------------------|
|  | Survey Grade Corners |  | Designated Snowmobile |  | Lakes and Rivers |  | 430 - Upland Mixed Forest |
|  | Parking Lot |  | DNR - Primary Forest Road |  | Compartment Boundary |  | 500 - Water |
|  | Boating Access Site |  | DNR - Secondary Forest Road |  | Clearcut |  | 110 - Low Intensity Urban |
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|  | Designated Hiking Pathway |  | County - Gravel Road |  | 412 - Oak Types |  | 320 - Upland Shrub |
|  | Designated Bicycle Trails |  | Private - Paved Road |  | 413 - Aspen |  | 622 - Lowland Shrub |
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|  | Designated ORV Routes | | |  | 422 - Natural Pines | | |



Stand Boundary Map

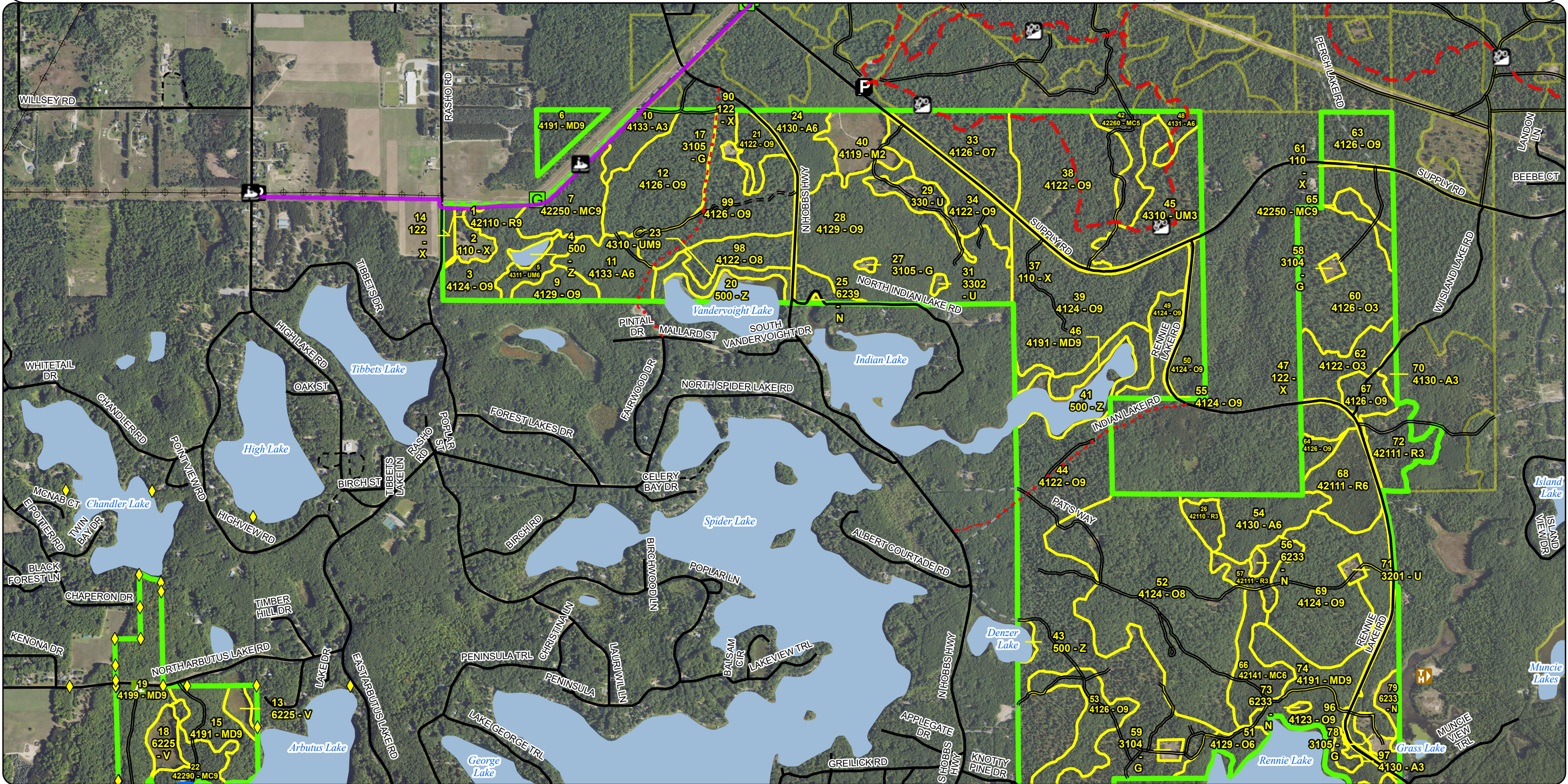
Compartment: 61048
T26N R09W 19-24
County: Grand Traverse
Unit: Traverse City
Mgmt. Area: Kalkaska Sandy Moraines
YOE: 2028
Acres: 1,797 GIS Calculated
Examiner: Patrick Cotant
Date Exported: 06/29/2026
Map Phase: Web Post



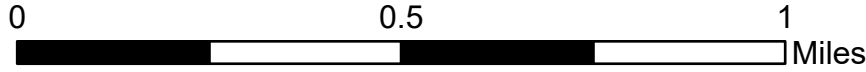
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- Parking Lot
- Boating Access Site
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- Trailhead
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- DNR - Secondary Forest Road
- DNR - Forest Access Route
- Federal / State / County - Paved Road

- Federal / State - Dirt / Gravel Road
- County - Gravel Road
- County - Dirt Road (Seasonal)
- Private - Dirt / Gravel Road
- Lakes and Rivers
- Electric
- Compartment Boundary
- Compartment Stand Yellow Outline (PD)
- 411 - Northern Hardwood
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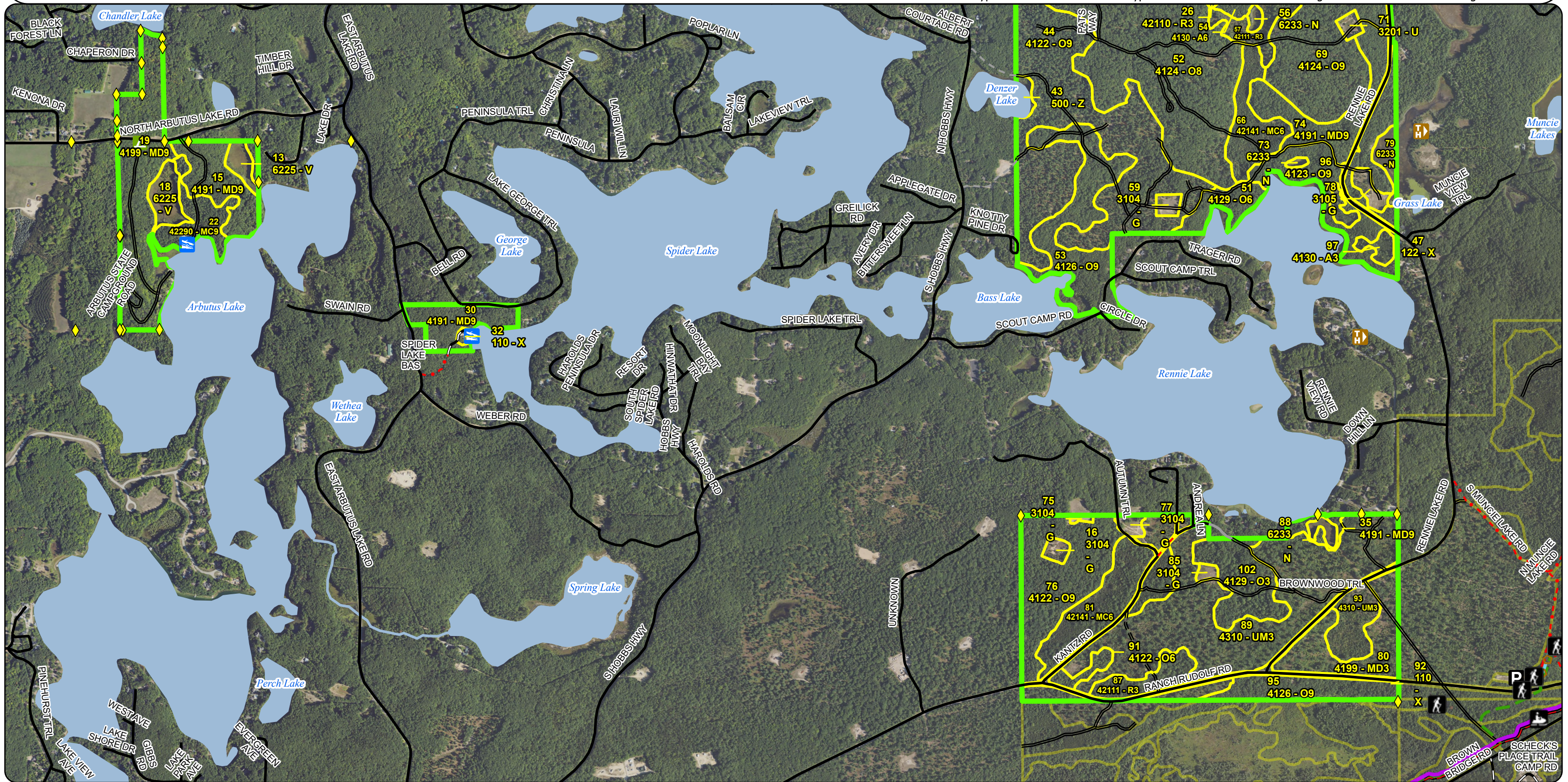
A map of the Grand Traverse area. A red rectangle highlights a specific region. The map shows roads 31, 113, 186, and 131. The locations Kalkaska and Grand Traverse are labeled.



-  Survey Grade Corners
-  Parking Lot
-  Boating Access Site
-  State Forest Campground
-  Trailhead
-  Designated Hiking Pathway
-  Designated Bicycle Trails
-  Designated Ski Trails
-  Designated Snowshoe Trails
-  Designated ORV Routes
-  Designated Snowmobile

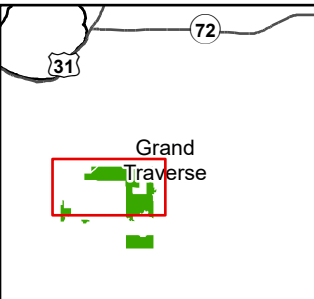
-  DNR - Primary Forest Road
 DNR - Secondary Forest Road
 DNR - Forest Access Route
 Federal / State / County - Paved Road
 County - Gravel Road
 Private - Paved Road
 Private - Dirt / Gravel Road
 Streams
 Lakes and Rivers
 Compartment Boundary
 Compartment Stand Yellow Outline (PD)
- 412 - Oak Types 412 - Oak Types

- | | |
|-----------------------------|-----------------------------|
| 413 - Aspen | 413 - Aspen |
| 419 - Mixed Upland Decidous | 419 - Mixed Upland Decidous |
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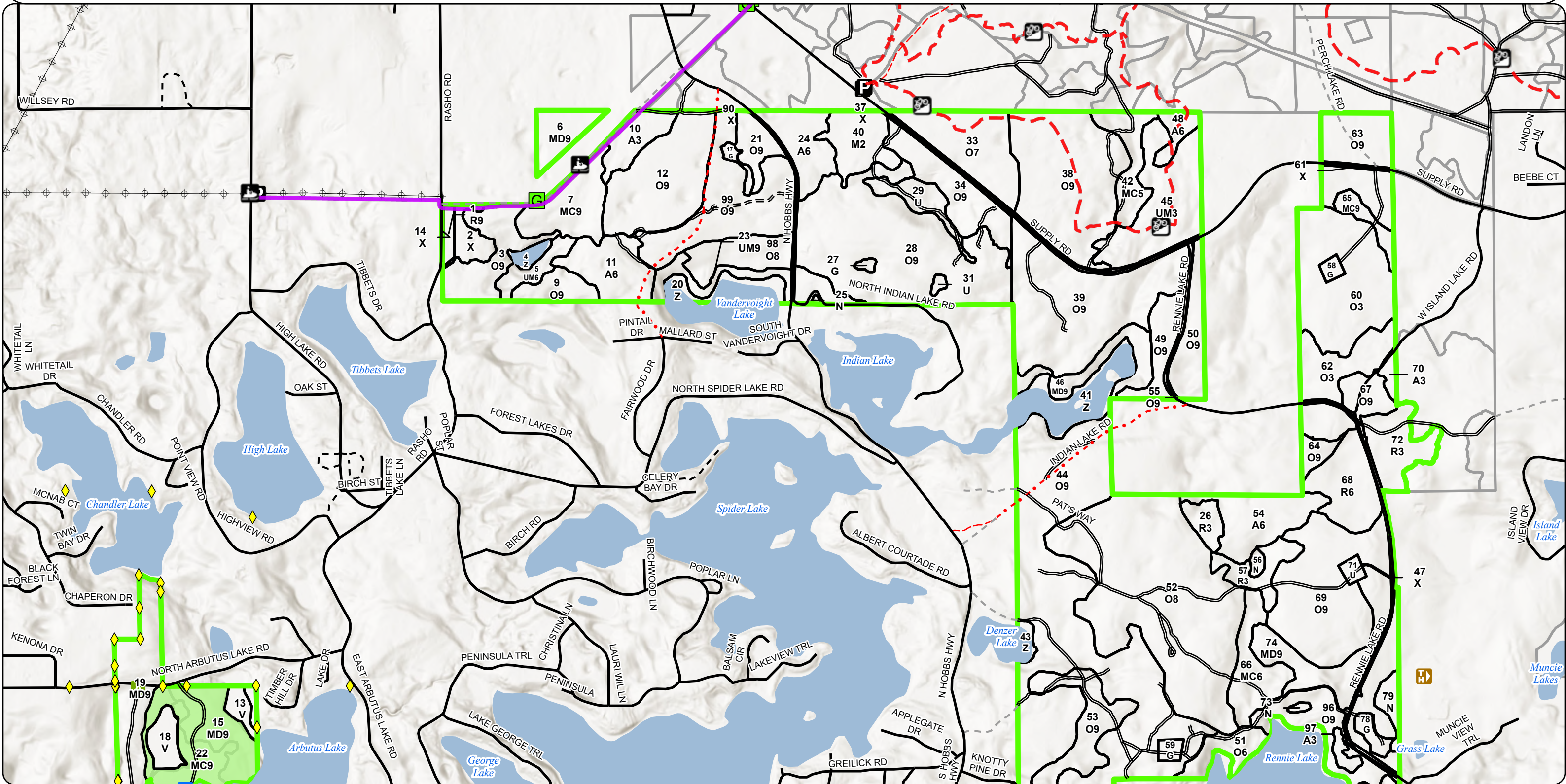
Special Conservation Areas & Site Conditions Map

Compartment: 61048
T26N R09W 19-24
County: Grand Traverse
Unit: Traverse City
Mgmt. Area: Kalkaska Sandy Moraines
YOE: 2028
Acres: 1,797 GIS Calculated
Examiner: Patrick Cotant
Date Exported: 06/29/2026
Map Phase: Web Post



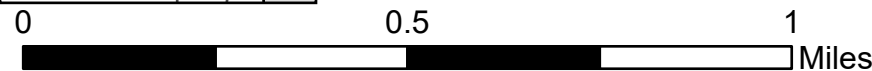
0 0.5 1 Miles

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|---------------------------|---------------------------------------|------------------------------|
| Survey Grade Corners | Designated Snowmobile | Private - Dirt / Gravel Road |
| Parking Lot | DNR - Secondary Forest Road | Lakes and Rivers |
| Boating Access Site | DNR - Forest Access Route | Electric |
| State Forest Campground | Federal / State / County - Paved Road | Compartment Boundary |
| Trailhead | Federal / State - Dirt / Gravel Road | SCA |
| Gate | County - Gravel Road | Type 1 and Type 2 Old Growth |
| Designated Bicycle Trails | County - Dirt Road (Seasonal) | Possible Type 2 Old Growth |



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Compartment: 61048
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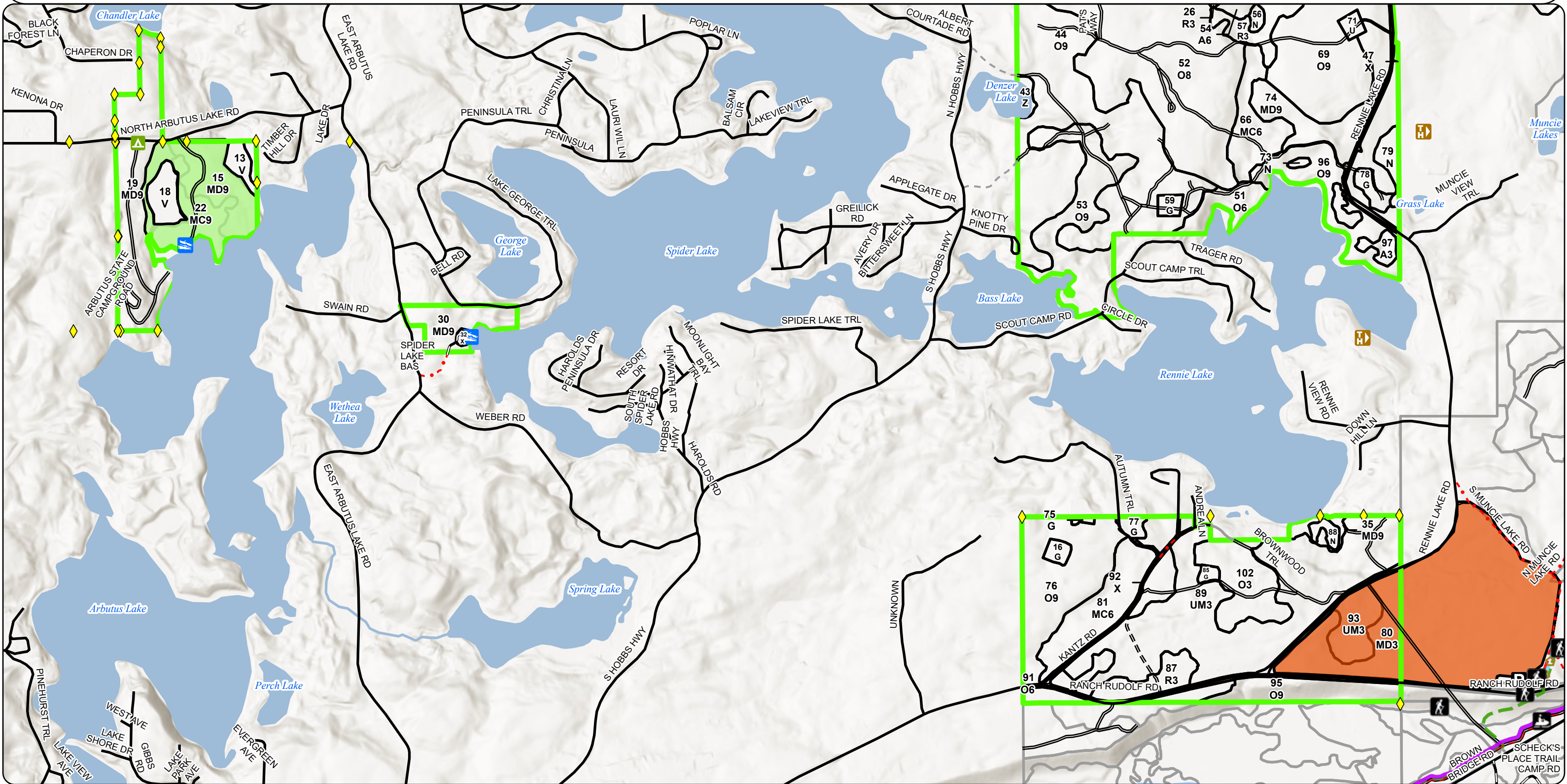


- Survey Grade Corners
- Parking Lot
- Boating Access Site
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- Designated Hiking Pathway
- Designated Bicycle Trails

- Designated Ski Trails
- Designated Snowshoe Trails
- Designated ORV Routes
- Designated Snowmobile
- DNR - Primary Forest Road
- DNR - Secondary Forest Road
- DNR - Forest Access Route

- Federal / State / County - Paved Road
- County - Gravel Road
- Private - Paved Road
- Private - Dirt / Gravel Road
- Streams
- Lakes and Rivers
- Compartment Boundary

- High Conservation Value Areas
- Natural Rivers Zoning District
- SCA
- Type 1 and Type 2 Old Growth
- Other Habitat Area
- Possible Type 2 Old Growth



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	6	15	65	0	0	0	0	0	0	0	0	0	0	0	0	0	86
Bog	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12
Herbaceous Openland	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	17
Low-Density Trees	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10
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	25	0	0	0	0	0	38	20	51	4	11	0	15	15	0	0	178
Natural Mixed Pines	0	0	0	0	0	0	0	21	14	6	0	0	0	0	0	14	0	0	55
Northern Hardwood	0	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16
Oak	0	26	49	23	0	0	0	0	0	0	167	194	419	29	130	0	0	0	1035
Planted Mixed Pines	0	0	0	0	49	0	0	0	0	0	0	0	0	0	0	0	0	0	48
Red Pine	0	18	10	0	39	0	0	3	0	0	0	0	0	0	0	0	0	0	70
Upland Mixed Forest	0	0	150	13	0	0	0	7	0	0	0	9	0	0	0	0	0	0	179
Upland Shrub	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Urban	42	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42
Water	38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	38
Total	131	60	240	51	153	0	0	10	21	52	26	227	198	430	29	145	29	0	1798



Report 2 – Treatment Summary

Traverse City Mgt. Unit
Year of Entry: 2028

Acres of Harvest

Compartment 48
Total Compartment Acres: 1,797

Commercial Harvest - 970
Harvests with Site Condition - 0
Next Step Harvest - 0
Habitat Cut - 0

Cover Type by Harvest Method

		ClearcutSelectionPatch ClearcutSeed TreeShelterwoodThinningOverstory RemovalSalvageOtherTotal Acres									
Mixed Upland Deciduous		0	0	0	0	29	0	0	0	0	29
Oak		50	0	0	0	148	0	66	0	0	263
Total		50	0	0	0	177	0	66	0	0	292

Proposed and Next Step Treatments by Method

		HarvestSite PrepPlantingSeedingBurningPesticideMonitoringOtherNon-Forest Mgt.Total Acres								
Current		292	0	0	0	0	0	0	0	322
Next Step		0	99	149	0	0	99	276	0	674
Total		292	99	149	0	0	99	276	0	996



Standard

Treatment Name	Acres	Stand CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Age Structure	Habitat Cut
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Proposed Treatments:

12 61048012-Cut	83.34126	- White, Black, N. Pin Oak	9	120	81-110	Harvest	Shelterwood	4310 - Pine, Oak Mix	Cutting Record	No
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Prescription Treat stand with a shelterwood harvest, with retention - retaining all red and white pine and protecting advanced regeneration as much as possible. Use scattered islands throughout treatment area to account for area based retention. In addition, retain so

Specs:

Next Step Monitoring, Natural Regen (Re-Inventory)

Treatments:

Acceptable White pine, red pine, white oak, red oak, red maple and aspen.

Regen:

Other

Comment:

Site Condition:

Proposed Start Date: 10/01/2027

29 61048029-Opening	9.2	330 - Low-Density Trees	99			Openings Mgmt.	Openings Mgmt.	3303 - Mixed Low Density Trees	Previous Inventory	No
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Prescription Selectively fell woody encroachment to maintain upland brush/grassland community. Leave scattered mast producing trees and shrubs and/or conifers for wildlife food and cover. Plant site appropriate native shrubs and/or mast producing trees for wildlife

Specs:

Next Step

Treatments:

Acceptable

Regen:

Other

Comment:

Site Condition:

Proposed Start Date: 10/01/2027

33 61048033-Cut	22.24126	- White, Black, N. Pin Oak	7	139	51-80	Harvest	Overstory Removal	4310 - Pine, Oak Mix	Planting Record	No
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Prescription Harvest all oak greater than 6" DBH within treatment area. Protect all conifer species and all advanced regeneration within treatment area. Specs: Protect VASA singletrack throughout harvest operations, treatment area has been adjusted to buffer trail.

Next Step

Treatments:

Acceptable White pine, red pine, white and red oak, aspen and red maple.

Regen:

Other

Comment:

Site Condition:

Proposed Start Date: 10/01/2027

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Treatment Name	Acres	Stand CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Age Structure	Habitat Cut
34 61048034-Cut	22.8	4122 - Oak, Pine	9	103	111-140	Harvest	Shelterwood	4310 - Pine, Oak Mix	Cutting Record	No
<u>Prescription</u> Shelterwood stand, with retention - retain white and red pine and protect white pine regeneration as much as possible. In addition, retain scattered white oak w/in 1 chain of Supply rd. specifically in N/W portion of stand where white pine is less of a co <u>Specs:</u> <u>Next Step</u> Monitoring, Natural Regen (Re-Inventory) <u>Treatments:</u> <u>Acceptable</u> Mix of white pine, red pine, white oak, red oak, red maple and aspen. <u>Regen:</u> <u>Other</u> <u>Comment:</u> <u>Site Condition:</u> <u>Proposed Start Date:</u> 10/01/2027										
33 61048038-Cut	43.8	4126 - White, Black, N. Pin Oak	7	139	51-80	Harvest	Overstory Removal	4310 - Pine, Oak Mix	Planting Record	No
<u>Prescription</u> Harvest all oak greater than 6" DBH within treatment area. Protect all conifer species and all advanced regeneration within treatment area. <u>Specs:</u> Protect VASA singletrack throughout harvest operations, treatment area has been adjusted to buffer trail. <u>Next Step</u> <u>Treatments:</u> <u>Acceptable</u> White pine, red pine, white and red oak, aspen and red maple. <u>Regen:</u> <u>Other</u> <u>Comment:</u> <u>Site Condition:</u> <u>Proposed Start Date:</u> 10/01/2027										
69 61048069-Cut	49.7	4124 - Red with White Oak	9	120	111-140	Harvest	Clearcut	4211 - Planted Red Pine	Planting Record	No
<u>Prescription</u> Final harvest stand to 1", require chipping to prepare stand for reforestation operations. Use area based retention in west and southwest portion of stand to retain 2, ~1 acre islands encompassing larger pine and oak. <u>Specs:</u> <u>Next Step</u> SitePrep, Roller Chopping; SitePrep, Trenching; Pesticide, Aerial - Site Prep; Planting, Trenched Plant; Monitoring, Artificial Regen; <u>Treatments:</u> Monitoring, Artificial Regen; Planting, Unfurrowed; NonCommCut, Brush Saw Release; Planting, Interplant; <u>Acceptable</u> Red pine at plantation spacing. <u>Regen:</u> <u>Other</u> <u>Comment:</u> <u>Site Condition:</u> <u>Proposed Start Date:</u> 10/01/2027										
74 61048074-Cut	29.0	4191 - Mixed Upland Deciduous with Conifer	9	80	141-170	Harvest	Shelterwood	4310 - Pine, Oak Mix	Cutting Record	No
<u>Prescription</u> Shelterwood stand west of Rennie Lake Road, retaining all white & red pine and some scattered white oak (<10BA) for mast source. Overall BA should average ~30 sq ft/ac. ~5 acres of stand 69 are included in this treatment, in this area retain conifer com <u>Specs:</u> <u>Next Step</u> Monitoring, Natural Regen (Re-Inventory) <u>Treatments:</u> <u>Acceptable</u> White pine, white oak, red oak (spp), red maple, aspen, red pine and jack pine. <u>Regen:</u> <u>Other</u> <u>Comment:</u> <u>Site Condition:</u> <u>Proposed Start Date:</u> 10/01/2027										



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Treatment Name	Acres	Stand CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Age Structure	Habitat Cut
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76 61048076-Cut	41.6	4122 - Oak, Pine	9	120	81-110	Harvest	Shelterwood	4122 - Oak, Pine	Cutting Record	No
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Prescription Recommend treating stand by removing all overstory oak and retaining white oak ONLY that is <7" dbh. In addition mark to leave scattered well formed white oak as a mast source (<10BA). Retain all red and white pine >10" dbh and protect white pine and oak

Next Step Monitoring, Natural Regen (Re-Inventory)

Treatments:

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

Regen:

Other

Comment:

Site Condition:

Proposed Start Date: 10/01/2027

78 61048078-Opening	3.6	3105 - Mixed Upland Herbaceous	99			Openings Mgmt.	Openings Mgmt.	3105 - Mixed Upland Herbaceous	Previous Inventory	No
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Prescription Selectively fell woody encroachment to maintain upland brush/grassland community. Leave scattered mast producing trees and shrubs and/or conifers for wildlife food and cover. Plant site appropriate native shrubs and/or mast producing trees for wildlife

Next Step

Treatments:

Acceptable

Regen:

Other

Comment:

Site Condition:

Proposed Start Date: 10/01/2027

Approved Treatments:

72 61048072-NonCommCut	16.9	42111 - Planted Red Pine, Mixed Deciduous	3	4	Immature	Non-Comm. Tree Cutting	Non-Comm. Tree Cutting	4122 - Oak, Pine		No
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Prescription Free red pine in stand to meet Free to grow Guidance .

Specs:

Next Step

Treatments:

Acceptable Mixed oak, jack pine, white pine, red pine, red maple and aspen.

Regen:

Other Percent to Treat = 100%

Comment:

Site Condition:

Proposed Start Date: 10/01/2025

Total Treatment Acreage Proposed: 322.1



Availability for Management

Total Acres	Acres Available	Acres With Condition	Acres Not Available		Dominant Site Conditions			
Acres	Available	With Condition	Not Available		2F	3D	3J	5E
85	85	0	0	Aspen				
12	12	0	0	Bog				
17	17	0	0	Herbaceous Openland				
10	10	0	0	Low-Density Trees				
10	10	0	0	Marsh				
179	73	0	105	Mixed Upland Deciduous		87	18	
44	27	0	17	Natural Mixed Pines		14		3
16	16	0	0	Northern Hardwood				
920	856	0	63	Oak	18	23	22	
48	49	0	0	Planted Mixed Pines				
69	69	0	0	Red Pine				
177	163	0	14	Upland Mixed Forest			14	
2	2	0	0	Upland Shrub				
42	42	0	0	Urban				
38	38	0	0	Water				
1,669	1,469		200	Total Forested Acres	18	125	55	3
	88%		12%	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	5E: Long-Term Retention	3	Unspecified	Unspecified	Unspecified	Unspecified	Unspecified
Comments: Stand was thinned in past entry. New age is slowly forming in understory. Part of this stand will be harvested and re-planted. Evaluate stand in next entry period. Adjacent stands have been recently harvested. Keep this for diversity.								
2	Unavailable	3J: Water quality/BMPs (stream, river, or lake)	15	Unspecified	Unspecified	Unspecified	Unspecified	Unspecified
Comments: Stand lies on a slope leading to lake, has historically not been treated to provide buffer to water body.								

Report 4 – Site Conditions



3	Unavailable	2F: Too steep	18	Unspecified	Unspecified	Unspecified	Unspecified
Comments: Steep south facing slope, Boardman River Trail parallels top of slope close to Ranch Rudolph Rd.							
4	Unavailable	3J: Water quality/BMPs (stream, river, or lake)	9	Unspecified	Unspecified	Unspecified	Unspecified
Comments: Buffer around lake, stand slopes towards lake with areas of significant slope percentage.							
5	Unavailable	3D: Recreational/scenic values	15	Unspecified	Unspecified	Unspecified	Unspecified
Comments: DRN Boat Launch							
6	Unavailable	3J: Water quality/BMPs (stream, river, or lake)	5	Unspecified	Unspecified	Unspecified	Unspecified
Comments: Slope towards lake, avoid treatment for BMP concerns.							
7	Unavailable	3J: Water quality/BMPs (stream, river, or lake)	2	Unspecified	Unspecified	Unspecified	Unspecified
Comments: Buffer around small lake.							
8	Unavailable	3J: Water quality/BMPs (stream, river, or lake)	8	Unspecified	Unspecified	Unspecified	Unspecified
Comments: Portion of stand 5 that slopes towards water body, provides buffer to address BMP concerns.							

Report 4 – Site Conditions



9	Unavailable	3D: Recreational/scenic values	23	5E: Long-Term Retention	Unspecified	Unspecified	Unspecified
Comments: Recreation values along VST along with long term retention encompassing VASA singletrack.							
10	Unavailable	3D: Recreational/scenic values	51	Unspecified	Unspecified	Unspecified	Unspecified
Comments: Arbutus Lake CG and Chandler Lake Trail.							
11	Unavailable	3D: Recreational/scenic values	14	Unspecified	Unspecified	Unspecified	Unspecified
Comments: Arbutus Lake Boating Access Site and Chandler Lake pathway.							
12	Unavailable	3D: Recreational/scenic values	20	Unspecified	Unspecified	Unspecified	Unspecified
Comments: Access route to Arbutus Lake Boating Access Site and Chandler Lake pathway.							
13	Unavailable	3J: Water quality/BMPs (stream, river, or lake)	10	Unspecified	Unspecified	Unspecified	Unspecified
Comments: Majority of stand slopes towards Rennie Lake and includes some small vernal wetland areas/pockets of high water table, historically has not been managed.							
15	Unavailable	3J: Water quality/BMPs (stream, river, or lake)	4	Unspecified	Unspecified	Unspecified	Unspecified
Comments: Slope and riparian area around Rennie Lake and adjacent stand 88.							

Report 4 – Site Conditions



17	Unavailable	3J: Water quality/BMPs (stream, river, or lake)	9	Unspecified	Unspecified	Unspecified	Unspecified
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Comments:

Buffer along Rennie Lake and adjacent body of water.

18	Unavailable	3J: Water quality/BMPs (stream, river, or lake)	1	Unspecified	Unspecified	Unspecified	Unspecified
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Comments:

Buffer around northern edge of Indian Lake.



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
	Type 1 or Type 2 Old Growth	Possible Type 2 Old Growth	SCA	39
Comments				
Sugarloaf Old Growth Hemlock	Type 1 or Type 2 Old Growth	Possible Type 2 Old Growth	SCA	49
Comments				
SCA = Harlow Lake recreation area. Recreational trails through this area.				



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Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	Managed Site	General Comments																																																																					
6	4191 - Mixed Upland Deciduous with Conifer	Sawtimber Well	10.7	120	81-110	N/A	Mixed oak pine stand with regenerating aspen and pockets of red maple and oak species. Found corners at NE and NW corners but not southern tip. Northern edge and especially NW corner has dense autumn olive, and some scotch pine regen from adjacent private to the west. Aspen is in decent shape and looks to be expanding.																																																																					
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7	42250 - Pine, Oak	Sawtimber Well	21.0	75	81-110	N/A	2006:Red pine looks good but stopped growing at 50-60 years. Pine in stand to the north started growing after release. Mark everything but spec aspen. Manage natural pine oak mix. TS# 080-08. Unit harvested 5/11. Marked for crop tree release. Mixed pine and oak. Cut all aspen and orange marked. Marked red maple. 2016: Red maple sprouts with aspen clones regenerating. Good aspen regen in places. Stand looks fine. May desire to keep stand condition until new age becomes merchantable in 30-40 years.																																																																					
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9	4129 - Mixed Oak	Sawtimber Well	8.8	100	111-140	N/A	Mixed stand of oak with pine, aspen distributed evenly throughout. Oak is variable in size, generally log sized with 7-10" poles present. Aspen is good quality, stocking high enough to expect decent regeneration if canopy is opened up enough. White pine regenerating well in understory, trace hemlock along western edge. Small kettle hole/valley in central area of stand along private, mainly white and red pine in this pocket.																																																																					
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10	4133 - Aspen, Mixed Pine	Sapling Well	11.5	26	1-50	N/A	Aspen growing well, transitioning from sapling to small pole, sized as sapling will be pole class next yoe. Red pine residual in good shape, some pockets of white and red pine regen.																																																																					
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Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	Managed Site	General Comments																																																														
11	4133 - Aspen, Mixed Pine	Poletimber Well	20.1	36	Unspecified	N/A	Well stocked aspen and white pine stand, developing into primarily pole sized big tooth aspen with sapling size present. White pine is dense in areas and growing well alongside the aspen.																																																														
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12	4126 - White, Black, N. Pin Oak	Sawtimber Well	41.2	120	81-110	N/A	Variable sized oak in overstory with red and white pine evenly dispersed throughout. Understory developing well with oak, red maple and white pine quite dense throughout. Some aspen regen as well.																																																														
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13	6225 - Bog	None	4.2			No	Bog on edge of Arbutus Lake. Some stunted white pine saplings scattered throughout.																																																														
14	122 - Road/Parking Lot	None	0.3			No	Rasho Road																																																														
15	4191 - Mixed Upland Deciduous with Conifer	Sawtimber Well	20.4	90	141-170	N/A	Mixed stand with some variability in terms of stocking and average size - generally log sized with an average BA of ~150 sq ft/ac. Aspen more prevalent at ridge top and eastern portion of stand. Small vernal pond areas in southern lobe of stand. Pathway traverses stand and winds through the entirety of this parcel, north to Chandler Lake.																																																														
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MICHIGAN

Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	Managed Site	General Comments																																																																																																												
16	3104 - Degraded	None	2.2			No	Old well pad, jack pine, white oak and white pine encroaching at edges.																																																																																																												
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17	3105 - Mixed Upland Herbaceous	None	2.1			No	Oil well pad at north end of small stand.																																																																																																												
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18	6225 - Bog	None	7.6			No	Bog near Arbutus Lake Campground, some white pine stunted saplings throughout. Outlet to Arbutus Lake at southern tip of stand, small water control structure present here along with an old two-track that passes over the top. Currently overgrown and impassable.																																																																																																												
19	4199 - Other Mixed Upland Deciduous	Sawtimber Well	51.4	100	111-140	N/A	Decent quality oak, mixed deciduous stand. Campground and road traverse stand as does pathway to Chandler Lake. White Pine scattered in stand along with some hemlock, some pockets of hemlock on slopes and closer to water bodies - hemlock regen trace to low density overall. Aspen is variable sized, larger north of Arbutus Lake rd. Ash has all fallen out of stand, beech is generally ok but is declining with quite a bit on the ground and a fair amount dead standing. North of Arbutus Lake Rd, sugar maple, beech and basswood are more of a component while oak species are less prevalent - the opposite is true south of the road.																																																																																																												
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20	500 - Water	None	11.4			No	Vandervoigt Lake																																																																																																												



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21	4122 - Oak, Pine	Sawtimber Well	8.8	127	51-80	N/A	Red maple, aspen and white pine forming new age under canopy. Most white pine in sub canopy was present at time of harvest but some new stems developing in pockets. Overstory in good condition, similar to many of the nearby stands, it seems the oak is stagnating but is generally healthy and providing a good mast source.																																																						
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22	42290 - Natural Mixed Pine	Sawtimber Well	14.2	160	201+	N/A	Generally large and old white and red pine throughout with some younger ~70 year old planted pine near boat launch. High water table in areas of stand but generally upland. Eastern portion of stand lies on a west facing slope where more deciduous species are present. Old Arbutus Lake cabin lies within this stand as does the designated Arbutus Lake boating access site.																																																						
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23	4310 - Pine, Oak Mix	Sawtimber Well	9.1	104	141-170	N/A	Stand is the result of that was retained along lake when adjacent stands to the north were treated. Mix of white and red pine with white and red oak, aspen and red maple present in lower densities. White Pine regeneration dense in spots. Stand is providing an excellent aesthetic/riparian corridor along lake.																																																						
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24	4130 - Aspen	Poletimber Well	16.7	36	51-80	N/A	Stand harvested in 1990, white and red pine were retained which has led to some variability in stocking and dbh but overall aspen is doing well.																																																						
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25	6239 - Mixed Emergent Wetland	None	0.3			No	Edge of Indian Lake																																																						



MICHIGAN

Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	Managed Site	General Comments			
26	42110 - Planted Red Pine	Sapling Well	6.1	34	Immature	N/A	Small red pine plantation with northern pin/red oak, aspen and jack pine mixed in, white oak to a lesser extent.			
Canopy Species		% Cover	Size Class	DBH	Age	Sub-Canopy Species		Density	Avg. Height	Size
Red Pine		75	Pole/Sapling	5	34	Oak (spp.)				
Jack Pine		10	Pole/Sapling	5	36	Low				
Red Oak		5	Sapling	2		5 - 10 feet				
Bigtooth Aspen		5	Pole/Sapling	5	36	5 - 10 feet				
Northern Pin Oak		5	Sapling	2						
27	3105 - Mixed Upland Herbaceous	None	0.9			No				
						Sub-Canopy Species	Density	Avg. Height	Size	
						White Pine	Low	Variable	Variable	
						Blueberry/Bilberry/Cranberry	Trace	5 - 10 feet	5 - 10 feet	
						Cladonia (Reindeer moss)	Low	Not Applicable	Not Applicable	
						Bracken Fern	Trace	Not Applicable	Not Applicable	
						Red Oak	Low	Variable	Variable	
						Sedges	Low	Not Applicable	Not Applicable	
						Little Bluestem	Low	Not Applicable	Not Applicable	
28	4129 - Mixed Oak	Sawtimber Well	87.6	105	111-140	N/A				
Canopy Species		% Cover	Size Class	DBH	Age	Sub-Canopy Species	Density	Avg. Height	Size	
Red Maple		7	Pole/Log	9		White Pine				
Red Oak		30	Log/Pole	12	105	Medium				
White Oak		30	Log/Pole	12	105	Medium				
Bigtooth Aspen		3	Log/Pole	11		10 - 20 feet				
Northern Pin Oak		7	Log/Pole	11		10 - 20 feet				
White Pine		15	Log/Pole/XLog	12		>20 feet				
Red Pine		8	Log/Pole/XLog	11		>20 feet				
29	330 - Low-Density Trees	None	9.2			No				
						Sub-Canopy Species	Density	Avg. Height	Size	
						Northern Pin Oak	Low	Variable	Variable	
						White Pine	Medium	10 - 20 feet	10 - 20 feet	
						Jack Pine	Low	Variable	Variable	



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35	4191 - Mixed Upland Deciduous with Conifer	Sawtimber Well	3.7	119	81-110	N/A	Retention area around low area. Left from surrounding harvest. Trespass in NW corner of left side by the lake resolved with land transfer.																																																							
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37	110 - Low Intensity Urban	None	6.7			No	Supply Rd & Rennie Lake Rd corridors.																																																							
38	4122 - Oak, Pine	Sawtimber Well	60.7	140	81-110	N/A	Oak and pine regen developing fairly well overall, some lesser stocked areas but generally good regeneration. Oak is variable in height with some areas heavily browsed but most has become established. Overstory is filling back in and is 75-80% stocked, with a BA range of 60-100. Average of ~80 sq ft/ac which includes small pole white pine. Converting to white pine with oak regeneration developing below. Might be an opportune time to remove oak while still viable which would in turn release advanced and developing regeneration.																																																							
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39	4124 - Red with White Oak	Sawtimber Well	67.1	120	111-140	N/A	Variable quality oak/pine stand, understory of variable density white pine and heavily browsed oak species, oak regeneration advancing better in central and northern areas of stand. White pine advanced regeneration quite dense in areas of stand. Western area of stand has more significant topography, should be avoided for replant treatment but could conduct a treatment to remove all species except red and white pine.																																																							
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40	4119 - Mixed Northern Hardwoods	Sapling Medium	16.3	3	1-50	N/A	Stand consists of red maple stump sprouts in the 10-15' range along with pockets of browsed oak sapling/seedlings and clumps of cherry. Scattered white pine as well.																																																							
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41	500 - Water	None	20.8			No	Eastern finger of Indian Lake, shallow with grasses throughout, at time of inventory this appears to be more of an emergent wetland submerged during periods of high water.																																																							



Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	Managed Site	General Comments			
42	42260 - Natural Pine, Mixed Deciduous	Poletimber Medium	14.0	80	51-80	N/A	Mixed stand of jack pine with pin oak and white pine. Red pine and white oak present to a lesser extent. Stand is variable in terms of stocking and species composition, on average stand is ~75 canopy closure and southern 2/3 of stand is mainly jack pine. Northern portion of stand has more white pine and oak, much of which is declining with several standing snags. Two track traverses west edge of stand, passing through an old well site that is regenerating to jack pine. White Pine and oak understory is dense is spots. Larger jack pine stems are declining with standing snags and down trees throughout, but what is there is overall still fairly healthy. Stand lies in a north south oriented valley.			
Canopy Species		% Cover	Size Class	DBH	Age	Sub-Canopy Species		Density	Avg. Height	Size
Red Maple		2	Pole/Log	8		White Pine		Medium	Variable	Variable
Red Oak		5	Log/Pole	14		Black Cherry		Low	5 - 10 feet	5 - 10 feet
White Oak		3	Log/Pole	12		Oak (spp.)		High	Variable	Variable
Northern Pin Oak		20	Log/Pole	12						
White Pine		20	Log/Pole	10						
Red Pine		5	Log/Pole	10	80					
Jack Pine		45	Log/Pole	10	80					
43	500 - Water	None	2.9			No	Eastern edge of Denzer Lake.			
44	4122 - Oak, Pine	Sawtimber Well	149.3	119	81-110	N/A	More of pine component, higher BA than expected based on past treatment. Averages ~90 overall. White Pine advanced regen throughout stand is quite dense and newly developing white pine regen is filling in as well. Red Maple sprouts low to medium stocking in northern portion of stand, much less in south, some pockets dense while other areas are low where white pine saps/small poles are more of a component. Trace cherry regen, low quality. White oak regen is patchy, sparse overall. Occasional dead standing oak, small pocket of mortality in southern area of stand. SE area of stand north of old well site has some smaller sapling/pole sized aspen clones interspersed with smaller dbh white pine and red/white oak - larger pole/small log sized. It appears this area may not have been harvested in 2013. If treated this yoe exclude SE lobe, creating new stand that could be managed for aspen next yoe when it reaches larger pole sized class.			
Canopy Species		% Cover	Size Class	DBH	Age	Sub-Canopy Species		Density	Avg. Height	Size
Red Oak		30	Log/Pole	12	119	White Pine		High	Variable	Variable
White Oak		31	Log/Pole	12	119	Black Cherry		Trace	Variable	Variable
Northern Pin Oak		5	Log/Pole	12		Red Pine		Low	5 - 10 feet	5 - 10 feet
White Pine		20	Log/Pole	12		Red Maple		Low	Variable	Variable
Red Pine		10	Log/Pole	12	120	Oak (spp.)		Low	Variable	Variable
Bigtooth Aspen		4	Pole/Sapling	6						
45	4310 - Pine, Oak Mix	Sapling Well	36.5	12	1-50	N/A		Stand is regenerating well, primaily to white pine and both red and white oak. Some red maple clumps along with scattered aspen sprouts as well. Overstory red and white oak, and white pine featured alongside regeneration in canopy. Trace overstory aspen in northern tip of stand.		
Canopy Species		% Cover	Size Class	DBH	Age					
Red Oak		10	Log/Pole/XLog	16	132					
White Oak		14	Log	16	132					
White Pine		5	Log/Pole	14	120					
Red Pine		2	Log	12	90					
Red Oak		20	Sapling	2	12					
White Oak		15	Sapling	2	12					
White Pine		34	Sapling	2	12					



Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	Managed Site	General Comments																																																						
46	4191 - Mixed Upland Deciduous with Conifer	Sawtimber Well	14.5	140	141-170	N/A	Mixed oak/pine stand with aspen throughout and red maple to a lesser degree. Stand lies on a slope leading to lake, understory of white pine developing slowly. W/NW lobe of stand generally has less of a white pine component, slope toward lake is slightly less steep.																																																						
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47	122 - Road/Parking Lot	None	10.0			No	Segment of Rennie Lake Rd																																																						
48	4131 - Aspen, Oak	Poletimber Well	5.5	36	Unspecified	N/A	Good aspen and oak regen, white pine in pockets along with trace red pine.																																																						
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49	4124 - Red with White Oak	Sawtimber Well	12.3	110	81-110	N/A	Poor quality oak over-story remaining with white pine understory. May be desirable to remove some of the over-story to release new age but excessive damage to advanced regeneration will occur. Trace red pine in south.																																																						
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50	4124 - Red with White Oak	Sawtimber Well	15.0	120	111-140	N/A	Oak/pine stand, moderate quality oak, white pine is growing fairly well with variable size classes throughout. Depression is southern portion of stand is predominately white pine and some declining jack pine, less dense frost pocket. White Pine understory is advanced and dense in much of stand. Similar to stand west of Rennie Lake rd, this stand would benefit from oak overstory removal but would likely be at the expense of significant damage to advanced regeneration.																																																						
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Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	Managed Site	General Comments		
51	4129 - Mixed Oak	Poletimber Well	10.2	112	81-110	N/A	Mied stand of older pak and pine with what apoears to be a younger sge class of oak spo, white pine, red maple and aspen. Steeper slopes around lake. Factor Limit for topography, bmp and riparian concern.		
Canopy Species	% Cover	Size Class	DBH	Age	Sub-Canopy Species	Density		Avg. Height	Size
Red Maple	5	Pole/Log	8		Red Pine	Low		Variable	Variable
Red Oak	35	Log	14	112	Red Maple	Low		10 - 20 feet	10 - 20 feet
White Oak	28	Log/Pole	11		Oak (spp.)	Low		5 - 10 feet	5 - 10 feet
Bigtooth Aspen	12	Pole/Sap/Log	7		White Pine	Medium		Variable	Variable
White Pine	12	Log/Pole	12						
Red Pine	5	Log	14						
Jack Pine	3	Pole/Log	9						
52	4124 - Red with White Oak	Sawtimber Medium	117.9	120	81-110	N/A		***As part of a variance request submitted by the forest health division of FRD, this stand will be a part of an oak wilt research project beginning in 2022 and lasting 6-8 years. Any management within this stand going forward should be reviewed and approved with this in mind. The variance was submitted by James Wiefierich and approved on 8/17/22***Understory is developing with white pine, white oak and northern pin oak all medium density, with some pockets of stand understory more lightly stocked. Pockets of dense oak regen, 5-10' tall, indicating it is above browse line. Overstory has likely stagnated at this point. Variable stocking in areas of stand, coded 50-75% canopy closure, stocking is at the upper end of this range.	
Canopy Species	% Cover	Size Class	DBH	Age	Sub-Canopy Species	Density	Avg. Height		Size
Red Maple	2	Pole/Log	8		Northern Pin Oak	Medium	Variable		Variable
Red Oak	57	Log	13	120	White Pine	Medium	Variable		Variable
White Oak	35	Log/Pole	12	120	Red Pine	Low	5 - 10 feet		5 - 10 feet
White Pine	4	Pole/Log	8		Witch Hazel	Low	5 - 10 feet		5 - 10 feet
Red Pine	2	Log/Pole	12		White Oak	Medium	5 - 10 feet		5 - 10 feet
					Red Maple	Low	>20 feet		>20 feet
53	4126 - White, Black, N. Pin Oak	Sawtimber Well	40.0	140	111-140	N/A	Oak pine stand, some variability in species composition with pockets heavier to oak and some areas heavier to white pine and some red pine - greater pine component most notable in south and western edge of stand. White oak is variable in size, smaller dbh than surrounding stands - overall log sized but a fair amount of stems in the 8-10" large pole class as well. White Pine size is also quite variable. Scattered jack pine stems, some dead standing. Scattered aspen present as well.		
Canopy Species	% Cover	Size Class	DBH	Age	Sub-Canopy Species	Density			Avg. Height
Red Oak	30	Log/Pole	12	140	Red Pine	Low		5 - 10 feet	5 - 10 feet
White Oak	30	Log/Pole	12		Oak (spp.)	Low		5 - 10 feet	5 - 10 feet
Northern Pin Oak	10	Log/Pole	12		White Pine	Medium		Variable	Variable
Bigtooth Aspen	5	Log	12	90					
Red Maple	5	Pole/Log	8						
White Pine	13	Log/Pole	12						
Red Pine	7	Log/Pole	12						
54	4130 - Aspen	Poletimber Well	22.4	36	51-80	N/A		Well stocked aspen and mixed deciduous with scattered jack and white pine. Just moving from sapling sized to pole. Aspen is decent quality, some small pockets of primarily oak regen but for the most part aspen is dominant species with the remainder evenly distributed.	
Canopy Species	% Cover	Size Class	DBH	Age	Sub-Canopy Species	Density	Avg. Height		Size
White Oak	10	Sapling/Pole	3	36	Oak (spp.)	Medium	< 5 feet		< 5 feet
Bigtooth Aspen	70	Pole/Sapling	6	36					
Northern Pin Oak	8	Sapling	3	36					
Jack Pine	5	Pole/Sapling	5	36					
Black Cherry	5	Sapling	2	36					
White Pine	2	Sapling	3						





Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	Managed Site	General Comments																																																		
60	4126 - White, Black, N. Pin Oak	Sapling Well	49.1	14	1-50	N/A	Stand is a mix of overstory white and northern pin oak and some scattered red and white pine retained when stand was harvested. Oak regeneration has developed nicely and is well above browse height, 10-15' in height. White Pine and jack pine mixed in as well along with some red maple.																																																		
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61	110 - Low Intensity Urban	None	1.1			No	Segment of Supply Rd.																																																		
62	4122 - Oak, Pine	Sapling Well	25.7	4	1-50	N/A	Stand is regenerating quite well to an upland mix of primarily oak/pine with red maple and aspen present in pockets. ~10-20ba of white oak, along with some white pine and pine oak evenly distributed throughout.																																																		
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63	4126 - White, Black, N. Pin Oak	Sawtimber Well	28.9	140	1-50	N/A	Mixed stand of oak and pine, with variability in size and stocking of larger overstory trees retained from last harvest. Fair amount of stand area consists of advanced regeneration from last harvest, creating a multi level canopy. Intermediate canopy consists of oak, red maple, white pine and some jack pine. Aspen more dense on north side of supply road, just reaching merchantable size.																																																		
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Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	Managed Site	General Comments																																																														
64	4126 - White, Black, N. Pin Oak	Sawtimber Well	4.3	120	81-110	N/A	Small stand, retained when nearby stand 62 was cut. Consists primarily of larger white oak and red oak spp, jack pine and aspen present in lesser numbers but evenly distributed. Red and white pine primarily in intermediate canopy. Oak regeneration consists primarily of white oak, dense in spots especially along west edge.																																																														
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65	42250 - Pine, Oak	Sawtimber Well	5.8	90	81-110	N/A	Small stand of larger white pine with white oak and northern pin oak mixed throughout. Developing white pine understory with some oak species present as well. Jack pine has fallen out of stand, some standing snags. This stand is providing a nice, older conifer component in an area of this compartment dominated by advanced oak regeneration and large overstory oak.																																																														
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66	42141 - Planted Mixed Pine, Mixed Deciduous	Poletimber Well	17.9	34	51-80	N/A	Red pine planted and jack pine seeding in, jack pine dominant in southern portion of stand, with deciduous species. Generally red pine is more uniform stocking in northern portion of stand. Cherry and oak also competing on site. Aspen sapling/pole component in southern area of stand, scattered in more open areas of remainder of stand.																																																														
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67	4126 - White, Black, N. Pin Oak	Sawtimber Well	8.5	125	111-140	N/A	Oak stand that was likely part of larger surrounding stand(s), was thinned/heavy shelterwood harvested in 2000. Remaining stand is providing a nice pockets of older oak in a area of the compartment that is planted pine of various ages, along with regenerating stands. Oak is fair quality but providing a lot of mast and currently sheltering advancing, dense oak regeneration.																																																														
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68	42111 - Planted Red Pine, Mixed Deciduous	Poletimber Well	21.4	34	51-80	N/A	Planted red pine just transitionec to pole sized, that has a deciduous component of primarily aspen and oak species. This may be due to failed red pine, but more likely because of competition from aspen and oak/minimal site prep. Nonetheless, red pine is doing fairly well. Quite a few forked tops and some areas with increased number of double stems.																																																						
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69	4124 - Red with White Oak	Sawtimber Well	54.7	120	111-140	N/A	Decent quality white and red oak, red and white pine scattered throughout. Oak appears to have stagnated with some light dieback in tops, scattered dead standing trees. Minimal regeneration aside from white pine which is dense in spots and variable in size, most of which was likely present at time of harvest. Some white oak saplings.																																																						
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70	4130 - Aspen	Sapling Well	2.6	28	Unspecified	N/A	Small aspen stand part of larger complex to the east, growing fairly well overall. Classified as pole, just transitioned to this size class with sapling sized trees still present throughout.																																																						
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71	3201 - Sweet Fern	None	2.1			No	Old well site, some off trail use in stand.																																																						





MICHIGAN

Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	Managed Site	General Comments																																												
77	3104 - Degraded	None	2.4			No	Stand is being used by ORV's, small rally track in south central portion.																																												
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78	3105 - Mixed Upland Herbaceous	None	3.6			No	Opening at edge of lake, red pine scattered in central portion of stand.Old comment - Nice component of Little Bluestem established in the S 1/2. fair amount of Spotted Knapweed in the N end. Soil & cover restoration, work w/ existing Little Bluestem.Mullin and 1 Juniper.																																												
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79	6233 - Wet Meadow	None	4.7			No	Jack pine snags along perimeter.Old comment - Iris, Golden Rod, Asters and misc. forbs.																																												
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Rushes	Medium	Not Applicable	Not Applicable																																																
80	4199 - Other Mixed Upland Deciduous	Sapling Well	24.6	16	1-50	N/A	Stand is fully stocked with white oak, pin cherry, red maple and aspen, with white and northern pin oak scattered around overstory, ~10ba or less. Consider whether rx burn would be appropriate this time around, or should stand advance to oak over time?																																												
<table><tr><th>Canopy Species</th><th>% Cover</th><th>Size Class</th><th>DBH</th><th>Age</th></tr><tr><td>Red Oak</td><td>5</td><td>Log/XLog</td><td>15</td><td>105</td></tr><tr><td>White Oak</td><td>5</td><td>Log/XLog</td><td>14</td><td>105</td></tr><tr><td>White Pine</td><td>3</td><td>Log</td><td>14</td><td>91</td></tr><tr><td>Red Pine</td><td>2</td><td>Log/Pole</td><td>12</td><td>71</td></tr><tr><td>Red Maple</td><td>20</td><td>Sapling</td><td>2</td><td></td></tr><tr><td>Quaking Aspen</td><td>10</td><td>Sapling</td><td>1</td><td></td></tr><tr><td>Pin Cherry</td><td>10</td><td>Sapling</td><td>1</td><td></td></tr><tr><td>White Oak</td><td>45</td><td>Sapling</td><td>1</td><td>16</td></tr></table>						Canopy Species		% Cover	Size Class	DBH	Age	Red Oak	5	Log/XLog	15	105	White Oak	5	Log/XLog	14	105	White Pine	3	Log	14	91	Red Pine	2	Log/Pole	12	71	Red Maple	20	Sapling	2		Quaking Aspen	10	Sapling	1		Pin Cherry	10	Sapling	1		White Oak	45	Sapling	1	16
Canopy Species	% Cover	Size Class	DBH	Age																																															
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Quaking Aspen	10	Sapling	1																																																
Pin Cherry	10	Sapling	1																																																
White Oak	45	Sapling	1	16																																															



81

42141 - Planted Mixed Pine, Mixed Deciduous

Size Density

Poletimber Well

Acres

30.6

Stand Age

36

BA Range

51-80

Managed Site

N/A

General Comments

Red pine planted through open oak stand. JP and Wp seeding in and oak growing in as well, creating a nice mixed stand with the overstory oak providing a mast source. Good bit of oak poles and saplings mixed in as well. Red pine is pole/sapling sized, just reaching pole with plenty of saplings throughout.

Canopy Species	% Cover	Size Class	DBH	Age
Red Oak	10	Log/Pole/Sap	14	140
White Oak	10	Log/Pole/Sap	14	
Red Pine	55	Pole/Sapling	5	36
Jack Pine	17	Sapling/Pole	4	36
White Pine	5	Pole/Sapling	5	36

Sub-Canopy Species	Density	Avg. Height	Size
White Oak	Low	Variable	Variable
White Pine	Low	Variable	Variable

85

3104 - Degraded

Size Density

None

Acres

1.3

Stand Age

BA Range

Managed Site

General Comments

Not in terrible shape for an old well pad. Could use some seeding & soil conditioning.Old comment - Deer tracks. Pussy toes, Milkweed, Hawkweed, Mullin, Golden Rod, Hoary wood, Yarrow.

Sub-Canopy Species	Density	Avg. Height	Size
Bracken Fern	Trace	Not Applicable	Not Applicable
Little Bluestem	Trace	Not Applicable	Not Applicable
Sweet Fern	Trace	5 - 10 feet	5 - 10 feet
Cladonia (Reindeer moss)	Low	Not Applicable	Not Applicable
Poverty Grass	Medium	Not Applicable	Not Applicable
St. Johns Wort	Low	Not Applicable	Not Applicable
Mixed Grasses	Low	Not Applicable	Not Applicable
Spotted Knapweed	Trace	Not Applicable	Not Applicable

87

42111 - Planted Red Pine, Mixed Deciduous

Size Density

Sapling Well

Acres

10.9

Stand Age

36

BA Range

1-50

Managed Site

N/A

General Comments

Red pine planted around widely scattered oak. Wp, Jp and some oak coming in as well. Decent height and growth on open free to grow red pine, called dbh 4" but right on the cusp of small poles red pine. Red pine closer to larger oaks is more suppressed but surviving

Canopy Species	% Cover	Size Class	DBH	Age
Red Oak	10	Log/Pole/Sap	16	140
White Oak	10	Log/Pole/Sap	14	140
White Pine	6	Sapling/Pole	4	
Red Pine	65	Sapling/Pole	4	36

Sub-Canopy Species	Density	Avg. Height	Size
Black Cherry	Low	5 - 10 feet	5 - 10 feet
Red Maple	Low	5 - 10 feet	5 - 10 feet
White Pine	Low	5 - 10 feet	5 - 10 feet
Oak (spp.)	Low	5 - 10 feet	5 - 10 feet

88

6233 - Wet Meadow

Size Density

None

Acres

2.3

Stand Age

BA Range

Managed Site

No

General Comments

Small emergent meadow.

Sub-Canopy Species	Density	Avg. Height	Size
Blackberry/Raspberry	Low	5 - 10 feet	5 - 10 feet
Mixed Grasses	High	Not Applicable	Not Applicable
Sedges	High	Not Applicable	Not Applicable
Bracken Fern	Low	Not Applicable	Not Applicable



Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	Managed Site	General Comments
89	4310 - Pine, Oak Mix	Sapling Well	113.8	13	1-50	N/A	Some areas of oak and red maple seedlings getting browsed heavily but a fair amount has advanced. Some pockets of aspen sprouting in places. Red pine was fall planted with 1/0 seedlings. Had slow start but is doing fairly well where it is more free to grow. Featured the regeneration this yoe as the canopy, large red and white oak scattered around stand, stocking averages 10-30 ba. Stocking of overstory is higher along roads and specifically south of Ranch Rudolph rd. Trace red pine in canopy. Sold a small piece of state ground to resolve trespass with woods and water condos.
		Canopy Species	% Cover	Size Class	DBH	Age	
		Northern Pin Oak	5	Log/XLog	16	104	
		White Oak	10	Log	14	104	
		White Pine	5	Log/Pole	14		
		Quaking Aspen	5	Sapling	2		
		Northern Pin Oak	5	Sapling	1		
		Jack Pine	12	Sapling	2		
		White Oak	25	Sapling	1	13	
		Red Maple	3	Sapling	1	13	
		Red Pine	30	Sapling	2	13	
		Sub-Canopy Species	Density	Avg. Height	Size		
		Oak (spp.)	Medium	< 5 feet	< 5 feet		
90	122 - Road/Parking Lot	None	2.5			No	Segment of Hobbs Hwy.
91	4122 - Oak, Pine	Poletimber Well	4.0	105	81-110	N/A	Low stocking of oak and white pine in canopy with white pine understory. Thick white pine understory in places with some jack pine and red pine. Fully stocked pine canopy in western edge of stand, this area should be merged with stand 76 and small pocket should be merged with stand 81 at south tip of 81. East finger is more oak canopy. Stand is remnant from various surrounding treatments and small "different" parts of stand are not big enough to stand alone. Let understory pine develop at this time
		Canopy Species	% Cover	Size Class	DBH	Age	
		Northern Pin Oak	25	Log/Pole	14	105	
		White Oak	35	Log/Pole	14	105	
		White Pine	30	Log/Pole	12	85	
		Red Pine	5	Log/Pole	12	85	
		Red Maple	5	Log/Pole	11		
		Sub-Canopy Species	Density	Avg. Height	Size		
		Red Maple	Low	10 - 20 feet	10 - 20 feet		
		Jack Pine	Low	5 - 10 feet	5 - 10 feet		
		Oak (spp.)	Low	5 - 10 feet	5 - 10 feet		
		White Pine	Medium	Variable	Variable		
		Red Pine	Low	5 - 10 feet	5 - 10 feet		
92	110 - Low Intensity Urban	None	13.3			No	Stand is a combination of Ranch Rudolph Rd, Rennie Lake Rd and Kantz Rd.
93	4310 - Pine, Oak Mix	Sapling Well	12.6	25	Immature	N/A	Stand has developed into a fully stocked jack pine and mixed deciduous stand, primarily white oak and red maple. This stand provides some good for diversity.
		Canopy Species	% Cover	Size Class	DBH	Age	
		Red Maple	15	Sapling	2	25	
		Red Oak	5	Sapling	2	25	
		White Oak	20	Sapling	2	25	
		Jack Pine	46	Sapling	3	25	
		Black Cherry	10	Sapling	2	25	
		White Pine	4	Sapling	2		
		Sub-Canopy Species	Density	Avg. Height	Size		
		White Pine	Low	< 5 feet	< 5 feet		
		White Oak	Low	< 5 feet	< 5 feet		
95	4126 - White, Black, N. Pin Oak	Sawtimber Well	17.6	120	81-110	N/A	Narrow oak stand with red and white pine scattered throughout. White oak is variable in size. Stand is level near road then slopes steeply to Boardman river bottomlands. Boardman River Trail follows ridge top where stand is level.
		Canopy Species	% Cover	Size Class	DBH	Age	
		Red Maple	10	Pole/Log	8		
		Red Oak	35	Log/Pole	14		
		White Oak	45	Log/Pole	14	120	
		White Pine	5	Log/Pole	12		
		Red Pine	5	Log/Pole	10		
		Sub-Canopy Species	Density	Avg. Height	Size		
		White Pine	Medium	Variable	Variable		
		Oak (spp.)	Low	5 - 10 feet	5 - 10 feet		
		Red Maple	Low	5 - 10 feet	5 - 10 feet		
		Red Pine	Low	5 - 10 feet	5 - 10 feet		



MICHIGAN

Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	Managed Site	General Comments			
96	4123 - Red Oak	Sawtimber Well	22.3	104	81-110	N/A	Mixed stand of oak and pine. White Pine understory is fairly advanced throughout. White and red oak are variable in size and quality. Trace jack pine in stand, most has died out. White Pine component in overstory is large throughout.			
Canopy Species		% Cover	Size Class	DBH	Age	Sub-Canopy Species		Density	Avg. Height	Size
Red Oak		50	Log/XLog/Pole	14	104	Red Maple		Low	>20 feet	
White Oak		15	Log/XLog/Pole	14		White Pine		High	>20 feet	
Bigtooth Aspen		5	Log/Pole	10		Oak (spp.)		Low	>20 feet	
White Pine		10	Log/Pole/XLog	13	90	Red Pine		Low	>20 feet	
Red Pine		10	Log/Pole	12	90	Jack Pine		Low	10 - 20 feet	
Red Maple		10	Pole	8						
97	4130 - Aspen	Sapling Well	6.0	14	Immature	N/A	Aspen growing well, good overall stocking throughout. White Pine developing in understory. Overstory oak are faring well and providing mast source, lots of wildlife activity in this stand.			
Canopy Species		% Cover	Size Class	DBH	Age	Sub-Canopy Species		Density	Avg. Height	Size
Red Oak		10	Log	14	104	White Pine		Low	5 - 10 feet	
Bigtooth Aspen		76	Sapling	2	14					
Red Maple		10	Sapling	2	14					
White Pine		2	Log/Pole	12						
White Oak		2	Log	14						
98	4122 - Oak, Pine	Sawtimber Medium	21.7	110	51-80	N/A	Mix of aspen, red maple and white pine in understory. Generally well stocked with some less dense pockets. Overstory is slightly heavier to red and white pine, red pine are natural origin with plate bark characteristics.			
Canopy Species		% Cover	Size Class	DBH	Age	Sub-Canopy Species		Density	Avg. Height	Size
Red Oak		35	Log	14	110	Red Maple		Medium	Variable	
White Oak		25	Log/Pole/Sap	14	110	Bigtooth Aspen		Medium	Variable	
White Pine		30	Log/Pole	12	95	White Pine		Medium	10 - 20 feet	
Red Pine		10	Log/Pole	12	95					
99	4126 - White, Black, N. Pin Oak	Sawtimber Well	42.1	127	81-110	N/A	Residual canopy of oak and pine with second age forming in sub-canopy. Good red maple stump sprouting after harvest. Not many oak stump sprouts but a fair amount of natural oak regen in places, some of it browsed - ranges from low to medium stocking. Some newly established white pine seedlings since harvest which was expected but there is a fairly high residual white pine sapling layer that was present at harvest and is advancing quite well since being opened up.			
Canopy Species		% Cover	Size Class	DBH	Age	Sub-Canopy Species		Density	Avg. Height	Size
Red Oak		35	Log/Pole	14	127	Red Maple		Medium	Variable	
White Oak		45	Log/Pole	14	127	Red Pine		Low	5 - 10 feet	
Northern Pin Oak		5	Log/Pole	14		Oak (spp.)		Medium	Variable	
White Pine		10	Log	14	95	Bigtooth Aspen		Low	Variable	
Red Pine		5	Log	14	95	White Pine		High	Variable	
102	4129 - Mixed Oak	Sapling Well	22.7	26	1-50	N/A	Oak and white pine make up lightly stocked overstory. SW part of the stand has oak/pine canopy with heavy wp understory. The rest of the stand has primarily oak residual with oak/aspen/wp filling in gaps. Trace red pine filling in as well.			
Canopy Species		% Cover	Size Class	DBH	Age					
Red Maple		15	Sapling/Pole	3	26					
Red Oak		25	Log/Pole/Sap	14	104					
White Oak		37	Sapling	3	26					
Bigtooth Aspen		13	Sapling/Pole	3	26					
White Pine		8	Log/Pole/Sap	14						
Jack Pine		2	Sapling	2	26					