



Compartment Review Presentation

Traverse City Forest Management Unit

Compartment 61251

Entry Year 2023

Acreage: 1,274

County Kalkaska

Management Area: Manistee River Valley

Revision Date: 2021-05-31

Stand Examiner: Paul Roell

Legal Description:

T25N R7W Sections 29, 30, 31 and 32

Identified Planning Goals:

Vegetation management in the Manistee River Valley management area will provide timber products, maintain or enhance wildlife habitat, protect areas of unique character including the Manistee River and its tributaries, preserve rare species, and provide for forest-based recreational uses. Timber management goals for this 10-year planning period include continuing aspen management to maintain early successional habitat for hunting and other wildlife-related recreational opportunities, increasing regeneration of oak, balancing the red pine age class structure through final harvests and re-planting, and improving red pine quality through partial harvests. Expected challenges include increased recreational pressure, especially on the established trails and along the Manistee River and its tributaries; an increased wildland/urban interface; a need to restore barrens communities through prescribed fire; and invasive plant control.

Soil and topography:

There are some steep and rolling hills in the northwest part of the compartment but the rest is relatively flat.

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

There are several small private inholdings along the Manistee River. There is also private land along the north edge of the compartment but the other sides join State land. Consumers' Power retains timber rights on several red pine stands and actively manages them.

Unique Natural Features:

The compartment west of the Manistee River is known locally as Big Low Flats.

Archeological, Historical, and Cultural Features:

There are multiple known sites of archaeological significance. Treatments have been adjusted accordingly. Foresters should be on the lookout for additional sites during fieldwork.

Special Management Designations or Considerations:

The Manistee River is protected by the Natural Rivers Act.

Watershed and Fisheries Considerations:

The Manistee River is a Designated Trout Stream and Natural River. The Manistee River is cooperatively stocked with brown trout by the Walton Junction Sportsman's Club. In addition to hosting good fishing for brown trout, this stretch of the river also has good naturally reproducing populations of rainbow trout, walleye, northern pike, and smallmouth bass.

Wildlife Habitat Considerations:

This compartment contains parts of three landscapes. Most falls in a poorly drained outwash plain along the Manistee River. This landtype association (LTA 5131) is very diverse, ranging from mixed upland forests on sandy rises, to swamp conifers and lowland brush on low flats, to lowland hardwood forest along the river floodplain. Maintaining or increasing swamp conifer and brush is important for species such as snowshoe hare, winter wren, alder flycatcher, golden-crowned kinglet, bobcat, and deer. Upland stands should be managed for a range of age classes and species mixes, including some aspen regen cuts and some succession to white pine, fir, and other upland conifers. Wood turtles may be using these habitats. Lowland hardwoods should be maintained uncut along the river. These habitats are especially important as feeding and travel areas for black bears and may harbor red-shouldered hawks.

The southwest half of section 31 falls in a pitted outwash plain (LTA 5211). Dry soils here harbor aspen, oak, mixed pines, and red maple. These mixed upland forests and associated forest openings are important to species such as badger, coyote, hog-nosed snake, Cooper's hawk, gray squirrel, wild turkey, pine warbler, and red-backed vole. A range of successional stages from open barrens to mature white pine-red maple forest should be maintained in this fire-driven landscape. Oak regeneration should be attempted to maintain this resource on this landscape.

Parts of sections 29 and 30 fall into a moraine ridge landscape (LTA 1121). This area was historically almost 100% northern hardwoods. Selective harvests should perpetuate an uneven-aged hardwood mix. Such forests are habitat for

species such as scarlet tanager, gray fox, wild turkey, blue spotted salamander, wood frog, and red-eyed vireo.

Mineral Resource and Development Concerns and/or Restrictions

No active sand/gravel pits occur within four miles, and potential for sand & gravel development in the compartment appears limited. There has been no well permitting activity in the compartment for 70 years and no leasing of State-owned mineral rights in the compartment over the past five years. There was past exploration and testing of the Collingwood Formation in this area, but the Collingwood Formation overall has not been proven to be a viable economic play in Michigan to date, and additional future development in the Collingwood is unlikely at current gas prices. There is no known metallic mineral potential in this part of the state. The State does not own the majority of the mineral rights within the compartment. Because the mineral estate is the dominant estate, reasonable access to the surface must be provided to private owners if they choose to explore or develop their mineral rights.

Vehicle Access:

There is sufficient vehicular access to this compartment.

Survey Needs:

There are no survey needs at this time.

Recreational Facilities and Opportunities:

There is still a regularly maintained boat launch/river access on the northside of the Manistee River with access off of M-66. The Miss-Kal ORV Trail runs through the lower part of section 31. There are multiple trails and roads that provide access sites to the river throughout the compartment. These typically led to areas that are used dispersed camping. A canoe livery is located on private land on the southside of the river adjacent to the compartment.

Fire Protection:

Fire protection is provided by the DNR Kalkaska Field Office and the Garfield Township Fire Department. Pine plantations would be the area of greatest concern.

Additional Compartment Information:

The following reports from the Inventory are attached:

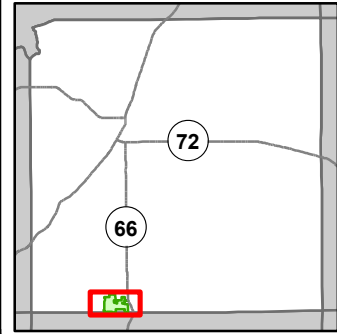
- Total Acres by Cover Type and Age Class**
- Cover Type by Harvest Method**
- Proposed Treatments – No Limiting Factors**
- Proposed Treatments – With Limiting Factors**
- Stand Details (Forested and Nonforested)**
- Dedicated and Proposed Special Conservation Areas**
- Site Condition Details**

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

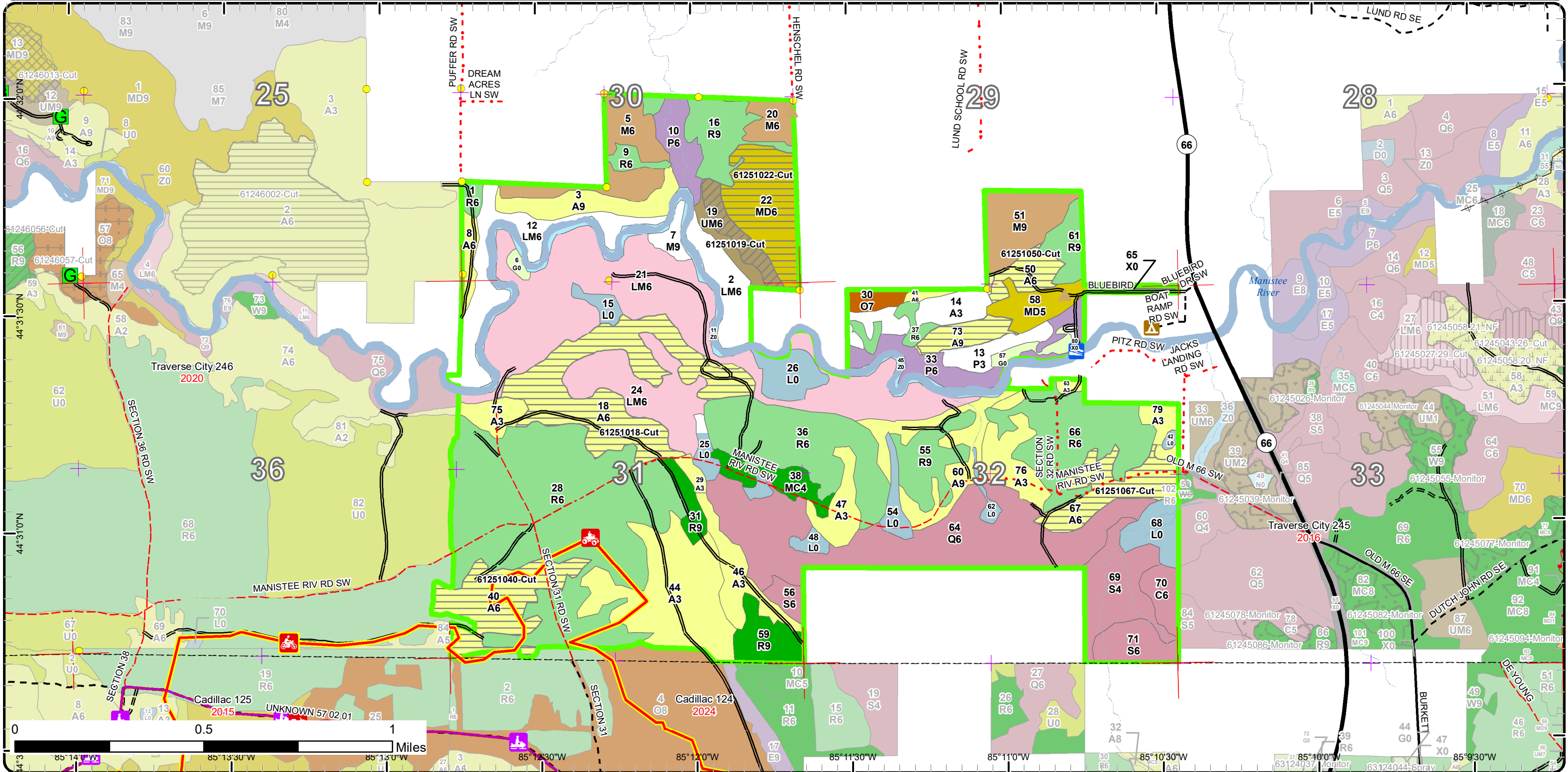
- Base feature information, stand boundaries, cover types, and numbers**
- Proposed treatments**
- Site condition boundaries**
- Details on the road access system**

Cover Type & Treatments Map

Compartment: 251
 T25N, R07W, Sec. 29-32
 County: Kalkaska
 Unit: Traverse City
 Mgmt Area: Manistee River Valley
 YOE: 2023
 Acres: 1273.6 GIS Calculated
 Examiner: Paul Roell
 Map Revised: 9/15/2021
 Map Phase: Post-Review

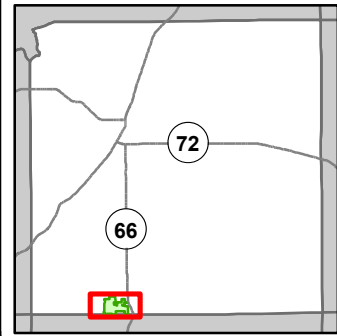


- Miris Corners
- + Remonumented Section Corners
- Survey Grade Corners
- Counties
- DNR - Secondary Forest Road
- DNR - Forest Access Route
- Federal / State Highway
- Federal / State / County - Paved Road
- Federal / State - Dirt / Gravel Road
- County - Gravel Road
- County - Dirt Road (Seasonal)
- Private - Dirt / Gravel Road
- 🚲 MCCCT Trails
- 🚲 ORV Trails
- 🚲 ORV Routes
- 🚲 Snowmobile Trails
- Designated ATV Trails
- - - Designated ORV Route
- Designated Snowmobile Trails
- Michigan Cross Country Cycle Trail (MCCCT)
- ▲ Berms
- G Gate
- 🚤 Boating Access Site
- ▲ Campground
- Intermittent Stream
- Island in Lake or River
- Lake/Pond
- Perennial River
- Lakes and Rivers
- Powerline
- Compartment Boundary
- Clearcut (w/Reserves)
- Thinning (Crown, Low, Systematic)
- 411 - Northern Hardwood
- 412 - Oak Types
- 413 - Aspen Types
- 419 - Mixed Upland Deciduous
- 421 - Planted Pines
- 422 - Natural Pines
- 430 - Upland Mixed Forest
- 611 - Lowland Deciduous Forest
- 612 - Lowland Coniferous Forest
- 613 - Lowland Mixed Forest
- 122 - Roads/Parking Lot
- 310 - Herbaceous Openland
- 500 - Water
- 622 - Lowland Shrub



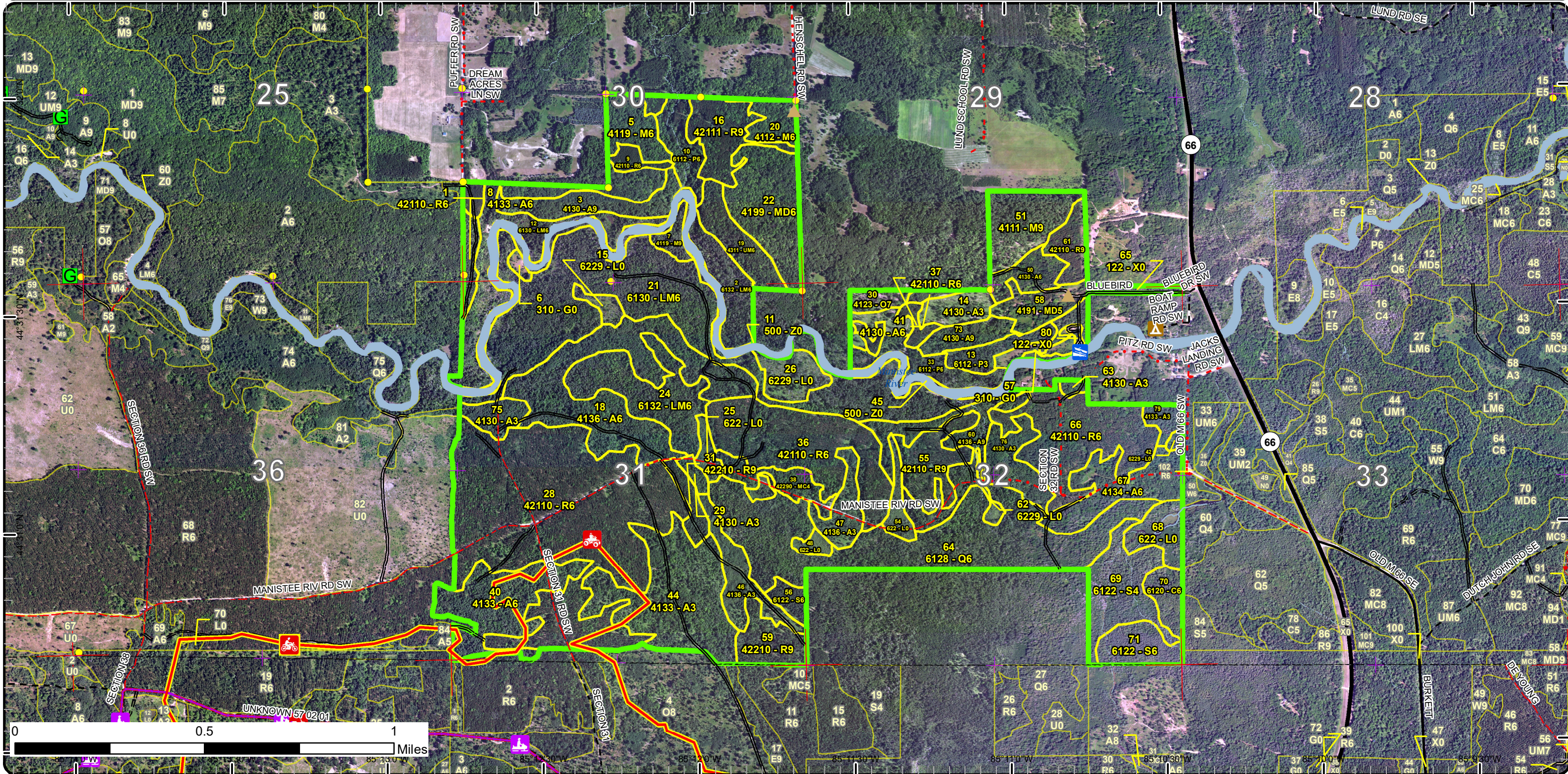
Stand Boundary Map

Compartment: 251
 T25N, R07W, Sec. 29-32
 County: Kalkaska
 Unit: Traverse City
 Mgmt Area: Manistee River Valley
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 Acres: 1273.6 GIS Calculated
 Examiner: Paul Roell
 Map Revised: 9/15/2021
 Map Phase: Post-Review



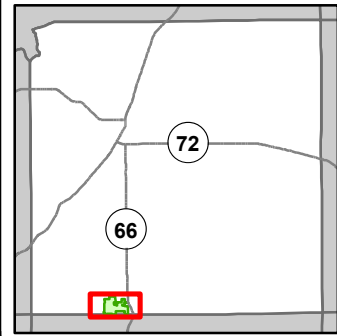
- Miris Corners
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- Survey Grade Corners
- Counties
- DNR - Secondary Forest Road
- DNR - Forest Access Route
- Federal / State Highway
- Federal / State - Dirt / Gravel Road
- County - Dirt Road
- County - Dirt Road (Seasonal)
- Private - Dirt / Gravel Road
- MCCCT Trails
- ORV Trails
- ORV Routes
- Snowmobile Trails
- Designated ATV Trails
- - - Designated ORV Route
- Designated Snowmobile Trails
- Michigan Cross Country Cycle Trail (MCCCT)
- ▲ Berms
- Gate
- Boating Access Site
- ▲ Campground

- Intermittent Stream
- Island in Lake or River
- Lake/Pond
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- Lakes and Rivers
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- Compartment Boundary
- Stand Boundaries
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- 413 - Aspen Types
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- 422 - Natural Pines
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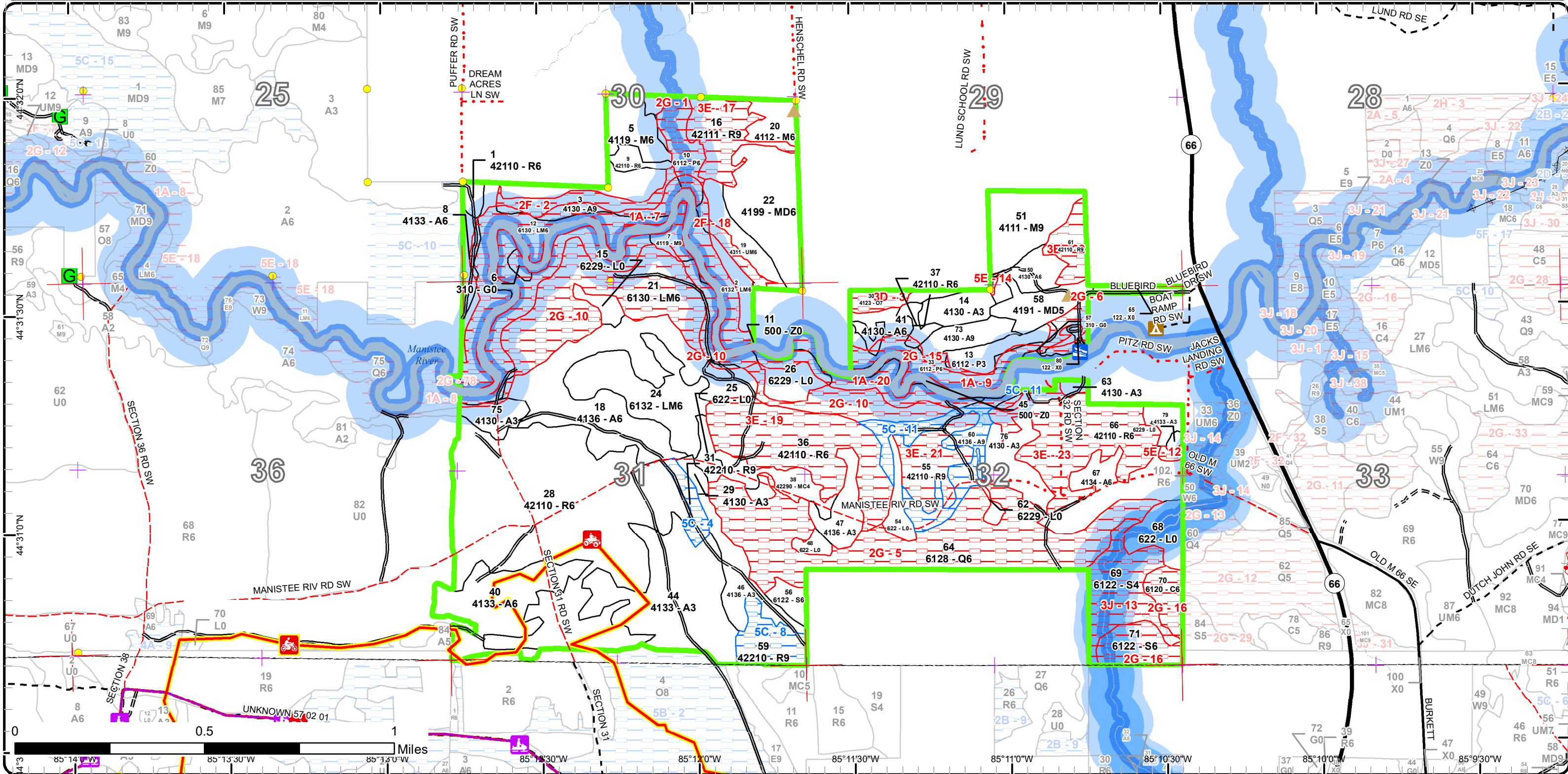
Special Conservation Areas

Compartment: 251
 T25N, R07W, Sec. 29-32
 County: Kalkaska
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- Intermittent Stream
- Island in Lake or River
- Lake/Pond
- Perennial River
- Lakes and Rivers
- Powerline
- Compartment Boundary
- Available w/ Constraints
- Unavailable
- 1A: Federal/State/Local Law
- 2F: Too steep
- 2G: Too wet (sensitive soils, does not include access issues)
- 3D: Recreational / Scenic values
- 3E: Easement / lease, non-military (e.g. Consumers Power red pine, etc)
- 3J: Water quality / BMPs (stream, river, or lake)
- 5E: Long-Term Retention
- Stand Boundaries
- Natural Rivers Vegetative Buffer
- Natural Rivers Zoning District
- Cold Water Streams
- Cold Water Lakes
- High Priority Trout Stream Buffer



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	103	27	0	2	0	144	30	17	0	0	0	0	0	0	0	0	0	323
Cedar	0	0	0	0	0	0	0	0	0	0	8	0	0	0	0	0	0	0	8
Herbaceous Openland	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
Lowland Aspen/Balsam Poplar	0	9	0	0	0	0	0	13	20	0	0	0	0	0	0	0	0	0	42
Lowland Conifers	0	0	0	0	0	0	0	0	0	98	0	0	0	0	0	0	0	0	98
Lowland Mixed Forest	0	0	0	0	0	0	33	0	163	0	0	0	0	0	0	0	0	0	196
Lowland Shrub	46	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	46
Lowland Spruce/Fir	0	0	0	0	0	0	0	0	45	0	0	0	0	0	0	0	0	0	45
Mixed Upland Deciduous	0	0	0	0	0	0	0	0	46	0	0	0	0	0	0	0	0	0	46
Natural Mixed Pines	0	0	0	0	0	0	0	0	0	11	0	0	0	0	0	0	0	0	11
Northern Hardwood	0	0	0	0	0	0	0	0	32	25	5	0	0	0	0	0	0	0	62
Oak	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	5
Red Pine	0	0	0	0	0	0	312	0	14	7	0	0	0	0	0	0	0	0	332
Upland Mixed Forest	0	0	0	0	0	0	0	0	15	0	0	0	0	0	0	0	0	0	15
Urban	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
Water	34	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	34
Total	90	112	27	0	2	0	489	43	352	146	13	0	0	0	0	0	0	0	1273



Report 2 – Treatment Summary

Traverse City Mgt. Unit
Year of Entry: 2023

Acres of Harvest

Compartment 251
Total Compartment Acres: 1,274

Commercial Harvest - 175
Harvests with Site Condition - 10
Next Step Harvest - 0
Habitat Cut - 0

Cover Type by Harvest Method

	Clearcut	Selection	Patch Clearcut	Seed Tree	Shelterwood	Thinning	Overstory Removal	Salvage	Other	Total Acres
Aspen	141	0	0	0	0	0	0	0	0	141
Mixed Upland Deciduous	33	0	0	0	0	0	0	0	0	33
Upland Mixed Forest	0	0	0	0	10	0	0	0	0	10
Total	175	0	0	0	10	0	0	0	0	185

Proposed and Next Step Treatments by Method

	Harvest	Site Prep	Planting	Seeding	Burning	Pesticide	Monitoring	Other	Non-Forest Mgt.	Total Acres
Current	185	0	0	0	0	0	0	0	0	185
Next Step	0	0	0	0	0	175	0	0	0	175
Total	185	0	0	0	0	175	0	0	0	360



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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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Approved Treatments:

18	61251018-Cut	63.2	4136 - Aspen, Mixed Conifer	Poletimber Well	55	81-110	Harvest	Clearcut with Retention	413 - Aspen	Even-Aged	No
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Prescription Cut all trees 2 inches and greater. Consider possibly leaving some oaks and pines throughout the stands. Use minimal area retention.

Specs:

Follow the natural rivers rules while setting up the sale.

Next Step Monitoring, Natural Regen (Re-Inventory)

Treatments:

Acceptable aspen, mixed hardwood and mixed conifer

Regen:

Other

Comment:

Site Condition

Proposed Start Date: 10/1 /2022

19	61251019-Cut	10.2	4311 - Pine, Aspen Mix	Poletimber Well	70	141-170	Harvest	Crown Thinning	4319 - Mixed Upland Forest	Even-Aged	No
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Prescription Thin stand to a residual BA of 90-100 sqft. Remove the poorest quality trees first to allow spacing to put growth on the crop trees.

Specs:

Next Step

Treatments:

Acceptable

Regen:

Other

Comment:

Site Condition Too Steep

Proposed Start Date: 10/1 /2022

22	61251022-Cut	33.3	4199 - Other Mixed Upland Deciduous	Poletimber Well	72	51-80	Harvest	Clearcut with Retention	4121 - Oak, Aspen	Even-Aged	No
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Prescription Cut all trees 2 inches and greater. Consider leaving some oaks and pines throughout the stands. Minimal area retention to maximize regeneration.

Specs:

Next Step Monitoring, Natural Regen (Re-Inventory)

Treatments:

Acceptable Aspen, oak, mixed hardwood and mixed conifer

Regen:

Other

Comment:

Site Condition

Proposed Start Date: 10/1 /2022



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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
40 61251040-Cut	35.1	4133 - Aspen, Mixed Pine	Poletimber Well	53	51-80	Harvest	Clearcut with Retention	413 - Aspen	Even-Aged	No
<p><u>Prescription</u> Cut all trees 2 inches and greater. Consider leaving some oaks (if desirable leave tree oak is present) and pines throughout the stands. Use minimal area retention. Protect rec trail during harvest</p> <p><u>Specs:</u></p> <p><u>Next Step</u> Monitoring, Natural Regen (Re-Inventory)</p> <p><u>Treatments:</u></p> <p><u>Acceptable</u> aspen, mixed hardwoods and mixed conifer</p> <p><u>Regen:</u></p> <p><u>Other</u></p> <p><u>Comment:</u></p> <p><u>Site Condition</u></p> <p><u>Proposed Start Date:</u> 10/1 /2022</p>										
50 61251050-Cut	9.6	4130 - Aspen	Poletimber Well	55	81-110	Harvest	Clearcut	413 - Aspen	Even-Aged	No
<p><u>Prescription</u> Cut all trees 2 inches and greater. Consider leaving some oaks and pines throughout the stands. No retention to maximize regeneration.</p> <p><u>Specs:</u></p> <p><u>Next Step</u> Monitoring, Natural Regen (Re-Inventory)</p> <p><u>Treatments:</u></p> <p><u>Acceptable</u> aspen, mixed hardwood and mixed conifer</p> <p><u>Regen:</u></p> <p><u>Other</u></p> <p><u>Comment:</u></p> <p><u>Site Condition</u></p> <p><u>Proposed Start Date:</u> 10/1 /2022</p>										
67 61251067-Cut	24.0	4134 - Aspen, Spruce/Fir	Poletimber Well	50	81-110	Harvest	Clearcut with Retention	413 - Aspen	Even-Aged	No
<p><u>Prescription</u> Cut all trees 2 inches and greater. Consider leaving some oaks and pines throughout the stands. Area retention was established around adjacent stand 42</p> <p><u>Specs:</u></p> <p><u>Next Step</u> Monitoring, Natural Regen (Re-Inventory)</p> <p><u>Treatments:</u></p> <p><u>Acceptable</u> aspen, red maple, oak and mixed conifer.</p> <p><u>Regen:</u></p> <p><u>Other</u></p> <p><u>Comment:</u></p> <p><u>Site Condition</u></p> <p><u>Proposed Start Date:</u> 10/1 /2022</p>										
73 61251073-Cut	9.5	4130 - Aspen	Sawtimber Well	55	81-110	Harvest	Clearcut	413 - Aspen	Even-Aged	No
<p><u>Prescription</u> Cut all trees 2 inches and greater. Consider leaving some oaks and pines throughout the stands. No retention to maximize regeneration.</p> <p><u>Specs:</u></p> <p><u>Next Step</u> Monitoring, Artificial Regen(3yr)</p> <p><u>Treatments:</u></p> <p><u>Acceptable</u> aspen, mixed hardwood and mixed conifer</p> <p><u>Regen:</u></p> <p><u>Other</u></p> <p><u>Comment:</u></p> <p><u>Site Condition</u></p> <p><u>Proposed Start Date:</u> 10/1 /2022</p>										



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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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Total Treatment Acreage Proposed: 184.9

Report 4 – Site Conditions

Traverse City Mgt. Unit

Paul Roell : Examiner

Compartment: 251

Year of Entry: 2023

Availability for Management

Total	Acres	Acres Avail	Acres
Acres	Available	With Condition	Not Available

Dominant Site Conditions

	Total Acres	Acres Available	Acres With Condition	Acres Not Available	Dominant Site Conditions								
					5C	1A	2F	2G	3D	3E	3J	5E	
324	276	22	25	Aspen	22	13	10						2
8	0	0	8	Cedar				8					
6	1	0	5	Herbaceous Openland		5							
41	9	0	32	Lowland Aspen/Balsam Poplar		16		17					
98	0	0	98	Lowland Conifers				98					
196	42	0	154	Lowland Mixed Forest		80	0	74					
46	42	0	4	Lowland Shrub		4							
45	5	0	40	Lowland Spruce/Fir				13			27		
46	46	0	0	Mixed Upland Deciduous				0					
11	11	0	0	Natural Mixed Pines									
61	57	0	4	Northern Hardwood		4							
5	0	0	5	Oak					5				
332	165	20	146	Red Pine	20	1				145			
15	10	0	5	Upland Mixed Forest		1	4						
4	4	0	1	Urban		1							
34	32	0	3	Water		3							
1,274	700	43	531	Total Forested Acres	43	128	14	210	5	145	27	2	
	55%	3%	42%	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 Availability	Dominant Site Condition	Acres	Other Site Condition	Other Site Condition	Other Site Condition	Other Site Condition
1	Unavailable	2G: Too wet (sensitive soils, does not include access issues)	11	Unspecified	Unspecified	Unspecified	Unspecified
Comments:							
2	Unavailable	2F: Too steep	10	Unspecified	Unspecified	Unspecified	Unspecified
Comments:							

Report 4 – Site Conditions

Traverse City Mgt. Unit

Paul Roell : Examiner

Compartment: 251

Year of Entry: 2023

3	Unavailable	3D: Recreational / Scenic values	5	Unspecified	Unspecified	Unspecified	Unspecified
Comments:							
4	Available	5C: Delay treatment for age/size class diversity or exceptional site quality	7	Unspecified	Unspecified	Unspecified	Unspecified
Comments:							
5	Unavailable	2G: Too wet (sensitive soils, does not include access issues)	98	Unspecified	Unspecified	Unspecified	Unspecified
Comments:							
6	Unavailable	2G: Too wet (sensitive soils, does not include access issues)	4	Unspecified	Unspecified	Unspecified	Unspecified
Comments:							
7	Unavailable	1A: Federal/State/Local Law	49	Unspecified	Unspecified	Unspecified	Unspecified
Comments: Natural Vegetative Buffer for Manistee River per Natural Rivers Act.							
8	Available	5C: Delay treatment for age/size class diversity or exceptional site quality	14	Unspecified	Unspecified	Unspecified	Unspecified
Comments:							

Report 4 – Site Conditions

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9	Unavailable	1A: Federal/State/Local Law	19	Unspecified	Unspecified	Unspecified	Unspecified
Comments: Natural Vegetative Buffer for Manistee River per Natural Rivers Act.							
10	Unavailable	2G: Too wet (sensitive soils, does not include access issues)	73	Unspecified	Unspecified	Unspecified	Unspecified
Comments:							
11	Available	5C: Delay treatment for age/size class diversity or exceptional site quality	22	Unspecified	Unspecified	Unspecified	Unspecified
Comments:							
12	Unavailable	5E: Long-Term Retention	1	Unspecified	Unspecified	Unspecified	Unspecified
Comments:							
13	Unavailable	3J: Water quality / BMPs (stream, river, or lake)	27	Unspecified	Unspecified	Unspecified	Unspecified
Comments:							
14	Unavailable	5E: Long-Term Retention	1	Unspecified	Unspecified	Unspecified	Unspecified
Comments:							

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15	Unavailable	2G: Too wet (sensitive soils, does not include access issues)	2	Unspecified	Unspecified	Unspecified	Unspecified
Comments:							
16	Unavailable	2G: Too wet (sensitive soils, does not include access issues)	21	Unspecified	Unspecified	Unspecified	Unspecified
Comments:							
17	Unavailable	3E: Easement / lease, non-military (e.g.- Consumers Power red pine, etc)	19	Unspecified	Unspecified	Unspecified	Unspecified
Comments: Consumers Energy timber rights.							
18	Unavailable	2F: Too steep	4	Unspecified	Unspecified	Unspecified	Unspecified
Comments:							
19	Unavailable	3E: Easement / lease, non-military (e.g.- Consumers Power red pine, etc)	52	Unspecified	Unspecified	Unspecified	Unspecified
Comments: Consumers Energy timber rights.							
20	Unavailable	1A: Federal/State/Local Law	60	Unspecified	Unspecified	Unspecified	Unspecified
Comments: Natural Vegetative Buffer for Manistee River per Natural Rivers Act.							

Report 4 – Site Conditions

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Paul Roell : Examiner

Compartment: 251

Year of Entry: 2023

21	Unavailable	3E: Easement / lease, non-military (e.g.- Consumers Power red pine, etc)	19	Unspecified	Unspecified	Unspecified	Unspecified
Comments: Consumers Energy timber rights.							
22	Unavailable	3E: Easement / lease, non-military (e.g.- Consumers Power red pine, etc)	10	Unspecified	Unspecified	Unspecified	Unspecified
Comments: Consumers Energy timber rights.							
23	Unavailable	3E: Easement / lease, non-military (e.g.- Consumers Power red pine, etc)	46	Unspecified	Unspecified	Unspecified	Unspecified
Comments: Consumers Energy timber rights.							

Mgt. Unit

Compartment: #Type!

Year of Entry:



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

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

SCA Name	SCA Category	Detail Type	Recommendation	Acres
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Comments



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	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.



Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	Managed Site	General Comments																																																	
1	42110 - Planted Red Pine	Poletimber Well	3.0	58	111-140	N/A	row thinned last yoe																																																	
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Red Pine	100	Pole/Log	8	58																																																				
2	6132 - Mixed Lowland Forest with Cedar	Poletimber Well	16.7	79	51-80	N/A	the stand has a few scattered small hemlock and is a steep ridge with a lowland																																																	
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3	4130 - Aspen	Sawtimber Well	17.3	72	111-140	N/A	steep slope and river buffer																																																	
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5	4119 - Mixed Northern Hardwoods	Poletimber Well	25.1	80	51-80	N/A																																																		
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Bigtooth Aspen	Medium	5 - 10 feet	Sapling																																																					
6	310 - Herbaceous Openland	Nonstocked	1.8		Unspecified	No																																																		
7	4119 - Mixed Northern Hardwoods	Sawtimber Well	4.7	95	111-140	N/A																																																		
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Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	Managed Site	General Comments
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8	4133 - Aspen, Mixed Pine	Poletimber Well	5.9	65	81-110	N/A				
Canopy Species		% Cover	Size Class	DBH	Age	Sub-Canopy Species		Density	Avg. Height	Size
Red Maple		10	Pole/Log	8		White Pine		Low	Variable	Sapling
Red Oak		5	Pole/Log	8		Beech		Low	5 - 10 feet	Sapling
Bigtooth Aspen		60	Pole/Log	8	65					
White Pine		25	Pole/Log	8						

9	42110 - Planted Red Pine	Poletimber Well	5.7	58	111-140	N/A				
Canopy Species		% Cover	Size Class	DBH	Age	Sub-Canopy Species		Density	Avg. Height	Size
Red Maple		5	Pole	7	58	Red Maple		Low	Variable	Sapling
Red Pine		95	Pole/Log	8	58					

10	6112 - Lowland Aspen	Poletimber Well	12.6	65	51-80	N/A				
Canopy Species		% Cover	Size Class	DBH	Age	Sub-Canopy Species		Density	Avg. Height	Size
Red Maple		30	Pole	6		Tag Alder		Medium	Variable	Tall Shrub
Bigtooth Aspen		60	Pole/Log	8	65	Hawthorn (spp.)		Medium	5 - 10 feet	Tall Shrub
White Pine		10	Pole	7						

11	500 - Water	Nonstocked	25.9		Unspecified	No	
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12	6130 - Fir, Aspen, Maple	Poletimber Well	29.4	79	51-80	N/A				
Canopy Species		% Cover	Size Class	DBH	Age	Sub-Canopy Species		Density	Avg. Height	Size
Red Maple		15	Log/Pole	10		Red Maple		High	5 - 10 feet	Sapling
Bigtooth Aspen		20	Log/Pole	10	79	Black Ash		High	5 - 10 feet	Sapling
Balsam Fir		25	Pole	6	79	Tag Alder		Medium	5 - 10 feet	Tall Shrub
Northern White Cedar		10	Pole	9						
White Pine		10	Log/Pole	12						
Quaking Aspen		20	Pole/Log	8	79					

13	6112 - Lowland Aspen	Sapling Well	9.2	4	Immature	N/A	left some pole sized red maple, oak, and looks like all pine			
Canopy Species		% Cover	Size Class	DBH	Age	Sub-Canopy Species		Density	Avg. Height	Size
Red Maple		15	Sapling	1	4	Balsam Fir		Low	Variable	Sapling
Quaking Aspen		25	Sapling	1	4	White Pine		Low	Variable	Sapling
White Pine		5	Log/Pole	10						
Red Oak		5	Pole/Sapling	6						
Bigtooth Aspen		50	Sapling	2	4					



Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	Managed Site	General Comments
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14	4130 - Aspen	Sapling Well	15.3	4	Immature	N/A	left some pole sized red maple, oak, and looks like all pine
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Canopy Species	% Cover	Size Class	DBH	Age	Sub-Canopy Species	Density	Avg. Height	Size
Red Maple	15	Sapling	1	4	Balsam Fir	Low	Variable	Sapling
Quaking Aspen	25	Sapling	1	4	White Pine	Low	Variable	Sapling
White Pine	5	Log/Pole	10					
Red Oak	5	Pole/Sapling	6					
Bigtooth Aspen	50	Sapling	2	4				

15	6229 - Mixed lowland shrub	Nonstocked	4.0	0	Unspecified	No	
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16	42111 - Planted Red Pine, Mixed Deciduous	Sawtimber Well	19.2	58	111-140	N/A	
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Canopy Species	% Cover	Size Class	DBH	Age	Sub-Canopy Species	Density	Avg. Height	Size
Red Maple	20	Pole	8		Red Maple	Medium	Variable	Sapling
Red Pine	80	Log/Pole	10	58				

18	4136 - Aspen, Mixed Conifer	Poletimber Well	64.0	55	81-110	N/A	
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Canopy Species	% Cover	Size Class	DBH	Age	Sub-Canopy Species	Density	Avg. Height	Size
Red Maple	15	Pole	7		Balsam Fir	Medium	Variable	Sapling
Quaking Aspen	40	Pole/Log	8	55				
Balsam Fir	15	Pole	6					
Northern White Cedar	5	Pole	6					
White Pine	10	Pole/Log	8					
Hemlock	5	Pole	8					
Bigtooth Aspen	10	Log/Pole	10					

19	4311 - Pine, Aspen Mix	Poletimber Well	15.4	70	141-170	N/A	
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Canopy Species	% Cover	Size Class	DBH	Age	Sub-Canopy Species	Density	Avg. Height	Size
Red Maple	20	Pole/Log	8		Red Maple	Low	5 - 10 feet	Sapling
Red Oak	5	Log/Pole	10		Ironwood	Low	5 - 10 feet	Sapling
Paper Birch	5	Pole	7					
Bigtooth Aspen	15	Pole	8					
White Pine	10	Pole/Log	8	70				
Red Pine	45	Log/Pole	13	70				



Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	Managed Site	General Comments
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20	4112 - Maple, Beech, Cherry Association	Poletimber Well	9.0	70	51-80	N/A	
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Canopy Species	% Cover	Size Class	DBH	Age
Sugar Maple	20	Pole	8	70
Black Cherry	5	Pole	6	
Beech	20	Pole/Log	8	
Red Oak	5	Log/Pole	10	
Paper Birch	10	Pole	7	
Red Maple	35	Pole/Log	8	70
Basswood	5	Pole/Log	8	

Sub-Canopy Species	Density	Avg. Height	Size
Beech	High	Variable	Sapling
Ironwood	Low	Variable	Sapling

21	6130 - Fir, Aspen, Maple	Poletimber Well	116.9	79	51-80	N/A	
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Canopy Species	% Cover	Size Class	DBH	Age
Red Maple	15	Log/Pole	10	
Bigtooth Aspen	20	Log/Pole	10	79
Balsam Fir	25	Pole	6	79
Northern White Cedar	10	Pole	9	
White Pine	10	Log/Pole	12	
Quaking Aspen	20	Pole/Log	8	79

Sub-Canopy Species	Density	Avg. Height	Size
Red Maple	High	5 - 10 feet	Sapling
Black Ash	High	5 - 10 feet	Sapling
Tag Alder	Medium	5 - 10 feet	Tall Shrub

22	4199 - Other Mixed Upland Deciduous	Poletimber Well	33.2	72	51-80	N/A	
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Canopy Species	% Cover	Size Class	DBH	Age
Sugar Maple	5	Pole	7	
Red Maple	20	Pole	7	75
Beech	10	Pole/Log	8	
Red Oak	20	Log/Pole	12	
Bigtooth Aspen	35	Log/Pole	10	72
White Pine	5	Pole/Log	9	
Red Pine	5	Pole/Log	9	

Sub-Canopy Species	Density	Avg. Height	Size
Red Maple	Low	Variable	Sapling
White Pine	Low	Variable	Sapling
Beech	High	5 - 10 feet	Sapling
Ironwood	High	10 - 20 feet	Sapling
Red Oak	Medium	10 - 20 feet	Sapling

24	6132 - Mixed Lowland Forest with Cedar	Poletimber Well	32.7	55	81-110	N/A	
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Canopy Species	% Cover	Size Class	DBH	Age
Red Maple	10	Pole	7	
Paper Birch	5	Pole	6	
Quaking Aspen	35	Pole/Log	8	55
Balsam Fir	20	Pole/Sapling	5	55
Northern White Cedar	20	Pole/Log	8	
White Pine	10	Pole/Log	10	

Sub-Canopy Species	Density	Avg. Height	Size
Balsam Fir	Low	Variable	Sapling
Tag Alder	Low	Variable	Tall Shrub

25	622 - Lowland Shrub	Nonstocked	6.2		Unspecified	No	
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Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	Managed Site	General Comments
26	6229 - Mixed lowland shrub	Nonstocked	12.0		Immature	No	
28	42110 - Planted Red Pine	Poletimber Well	151.6	53	141-170	N/A	thinned with big flatt add on. 170 150 160 200 140 160 140 150 110 160 200 150
Canopy Species		% Cover	Size Class	DBH	Age		
Red Maple		5	Pole	8	53		
Red Pine		90	Pole/Log	8	53		
Black Cherry		3	Pole	8			
White Pine		2	Log/Pole	10			
29	4130 - Aspen	Sapling Well	2.6	2	Immature	N/A	cut winter of 2019
Canopy Species		% Cover	Size Class	DBH	Age		
Red Maple		25	Sapling	1	3		
Quaking Aspen		73	Sapling	1	2		
White Pine		2	Log/Pole	10			
30	4123 - Red Oak	Sawtimber Poor	5.2	85	51-80	N/A	big scattered oaks with no desirable regen filling in
Canopy Species		% Cover	Size Class	DBH	Age		
Red Maple		5	Pole	6			
Red Oak		90	Log/Pole/XLog	14	85		
Beech		5	Pole	6			
Sub-Canopy Species		Density	Avg. Height	Size			
Ironwood		High	Variable	Sapling			
Beech		High	< 5 feet	Sapling			
31	42210 - Natural Red Pine	Sawtimber Well	6.5	85	81-110	N/A	thinned winter of 2019
Canopy Species		% Cover	Size Class	DBH	Age		
Red Pine		100	Log/Pole	10	85		
Sub-Canopy Species		Density	Avg. Height	Size			
Bigtooth Aspen		Medium	5 - 10 feet	Sapling			
Red Maple		Medium	< 5 feet	Sapling			
33	6112 - Lowland Aspen	Poletimber Well	19.6	75	81-110	N/A	
Canopy Species		% Cover	Size Class	DBH	Age		
Red Maple		20	Pole	8			
Quaking Aspen		40	Pole/Log	8	75		
Northern White Cedar		10	Pole	8			
White Pine		5	Log/Pole	10			
Bigtooth Aspen		20	Log/Pole	12			
Red Oak		5	Log	14			
Sub-Canopy Species		Density	Avg. Height	Size			
Tag Alder		Medium	5 - 10 feet	Tall Shrub			
36	42110 - Planted Red Pine	Poletimber Well	51.9	58	111-140	N/A	
Canopy Species		% Cover	Size Class	DBH	Age		
Red Maple		10	Pole	8			
Red Pine		90	Pole	8	58		
Sub-Canopy Species		Density	Avg. Height	Size			
Red Maple		Low	5 - 10 feet	Sapling			



Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	Managed Site	General Comments																																				
37	42110 - Planted Red Pine	Poletimber Well	6.0	58	141-170	N/A																																					
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38	42290 - Natural Mixed Pine	Poletimber Poor	11.2	80	1-50	N/A																																					
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42	6229 - Mixed lowland shrub	Nonstocked	1.0	0	Unspecified	No	BOG																																				
44	4133 - Aspen, Mixed Pine	Sapling Well	54.1	2	Immature	N/A	cut in winter of 2019. thicker Island of white pine left in middle of stand																																				
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Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	Managed Site	General Comments																																																						
46	4136 - Aspen, Mixed Conifer	Sapling Well	15.4	17	Immature	N/A																																																							
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51	4111 - S.Maple, Hard Mast Association	Sawtimber Well	22.6	78	81-110	N/A																																																							
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55	42110 - Planted Red Pine	Sawtimber Well	18.5	58	111-140	N/A																																																							
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Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	Managed Site	General Comments		
56	6122 - Black Spruce	Poletimber Well	5.0	72	81-110	N/A			
Canopy Species		% Cover	Size Class	DBH	Age	Sub-Canopy Species	Density	Avg. Height	Size
Balsam Fir		10	Pole/Sapling	5		Balsam Fir	Low	Variable	Sapling
Black Spruce		85	Pole	8	72	Black Spruce	Low	Variable	Sapling
White Pine		5	Log/Pole	11					
57	310 - Herbaceous Openland	Nonstocked	4.4		Unspecified	No			
58	4191 - Mixed Upland Deciduous with Conifer	Poletimber Medium	12.8	71	1-50	N/A			
Canopy Species		% Cover	Size Class	DBH	Age	Sub-Canopy Species	Density	Avg. Height	Size
Red Maple		35	Pole/Log	8	71	White Pine	Medium	Variable	Sapling
Bigtooth Aspen		10	Pole	7		Cherry (spp.)	Low	Variable	Sapling
White Pine		30	Pole/Log	9		Red Oak	Medium	Variable	Sapling
Red Pine		5	Pole/Log	9					
Sugar Maple		10	Pole	8					
Black Cherry		10	Pole	8					
59	42210 - Natural Red Pine	Sawtimber Well	13.8	79	111-140	N/A			
Canopy Species		% Cover	Size Class	DBH	Age	Sub-Canopy Species	Density	Avg. Height	Size
Red Maple		10	Pole	7		Red Maple	Low	Variable	Sapling
White Pine		5	Pole	8		Red Pine	Low	Variable	Sapling
Red Pine		85	Log/Pole	10	79				
60	4136 - Aspen, Mixed Conifer	Sawtimber Well	24.1	60	111-140	N/A			
Canopy Species		% Cover	Size Class	DBH	Age	Sub-Canopy Species	Density	Avg. Height	Size
Red Maple		15	Pole/Log	8		Balsam Fir	Medium	5 - 10 feet	Sapling
Bigtooth Aspen		45	Log/Pole	10	60				
Balsam Fir		15	Pole	6					
Quaking Aspen		20	Pole/Log	8	60				
Northern White Cedar		5	Pole/Log	8					
61	42110 - Planted Red Pine	Sawtimber Well	10.0	58	111-140	N/A			
Canopy Species		% Cover	Size Class	DBH	Age	Sub-Canopy Species	Density	Avg. Height	Size
Red Pine		100	Log/Pole	10	58	Red Maple	Low	Variable	Sapling
62	6229 - Mixed lowland shrub	Nonstocked	2.3	0	Unspecified	No			



Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	Managed Site	General Comments
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63	4130 - Aspen	Sapling Well	1.7	3	Immature	N/A	
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Canopy Species	% Cover	Size Class	DBH	Age
Red Maple	18	Sapling	1	3
Red Oak	2	Log/Pole	12	
Bigtooth Aspen	75	Sapling	1	3
White Pine	2	Pole/Sapling	7	
Balsam Fir	3	Sapling/Pole	4	

64	6128 - Lowland Coniferous, Mixed Deciduous	Poletimber Well	98.1	85	111-140	N/A	
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Canopy Species	% Cover	Size Class	DBH	Age
Red Maple	15	Pole	7	
Paper Birch	5	Pole	6	
Quaking Aspen	10	Pole	8	
Balsam Fir	20	Pole/Sapling	6	85
Black Spruce	15	Pole	6	
Northern White Cedar	25	Pole	7	85
Tamarack	10	Pole	8	

Sub-Canopy Species	Density	Avg. Height	Size
Tag Alder	Medium	5 - 10 feet	Tall Shrub
Balsam Fir	Low	Variable	Sapling

65	122 - Road/Parking Lot	Nonstocked	2.9		Immature	No	ditched widened road
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66	42110 - Planted Red Pine	Poletimber Well	45.9	58	111-140	N/A	
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Canopy Species	% Cover	Size Class	DBH	Age
Red Maple	5	Pole	7	
Quaking Aspen	5	Pole	7	
Red Pine	90	Pole/Log	8	58

Sub-Canopy Species	Density	Avg. Height	Size
Red Maple	Low	5 - 10 feet	Sapling

67	4134 - Aspen, Spruce/Fir	Poletimber Well	25.3	50	81-110	N/A	
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Canopy Species	% Cover	Size Class	DBH	Age
Red Maple	10	Pole	7	
Quaking Aspen	45	Pole/Log	8	50
Balsam Fir	20	Pole/Sapling	6	
White Pine	5	Log/Pole	12	
Red Pine	2	Log/Pole	12	
Black Cherry	5	Pole/Sapling	6	
Balsam Poplar	13	Log/Pole	10	

Sub-Canopy Species	Density	Avg. Height	Size
Balsam Fir	Low	5 - 10 feet	Sapling
White Pine	Medium	5 - 10 feet	Sapling

68	622 - Lowland Shrub	Nonstocked	11.5		Unspecified	No	
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Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	Managed Site	General Comments		
69	6122 - Black Spruce	Poletimber Poor	26.7	75	1-50	N/A			
Canopy Species		% Cover	Size Class	DBH	Age	Sub-Canopy Species	Density	Avg. Height	Size
Balsam Fir		40	Sapling/Pole	4		Tag Alder	Medium	Variable	Tall Shrub
Black Spruce		60	Pole/Sapling	5	75				
70	6120 - Lowland Cedar	Poletimber Well	8.4	92	81-110	N/A			
Canopy Species		% Cover	Size Class	DBH	Age	Sub-Canopy Species	Density	Avg. Height	Size
Black Spruce		40	Pole/Sapling	6		Tag Alder	Low	Variable	Tall Shrub
Northern White Cedar		60	Pole	8	92				
71	6122 - Black Spruce	Poletimber Well	13.0	79	81-110	N/A			
Canopy Species		% Cover	Size Class	DBH	Age	Sub-Canopy Species	Density	Avg. Height	Size
Black Spruce		85	Pole/Sapling	6	79	Tag Alder	Low	5 - 10 feet	Tall Shrub
Balsam Fir		10	Pole	6					
Northern White Cedar		5	Pole	8					
73	4130 - Aspen	Sawtimber Well	9.6	55	81-110	N/A			
Canopy Species		% Cover	Size Class	DBH	Age	Sub-Canopy Species	Density	Avg. Height	Size
Red Maple		15	Pole	7		Balsam Fir	Low	Variable	Sapling
Bigtooth Aspen		75	Log/Pole	10	55	White Pine	Low	Variable	Sapling
White Pine		5	Pole/Log	9					
Black Cherry		5	Pole/Sapling	6					
75	4130 - Aspen	Sapling Well	7.9	3	Immature	N/A			
Canopy Species		% Cover	Size Class	DBH	Age				
Quaking Aspen		20	Sapling	1	3				
White Pine		15	Pole/Sap/Log	7					
Red Maple		20	Sapling	1	3				
Bigtooth Aspen		45	Sapling	1	3				
76	4130 - Aspen	Sapling Well	16.6	3	Immature	N/A			
Canopy Species		% Cover	Size Class	DBH	Age				
Red Maple		15	Sapling	1	3				
Bigtooth Aspen		75	Sapling	1	3				
Balsam Fir		10	Sapling/Pole	4					



Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	Managed Site	General Comments																																			
79	4133 - Aspen, Mixed Pine	Sapling Well	4.9	3	Immature	N/A																																				
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80	122 - Road/Parking Lot	Nonstocked	1.3		Unspecified	Managed Opening	boat launch on Manistee river																																			