



Compartment Review Presentation

Gaylord Forest Management Unit

Compartment 52019

Entry Year 2023

Acreage: 1,586

County Otsego

Management Area: Grayling Ice Contact

Revision Date: 2021-03-11

Stand Examiner: Trevor Kubitskey

Legal Description:

T29N R03W, Sec. 25, 26, 27, 35 and T29N R02W Sec. 30.

Identified Planning Goals:

To provide for the protection, integrated management and responsible use of a healthy, productive and undiminished forest resource base for social, recreational, environmental and economic benefit of the State of Michigan.

Soil and topography:

The dominant soil type within the compartment is Blue Lake loamy sand, followed by areas of Kalkaska sand and Lindquist sand. Overall, the topography contains rolling hills with some areas near the central part of the compartment fairly steep.

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

There is one private parcel that is within the compartment. There has been no new development within the compartment, but with the adjacent subdivision and private properties near-by, there has been an increase in wildland-urban interface. Land Use has been steady with outdoor recreation as well as oil and gas leases.

Unique Natural Features:

Chub Creek; a tributary of the North Branch Au Sable flows through a small portion of the compartment.

Archeological, Historical, and Cultural Features:

None Known.

Special Management Designations or Considerations:

None.

Watershed and Fisheries Considerations:

With Chub Creek present within and adjacent to the compartment, it is apart of the North Branch Au Sable River watershed. Both Chub Creek and the North Branch of the Au Sable are designated natural rivers so appropriate Natural Rivers guidelines need to be followed if intrusive activities nearby were to occur.

Wildlife Habitat Considerations:

The compartment is dominated by upland habitat containing Aspen, Oak, Hardwoods and Mixed Pine It is heavily used by wildlife varying from white-tailed deer, turkey, grouse, woodcock and various songbirds. Early successional stands are scattered within the compartment to provide good habitat for these species as well as scattered mature oaks for acorn production and mixed pine stands for thermal cover. No current Hawk or Eagle nests have been found within the compartment, but protection of these nests will occur if found during any forest management operation.

Mineral Resource and Development Concerns and/or Restrictions

The nearest active sand/gravel pit is located two miles to the northwest, and there appears to be good potential for sand & gravel within the compartment. All State-owned mineral rights in the compartment are currently leased and most are in production for Antrim Shale gas, some for Guelph oil & gas. There may be potential for additional wells within the compartment. There is no known potential for metallic minerals in this part of the state.

Vehicle Access:

Access is very good throughout the compartment due to the vast network of well pads and pipelines. Road conditions are fair to good within the majority of the compartment.

Survey Needs:

The majority of the survey work has been completed due to past management. Little to no survey work will be needed.

Recreational Facilities and Opportunities:

There are no established recreational facilities within the compartment; however due to the large complex of established forest roads, there are opportunities for ORV's, snowmobiles, and hikers to enjoy the compartment.

Fire Protection:

Fire risk within the compartment is fairly low due to the forest types that are scattered throughout. If fire protection and suppression is needed, the established forest road system within the compartment will provide good access for fire personnel.

Additional Compartment Information:

None.

The following reports from the Inventory are attached:

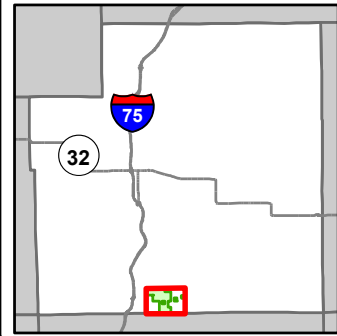
- Total Acres by Cover Type and Age Class**
- Cover Type by Harvest Method**
- Proposed Treatments – No Limiting Factors**
- Proposed Treatments – With Limiting Factors**
- Stand Details (Forested and Nonforested)**
- Dedicated and Proposed Special Conservation Areas**
- Site Condition Details**

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

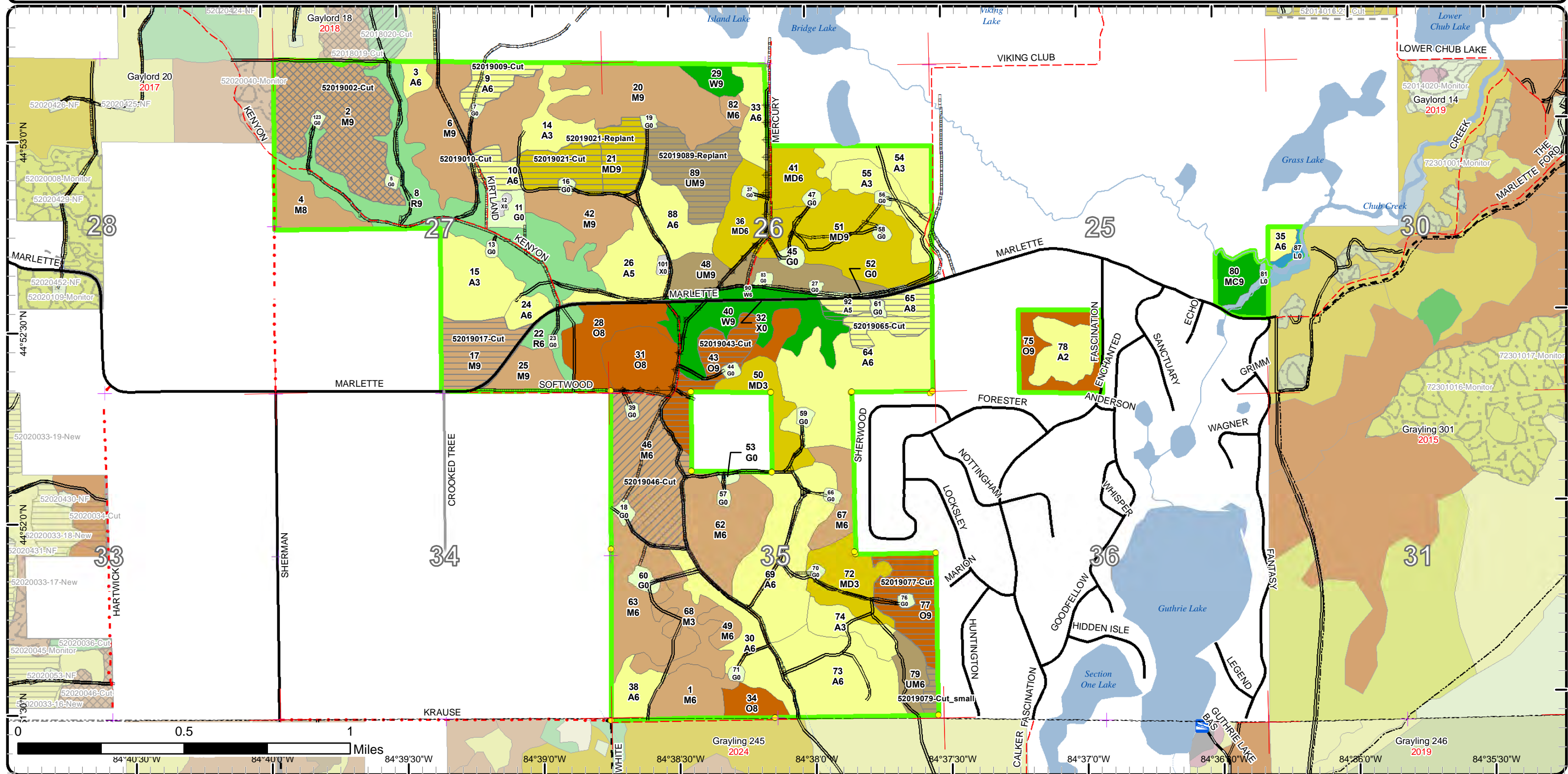
- Base feature information, stand boundaries, cover types, and numbers**
- Proposed treatments**
- Site condition boundaries**
- Details on the road access system**

Cover Type & Treatments Map

Compartment: 19
 T29N, R03W, Sec. 25-27, 34, 35
 T29N, R02W, Sec. 30
 County: Otsego
 Unit: Gaylord
 Mgmt Area: Grayling Ice Contact
 YOE: 2023
 Acres: 1585.6 GIS Calculated
 Examiner: Trevor Kubitskey
 Map Revised: 10/5/2021
 Map Phase: Post-Review

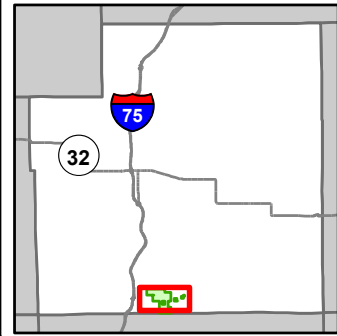


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|--|--|--|
| <ul style="list-style-type: none"> — Miris Corners — Remonumented Section Corners ● Survey Grade Corners --- Counties — DNR - Primary Forest Road — DNR - Secondary Forest Road — DNR - Forest Access Route — Federal / State / County - Paved Road - - Federal / State - Dirt / Gravel Road - . . County - Gravel Road - - - County - Dirt Road (Seasonal) — Private - Paved Road Boating Access Site --- Intermittent Stream | <ul style="list-style-type: none"> — Lake/Pond — Perennial River — Lakes and Rivers --- Pipeline — Powerline --- Fence — Compartment Boundary — Selection (Group, Single Tree) — Clearcut (w/Reserves) — Thinning (Crown, Low, Systematic) — 411 - Northern Hardwood — 412 - Oak Types — 413 - Aspen — 419 - Mixed Upland Deciduous — 421 - Planted Pines | <ul style="list-style-type: none"> — 422 - Natural Pines — 430 - Upland Mixed Forest — 110 - Low Intensity Urban — 122 - Roads/Parking Lot — 310 - Herbaceous Openland — 622 - Lowland Shrub — 629 - Mixed Non-forested Wetland |
|--|--|--|

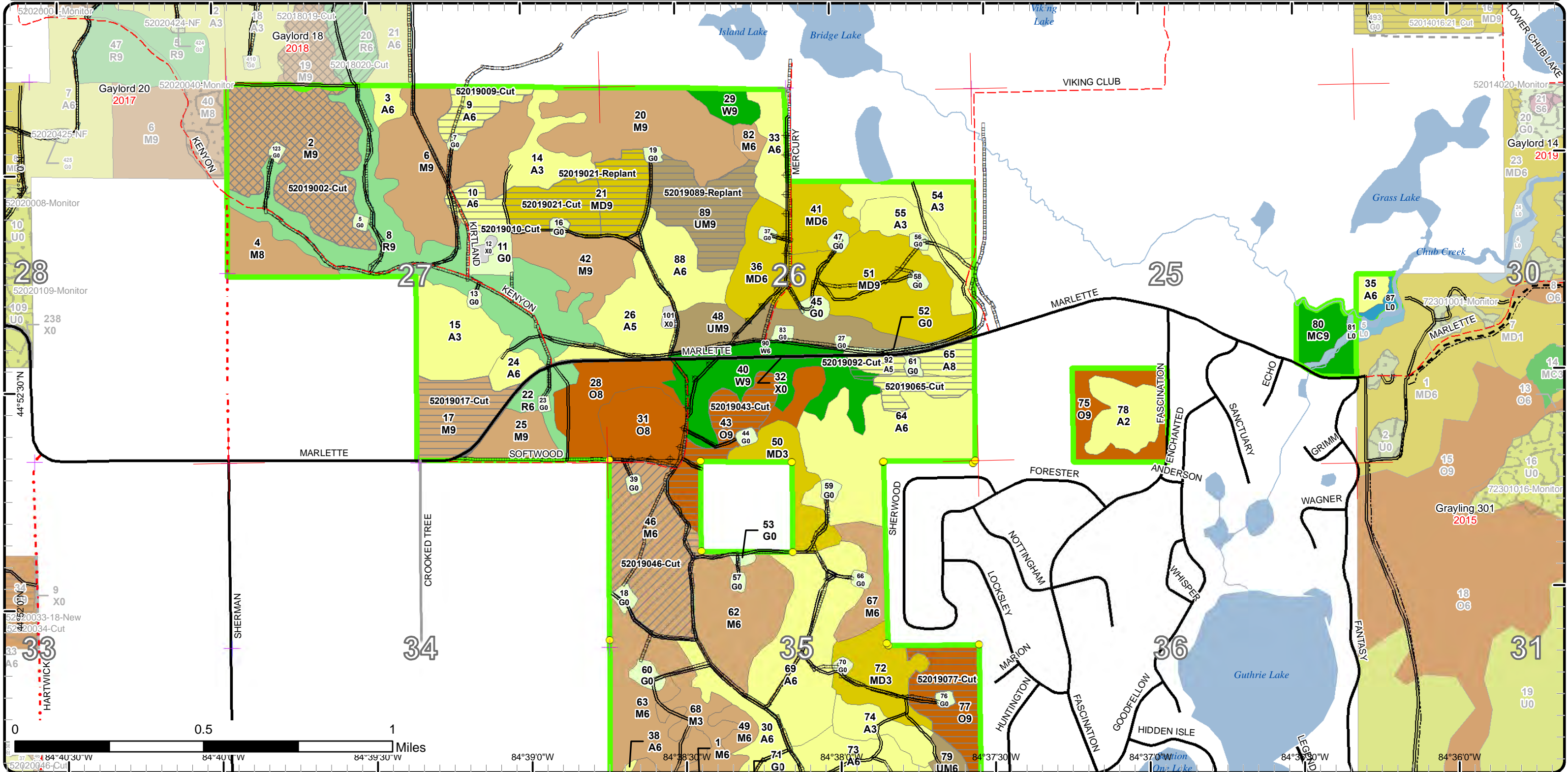


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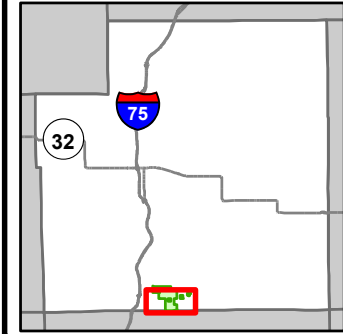


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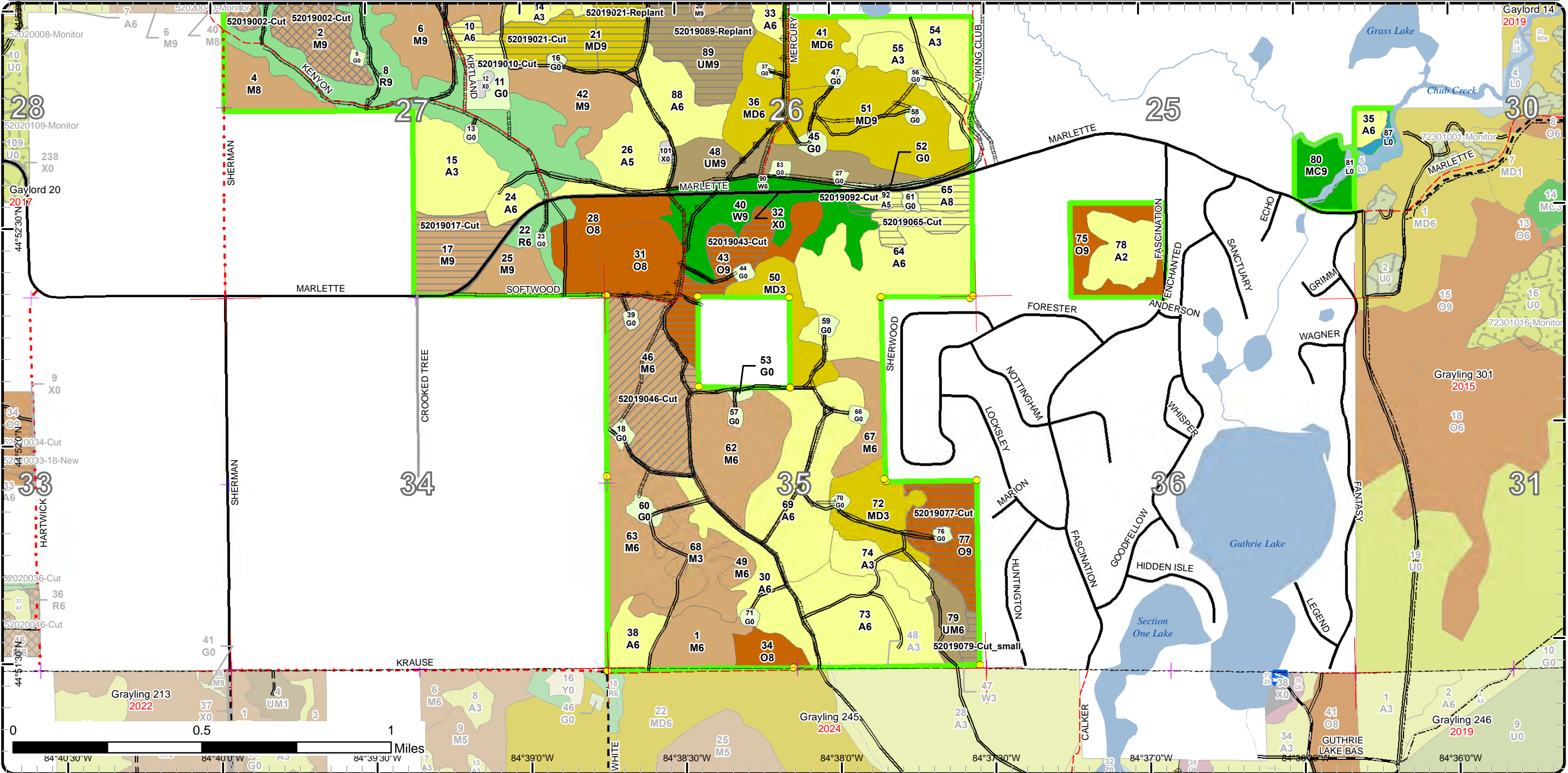


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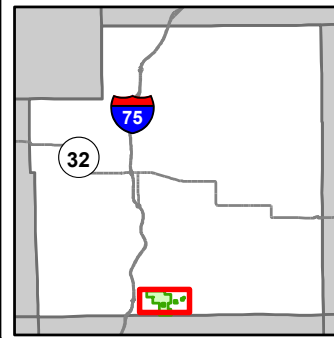


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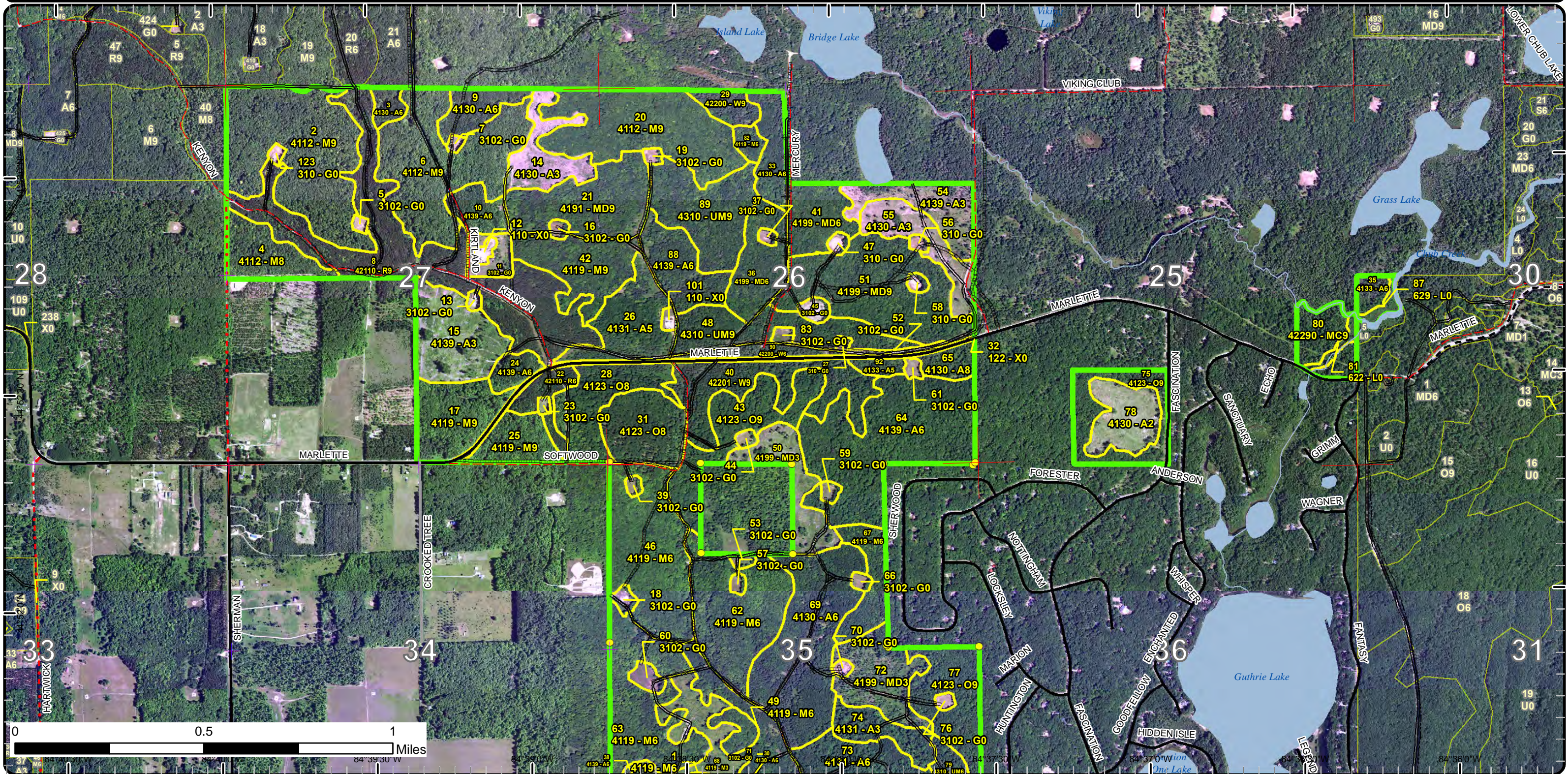


Stand Boundary Map

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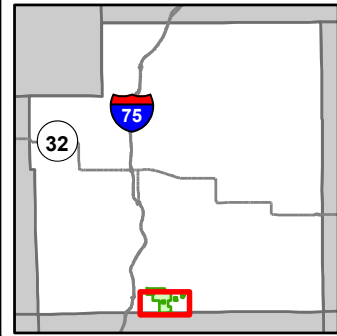


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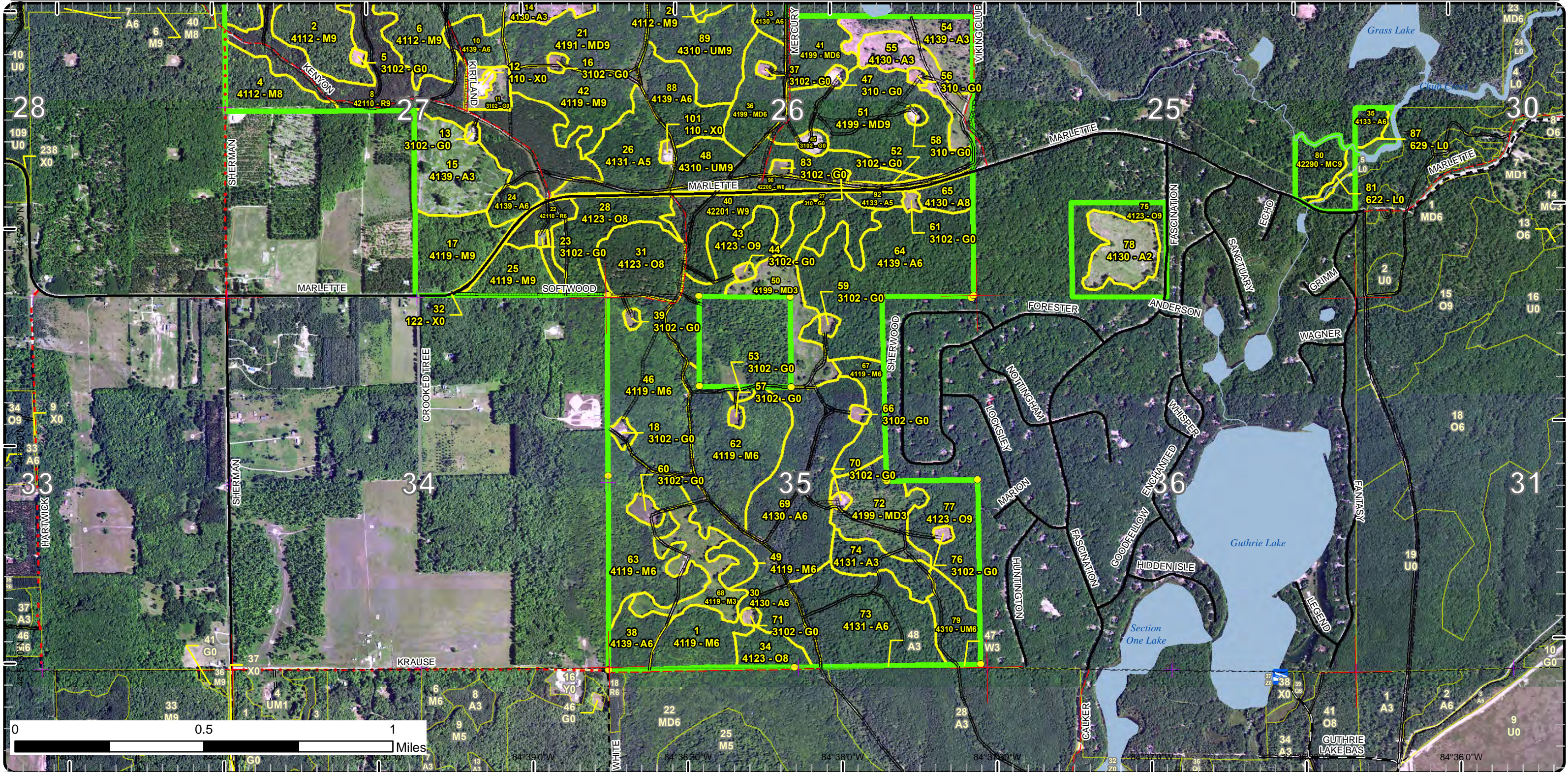


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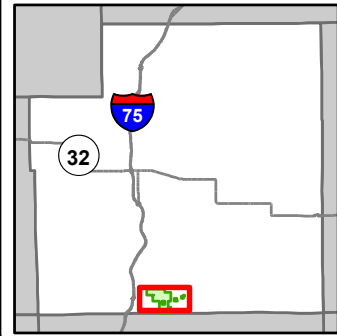


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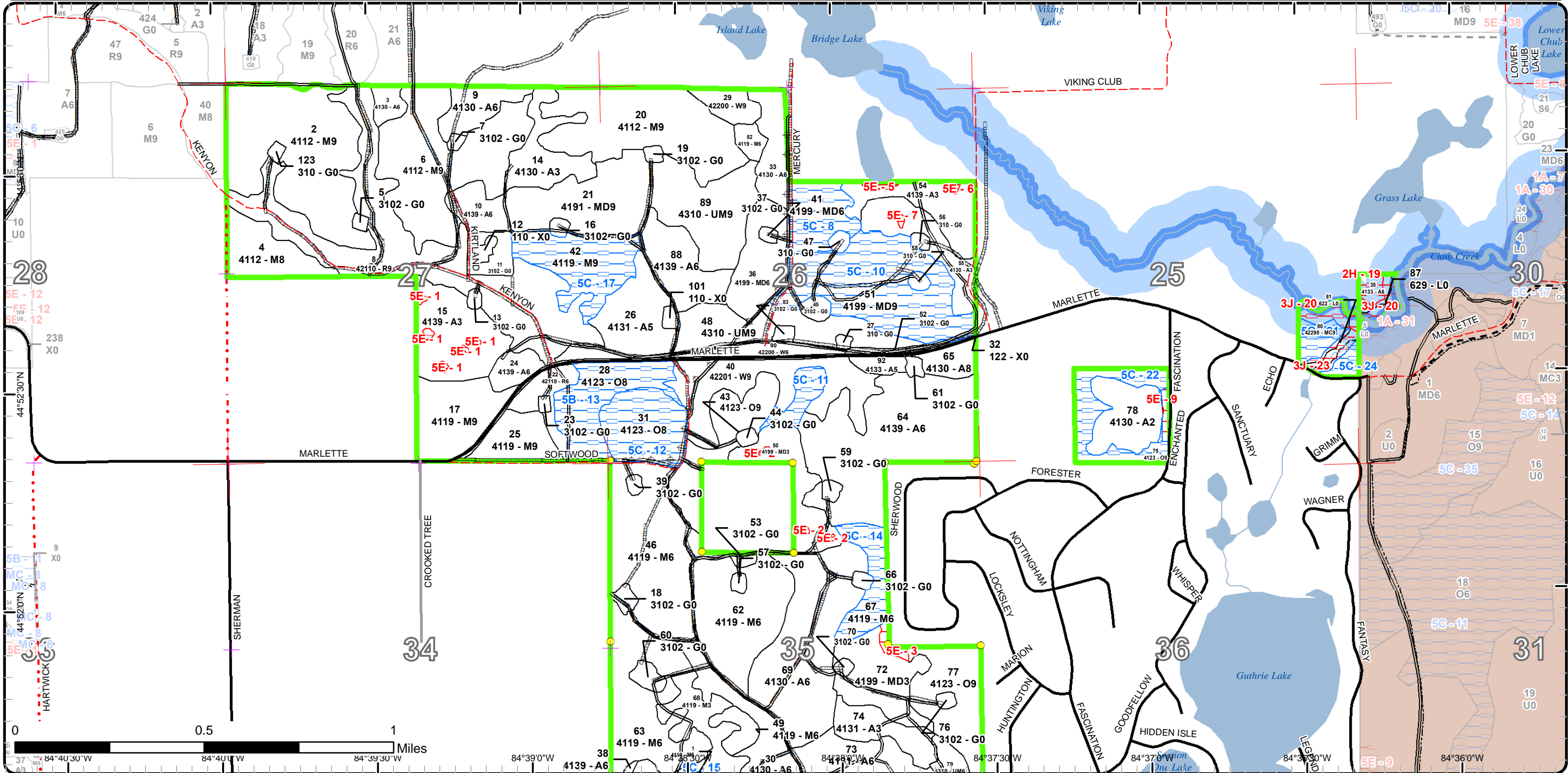


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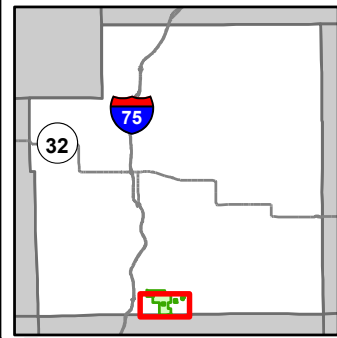


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- Unavailable
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- Natural Rivers Zoning District
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- Cold Water Lakes
- Research, Development, and Military Lands

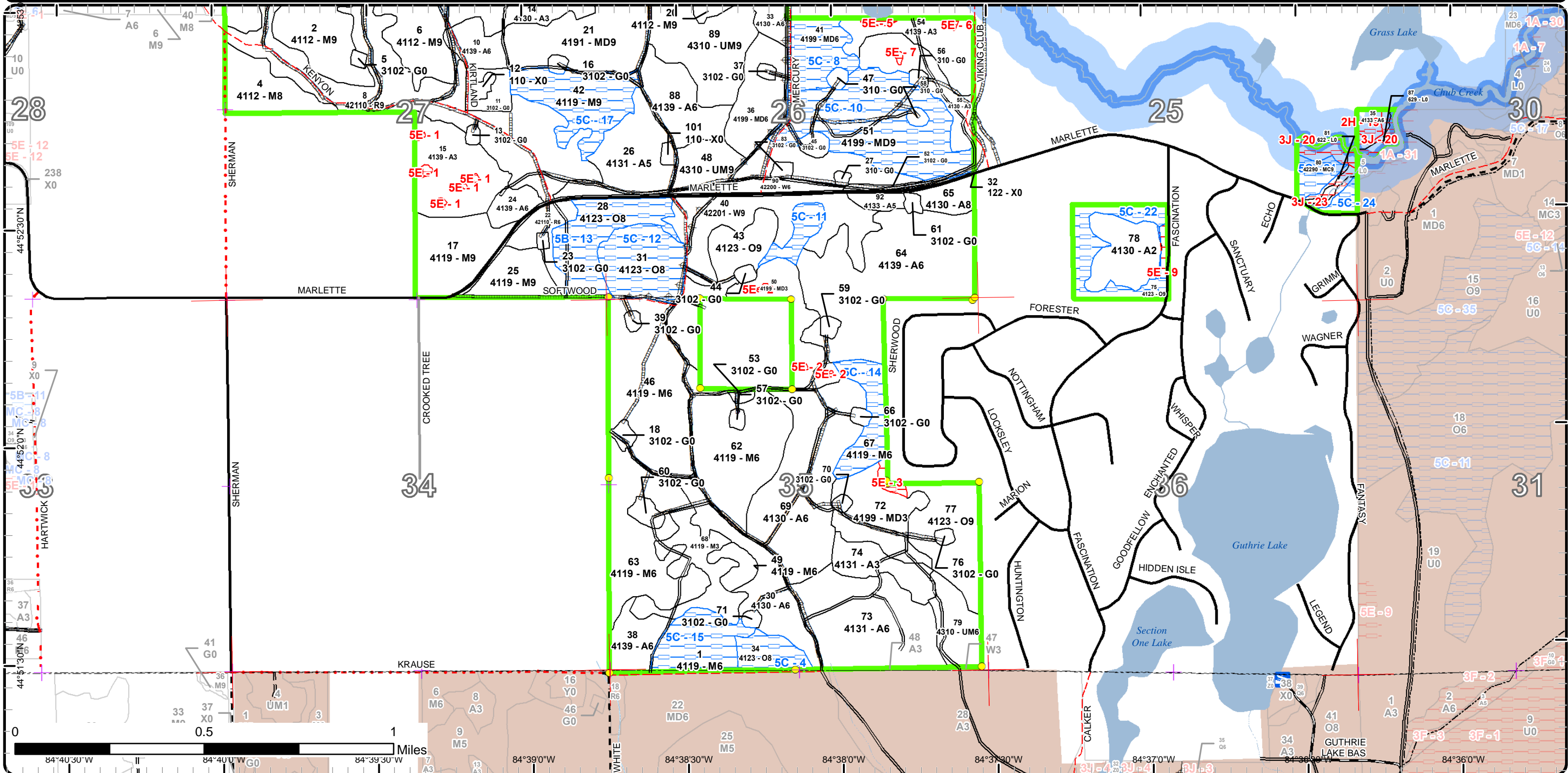


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- Unavailable
- Stand Boundaries
- Natural Rivers Vegetative Buffer
- Natural Rivers Zoning District
- Cold Water Streams
- Research, Development, and Military Lands



Report 1 – Total Acres by Cover Type and Age Class

Gaylord Mgt. Unit

Compartment 19

Year of Entry 2023

Trevor Kubitskey : Examiner



Age Class

	Non-Forest	0-9	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100-109	110-119	120-129	130-139	140-149	150+	Uneven-Aged	Total
Aspen	0	111	14	0	184	71	7	5	0	0	0	0	0	0	0	0	0	0	391
Herbaceous Openland	40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40
Lowland Shrub	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Mixed Upland Deciduous	0	47	0	0	0	0	55	22	0	0	58	0	0	0	0	0	0	0	182
Natural Mixed Pines	0	0	0	0	0	0	0	0	0	0	16	0	0	0	0	0	0	0	16
Northern Hardwood	0	22	0	0	0	0	0	74	210	120	0	0	0	0	0	0	0	0	426
Oak	0	0	0	0	0	0	0	0	20	32	80	0	0	0	0	0	0	0	132
Red Pine	0	0	0	0	0	0	101	0	0	0	0	0	0	0	0	0	0	0	101
Upland Mixed Forest	0	0	0	0	15	0	0	30	0	0	0	0	0	0	0	0	0	0	45
Urban	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11
White Pine	0	0	0	0	0	0	8	37	0	0	0	0	0	0	0	0	0	0	45
Total	54	180	14	0	199	71	171	168	230	152	154	0	0	0	0	0	0	0	1392



Report 2 – Treatment Summary

Gaylord Mgt. Unit

Year of Entry: 2023

Acres of Harvest

Compartment 19

Total Compartment Acres: 1,586

Commercial Harvest - 284
 Harvests with Site Condition - 0
 Next Step Harvest - 0
 Habitat Cut - 0

Cover Type by Harvest Method

	Clearcut	Selection	Patch Clearcut	Seed Tree	Shelterwood	Thinning	Overstory Removal	Salvage	Other	Total Acres
Aspen	40	0	0	0	0	0	0	0	0	40
Mixed Upland Deciduous	37	0	0	0	0	0	0	0	0	37
Northern Hardwood	26	71	0	0	0	52	0	0	0	149
Oak	55	0	0	0	0	0	0	0	0	55
Upland Mixed Forest	4	0	0	0	0	0	0	0	0	4
Total	161	71	0	0	0	52	0	0	0	284

Proposed and Next Step Treatments by Method

	Harvest	Site Prep	Planting	Seeding	Burning	Pesticide	Monitoring	Other	Non-Forest Mgt.	Total Acres
Current	284	0	0	0	0	0	0	0	0	284
Next Step	0	62	18	0	0	35	250	55	0	420
Total	284	62	18	0	0	35	250	55	0	704

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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:

2	52019002-Cut	71.3	4112 - Maple, Beech, Cherry Association	Sawtimber Well	78	111-140	Harvest	Single Tree Selection	411 - Northern Hardwood	Two-Aged	No
<p><u>Prescription</u> Thin stand down to an average of 80 sq ft releasing better quality crop trees. Establish regeneration gaps at a rate of 1 per 5 acres with a minimum size of 100 x 100 ft. Avoid marking underrepresented species such as pine or oak. Where applicable, try to release smaller diameter co-dominate sugar maples.</p> <p><u>Specs:</u></p> <p><u>Next Step</u> Monitoring, Natural Regen (Intermediate)</p> <p><u>Treatments:</u></p> <p><u>Acceptable Regen:</u> Mix of northern hardwood species NOT dominated by beech and/or ironwood.</p> <p><u>Other Comment:</u> Some areas very heavy to beech brush. Would recommend marking stand during leaf off due to thick understory. BA is variable in some spots so expect areas to be lightly marked.</p> <p>Survey corner present in NW corner. Avoid disturbance during harvesting.</p> <p><u>Site Condition</u></p> <p><u>Proposed Start Date:</u> 10/1 /2022</p>											
9	52019009-Cut	12.4	4130 - Aspen	Poletimber Well	35	111-140	Harvest	Clearcut	4139 - Aspen, Mixed Deciduous	Even-Aged	No
<p><u>Prescription</u> Final harvest trees 2" dbh and up. Do NOT cut white oak and protect any pre-merchantable sugar maple as much as possible. Add drumming log specs to sale.</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 Regen:</u> Moderately to fully stocked aspen with a component of desirable mixed northern hardwood species such as sugar maple, red maple, oak, birch, and/or cherry. Any amount of mixed conifers should be accepted.</p> <p><u>Other Comment:</u></p> <p><u>Site Condition</u></p> <p><u>Proposed Start Date:</u> 10/1 /2022</p>											
10	52019010-Cut	10.2	4139 - Aspen, Mixed Deciduous	Poletimber Well	40	111-140	Harvest	Clearcut	4139 - Aspen, Mixed Deciduous	Even-Aged	No
<p><u>Prescription</u> Final Harvest trees 2" and up. No retention due to small acreage. Protect pre-merchantable sugar maple as much as possible during harvest. Add drumming log spec into sale and wildlife shrub protection.</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 Regen:</u> Moderately to fully stocked aspen with a mixed hardwood component of desirable species such as sugar maple, red maple, basswood, oak and/or birch. Any amount of mixed conifer is acceptable.</p> <p><u>Other 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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17	52019017-Cut	26.0	4119 - Mixed Northern Hardwoods	Sawtimber Well	70	111-140	Harvest	Clearcut with Retention	411 - Northern Hardwood	Even-Aged	No
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Prescription Final harvest all trees 2" DBH and up. Standard retention. Cut all Scotch Pine regardless of merchantability and leave all White and Red Pine. Place retention around any large crowned oaks or pockets of yellow birch regeneration.

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

Acceptable Regen: Red maple, sugar maple, oak and/or birch that meet minimum stocking requirements. Areas within the stand may be dominated by aspen which will be ok. As long as beech or ironwood does not dominate, accept regeneration. May regenerate more towards a mixed deciduous.

Other Comment: Property corners are established.

Site Condition

Proposed Start Date: 10/1 /2022

21	52019021-Cut	19.6	4191 - Mixed Upland Deciduous with Conifer	Sawtimber Well	55	111-140	Harvest	Clearcut with Retention	4191 - Mixed Upland Deciduous with Conifer	Even-Aged	No
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Prescription Final harvest all trees 2" dbh and up. 3-5% island retention. Place retention in a manner to retain under represented species or protect good quality natural seed trees such as white/red pine or open grown sugar maple. Oak wilt specs will apply.

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

Acceptable Regen: Mix of Aspen, red/sugar maple, oak, birch, cherry and mixed conifers that meet minimum stocking requirements.

Other Comment:

Site Condition

Proposed Start Date: 10/1 /2022

21	52019021-Replant	17.6	4191 - Mixed Upland Deciduous with Conifer	Sawtimber Well	55	111-140	Harvest	Clearcut with Retention	4211 - Planted Red Pine	Even-Aged	No
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Prescription Final harvest trees 2" dbh and up. Minimum Retention. Do NOT cut Oak 20" DBH and up.

Next Step SitePrep, Trenching; SitePrep, Roller Chopping; Pesticide, Skidder - Site Prep; Pesticide, Skidder - Release; Planting, Initial Plant;
Treatments: Monitoring, Artificial Regen(1yr); Monitoring, Artificial Regen(3yr)

Acceptable Regen: Fully stocked red pine plantation.

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
43 52019043-Cut	26.7	4123 - Red Oak	Sawtimber Well	80	81-110	Harvest	Clearcut with Retention	4139 - Aspen, Mixed Deciduous	Even-Aged	No
<p><u>Prescription Specs:</u> Final Harvest 2" DBH and up. 3-5% retention which should be placed around areas of white pine and oak. Do not cut red pine. Legacy trees are present throughout stand. Some areas contain steeper slopes so run red line to accommodate equipment maneuverability.</p> <p><u>Next Step Treatments:</u> Monitoring, Natural Regen (Re-Inventory); Other, ; SitePrep, Roller Chopping</p> <p><u>Acceptable Regen:</u> Aspen and mixed deciduous species such as red maple, sugar maple, cherry, oak or birch that meets minimum stocking requirements. If Oak dominates aspen in some areas, this is ok. Some areas should be expected to come back heavy to beech. a Minor component of conifer species if acceptable too.</p> <p><u>Other Comment:</u> Run red line into stand 40 where possible to grab aspen, red maple or oak that is on the edge. Corners are established for private line.</p> <p><u>Site Condition</u></p> <p><u>Proposed Start Date:</u> 10/1 /2022</p>										
46 52019046-Cut	51.6	4119 - Mixed Northern Hardwoods	Poletimber Well	70	111-140	Harvest	Crown Thinning	411 - Northern Hardwood	Even-Aged	No
<p><u>Prescription Specs:</u> Thin stand down to an average of 80 sq ft. Target removal of stems with poor form, defect and where possible target larger diameter basswood clumps. Try to avoid incidental species such as pine, birch or oak.</p> <p><u>Next Step Treatments:</u></p> <p><u>Acceptable Regen:</u> Fully stocked northern hardwood stand NOT dominated by beech and/or ironwood.</p> <p><u>Other Comment:</u> Underground utility line goes through the middle of the stand.</p> <p><u>Site Condition</u></p> <p><u>Proposed Start Date:</u> 10/1 /2022</p>										
64 52019065-Cut	17.4	4139 - Aspen, Mixed Deciduous	Poletimber Well	37	51-80	Harvest	Clearcut	4130 - Aspen	Even-Aged	No
<p><u>Prescription Specs:</u> Final harvest 2" DBH and up. No retention due to small stand size. Do not cut white oak or pine. Protect pre-merchantable white pine.</p> <p><u>Next Step Treatments:</u> Monitoring, Natural Regen (Re-Inventory)</p> <p><u>Acceptable Regen:</u> Aspen stand with a component of red maple, cherry, oak and mixed conifers that meet minimum stocking requirements.</p> <p><u>Other Comment:</u></p> <p><u>Site Condition</u></p> <p><u>Proposed Start Date:</u> 10/1 /2022</p>										
77 52019077-Cut	27.8	4123 - Red Oak	Sawtimber Well	95	81-110	Harvest	Clearcut with Retention	4131 - Aspen, Oak	Even-Aged	No
<p><u>Prescription Specs:</u> Final harvest trees 2" dbh and up. Standard retention. Protect any pre-merchantable oak and pine. Add oak wilt specs to sale. Place retention around pockets of pine and larger diameter mixed oak. Avoid putting retention right on property line.</p> <p><u>Next Step Treatments:</u> Monitoring, Natural Regen (Re-Inventory); Other,</p> <p><u>Acceptable Regen:</u> aspen, red maple and mixed oak that meet minimum stocking requirements.</p> <p><u>Other Comment:</u> Property corners are established.</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
79 52019079-Cut_small	3.7	4310 - Pine, Oak Mix	Poletimber Well	36	81-110	Harvest	Clearcut	4310 - Pine, Oak Mix	Even-Aged	No
<p><u>Prescription</u> Final harvest trees 2" dbh and up. No retention due to small stand size. Protect pre-merchantable oak, pine and maple saplings where possible during harvest. Add oak wilt specs to sale.</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 Regen:</u> A mix of conifers, oak, aspen, red maple that meet minimum stocking requirements.</p> <p><u>Other Comment:</u> Cut with treatment to the north.</p> <p><u>Site Condition</u></p> <p><u>Proposed Start Date:</u> 10/1 /2022</p>										

Total Treatment 284.3
Acres Proposed:

Report 4 – Site Conditions

Gaylord Mgt. Unit
Trevor Kubitskey : Examiner

Compartment: 19
Year of Entry: 2023

Availability for Management

Total Acres	Acres Available	Acres Avail		Dominant Site Conditions	Dominant Site Conditions				
		With Condition	Not Available		5B	5C	2H	3J	5E
391	384	0	7	Aspen			3	2	3
40	40	0	0	Herbaceous Openland					
3	0	0	3	Lowland Shrub				3	
182	104	76	2	Mixed Upland Deciduous		76			2
15	0	9	6	Natural Mixed Pines		9		6	
430	414	15	0	Northern Hardwood		15			0
132	53	78	2	Oak	27	51			2
101	101	0	0	Red Pine					
45	45	0	0	Upland Mixed Forest					
11	11	0	0	Urban					
45	45	0	0	White Pine					
1,395	1,196	179	20	Total Forested Acres	27	152	3	10	7
	86%	13%	1%	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	1	Unspecified	Unspecified	Unspecified	Unspecified
Comments: Retention from "Camp Merrick Mix" 520061301							
2	Unavailable	5E: Long-Term Retention	1	Unspecified	Unspecified	Unspecified	Unspecified
Comments: Retention from "Twilight Sparkle Mix". 520220301							
3	Unavailable	5E: Long-Term Retention	2	Unspecified	Unspecified	Unspecified	Unspecified
Comments: #520181301 "OPTIMUM OAK" Sale harvested in spring of 2014							

Report 4 – Site Conditions

Gaylord Mgt. Unit

Trevor Kubitskey : Examiner

Compartment: 19

Year of Entry: 2023

4	Available	5C: Delay treatment for age/size class diversity or exceptional site quality	10	5B: Maintain for regeneration purposes	Unspecified	Unspecified	Unspecified
Comments:							
5	Unavailable	5E: Long-Term Retention	1	Unspecified	Unspecified	Unspecified	Unspecified
Comments:							
6	Unavailable	5E: Long-Term Retention	0	Unspecified	Unspecified	Unspecified	Unspecified
Comments:							
7	Unavailable	5E: Long-Term Retention	0	Unspecified	Unspecified	Unspecified	Unspecified
Comments:							
8	Available	5C: Delay treatment for age/size class diversity or exceptional site quality	18	Unspecified	Unspecified	Unspecified	Unspecified
Comments:							
9	Unavailable	5E: Long-Term Retention	2	Unspecified	Unspecified	Unspecified	Unspecified
Comments:							
10	Available	5C: Delay treatment for age/size class diversity or exceptional site quality	58	Unspecified	Unspecified	Unspecified	Unspecified
Comments:							
Let smaller diameter aspen, oak and red maple gain more volume before harvest. Overstory oak is healthy and will hold no problem.							

Report 4 – Site Conditions

Gaylord Mgt. Unit

Trevor Kubitskey : Examiner

Compartment: 19

Year of Entry: 2023

11	Available	5C: Delay treatment for age/size class diversity or exceptional site quality	7	Unspecified	Unspecified	Unspecified	Unspecified
Comments: Area contains higher stocking of sub-merchantable aspen and smaller diameters. Hold to gain volume.							
12	Available	5C: Delay treatment for age/size class diversity or exceptional site quality	25	Unspecified	Unspecified	Unspecified	Unspecified
Comments: Let overstory trees gain more volume along with desired sub-canopy to establish into gaps. Hold until next Y.O.E							
13	Available	5B: Maintain for regeneration purposes	27	Unspecified	Unspecified	Unspecified	Unspecified
Comments: Hold until sub-canopy gains more merchantability.							
14	Available	5C: Delay treatment for age/size class diversity or exceptional site quality	15	Unspecified	Unspecified	Unspecified	Unspecified
Comments: Delay treatment to gain more volume on maples and oak.							
15	Available	5C: Delay treatment for age/size class diversity or exceptional site quality	20	Unspecified	Unspecified	Unspecified	Unspecified
Comments:							
17	Available	5C: Delay treatment for age/size class diversity or exceptional site quality	28	Unspecified	Unspecified	Unspecified	Unspecified
Comments:							

Report 4 – Site Conditions

Gaylord Mgt. Unit

Trevor Kubitskey : Examiner

Compartment: 19

Year of Entry: 2023

19	Unavailable	2H: Blocked by physical obstacle (e.g. upland stand in a lowland area)	3	Unspecified	Unspecified	Unspecified	Unspecified
Comments:							
20	Unavailable	3J: Water quality / BMPs (stream, river, or lake)	10	Unspecified	Unspecified	Unspecified	Unspecified
Comments: Natural River Buffer.							
21	Available	5C: Delay treatment for age/size class diversity or exceptional site quality	6	Unspecified	Unspecified	Unspecified	Unspecified
Comments:							
22	Available	5C: Delay treatment for age/size class diversity or exceptional site quality	18	Unspecified	Unspecified	Unspecified	Unspecified
Comments:							
23	Unavailable	3J: Water quality / BMPs (stream, river, or lake)	4	Unspecified	Unspecified	Unspecified	Unspecified
Comments: Tributary to Chub Creek (north Branch of the Au Sable).							
24	Available	5C: Delay treatment for age/size class diversity or exceptional site quality	3	Unspecified	Unspecified	Unspecified	Unspecified
Comments:							

Mgt. Unit

Compartment: #Type!

Year of Entry:



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

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

SCA Name	SCA Category	Detail Type	Recommendation	Acres
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Comments



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	Research and Military Areas	These areas provide facilities and lands specifically dedicated for research, or other purposes. They include the 5,847 acre Forest Fire Experiment Station, the 12,000 acre Houghton Lake Wildlife Research Area, the Beaver Islands Archipelago Wildlife Research Area (that includes most of Garden Island, all of High and Hog Islands, all state owned land on Beaver, South Fox and North Fox Islands), the Cusino Wildlife Research Area, the 3,000 acre Hunt Creek Fisheries Research Station, the 125 acre Wyman Nursery, and over 144,000 acres of Military Lands.
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																																																												
2	4112 - Maple, Beech, Cherry Association	Sawtimber Well	71.3	78	111-140	N/A	Stand was thinned in 2006. Very nice stand besides the sub-canopy. Beech saplings are VERY thick. Small aspen clones scattered throughout, along with an occasional oak. Sugar maple size class is noticeably smaller walking throughout. Sugar maple quality and diameters increase moving to the north and east, but still dominated by red maple. Found very small pockets with reasonable sugar maple establishment; mostly under larger diameter, larger crowned maples.																																																												
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3	4130 - Aspen	Poletimber Well	4.9	35	51-80	N/A	Stand harvested 1986. Aspen doing well with a nice sugar maple component.																																																												
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4	4112 - Maple, Beech, Cherry Association	Sawtimber Medium	19.3	89	81-110	N/A	Stand was thinned in 2018 under contract 52-030-13-01. Harvest did not have regeneration gaps established. Fair quality hardwoods. Stand appears to have been marked (maybe intentional) somewhat inconsistently leaving areas of denser stocking with gap/strip cut type appearance. Sprouting from maples is present. Aspen that wasn't marked from harvest is falling apart. Some beech look very healthy. Pockets of maple poles appear to have been released.																																																												
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6	4112 - Maple, Beech, Cherry Association	Sawtimber Well	61.5	72	81-110	N/A	Stand was thinned in 2018 under contract 52-030-13-01. **Gaps were not put in during the selection harvest** Overall a nice stand. There are some natural appearing gaps that seem to contain a good amount of basswood and aspen that have established well. Most sugar maple and red maple stumps had good sprouting occur but were browsed back down. Large volume of beech was taken out of the stand during the harvest. Majority of oaks found along edges of stand. Scattered large diameter oaks and maples.																																																												
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8	42110 - Planted Red Pine	Sawtimber Well	91.1	56	111-140	N/A	Stand thinned Fall 2016 as part of Rookery Red Pine Sale (52-016-13-01). Fairly consistent throughout with pockets of open grown red maple. Far northern portion has quite a bit of encroachment from adjacent hardwood and aspen stand. Sugar maple saps and seedlings mostly present in the southern portions.																																																														
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9	4130 - Aspen	Poletimber Well	12.5	35	111-140	N/A	Higher quality aspen stand with hardwood influence. Areas of aspen reaching log size with some still true poles. Sugar maple seems to have established well from previous harvest. Smaller overall diameters in North. Old cutting records indicate that the north portions along the private line were harvested in 1986 while the rest of the stand was part of a large hardwood stand leaving the larger diameters in the southern areas of the stand. Estimated age of the remaining aspen is most likely 45 y.o.																																																														
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10	4139 - Aspen, Mixed Deciduous	Poletimber Well	10.2	40	111-140	N/A	No cutting record for this stand. Old maps indicated that this was most likely part of the large hardwood stand to the north than broken out due to the higher density of aspen. Mixed aspen/hardwood stand. Good quality aspen throughout with pockets of small log sugar/red maples and basswood clumps. Larger diameter sugar maple have open grown characteristics which appear to be good seed trees. Southern portion has an old appearance of a red pine plantation with a highly stocked red pine pocket of 280 sq ft in SE corner.																																																														
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11	3102 - Grass	Nonstocked	6.9			No	Grassy opening surrounding gas facility.																																																														
12	110 - Low Intensity Urban	Nonstocked	1.8		Immature		Jaguar Energy LLC. Otsego lake 27 has processing facility																																																														
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14	4130 - Aspen	Sapling Well	18.7	6	Immature	N/A	Stand harvested Dec 2015. Sale # 520031301. Edges have more hardwood influence, but overall aspen established very well. Passed regen survey 11/9/2020. Some advanced oak regeneration present in pockets.																																																															
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15	4139 - Aspen, Mixed Deciduous	Sapling Well	31.5	6	Immature	N/A	Harvest completed in 2015. Retention islands mostly contain maple, oak and beech. Majority of stand is coming back to aspen, with the remaining pockets appearing to be almost full beech. Occasional red maple reaching past browse height. Sugar maple stump sprout presents but almost all that were found have been browsed back down to the stump. Scattered oak.																																																															
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17	4119 - Mixed Northern Hardwoods	Sawtimber Well	26.0	70	111-140	N/A	Overall diameters reaching small log size class. Scattered pockets of pole sized maples and oaks as well as areas of over mature bigtooth aspen. Fair quality; most stems are doubles/triples with poor form. Beech is declining. Large crowned oaks mostly along west edge. Thick scotch pine grove in SW corner intermixed with overtopping white/red pine and oak. Some Crops trees are present within the stand.																																																															
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20	4112 - Maple, Beech, Cherry Association	Sawtimber Well	55.8	86	81-110	N/A	Selection harvest in 2018 under contract 52-030-13-01. No regeneration gaps were created for this harvest. Overall nice stand. Scotch pine was found surrounding the gas well (stand 19). Any sprouting that was found on sugar or red maples were browsed significantly. Oaks mostly present along southern and eastern portions of stand. Some epicormic branching starting to occur on maples. The beech that are left appear to be healthy.																																																																			
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21	4191 - Mixed Upland Deciduous with Conifer	Sawtimber Well	37.1	55	111-140	N/A	White pine planted in 1966. Pockets appear to have given way to deciduous species. This stand was originally merged with 42, 89 and 88. Overall this contains more of a plantation look with pockets of hardwood and aspen encroachment. Denser areas of white pine stagnant and showing signs of decline. Most maple is multi-stem and starting to show signs of open growth characteristics; knotty branch whorls and epicormic branching. Heavier oak presence towards the east. Beech starting to die out in canopy.																																																																			
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22	42110 - Planted Red Pine	Poletimber Well	10.0	55	111-140	N/A	Stand thinned Fall 2016 as part of Rookery Red Pine Sale (52-016-13-01). Didn't see very much for residual damage. Scattered pockets with aspen. Stand is borderline pole/log.																																																																			
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23	3102 - Grass	Nonstocked	0.8		Unspecified		muskegon development #42876 otsego lake d4-27																																																																			
25	4119 - Mixed Northern Hardwoods	Sawtimber Well	14.7	66	81-110	N/A	Fair quality stand. Mostly large poles, logs throughout moving into smaller diameters in the far west. Beech is doing ok, but areas are seeing decline. Hemlock grove along Marlette Rd. Really nice Red Oak in the stand.																																																																			
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26	4131 - Aspen, Oak	Poletimber Medium	27.4	37	51-80	N/A	South facing slope from marlette road into stand. Mostly scattered oak and white pine on slope until getting into a fair quality aspen stand. Variable stocking and diameters throughout. scattered overstory oak and pine.																																																																
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27	310 - Herbaceous Openland	Nonstocked	0.9		Unspecified		muskegon development #42872 otsego lake c3-26																																																																
28	4123 - Red Oak	Sawtimber Medium	27.0	98	51-80	N/A	Stand was harvested in 1994 removing all red maple, aspen and birch. West/SW portion of stand contains heavy beech influence with a blanket of 10-20' tall beech saplings with intermixed sugar maple, red maple and oak saplings. Overstory beech is barely hanging on with signs of mortality within most merchantable sized trees. Scattered poles of sugar maple and oak but mainly larger crowned healthy oak with log sugar and red maples here and there. Pocket of a merchantable aspen clone in the north.																																																																
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29	42200 - Natural White Pine	Sawtimber Well	8.0	54	111-140	N/A	Thinned out in 1984 removing all "misc hardwood" leaving pine and oak. Very little understory development; appears white pine canopy is too thick. Aspen saplings are regenerating in pockets but beech is dominating in most areas. Stand does contain a sliver of a wetland in the north along property line. All Red Oak under 6' has been browsed significantly.																																																																
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31	4123 - Red Oak	Sawtimber Medium	25.1	92	81-110	N/A	Thinned fall of 2014 (52-022-13) removing mostly pulp (red/sugar maple, beech and oak). Oak looks great; healthy and little epicormic branching. Pockets of thick sugar maple establishment varying from 1-10 feet. These areas seem to be concentrated on the ridge tops and the SE facing slopes. These stems appear to be mostly seed origin with single stems and some occasional multi stem stump sprouts. Oak establishment spotty as well as red maple. Standing beech is present but signs of mortality are there.																																																																
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32	122 - Road/Parking Lot	Nonstocked	9.1			No	Marlette Road.																																																																



Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	Managed Site	General Comments																																																																					
33	4130 - Aspen	Poletimber Well	14.7	35	81-110	N/A	Harvested in 1984 leaving all pine and oak. Good quality aspen with scattered white pine and oak logs. Lesser aspen stocking in north under denser oak/pine canopy. Small wet, tag alder pocket in the north end with a small island of white pine along property line.																																																																					
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35	4133 - Aspen, Mixed Pine	Poletimber Well	4.8	61		N/A	Difficult access. From the edge as well as looking at aerial imagery it appears that Beaver activity has been reducing the density of aspen. White pine seems to be establishing well. Scattered oaks along the edge.																																																																					
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36	4199 - Other Mixed Upland Deciduous	Poletimber Well	22.1	60	81-110	N/A	Stand was harvested in 1983 removing essentially all species except Oak and pine. Very nice size class distribution of oaks within the stand varying up to 24" all the way down to 5". Stand does vary throughout with pockets of hardwood transitioning into oak and aspen. Majority of beech are declining resulting in heavy beech brush. More Oak poles and saps found in southern half of stand. Aspen favoring eastern portions of stand.																																																																					
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39	3102 - Grass	Nonstocked	1.3		Unspecified		muskegon development #43551 otsego lake a1 -35																																																																					
40	42201 - Natural White Pine, Mixed Deciduous	Sawtimber Well	36.6	60	111-140	N/A	Old notes indicate to manage for natural un-even aged white pine. Quite variable throughout. Western portions contain very nice densely stocked shelf thinned white pines with scattered oaks. Moving to the central, stocking of overstory pines and oak decrease giving way to more aspen and red maple. Far east contains a heavier oak component along with higher density of oak saps (10-20 ft). The fingers extending south in the stand are upland ridges as well as valleys that weren't harvested with stand 43 to the south. Scattered clones of young aspen have sprouted into the stand from the adjacent harvest.																																																																					
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41	4199 - Other Mixed Upland Deciduous	Poletimber Well	17.9	56	141-170	N/A	Large pole stand. Some topo and flattening out in the north. Appears to have been treated similarly to other stands in the area removing everything but oak and pine. Oak seems to have established well with a good representation of small poles all the way up to 20" dbh XLogs.		
							Similar characteristics of stand 51 just smaller overall diameter. Probably could be merged into one stand.		
	Canopy Species	% Cover	Size Class	DBH	Age	Sub-Canopy Species	Density	Avg. Height	Size
	Sugar Maple	5	Pole/Log	8		Beech	Medium	5 - 10 feet	Sapling
	Red Maple	25	Pole/Log	8	56	White Pine	Low	5 - 10 feet	Sapling
	Beech	25	Pole	7	56	Hemlock	Low	>20 feet	Pole
	Red Oak	25	Log/Pole/XLog	14		Witch Hazel	Low	5 - 10 feet	Tall Shrub
	Paper Birch	2	Pole	7		White Oak	Trace	< 5 feet	Sapling
	White Pine	5	Log/XLog/Pole	14					
	Red Pine	2	XLog/Log	18					
	Bigtooth Aspen	10	Pole	7					
	Hemlock	1	Log	14					
43	4123 - Red Oak	Sawtimber Well	32.2	80	81-110	N/A	Highly variable. Stand was thinned removing everything but oak and pine but appears most areas weren't harvested. SW areas contain higher stocking of red maple and aspen. Central areas contain more of a hardwood component with heavier beech, sugar maple, and a minor component of basswood. The fingers extending to the north are mostly pine/oak ridges and valleys. Oak is very good quality. Rolling topo.		
	Canopy Species	% Cover	Size Class	DBH	Age	Sub-Canopy Species	Density	Avg. Height	Size
	Sugar Maple	5	Pole/Sapling	6		Beech	High	5 - 10 feet	Sapling
	Red Maple	10	Pole	7		White Pine	Low	5 - 10 feet	Sapling
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	Red Oak	60	Log/XLog	16	80	Red Pine	Trace	5 - 10 feet	Sapling
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	Red Pine	2	XLog	18					
	White Oak	3	Log/Pole	11					
	Bigtooth Aspen	5	Pole	8					
44	3102 - Grass	Nonstocked	1.4		Unspecified		muskegon development #42884 otsego lake d2-26		
45	3102 - Grass	Nonstocked	2.8		Unspecified		old facility site. scattered above ground pipes and electrical box.		
46	4119 - Mixed Northern Hardwoods	Poletimber Well	51.6	70	111-140	N/A	Decent quality stand. Most sugar maples large pole/small log with occasional crop trees. No beech salvage was done in the past; however some beech are still healthy. Canker present in sugar maples throughout stand. Very nice red oaks throughout. Oaks present in eastern and southern portions. Few small clones of bigtooth present. Majority of sugar maple are single stem but there are quite a few doubles, and triple stems present. Only information on past harvests was in 1977 where a thin strip on the west property line was thinned removing all aspen, red maple and birch.		
	Canopy Species	% Cover	Size Class	DBH	Age	Sub-Canopy Species	Density	Avg. Height	Size
	Sugar Maple	35	Pole/Log	9	70	Beech	Full	5 - 10 feet	Sapling
	Red Maple	5	Log/Pole	10		Ironwood	Low	5 - 10 feet	Sapling
	Beech	30	Pole/Log	9		Sugar Maple	Low	10 - 20 feet	Sapling
	Red Oak	15	Log/XLog/Pole	16		Red Oak	Low	10 - 20 feet	Sapling
	Bigtooth Aspen	5	Pole/Log	9		White Pine	Trace	5 - 10 feet	Sapling
	Paper Birch	2	Log/Pole	10					
	Basswood	8	Log	13					
47	310 - Herbaceous Openland	Nonstocked	1.6		Unspecified		lambda energy #45606 otsego lake 1-26		



Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	Managed Site	General Comments																																																														
48	4310 - Pine, Oak Mix	Sawtimber Well	29.9	63	81-110	N/A	Majority of stand is southern facing slope. Good development of variable size classes of oak and pine. Scattered pockets of fair quality aspen. Variable stocking in sub-canopy depending on location within stand; middle and eastwards contain less sub-canopy development while west portions contain better sub-canopy and intermediate class establishment.. Red pine pocket near stand 83. Some very large diameter mixed oak found within the stand as well as supercanopy white pines.																																																														
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50	4199 - Other Mixed Upland Deciduous	Sapling Well	20.7	7	Immature	N/A	Stand cut in 2014. Portion north of private property is pure beech with an occasional oak sprout that pushed past competing height. Eventually becomes heavier to aspen, red maple and oak near the southern portion. Oak appears to have sprouted well, but heavy impacts of browse present. Did notice a few occasional oak stumps with no sprouting at all.																																																														
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51	4199 - Other Mixed Upland Deciduous	Sawtimber Well	58.3	99	81-110	N/A	Rolling topo. Very little sub-canopy development in most areas. N/NW portions have poor quality hardwood appearance with a higher beech presence. This areas contain more pole sized trees and a small clone of aspen. Majority of stand will hold, but most areas it would be beneficial to restart.																																																														
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52	3102 - Grass	Nonstocked	2.4			No	Opening with a two track and pipeline. Very few scattered trees.																																																														
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54	4139 - Aspen, Mixed Deciduous	Sapling Well	21.1	6	Immature	N/A	Cut winter of 2015. Good regeneration. Some advanced regen of white pine that were left from harvest. Oak seems to have sprouted okay, deer browse present. Heavier beech in the west portions. Stand does contain small lowland kettle hole in the north west that retention was placed around.																																																							
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55	4130 - Aspen	Sapling Well	19.2	6	Immature	N/A	Stand cut in Dec 2015. Chip job. Some large diameter oak and pine left. Heavy browse on red maple and oak under 6'. Most oak stumps had sprouting occur.																																																							
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56	310 - Herbaceous Openland	Nonstocked	1.3		Unspecified		muskegon development #42887 otsego lake b426																																																							
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Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	Managed Site	General Comments	
62	4119 - Mixed Northern Hardwoods	Poletimber Well	45.0	80	81-110	N/A	Stand harvested in 1977 essentially leaving all beech and sugar maple. Old sale notes indicated that this harvest took place when the stand was coded as an A6. Canker is present in stand. Sugar maple seems to be of good quality. Southern/western portions are poorer quality; heavier to declining beech and multi stem red maple. scattered aspen clones. Some beech looking good, majority declining.	
Canopy Species		% Cover	Size Class	DBH	Age	Sub-Canopy Species		
Sugar Maple		30	Pole/Log	8	80	Beech		
Red Maple		25	Pole/Log	9	44	Sugar Maple		
Beech		20	Pole/Log	9		Ironwood		
Red Oak		10	Log/Pole	10		Witch Hazel		
Paper Birch		4	Pole	8		White Pine		
Bigtooth Aspen		8	Pole/Log	8	44			
White Pine		1	Log	12				
Basswood		2	Pole	9	44			
63	4119 - Mixed Northern Hardwoods	Poletimber Well	43.6	62	81-110	N/A	Stand was harvested in 94 removing all aspen, red maple and birch. Most areas near the property line are larger diameter as well as higher stocking levels. Sugar maple is good quality but canker is present within the stand.. Denser areas of sugar maple poles as well as saplings. Beech is ok in areas but overall declining. Overmature basswood is present. Some aspen clones are found throughout. Oaks mostly in the eastern portions and fingers of the stand.	
Canopy Species		% Cover	Size Class	DBH	Age	Sub-Canopy Species		
Sugar Maple		45	Pole/Log	9	62	Beech		
Red Maple		10	Log/Pole	10		Sugar Maple		
Basswood		10	Log/Pole	12		Ironwood		
Beech		20	Pole/Log	8		Red Maple		
Bigtooth Aspen		5	Pole	6		Witch Hazel		
Red Oak		10	Log/XLog/Pole	13				
64	4139 - Aspen, Mixed Deciduous	Poletimber Well	74.1	37	51-80	N/A	Stand harvest in 1984 leaving all oak and pine. O8, A6 W7. variable stand with aspen dominating in the North/Northeast and turning heavier to a hardwood appearance moving west and south west. . Nice XLog white pine grove in far east corner near private. 1998 imagery matches field observation of a buffer along private lines which the timber is declining and there is blowdown present.	
Canopy Species		% Cover	Size Class	DBH	Age	Sub-Canopy Species		
Red Maple		15	Pole/Sapling	6		Witch Hazel		
Red Oak		15	Log/XLog/Pole	14		Red Pine		
Bigtooth Aspen		50	Pole/Sapling	6	37	White Oak		
White Pine		5	Log/XLog	17		White Pine		
White Oak		2	Log	12		Beech		
Beech		13	Pole/Sapling	5		Sugar Maple		
65	4130 - Aspen	Sawtimber Medium	7.3	50	81-110	N/A	Old comments indicated to try to let aspen become overmature and fall apart to manage for white pine. Stand has white pine development in sub-canopy but very little compared to the adjacent stand 92.	
Canopy Species		% Cover	Size Class	DBH	Age	Sub-Canopy Species		
Red Maple		15	Pole/Log	8		White Pine		
Quaking Aspen		30	Pole/Log	9	50	Black Cherry		
White Pine		15	Pole/Log	8		Red Maple		
Bigtooth Aspen		30	Log/Pole	10	50	White Oak		
White Oak		5	Log/XLog	16		Red Oak		
Red Oak		3	Log/Pole	12				
Black Cherry		2	Pole/Log	8				
66	3102 - Grass	Nonstocked	1.4		Unspecified		muskegon development #43553 otsego lake b3-35	



Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	Managed Site	General Comments																																																																
67	4119 - Mixed Northern Hardwoods	Poletimber Well	15.3	60	111-140	N/A	Somewhat variable. Beech seems okay, but declining. Oak is healthy. Northern portion of stand contains higher percentage of aspen and southern areas heavier to oak. Edge of pole or log. Parent stand to the harvest to the south (stand 72).																																																																
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68	4119 - Mixed Northern Hardwoods	Sapling Well	21.5	7	Immature	N/A	Stand harvested in 2014. Small portions of parent stand have been absorbed into surrounding stands due to composition and future treatments. Residual areas of parent stand had a large influence of Beech with most declining but some were relatively healthy. Beech is a problem within this stand. Stand codes out as a Mixed Northern Hardwood stand but it is clear that beech is the dominant species in the majority of the stand. Pockets of 10 ft + sugar maple and red oak sprouts but overall patchy. Interior mostly beech. Oak establishments on edges and along old skid trails. Oak is growing, but may be competed out. Small aspen clones in areas.																																																																
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69	4130 - Aspen	Poletimber Well	60.4	40	111-140	N/A	Eastern portions of stand are higher quality containing bigtooth clones and scattered oak. Moving towards the North/South two-track quality decreases and the dominant species is quaking with very few white pine. Sugar maple appears to have established fairly well with most saps/poles in the intermediate canopy class. Most red oak is of stump sprout origin and is growing very well. The NE portions of the stand contain high to full sugar maple saps 10-20 feet tall under the aspen and larger oak.																																																																
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72	4199 - Other Mixed Upland Deciduous	Sapling Well	26.3	7	1-50	N/A	Stand harvested spring 2014. Stand had a monitoring treatment with a Red Oak management objective with a acceptable regen of "Acceptable regeneration will be Oak stump sprouts that are at or above any competing species total height." Beech is a huge issue within this stand however there are some pocket of pure oak establishment. Highly variable depending on location within stand. Scattered red maple and sugar maple were left giving a residual BA of roughly 15 sq ft. Some wind throw present but most are now windfirm. Area south of two-track contains higher amounts of aspen clones. Any Red Oak under 5-6' browsed significantly.																																																													
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73	4131 - Aspen, Oak	Poletimber Well	50.6	35	51-80	N/A	Stand harvested in 1984 removing all aspen and "Misc. hardwood." No pine or oak was cut. Some aspen pockets are reaching larger pole/small log but overall pole and fairly variable. Scattered pockets have the appearance of a mixed hardwood stand (red maple, sugar maple, beech and birch). Most sap/pole sugar maple appear to be stump sprouts. Rolling topo. BA ranged from 20 - 100 with the higher areas containing less understory aspen development. small inclusion of pine in SW corner.																																																													
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75	4123 - Red Oak	Sawtimber Well	20.2	79	81-110	N/A	Portion of stand harvested in winter 2015/16 in an attempt to recruit oak regen along with expanding an aspen clone. Aspen in remaining portions of stand beginning to show decline. Oak and pine still healthy. Central west portions contain a thick white pine grove of pole sized white pine with overtopping mixed pine and oak. Deer browse and presence very noticeable. Old notes mention to allow aspen to fall apart and manage for long lived species with thinning in 10 years. Far west portions contain the majority of the understory development with the thin north and south strips appearing stagnant.																																																													
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Bigtooth Aspen	15	Log	12																																																																	
Red Pine	2	Log/Pole	14																																																																	
White Pine	13	Log	10																																																																	
Sub-Canopy Species	Density	Avg. Height	Size																																																																	
Red Oak	Low	5 - 10 feet	Sapling																																																																	
White Oak	Low	5 - 10 feet	Sapling																																																																	
White Pine	Medium	Variable	Sapling																																																																	
Witch Hazel	Medium	5 - 10 feet	Tall Shrub																																																																	
76	3102 - Grass	Nonstocked	1.2				muskegon development #43550 otsego lake c4-35																																																													



Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	Managed Site	General Comments		
77	4123 - Red Oak	Sawtimber Well	27.8	95	81-110	N/A	Stand essentially thinned in 84 removing all aspen and "misc. hardwood." No Oak or pine was cut. Should have two distinct age classes by now. Oak very healthy. Good large poles/small log size class present intermixed with true log red oak. Red maple seems stagnant in pockets. There are 3 buffers from past harvest that are near the property lines to the north and the east. Good white pine establishment in areas.		
Canopy Species	% Cover	Size Class	DBH	Age	Sub-Canopy Species	Density		Avg. Height	Size
Red Oak	70	Log	14	95	Red Maple	Low		10 - 20 feet	Sapling
White Oak	10	Log/Pole	12		Beech	Medium		5 - 10 feet	Sapling
Bigtooth Aspen	10	Pole	7	37	White Pine	Medium		Variable	Sapling
White Pine	2	Log	18		Witch Hazel	High		5 - 10 feet	Tall Shrub
Red Pine	2	Log	18		Red Oak	Low		5 - 10 feet	Sapling
Red Maple	6	Pole	7	37	Red Oak	Low		< 5 feet	Seeding
					White Oak	Low		< 5 feet	Seeding
					Sugar Maple	Trace		5 - 10 feet	Sapling
78	4130 - Aspen	Sapling Medium	19.7	6	Immature	N/A		Stand cut in the winter 2015/2016. Attempted to grab some of the aspen clone within the surrounding stand. Majority is regenerating well, oak have been heavily hit with browse but some are established above browse height. The far east edge appears barren with little to no regeneration present. NW corner contains nice oak sprouts.	
Canopy Species	% Cover	Size Class	DBH	Age	Sub-Canopy Species	Density	Avg. Height		Size
Red Maple	26	Sapling	1		Red Oak	Medium	< 5 feet		Tall Shrub
Red Oak	10	Sapling	1		White Oak	Low	< 5 feet		Seeding
White Oak	2	Sapling	1		White Pine	Low	< 5 feet		Seeding
Bigtooth Aspen	60	Sapling	1	6					
79	4310 - Pine, Oak Mix	Poletimber Well	15.0	36	81-110	N/A	Odd stand. High variability with pockets of plantation appearance white pine, with other portions stunted aspen, declining pole sized white pine or canopy gaps with oak and sugar maple saps. Not very much understory development. Old notes mentioned "manage for un-even aged natural white pine." There is not a significant amount of white pine seedlings and saplings to be confident.		
Canopy Species	% Cover	Size Class	DBH	Age	Sub-Canopy Species	Density		Avg. Height	Size
Red Maple	2	Pole/Sap/Log	9		Beech	Low		5 - 10 feet	Sapling
Red Oak	25	Log/Pole	15		White Pine	Low		5 - 10 feet	Sapling
White Oak	8	Log/Pole	12		Sugar Maple	Low		10 - 20 feet	Sapling
Bigtooth Aspen	8	Pole	6		Red Oak	Medium		10 - 20 feet	Sapling
White Pine	55	Pole/Log	8	36	Red Maple	Low		10 - 20 feet	Sapling
Red Pine	2	Log/Pole	11		Witch Hazel	Medium		5 - 10 feet	Tall Shrub
80	42290 - Natural Mixed Pine	Sawtimber Well	15.5	98	81-110	N/A	Really unique stand of natural pines. Mostly two distinct age classes present; large supercanopy pines/oaks with a younger cohort of saplings coming up into natural canopy gaps. Small leatherleaf inclusion where powerline runs through stand as well as a small lowland type marsh/bog in the northern portion containing mostly tag, Balsams, Spruce and stressed white pine. 49.5" DBH White pine was found within the stand. Most aspen is overmature and falling out. Portion of the stand does fall into the natural river buffer. Cores from pines varied from to as young as 85 to as old as ~120.		
Canopy Species	% Cover	Size Class	DBH	Age	Sub-Canopy Species	Density		Avg. Height	Size
Red Maple	5	Log/Pole	10		Balsam Fir	Medium		Variable	Sapling
Red Oak	10	Log/Pole	12		White Pine	Medium		5 - 10 feet	Sapling
Bigtooth Aspen	10	Log	14	82	White Oak	Trace		10 - 20 feet	Sapling
White Pine	55	XLog/Log	18	98	Black Spruce	Low		< 5 feet	Sapling
Red Pine	10	XLog/Log	18	92	Hemlock	Low		10 - 20 feet	Sapling
White Oak	2	Log	15		Red Oak	Low		Variable	Sapling
Balsam Fir	4	Pole/Log	9		Red Pine	Trace		5 - 10 feet	Sapling
Black Spruce	2	Log/Pole	10		Red Maple	Low		10 - 20 feet	Sapling
Tamarack	2	Log/Pole	10						



Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	Managed Site	General Comments					
81	622 - Lowland Shrub	Nonstocked	2.7			No	Contains a small creek that splits from Chub Creek. Spongy grass mats on the edges with thick alder, cattails and scattered black ash. Occasional cedar or spruce.					
								Sub-Canopy Species	Density	Avg. Height	Size	
								Tag Alder	High	5 - 10 feet	Tall Shrub	
								Cattail spp.	Medium	Unspecified	Non-Wood	
								Northern White Cedar	Low	>20 feet	Pole	
								Black Ash	Low	10 - 20 feet	Sapling	
Tamarack	Low	>20 feet	Log									
82	4119 - Mixed Northern Hardwoods	Poletimber Well	3.9	86	81-110	N/A	This was previously part of stand 20, this portion was not harvested. Good quality.					
								Canopy Species	% Cover	Size Class	DBH	Age
								Sugar Maple	25	Pole/Log	8	86
								Red Maple	21	Log/Pole	10	
								Red Oak	20	Log	12	
								Beech	20	Pole	7	
								Bigtooth Aspen	10	Pole/Log	9	
								White Pine	4	Pole/Log	10	
								Sub-Canopy Species	Density	Avg. Height	Size	
								Beech	Medium	5 - 10 feet	Tall Shrub	
Red Oak	Low	10 - 20 feet	Sapling									
Witch Hazel	Low	5 - 10 feet	Tall Shrub									
Ironwood	Medium	5 - 10 feet	Sapling									
83	3102 - Grass	Nonstocked	1.4			Unspecified	Old gas well pad.					
87	629 - Mixed non-forested wetland	Nonstocked	3.1			No						
								Sub-Canopy Species	Density	Avg. Height	Size	
								Red Maple	Low		Pole	
								Black Spruce	Low		Pole	
								Alder	Medium		Tall Shrub	
Northern White Cedar	Low		Pole									
92	4133 - Aspen, Mixed Pine	Poletimber Medium	3.8	50	51-80	N/A	Old notes said to let aspen fall out and manage for white pine. Aspen is dying out, and is of poor quality. White pine is establishing well throughout the stand. Scattered pockets of oak saps.					
								Canopy Species	% Cover	Size Class	DBH	Age
								Red Maple	15	Pole	6	
								Quaking Aspen	40	Pole	7	50
								White Pine	35	Pole	7	
								Red Oak	8	Pole/Log	9	
								Red Pine	2	Log/Pole	10	
								Sub-Canopy Species	Density	Avg. Height	Size	
White Pine	Medium	Variable	Sapling									
Black Cherry	Low	< 5 feet	Tall Shrub									
Red Oak	Low	5 - 10 feet	Sapling									
Red Maple	Medium	5 - 10 feet	Sapling									
101	110 - Low Intensity Urban	Nonstocked	1.4	0		Unspecified	Muskegon Development permit #43200 . Gas Facility.					
123	310 - Herbaceous Openland	Nonstocked	1.0			Unspecified	muskegon development #42893 otsego lake a1-27					