



Compartment Review Presentation

Traverse City Forest Management Unit

Compartment 61145

Entry Year 2019

Acreage: 1,795

County Kalkaska

Management Area: High Sand Plains

Stand Examiner: Katie Armstrong

Legal Description:

T25N R6W Sections 19, 20 and 21

Identified Planning Goals:

This compartment is part of the Kirtland's Warbler Management Area and is managed to create habitat for the federally endangered Kirtland's Warbler (KW). Management is guided by the KW Breeding Range Conservation Plan and the Operational Plan for KW Habitat Management on Michigan State Forests. Some of the stands in this management area have been identified as essential habitat for the KW. Management on the stands that are not identified as essential habitat is guided by the Regional State Forest Management Plan and will emphasize balancing the age classes of aspen and red pine and regenerating the aging oak resource. Management activities may be constrained or modified based on the management recommendations described in the Conservation Plan. Expected challenges within this 10-year planning period include introduced pests and diseases and ensuring adequate jack pine regeneration on KW sites. Much of the oak along Naples Road is dead and dying so planned cuts will attempt to salvage remaining value and create conditions conducive to oak regeneration.

Soil and topography:

Most of the compartment sits on sand especially Rubicon sand and Croswell sand. There are also areas poorly and moderately drained soils such as mucks. Most of the compartment is flat with some topography near the streams.

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

The State acquired 40 acres within this compartment since the last inventory. There are two areas of private ownership, totalling 120 acres.

Unique Natural Features:

See other sections.

Archeological, Historical, and Cultural Features:

There is an identified site in Section 21, but it was determined to be not significant and does not need to be avoided.

Special Management Designations or Considerations:

A stand in the northwest corner of the compartment was included in an SCA for "Other Habitat Area," a relatively good example of a hardwood-conifer swamp, which extends into Compartment 243. The compartment contains polygons for two rare species.

Watershed and Fisheries Considerations:

Big Cannon Creek and a tributary to Little Cannon Creek flow through this compartment. Both are Designated Trout Streams. Big Cannon Creek has naturally reproducing populations of brook, brown, and rainbow trout. Treatments near these streams should have a BMP buffer of at least 100 feet. Both of these streams are protected by the Natural Rivers plan for the Manistee River.

Wildlife Habitat Considerations:

Compartment 145 is part of a broad, flat outwash plain, comprised mainly of excessively drained soils. Grayling sand predominates, creating a flat, drought-prone landscape adapted to frequent wildfires. The Sharon Area Kirtland's Warbler (KW) Management Unit includes most of Compartment 145, making habitat management for KWs a priority in this compartment. Management is guided by the Kirtland's Warbler Recovery Plan, developed by State and Federal agencies, academics, and other interested parties in 1976 and updated in 1985. It is currently undergoing a third revision to facilitate management efforts to increase the Kirtland's warbler populations throughout their limited range. These jack pine stands also provide habitat for the upland sandpiper, Eastern bluebird, white tailed deer, black bear, snowshoe hare, and for several protected prairie plants, including the Allegheny plum, Hill's thistle, and rough fescue. Prescribed burning, hand felling, along with some potential seeding of native forage grasses have been proposed to maintain important herbaceous cover. Elements of coarse woody debris, mast bearing residual trees, and/or cover islands should be incorporated into the proposed timber sales to provide key habitat components in the resulting stands.

A small patch of poorly drained soils (LTA 5149) is located in the south central part of the compartment. These mucky soils support a stand of lowland aspen and a sizeable stand of lowland conifer that extends south into the next compartment. Wildlife utilizing these lowland communities include: white-tailed deer, bobcat, black bear, snowshoe hare, alder flycatcher, Eastern milk snake, and wood turtle.

Mineral Resource and Development Concerns and/or Restrictions

There is no known metallic mineral potential in this region. A former sand/gravel pit is located in sections 33-34. There is some sand and gravel potential within the compartment, but the water table appears to be relatively shallow across much of the area, which could limit development potential. The Garfield 14 and 15 fields are located to the northeast of the compartment. The fields produce from the Devonian Richfield (Lucas Formation) and the Ordovician St. Peter Sandstone. The entire compartment was previously leased as part of the Collingwood lease play. All of the leases are now expired, and there currently is no interest in developing the Collingwood. Potential for additional Richfield or St. Peter SS production in the area is unknown.

Vehicle Access:

South Sharon Road, Beaver Dam, Naples, and Cannon Bridge roads are county roads running through the compartment. The Kalkaska County Road Commission closed the bridge over Big Cannon Creek, but there is access from either side. The overgrown forest roads through the large jack pine stands managed for Kirtland warbler should be closed (until needed) to block vehicular traffic, especially during nesting season.

Survey Needs:

None identified at this time.

Recreational Facilities and Opportunities:

There are no designated recreational trails or facilities within this compartment. (T.M.N. 10/10/16)

Fire Protection:

Fire protection in this compartment is provided by Garfield Township and the DNR Kalkaska Field Office. Sections 20 and 21 are within Zone 5, meaning additional resources will be dispatched from nearby offices for fires on High and above days.

Additional Compartment Information:

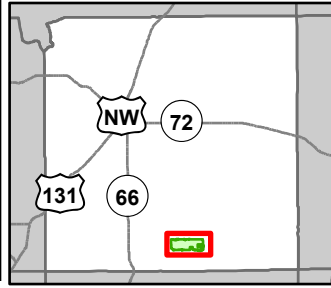
The following reports from the Inventory are attached:

- 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**

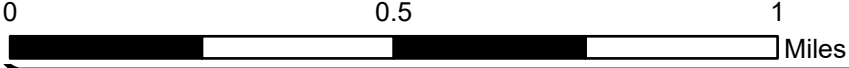
The following information is displayed, where pertinent, on the attached compartment maps:

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

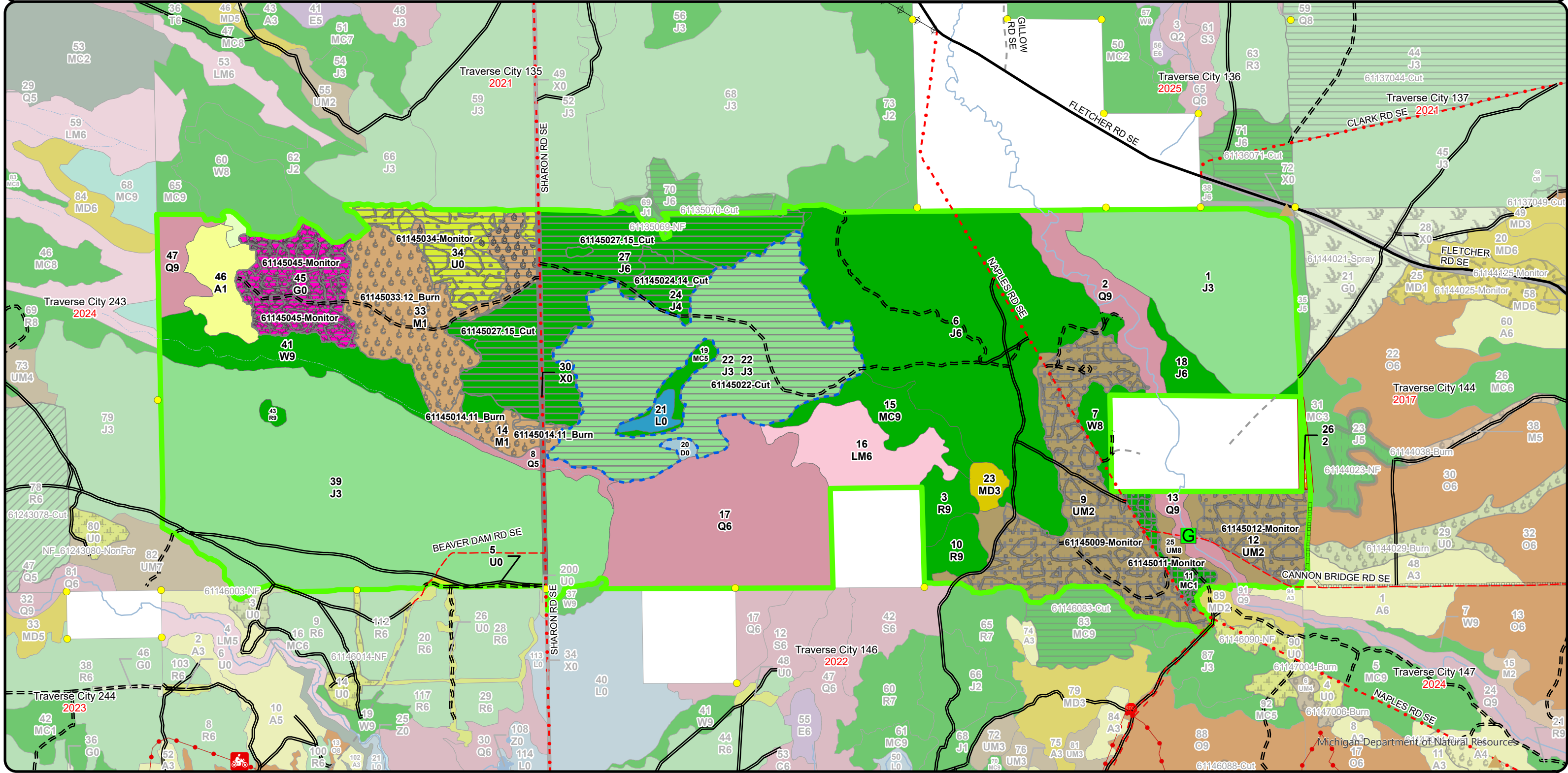
Cover Type & Treatments Map



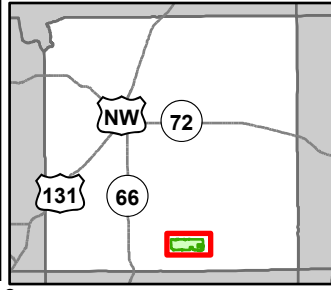
Compartment: 61145
 T25N R06W Sec. 19-21
 County: Kalkaska
 Unit: Traverse City
 Mgmt Area: High Sand Plains
 YOE: 2019
 Acres: 1795.3 GIS Calculated
 Examiner: Katie Armstrong
 Map Revised: 7/5/2024
 Map Phase: Web Post



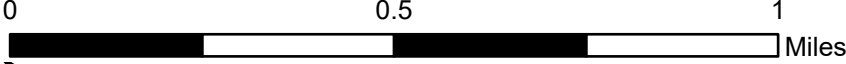
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|---|-----------------------------------|------------------------------|-----------------------------------|------------------------------------|
| ▲ Berms | --- Private - Dirt / Gravel Road | ▨ Clearcut (w/Reserves) | ▨ Site Prep | ■ 122 - Roads/Parking Lot |
| ⊠ Gate | ⋯ Intermittent Stream | ▨ Prescribed Burn | ■ **INCORRECT ATTRIBUTES** | ■ 310 - Herbaceous Openland |
| ⊠ Sign | — Lake/Pond | ▨ Regeneration Survey | ■ 411 - Northern Hardwood | ■ 330 - Low Density Trees |
| ● Survey Grade Corners | — Perennial River | ▨ Clearcut (w/Reserves) | ■ 413 - Aspen Types | ■ 622 - Lowland Shrub |
| 🏍️ Motorcycle Trails (DNR License) | — Lakes and Rivers | ▨ Clearcut (w/Reserves) | ■ 419 - Mixed Upland Deciduous | ■ 629 - Mixed Non-forested Wetland |
| — DNR - Secondary Forest Road | — Pipeline | ▨ Seed Tree (w/Reserves) | ■ 421 - Planted Pines | ■ No Stand Data |
| == DNR - Forest Access Route | ⚡ Powerline | ▨ Harvest, Overstory Removal | ■ 422 - Natural Pines | ■ 421 - Planted Pines |
| — Federal / State / County - Paved Road | ▨ Compartment Boundary | ▨ Planting (tree species) | ■ 430 - Upland Mixed Forest | — Designated Motorcycle Trails |
| - - - County - Gravel Road | ▨ Counties | ▨ Prescribed Burn | ■ 612 - Lowland Coniferous Forest | — Designated ORV Routes |
| - - - County - Dirt Road (Seasonal) | ▨ Treatments with Site Conditions | ▨ Regeneration Survey | ■ 613 - Lowland Mixed Forest | |



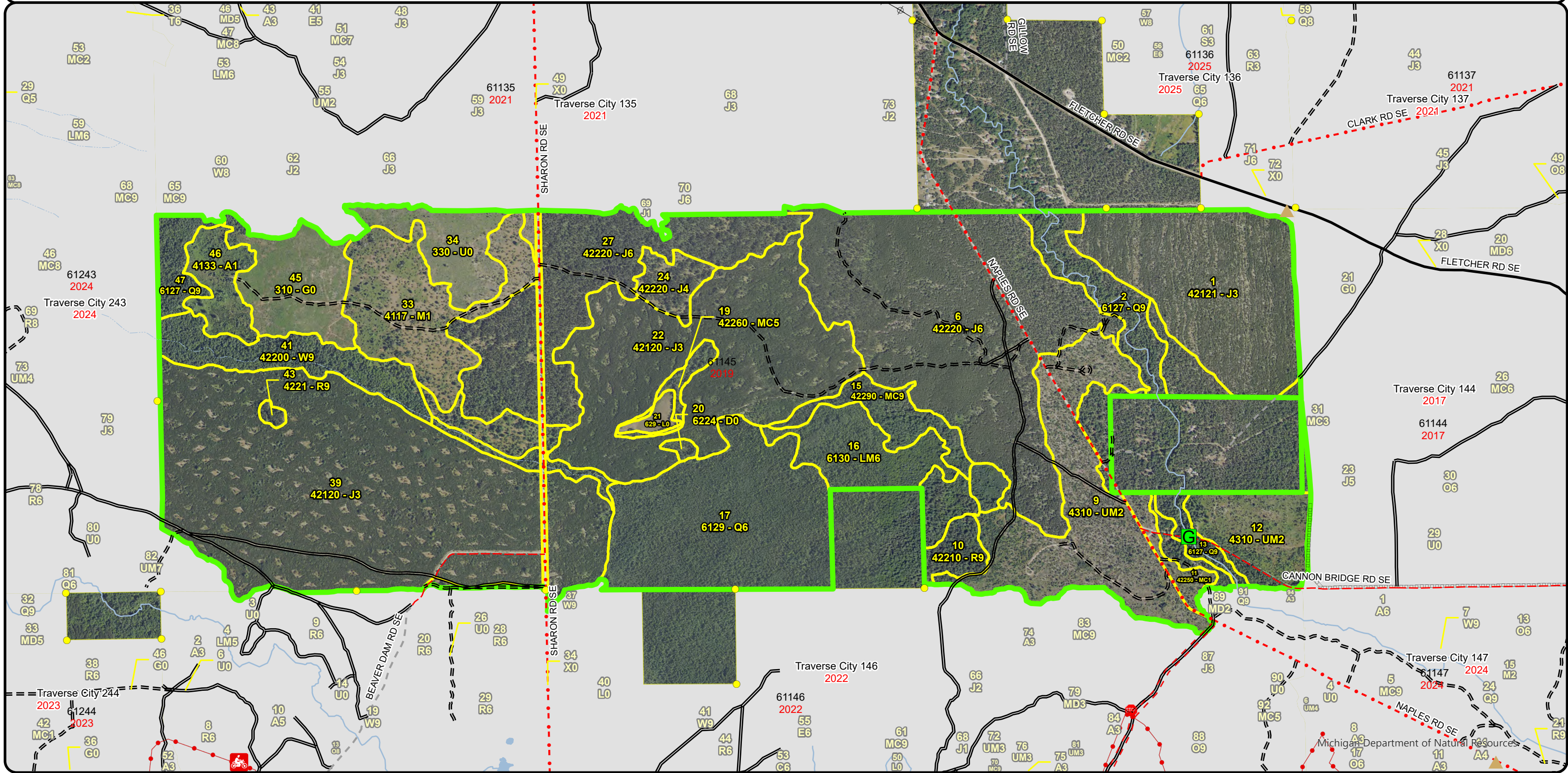
Stand Boundary Map



Compartment: 61145
 T25N R06W Sec. 19-21
 County: Kalkaska
 Unit: Traverse City
 Mgmt Area: High Sand Plains
 YOE: 2019
 Acres: 1795.3 GIS Calculated
 Examiner: Katie Armstrong
 Map Revised: 7/5/2024
 Map Phase: Web Post

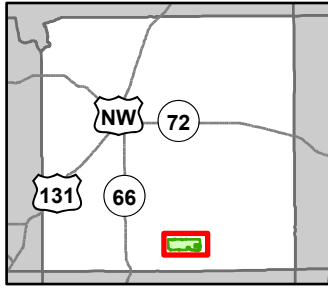


- Berms
- Gate
- Sign
- Survey Grade Corners
- Motorcycle Trails (DNR License)
- DNR - Secondary Forest Road
- DNR - Forest Access Route
- Federal / State / County - Paved Road
- County - Gravel Road
- County - Dirt Road (Seasonal)
- Private - Dirt / Gravel Road
- Intermittent Stream
- Lake/Pond
- Lakes and Rivers
- Pipeline
- Powerline
- Compartment Boundary
- Counties
- Stand Boundaries
- 411 - Northern Hardwood
- 413 - Aspen Types
- 421 - Planted Pines
- 422 - Natural Pines
- 430 - Upland Mixed Forest
- 612 - Lowland Coniferous Forest
- 613 - Lowland Mixed Forest
- 310 - Herbaceous Openland
- 330 - Low Density Trees
- 622 - Lowland Shrub
- 629 - Mixed Non-forested Wetland
- State Forests
- Designated Motorcycle Trails
- Designated ORV Routes



**Special Conservation Areas
& Site Conditions Map**

Compartment: 61145
 T25N R06W Sec. 19-21
 County: Kalkaska
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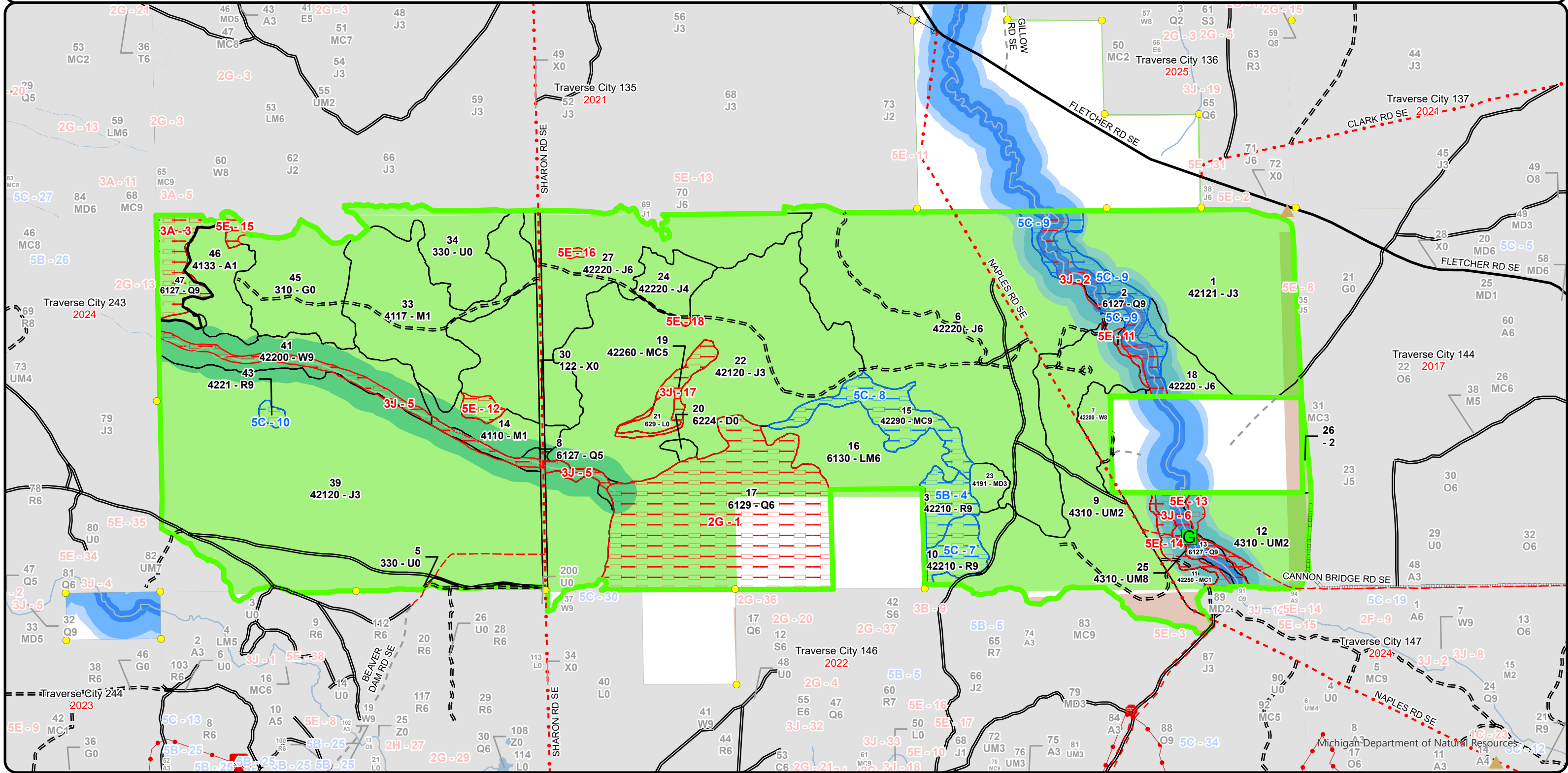
0 0.5 1 Miles

- Berms
- Gate
- Sign
- Survey Grade Corners
- Motorcycle Trails (DNR License)
- DNR - Secondary Forest Road
- DNR - Forest Access Route
- Federal / State / County - Paved Road
- County - Gravel Road
- County - Dirt Road (Seasonal)
- Private - Dirt / Gravel Road
- Intermittent Stream

- Lake/Pond
- Perennial River
- Lakes and Rivers
- Pipeline
- Powerline
- Compartment Boundary
- Counties
- SCA
- Available w/ Constraints
- Unavailable

- Stand Boundaries
- Natural Rivers Vegetative Buffer
- Natural Rivers Zoning District
- Kirtland Warbler Habitat
- Cold Water Streams
- High Priority Trout Stream Buffer
- Research, Development, and Military Lands
- Designated Motorcycle Trails
- Designated ORV Routes
- 3A: Conservation Values incompatible with harvest at this time
- 3J: Water quality / BMPs (stream, river, or lake)
- 5E: Long-Term Retention

- 5B: Maintain for regeneration purposes
- 5C: Delay treatment for age/size class diversity or exceptional site quality
- 2G: Too wet (sensitive soils, does not include access issues)



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
	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Aspen	0	0	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24
Herbaceous Openland	50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50
Jack Pine	0	0	0	516	125	251	136	0	0	0	0	0	0	0	0	0	0	0	1028
Low-Density Trees	40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40
Lowland Conifers	0	0	0	0	0	0	0	0	0	0	178	0	17	0	0	0	0	9	204
Lowland Mixed Forest	0	0	0	0	0	0	41	0	0	0	0	0	0	0	0	0	0	0	41
Lowland Shrub	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
Mixed Upland Deciduous	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
Natural Mixed Pines	0	11	0	0	0	0	0	8	0	0	25	0	0	0	0	0	0	0	43
Northern Hardwood	0	0	0	0	16	77	0	0	0	0	0	0	0	0	0	0	0	0	92
Red Pine	0	0	0	0	0	0	0	0	0	25	0	0	0	0	0	0	0	2	27
Treed Bog	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Upland Mixed Forest	0	0	41	117	0	0	0	0	0	0	0	0	7	0	0	0	0	0	164
Urban	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
White Pine	0	0	0	0	0	0	0	0	0	11	0	45	0	0	0	0	0	0	56
Total	105	11	73	633	141	328	177	8	0	36	203	45	24	0	0	0	0	11	1792



Report 2 – Treatment Summary

Traverse City Mgt. Unit
Year of Entry: 2019

Acres of Harvest

Compartment 145
Total Compartment Acres: 1,795

Commercial Harvest - 311
Harvests with Site Condition - 0
Next Step Harvest - 0
Habitat Cut - 0

Cover Type by Harvest Method

		Clearcut	Selection	Patch Clearcut	Seed Tree	Shelterwood	Thinning	Overstory Removal	Salvage	Other	Total Acres
Jack Pine		311	0	0	0	0	0	0	0	0	311
	Total	311	0	0	0	0	0	0	0	0	311

Proposed and Next Step Treatments by Method

		Harvest	Site Prep	Planting	Seeding	Burning	Pesticide	Monitoring	Other	Non-Forest Mgt.	Total Acres
Current		311	0	0	0	91	0	238	0	0	639
Next Step		0	311	179	0	0	0	405	0	91	986
	Total	311	311	179	0	91	0	643	0	91	1625



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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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Proposed Treatments:

22	61145022-Cut	179.3	42120 - Planted Jack Pine	Sapling Well	22	Immature	Harvest	Clearcut	4212 - Planted Jack Pine	Even-Aged	No
<p><u>Prescription</u> Cut all trees 1 inches and larger. Require chipping and low stumps to facilitate planting operations. Biomass harvest</p> <p><u>Specs:</u></p> <p><u>Next Step</u> SitePrep, Trenching; Planting, KW Initial Plant; Monitoring, Artificial Regen(1yr); Monitoring, Artificial Regen(3yr)</p> <p><u>Treatments:</u></p> <p><u>Acceptable</u> Planted jack pine KW</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 /2024</p>											

Approved Treatments:

9	61145009-Monitor	108.9	4310 - Pine, Oak Mix	Sapling Medium	23	1-50	Monitoring	Natural Regen (Re-Inventory)	4319 - Mixed Upland Forest	Even-Aged	No
<p><u>Prescription</u></p> <p><u>Specs:</u></p> <p><u>Next Step</u></p> <p><u>Treatments:</u></p> <p><u>Acceptable</u> Oak, pine, aspen, maple.</p> <p><u>Regen:</u></p> <p><u>Other</u> Percent to Treat = 100%</p> <p><u>Comment:</u></p> <p><u>Site Condition</u></p> <p><u>Proposed Start Date:</u> 10/1 /2026</p>											

11	61145011-Monitor	10.9	42250 - Pine, Oak	Sapling Poor	4	1-50	Monitoring	Natural Regen (Re-Inventory)	4310 - Pine, Oak Mix	Even-Aged	No
<p><u>Prescription</u></p> <p><u>Specs:</u></p> <p><u>Next Step</u></p> <p><u>Treatments:</u></p> <p><u>Acceptable</u> White pine, red pine, jack pine, oak, aspen, red maple.</p> <p><u>Regen:</u></p> <p><u>Other</u> Percent to Treat = 100%</p> <p><u>Comment:</u></p> <p><u>Site Condition</u></p> <p><u>Proposed Start Date:</u> 10/1 /2026</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
12 61145012-Monitor	34.7	4310 - Pine, Oak Mix	Sapling Medium	13	1-50	Monitoring	Natural Regen (Re-Inventory)	4199 - Other Mixed Upland Deciduous	Even-Aged	No
<p><u>Prescription</u> <u>Specs:</u></p> <p><u>Next Step</u> <u>Treatments:</u></p> <p><u>Acceptable</u> White pine, jack pine, red pine, aspen, oak, red maple, cherry. <u>Regen:</u></p> <p><u>Other</u> Percent to Treat = 100% <u>Comment:</u></p> <p><u>Site Condition</u> Proposed Start Date: 10/1 /2026</p>										
14 61145014.11_Burn	14.3	4110 - Sugar Maple Association	Sapling Poor	36	Immature	Burn	Opening	3105 - Mixed Upland Herbaceous		No
<p><u>Prescription</u> The goal of rotational burning is to restore and/or maintain a grassland/barrens ecosystem. The timing and frequency of the burns will be based on current needs of restoration such as reducing woody encroachment or promoting grasses versus forbs. Remove exotics as needed by herbiciding or other methods. Maintain as needed with mowing, seeding of native grasses and forbs, fertilizing, burning, or removal of woody encroachment. <u>Specs:</u></p> <p><u>Next Step</u> NonForestMgt, Other - Specify <u>Treatments:</u></p> <p><u>Acceptable</u> <u>Regen:</u></p> <p><u>Other</u> Portions of this stand that are not able to burn should be treated mechanically to achieve similar MO as the burn unit. Back burn or foam around desirable mature trees and vegetation. <u>Comment:</u></p> <p><u>Site Condition</u> Proposed Start Date: 10/1 /2018</p>										
24 61145024.14_Cut	15.3	42220 - Natural Jack Pine	Poletimber Poor	46	Unspecified	Harvest	Clearcut with Retention	4222 - Natural Jack Pine	Even-Aged	No
<p><u>Prescription</u> Clearcut, leaving retention along edge of younger stand. Include specs to facilitate natural regeneration, e.g. leaving limbs/tops scattered throughout stand. <u>Specs:</u></p> <p><u>Next Step</u> SitePrep, Scarification <u>Treatments:</u></p> <p><u>Acceptable</u> Naturally regenerated jack pine for KW habitat. <u>Regen:</u></p> <p><u>Other</u> <u>Comment:</u></p> <p><u>Site Condition</u> Proposed Start Date: 10/1 /2020</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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27	61145027.15_ Cut	116.3	42220 - Natural Jack Pine	Poletimber Well	58	Unspec ified	Harvest	Clearcut with Retention	4222 - Natural Jack Pine	Even-Aged	No
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Prescription Clearcut, leaving retention as pocket(s) of red pine and/or oak. Consider SW corner, as one example. Include specs to facilitate natural regeneration, e.g. leaving limbs/tops scattered throughout stand.

Specs:

Next Step SitePrep, Scarification

Treatments:

Acceptable Naturally regenerated jack pine for KW habitat.

Regen:

Other Include treatment on Comp 135 Stand 70 to the north.

Comment:

Site Condition

Proposed Start Date: 10/1 /2020

33	61145033.12_ Burn	76.3	4117 - Mixed N. Hardwood - Pine	Sapling Poor	42	1-50	Burn	Opening	3105 - Mixed Upland Herbaceous		No
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Prescription The goal of rotational burning is to restore and/or maintain a grassland/barrens ecosystem. The timing and frequency of the burns will be based on current needs of restoration such as reducing woody encroachment or promoting grasses versus forbs. Remove exotics as needed by herbiciding or other methods. Maintain as needed with mowing, seeding of native grasses and forbs, fertilizing, burning, or removal of woody encroachment.

Specs:

Next Step NonForestMgt, Other - Specify

Treatments:

Acceptable

Regen:

Other Portions of this stand that are not able to burn should be treated mechanically to achieve similar MO as the burn unit. Back burn or foam around desirable mature trees and vegetation.

Comment:

Site Condition

Proposed Start Date: 10/1 /2018

34	61145034- Monitor	37.2	330 - Low-Density Trees	Nonstocked	0	Unspec ified	Monitoring	Natural Regen (Re-Inventory)	4222 - Natural Jack Pine	Even-Aged	No
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Prescription

Specs:

Next Step

Treatments:

Acceptable Jack pine, white pine, red pine, oak.

Regen:

Other Percent to Treat = 100%

Comment:

Site Condition

Proposed Start Date: 10/1 /2026



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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
45 61145045-Monitor	46.1	310 - Herbaceous Openland	Nonstocked	0	Unspecified	Monitoring	Artificial Regen(1yr)	4211 - Planted Red Pine	Even-Aged	No
<p><u>Prescription</u></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> Fully stocked red pine stand.</p> <p><u>Regen:</u></p> <p><u>Other</u> Percent to Treat = 100%</p> <p><u>Comment:</u></p> <p><u>Site Condition</u></p> <p><u>Proposed Start Date:</u> 10/1 /2023</p>										

Total Treatment
Acreage Proposed: 639.3

Report 4 – Site Conditions

Traverse City Mgt. Unit
Katie Armstrong : Examiner

Compartment: 145
Year of Entry: 2019

Availability for Management

Total Acres	Acres Available	Acres Avail		Dominant Site Conditions	Dominant Site Conditions						
		With Condition	Not Available		5B	5C	2G	3A	3J	5E	
24	24	0	0	Aspen							0
50	47	0	2	Herbaceous Openland							2
1028	1021	0	7	Jack Pine					1		6
40	40	0	0	Low-Density Trees							
203	3	14	187	Lowland Conifers		14	133	17	35		2
41	41	0	0	Lowland Mixed Forest							
5	5	0	0	Lowland Shrub							
6	6	0	0	Mixed Upland Deciduous							
43	11	25	8	Natural Mixed Pines		25			8		0
92	92	0	0	Northern Hardwood							
27	1	26	0	Red Pine	12	14					
2	2	0	0	Treed Bog							
165	155	0	11	Upland Mixed Forest					1		10
8	8	0	0	Urban							
56	45	0	11	White Pine						11	
1,793	1,503	64	226	Total Forested Acres	12	52	133	17	56		20
	84%	4%	13%	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	2G: Too wet (sensitive soils, does not include access issues)	133	5F: Evaluated for Forest Health Considerations	Unspecified	Unspecified	Unspecified
Comments:							
2	Unavailable	3J: Water quality / BMPs (stream, river, or lake)	19	Unspecified	Unspecified	Unspecified	Unspecified
Comments: Natural Rivers buffer = 100' on Big Cannon Creek. May need to be increased where there is a bluff.							

Report 4 – Site Conditions

Traverse City Mgt. Unit
Katie Armstrong : Examiner

Compartment: 145
Year of Entry: 2019

3	Unavailable	3A: Conservation Values incompatible with harvest at this time	17	Unspecified	Unspecified	Unspecified	Unspecified
Comments: Unusual stand. SCA for Other Habitat Area.							
4	Available	5B: Maintain for regeneration purposes	12	Unspecified	Unspecified	Unspecified	Unspecified
Comments:							
5	Unavailable	3J: Water quality / BMPs (stream, river, or lake)	18	Unspecified	Unspecified	Unspecified	Unspecified
Comments: 50' buffer on tributary of Manistee, per Natural Rivers plan.							
6	Unavailable	3J: Water quality / BMPs (stream, river, or lake)	10	Unspecified	Unspecified	Unspecified	Unspecified
Comments: 100' buffer on Big Cannon Creek per Manistee River natural rivers plan. May need to be increased where there is a bluff.							
7	Available	5C: Delay treatment for age/size class diversity or exceptional site quality	12	Unspecified	Unspecified	Unspecified	Unspecified
Comments: Hold until stand to the north is final harvested.							
8	Available	5C: Delay treatment for age/size class diversity or exceptional site quality	25	Unspecified	Unspecified	Unspecified	Unspecified
Comments: Not sure how to replicate this stand. Save as an island of diversity in a compartment with lots of KW jack pine.							

Report 4 – Site Conditions

Traverse City Mgt. Unit
Katie Armstrong : Examiner

Compartment: 145
Year of Entry: 2019

9	Available	5C: Delay treatment for age/size class diversity or exceptional site quality	14	Unspecified	Unspecified	Unspecified	Unspecified
Comments: Save for diversity along stream between KW cuts.							
10	Available	5C: Delay treatment for age/size class diversity or exceptional site quality	2	Unspecified	Unspecified	Unspecified	Unspecified
Comments:							
11	Unavailable	5E: Long-Term Retention	2	Unspecified	Unspecified	Unspecified	Unspecified
Comments: Retention. Additional stream buffer.							
12	Unavailable	5E: Long-Term Retention	4	Unspecified	Unspecified	Unspecified	Unspecified
Comments:							
13	Unavailable	5E: Long-Term Retention	4	Unspecified	Unspecified	Unspecified	Unspecified
Comments: Retention. Additional stream buffer.							
14	Unavailable	5E: Long-Term Retention	7	Unspecified	Unspecified	Unspecified	Unspecified
Comments: Retention. Additional stream buffer.							
15	Unavailable	5E: Long-Term Retention	2	Unspecified	Unspecified	Unspecified	Unspecified
Comments:							

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Compartment: 145
Year of Entry: 2019

16	Unavailable	5E: Long-Term Retention	1	Unspecified	Unspecified	Unspecified	Unspecified
Comments:							
17	Unavailable	3J: Water quality / BMPs (stream, river, or lake)	8	3A: Conservation Values incompatible with harvest at this time	Unspecified	Unspecified	Unspecified
Comments:							
18	Unavailable	5E: Long-Term Retention	0	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 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.
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	Designated Critical Habitat	Critical habitat areas are established via a consultative and cooperative process between the DNR and the U.S. Fish and Wildlife service for the recovery of threatened and endangered species, as governed by Part 365, Endangered Species Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, and the Federal Endangered Species Act of 1973. This is an active program, with proposed species plans in various stages of review. As of now only two exist, Kirtland Warbler Habitat and Piping Plover Habitat.
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.



Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	Managed Site	General Comments
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1	42121 - Planted Jack Pine, Mixed Deciduous	Sapling Well	124.9	30	Immature	N/A	Warbler stand, couldn't find planting records. Scattered overstory oak, white pine and jack pine.
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Canopy Species	% Cover	Size Class	DBH	Age
Jack Pine	80	Sapling	1	30
Black Cherry	5	Sapling	1	
Northern Pin Oak	15	Sapling	1	

2	6127 - Lowland Pine	Sawtimber Well	34.3	95	81-110	N/A	Big Cannon Creek flows through stand. Diverse stand with good vertical structure. Mostly flat along stream bed with bluff on either side.
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Canopy Species	% Cover	Size Class	DBH	Age	Sub-Canopy Species	Density	Avg. Height	Size
Red Maple	5	Log	12		Black Spruce	Low	Variable	Sapling
Black Spruce	10	Pole	6					
Red Pine	5	Log	10					
Northern White Cedar	25	Log/Pole	10					
White Pine	50	XLog/Log	18	95				
Jack Pine	5	Pole/Log	8					

3	42210 - Natural Red Pine	Sawtimber Well	12.6	89	81-110	N/A	North part cut with Naples West 61-046-09-01, cut 3-5/2011. Trees marked for removal and all aspen, RM, and JP. Patches of mostly red maple regeneration. Heavy browse. Some wet areas.
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Canopy Species	% Cover	Size Class	DBH	Age	Sub-Canopy Species	Density	Avg. Height	Size
Red Pine	70	Log/Pole/XLog	14	89	Red Maple	Medium	10 - 20 feet	Sapling
White Pine	25	Log/XLog/Pole	16		White Pine	Medium	5 - 10 feet	Sapling
Northern Pin Oak	5	Pole	6					

5	330 - Low-Density Trees	Nonstocked	1.7	0	Unspecified	No	
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6	42220 - Natural Jack Pine	Poletimber Well	235.4	44	Unspecified	N/A	Variable stand. Parts are very dense jack pine. Barely a pole stand, and most stems are still smaller. Cherry in scattered gaps. Part of KW block 23. To be planted in 2031.
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Canopy Species	% Cover	Size Class	DBH	Age	Sub-Canopy Species	Density	Avg. Height	Size
Jack Pine	98	Pole/Sapling	5	44	Northern Pin Oak	Trace	>20 feet	Sapling
Black Cherry	2	Sapling	2					

7	42200 - Natural White Pine	Sawtimber Medium	11.0	87	1-50	N/A	Cut with Naples Road Jack Pine, 61-068-99-01, cut 7/2000-3/2001. Cut JP, aspen and RM. Left all oak. This part has higher residual BA, especially white pine, than rest of that cut. Oak is in very bad shape. Heavy browse on oak seedlings but some have gotten taller than 3'. BA is variable and patchy. Old railroad grades. NW corner of private is in (orange carsonite).OPIC - FMD: Kirtland's Warbler Habitat designation missed during inventory process.KW treatment?
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Canopy Species	% Cover	Size Class	DBH	Age	Sub-Canopy Species	Density	Avg. Height	Size
Northern Pin Oak	20	Log/XLog	16		Northern Pin Oak	Low	Variable	Sapling
White Pine	80	Log/Pole	13	87	Jack Pine	Medium	5 - 10 feet	Sapling
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Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	Managed Site	General Comments																																															
8	6127 - Lowland Pine	Poletimber Medium	9.1	75	51-80	N/A	Narrow strip of trees along seasonal drainage. Variable stand. Bigger trees at east end.																																															
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9	4310 - Pine, Oak Mix	Sapling Medium	116.5	23	1-50	N/A	2021: Additional overstory removal of dead and dying oak in 2020. Dipped into thicker white pine south of section line to chase dying oak. Left scattered white and red pine in that part and it has heavier white pine understory. Producers did a good job protecting the advanced regen. Previously cut as Naples Road Jack Pine, 61-068-99-01, cut 7/2000-3/2001. Cut JP, aspen and RM. Left all oak. KW designation is unclear: north of section line may be part of KW block 23, to be planted in 2031?																																															
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10	42210 - Natural Red Pine	Sawtimber Well	12.7	89	81-110	N/A	Not sure why this wasn't cut with stand to the north. Red pine diameters and BA are variable; some parts are 170+ and others are 50-80. Patchy understory. Consider holding until stand to the north is restarted.																																															
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11	42250 - Pine, Oak	Sapling Poor	11.0	4	1-50	N/A	Cut fall/winter 2020-2021. Removed most of oak overstory in favor of oak/white pine/jack pine understory. 2017: More white pine at southern end. Heavy browse on oak seedlings. Some very open areas, possibly used for camping. Past issues with illegal ORV traffic (carsonite sign along stream). Old grade.																																															
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12	4310 - Pine, Oak Mix	Sapling Medium	41.4	13	1-50	N/A	<p>Cut fall/winter 2020-21, 61-156-18. Pre-harvest BA was variable (10-120 sf/acre) due to variable volume cut in 2011. This was attempt to salvage dying oak and release more of the advanced regen. Producers did a good job of protecting that. Did not cut sliver at north end between private property and pipeline. Did not cut south of Cannon Bridge Rd, a small, dense pocket of old white pine and red pine (BA 200+). Removed White Pine Log/Pole age of 110 from canopy table.</p> <p>Cannon Bridge, 61-051-09-01, cut May-June, 2011. Relatively low volume sale, but additional dead oak volume was added at the time.</p> <p>Old railroad grade runs through this part.</p>																																																					
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15	42290 - Natural Mixed Pine	Sawtimber Well	24.5	94	171-200	N/A	<p>Nice stand with some tall white pine (although fair amount of defect), relatively high species diversity, and good vertical structure. Red maple in understory is relatively well developed. Concerned that cutting would push towards red maple. Standing water in some areas. Wetter to the south. Less pine in finger to the west. Old grade? Old fire scars and cut stumps.</p>																																																					
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16	6130 - Fir, Aspen, Maple	Poletimber Well	41.0	56	Unspecified	N/A	<p>Relatively dense stand. Habitat cut (hardwood and aspen) in 1967. Hard to tell how wet.</p>																																																					
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17	6129 - Mixed Coniferous Lowland Forest	Poletimber Well	132.9	93	Unspecified	N/A																																																		
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18	42220 - Natural Jack Pine	Poletimber Well	13.8	53	Unspecified	N/A	Jack pine with scattered oak above and below. Oak is in poor shape. Heavy browse on oak seedlings. More white pine toward the creek. Overhead powerline and access road to seasonal private property along south edge of stand.																																																	
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19	42260 - Natural Pine, Mixed Deciduous	Poletimber Medium	7.9	66	51-80	N/A	Small buffer of trees around V0 and drainage leading into it. BA is variable with some denser pockets of trees, open areas, and tag alder along the drainage. Good diversity within KW planted jack pine stand.																																																	
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20	6224 - Treed Bog	Nonstocked	2.2		Unspecified	No	Small, sparse treed bog with fringe of trees, mostly older red pine and jack pine.																																																	
21	629 - Mixed non-forested wetland	Nonstocked	5.4		Unspecified	No	OPIC - FMD: Area at one time was used as a hay field.																																																	
22	42120 - Planted Jack Pine	Sapling Well	179.5	22	Immature	N/A	Warbler Creek, 61-020-99-01, cut 5-9/2000. Did not find planting record. Managed for Kirtland Warbler.																																																	
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23	4191 - Mixed Upland Deciduous with Conifer	Sapling Well	6.4	13	Immature	N/A	Naples West, 61-046-09-01, cut 3-5/2011. Cut aspen, RM, BC, WP, and RP. Left all oak. Mostly saplings with residual oak overstory.																																																	
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24	42220 - Natural Jack Pine	Poletimber Poor	15.7	46	Unspecified	N/A	Part of KW block 25. To be planted in 2025. Similar trees as stand 27 but with clumpy distribution. Scattered openings with shrubby cherry.																																																									
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25	4310 - Pine, Oak Mix	Sawtimber Medium	7.2	117	51-80	N/A	This was split from Stand 11 as retention/stream buffer from that treatment. Data is from 2017: High oak mortality. More white pine at southern end. Heavy browse on oak seedlings. Some very open areas, possibly used for camping. Past issues with illegal ORV traffic (carsonite sign along stream). Old grade.																																																									
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26		Sapling Medium	2.1	13	1-50	N/A	Cut fall/winter 2020-21, 61-156-18. Pre-harvest BA was variable (10-120 sf/acre) due to variable volume cut in 2011. This was attempt to salvage dying oak and release more of the advanced regen. Producers did a good job of protecting that. Did not cut sliver at north end between private property and pipeline. Did not cut south of Cannon Bridge Rd, a small, dense pocket of old white pine and red pine (BA 200+). Cannon Bridge, 61-051-09-01, cut May-June, 2011. Relatively low volume sale, but additional dead oak volume was added at the time. Old railroad grade runs through this part.																																																									
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27	42220 - Natural Jack Pine	Poletimber Well	122.3	58	Unspecified	N/A	Perhaps cut in 1965. More diverse than average JP stand Part of KW block 25. To be planted in 2025.																																																									
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30	122 - Road/Parking Lot	Nonstocked	8.3		1-50	No	S. Sharon Rd. Overhead powerline runs along west side of road.																																																									
33	4117 - Mixed N. Hardwood - Pine	Sapling Poor	76.5	42	1-50	N/A	Rotational opening maintenance burn.																																																									
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34	330 - Low-Density Trees	Nonstocked	38.2	0	Unspecified	4222 - Natural Jack Pine	Cut winter 2020-21, Minja Pine, 61-102-19. Left a few scattered overstory white pine and a few clumps of red pine. Original stand had large, remnant white pine stumps.																																																						
39	42120 - Planted Jack Pine	Sapling Well	336.7	22	Immature	N/A	Furrow seeding by WLD in June 2001 was deemed a failure. Hand planted in spring 2003. Scattered deciduous saplings and a few overstory oaks. Managed for Kirtland Warbler.																																																						
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41	42200 - Natural White Pine	Sawtimber Well	44.7	100	111-140	N/A	W6/W9 with ribbon of NWC and tag alder along seasonal drainage. Evidence of past cutting and fire. White pine is larger towards the west end. More deciduous and lesser quality towards eastern end. Trace of oak in canopy.																																																						
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43	4221 - Natural Red Pine	Sawtimber Well	2.2	187	111-140	N/A	Small pocket of red pine surrounded by KW habitat.																																																						
45	310 - Herbaceous Openland	Nonstocked	49.8	0	Unspecified	4211 - Planted Red Pine	2024 - Stand was Planted to 860 Trees per Acre of Red Pine on 5/2/2024 2023 -Stand was Helicopter Site Prep Sprayed 8/16/2023 by Hamilton Helicopters Inc. 2022 - Stand was Trenched to plant Red Pine 2021 -Final harvested winter 2020-21. Minja Pine, 61-102-19. Chipped and ready for trenching.																																																						
46	4133 - Aspen, Mixed Pine	Sapling Poor	24.4	14	Immature	N/A	Cut summer 2010, Bird Day Conifers, 61-106-09-01. Was natural stand of mixed JP and WP. Some pockets of good aspen regeneration but other areas are still filling in. Might just take a while longer. Scattered overstory conifers.																																																						
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47	6127 - Lowland Pine	Sawtimber Well	16.8	114	171-200	N/A	Diverse stand with good vertical structure. Evidence of past cutting.
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Canopy Species	% Cover	Size Class	DBH	Age	Sub-Canopy Species	Density	Avg. Height	Size
Red Pine	30	Log/XLog/Pole	16		Red Maple	Low	>20 feet	Pole
Hemlock	5	Log/Pole	10		Balsam Fir	Low	10 - 20 feet	Sapling
Red Maple	10	Pole/Log	8		Black Spruce	Medium	>20 feet	Sapling
Quaking Aspen	2	Log/Pole	10		White Pine	Low	Variable	Sapling
Northern White Cedar	3	Pole/Log	8		Red Maple	Low	< 5 feet	Sapling
White Pine	45	XLog/Log/Pole	18	114				
Black Spruce	5	Pole/Log	8					