



# Compartment Review Presentation

## Traverse City Forest Management Unit

Compartment 61145

Entry Year 2019

Acreage: 1,774

County Kalkaska

Management Area: Kirtland's Warbler

**Revision Date:** 2017-06-12

**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:**

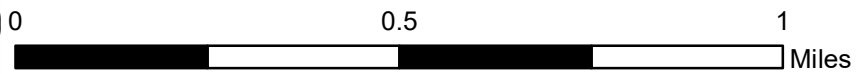
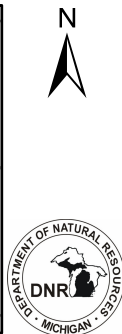
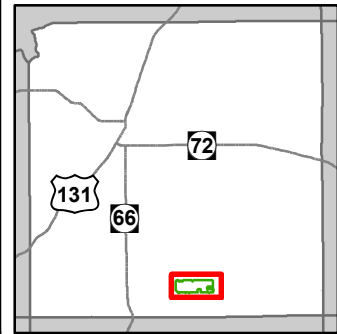
- Total Acres by Cover Type and Age Class**
- Cover Type by Harvest Method**
- Proposed Treatments – No Limiting Factors**
- Proposed Treatments – With Limiting Factors**
- Stand Details (Forested and Nonforested)**
- Dedicated and Proposed Special Conservation Areas**
- Site Condition Details**

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

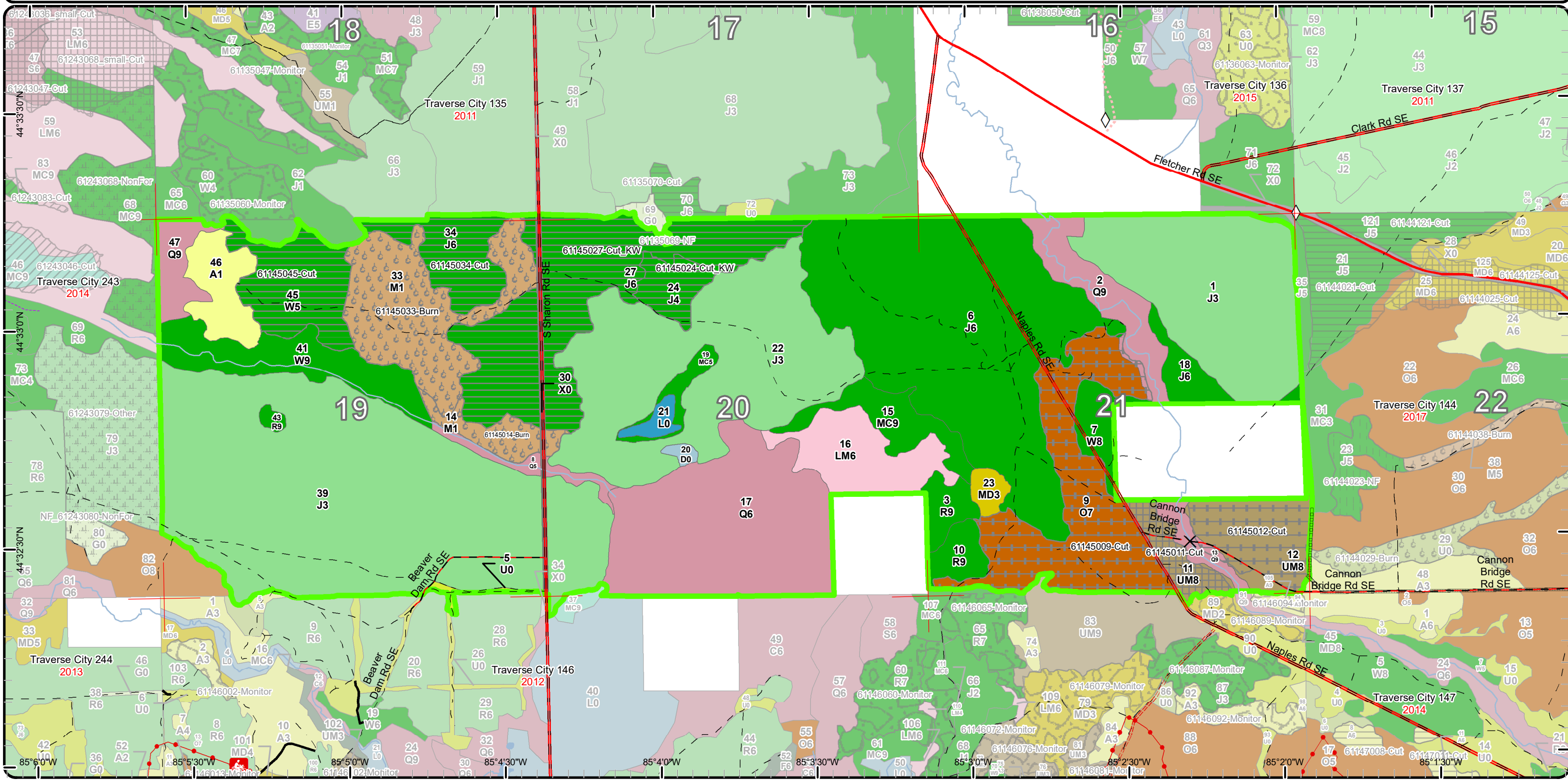
- Base feature information, stand boundaries, cover types, and numbers**
- Proposed treatments**
- Site condition boundaries**
- Details on the road access system**

# Cover Type & Treatments Map

Compartment: 145  
 T25N R06W Sec. 19-21  
 County: Kalkaska  
 Unit: Traverse City  
 Mgmt Area: Kirtland's Warbler  
 YOE: 2019  
 Acres: 1774.3 GIS Calculated  
 Examiner: Katie Armstrong  
 Map Revised: 8/7/2017  
 Map Phase: Post-Review

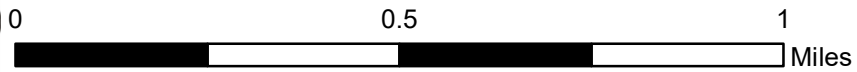
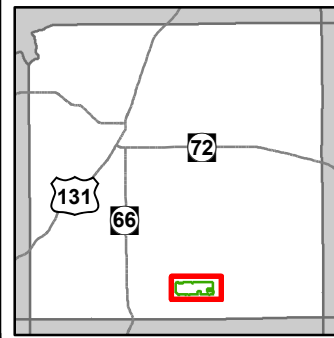


- Miris Corners
- Field Grade GPS Corners
- Counties
- Gate
- ORV License & Trail Permit
- - - Designated ORV Route
- County Paved Roads
- Paved Roads
- County Gravel Roads
- - - County Poor Dirt Roads
- - - Poor Dirt Roads
- - - Closed
- Streams
- Lakes and Rivers All
- Pipeline
- - - Non-Designated Recreational Trail
- Compartment Boundary
- Clearcut (w/Reserves)
- Prescribed Burn
- Harvest, Overstory Removal
- Seed Tree (w/Reserves)
- 411 - Northern Hardwood
- 412 - Oak Types
- 413 - Aspen
- 419 - Mixed Upland Deciduous
- 421 - Planted Pines
- 422 - Natural Pines
- 430 - Upland Mixed Forest
- 612 - Lowland Coniferous Forest
- 613 - Lowland Mixed Forest
- 122 - Roads/Parking Lot
- 330 - Low Density Trees
- 622 - Lowland Shrub
- 629 - Mixed non-forested wetland
- Lakes

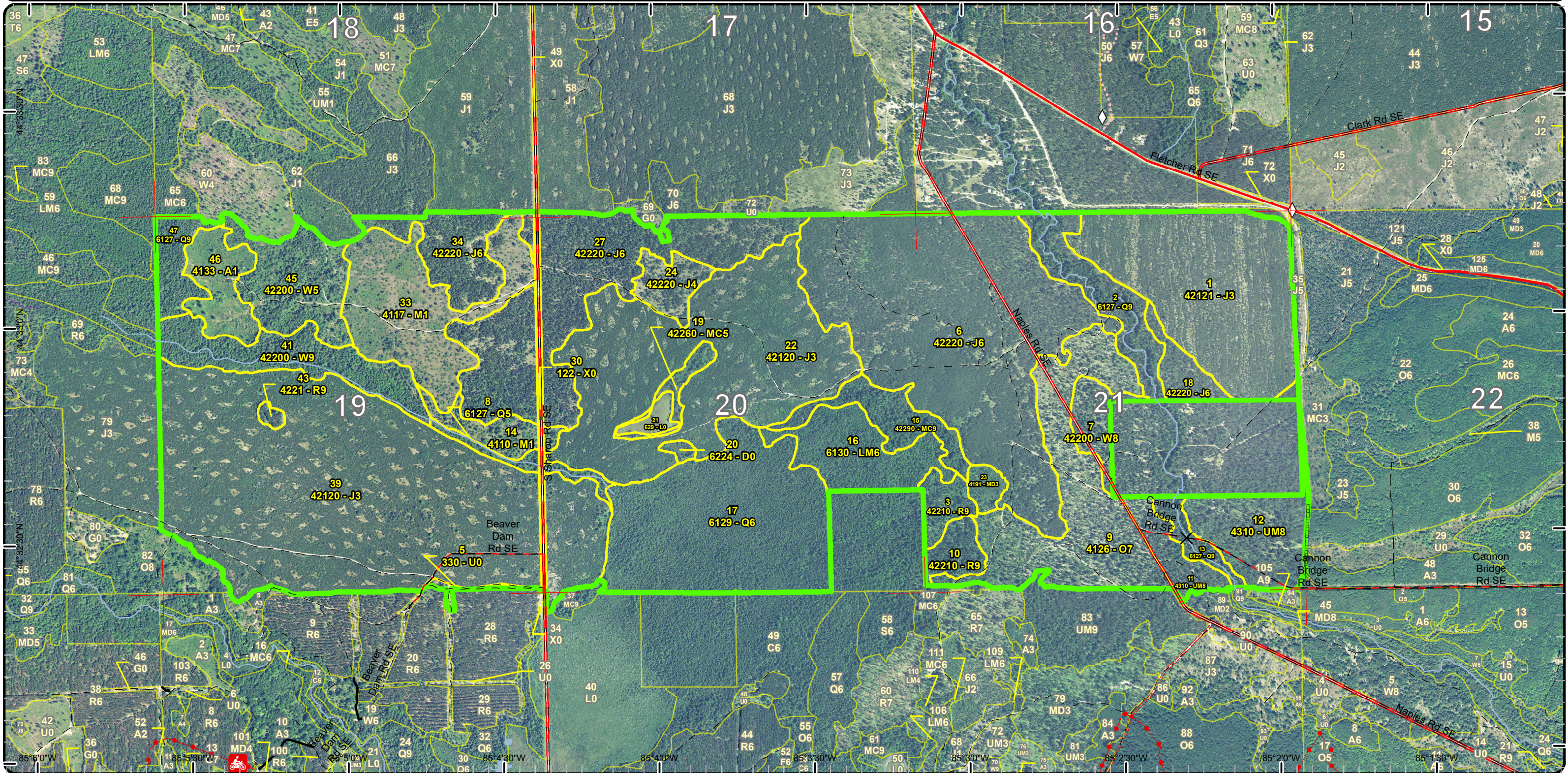


# Stand Boundary Map

Compartment: 145  
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 Map Revised: 8/7/2017  
 Map Phase: Post-Review

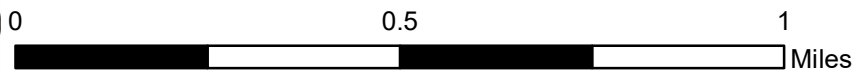
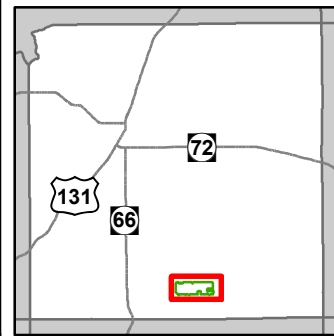


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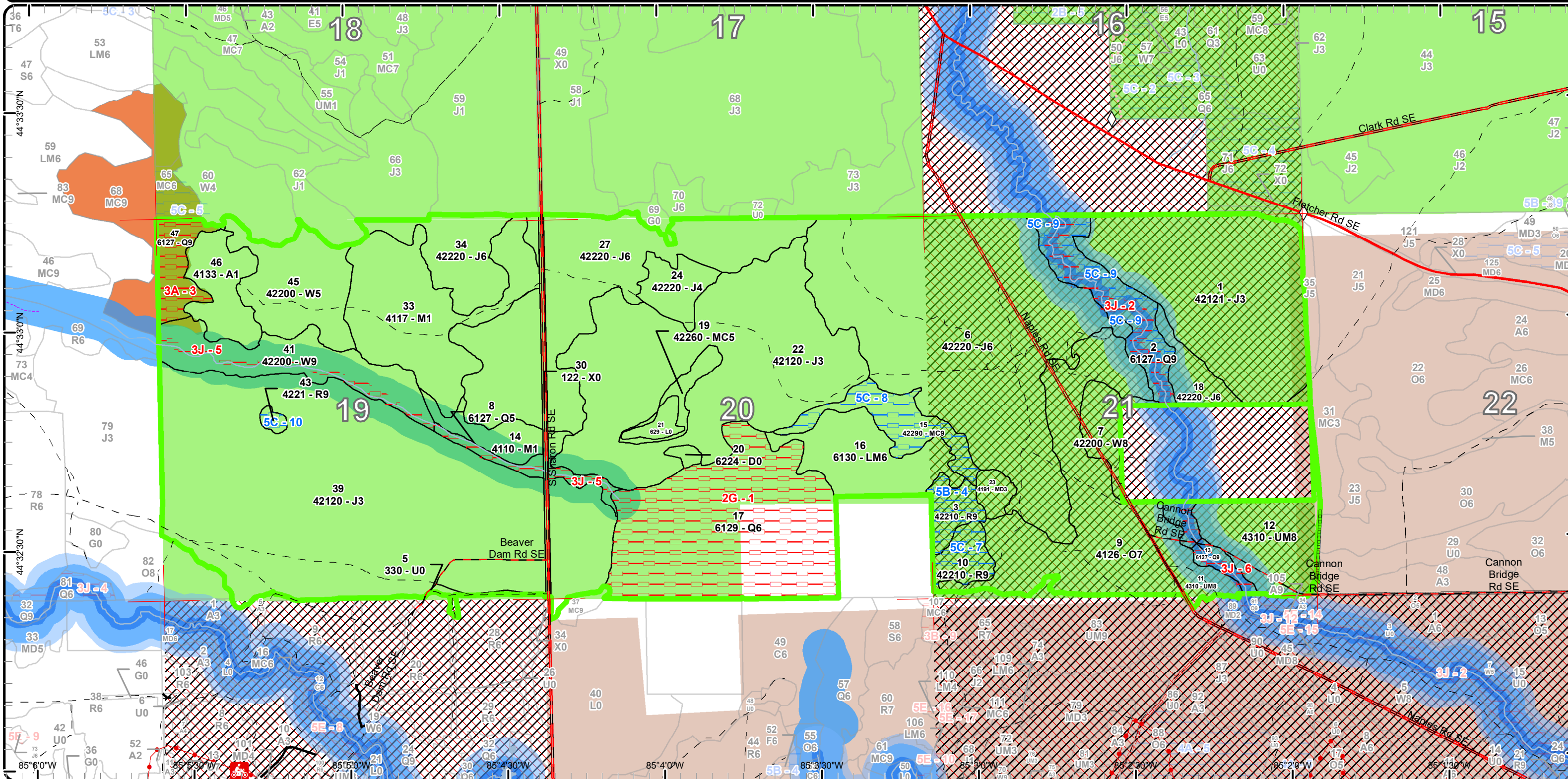


# Special Conservation Areas & Site Conditions Map

Compartment: 145  
 T25N R06W Sec. 19-21  
 County: Kalkaska  
 Unit: Traverse City  
 Mgmt Area: Kirtland's Warbler  
 YOE: 2019  
 Acres: 1774.3 GIS Calculated  
 Examiner: Katie Armstrong  
 Map Revised: 8/7/2017  
 Map Phase: Post-Review



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- County Poor Dirt Roads
- Poor Dirt Roads
- Closed
- Streams
- Lakes and Rivers All
- Pipeline
- Non-Designated Recreational Trail
- Compartment Boundary
- Available w/ Constraints
- Unavailable
- 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)
- 3A: Conservation Values incompatible with harvest at this time
- 3J: Water quality / BMPs (stream, river, or lake)
- 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
- Other Habitat Area



# Report 1 – Total Acres by Cover Type and Age Class

Traverse City Mgt. Unit  
Katie Armstrong : Examiner

Compartment 145 Year of Entry 2019



## 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	26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	26
Jack Pine	0	0	516	125	249	15	122	35	0	0	0	0	0	0	0	0	0	0	1062
Low-Density Trees	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Lowland Conifers	0	0	0	0	0	0	0	0	0	169	10	17	0	0	0	0	0	9	205
Lowland Mixed Forest	0	0	0	0	0	41	0	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	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
Natural Mixed Pines	0	0	0	0	0	0	8	0	0	25	0	0	0	0	0	0	0	0	32
Northern Hardwood	0	0	0	16	77	0	0	0	0	0	0	0	0	0	0	0	0	0	93
Oak	0	0	0	0	0	0	0	0	0	0	0	99	0	0	0	0	0	0	99
Red Pine	0	0	0	0	0	0	0	0	0	24	0	0	0	0	0	0	0	2	26
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	0	0	0	0	0	0	0	0	0	42	17	0	0	0	0	0	59
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	46	0	0	0	0	15	47	0	0	0	0	0	0	0	108
<b>Total</b>	<b>17</b>	<b>32</b>	<b>516</b>	<b>141</b>	<b>372</b>	<b>56</b>	<b>130</b>	<b>35</b>	<b>0</b>	<b>233</b>	<b>57</b>	<b>158</b>	<b>17</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>11</b>	<b>1774</b>



## Report 2 – Treatment Summary

Traverse City Mgt. Unit  
Year of Entry: 2019

Compartment 145  
Total Compartment Acres: 1,774

### Acres of Harvest

Commercial Harvest - 374  
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	173	0	0	0	0	0	0	0	0	173
Oak	0	0	0	0	0	100	0	0	0	100
Upland Mixed Forest	0	0	0	16	0	40	0	0	0	56
White Pine	46	0	0	0	0	0	0	0	0	46
<b>Total</b>	<b>218</b>	<b>0</b>	<b>0</b>	<b>16</b>	<b>0</b>	<b>140</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>374</b>

### Proposed and Next Step Treatments by Method

	Harvest	Site Prep	Planting	Seeding	Burning	Pesticide	Monitoring	Other	Non-Forest Mgt.	Total Acres
Current	374	0	0	0	93	0	0	0	0	467
Next Step	0	229	46	0	0	46	283	0	93	696
<b>Total</b>	<b>374</b>	<b>229</b>	<b>46</b>	<b>0</b>	<b>93</b>	<b>46</b>	<b>283</b>	<b>0</b>	<b>93</b>	<b>1163</b>



Stand	Treatment Name	Acres	Stand CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Age Structure	Approval Status
9	61145009-Cut	100.3	4126 - White, Black, N. Pin Oak	Sawtimber Poor	100	1-50	Harvest	Overstory Removal	4319 - Mixed Upland Forest	Even-Aged	Draft Field Boundary

**Habitat Cut: No Site Condition:**

Prescription Remove live and dead oak overstory to release understory. Pushed treatment boundary into stand to the east, if it makes sense to cut some of that  
Specs: without compromising stream buffer.

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

Acceptable Oak, pine, aspen, maple.  
Regen:

Other  
Comment:

Proposed Start Date: 10/01/2017

11	61145011-Cut	16.1	4310 - Pine, Oak Mix	Sawtimber Medium	110	51-80	Harvest	Seed Tree	4310 - Pine, Oak Mix	Even-Aged	Draft Field Boundary
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**Habitat Cut: No Site Condition:**

Prescription Remove most of overstory, especially dead and dying oak, to release white pine and oak understory. Mark to leave scattered white pine and oak,  
Specs: favoring white oak. Residual BA will be variable but generally 0-30 sf/acre. Leave appropriate buffer along stream, 100 feet from top of bluff. Treat 1 year early because of dying oak.

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

Acceptable White pine, red pine, jack pine, oak, aspen, red maple.  
Regen:

Other  
Comment:

Proposed Start Date: 10/01/2017

12	61145012-Cut	39.8	4310 - Pine, Oak Mix	Sawtimber Medium	106	81-110	Harvest	Overstory Removal	4199 - Other Mixed Upland Deciduous	Even-Aged	Draft Field Boundary
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**Habitat Cut: No Site Condition:**

Prescription Cut everything > 6" DBH except for a few scattered oak, RP and WP. Protect advanced regeneration, where possible. Leave most of stand south of  
Specs: Cannon Bridge Road, especially area of denser RP and WP (already removed from treatment area), and protect Cannon Creek. Access from Fletcher Rd down pipeline. Need to find corners and/or old blue line.

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

Acceptable White pine, jack pine, red pine, aspen, oak, red maple, cherry.  
Regen:

Other  
Comment:

Proposed Start Date: 10/01/2017

14	61145014-Burn	16.0	4110 - Sugar Maple Association	Sapling Poor	29	Immature	Burn	Opening	3105 - Mixed Upland Herbaceous		Draft Field Boundary
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**Habitat Cut: No Site Condition:**

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  
Specs: 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.

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  
Comment: desirable mature trees and vegetation.

Proposed Start Date: 10/01/2018





Stand	Treatment Name	Acres	Stand CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Age Structure	Approval Status
24	61145024-Cut_KW	15.7	42220 - Natural Jack Pine	Poletimber Poor	39	Unspecified	Harvest	Clearcut with Retention	4222 - Natural Jack Pine	Even-Aged	Draft Field Boundary

**Habitat Cut:** No      **Site Condition:**

Prescription Clearcut, leaving retention along edge of younger stand. 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

Comment:

Proposed Start Date: 10/01/2020

27	61145027-Cut_KW	121.9	42220 - Natural Jack Pine	Poletimber Well	51	Unspecified	Harvest	Clearcut with Retention	4222 - Natural Jack Pine	Even-Aged	Draft Field Boundary
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**Habitat Cut:** No      **Site Condition:**

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:

Proposed Start Date: 10/01/2020

33	61145033-Burn	77.0	4117 - Mixed N. Hardwood - Pine	Sapling Poor	35	Unspecified	Burn	Opening	3105 - Mixed Upland Herbaceous		Draft Field Boundary
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**Habitat Cut:** No      **Site Condition:**

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:

Proposed Start Date: 10/01/2018

34	61145034-Cut	34.9	42220 - Natural Jack Pine	Poletimber Well	66	Unspecified	Harvest	Clearcut with Retention	4222 - Natural Jack Pine	Even-Aged	Draft Field Boundary
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**Habitat Cut:** No      **Site Condition:**

Prescription Clearcut leaving retention as pocket of red pine or western tip, or what seems appropriate in the field. Include pockets of mature jack pine from adjacent burn area?  
Specs:

Next Step Monitoring, Natural Regen (Re-Inventary)

Treatments:

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

Regen:

Other

Comment:

Proposed Start Date: 10/01/2018



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Treatment Name	Acres	Stand CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Age Structure	Approval Status
45 61145045-Cut	45.7	42200 - Natural White Pine	Poletimber Medium	39	1-50	Harvest	Clearcut with Retention	4211 - Planted Red Pine	Even-Aged	Draft Field Boundary

**Habitat Cut: No**

**Site Condition:**

Prescription Clearcut, leaving retention in isolated finger where it doesn't make sense to trench through. Stand to the west has not naturally regenerated well so  
Specs: let's try red pine.

Next Step SitePrep, Trenching; SitePrep, Roller Chopping; Planting, Initial Plant; Monitoring, Artificial Regen(1yr); Monitoring, Artificial Regen(3yr);  
Treatments: Pesticide, Aerial

Acceptable Fully stocked red pine stand.  
Regen:

Other  
Comment:

Proposed Start Date: 10/01/2018

**Total Treatment  
Acreage Proposed: 467.4**

## 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	5B	5C	2G	3A	3J	5E
		With Condition	Not Available							
26	26	0	0	Aspen						
1061	1060	0	1	Jack Pine					1	
2	2	0	0	Low-Density Trees						
205	7	14	185	Lowland Conifers		14	135	17	33	
41	41	0	0	Lowland Mixed Forest						
5	5	0	0	Lowland Shrub						
6	6	0	0	Mixed Upland Deciduous						
32	8	25	0	Natural Mixed Pines		25				
93	93	0	0	Northern Hardwood						
99	99	0	0	Oak						
26	0	26	0	Red Pine	12	14				
2	2	0	0	Treed Bog						
59	58	0	1	Upland Mixed Forest					1	0
8	8	0	0	Urban						
108	97	0	11	White Pine					11	
1,774	1,513	64	197	Total Forested Acres	12	53	135	17	45	0
	85%	4%	11%	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)	135	5F: Evaluated for Forest Health Considerations	Unspecified	Unspecified	Unspecified
<b>Comments:</b>							
2	Unavailable	3J: Water quality / BMPs (stream, river, or lake)	20	Unspecified	Unspecified	Unspecified	Unspecified
<b>Comments:</b> 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
<p><b>Comments:</b> Unusual stand.</p>							
4	Available	5B: Maintain for regeneration purposes	12	Unspecified	Unspecified	Unspecified	Unspecified
<p><b>Comments:</b></p>							
5	Unavailable	3J: Water quality / BMPs (stream, river, or lake)	18	Unspecified	Unspecified	Unspecified	Unspecified
<p><b>Comments:</b> 50' buffer on tributary of Manistee, per Natural Rivers plan.</p>							
6	Unavailable	3J: Water quality / BMPs (stream, river, or lake)	8	Unspecified	Unspecified	Unspecified	Unspecified
<p><b>Comments:</b> 100' buffer on Big Cannon Creek per Manistee River natural rivers plan. May need to be increased where there is a bluff.</p>							
7	Available	5C: Delay treatment for age/size class diversity or exceptional site quality	12	Unspecified	Unspecified	Unspecified	Unspecified
<p><b>Comments:</b> Hold until stand to the north is final harvested.</p>							
8	Available	5C: Delay treatment for age/size class diversity or exceptional site quality	25	Unspecified	Unspecified	Unspecified	Unspecified
<p><b>Comments:</b> Not sure how to replicate this stand. Save as an island of diversity in a compartment with lots of KW jack pine.</p>							

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
<b>Comments:</b> 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
<b>Comments:</b>							

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

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**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. To view specific Zoning Districts and Vegetative Buffers for each Natural River see the table located on the I:\Documentation\GDSE data folder.



	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
1	42121 - Planted Jack Pine, Mixed Deciduous	Sapling Well	125.1	23	Immature	Warbler stand, couldn't find planting records. Scattered overstory oak, white pine and jack pine.
2	6127 - Lowland Pine	Sawtimber Well	34.5	88	81-110	Big Cannon Creek flows through stand. Diverse stand with good vertical structure. Mostly flat along stream bed with bluff on either side.
3	42210 - Natural Red Pine	Sawtimber Well	11.8	82	81-110	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.
6	42220 - Natural Jack Pine	Poletimber Well	233.0	37	Unspecified	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.
7	42200 - Natural White Pine	Sawtimber Medium	15.2	80	1-50	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?
8	6127 - Lowland Pine	Poletimber Medium	9.1	68	51-80	Narrow strip of trees along seasonal drainage. Variable stand. Bigger trees at east end.
9	4126 - White, Black, N. Pin Oak	Sawtimber Poor	98.7	100	1-50	Two-aged stand. Most residual oak left from sale is dead or dying. Two-aged stand. Some regen is in gaps, some dense. Heavy browse on regen < 3'. Naples Road Jack Pine, 61-068-99-01, cut 7/2000-3/2001. Cut JP, aspen and RM. Left all oak. Part of KW block 23. To be planted in 2031? OPIC - FMD: Kirtland's Warbler Habitat designation missed during inventory process.
10	42210 - Natural Red Pine	Sawtimber Well	12.2	82	81-110	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.
11	4310 - Pine, Oak Mix	Sawtimber Medium	16.7	110	51-80	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.
12	4310 - Pine, Oak Mix	Sawtimber Medium	42.0	106	81-110	Cannon Bridge, 61-051-09-01, cut May-June, 2011. Relatively low volume sale, but additional dead oak volume was added at the time. Current BA is variable, 120 to 80 to 10 sf/acre. Some pockets of good aspen regen and fair amount of seed source oak seedlings in open areas at north end. Decent amount of white pine regeneration throughout, in understory and midstory. Fair amount of oak mortality and/or oak decline. Heavy browse. Small, dense pocket of old white pine and red pine south of road (BA 200+). Old railroad grade runs through this part.





	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
13	6127 - Lowland Pine	Sawtimber Well	10.0	92	51-80	Big Cannon Creek flows through stand. Steep banks.
14	4110 - Sugar Maple Association	Sapling Poor	16.0	29	Immature	Part of opening that doesn't get burned.
15	42290 - Natural Mixed Pine	Sawtimber Well	24.5	87	171-200	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.
16	6130 - Fir, Aspen, Maple	Poletimber Well	41.0	49	Unspecified	Relatively dense stand. Habitat cut (hardwood and aspen) in 1967. Hard to tell how wet.
17	6129 - Mixed Coniferous Lowland Forest	Poletimber Well	134.8	86	Unspecified	
18	42220 - Natural Jack Pine	Poletimber Well	14.6	46	Unspecified	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.
19	42260 - Natural Pine, Mixed Deciduous	Poletimber Medium	7.9	59	51-80	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.
22	42120 - Planted Jack Pine	Sapling Well	179.5	15	Immature	Warbler Creek, 61-020-99-01, cut 5-9/2000. Did not find planting record. Managed for Kirtland Warbler.
23	4191 - Mixed Upland Deciduous with Conifer	Sapling Well	6.4	6	Immature	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.
24	42220 - Natural Jack Pine	Poletimber Poor	15.7	39	Unspecified	Part of KW block 25. To be planted in 2025. Similar trees as stand 27 but with clumpy distribution. Scattered openings with shrubby cherry.
27	42220 - Natural Jack Pine	Poletimber Well	121.9	51	Unspecified	Perhaps cut in 1965. More diverse than average JP stand Part of KW block 25. To be planted in 2025.
33	4117 - Mixed N. Hardwood - Pine	Sapling Poor	77.0	35	Unspecified	Rotational opening maintenance burn.
34	42220 - Natural Jack Pine	Poletimber Well	34.9	66	Unspecified	Some jack pine mortality. Some of the larger diameter jack pine in our area (borderline log stand). Almost no understory. Large, remnant white pine stumps. West end includes unburned part of opening.
39	42120 - Planted Jack Pine	Sapling Well	336.7	15	Immature	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.



	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
41	42200 - Natural White Pine	Sawtimber Well	46.7	93	111-140	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.
43	4221 - Natural Red Pine	Sawtimber Well	2.2	180	111-140	Small pocket of red pine surrounded by KW habitat.
45	42200 - Natural White Pine	Poletimber Medium	45.7	39	1-50	Hodge podge stand. Variable size and density. Not growing great trees.
46	4133 - Aspen, Mixed Pine	Sapling Poor	25.7	7	Immature	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.
47	6127 - Lowland Pine	Sawtimber Well	16.8	107	171-200	Diverse stand with good vertical structure. Evidence of past cutting.



Stand	Cover Type	Acres	Managed Site	General Comments:
5	330 - Low-Density Trees	2.3	No	
20	6224 - Treed Bog	2.2	No	Small, sparse treed bog with fringe of trees, mostly older red pine and jack pine.
21	629 - Mixed non-forested wetland	5.4	No	OPIC - FMD: Area at one time was used as a hay field.
30	122 - Road/Parking Lot	8.3	No	S. Sharon Rd. Overhead powerline runs along west side of road.