



Compartment Review Presentation

Traverse City Forest Management Unit

Compartment 61221

Entry Year 2019

Acreage: 1,288

County Kalkaska

Management Area: Grayling Outwash

Revision Date: 2017-06-12

Stand Examiner: Steve Crigier

Legal Description:

T26N, R5W, Sec: 2, 3, 10 and 11.

Identified Planning Goals:

Management in the Grayling Outwash management area (MA) will emphasize continuing balancing the age class of aspen on suitable sites and thinning the northern hardwoods, balancing age classes of red pine and jack pine and regenerating the aging swamp hardwood and conifer resource where possible. Management will strive to sustainably produce various timber products, enhance game and non-game wildlife habitat, protect areas of unique character and provide for forest-based recreational uses. Management activities are constrained by poor access in the swampy (16% lowland) portions of this area, some of which fall in the riparian zone of the Manistee River, a dedicated natural river. Expected trends within this 10-year planning period are increased recreational pressure, introduced pests and diseases and the difficulty in regenerating swamp types.

Soil and topography:

Rubicon and Emmet sands, Blue Lake loamy sands, Lupton muck and Rifle peat. Topography ranges from flood plain, lowlands, to rolling uplands and steep sand bluffs

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

Mixed ownership, consisting of state, private and acquired Consumer's leases, are the ownership patterns in and around the compartment. The private lands range from undeveloped to developed, timbered to open grass areas, seasonal to permanent homes. The old Livingstone property is located in this compartment. Land use is mainly canoeing, fishing, hunting, ORVing and snowmobiling.

Unique Natural Features:

The Manistee River, a nationally know trout river, is the southern boundary of the compartment. There are also a few tributaries to the Manistee River with in the compartment as well. There is potential for the presence of the Eastern Massasauga with in the compartment.

Archeological, Historical, and Cultural Features:

None known.

Special Management Designations or Considerations:

The Manistee River and its tributaries are under the Natural Rivers Act and also fall under HCVA (High Conservation Value Area). All prescriptions within 400 feet of the river and tributaries further the conservation goals of these HCVA's. This area is also a major deer wintering complex.

Watershed and Fisheries Considerations:

The Manistee River and one unnamed tributary flow through Compartment 221. Both are Designated trout streams. The Manistee River is a nationally-known trout stream with naturally reproducing populations of brook, brown, and rainbow trout. In any operations near these streams, all BMPs and Natural Rivers rules should be followed. Per Natural Rivers rules, the buffer for the Manistee River should be at least 175' (could be more depending on slopes) and for the tributary 100' (again could be more depending on slopes).

Wildlife Habitat Considerations:

Compartment 221 is located along the Manistee River on the east side of Kalkaska County. Habitat types found within this compartment of State Forest are influenced by two types of glacial formations. An outwash plain (LTA 5111), consisting of excessively drained sands, supports various pine stands, both natural and plantation, aspen, oak, and upland brush communities. Fire was a major disturbance on these dry soils and should be considered a valuable tool in perpetuating these fire driven ecosystems. However, several wetland inclusions do exist on this landscape, particularly near the river. Several of these wetland areas support lowland conifers, which are important to wintering deer and other

wildlife species. The hillier region in the north portion is comprised of steep, broken ice contact ridges (LTA 3121). The sandy soils found on these ridges have moderately low fertility and low available moisture. Even though much of this area was probably once covered with various northern hardwood communities, the dry soils did allow occasional wildfires on this landscape.

Forest treatments should maintain a variety of successional stages of pine-oak-aspen forest and grass-shrub openings, with some mid to late successional forest in places, which is typical of a fire prone landscape. Aspen harvests should be designed to mimic wildfires of various intensities, when possible. This creates a mosaic of age classes and increases structural diversity within an area. The creation of dead and downed logs should be incorporated into timber prescriptions within to provide habitat for various wildlife species. Standing dead timber is usually left during harvest operations unless deemed a safety hazard. Considerations for northern hardwood stands include maintaining tree species diversity, the protection of den/nesting trees & snags, coarse woody debris (CWD), and maintaining a scattering of mast-producing trees/shrubs. This will insure use by many species of wildlife.

Several upland brush stands have been prescribed for burning to set back woody encroachment and stimulate native herbaceous vegetation. A variety of species make use of habitats found on these dry sandy soils, including: Kirtland's warbler, deer, ruffed grouse, smooth green snake, eastern box turtle, and badger. Several small forest openings have been scheduled for hand felling to set back woody encroachment and/or planting of herbaceous vegetation for wildlife food and cover.

Mineral Resource and Development Concerns and/or Restrictions

There is no known metallic mineral potential in this region. Former sand/gravel pits are located in Section 3, and there is additional potential within the compartment, particularly on the uplands in Section 3. The compartment is located well south of the Niagaran reef trend and Antrim production and north of most of the Devonian fields of the central Michigan Basin. There has been some minor production from the Collingwood Formation to the west, but the unit has not proven to be an economical resource play and there is not currently any interest in further developing the play. Marathon still holds some active leases in the compartment, which were leased for development of the Richfield as a resource play, but Marathon has indicated that they will be divesting their interests and leaving the state. Oil and gas development potential within the compartment is currently considered low.

Vehicle Access:

See map.

Survey Needs:

None

Recreational Facilities and Opportunities:

Over 3 miles of the Kalkaska 50 inch ORV Trail meanders through this compartment. Policy and Procedure 32.22-01 (Best Management Practices for Forest and Wildlife Management Adjacent to Recreational Trails) should be considered if forest treatments will impact these recreational facilities. (T.M.N. 11/1/16)

Fire Protection:

Fire protection is provided by the Garfield Twp. Fire Department, and DNR protection is from the Kalkaska Field Office. This compartment is within Zone 5, so several additional DNR field offices respond with equipment on High or above fire days. Travel time is an issue, and access can be difficult in spots. There is no urban innerface problem, as this is entirely state land.

Additional Compartment Information:

The AT&T fiber Optic line runs along Riverview Road in this compartment. Extreme care needs to be used in any timber sale operations crossing this line. There are 2 Consumer's Lease parcels (stands 69, 65, 61 and 62), which expire in 2011 and are now in State ownership. There is an old cabin still sitting on the parcel in stand 65.

The following reports from the Inventory are attached:

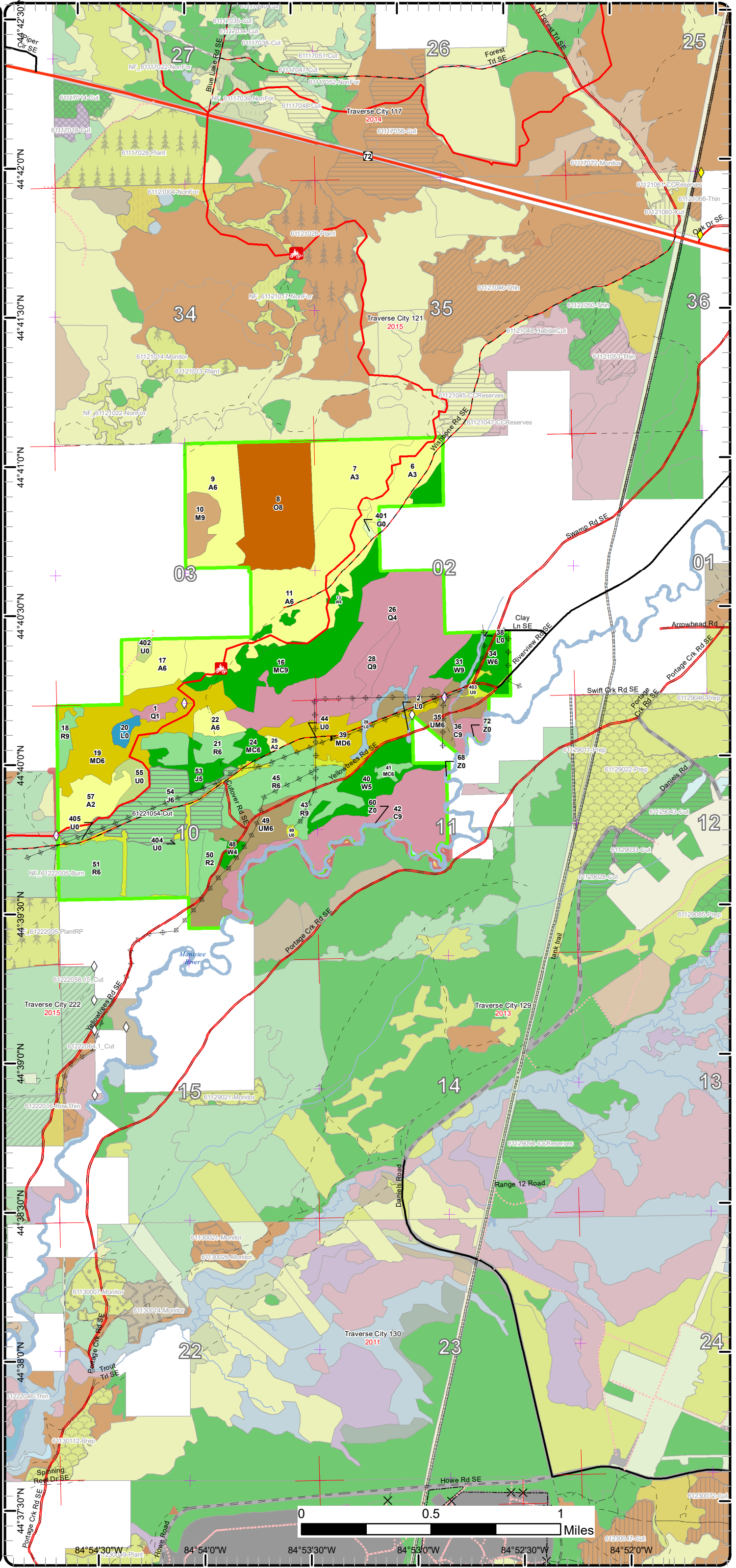
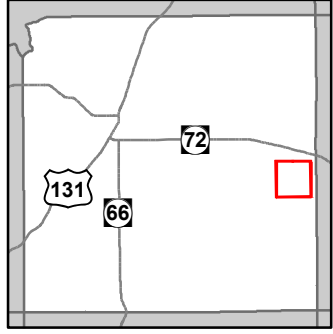
- Total Acres by Cover Type and Age Class**
- Cover Type by Harvest Method**
- Proposed Treatments – No Limiting Factors**
- Proposed Treatments – With Limiting Factors**
- Stand Details (Forested and Nonforested)**
- Dedicated and Proposed Special Conservation Areas**
- Site Condition Details**

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

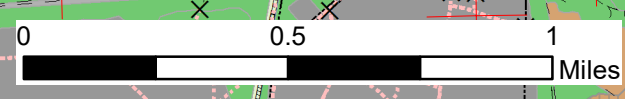
- Base feature information, stand boundaries, cover types, and numbers**
- Proposed treatments**
- Site condition boundaries**
- Details on the road access system**

Cover Type & Treatments Map

Compartment: 221
 T26N R05W Sec. 2,3,10,11
 County: Kalkaska
 Unit: Traverse City
 Mgmt Area: Grayling Outwash
 YOE: 2019
 Acres: 1288.2 GIS Calculated
 Examiner: Steve Crigier
 Map Revised: 8/7/2017
 Map Phase: Post-Review



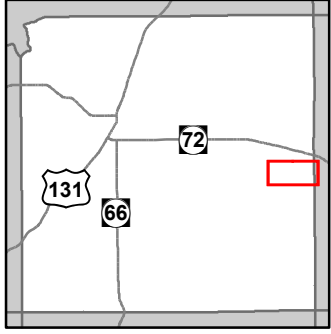
- Miris Corners
- + Remonumented Section Corners
- ◇ Field Grade GPS Corners
- Counties
- ORV Trails
- Designated ATV
- Paved Roads
- County Gravel Roads
- Gravel Roads
- County Poor Dirt Roads
- Poor Dirt Roads
- Closed
- Streams
- Lakes and Rivers All
- Pipeline
- Powerline
- Compartment Boundary
- Clearcut (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
- 310 - Herbaceous Openland
- 320 - Upland Shrub
- 330 - Low Density Trees
- 500 - Water
- 622 - Lowland Shrub
- 629 - Mixed non-forested wetland
- Lakes



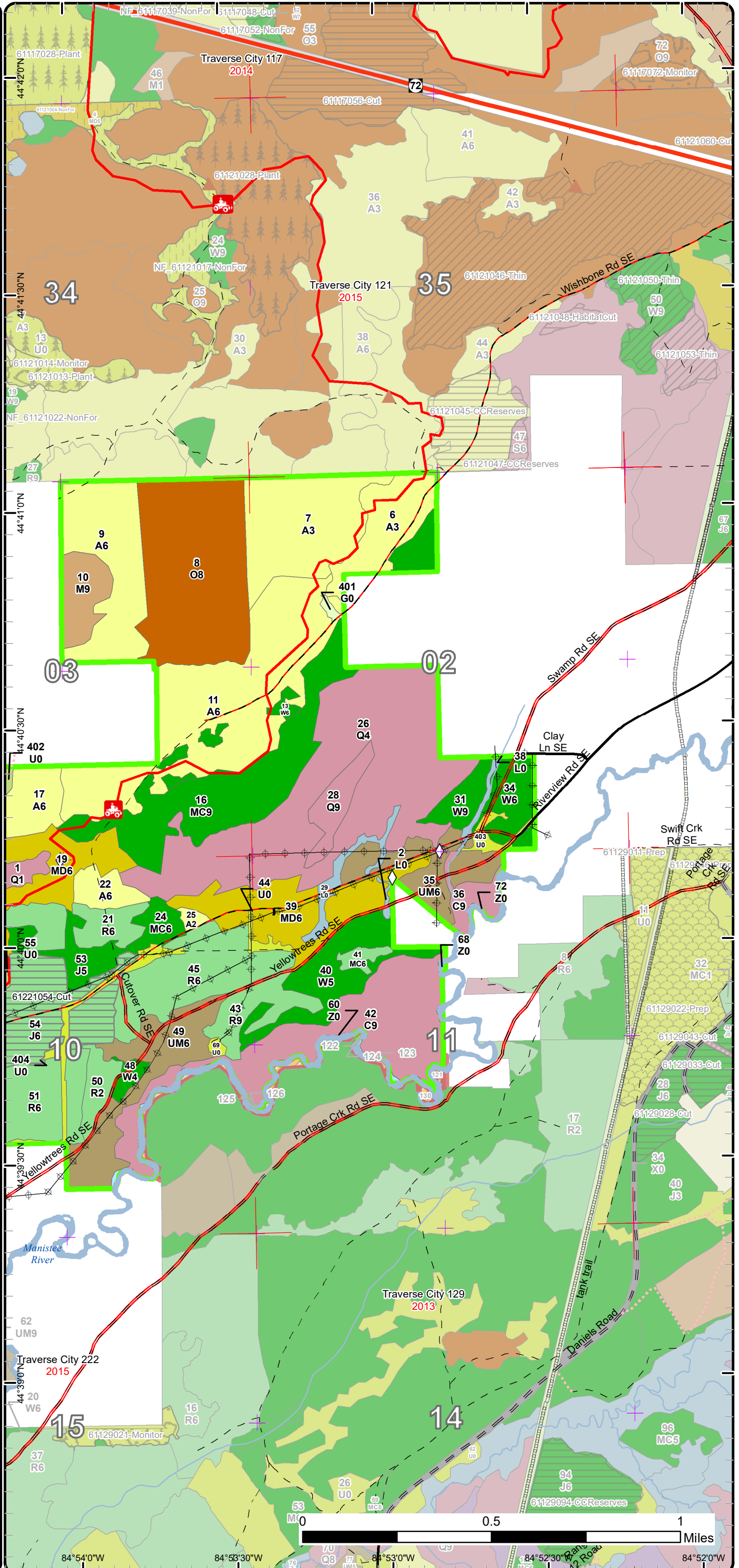
84° 54' 30" W 84° 54' 0" W 84° 53' 30" W 84° 53' 0" W 84° 52' 30" W 84° 52' 0" W

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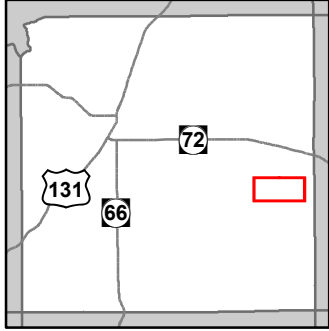


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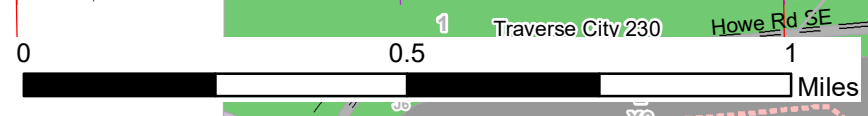
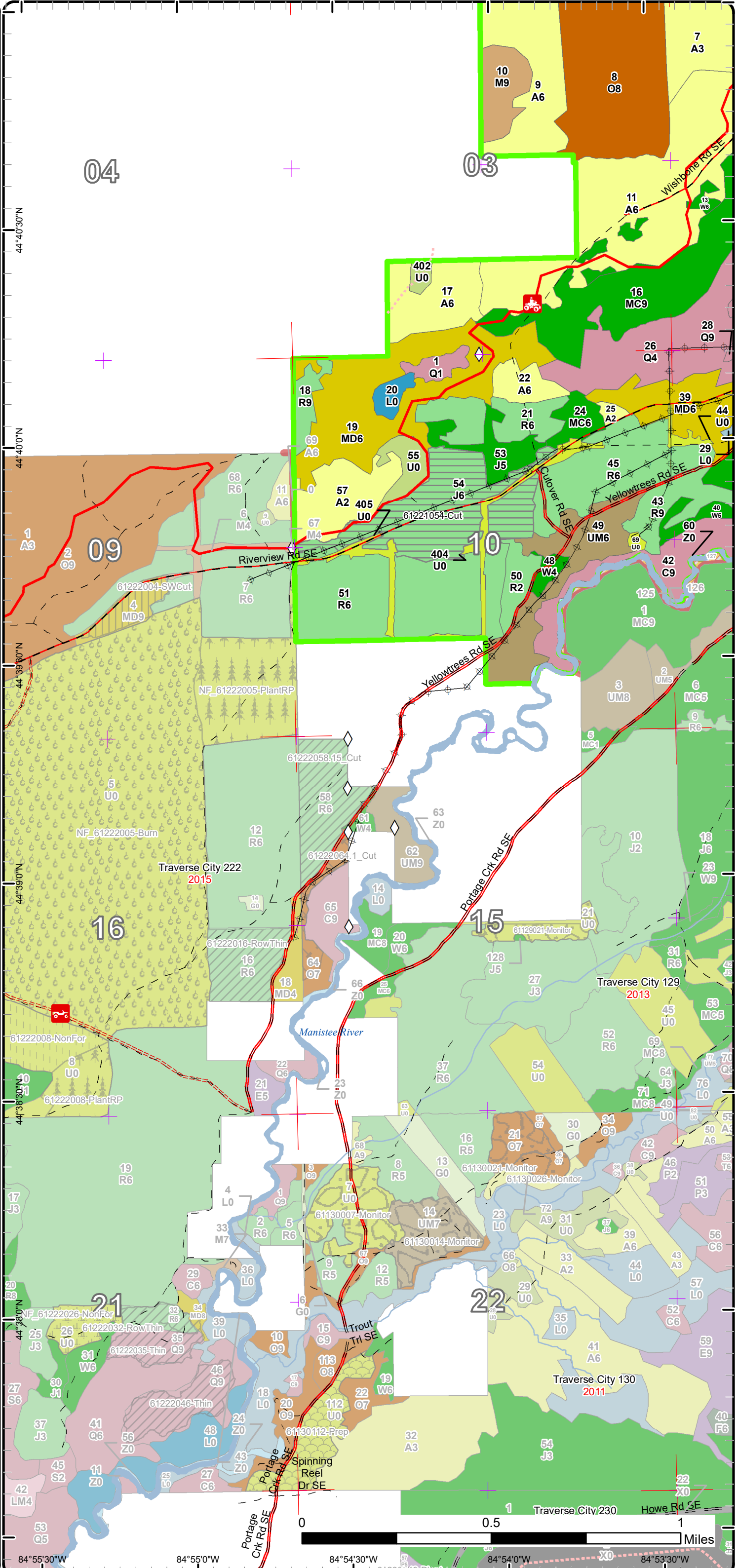


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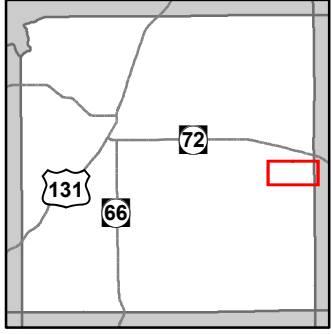
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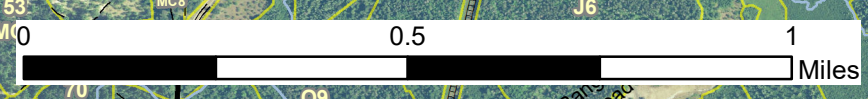
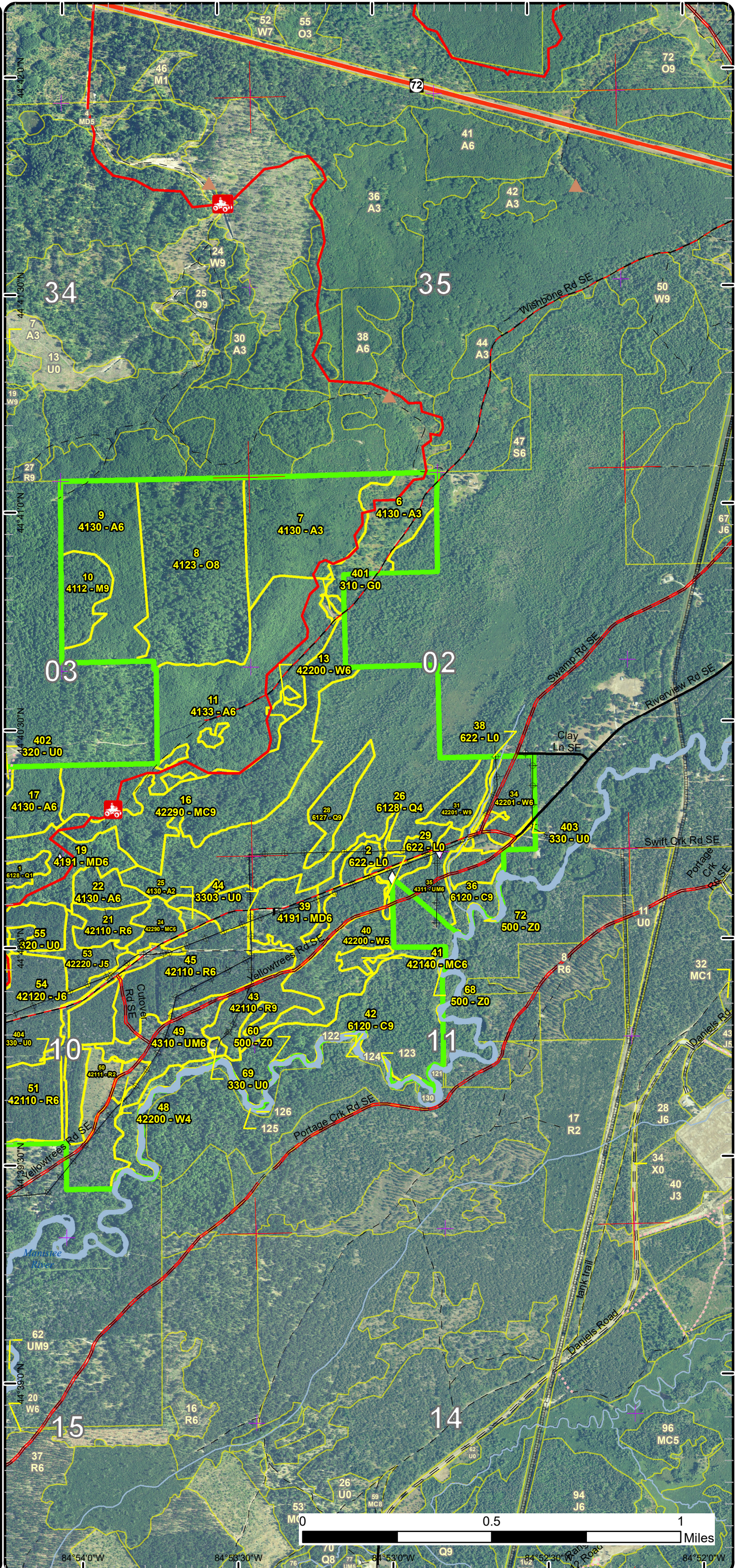
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Stand Boundary Map

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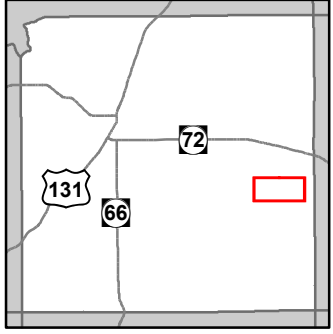
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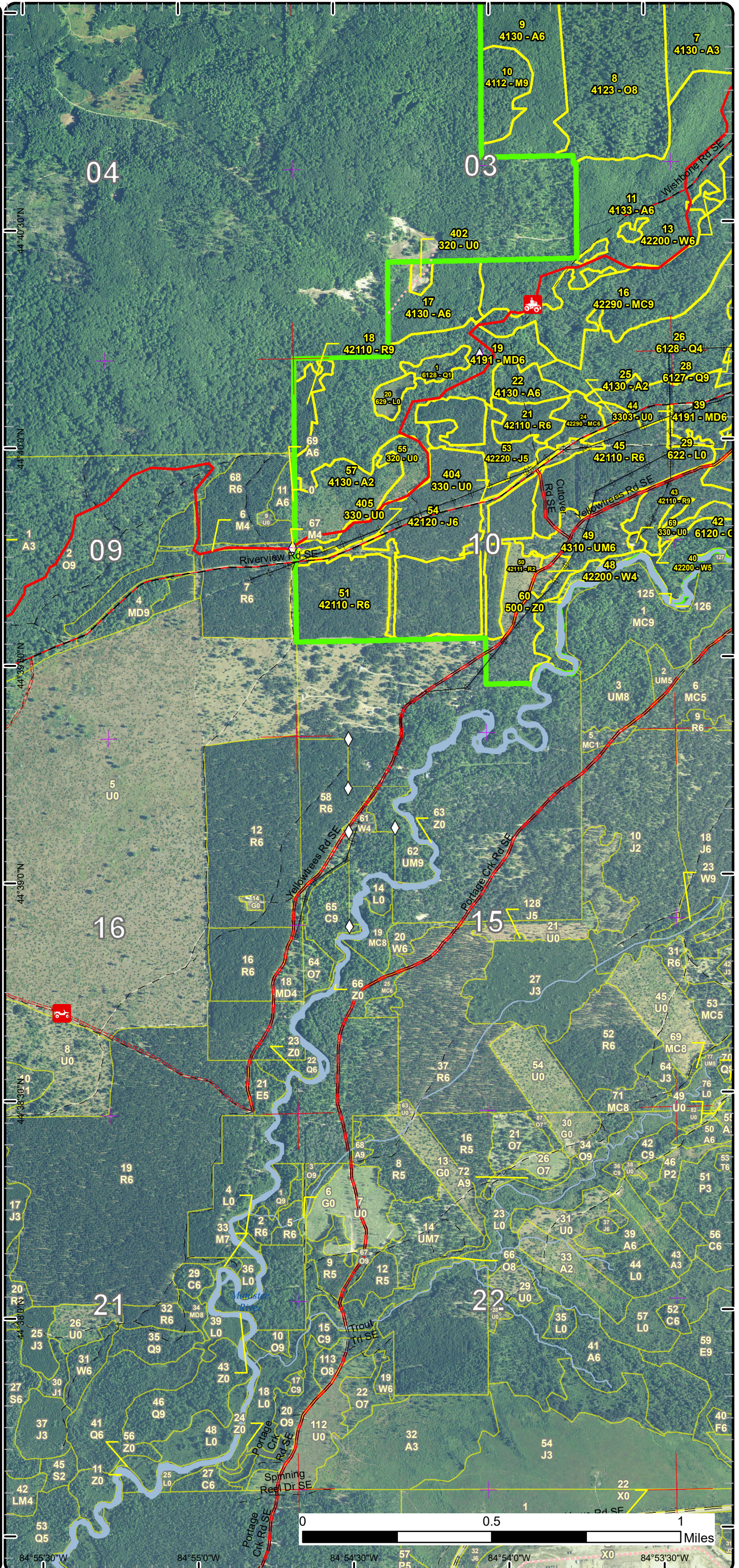
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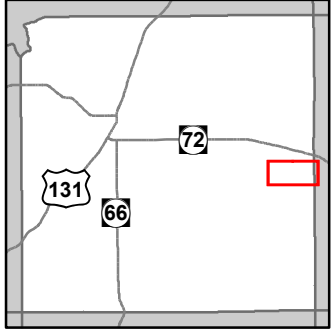


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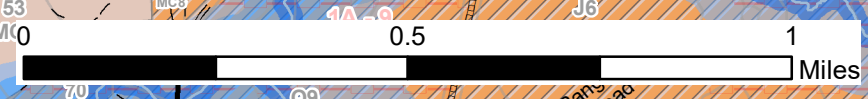
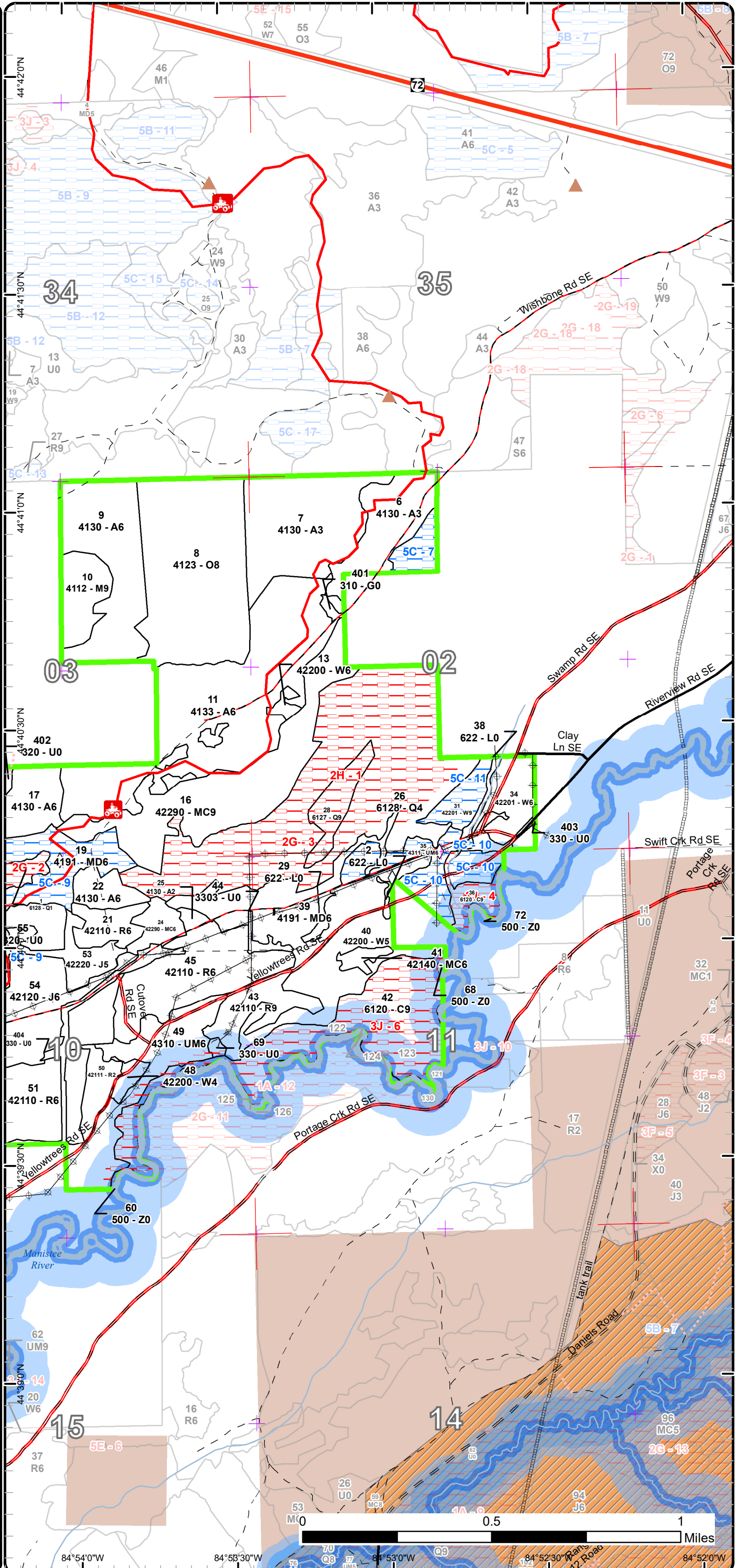


Special Conservation Areas & Site Conditions Map

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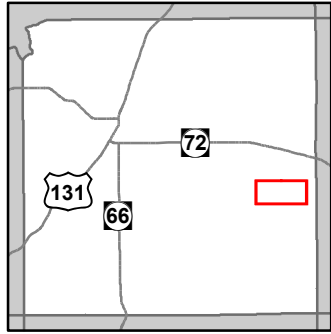
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- Compartment Boundary
- Available w/ Constraints
- Unavailable
- 5C: Delay treatment for age/size class diversity or exceptional site quality
- 2G: Too wet (sensitive soils, does not include access issues)
- 2H: Blocked by physical obstacle (e.g. upland stand in a lowland area)
- 3J: Water quality / BMPs (stream, river, or lake)
- Stand Boundaries
- Natural Rivers Vegetative Buffer
- Natural Rivers Zoning District
- Eastern Massasauga Managed Land
- Cold Water Streams
- Cold Water Lakes
- Research, Development, and Military Lands



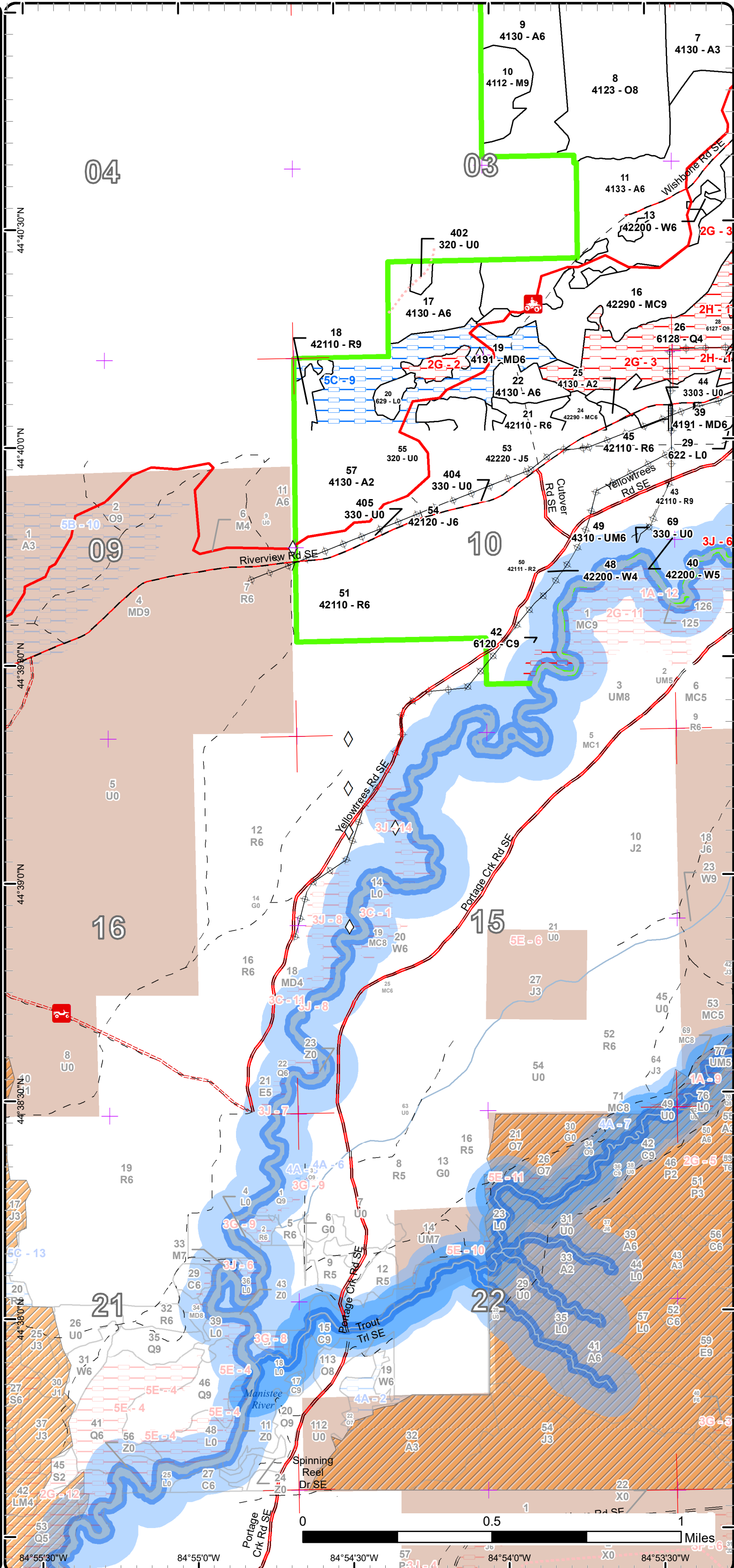
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- 3J: Water quality / BMPs (stream, river, or lake)
- Stand Boundaries
- Natural Rivers Vegetative Buffer
- Natural Rivers Zoning District
- Eastern Massasauga Managed Land
- Cold Water Streams
- Cold Water Lakes
- High Priority Trout Stream Buffer
- Research, Development, and Military Lands



Report 1 – Total Acres by Cover Type and Age Class



Age Class

	Non-Forest	0-9	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100-109	110-119	120-129	130-139	140-149	150+	Uneven-Aged	Total
Aspen	0	30	0	64	103	107	0	0	0	0	0	0	0	0	0	0	0	0	303
Cedar	0	0	0	0	0	0	0	0	0	78	0	0	0	0	0	0	0	0	78
Herbaceous Openland	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Jack Pine	0	0	0	0	0	71	0	0	0	0	0	0	0	0	0	0	0	0	71
Low-Density Trees	23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	23
Lowland Conifers	0	0	0	0	6	0	0	0	0	12	0	0	0	0	0	0	0	142	160
Lowland Shrub	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15
Mixed Upland Deciduous	0	0	0	0	0	0	43	0	0	0	0	0	0	0	0	0	0	74	117
Natural Mixed Pines	0	0	0	0	0	0	8	0	0	77	0	0	0	0	0	0	0	0	85
Northern Hardwood	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	17	17
Oak	0	0	0	0	0	0	0	0	0	87	0	0	0	0	0	0	0	0	87
Planted Mixed Pines	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	4
Red Pine	0	9	0	0	0	74	91	0	0	0	0	0	0	0	0	0	0	0	174
Upland Mixed Forest	0	0	0	0	0	0	0	27	0	0	0	0	0	0	0	0	0	39	66
Upland Shrub	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12
Water	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9
White Pine	0	0	0	0	4	24	32	0	0	0	0	0	10	0	0	0	0	0	70
Total	60	39	0	64	113	276	174	31	0	176	78	0	10	0	0	0	0	272	1292



Report 2 – Treatment Summary

Traverse City Mgt. Unit
Year of Entry: 2019

Acres of Harvest

Compartment 221
Total Compartment Acres: 1,288

Commercial Harvest - 427
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	26	0	0	0	0	0	2	0	0	28
Jack Pine	71	0	0	0	0	0	0	0	0	71
Mixed Upland Deciduous	0	0	0	43	0	0	0	0	0	43
Natural Mixed Pines	0	68	0	8	0	0	0	0	0	77
Northern Hardwood	0	17	0	0	0	0	0	0	0	17
Oak	0	0	0	0	0	0	87	0	0	87
Red Pine	0	0	0	0	0	66	0	0	0	66
Upland Mixed Forest	0	0	0	0	0	33	0	0	0	33
White Pine	0	0	0	7	0	0	0	0	0	7
Total	97	85	0	58	0	66	122	0	0	427

Proposed and Next Step Treatments by Method

	Harvest	Site Prep	Planting	Seeding	Burning	Pesticide	Monitoring	Other	Non-Forest Mgt.	Total Acres
Current	427	0	0	0	0	0	0	0	0	427
Next Step	0	142	71	0	0	0	432	0	0	645
Total	427	142	71	0	0	0	432	0	0	1072



S t a n d	Treatment Name	Acres	Stand CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Age Structure	Approval Status
8	61221008.12_Cut	86.6	4123 - Red Oak	Sawtimber Medium	85	1-50	Harvest	Overstory Removal	4199 - Other Mixed Upland Deciduous	Two-Aged	Draft Field Boundary

Habitat Cut: No

Site Condition:

Prescription Remove oak overstory. Mark a tree or two per acre for mast. I think it would be good to leave most of the pine as I didn't see too much of it. Try to protect the young aspen during the sale operations.

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

Acceptable Regen: oak, aspen, red maple, white pine

Other Comment: Hilly terrain in the south end of the stand. Oak overtop an A3 stand. Medium quality oak well stocked aspen underneath. Oak BA is variable, anywhere from 0-80sqft/ac but averages around 40-50.

Proposed Start Date: 10/01/2018

10	61221010.13_Cut	16.7	4112 - Maple, Beech, Cherry Association	Sawtimber Well	85	111-140	Harvest	Single Tree Selection	411 - Northern Hardwood	Even-Aged	Draft Field Boundary
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Habitat Cut: No

Site Condition:

Prescription Select cut stand. Remove the Beech as there is BBD present. Also target the oak to be cut as it is likely it will start to decline.

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

Acceptable Regen: maple, aspen, oak, basswood, cherry, etc.

Other Comment: corners appear to be in for the west line. Berm road and skid trails when done with the harvest.

Proposed Start Date: 10/01/2018

11	61221011.6_Cut	25.9	4133 - Aspen, Mixed Pine	Poletimber Well	44	51-80	Harvest	Clearcut	4133 - Aspen, Mixed Pine	Even-Aged	Draft Field Boundary
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Habitat Cut: No

Site Condition:

Prescription Clear cut this portion of the stand for age class diversity. Mark a few pine trees to leave and try to protect the younger advanced regen. Maybe don't cut pine less than 4".

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

Acceptable Regen: aspen, maple, cherry, pine.

Other Comment: Pair stand up with 13 and 16 for a timber sale. Protect ORV trail.

Proposed Start Date: 02/28/2017

13	61221013.5_Cut	6.6	42200 - Natural White Pine	Poletimber Well	44	111-140	Harvest	Seed Tree	4133 - Aspen, Mixed Pine	Even-Aged	Draft Field Boundary
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Habitat Cut: No

Site Condition:

Prescription Mark a few pine trees to leave but cut everything else. Stand should fill in with aspen and pine.

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

Acceptable Regen: aspen, maple, pine, cherry.

Other Comment: Pair stand up with 11 and 16 for a sale.

Proposed Start Date: 10/01/2018



Stand Name	Acres	Stand CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Age Structure	Approval Status
16 61221016.11_Cut	68.4	42290 - Natural Mixed Pine	Sawtimber Well	89	141-170	Harvest	Single Tree Selection	429 - Mixed Upland Conifers	Uneven-Aged	Draft Field Boundary

Habitat Cut: No**Site Condition:**

Prescription Select cut stand, big tree management. Target declining red pine to cut. Let residual BA be variable but try to release some of the advanced regen.
Specs: Protect advanced regen. Probably will want to cut when it is dry or frozen ground.

Next Step Monitoring, Natural Regen (Re-Inventry)

Treatments:

Acceptable white pine, red maple, red pine, black spruce, balsam fir.

Regen:

Other Look to move ORV trail out of this stand. Wet ground and looks like it is causing some resource damage on the west end of stand.

Comment:

Proposed Start Date: 10/01/2018

21 61221021.9_Cut	21.5	42110 - Planted Red Pine	Poletimber Well	53	141-170	Harvest	Systematic Thinning	4211 - Planted Red Pine	Even-Aged	Draft Field Boundary
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Habitat Cut: No**Site Condition:**

Prescription Stand is ready for a row thinning. Also remove all the jack pine as it is of age. Not sure on the oak, most of it is dead and would be nice to remove but I am concerned about it smashing a bunch of residual trees.

Next StepTreatments:AcceptableRegen:

Other Red pine is about 4 sticks tall. Scattered jack pine throughout. Dead and dying oak present. curvy rows on the east block.

Comment:

Proposed Start Date: 10/01/2018

24 61221024.7_Cut	8.3	42290 - Natural Mixed Pine	Poletimber Well	50	81-110	Harvest	Seed Tree	429 - Mixed Upland Conifers	Even-Aged	Draft Field Boundary
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Habitat Cut: No**Site Condition:**

Prescription Seed tree harvest stand. Leave a variable amount of trees for seed and protect advanced regen.

Specs:

Next Step Monitoring, Natural Regen (Re-Inventry)

Treatments:

Acceptable white pine, jack pine, aspen, maple, etc. red pine.

Regen:OtherComment:

Proposed Start Date: 10/01/2018

25 61221025.3_Cut	2.0	4130 - Aspen	Sapling Medium	6	Immature	Harvest	Overstory Removal	4199 - Other Mixed Upland Deciduous	Even-Aged	Draft Field Boundary
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Habitat Cut: No**Site Condition:**

Prescription Remove the oak overstory as most of it is dead or dying.

Specs:

Next Step Monitoring, Natural Regen (Re-Inventry)

Treatments:

Acceptable aspen, oak, cherry, pine

Regen:

Other Try to protect as much of the advanced regen as you can.

Comment:

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
39	61221039.10_Cut	42.6	4191 - Mixed Upland Deciduous with Conifer	Poletimber Well	57	81-110	Harvest	Seed Tree	429 - Mixed Upland Conifers	Even-Aged	Draft Field Boundary

Habitat Cut: No

Site Condition:

Prescription seed tree. Mark some pine and oak to leave also try to protect the advanced regen, maybe leave all pine less than 6". buffer around the drainages.
Specs: Corners are in for the private boundary. Cut in winter to get a good flush of aspen. Deer seem to hammer any young aspen in this area.

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

Acceptable pine, aspen, maple, etc.
Regen:

Other Aspen starting to die out. Stand looks like it wants to grow white pine. Various sizes of oak, most of which is dead or dying. Stand looks more like
Comment: an oak pine mix in the west end. Lower ground along the north edge.

Proposed Start Date: 10/01/2018

45	61221045.4_Cut	44.0	42110 - Planted Red Pine	Poletimber Well	53	141-170	Harvest	Crown Thinning	4211 - Planted Red Pine	Even-Aged	Draft Field Boundary
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Habitat Cut: No

Site Condition:

Prescription Thin stand lightly for a second time. Target BA around 120-130
Specs:

Next Step
Treatments:

Acceptable
Regen:

Other Stand row thinned in 2010 'Livingstone Mix #068-09'. Red Oak is dying out. There is a mix of white pine. Wider rows north of the power line.
Comment: Mostly 5 stick trees. BAs 160, 170, 140, 150, 170.

Proposed Start Date: 10/01/2018

49	61221049.2_Cut	33.2	4310 - Pine, Oak Mix	Poletimber Well	69	51-80	Harvest	Overstory Removal	429 - Mixed Upland Conifers	Uneven-Aged	Draft Field Boundary
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Habitat Cut: No

Site Condition:

Prescription Buffer the river and take out the dead and dying oak. Maybe mark some pine to cut as well. Try to protect the advanced regen.
Specs:

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

Acceptable pine, aspen, oak, red maple
Regen:

Other Stand is a mix of pine and oak with most of the oak being dead or dying. White pine stocking is variable but seems to be heavier in the south end of
Comment: the stand. Clumps of planted red pine throughout.

Proposed Start Date: 08/07/2017

53	61221053.8_Cut	13.7	42220 - Natural Jack Pine	Poletimber Medium	49	51-80	Harvest	Clearcut	4211 - Planted Red Pine	Even-Aged	Draft Field Boundary
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Habitat Cut: No

Site Condition:

Prescription Clear cut stand and replant to red pine. Might have to let the stand flush after the cut, to j.pine, and then roller chop it before trenching and planting.
Specs:

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

Acceptable red pine, jack pine.
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
54 61221054-Cut	57.2	42120 - Planted Jack Pine	Poletimber Well	49	51-80	Harvest	Clearcut with Retention	4211 - Planted Red Pine	Even-Aged	Draft Field Boundary

Habitat Cut: No

Site Condition:

Prescription Specs: Clear-cut stand. Look to place areas of retention along the adjacent U0 types or where there is more live oak present. Wait a couple of years after final harvest to roller chop, trench and plant site.

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

Acceptable Regen: red pine, oak

Other Comment: Will need to control the natural jack pine regen. Protect adjacent ORV trail.

Proposed Start Date: 10/01/2018

Total Treatment Acreage Proposed: 426.7

Report 4 – Site Conditions

Traverse City Mgt. Unit

Steve Crigier : Examiner

Compartment: 221

Year of Entry: 2019

Availability for Management

Total Acres	Acres Available	Acres Avail		Dominant Site Conditions	Dominant Site Conditions				
		With Condition	Not Available		5C	1A	2G	2H	3J
302	302	0	0	Aspen					
78	0	0	78	Cedar					78
1	1	0	0	Herbaceous Openland					
71	71	0	0	Jack Pine					
23	23	0	1	Low-Density Trees					1
160	11	0	149	Lowland Conifers			137	12	
15	15	0	0	Lowland Shrub					
117	43	74	0	Mixed Upland Deciduous	74				
85	77	8	0	Natural Mixed Pines	8				
17	17	0	0	Northern Hardwood					
87	87	0	0	Oak					
4	4	0	0	Planted Mixed Pines					
174	174	0	0	Red Pine					
66	34	27	5	Upland Mixed Forest	27				5
12	12	0	0	Upland Shrub					
9	7	0	2	Water		1			1
69	59	10	0	White Pine	10				
1,288	935	119	234	Total Forested Acres	119	1	137	12	83
	73%	9%	18%	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	2H: Blocked by physical obstacle (e.g. upland stand in a lowland area)	12	Unspecified	Unspecified	Unspecified	Unspecified
Comments:							

Report 4 – Site Conditions

Traverse City Mgt. Unit

Steve Crigier : Examiner

Compartment: 221

Year of Entry: 2019

2	Unavailable	2G: Too wet (sensitive soils, does not include access issues)	6	Unspecified	Unspecified	Unspecified	Unspecified
Comments:							
3	Unavailable	2G: Too wet (sensitive soils, does not include access issues)	131	4A: No Markets Available for these Forest Products	Unspecified	Unspecified	Unspecified
Comments:							
4	Unavailable	3J: Water quality / BMPs (stream, river, or lake)	9	Unspecified	Unspecified	Unspecified	Unspecified
Comments:							
6	Unavailable	3J: Water quality / BMPs (stream, river, or lake)	74	2G: Too wet (sensitive soils, does not include access issues)	Unspecified	Unspecified	Unspecified
Comments:							
7	Available	5C: Delay treatment for age/size class diversity or exceptional site quality	8	Unspecified	Unspecified	Unspecified	Unspecified
Comments:							
9	Available	5C: Delay treatment for age/size class diversity or exceptional site quality	74	Unspecified	Unspecified	Unspecified	Unspecified
Comments:							

Report 4 – Site Conditions

Traverse City Mgt. Unit
Steve Crigier : Examiner

Compartment: 221
Year of Entry: 2019

10	Available	5C: Delay treatment for age/size class diversity or exceptional site quality	27	Unspecified	Unspecified	Unspecified	Unspecified
Comments:							
11	Available	5C: Delay treatment for age/size class diversity or exceptional site quality	10	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.



	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
1	6128 - Lowland Coniferous, Mixed Deciduous	Sapling Poor	5.7	34	Immature	
6	4130 - Aspen	Sapling Well	27.5	6	Immature	OPIC - FMD: Stand was final harvested under tsale contract 61-067-09-01, fall of 2011. (P.C.) Aspen clones scattered throughout an U type. Leave all oak and pine. Scattered oak and white pine pole timber and logs. Stand is regenerating fairly well except east of wishbone is pretty spares TPA.
7	4130 - Aspen	Sapling Well	53.8	27	Immature	Sale #2-89 Trees are 20-30' tall. Nice stem density. Scattered oak log trees.
8	4123 - Red Oak	Sawtimber Medium	86.6	85	1-50	OPIC - FMD: Sale #45-99. Complete in 5/02. 2007 - Residual oak and pine scattered. Hilly terrain in the south end of the stand. Oak overtop an A3 stand. Medium quality oak well stocked aspen underneath. Oak BA is variable, anywhere from 0-80sqft/ac but averages around 40-50.
9	4130 - Aspen	Poletimber Well	49.4	38	51-80	Some hilly terrain in the south end. Some scattered pockets of hardwood and pine. Aspen is about 4 sticks tall and looks real healthy.
10	4112 - Maple, Beech, Cherry Association	Sawtimber Well	16.7	85	111-140	OPIC - FMD: Sale #46-99. Look in compartment 121 for sale. Advance BBD. Oak is mature. Thick beech understory. Nice quality wood on the west side of the stand. Corners appear to be in.
11	4133 - Aspen, Mixed Pine	Poletimber Well	106.5	44	51-80	Stand has a good size ridge north of Wishbone. Trees are 3-4 stick tall. More of a white pine component to the south end of the sale.
13	42200 - Natural White Pine	Poletimber Well	6.6	44	111-140	White pine areas within aspen stand.
16	42290 - Natural Mixed Pine	Sawtimber Well	76.6	89	141-170	Nice quality pine stand on a mix of high and low ground. lot of 9-10 stick trees, tall and straight. Some of the red pine tops are getting thin.
17	4130 - Aspen	Poletimber Well	26.7	38	51-80	4-5 stick trees, healthy looking stand. A mix of white pine in the south end of the stand.
18	42110 - Planted Red Pine	Sawtimber Well	8.0	55	141-170	Nice plantation, 5-6 stick trees and good diameters. Stand was row thinned in 2009 'Eldora Pine' 61-062-09-01.



	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
19	4191 - Mixed Upland Deciduous with Conifer	Poletimber Well	73.9	65	141-170	Unique and variable stand. Pockets of aspen but is mostly red maple and oak with large white and red pine overtop. Ground is hummocky on the west end, a mix of high and low ground. Pine is more dominant around the bog. Nice quality pine, quite a few 9 stick trees, tall and straight. Some pockets of cedar and hemlock.
21	42110 - Planted Red Pine	Poletimber Well	21.5	53	141-170	Red pine is about 4 sticks tall. Scattered jack pine throughout. Dead and dying oak present. curvy rows on the east block.
22	4130 - Aspen	Poletimber Well	9.7	28	1-50	Stand is converting to a pole stand. Still areas of saplings. Medium quality stand.
24	42290 - Natural Mixed Pine	Poletimber Well	8.3	50	81-110	Jack pine and oak are dying out. oak and white pine in the understory.
25	4130 - Aspen	Sapling Medium	2.0	6	Immature	OPIC - FMD: 2011-DAH-Livingstone Mix #068-09. -- Left all oak. Stand is regenerating ok around the edges but not very well in the middle (old landing area). Most of the oak are dead or dying.
26	6128 - Lowland Coniferous, Mixed Deciduous	Poletimber Poor	142.0	45	1-50	has some areas of just tag alder, but generally has scattered timber.
28	6127 - Lowland Pine	Sawtimber Well	12.4	83	81-110	Mostly white pine and black spruce with scattered red pine. Understory is filling in well. Mostly low ground but it looks like there are some higher spots.
31	42201 - Natural White Pine, Mixed Deciduous	Sawtimber Well	10.0	114	111-140	Super canopy white pine. Maple and aspen underneath. Healthy looking trees. Aspen is dying out.
34	42201 - Natural White Pine, Mixed Deciduous	Poletimber Well	17.2	47	111-140	Some pockets of bigtooth aspen. Medium to poor quality stand pine. Lots of white pine under the aspen canopy which is more in the south and west part of the stand. Aspen doesn't look healthy.
35	4311 - Pine, Aspen Mix	Poletimber Well	27.1	62	51-80	Creek running through the stand. Some scattered dead oak present. Aspen is deteriorating. Real mixed stand of species and size classes.
36	6120 - Lowland Cedar	Sawtimber Well	8.9	95	81-110	Pockets of dense cedar along the river with scattered white pine. Area is heavily used by the deer.
39	4191 - Mixed Upland Deciduous with Conifer	Poletimber Well	42.9	57	81-110	Aspen starting to die out. Stand looks like it wants to grow white pine. Various sizes of oak, most of which is dead or dying. Stand looks more like an oak pine mix in the west end. Lower ground along the north edge.
40	42200 - Natural White Pine	Poletimber Medium	31.5	50	1-50	Stand was cut in 2011 'Livingstone Mix' 61-068-09-01 and had all the aspen and red maple removed. Deer have browsed and killed most of the aspen regen leaving scattered white pine and oak. Most of the oak is dead as well.



	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
41	42140 - Planted Mixed Pine	Poletimber Well	3.6	62	141-170	Red and white pine plantation. Decent plantation 4-5 stick trees.
42	6120 - Lowland Cedar	Sawtimber Well	68.6	95	81-110	Some parts of the stand is dense cedar. Other areas are Large white pine over cedar. Pockets of tag alder too. Stand is heavily used by the deer. Some areas are borderline high ground.
43	42110 - Planted Red Pine	Sawtimber Well	17.4	53	111-140	OPIC - FMD: Stand was thinned in 2011-DAH-Livingstone Mix #068-09. Stand stocking is pretty variable. Red oak is dying or dead.
45	42110 - Planted Red Pine	Poletimber Well	44.0	53	141-170	Stand row thinned in 2010 'Livingstone Mix #068-09'. Red Oak is dying out. There is a mix of white pine. Wider rows north of the powerline. Mostly 5 stick trees. BAs 160, 170, 140, 150, 170.
48	42200 - Natural White Pine	Poletimber Poor	3.7	36	1-50	Stand had everything but the pine cut out of it in 2010. Livingstone Mix #068-09. Deer have browsed back the aspen regen to just about nothing. Stand has scattered pine over some aspen regen and oak regen.
49	4310 - Pine, Oak Mix	Poletimber Well	38.6	69	51-80	Stand is a mix of pine and oak with most of the oak being dead or dying. White pine stocking is variable but seems to be heavier in the south end of the stand. Clumps of planted red pine throughout.
50	42111 - Planted Red Pine, Mixed Deciduous	Sapling Medium	9.2	7	Immature	Stand used to be occupied with scotch pine. Clearcut and planted in 2010 to red pine (Eldora Pine 61-062-09-01). Lost a few red pine seedlings this past year. Trees aren't quite 3' tall. A decent amount of oak sprouts and there is the occasional scotch pine that seeded in from the old plantation.
51	42110 - Planted Red Pine	Poletimber Well	73.9	49	111-140	Stand was row thinned in late 2009. Eldora Pine 61-062-09-01. Mostly 3-4 stick trees with an occasional 5 stick trees. Not very good diameters yet. Pockets of dead oak scattered throughout. BA(150, 100, 140, 150, 140, 130).
53	42220 - Natural Jack Pine	Poletimber Medium	13.7	49	51-80	Some trees dying out. Variable stocking of 3-4 stick trees.
54	42120 - Planted Jack Pine	Poletimber Well	57.2	49	51-80	an occasional 5 stick tree but mostly 3-4 stick jack pine not very good diameters on the trees. Some individual are dying out.
57	4130 - Aspen	Sapling Medium	26.6	32	Immature	OPIC - FMD: SG 11/20/07 - This stand has a lot of open areas between island of brush/trees. Maintain some or all of the non-forested portion in appropriate herbaceous cover to provide forage and cover for deer and other wildlife. OI Stand Year Origin was 1985 Stocking and size of trees is variable. Not very good quality stand.



Stand	Cover Type	Acres	Managed Site	General Comments:
2	622 - Lowland Shrub	0.9	No	
20	629 - Mixed non-forested wetland	4.9	No	OPIC - FMD: OI Stand Year Origin was
29	622 - Lowland Shrub	7.0	No	
38	622 - Lowland Shrub	2.3	No	OPIC - FMD: 2007 - Hagan - Small stream runs through stand that is a tributary of the Manistee River. Therefore, HCVA -Manistee River or tributary - Natural River. See Natural River Plan. Some scattered E and Q in areas.
44	3303 - Mixed Low Density Trees	2.2	Yes	OPIC - FMD: Scattered oak, white pine and aspen.
55	320 - Upland Shrub	9.2	No	OPIC - FMD: Part of an old timber sale #? mostly choke cherry.
60	500 - Water	7.1	No	Manistee River
68	500 - Water	0.8	No	Manistee river.
69	330 - Low-Density Trees	1.1	No	Site of the old Livingstone buildings which was removed in 2011. Now there is a canoe launch.
72	500 - Water	1.1	No	
401	310 - Herbaceous Openland	1.1	Yes	
402	320 - Upland Shrub	2.8	No	OPIC - FMD: May have been a gravel pit at one time.
403	330 - Low-Density Trees	4.1	Yes	- Small islands of pine and aspen. Plant grass.
404	330 - Low-Density Trees	9.4	No	
405	330 - Low-Density Trees	6.3	No	