

Compartment Review Presentation

Cadillac Forest Management Unit

Compartment 63108 Entry Year 2018 Acreage: 1,395

County Missaukee

Management Area: Upper Muskegon

Revision Date: 2016-06-07 Stand Examiner: Jim Malloy

Legal Description:

T21N, R6W, Sections 10, 13, 14, 15, 22, 23, 24, 27

Identified Planning Goals:

Vegetation management in the Upper Muskegon management area (MA) will provide forest products; maintain or enhance wildlife habitat; protect areas of unique threatened, endangered and special concern species; and provide for forest-based recreational uses. Timber management for this 10-year period will focus on harvesting older jack pine and balancing age class distributions of oak, aspen and red pine. Wildlife habitat management objectives include perpetuating early-successional communities for species adapted to young forests for hunting and other wildlife-related recreation. Expected trends within this 10-year planning period are the need to manage exotic species (especially Phragmites and glossy buckthorn), the need to continue to manage cover types for a balanced age-class distribution and an expected increase in recreation pressure.

Soil and topography:

Rolling hills, mostly Rubicon, Graycalm, and Montcalm sands

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

There is private land in every section of this compartment. Mostly working farms surround the state land. The University of Michigan owns large blocks of wooded land in sections 14 and 15. Lands recommended for acquisition are the two 40 acre parcels in Sec. 22 SENE, NESE. Suggest disposing of the 40-acre parcel in NWSW sec. 24.

Unique Natural Features:

Archeological, Historical, and Cultural Features:

Woodland Indian mounds, earthworks, burial sites and prehistoric sites within RMU. Letter received from State Archaeologist says timber harvest activity will not affect sites.

Special Management Designations or Considerations:

Woodland Indian mounds, earthworks, burial sites and prehistoric sites within compartment.

Watershed and Fisheries Considerations:

No streams or lakes in compartment.

Wildlife Habitat Considerations:

Maintain species diversity and manage for quality oak and aspen. Featured wildlife species are deer, ruffed grouse, and woodcock. Timber sale specifications to benefit these featured species (where applicable) will include protection of mast-bearing wildlife shrubs and ironwood, protection of standing dead snags, and creation of drumming logs (1-2 per acre) and woody debris (tops or whole trees) in aspen cuts. (Victory, 5/24/16)

Mineral Resource and Development Concerns and/or Restrictions

Surface sediments consist of ice-contact outwash sand and gravel and fine and coarse-textured tills. The glacial drift thickness varies between 400 and 800 feet. Beneath the glacial drift are the Pennsylvanian Grand River and Saginaw Formations. The Saginaw is quarried for clay/shale in other parts of the State. Gravel pits are located one mile to the east and potential is good. The compartment is located north of Prosper Field. The field has produced nearly 2 million BO from the Dundee Limestone. There are no State leases currently in the Compartment. A petroleum pipeline runs north/south along section lines 14,15,22 & 23.

Vehicle Access:

A forest road access plan is detailed on the compartment map. Identified are state and county roads as well as forest roads and trails under the jurisdiction of the DNR. Also indicated are forest roads and trails under the jurisdiction of the

DNR that are proposed for abandonment. These roads were determined to be in excess of the access needs in the area, are a threat to the resources, or are a concern environmentally.

Survey Needs:

The state land in section 10 needs to be surveyed to verify state owned boundaries and establish lines for future timber sales.

Recreational Facilities and Opportunities:

There are no designated recreational trails within this compartment. (T.N. 1/29/16)

Fire Protection:

The compartment consists of multiple hardwood stands and some scattered mixed hardwoods and pine stands along with a few stands of planted black spruce. The area has good road access for suppression equipment.

Additional Compartment Information:

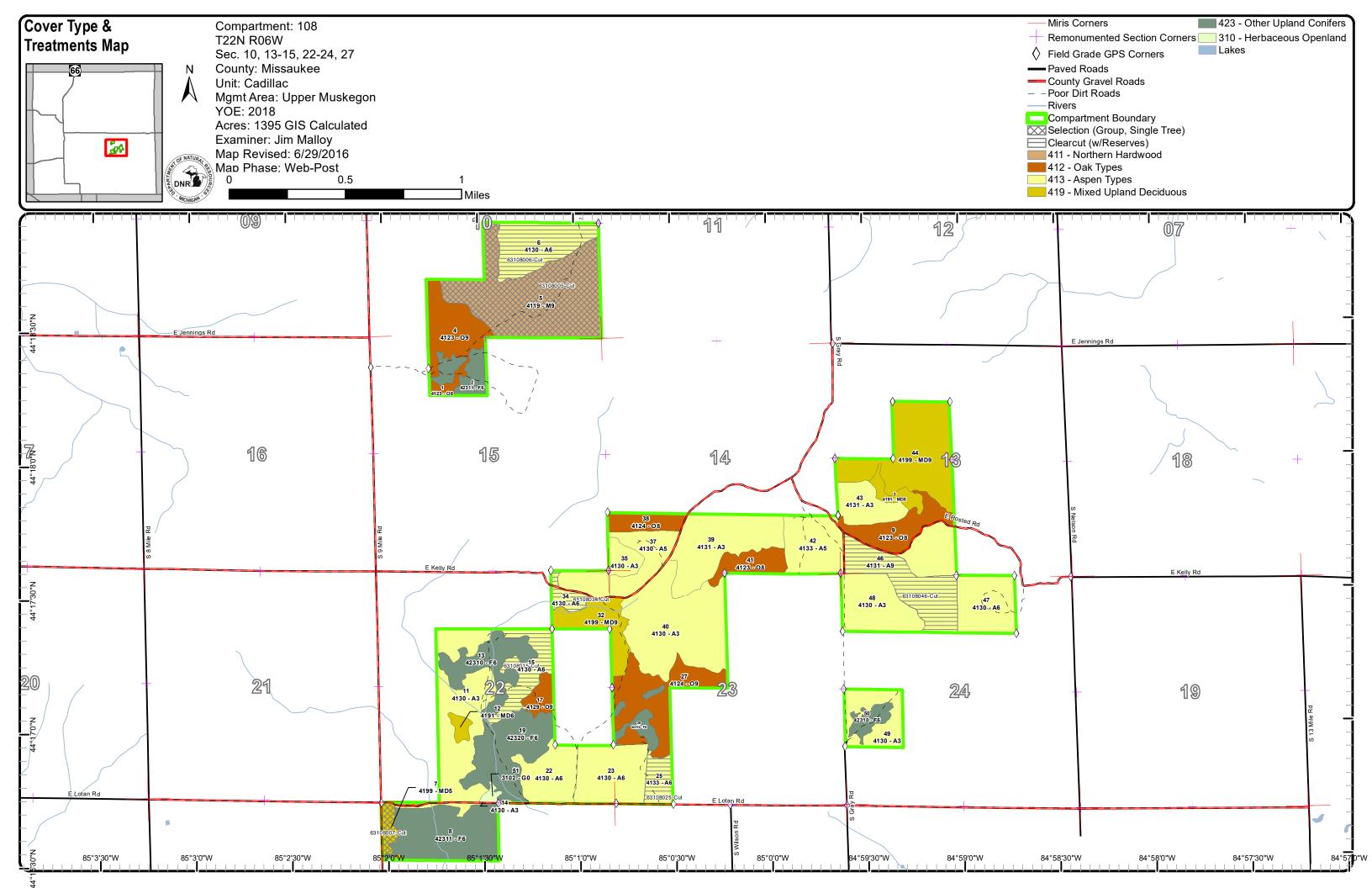
The following reports from the Inventory are attached:

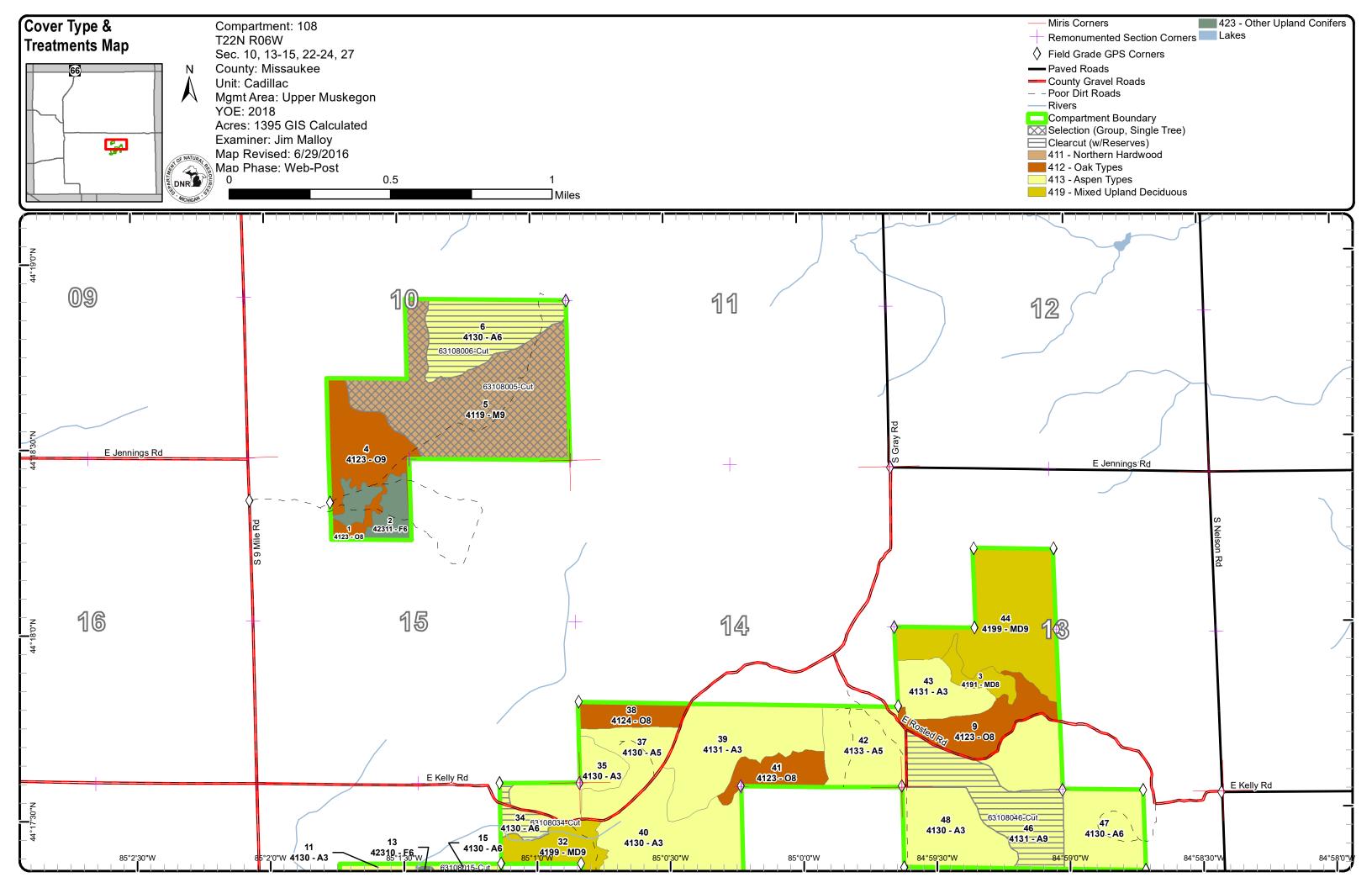
Total Acres by Cover Type and Age Class
Cover Type by Harvest Method
Proposed Treatments – No Limiting Factors
Proposed Treatments – With Limiting Factors
Stand Details (Forested and Nonforested)
Dedicated and Proposed Special Conservation Areas
Site Condition Details

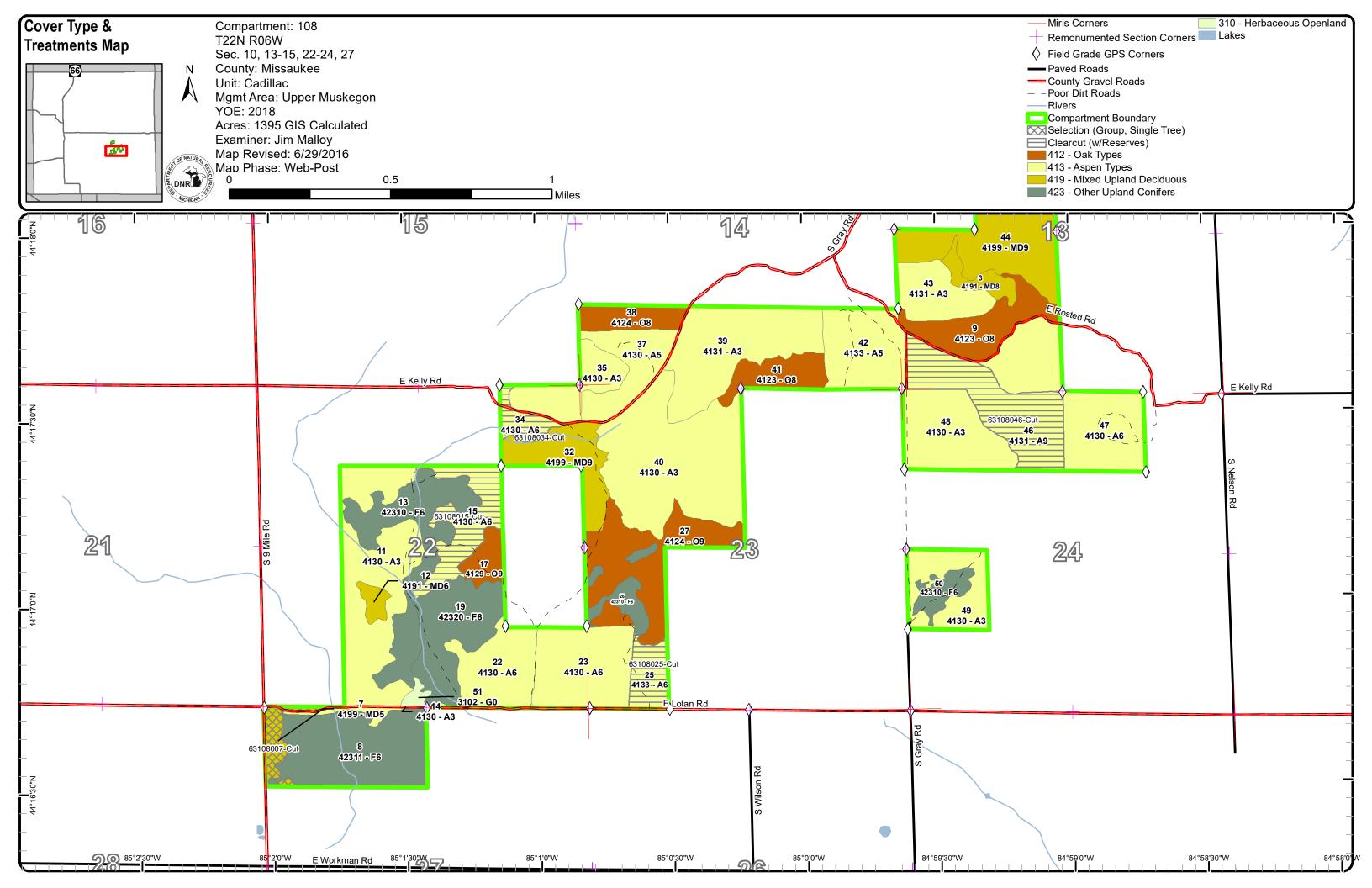
The following information is displayed, where pertinent, on the attached compartment maps:

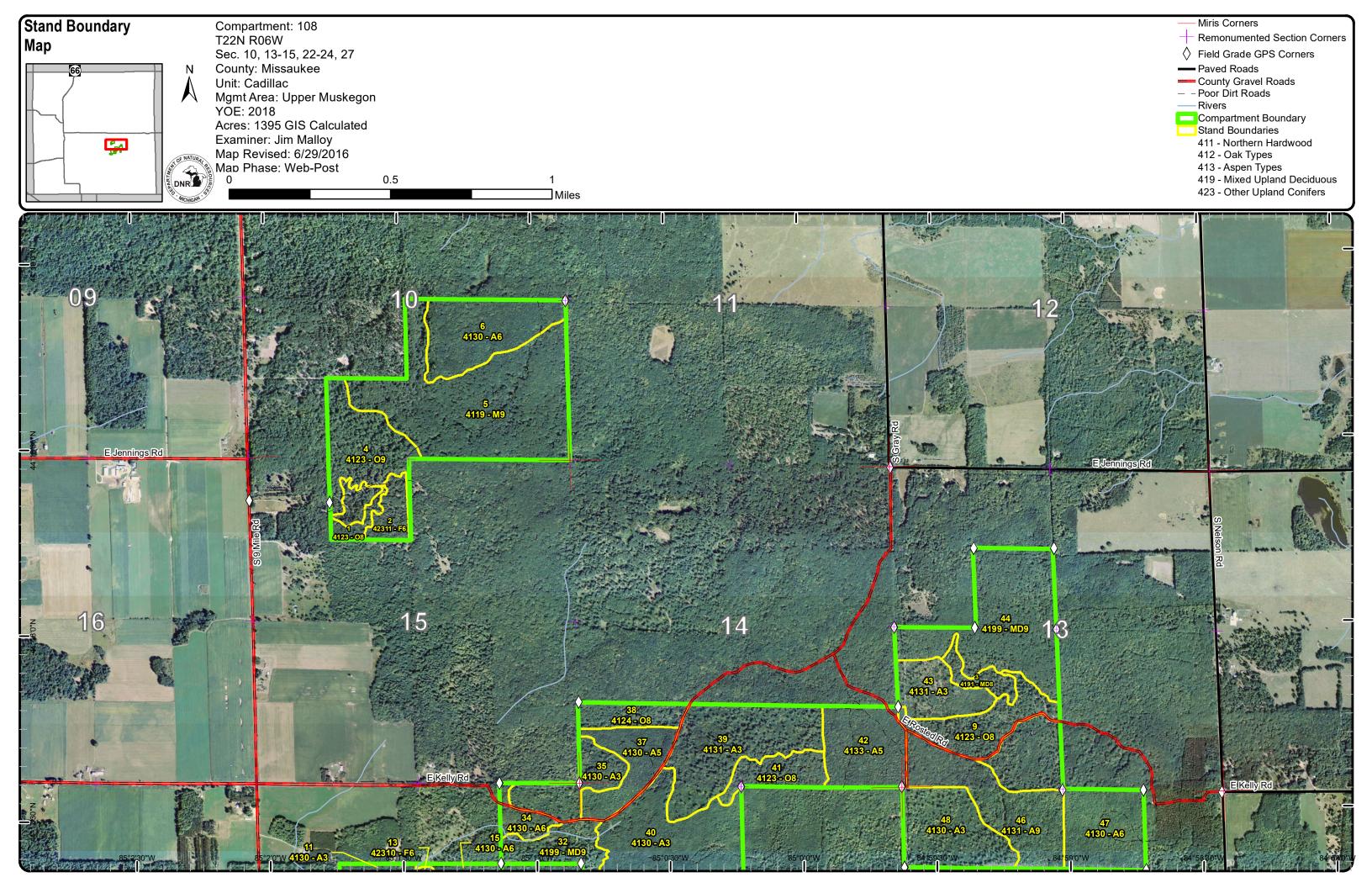
Base feature information, stand boundaries, cover types, and numbers Proposed treatments Site condition boundaries

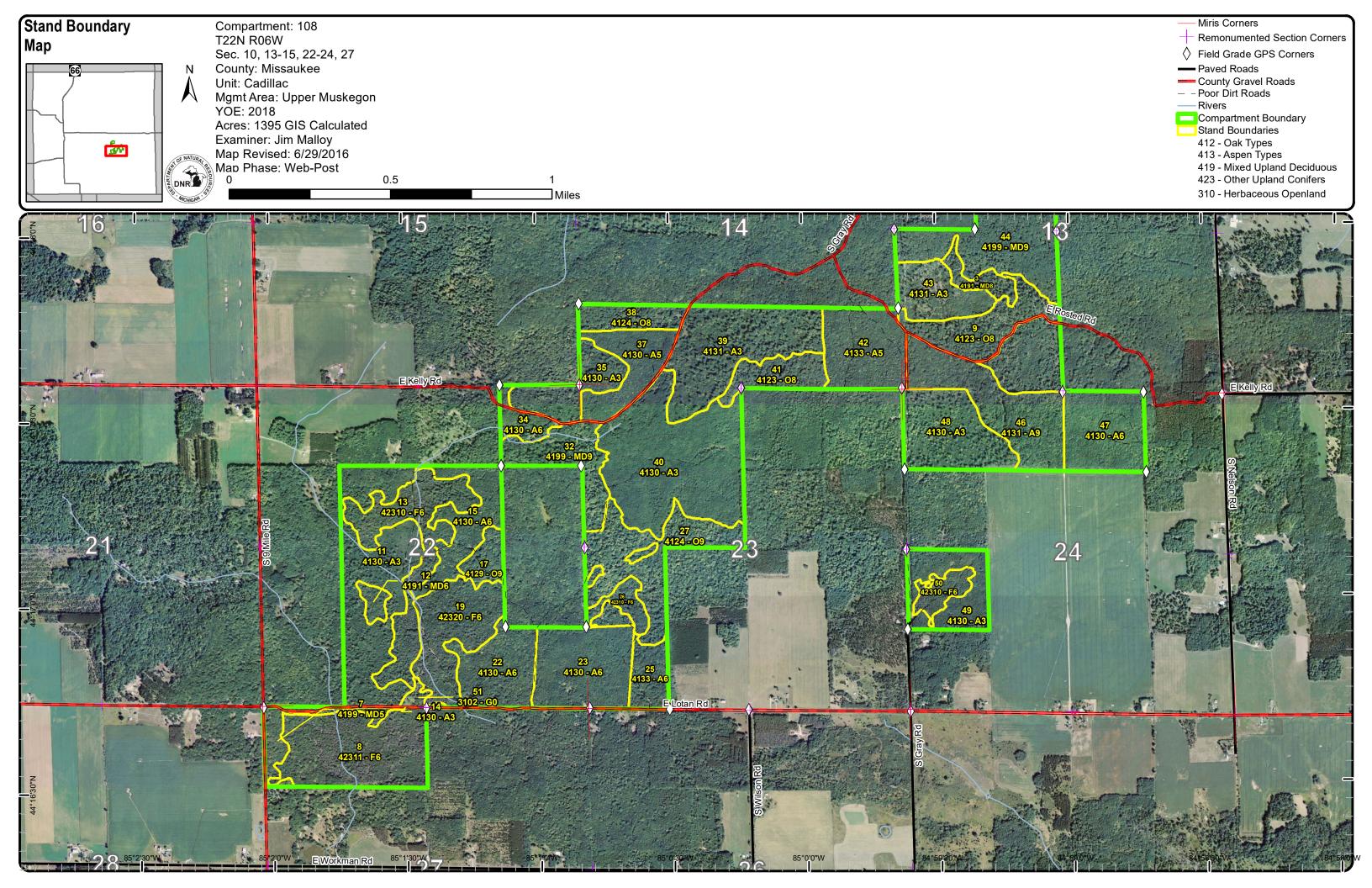
Details on the road access system

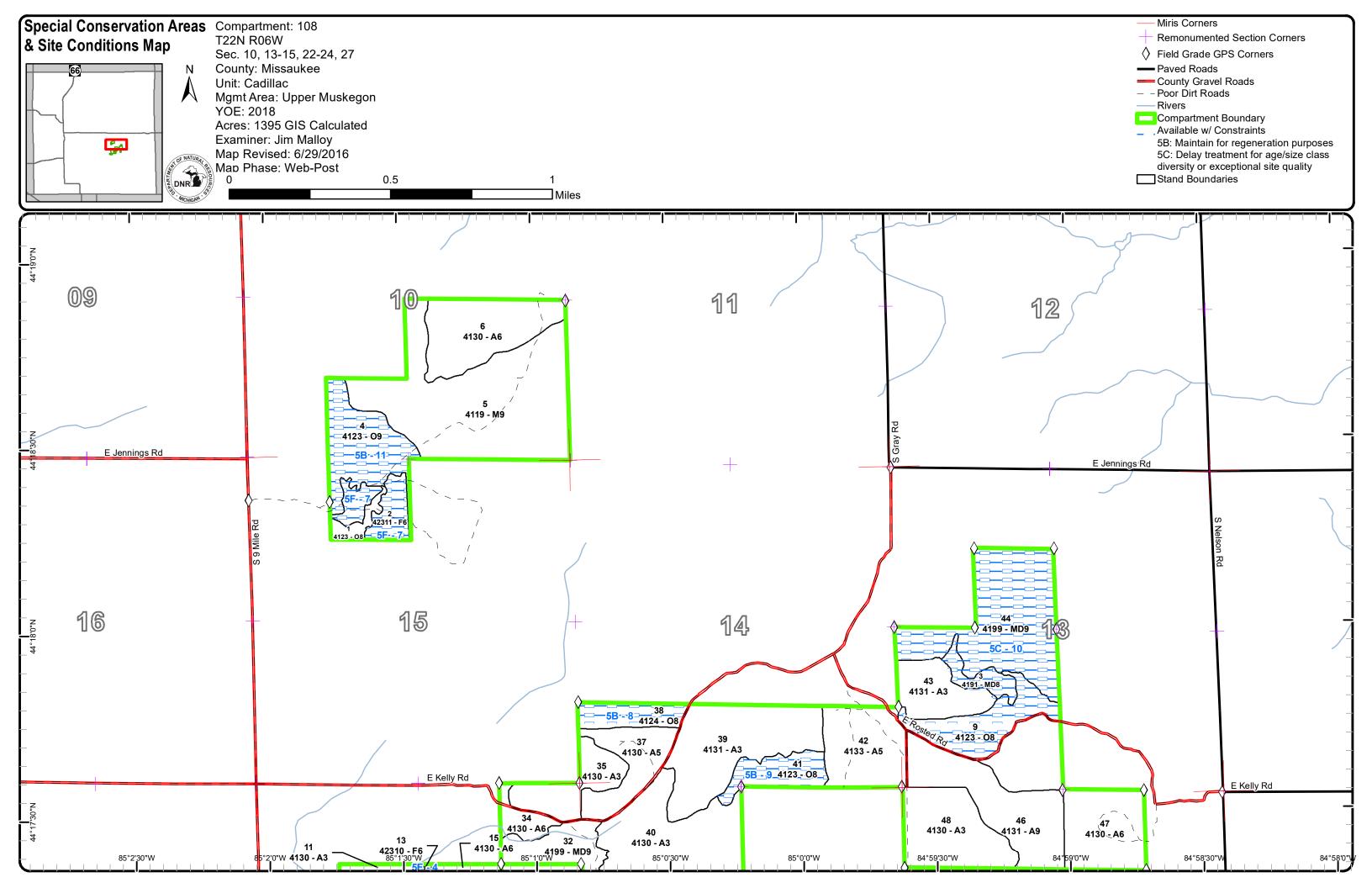


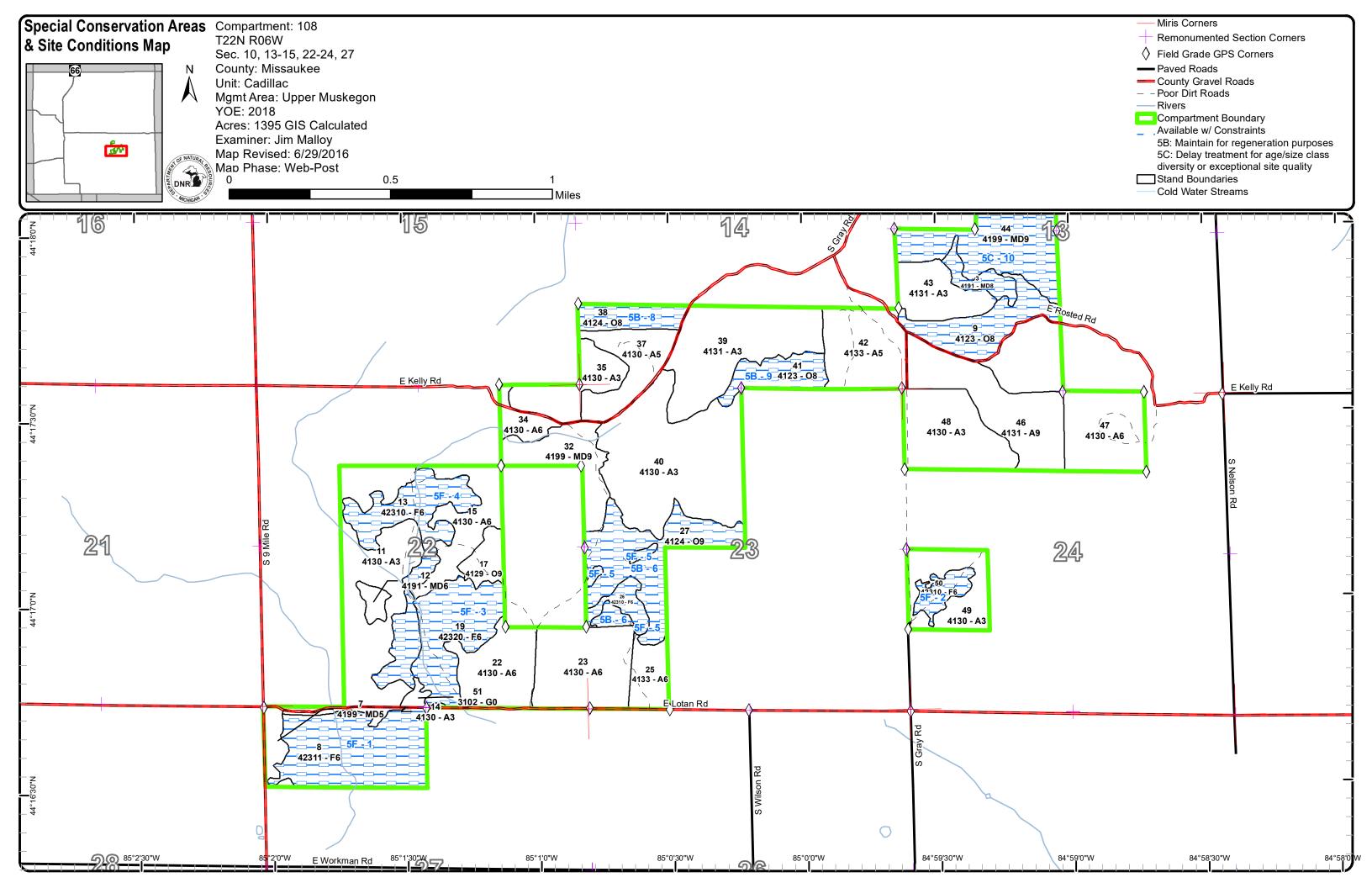












Report 1 – Total Acres by Cover Type and Age Class

Cadillac Mgt. Unit

Jim Malloy: Examiner

Compartment 108 Year of Entry 2018



Age Class

	₽ ^{of}	KO S	3 / 2	67.0		3 / \$	No. Co.	\$ \ \&	\$ / K	R &	8 8	\$ \\ \&	, a, 'a'	, 2º / 2º	,	S. A.	N. N	St Jue	No. No.
Aspen	0	0	266	130	128	29	138	54	0	0	0	0	0	0	0	0	0	0	745
Herbaceous Openland	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Mixed Upland Deciduous	0	0	0	0	0	0	0	15	0	10	81	0	0	0	0	0	0	30	136
Northern Hardwood	0	0	0	0	0	0	0	0	0	125	0	0	0	0	0	0	0	0	125
Oak	0	0	0	0	0	0	0	0	6	74	0	91	0	0	0	0	0	11	181
Upland Spruce/Fir	0	0	0	0	0	0	203	0	0	0	0	0	0	0	0	0	0	0	203
Total	3	0	266	130	128	29	341	69	6	209	81	91	0	0	0	0	0	41	1393



Report 2 – Treatment Summary

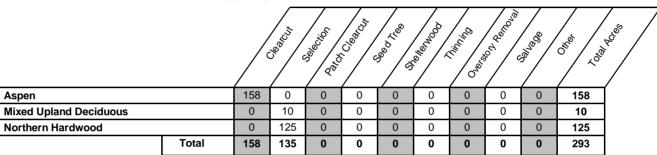
Cadillac Mgt. Unit Year of Entry: 2018

Acres of Harvest

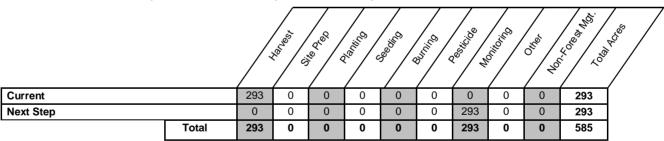
Compartment 108
Total Compartment Acres: 1,395

Commercial Harvest - 293 Harvests with Site Condition - 0 Next Step Harvest - 0 Habitat Cut - 0

Cover Type by Harvest Method



Proposed and Next Step Treatments by Method



s

Compartment: 108 Year of Entry: 2018



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
5	63108005-Cut	124.7	4119 - Mixed Northern Hardwoods	Sawtimber Well	85	81-110	Harvest	Single Tree Selection	411 - Northern Hardwood	Uneven- Aged	Proposal - Approval Pending Edits

Habitat Cut: No Site Condition:

Prescription Follow guidelines in complete marker and mark stand to a residual ba of 70. Create large openings every 4-5 acres for regen gaps.

Specs:

Next Step Monitoring, Natural Regen (Intermediate)

Treatments:

Acceptable northern hardwood, oak, and aspen.

Regen:

Other Comment:

10/01/2017 Proposed Start Date:

63108006-Cut 47.1 4130 - Aspen Poletimber 57 81-110 Harvest Clearcut with 4139 - Aspen, Two-Aged Proposal -Well Retention Mixed Deciduous Approval Pending Edits

Habitat Cut: No Site Condition:

Prescription Final harvest aspen and red maple. Encourage recruitment of northern hardwoods into stand where possible by leaving quality seed trees of various

Specs: hardwood species.

Next Step Monitoring, Natural Regen (Re-Inventory)

Treatments:

Acceptable aspen, maple, and various hardwood species.

Regen:

Other Comment:

10/01/2017 **Proposed Start Date:**

Poletimber 63108007-Cut 10.3 4199 - Other Mixed 65 51-80 4199 - Other Proposal -Harvest **Group Selection** Two-Aged **Upland Deciduous** Medium Mixed Upland Approval Pending Edits Deciduous

Habitat Cut: No Site Condition:

Prescription Remove all aspen, maple, and beech. Mark a few high risk oaks for removal too.

Specs:

Next Step Monitoring, Natural Regen (Re-Inventory)

Treatments:

Acceptable Oak, maple, aspen

Regen:

Other Low quality stand that could almost be a firewood type sale due to low quality and volume.

Comment:

Proposed Start Date: 10/01/2017

30.6 63108015-Cut 4130 - Aspen Poletimber 51 51-80 Harvest Clearcut with 413 - Aspen Even-Aged Proposal -Well Retention Approval Pending Edits

Habitat Cut: No Site Condition:

Prescription Final harvest aspen and red maple. Mark a few oak to be left (~1 per acre) for mast and diversity. Cut all hardwood within stand. Retention will be in Specs:

the form of a linear island within the stand.

Next Step Monitoring, Natural Regen (Re-Inventory)

Treatments:

Acceptable Aspen, maple, and oak, scattered hardwood.

Regen:

Other Comment:

Proposed Start Date: 10/01/2017 Cadillac Mgt. Unit Report 3 -- Treatments

Treatments Compartment: 108
Year of Entry: 2018

а **Treatment** Acres Stand Size Stand BA **Treatment Treatment Cover Type** Age Approval n Method Objective Structure Status Name CoverType Density d Age Range Type 63108025-Cut 15.7 4133 - Aspen, Mixed Poletimber Clearcut with 25 56 81-110 Harvest 413 - Aspen Even-Aged Proposal -Well Retention Approval Pine Pending Edits

Habitat Cut: No Site Condition:

Prescription Final harvest maple and aspen. Mark pine and oak to cut to a residual BA of 20, focus on good seed quality oak and wind firm pines.

Specs:

s

Next Step Monitoring, Natural Regen (Re-Inventory)

Treatments:

Acceptable aspen, maple, pine, oak

Regen:

Other Comment:

Proposed Start Date: 10/01/2017

34 63108034-Cut 10.0 4130 - Aspen Poletimber 56 81-110 Harvest Clearcut 413 - Aspen Even-Aged Proposal - Well Approval

Approval Pending Edits

Habitat Cut: No Site Condition:

Prescription Final harvest no retention due to small acreage.

Specs:

Next Step Monitoring, Natural Regen (Re-Inventory)

Treatments:

Acceptable Aspen, Maple

Regen:

Other Survey needed to determine private boundary.

Comment:

Proposed Start Date: 10/01/2017

46 63108046-Cut 54.2 4131 - Aspen, Oak Sawtimber 63 81-110 Harvest Clearcut with 413 - Aspen Even-Aged Proposal Well Retention Approval
Pending Edits

Habitat Cut: No Site Condition:

<u>Prescription</u> Good oak regen throughout. Paper birch along road dividing stand, remove aspen, mark oak to cut. Do not cut or damage sugar maple and oak regen. Retention should be linear along boundary with adjacent aspen stand that were cut during previous entries

Next Step Monitoring, Natural Regen (Re-Inventory)

Treatments:

Acceptable aspen, oak, maple, paper birch.

Regen:

<u>Other</u>

Comment:

Proposed Start Date: 10/01/2017

Total Treatment Acreage Proposed: 292.6

Cadillac Mgt. Unit

Jim Malloy: Examiner

Compartment: 108
Year of Entry: 2018

Availability for Management											
Total	Acres	Acres Avail	Acres		Dominar	nt Site	Conc	litions			
Acres	Available	With Condition	Not Available		5B	5C	5F				
746	746	1	0	Aspen		1					
3	3	0	0	Herbaceous Openland							
136	45	91	0	Mixed Upland Deciduous		91					
125	125	0	0	Northern Hardwood							
181	17	165	0	Oak	132	32					
203	0	203	0	Upland Spruce/Fir			203				
1,395	936	459		Total Forested Acres	132	124	203				
	67%	33%	0%	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	Available	5F: Evaluated for Forest Health Considerations	66	Unspecified	Unspecified	Unspecified	Unspecified
	Comments:						
2	Available	5F: Evaluated for Forest Health Considerations	10	Unspecified	Unspecified	Unspecified	Unspecified
	Comments: Spruce is healthy ar	nd providing wildlife benefits.					
3	Available	5F: Evaluated for Forest Health Considerations	45	Unspecified	Unspecified	Unspecified	Unspecified
	Comments: Spruce is healthy ar	nd providing wildlife benefits.					
4	Available	5F: Evaluated for Forest Health Considerations	51	Unspecified	Unspecified	Unspecified	Unspecified
	Comments: Spruce is healthy ar	nd providing wildlife benefits.		_		_	_

Report 4 – Site Conditions

Cadillac Mgt. Unit

Jim Malloy: Examiner

Compartment: 108
Year of Entry: 2018

5	Available	5F: Evaluated for Forest	12	Unspecified	Unspecified	Unspecified	Unspecified
		Health Considerations					
	Comments:						
	Spruce is healthy						
6	Available	5B: Maintain for regeneration purposes	56	Unspecified	Unspecified	Unspecified	Unspecified
	Comments:						
	Stand is regenerat	ing from previous cut. Allow oa	k regenei	ration to continue to gro	w into the pole class before	the over story oak is rem	oved.
7	Available	5F: Evaluated for Forest Health Considerations	19	Unspecified	Unspecified	Unspecified	Unspecified
	Comments: Spruce is healthy a	and providing wildlife benefits.					
8	Available	5B: Maintain for regeneration purposes	16	Unspecified	Unspecified	Unspecified	Unspecified
	Comments:						
9	Available	5B: Maintain for regeneration purposes	19	Unspecified	Unspecified	Unspecified	Unspecified
	Comments: Stand is aspen reg	eneration under an over story o	of oak.				
10	Available	5C: Delay treatment for age/size class diversity or exceptional site quality	124	Unspecified	Unspecified	Unspecified	Unspecified
	Comments:						
	Adjacent stands we	ere cut during the last entry. Ke	ep this st	and around for another	rotation to provide age and	structural diversity for the	oak in the area.

Report 4 – Site Conditions

Cadillac Mgt. Unit

Jim Malloy: Examiner

Compartment: 108
Year of Entry: 2018

11	Available	5B: Maintain for regeneration purposes	41	Unspecified	Unspecified	Unspecified	Unspecified
Co	omments:						

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
Comments				

Mgt. Unit Compartment:
Year of Entry

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.

Conservation Type Description
Area

ERA = Ecological Reference Area

HCVA = High Conservation Value Area

SCA = Special Conservation Area

S t	Cadillad	: Mgt. Unit		Report 7	Forested	Stands Compartment: 108 Year of Entry: 2018
a n d	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
1	4123 - Red Oak	Sawtimber Medium	5.9	76	1-50	Stand was harvested in last treatment period. Regeneration is starting to sprout back now. Coming back to red maple, beech, and aspen.
2	42311 - Planted Spruce, Mixed Deciduous	Poletimber Well	19.2	54	51-80	Overtopping aspen was removed from the stand during the previous entry. Spruce is growing well with no sign of spruce budworm.
3	4191 - Mixed Upland Deciduous with Conifer	Sawtimber Medium	9.6	87	51-80	Small stand on top of ridge. This stand contains a larger component of white pine than the rest of the adjacent stands.
4	4123 - Red Oak	Sawtimber Well	41.0	84	51-80	Pockets of young oak pole and sapling size.
5	4119 - Mixed Northern Hardwoods	Sawtimber Well	124.7	85	81-110	Stand is a mix of oak and lower quality northern hardwood. Beech is showing sign of beech scale and all ash is dead/dying from EAB.
6	4130 - Aspen	Poletimber Well	47.1	57	81-110	Remove all aspen, red maple, and poor formed hardwoods. Mark some oaks to cut. Stand residual BA will vary based on hardwood and oak component. Long range management goal is for a mix of oak, aspen, and northern hardwoods.
7	4199 - Other Mixed Upland Deciduous	Poletimber Medium	10.3	65	51-80	Poor quality stand along county road. Most beech within stand show signs of beech scale.
8	42311 - Planted Spruce, Mixed Deciduous	Poletimber Well	66.1	54	81-110	Overtopping aspen was removed in 1998. Stand now a mix of spruce with pockets of young aspen. Aspen is coming back well in harvested areas and along the skid trails. Spruce is healthy and shows no sign of forest health risk at this time, and is still providing cover for wildlife.
9	4123 - Red Oak	Sawtimber Medium	32.5	86	51-80	This stand was harvested in the past but no cutting record was found. Advanced regeneration of oak, beech, and maple.
11	4130 - Aspen	Sapling Well	74.7	15	Immature	Aspen was harvested in 2001. Harvest placed 8 inch diameter limit on white pine. Pole sized residual oaks. Aspen is starting to self thin. Stand also includes a small portion of larger aspen along Lotan Rd and a small area of blow down that was harvested in 2005 following a blowdown event.
12	4191 - Mixed Upland Deciduous with Conifer	Poletimber Well	5.1	62	81-110	A mix of white pine, paper birch, aspen and oak. Left as an uncut island in the large surrounding aspen clear-cut. Beech in stand is showing signs of beech scale.
13	42310 - Planted Spruce	Poletimber Well	50.7	54	141-170	Spruce stand that had overtopping aspen removed during previous entry. Stand now a complex of sapling sized aspen and pole sized spruce, with the spruce pockets surrounded by areas of young aspen. Some large aspen in the spruce areas not harvested in. Scattered red oak occur throughout the stand.
14	4130 - Aspen	Sapling Well	3.8	18	1-50	Young aspen with a few scattered white spruce

S t	Cadillad	: Mgt. Unit		Report 7	- Forested	Stands Compartment: 108 Year of Entry: 2018
a n d	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
15	4130 - Aspen	Poletimber Well	30.6	51	51-80	Aspen stand that will require survey for harvest to establish private boundaries.
17	4129 - Mixed Oak	Sawtimber Well	10.8	85	81-110	OPIC - FMD: Stand treated by selection cut in 2001.
19	42320 - Upland Spruce	Poletimber Well	44.8	54	81-110	Represents portion of spruce stand with overtopping aspen that was not harvested during the previously.
22	4130 - Aspen	Poletimber Well	34.6	57	81-110	Aspen stand mostly poles with some logs, mixed with white pine and red maple.
23	4130 - Aspen	Poletimber Well	48.4	36	Unspecified	Stand of aspen transitioning into pole class. Scattered white pine throughout the understory with a few that have progressed into the canopy. Small amount of oak (mostly poles) and spruce in NE of stand where transition to oak stand occurs. Stand was treated by clearcut in 1980.
25	4133 - Aspen, Mixed Pine	Poletimber Well	15.7	56	81-110	Aspen stand that when harvested the lower portion of the stand will convert to oak/pine/aspen mix. Pine component is already present in southern end as white and jack pine. Some large oaks are present along with some advance regeneration. Small area of stand was part of a blow down salvage sale ~15 years ago. Now treating as a part of the larger stand. Stand borders a private farm field to the east.
26	42310 - Planted Spruce	Poletimber Well	11.8	54	51-80	Spruce stands within large oak stand. Preserve for diversity and wildlife cover.
27	4124 - Red with White Oak	Sawtimber Well	55.8	106	51-80	Stand was marked to cut during last entry. Very little oak regeneration has occurred.
32	4199 - Other Mixed Upland Deciduous	Sawtimber Well	30.0	108	81-110	Beech is showing scale and ash are dead/dying due to EAB. Multi aged with large sawtimber, poles and advanced regen. Openings created by previous harvest are being dominated by aspen regeneration. Stand slopes down toward the north with aspen below. Single stemmed oak and multi stemmed maples dominate the overstory. Bordered along south and west by private parcel.
34	4130 - Aspen	Poletimber Well	10.0	56	81-110	Aspen is mature. Final harvest stand and expand sale to the south to incorporate lower stocking areas of hardwood.
35	4130 - Aspen	Sapling Well	25.6	15	Immature	Aspen stand that was final harvested in 2001. Scattered mature oak and maple left as reserves. Aspen regen is growing well along with scattered red maple sprouts.
37	4130 - Aspen	Poletimber Medium	29.4	40	1-50	Represents portion of adjacent stand that was not harvested during the previous entry. Aspen is growing well and putting on diameter growth.

S t	Cadillad	c Mgt. Unit		Report 7	– Forested	Stands Compartment: 108 Year of Entry: 2018
a n d	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
38	4124 - Red with White Oak	Sawtimber Medium	16.1	100	51-80	Stand was previously coded as aspen. Stand treated by selection cut during previous entry. Aspen regen coming back under an oak/northern hardwood over story.
39	4131 - Aspen, Oak	Sapling Well	64.6	13	Immature	Aspen cut that occurred in 2003. Oak was left as a reserve. Aspen starting to come back nicely.
40	4130 - Aspen	Sapling Well	101.0	23	Immature	Aspen stand starting to change from saplings into poles. Some mixed red maple saplings as well. Growing very nicely.
41	4123 - Red Oak	Sawtimber Medium	19.4	105	51-80	Stand treated during a previous entry. White pine understory coming in under residual oaks. Aspen regen in areas recently cut. Manage for oak/pine complex with potential for aspen pockets. Several large red pine monarchs left in stand.
42	4133 - Aspen, Mixed Pine	Poletimber Medium	40.0	34	1-50	Stand is a mix of aspen saplings and poles and white pine poles and sawtimber. Manage for a mixture of white pine and aspen.
43	4131 - Aspen, Oak	Sapling Well	25.5	11	1-50	Aspen stand that was harvested last entry and closed in 2005. Reserves of oak left scattered throughout the stand.
44	4199 - Other Mixed Upland Deciduous	Sawtimber Well	81.2	94	51-80	This stand represents the portion that was not harvested last entry. Hold one more YOE to allow adjacent cut to mature further.
46	4131 - Aspen, Oak	Sawtimber Well	54.2	63	81-110	Good oak regen throughout. Paper birch along road dividing stand, remove aspen, mark oak to cut. Do not cut or damage sugar maple and oak regen.
47	4130 - Aspen	Poletimber Well	40.0	34	1-50	Aspen stand with scattered maple. A few over story oaks and a beech sub-canopy. Stand is in transition. Will be pole sized on next entry.
48	4130 - Aspen	Sapling Well	71.8	14	Immature	Stand cut in 2002. Aspen with oak reserves. Aspen regen coming back well. 10-20 BA of oak left following harvest.
49	4130 - Aspen	Sapling Well	29.4	25	Immature	Represents portion of the stand which is aspen. Pipeline runs along the west edge of the stand. Aspen growing well. Good form and growth.

54

111-140

10.3

42310 - Planted Spruce

50

Poletimber

Well

Represents portion of the stand which was planted to spruce in 1962. Good wildlife cover and stand diversity. Road through stand is proposed for closure halfway through stand. Spruce is doing well health wise and still providing good cover for wildlife.

Cadillac Mgt. Unit

Report 8 - Nonforested Stands

Compartment: 108 Year of Entry: 2018



Stand	Cover Type	Acres	Managed Site	General Comments:
51	3102 - Grass	3.4	No	OPIC - FMD: OI Stand Year Origin was