

Compartment Review Presentation

Cadillac Forest Management Unit

Compartment 63083 Entry Year 2018 Acreage: 1,927

County Missaukee

Management Area: Houghton Lake Wetlands

Revision Date: 2016-06-08

Stand Examiner: Jim Malloy

Legal Description:

T25N, R5W, Sec. 22, 23 & 24

Identified Planning Goals:

Vegetation management in the Houghton Lake Wetlands 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 planning period will focus on balancing the aspen age-class distribution. Wildlife habitat management objectives include perpetuating early-successional communities for species adapted to young forests for hunting and other wildlife-related recreation opportunity. Expected trends within the next decade are the need to continue to balance aspen age-class distributions, an expected increase in recreation pressure and invasive species encroachment.

Soil and topography:

Lupton-Roscommon-Tawas association. Terrain is flat and poorly drained.

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

All ownership in the compartment is state ownership. Multiple oil and gas wells located throughout the area as part of the Norwich oil field.

Unique Natural Features:

The Natural Features Inventory list a Great Blue Heron Rookery is section 22. Little evidence of the rookery now exist having been abandoned for a number of years. The Dead Stream Swamp is an exceptionally large example (one of the largest in the United States) of a northern white cedar swamp, considered to be the climax in bog forest development. Large white cedar swamps are disappearing, partially due to the demand for this timber product. Besides swamp forest, the Landmark contains approximately 800 acres of deciduous upland forest; shrubs and sedges bordering the lower reaches of Dead Stream; and the 60-acre Bear Lake, a bog pond bordered by an expansive sphagnum-heath mat.

Archeological, Historical, and Cultural Features:

Special Management Designations or Considerations:

This compartment falls entirely in the Dead Stream Swamp National Landmark. All motorized land equipment shall be confined to public roads, and to department designated interior roads and parking areas, except under specific permits issued by the Department of Natural Resource.

Watershed and Fisheries Considerations:

Willow Creek and Cole Creek flow through Compartment 83. Both are designated trout streams, likely with populations of brook trout. The Dead Stream flows just to the south of Compartment 83. All these streams are tributaries of the Muskegon River.

Wildlife Habitat Considerations:

This compartment is found within the Deadstream Swamp, an important deeryard and core bear area. Featured wildlife species are deer, bear, hare, and pileated woodpecker. Management emphasis for this compartment includes maintaining the National Natural Landmark and Dedicated Natural Area features that characterize the swamp. Maintenance of lowland conifer types, protection of cedar and hemlock, and appropriate buffers for wetland areas to maintain hydrology are important. Large, contiguous stands of mature forested tracts, especially along riparian corridors will ensure maintenance of wildlife movement corridors. (Victory, 5/24/16)

Mineral Resource and Development Concerns and/or Restrictions

Surface sediments consist of peat and muck and glacial outwash sand and gravel and postglacial alluvium. The glacial drift thickness varies between 200 and 600 feet. Beneath the glacial drift is the Mississippian Michigan Formation. The

Michigan Formation is quarried for gypsum in other areas of the State. A gravel pit is located in Section 13 to the north and potential appears to be limited. East Norwich Field is located in Section 22 and to the north. The field has produced over 15.9 million BO and 15.7 Bcf gas from the Devonian Richfield Formation. It is in secondary recovery operations currently. There are no State lands currently leased in the Compartment.

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:

Recreational Facilities and Opportunities:

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

Fire Protection:

This area is mostly lowland. Access for suppression equipment would be difficult. May be limited to low ground pressure equipment and Amphibious equipment. There are several old gas/oil well sites, which would be of concern.

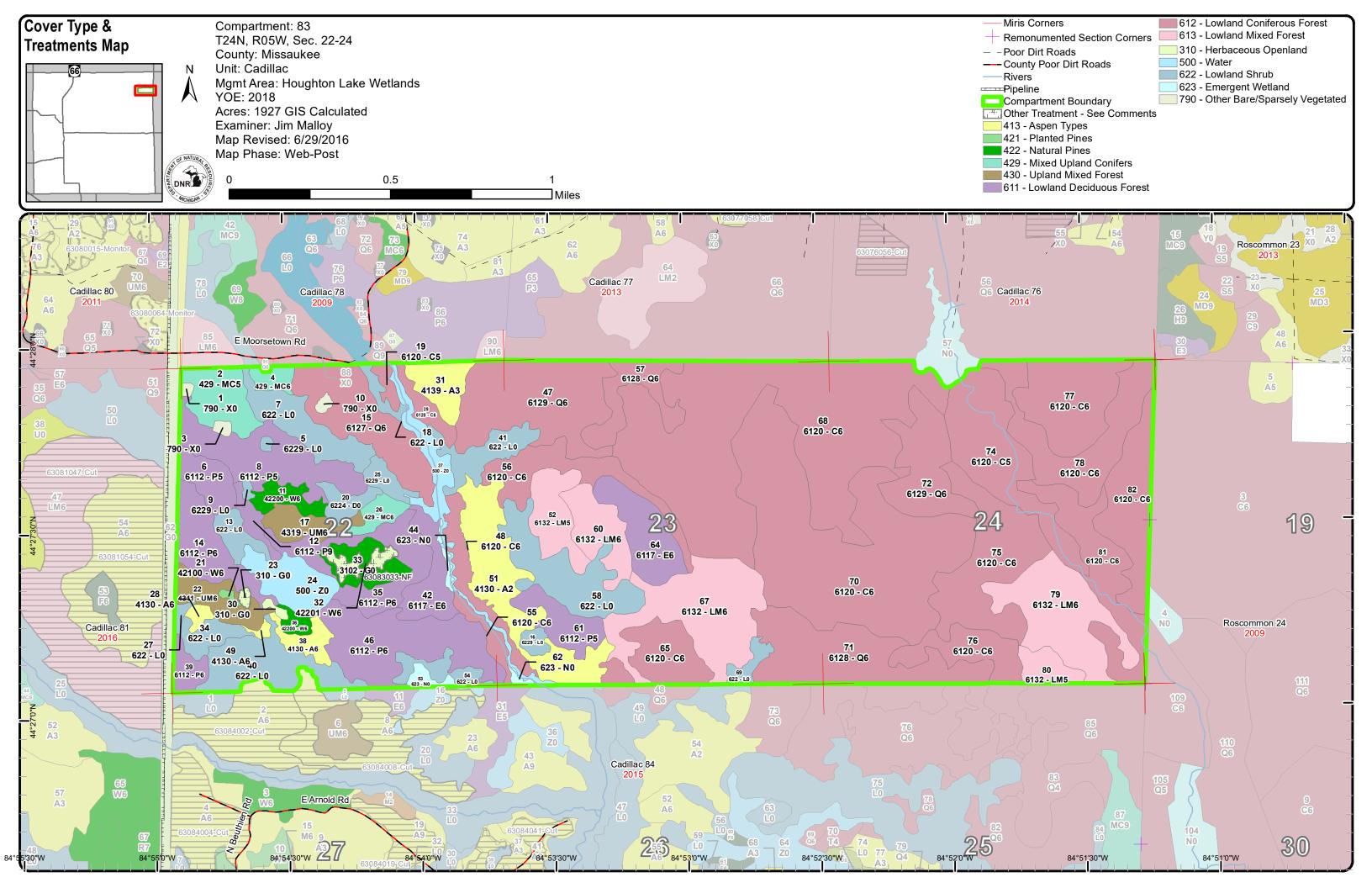
Additional Compartment Information:

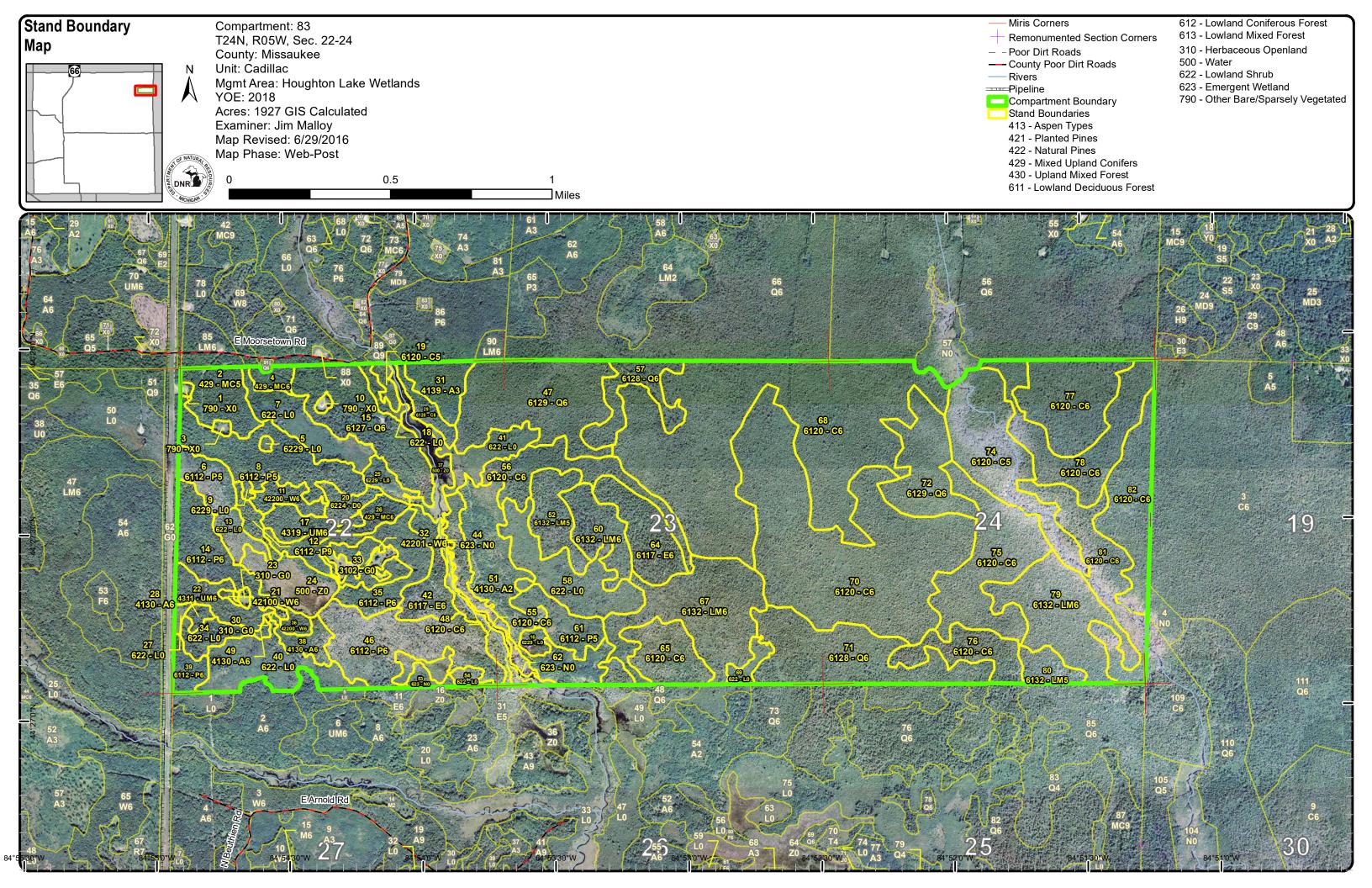
The following reports from the Inventory are attached:

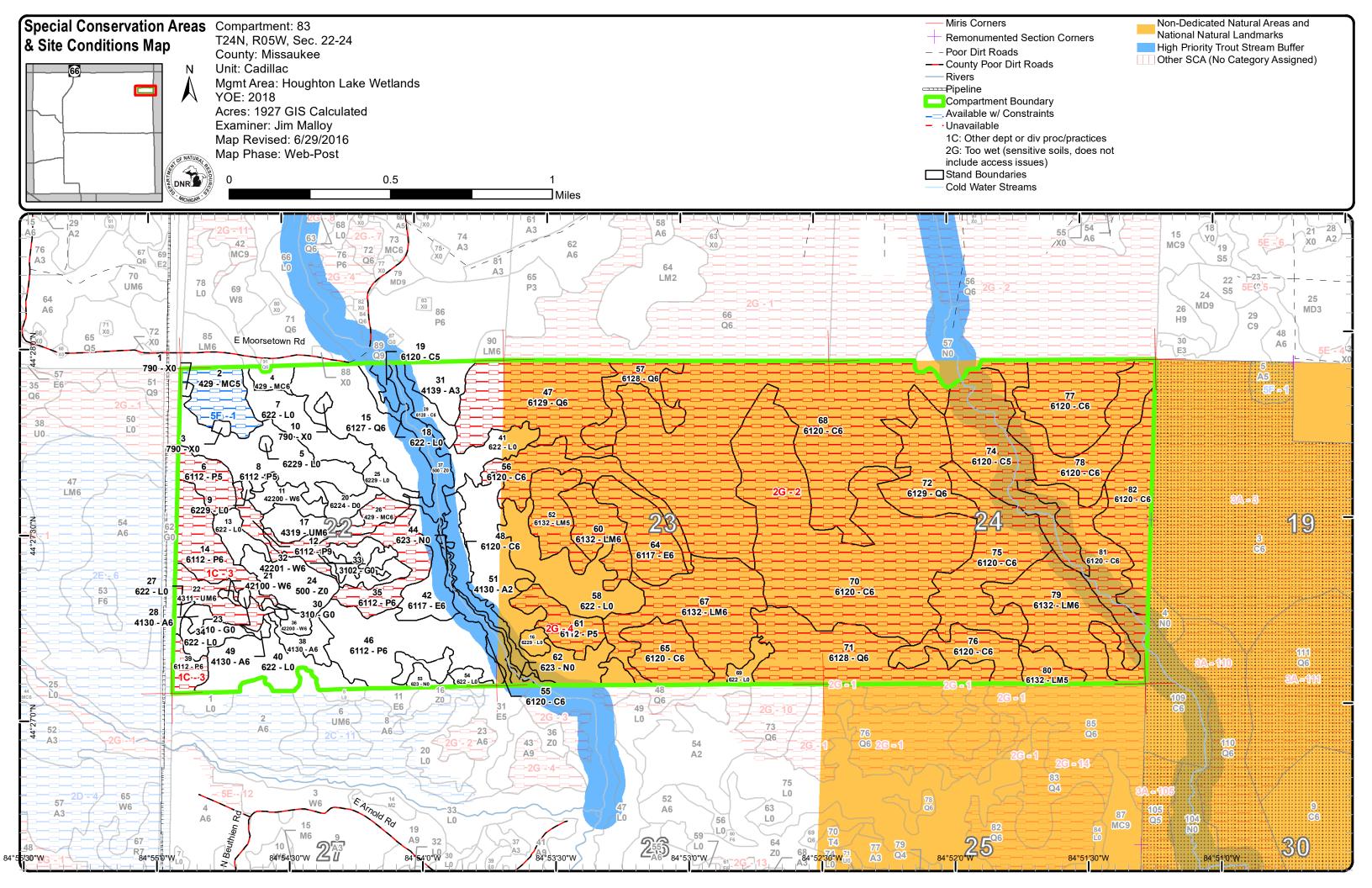
Total Acres by Cover Type and Age Class
Cover Type by Harvest Method
Proposed Treatments – No Limiting Factors
Proposed Treatments – With Limiting Factors
Stand Details (Forested and Nonforested)
Dedicated and Proposed Special Conservation Areas
Site Condition Details

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







Compartment 83 Year of Entry 2018

Cadillac Mgt. Unit Jim Malloy: Examiner



Age Class

	Age.	La Company of the Com	3/2	0/2°/2°/2°/2°/2°/2°/2°/2°/2°/2°/2°/2°/2°/	\$ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	8 / 15	18 /8ª	, % /s	S / 15	\$ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	28 89 89	\$ \\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	, z , z , z , z , z , z , z , z , z , z	, No. / No.	, S.	N. P.	Y VE	St Jug	No. of Low
Aspen	0	0	71	0	3	0	1	9	0	0	0	0	0	0	0	0	0	0	84
Bare/Sparsely Vegetated	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
Cedar	0	0	0	0	0	0	0	0	0	0	0	826	0	0	0	0	0	0	826
Herbaceous Openland	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9
Lowland Aspen/Balsam Poplar	0	0	0	0	45	34	60	71	0	0	0	0	0	0	0	0	0	0	210
Lowland Conifers	0	0	0	0	0	0	48	0	0	0	0	198	0	0	0	0	0	0	246
Lowland Deciduous	0	0	0	0	0	0	0	20	0	0	0	29	0	0	0	0	0	0	48
Lowland Mixed Forest	0	0	0	0	0	0	0	0	0	0	0	178	0	0	0	0	0	0	178
Lowland Shrub	172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	172
Marsh	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
Treed Bog	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
Upland Conifers	0	0	0	0	0	0	8	0	28	0	0	0	0	0	0	0	0	0	36
Upland Mixed Forest	0	0	0	0	0	0	13	16	0	0	0	0	0	0	0	0	0	0	29
Water	43	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	43
White Pine	0	0	0	0	0	0	5	22	0	0	0	0	0	0	0	0	0	0	27
Total	243	0	71	0	48	34	135	138	28	0	0	1231	0	0	0	0	0	0	1927



Report 2 – Treatment Summary

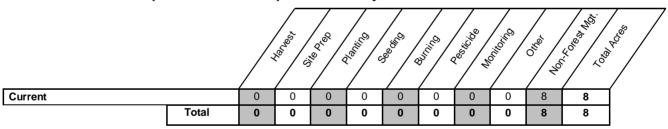
Cadillac Mgt. Unit Year of Entry: 2018

Acres of Harvest

Compartment 83
Total Compartment Acres: 1,927

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

Proposed and Next Step Treatments by Method



Cadillac Mgt. Unit

Report 3 -- Treatments

Compartment: 83 Year of Entry: 2018

a n d	Treatment Name	Acres	Stand CoverType	Size Stand Density Age	d BA Range	Treatment Type	Treatment Method	Cover Type Objective	Age Structure	Approval Status
33	63083033-NF	7.9	3102 - Grass	Nonstocked	Unspec ified	NonForestMgt	Other - Specify	31021 - Cool Season Grass		Proposal

Habitat Cut: No Site Condition:

Prescription Specs: Maintain as an opening by cutting trees and brush as needed. This treatment may also include planting and maintaining woody or herbaceous browse or mast species including planting, fertilizing, and mowing as needed. Trees and brush cut will be piled as possible.

Next Step Treatments:

s

<u>Acceptable</u>

Regen:

Other Comment:

Proposed Start Date: 10/01/2016

Total Treatment 7.9 Acreage Proposed:

POLEYN

Compartment: 83 Year of Entry: 2018

Cadillac Mgt. Unit

Acres

Availability for Management

Acres

Total

Acres Avail

Jim Malloy : Examiner

Dominant Site Conditions

Acres	Available	With Condition	Not Available		5F	1C	2G
83	83	0	0	Aspen			
4	4	0	0	Bare/Sparsely Vegetated			
826	39	0	787	Cedar			787
9	9	0	0	Herbaceous Openland			
211	102	0	109	Lowland Aspen/Balsam Poplar		91	18
245	48	0	198	Lowland Conifers			198
48	19	0	29	Lowland Deciduous			29
179	0	0	179	Lowland Mixed Forest			179
173	173	0	0	Lowland Shrub			
7	7	0	0	Marsh			
8	8	0	0	Treed Bog			
36	6	22	8	Upland Conifers	22	8	
30	13	0	16	Upland Mixed Forest		16	
43	43	0	0	Water			
27	27	0	0	White Pine			
1,927	581	22	1,325	Total Forested Acres	22	115	1,210
	30%	1%	69%	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.

	nd 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	22	Unspecified	Unspecified	Unspecified	Unspecified				
Comments: Stand is doing well and is currently being inventoried.											
2	Unavailable	2G: Too wet (sensitive soils, does not include access issues)	1,192	5F: Evaluated for Forest Health Considerations	Unspecified	Unspecified	Unspecified				
	nments:	he Dead Stream Swamp and	io incoo	ancible due to verious babit	est and water issues						

Report	4 - S	ite Cor	nditions
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Cadillac Mgt. Unit

Jim Malloy: Examiner

Compartment: 83 Year of Entry: 2018

3	Unavailable	1C: Other dept or div proc/practices	115	Unspecified	Unspecified	Unspecified	Unspecified
	Comments: Dead Stream Swan	np National Natural Landmark					
4	Unavailable	2G: Too wet (sensitive soils, does not include access issues)	18	Unspecified	Unspecified	Unspecified	Unspecified
	Comments: Sale to the west wa	s pushed as far as possible a	nd this por	tion was not accessible.			

Mgt. Unit

Compartment: #Type! Year of Entry:

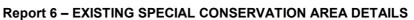


Report 5 - PROPOSED SPECIAL CONSERVATION AREA* (SCA) DETAILS

* 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			

Cadillac Mgt. Unit Compartment: 83
Year of Entry 2018





* 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.

Conservati Area	on Type	Description	ERA = Ecological Reference Area HCVA = High Conservation Value Area SCA = Special Conservation Area				
SCA	Cold Water Stream	A coldwater stream has temperature and dissolved oxygen cond stocked trout populations and those of other coldwater fish specified year to year. Coldwater streams in Michigan typically provide the contributions of groundwater to their stream flows. Such streams designated as trout resources by Fisheries Order 210.	ies (e.g., slimy sculpin) to persist from see conditions due to substantial				
SCA	Non-Dedicated Natural Areas and National Natural Landmarks	This category is comprised of those Natural, Wilderness and Wilderness and Froposed for legal dedication, but for which legal dedication by legal nomination process is defined by Part 351, Wilderness and Nature Environmental Protection Act, 1994 PA 451. The program is additional require the submittal of a Natural Areas Nomination Packet to the proposed sites in various stages of review. Final dedication of not Areas is accomplished through legislative action.	egislature has not occurred. The ural Areas, of the Natural Resources and ninistered by the DNR. Nominations e DNR. This is an active program, with				
SCA	Riparian Area	A transitional area between aquatic and terrestrial ecosystems in influences the aquatic ecosystem and vice-versa. Because of the streams and open water wetlands, riparian areas harbor a high communities are ecologically and socially significant in their effect as aesthetics, habitat, bank stability, timber production, and their	e unique conditions adjacent to lakes, diversity of plants and wildlife. Riparian cts on water quality and quantity, as well				
HCVA	Legally dedicated Natural Areas, Wilderness or Wild Areas	The nomination process is defined by Part 351, Wilderness and and Environmental Protection Act, 1994 PA 451. The program is require the submittal of a Natural Areas Nomination Packet to th proposed sites in various stages of review. Final dedication of no Areas is accomplished through legislative action.	administered by the DNR. Nominations e DNR. This is an active program, with				

S t	Cadillac	Mgt. Unit		Report 7	- Forested	Stands Compartment: 83 Year of Entry: 2018
a n d	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
2	429 - Mixed Upland Conifers	Poletimber Medium	22.1	73	51-80	Wet ground, mix of spruce maple and aspen with some white pine supercanopy trees low quality,poor access, no distinct management objectives, good stand for wildlife cover
4	429 - Mixed Upland Conifers	Poletimber Well	5.8	72	1-50	
6	6112 - Lowland Aspen	Poletimber Medium	14.3	62	1-50	Low wet aspen, maple, black ash stand. Most of the ash is dead and tag alder is moving into the understory.
8	6112 - Lowland Aspen	Poletimber Medium	44.9	36		
11	42200 - Natural White Pine	Poletimber Well	9.9	60	81-110	very poor access
12	6112 - Lowland Aspen	Sawtimber Well	6.3	48	Unspecified	Very poor access. Adjacent to abandoned Blue Heron Rookery to the south. Log sized red maple and aspen.
14	6112 - Lowland Aspen	Poletimber Well	27.7	48	1-50	Pipeline runs along western edge of stand and another small pipeline through the middle of the stand N/S. Much of the ash in the stand is dead/dying due to EAB. Beaver activity along the lowland complex to the SE of the stand where the beaver are cutting aspen.
15	6127 - Lowland Pine	Poletimber Well	47.6	57	51-80	
17	4319 - Mixed Upland Forest	Poletimber Well	13.2	57	51-80	Stand is a mix of Red maple, aspen, and scattered white pine and black spruce. Canopy density decreases as you head toward the west of the stand.
19	6120 - Lowland Cedar	Poletimber Medium	4.1	102		
21	42100 - Planted White Pine	Poletimber Well	1.0	57	141-170	This is a small area of white pine on a small rise in the middle of the deadstream swamp.
22	4311 - Pine, Aspen Mix	Poletimber Well	16.3	62	81-110	Stand is a mixture of aspen, white pine, balsam fir and maple.
26	429 - Mixed Upland Conifers	Poletimber Well	7.6	56	111-140	Stand contains a small area of planted red pine in the middle of the stand. Stand is to small to map separately.
28	4130 - Aspen	Poletimber Well	2.9	38	Unspecified	Stand of aspen on a small knoll in the middle of lowland areas. Stand was visited by Larry Smith in 2006.
29	6120 - Lowland Cedar	Poletimber Well	8.1	104	1-50	This is a cedar stand in the floodplain of Willow Run Creek. High water levels are starting to decrease the quality of the remaining trees. much of the cedar is in decline

s t	Cadillad	: Mgt. Unit		Report 7	- Forested	Stands Compartment: 83 Year of Entry: 2018
a n d	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
31	4139 - Aspen, Mixed Deciduous	Sapling Well	15.8	16	Unspecified	Stand was harvested in 2001 by a winter cut.
32	42201 - Natural White Pine, Mixed Deciduous	Poletimber Well	11.9	67	111-140	
35	6112 - Lowland Aspen	Poletimber Well	34.0	55	51-80	A mix of aspen, red maple and black ash with a tag alder understory.
36	42200 - Natural White Pine	Poletimber Well	3.9	57	81-110	Stand is a small area of planted white pine on a knoll in the south of the compartment.
38	4130 - Aspen	Poletimber Well	8.6	66	Unspecified	A stand of aspen and red maple along a ridge in the deadstream swamp. Stand has the potential for a habitat cut. Was previously prescribed and was terminated before treatment.
39	6112 - Lowland Aspen	Poletimber Well	8.4	54	Unspecified	Stand is a mix of aspen, red maple, and black ash.
42	6117 - Lowland Deciduous, Mixed Coniferous	Poletimber Well	19.5	62	Unspecified	Flooded red maple stand. Mix of red maple, black ash, and aspen with a tag alder understory. Seasonally flooded but drier than the stand to the south.
46	6112 - Lowland Aspen	Poletimber Well	57.1	60	Unspecified	Flooded red maple stand. Mix of red maple, black ash, and aspen with a tag alder understory.
47	6129 - Mixed Coniferous Lowland Forest	Poletimber Well	71.0	102	51-80	Wet cedar swamp, Dead tops in the cedars.
48	6120 - Lowland Cedar	Poletimber Well	15.3	106		Lowland cedar in the riparian area/floodplain of willow run creek.
49	4130 - Aspen	Poletimber Well	1.4	52		A stand of aspen and red maple along a ridge in the deadstream swamp.
51	4130 - Aspen	Sapling Medium	54.7	18	Immature	Stand was cut previously during a winter sale that expanded into the compartment to the south.
52	6132 - Mixed Lowland Forest with Cedar	Poletimber Medium	22.5	103		Stand is similar to others but with a lower canopy density then others. A mix of tamarack, cedar, swamp hardwoods and balsam fir with a tag alder understory.
55	6120 - Lowland Cedar	Poletimber Well	7.3	104	Unspecified	Stand is located in the riparian area of willow run creek. It is a cedar stand with scattered balsam fir and black spruce. Contains some aspen and black ash.
56	6120 - Lowland Cedar	Poletimber Well	31.1	103	Unspecified	This stand is a wet area to the east of the aspen cut done in winter 2001. This area contains cedars, aspen, red maple, and black ash, with some balsam fir and black spruce.

S	Cadillac Mgt. Unit			Report 7	- Forested	Stands Compartment: 83 Year of Entry: 2018
t a n d	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
57	6128 - Lowland Coniferous, Mixed Deciduous	Poletimber Well	22.3	104	Unspecified	
60	6132 - Mixed Lowland Forest with Cedar	Poletimber Well	22.9	102		Sparse cedar and aspen and red maple with a thick understory of Tag Alder.
61	6112 - Lowland Aspen	Poletimber Medium	18.1	58	Unspecified	Similar to the stand to the west. Stand is wetter than adjacent stand and thus not able to be commercially harvested.
64	6117 - Lowland Deciduous, Mixed Coniferous	Poletimber Well	28.5	103	Unspecified	Previous Inventory showed an age of 93 (in 2006) on white cedar. Stand is a mix of ash poles/logs and cedar poles with a heavy tag alder understory. Most of the ash is dead due to EAB.
65	6120 - Lowland Cedar	Poletimber Well	28.8	107	51-80	A portion of this stand was visited in Feburary 2006 by Jim Malloy and Bill Sterrett after a 2 hour long snowmobile ride down the old and well bermed winter access road used to harvest the aspen stands to the northeast.
67	6132 - Mixed Lowland Forest with Cedar	Poletimber Well	66.8	104	Unspecified	Would like to cut the aspen out of this stand if possible. Very wet but access was previously made from the south. Attempt to harvest with compartment to the south.
68	6120 - Lowland Cedar	Poletimber Well	224.3	107	Unspecified	Cedars have dead tops. Stand was visited at the northern edge during the winter of 2005 after a snowmobile ride down a long abandoned well site access road. No change since last inventory.
70	6120 - Lowland Cedar	Poletimber Well	179.2	103	Unspecified	
71	6128 - Lowland Coniferous, Mixed Deciduous	Poletimber Well	65.3	102	Unspecified	Stand may contain aspen as it is near to a winter aspen sale previously done in compartment 84
72	6129 - Mixed Coniferous Lowland Forest	Poletimber Well	39.0	101	Unspecified	mix of cedar, black spruce, balsam fir, red maple, and BAM
74	6120 - Lowland Cedar	Poletimber Medium	59.1	103	Unspecified	Many dead snags due to flooding of Cole creek and beaver dam.
75	6120 - Lowland Cedar	Poletimber Well	61.4	102	Unspecified	cedar, ash, red maple stand in middle of Dead Stream swamp
76	6120 - Lowland Cedar	Poletimber Well	24.2	102	Unspecified	Stand of cedar, balsam fir, red maple, and aspen. denser canopy than surrounding areas.
77	6120 - Lowland Cedar	Poletimber Well	46.1	103	Unspecified	Cedar stand with an ash/aspen component
78	6120 - Lowland Cedar	Poletimber Well	49.3	102	Unspecified	cedar stand with a mix of ash, aspen, balsam fir, and black ash.

S t	Cadillad	Cadillac Mgt. Unit			– Forested	Stands Compartment: 83 Year of Entry: 2018
a n d	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
79	6132 - Mixed Lowland Forest with Cedar	Poletimber Well	55.6	102	Unspecified	Stand is a mix of cedar and lowland hardwoods such as black ash and red maple,
80	6132 - Mixed Lowland Forest with Cedar	Poletimber Medium	10.8	103	Unspecified	cedar age taken from previous data
81	6120 - Lowland Cedar	Poletimber Well	45.4	103	Unspecified	Age from previous OI done in 1996
82	6120 - Lowland Cedar	Poletimber Well	42.1	102	Unspecified	Age from previous OI done in 1996.

Report 8 - Nonforested Stands

Compartment: 83 Year of Entry: 2018



Stand	Cover Type	Acres	Managed Site	General Comments:
1	790 - Other Bare/Sparsely Vegetate	1.0	No	Well Pad
3	790 - Other Bare/Sparsely Vegetate	1.4	No	
5	6229 - Mixed lowland shrub	1.0	No	
7	622 - Lowland Shrub	25.8	No	
9	6229 - Mixed lowland shrub	1.2	No	
10	790 - Other Bare/Sparsely Vegetate	1.4	No	
13	622 - Lowland Shrub	9.0	No	
16	6229 - Mixed lowland shrub	3.9	No	
18	622 - Lowland Shrub	4.5	No	
20	6224 - Treed Bog	8.1	No	
23	310 - Herbaceous Openland	1.2	No	
24	500 - Water	22.8	No	beaver dam along the southeastern edge.
25	6229 - Mixed lowland shrub	7.0	No	Stand is a drainage to Willow Run Creek. Contains scattered trees in the NE portion of the stand.
27	622 - Lowland Shrub	1.8	No	
30	310 - Herbaceous Openland	1.4	No	
33	3102 - Grass	6.6	Yes	old opening managed by wildlife division
34	622 - Lowland Shrub	9.6	No	
37	500 - Water	20.2	No	Willow Run Creek

Cadillac Mgt. Unit

Report 8 - Nonforested Stands

Compartment: 83 Year of Entry: 2018



Stand	Cover Type	Acres	Managed Site	General Comments:
40	622 - Lowland Shrub	34.8	No	
41	622 - Lowland Shrub	17.4	No	
44	623 - Emergent Wetland	1.8	No	
53	623 - Emergent Wetland	3.8	No	
54	622 - Lowland Shrub	9.7	No	
58	622 - Lowland Shrub	41.1	No	
62	623 - Emergent Wetland	1.3	No	
69	622 - Lowland Shrub	5.7	No	