

Compartment Review Presentation

Grayling Forest Management Unit

Compartment 72189 Entry Year 2019 Acreage: 2,236

Management Area: Kirtland's Warbler

County Crawford

Revision Date: 2018-01-30

Stand Examiner: Thomas Barnes

Legal Description:

T25N R04W Sections 7, 18, 19 and 30 Beaver Creek Township

Identified Planning Goals:

To maintain forest health, productivity, sustainability, species diversification, and structural diversity throughout the compartment while providing for multiple use and visual management. In addition, to maintain a healthy habitat for the endangered species Dendroica kirtlandii (Kirtland's Warbler), taking into account warbler management plan directives, species diversity, and visual management. This area also provides an area for military training.

Soil and topography:

Terrain within the compartment is primarily level throughout. Soils within the compartment consist primarily of Grayling Sands.

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

The compartment is mostly state owned, with a few private 40's mixed in. A part of the National Guard Range 13 Mortar Range is located in Section 7. Part of Section 7 is military board land. The remainder of the compartment is leased to the military under the Ten Year Management Agreement. There is very little development, with the exception of the Beaver Creek Oil/Gas Field.

Unique Natural Features:

Unit 3 of the Fletcher Road Kirtland's Warbler covers a large portion of this compartment.

Archeological, Historical, and Cultural Features:

The Fletcher Road Fire of 1968 burned through a portion of the compartment.

Special Management Designations or Considerations:

The Kirtland's Warbler Management Plan should be followed for any management within the compartment. Also military and oil/gas is also must be considered in any management of the compartment.

Watershed and Fisheries Considerations:

None.

Wildlife Habitat Considerations:

To manage and maintain existing cover types within the compartment and to improve habitat conditions for a wide variety of non-game and game wildlife.

Mineral Resource and Development Concerns and/or Restrictions

An active gravel pit is located more than two miles to the northeast and two abandoned pits in Section 9 to the east. There is good sand and gravel potential within the compartment on upland areas. Most of the compartment is leased for oil and gas and part of it is in the Beaver Creek Field. The field has produced over 21 MBO from the Devonian Richfield and over 5 Bcf gas from the Ordovician Prairie du Chien. The field is currently undergoing secondary recovery operations. There is no known metallic mineral potential in this part of the state.

Vehicle Access:

Access to and within the compartment can be obtained by Seven Mile, Fletcher and Corvus County Roads. Several other two tracks and seasonal county roads exist from these three roads into the compartment. Several of these roads (both seasonal and non-seasonal) are used by oil/gas trucks to inspect and maintain the oil/gas wells that exist within the compartment. Most all roads and trails are passible by two wheel drive vehicle year around.

Survey Needs:

None

Recreational Facilities and Opportunities:

No recreational facilities exist within the compartment. Dispersed recreational opportunities exist throughout the compartment. Hunting and Kirtland Warbler - bird watching are two of these most popular pursuits. The West Higgins 50" ORV Trail runs just over a 1/4 mile south of this compartment boundary.

Fire Protection:

: Fire protection is the responsibility of the Beaver Creek Township Fire Department and the Michigan Department on Natural Resources, within the assist of the Camp Grayling Fire Department (National Guard). This area is a no plow zone due to the oil/gas wells, pipelines and hydrogen sulfide gas.

More than three quarters of the compartment is in Jack Pine type for the Kirtland's Warbler, making this area very acceptable to wildfires. A portion of Range 13 exist in the northeast part of the compartment, this two has fires that occasionally escape into the surrounding stands within the compartment. No close water source exists within the compartment.

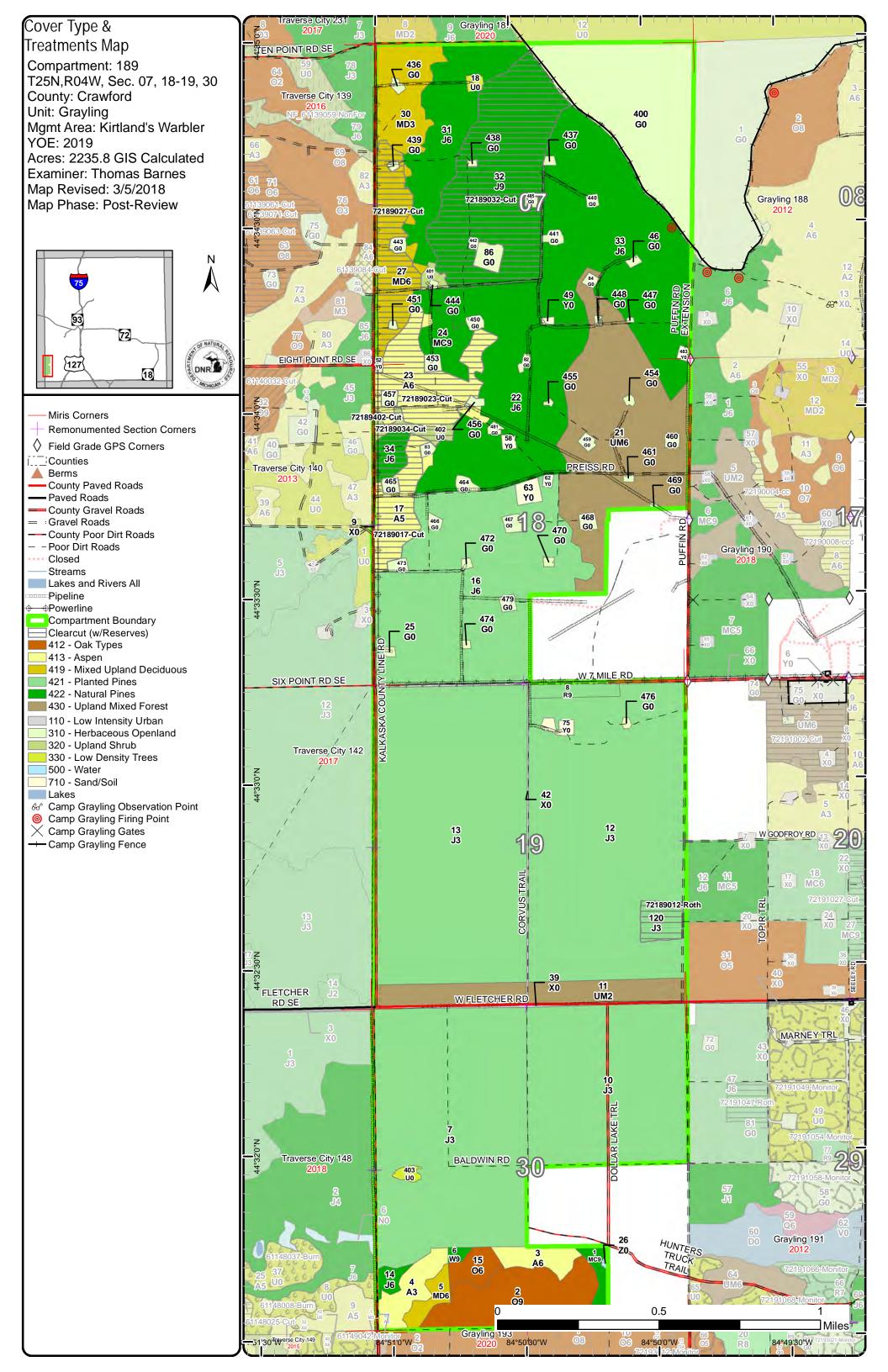
Additional Compartment Information:

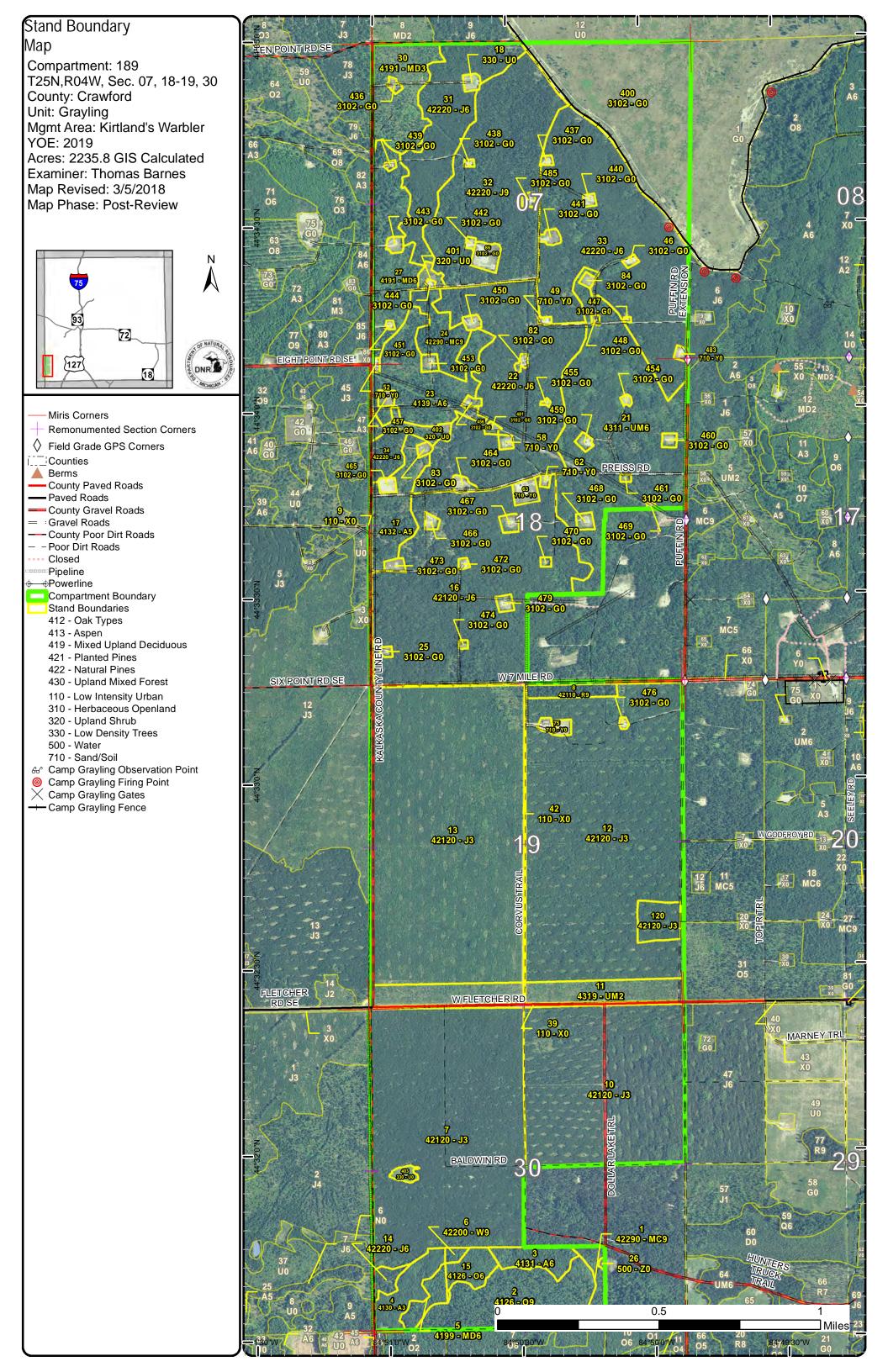
The following reports from the Inventory are attached:

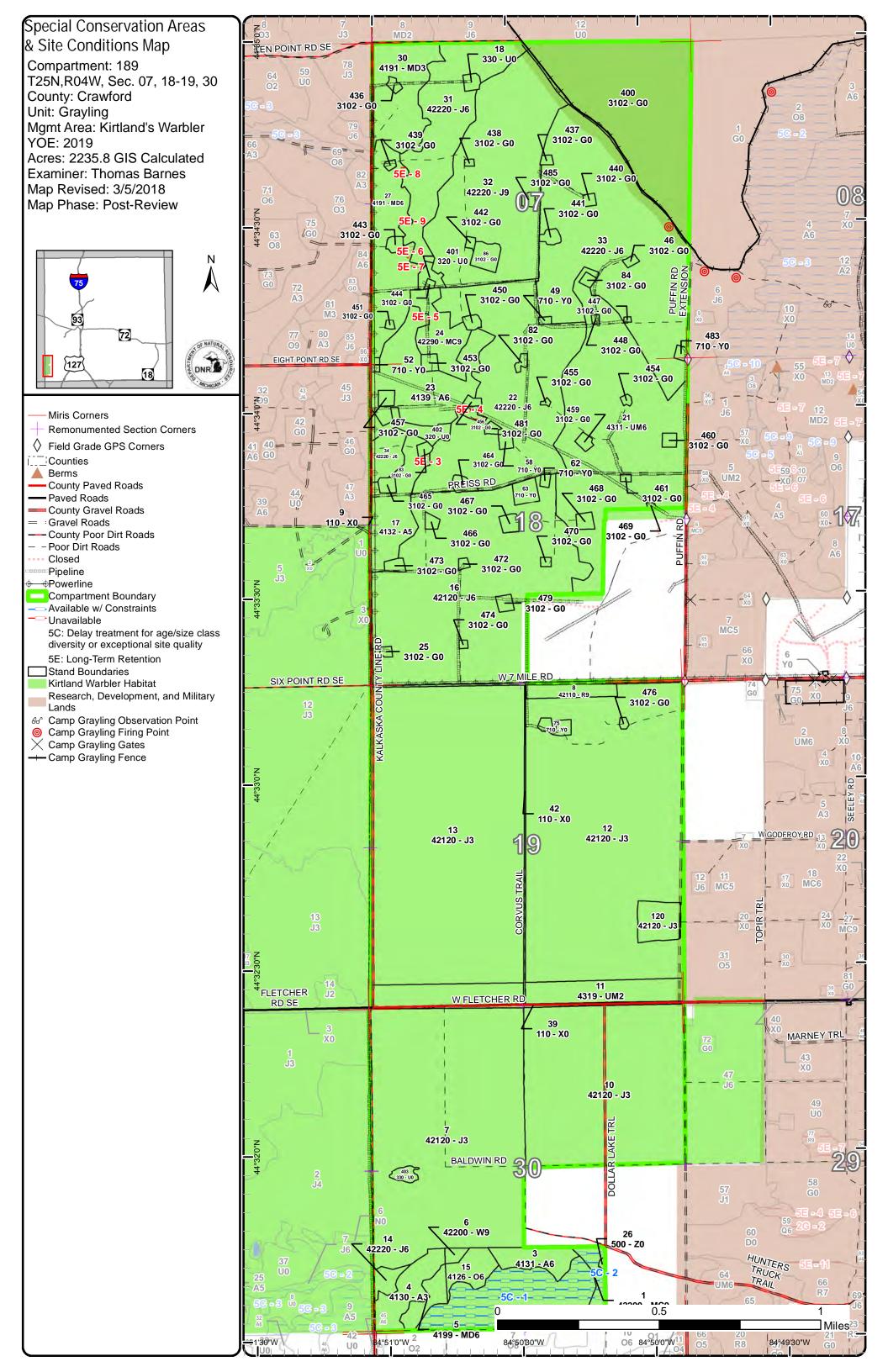
Total Acres by Cover Type and Age Class
Cover Type by Harvest Method
Proposed Treatments – No Limiting Factors
Proposed Treatments – With Limiting Factors
Stand Details (Forested and Nonforested)
Dedicated and Proposed Special Conservation Areas
Site Condition Details

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

Grayling Mgt. Unit

Thomas Barnes: Examiner

Compartment 189 Year of Entry 2019



Age Class

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Aspen	/ *	0	16	0	0	81	0	0	0	0	0	0	0	0	0	0	0	<u> </u>	97
Herbaceous Openland	148	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	148
Jack Pine	0	0	280	504	156	0	529	4	117	0	0	0	0	0	0	0	0	0	1590
Low-Density Trees	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
Mixed Upland Deciduous	0	0	34	0	0	41	8	0	0	0	0	0	0	0	0	0	0	0	83
Natural Mixed Pines	0	0	0	0	0	0	0	0	0	0	24	0	0	0	0	0	0	0	24
Oak	0	0	0	0	0	0	9	0	0	0	0	54	0	0	0	0	0	0	63
Red Pine	0	0	0	0	0	0	0	0	7	0	0	0	0	0	0	0	0	0	7
Sand, Soil	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10
Upland Mixed Forest	0	0	43	0	0	137	0	0	0	0	0	0	0	0	0	0	0	0	180
Upland Shrub	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10
Urban	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	17
Water	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
White Pine	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2
Total	189	0	373	504	156	259	546	4	124	0	26	54	0	0	0	0	0	0	2235



Report 2 – Treatment Summary

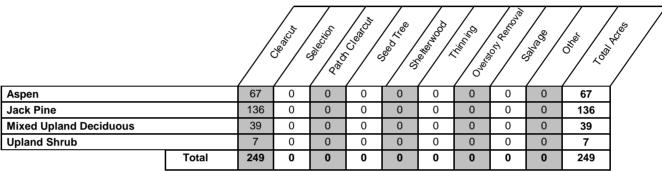
Grayling Mgt. Unit Year of Entry: 2019

Acres of Harvest

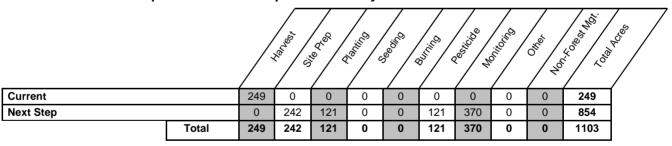
Compartment 189
Total Compartment Acres: 2,236

Commercial Harvest - 249 Harvests with Site Condition - 0 Next Step Harvest - 0 Habitat Cut - 0

Cover Type by Harvest Method



Proposed and Next Step Treatments by Method



Mixed Deciduous

Prescription Final harvest without retention, retention has already been taken out of the treatment area. Add well, low stump and chipping specs. Follow up

Red Pine

treatment of plant to red pine. Specs:

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

Treatments: Artificial Regen(3yr)

Acceptable Planted red pine allowing for a well stocked plantation.

Regen:

Habitat Cut: No

Other Area has a lot of gas well activity. Kotar for this stand is PArVHa/PArVVb.

Site Condition:

Well

Comment:

Habitat Cut: No

Proposed Start Date: 10/01/2018

51-80 72189027-Cut 38.8 4191 - Mixed Poletimber 49 Clearcut 4211 - Planted Draft Field Harvest Even-Aged Upland Deciduous Well Red Pine Boundary

with Conifer

Site Condition:

Prescription Final harvest without retention, retention has already been taken out of the treatment area. Add well, low stump and chipping specs. Follow up

Specs: treatment of plant to red pine.

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

Treatments: Artificial Regen(3yr)

Acceptable Planted red pine allowing for a well stocked plantation.

Regen:

Other Area has a lot of gas well activity. Kotar for this stand is PArVHa/PArVVb.

Comment:

Proposed Start Date: 10/01/2018 Boundary

Gra	ling Mgt. Unit		Re	port 3	Treatmen	its	Comparti	ment: 189	(3
							Year of E	Entry: 2019	DEPARTMEN
	Ctourd	C:	Ctonal	DA	T	T	C T	A	A

n	Treatment	Acres	Stand	Size	Stand	BA	Treatment	Treatment	Cover Type	Age	Approval
d	Name		CoverType	Density	Age	Range	Type	Method	Objective	Structure	Status
32	72189032-Cut	117.3	42220 - Natural Jack Pine	Sawtimber Well	76	51-80	Harvest	Clearcut with Retention	4222 - Natural Jack Pine	Even-Aged	Draft Field Boundary

Habitat Cut: No Site Condition:

Prescription Final harvest with retention following standards. Follow woody biomass guidelines. Chipping optional. A military specs.

Specs:

S

Monitoring, Natural Regen (Re-Inventory) Next Step

Treatments:

Acceptable Natural jack pine with mixed associated species.

Regen:

Other Comment:

Proposed Start Date: 10/01/2018

Clearcut 34 72189034-Cut 8.6 42220 - Natural Poletimber 59 81-110 Harvest 4211 - Planted Even-Aged Draft Field Jack Pine Well Red Pine Boundary

Habitat Cut: No Site Condition:

Prescription Final harvest without retention, due to size. Add well, low stump and chipping specs. Follow up treatment of plant to red pine.

Specs:

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

Treatments: Artificial Regen(3yr)

Acceptable Planted red pine allowing for a well stocked plantation.

Regen:

Area has a lot of gas well activity. Kotar for this stand is PArVHa/PArVVb. Other

Comment:

Proposed Start Date: 10/01/2018

402 72189402-Cut 7.0 320 - Upland Shrub Nonstocked 4211 - Planted Draft Field Clearcut Even-Aged Unspec Harvest ified Red Pine Boundary

Habitat Cut: No Site Condition:

Prescription Final harvest without retention, because of size. Add well, low stump and chipping specs. Follow up treatment of plant to red pine.

Specs:

SitePrep, Roller Chopping; SitePrep, Trenching; Pesticide, Skidder/Mechanical; Planting, Initial Plant; Monitoring, Artificial Regen(1yr); Next Step

Treatments: Monitoring, Artificial Regen(3yr)

Acceptable Planted red pine allowing for a well stocked plantation.

Regen:

Other Area has a lot of gas well activity. Kotar for this stand is PArVHa/PArVVb.

Comment:

Proposed Start Date: 10/01/2018

Total Treatment Acreage Proposed:

248.6

Grayling Mgt. Unit

Thomas Barnes : Examiner Year of Entry: 2019

Availa	bility for	Managemer	nt				
Total	Acres	Acres Avail	Acres		Domina	nt Site	Conditions
Acres	Available	With Condition	Not Available		5C	5E	
97	94	0	3	Aspen		3	
148	148	0	0	Herbaceous Openland			
1592	1592	0	0	Jack Pine			
4	4	0	0	Low-Density Trees			
83	81	0	2	Mixed Upland Deciduous		2	
24	17	7	0	Natural Mixed Pines	7		
63	9	54	0	Oak	54		
7	7	0	0	Red Pine			
10	10	0	0	Sand, Soil			
180	180	0	0	Upland Mixed Forest			
10	10	0	0	Upland Shrub			
17	17	0	0	Urban			
0	0	0	0	Water			
2	2	0	0	White Pine			
2,236	2,170	61	6	Total Forested Acres	61	6	j
	97%	3%	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	5C: Delay treatment for age/size class diversity or exceptional site quality	54	Unspecified	Unspecified	Unspecified	Unspecified
	Comments:						
2	Available	5C: Delay treatment for age/size class diversity or exceptional site quality	7	Unspecified	Unspecified	Unspecified	Unspecified
	Comments: Unique site with sup	per canopy red pine with a few	white pir	ne.			

Report 4 – Site Conditions

Grayling Mgt. Unit Thomas Barnes : Examiner

3	Unavailable	5E: Long-Term Retention	1	Unspecified	Unspecified	Unspecified	Unspecified
	Comments:						
4	Unavailable	5E: Long-Term Retention	2	Unspecified	Unspecified	Unspecified	Unspecified
	Comments:						
5	Unavailable	5E: Long-Term Retention	1	Unspecified	Unspecified	Unspecified	Unspecified
	Comments:						
6	Unavailable	5E: Long-Term Retention	1	Unspecified	Unspecified	Unspecified	Unspecified
	Comments:						
7	Unavailable	5E: Long-Term Retention	1	Unspecified	Unspecified	Unspecified	Unspecified
	Comments:						
8	Unavailable	5E: Long-Term Retention	0	Unspecified	Unspecified	Unspecified	Unspecified
0		5E: Long-Term Retention	0	Unspecified	Orispecified	Orispecined	Unspecified
	Comments:						
9	Unavailable	5E: Long-Term Retention	1	Unspecified	Unspecified	Unspecified	Unspecified
	Comments:						

Mgt. Unit

Compartment: #Type! Year of Entry:

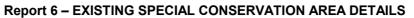


Report 5 – PROPOSED SPECIAL CONSERVATION AREA* (SCA) DETAILS

* 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
Comments				

Grayling Mgt. Unit Compartment: 189
Year of Entry 2019





* 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 Area	on Type	Description	ERA = Ecological Reference Area HCVA = High Conservation Value Area SCA = Special Conservation Area
SCA	Research and Military Areas	These areas provide facilities and lands specifically dedicated for include the 5,847 acre Forest Fire Experiment Station, the 12,00 Area, the Beaver Islands Archipelago Wildlife Research Area (the High and Hog Islands, all state owned land on Beaver, South For Wildlife Research Area, the 3,000 acre Hunt Creek Fisheries Research, and over 144,000 acres of Military Lands.	00 acre Houghton Lake Wildlife Research nat includes most of Garden Island, all of ox and North Fox Islands), the Cusino
HCVA	Designated Critical Habitat	Critical habitat areas are established via a consultative and coop U.S. Fish and Wildlife service for the recovery of threatened and 365, Endangered Species Protection, of the Natural Resources PA 451, and the Federal Endangered Species Act of 1973. This species plans in various stages of review. As of now only two e Plover Habitat.	d endangered species, as governed by Part and Environmental Protection Act, 1994 is an active program, with proposed

S t	Grayling	g Mgt. Unit		Report 7	– Forested	Stands Compartment: 189 Year of Entry: 2019
a n d	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
1	42290 - Natural Mixed Pine	Sawtimber Well	6.9	96	111-140	Stand is a mixed pine stand ranging from pole to xlog. Some very large red pine age of 130 plus, the stand is modified to reflect the super canopy red pine and other species. Stand borders private with rolling to steep terrien. Not much evidence to prior management. Leaving stand for diversity. OPIC - FMD: Small Mixed stand of Pine (Red, White, Jack Pine and some Oak). Stand borders private property on the north and east side of the stand. Small bog to the east, mostly on private. Porcupine damage on the Jack Pine. Leave for now. Could cut the Jack Pine out and the Oak, but small acrage and volume.
2	4126 - White, Black, N. Pin Oak	Sawtimber Well	53.7	101	1-50	Despite the age of this stand it looks healthy and can hold for another 10 years. It has a range of sawlogs from small to medium consisting of both red and white oak. It appears that the previous harvest removed everything but oak. The stumps from maple have resprouted and in portions of the stand the understory is very dense. Sprout heights vary but most are between 10 - 30ft. The oak stump sprouts are competing fairly well with the red maple. Canopy closure is on the lower end of the spectrum.OPIC - FMD: Mature Oak stand. Shelterwood thinned to 30% crown closure in 2002, under contract 72-011-99-09-01 Aspen Oak. A residual of 37 BA was left in the cutting. Rolling terrain (side slope) M2/O1 understory with Bracken Fern for ground cover. Some mortality in the stand. Could prescribe burn.
3	4131 - Aspen, Oak	Poletimber Well	11.0	48	81-110	Cutting records show stand was clear-cut in 1969. Stand is primarily aspen poles of small diameter with log sized associated species. Stand has been reduced in size from prior inventory as eastern quarter is more reflective of an oak stand, this portion has been merged with adjacent stand to the South.
						OPIC - FMD: Aspen stand that has reached pole size within the last 20 years. Located in a valley. This stand was seperated in inventory this entry year because of an Oak ridge in the middle of the stand. Used old site index.
4	4130 - Aspen	Sapling Well	15.8	16	Immature	Stand was cut in 2002, has regenerated to a well stocked stand of aspen an other species. Pole sized stems along perimeter.
						OPIC - FMD: CROSWELL SOIL NO CUTTING IN THE SPRING (SEASONAL WATERABLE) 2002 SALE COMPLETED 1-7-02 ASPEN&OAK SALE 720119901. Immature Aspen stand.
5	4199 - Other Mixed Upland Deciduous	Poletimber Well	7.5	59	51-80	Stand is a mixture of red maple, aspen and oak. Pole size with some loy sizes for all species. Three BA swings were taken with a stand average of 77. No understory is present. Stand can hold fo another 10 years. OPIC - FMD: Pole size Aspen stand. Level to slightly rolling terrain. M2 understory (Red Maple) Bracken Fern over sedges and wintergreen. Recommend holding another 10 years and than cut with stand 3 which was once part of stand 3. High seasonal water table.
6	42200 - Natural White Pine	Sawtimber Well	1.7	98	111-140	Small stand of white and red pine of sawlog size. Understory is primarily red maple and some aspen t oak. Understory height is 10-30ft. OPIC - FMD: Small Mature mixed pine stand (White and Red Pine) Very similar to stand 1

S t	Graylin	g Mgt. Unit		Report 7	- Forested	Stands Compartment: 189 Year of Entry: 2019
a n d	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
7	42120 - Planted Jack Pine	Sapling Well	228.5	28	Immature	Large immature Jack Pine stand. Part of the Fletcher Road Kirtlands Warbler Management Unit, Unit #2. Level terrain/sloping in the south. North side of stand borders Fletcher Road. West side of stand borders Kalkaska County and southeast corner borders private. Several old two tracks which broke stand up into 40's have been planted over or have grown in.
8	42110 - Planted Red Pine	Sawtimber Well	7.3	78	111-140	Narrow Mature Red Pine strip along 7 Mile Road. Part of the Fletcher Road KW Management Unit. Sour gas well just to the south.
10	42120 - Planted Jack Pine	Sapling Well	156.3	37		Jack pine plantation with sapling and pole sized stems. Good stem density. OPIC - FMD: Immature Jack Pine Stand. Part of the FLETCHER ROAD KW Management Unit, UNIT #1. Level terrain. North side of the stand borders Fletcher Road. South side of the stand borders private property. Stand is just at the point of small pole size or J3.
11	4319 - Mixed Upland Forest	Sapling Medium	42.7	14	Immature	Narrow strip on northside of Fletcher Road. Designated fuel break. Upland brush(Cherry) with some aspen and oak. Ground cover consists of grasses. Scattered Jack Pine snags throughout the stand. Harvested with adjacent stands under contract 72-010-99-01 7 Fletch Jack Pine. Previously, this stand wast part of Unit 3 of the Fletcher Road KW Unit. old Comment Per CR- prescribe burn stand to maintain fuel break.
12	42120 - Planted Jack Pine	Sapling Well	265.5	27	Immature	Jack pine are between 10-30' tall. majority of stems still sapling size. Large immature Jack Pine stand. Part of the Fletcher Road KW Management Unit, Unit #3. North side of the stand borders 7 mile Road and the south side can be seen from Fletcher Road. West side of the stand borders Corvus Road. North end of the stand has Oil/Gas development (Sour gas).
13	42120 - Planted Jack Pine	Sapling Well	280.0	14	Immature	Young jack pine plantation, with no understory to speak of. Some oak, cherry and aspen mixed in but very little. OPIC - FMD: Immature Jack Pine stand. Part of the Fletcher Road KW Management Unit, Unit 3. Seven Fletch Jack Pine #72-010-99-01 Replanted to Jack Pine 2004 by FTP# W72-474. North end of the stand borders 7 Mile Road and the South end can be seen from Fletcher Road. West side of the stand border Kalkaska County and the East side border Corvus Road. Several two tracks previously broke stand into forty's. These were planted over.
14	42220 - Natural Jack Pine	Poletimber Well	4.3	66	81-110	Reminent stand of stand 7, not sure why this portion was not harvested Mix of sap, pole and some sawlog trees, mainly pole of 2-3 sticks. Quality is very poor. OPIC - FMD: Small Jack Pine stand, open grown and patchy. Located on the south side of stand 7. Stand was not harvested with stand 7 and planted with stand 7. Part of the Fletcher KW Management Unit. Recommend final harvest and let regenerate to Jack Pine or U type south of stand. Stand was part of stand 7 last entry year. At pre-review decided to hold off cutting stqnd and treat in ten years when adj stands are treated.

S t	Grayling	Mgt. Unit		Report 7	– Forested	Stands Compartment: 189 Year of Entry: 2019
a n d	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
15	4126 - White, Black, N. Pin Oak	Poletimber Well	9.0	52	81-110	Mixed oak stand of large pole/small sawlgs. stand is log size. Understory is large sap to small pole primarily red maple and some aspen, not much oak in understory. Some conifers mixed n the overstory. Four BA sings were taken with stand average of 82.5. OPIC - FMD: Small Oak stand which seperates stand 3 from stand 5. Found on a ridge top in the valley. Used old site index.
16	42120 - Planted Jack Pine	Poletimber Well	185.9	50	171-200	Pole sized jack pine with good stem density for the most part.
						OPIC - FMD: Immature Jack Pine stand. Has reached small pole size 4 - 7 inches in dia. And 1-2 sticks. Part of the FLETCHER ROAD KW UNIT #5-1. Used old site index. Active oil/gas well sites throughout the stand. Pipelines also. Southend of stand borders 7 Mile Road.
17	4132 - Aspen, Jack Pine	Poletimber Medium	24.4	47	1-50	Low quality Quaking Aspen stand with scattered pine. Oil and gas operations throughout the stand. Stand is designated under the Fletcher Road Kirtlands Warbler Management Plan. West side of stand borders Kalkaska County. Upland brush for understory and Braken fern for ground cover.
21	4311 - Pine, Aspen Mix	Poletimber Well	137.3	48	141-170	stand is a mixture of pole sized aspen and jack pine. Averaging 2 stick overall. Stand is just not ready for commercial harvest this time around. Harvest in 10 years. Quality of aspen is not very good. OPIC - FMD: Quaking Aspen stand with pockets of Jack Pine scattered throughout the stand. Sort of a mixed stand of half Aspen and half Jack Pine. Understory is primarily U1(cherry brush). (A6/J6 or A5/J5). Immature (small pole size). Stand has scattered oil/gas wells throughout it along with pipelines.
22	42220 - Natural Jack Pine	Poletimber Well	122.8	50	171-200	Pole sized jack pine with some log sized stems scattered along perimeter. Good stem density. OPIC - FMD: Immature Jack Pine stand. Just developed into pole stand in the last 10 years. Part of the Fletcher Road KW Management Unit. Stand is full of Oil and gas activity.
23	4139 - Aspen, Mixed Deciduous	Poletimber Well	45.6	48	51-80	Very poor quality stand of upland species, with aspen being the dominate species. Aspen small diameter and natural ortality occuring. Cherry brush/poles throughout as well. Cherry second dom species. Oak and mixed pine scattered about. OPIC - FMD: Quaking Aspen stand with upland brush for understory (somewhat poor quality) Bracken fern for ground cover. Stand is part of the Fletcher Road Kirtlands Warbler Unit. Recommend final harvest. Stand also has oil and gas operations throughout the stand. No retention approved by varance Stand should regenerate back to Aspen that will be better quality and more abundant.
24	42290 - Natural Mixed Pine	Sawtimber Well	17.0	91	81-110	Mixed stand of red and white pine with some oak and aspen poles. Small stand of large diameter pine. BA averaged 85. OPIC - FMD: Quaking Aspen stand with upland brush for understory (somewhat poor quality) Bracken fern for ground cover. Stand is part of the Fletcher Road Kirtlands Warbler Unit. Recommend final harvest. Stand also has oil and gas operations throughout the stand.

S t	Grayling	g Mgt. Unit		Report 7	Forested	Stands Compartment: 189 Year of Entry: 2019
a n d	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
27	4191 - Mixed Upland Deciduous with Conifer	Poletimber Well	41.1	49	51-80	South of gas well road split Stand. South portion open grown y pine and cherry dominant with some oak and aspen. North half small pole sized aspen, poor quality and form, with Oak and y pine, cherry. North portion could be harvested. OPIC - FMD: Small size pole stand of Aspen stand borders Seasonal county road and Kalkaska Co.
30	4191 - Mixed Upland Deciduous with Conifer	Sapling Well	34.3	17	Immature	Mixed stand of oak sprouts and stump sprouts with a havy component of cherry brush. Good density of natural jack pine with some red and white pine. not high stem densities. most stems are 3- 10ft tall. Stand was cut in 2001. OPIC - FMD: IMMATURE OAK STAND WITH UPLAND BRUSH AND SOME SCATTERED JACK PINE. CHERRY BRUSH TO BE EXACT.HAVE ESTABLISHED ADVANCE OAKREGENERATION AVERAGE HEIGHT TEN FEET. UPDATE 9-20-01: COVERSTORY OAK SALE COMPLETED(#72-012-99-01)
31	42220 - Natural Jack Pine	Poletimber Well	59.0	50	141-170	Pole sized stand of jack pine with 1 to 2 sticks. Looks to be naturally regenerated and has good stem density. there is oil and gas activity in the area.OPIC - FMD: Immature Jack Pine stand(just reached pole size) J2 understory. Old fire plow lines throughout the stand. Believe stand was regenerated naturally after a fire caused by the military. The stand northwest corner borders Range 14. The stand is also part of the FLECHER ROAD KW UNIT #5-2.
32	42220 - Natural Jack Pine	Sawtimber Well	117.3	76	51-80	Log sized stand of jack pine with some oak. Appears the stand was painted for a harvest that never took place. Quality is marginal and stand has sapling to log. There are pockets of sapling/small pole sized stems, could be result of past fire. also some little areas of aspen stems.
						OPIC - FMD: Large Mature Jack Pine stand mixed with some Oak. Oil/gas well sites and operations throughout the stand past and present. Understory consists of O2/U2 and ground cover blueberry and bracken fern. Part of the FLECHER ROAD KW UNIT #5-2 Recommend final harvest and replant to Jack Pine. At pre-review, change harvest method to a delayed removal, cutting everything 5 inches and larger in diameter and accept mix of natural regeneration. No retention needed approved by variance on 11/20/09
33	42220 - Natural Jack Pine	Poletimber Well	153.1	50	141-170	small pole sized stand, east side borders range 13. One to 2 stick j pine not much of an understory. OPIC - FMD: FLETCHER ROAD KW UNIT 5-2
34	42220 - Natural Jack Pine	Poletimber Well	8.6	59	81-110	Poor quality jack pine, 1 to 2 sticks at best. pole to large sapling. Some aspen, cherry and oak mixed in. OPIC - FMD: Small mature Jack Pine stand. Part of the Fletcher Road KW Management Unit. Oil/Gas Pipelines. Recommend final harvest with planting back tyo JP byu FMFM. No retention approved by variance
120	42120 - Planted Jack	Sapling Well	10.3	27	Immature	Research block part of the Rothstein Jack pine biomass study.
-	Pine					OPIC - FMD: Large immature Jack Pine stand. Part of the Fletcher Road KW Management Unit, Unit #3. North side of the stand borders 7 mile Road and the south side can be seen from Fletcher Road. West side of the stand borders Corvus Road. North end of the stand has Oil/Gas development (Sour gas).



Stand	Cover Type	Acres	Managed Site	General Comments:
9	110 - Low Intensity Urban	8.2	No	County road 7 mile.
18	330 - Low-Density Trees	1.6	No	Breitburn well site. Permit # 60565, State Beaver Creek (DRZ3) A3-7. Site does have good natural jack pine regen seeding in. OPIC - FMD: Immature Jack Pine stand(just reached pole size) J2 understory. Old fire plow lines throughout the stand. Believe stand was regenerated naturally after a fire caused by the military. The stand northwest corner borders Range 14. The stand is also part of the FLECHER ROAD KW UNIT #5-2.
25	3102 - Grass	0.7	No	Breitburn well site, uncovered well head. Permit #33677, State Beaver Creek A13. Contact # 888-250-1681.
26	500 - Water	0.4	No	Part of a Dollar Lake.
39	110 - Low Intensity Urban	5.8	No	Fletcher Road.
42	110 - Low Intensity Urban	2.9	No	County Road.
46	3102 - Grass	0.8	No	Breitburn well site, Permit #33710. State Beaver Creek 13. Contact # 888-250-1681. Active well.
				OPIC - FMD: Active Well site (pump jack and gravel pad) Mostly all dirt/sand. Very little vegetattion Permit# 33710 State Beaver Creek No. 13 W1/2NESE Sec 7 T25NR4W
49	710 - Sand, Soil	0.6	No	Breitburn wellsite, Permit#1466, HH Joseph 4. Contact#888-250-1681. Active well. OPIC - FMD: Active Well site. (pump jack and gravel pad) Very, very little vegetation. Permit # 14616 H.H. Joseph No.4 CW1/2SW1/4SE1/4 Sec 7 T25NR4W.
52	710 - Sand, Soil	0.7	No	Pumping Station/House. Large building with pumping equipment also fenced.
58	710 - Sand, Soil	1.2	No	Active Well site (pump jack on site) 90% of pad is dirt and the remain percent is grass. Two track past well extends to new pipeline work. Grass was planted in pipeline 2006. Permit# 40520 State Beaver Ck E9 SE1/4 NE1/4 NW1/4 T25NR4W Sec 18. Breitburn well, contact #888-250-1681.
62	710 - Sand, Soil	0.7	No	Breitburn well site. Permit #13872, State Beaver Creek M2. Contact #888-250- 1681. Active well site.
				OPIC - FMD: Active Well site (Pump jack with tin shed over engine) 3/4 of the site is dirt with sparse patches of grass around the pad.
63	710 - Sand, Soil	3.4	No	Large pumping station expanded from a well site previously inventoried. Large dirt/gravel opening with large green pole barn (pumps inside) and many storage tanks,pipes, holding ponds and a small tand shed west of green pole barn. Old well head in back of green building. Sparse grass around the large opening.



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Stand	Cover Type	Acres	Managed Site	General Comments:
75	710 - Sand, Soil	2.6	No	Oil/Gas Well site. Mostly dirt pad with pump jack and storage tanks. Permit # 14554 A-7 Hydrogen Sulfide Well. Warning signs. Crawford county Road Commission Brine well. Contact # 989-348-2281.
				Breitburn well site, active well. Permit # 60827, BDR-A319. Contact # 888-250-1681.
82	3102 - Grass	0.9	No	Small pumping station Small pole barn (pumps inside) and a small storage tank. Site surrounding building is primarily dirt/sand.
83	3102 - Grass	1.0	No	Oil/Gas well site. State Beaver Ck E12 Permit # 42293 Gravel Pad. Mostly dirt around pad. Well head but no pump jack. Breitburn well site.
84	3102 - Grass	1.0	No	Breitburn site. Permit #52247, State Beaver Creek #19. Contact # 888-250-1681. OPIC - FMD: Small pumping station.
86	3102 - Grass	4.3	No	LINN Operating, Inc well site. State Joseph 1-7 (PDC). Contact #231-922-7302. Well head with structures protected by dikes. OPIC - FMD: Oil/ Gas Well site. State Beaver Ck 17 Permit # 52249 Gravel pad, well head with no pump jack. Dirt with spotted nap weed.
400	3102 - Grass	105.1	No	Fenced Impact Range 13. Military leased lands. No access for treatment. Primarily grass with scattered upland brush and trees.
401	320 - Upland Shrub	2.6	No	Pocket of grass surrounding oil/gas well site. There is scattered cherry brush in this opening.
402	320 - Upland Shrub	7.0	No	Cherry brush and jack pine seedlings. OPIC - FMD: Pocket of grass surrounding oil/gas well sites. Stand extends west from oil/gas well sites and is a valley (Frost Pocket).
403	330 - Low-Density Trees	2.1	No	Open area within plantation. This has some scattered jack pine naturally seeding in, with some standing water. Old abandoned snowmobile in center of opening.
				OPIC - FMD: Pocket of grass within Kirtland's Warbler plantation.
436	3102 - Grass	0.9	No	Inactive Well Site. (Capped or Restored-No Well Head, Pipes or Structures) Level terrain. Grasses and Sweet fern.
437	3102 - Grass	0.7	No	Breitburn well site, Permit #15746, HH Joseph 11. Contact #888-250-1681. Active well site.
				OPIC - FMD: Active Well Site. (Active Pumpjack, Graveled Pad and Sand Access Road). Sparse grass and other herbaious vegetation. Permit # 15746 H.H.Joseph No.11 C.W1/2SW1/4NE1/4 Sec 7 T25NR4W.



Stand	Cover Type	Acres	Managed Site	General Comments:
438	3102 - Grass	0.4	No	Breitburn ell site. Permit #15449, HH Joseph 10. Contact #888-250-1681. Well head is cover with metal housing.
				OPIC - FMD: Inactive Well Site (Tin shed, Old cement supports for pump jack and dirt pile pad) Very patchy grass. Jack Pine encroaching. Permit# 15449 H.H. Joseph No. 10 C W1/2SE1/4NW1/4 Sec 7 T25NR4W.
439	3102 - Grass	0.5	No	Breitburn well site. Permit #14841, HH Joseph 7-DRZ. Contact #888-250-1681. Active well site.
				OPIC - FMD: Inactive Well Site (Pipe sticking out of ground/capped. Dirt Pad Leveled) Very sparse grass for vegetation. Permit # 14841 H.H. Joseph No. 7 C W1/2SW1/4NW1/4 Sec 7 T25NR4W.
440	3102 - Grass	0.9	No	Breitburn well site. Permit #51009, State Beaver Creek 16. Contact #888-250-1681. Active well site.
				OPIC - FMD: Active Well Site (Pump jack, gravel/dirt pad and road) Patchy vegetation - half grasses and half dirt. Permit # 51009 State Beaver Creek No. 16 NE1/4NW1/4SE1/4 Sec 7 T25NR4W.
441	3102 - Grass	1.6	No	Breitburn Well site, Permit#14956., HH Joseph 8. Contact #888-250-1681. Well head is cover by Metal housing.
				OPIC - FMD: Inactive Well Site (No pump jack, tin shed over well head, gravel pad and deterorating cement supports for pump jack) Sparse vegetation. Permit # 14956 H.H. Joseph No. 8 C. W1/2NW1/4SE1/4 Sec 7 T25NR4W.
442	3102 - Grass	0.7	No	Breitburn well site. Permit #14678, HH Joseph 6. Contact #888-250-1681. Active well site.
				OPIC - FMD: Active Well Site. Pump jack present, gravel and dirt road. Patchy vegetation - grasses. Permit #14678 H.H. Joseph No. 6 C W1/2NE1/4SW1/4 Sec 7 T25NR4W.
443	3102 - Grass	1.5	No	Breitburn well site. Permit #60604, State Beaver Creek (DRZ#) C1-7. Contact #888-250-1681. Active well, with another well head covered with metal housing.
				OPIC - FMD: Inactive Well site. (no pump jack, broken cement supports for pump jack and tin shed.) Grassy pad - sparse in some areas. Permit # 13932 H.H. Joseph No. 1 C W1/2NW1/4SW1/4 Sec 7 T25NR4W.
444	3102 - Grass	0.5	No	Breitburn well site. Permit #40433, State Beaver Creek 15 SWD. Contact #888-50-1681. Well head covered by metal housing. OPIC - FMD: Inactive Well site. (Tin shed, no pump jack, dirt road and gravel pad under tin shed.) Patchy grasses. Permit # 40433 State Beaver Creek No. 15 NE1/4SW1/4SW1/4 Sec 7 T25NR4W.
447	3102 - Grass	0.3	No	Breitburn Well site. Permit # 14622, HH Joseph 5. Contact # 888-250-1681.
				OPIC - FMD: Inactive Well site. (no pump jack, just well head and gravel pad) Sparse vegetation - patchy. Permit # 52247 State Beaver Creek No. 19 NE1/4SW1/4SE1/4 Sec 7 T25NR4W
448	3102 - Grass	0.5	No	No longer an well site. Reclaimed. Grassy area being encroached by Jack Pine and Aspen.



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Stand	Cover Type	Acres	Managed Site	General Comments:
450	3102 - Grass	1.4	No	Breitburn well site one with pump and one without. Pump site Permit # 59007, St Beaver Creek D2-7, other is capped well with metal hut. Permit #14316, HH Joseph 3. Phone 888-250-1681.
				OPIC - FMD: Active Well site. Grass Steel building and well head. Permit # 14316 H.H. Joseph No. 3 W1/2SENW section 7
451	3102 - Grass	0.5	No	Breitburn well site. Permit # 14057, HH Joseph 2. Contact #888-250-1681. Active well site.
				OPIC - FMD: Active Well site. (pump jack and gravel pad) patchy grass. Permit # 14057 H.H. Joseph No 2 W1/2SW1/4SW1/4
453	3102 - Grass	1.7	No	Breitburn well site. Permit #40434, State Beaver Creek 14. Contact #888-250- 1681. Active well site.
				OPIC - FMD: Inactive Well site. (no pump jack, gravel pad not leveled) Patchy grass. Permit # 40434 State Beaver Creek No 14 SE1/4SW1/4Sw1/4 Sec 7 T25NR4W
454	3102 - Grass	0.6	No	Breitburn well site. Permit # 13901, State Beaver Creek M3. Wellhead no pump.
				OPIC - FMD: Inactive Well site. (pump jack removed, well head still there with gages and pipe) Patchy grass. Permit#13901 State Beaver Ck M3 C W1/2NE1/4NE1/4 Sec 18 T25NR4W
455	3102 - Grass	0.3	No	Breitburn well site, with cover wellhead. Permit #14475, State Beaver Creek M4. Contact # 888-250-1681.
				OPIC - FMD: Inactive Well Site. Pump Jack removed. Concrete pad still remains along with a tin shed. Patchy grasses and dirt. Mowed in the summer of 2006. Permit # 14475 State Beaver Creek M4 C.W1/2NW1/4NE1/4 Sec 18 T25NR4W.
456	3102 - Grass	1.0	No	Breitburn well site. Permi #14527, State Beaver Creek E 5. Contact #888-250-1681. uncovered well head.
				OPIC - FMD: Active Well site. (pump jack and dirt pad) Patchy grasses. Permit # 14527 Beaver Ck E5 C W1/2NE1/4NW1/4.
457	3102 - Grass	1.5	No	Breitburn well site. Permit #54804, State Beaver Creek A1-18. Contact #888-250-1681. Capped well head.
				OPIC - FMD: Inactive Well site. (pump jack partially disassembled, dirt well pad and road). Grass. Permit #54804 State Beaver Creek A1-18 NW1/4NW1/4 Sec18 T25NR4W.
459	3102 - Grass	1.3	No	Breitburn well site. Permit # 37837, State Beaver Creek M5. Contact # 888-250-1681. Active well site.
				OPIC - FMD: Active Well site. (pump jack and dirt/gravel pad) Grass Permit # 37837 State Beaver Creek M5 C E1/2W1/2NE Sec 18 T25NR4W.
460	3102 - Grass	1.3	No	Breitburn well site, uncovered wellhead. Permit #42199, State Beaver Creek M6. Contact # 888-250-1681.
				OPIC - FMD: Active Well site. (pump jack, dirt pad and patchy grass) Permit # 42199 State Beaver Creek M6 SE1/4NE1/4NE1/4 Sec 18 T25NR4W.



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Stand	Cover Type	Acres	Managed Site	General Comments:
461	3102 - Grass	0.5	No	Breitburn well site, cover wellhead in metal housing. Permit #13484, State Beaver Creek M1. Contact # 888-250-1681.
				OPIC - FMD: Inactive Well site (Pump Jack removed with the past 2 years, Concrete supports still there and piles of dirt and tin shed.) Half grass and half dirt (Site needs restoration). Permit #13484 State Beaver Creek M1 CW1/2SE1/4NE1/4 Sec18 T25NR4W
464	3102 - Grass	1.8	No	Breitburn well site. Permit #60522, State Beaver Creek (DRZ3) B2-18. Contact #888-250-1681. Active well site with a covered well head. See old comments for covered well info.
				OPIC - FMD: Inactive Well Site. No Pump Jack - removed. Old concrete support pad for pump jack still there on site. Sparse patchy grass. Permit # 13983 State Beaver Creek E1 CW1/2SE1/4NW1/4 Sec 18. T25NR4W.
465	3102 - Grass	1.5	No	Breitburn well site. Permit #60942, State Beaver Creek B1-18. Contact #888-250-1681. Active well, appears to be fairly new. OPIC - FMD: Active Well site. Pump jack and tin shed. Gravel pad. 1/2 grass and 1/2 dirt. Permit # 14503 State Beaver Ck E4 CW1/2SW1/4NW1/4 Sec 18 T25NR4W
466	3102 - Grass	1.2	No	Breitburn well site. Permit #41138, State Beaver Creek E10. Contact #888-250-1681. Active well site.
				OPIC - FMD: Active Well site. Pump jack on site. Pad is half grass and half dirt. Permit #41138 State Beaver Ck E10 SW1/4W1/2NW1/4 Sec 18 T25NR4W
467	3102 - Grass	1.9	No	Breitburn active well site, permit 340042, st beaver creek E8. phone 888-250-1681.
				OPIC - FMD: Active Well site. Pump Jack Half grass and half dirt pad. Permit #40042 State Beaver Ck E8 C E1/2E1/2W1/2 Sec 18 T25NR4W
468	3102 - Grass	1.7	No	Breitbur active well site. Permit #40435, St Beaver Creek A2. Phone 888-250-1681.
				OPIC - FMD: Active Well site. Pump jack Pad is half grass and half dirt. Permit #40435 Beaver Ck A2 NE1/4NW1/4SE1/4 Sec 18 T25NR4W
469	3102 - Grass	0.3	No	Breitburn well site, active well. Permit #41123, JH Priess A3. Contact # 888-250-1681.
				OPIC - FMD: Active Well site. (pump jack, dirt around pad and surrounded by grass) Permit # Priess, J.H. No. A3 SE1/4SE1/4NE1/4 Sec 18 T25NR4W.
470	3102 - Grass	0.6	No	Breitburn well site. Well head and metal cover. Permit # 14204, St Beaver Creek A1. Phone 888-250-1681.
				OPIC - FMD: Inactive Well site. Tin shed and no pump jack. Permit# 14204 MOC State Beaver Ck A1 W1/2NW1/4SE1/4 Section 18 T25NR4W
472	3102 - Grass	0.7	No	Breitburn well site. Permit #14208, Stat Beaver Creek E3. Contact #888-250-1681. Active well site.
				OPIC - FMD: Active Well Site (Pump Jack) Pad is half grass and half dirt. Permit # 14208 Beaver Ck E3 C W1/2NE1/4SW1/4 Sec 18 T25NR4W.



Stand	Cover Type	Acres	Managed Site	General Comments:
473	3102 - Grass	1.5	No	Breitburn covered well head. Permit #14717, State Beaver Creek E6. Contact #888-250-1681. Uncovered well head also on site, info is listed in old comments below, not active.
				OPIC - FMD: Active Well site Pump jack on site, also old well site next to it with tin shed and well head still there. Pad is half grass and half dirt. Permit# 54807 C1-18 SW1/4 NW1/4 SW1/4 Sec 18 T25NR4 W.
474	3102 - Grass	0.4	No	Inactive well site. Tin shed and old cement pump jack supports. Grass pad. Permit #16467 Beaver Ck E7 T25NR4W Sec 18.
476	3102 - Grass	0.5	No	Breitburn well site, active well. Well head and Grass pad. Permit # 14133 Beaver Ck State #5. Contact # 888-250-1681.
479	3102 - Grass	1.5	No	Breitburn well site, active well. Permit #42294, State Beaver Creek E11. Contact # 888-250-1681.
				OPIC - FMD: Oil/Gas Well site. Permit #42294 E-11 NE1/4SE1/4 Sw1/4 Sec 18 T25NR4W Grass pad with gravel pad under Pump jack.
481	3102 - Grass	0.9	No	Site cleared for oil/gas well pad. Nothing there. Pipeline runs through site. Planted to grass.
483	710 - Sand, Soil	1.0	No	Breitburn well site, active well. Permit #52248, State Beaver Creek 20. Contact # 888-250-1681.
				OPIC - FMD: Oil/Gas well site. State Beaver Ck 20 Permit # 52248Gravel Pad. Grass for cover and ground type. Well head but no pump jack
485	3102 - Grass	1.1	No	Breitburn ell site, Permit# 52249. State Beaver Creek 17. Contact # 888-250-1681. Active well site.
				OPIC - FMD: Oil/Gas Well site. State Beaver Ck #20 Permit #52248. Grass/ Spotted Nap Weed. Gravel pad, Well head and no pump jack.