



GRAYLING FOREST MANAGEMENT UNIT COMPARTMENT REVIEW PRESENTATION

COMPARTMENT # 237 ENTRY YEAR: 2007

GIS Compartment Acreage: 1453 County: Crawford

Revision Date: September 9, 2005

Stand Examiner: Joan Charlebois

Legal Description: T27N R3W Sections 22, 27, and 34

Management Goals: To provide an area that allows for National Guard training while maintaining forest health, productivity, sustainability, species diversification and structural diversity throughout the compartment.

Soil and Topography: Terrain is low & level in Section 22 and gently rolling in Sections 27 & 34, with one steep ridge paralleling the south side of Jones Lake Road. Soils consist primarily of Croswell, AuGres and Grayling Sands in the upland areas, with Tawas-Lupton, Leafriver and AuSable-Bowstring Mucks associated with the bogs, swamps and river corridor.

Ownership Patterns, Development, and Land Use in and Around the Compartment: All state land within the compartment is either owned by the Military Board or is under the long-term lease agreement L-1479 (Act 154 P.A. 1935) with the Michigan National Guard, DMA for purposes of military training. On these lands, military needs take precedence over resource management activities. The DNR will coordinate all prescribed activities with the National Guard to ensure that they are compatible with military training needs. Private ownership along the river and Jones Lake Road in Section 22 & 27 consists of small tracts with a mix of seasonal and year-round residences. Hartwick Pines State Park is located to the north in Section 15. Stand 44 is an isolated one-acre parcel that should be considered for disposal; it currently has two trespasses in the form of a road ("Newatch Ave") and lawn mowing.

Unique, Natural Features: Section 22's upland brush and pine types are dotted with small bogs.

Archeological, Historical, and Cultural: Historic logging activity is evidenced by old railroad grade spurs.

Special Management Designations or Considerations: The Michigan Army National Guard's MPRC (Multi-Purpose Range Complex, formerly known as Range 30), along with the associated MATES heavy equipment facility, occupies most of Sections 27 & 34. The Tank Access Trail extends from the MATES compound north to Lewiston Grade Road.

Watershed and Fisheries Considerations: The East Branch of the AuSable River crosses briefly into and out of the compartment in three places along the east edge of Section 22. A quarter-mile segment of the river also runs through that section's south side, where it is crossed by the military's Tank Access Trail, over a recently-constructed timber bridge.

Wildlife Habitat Considerations: Specific wildlife habitat management activities are limited by military use in the area, however, a broad range of species would benefit by maintaining the current mix of grass, upland brush, jack pine, oak, aspen and swamp cover types.

Mineral Resource and Development Concerns and/or Restrictions: Surface sediments consist of ice-contact and glacial outwash sand and gravel and postglacial alluvium. The glacial drift thickness varies between 400 and 600 feet. Beneath the glacial drift are the coldwater Shale and Marshal Sandstone formations. The Marshal was quarried for building stone in the past. A gravel pit is located in Section 20 and potential is good. The compartment is not leased for oil and gas. The nearest production is from the Antrim Shale, four miles to the northwest.

Vehicle Access: Access to the north, center & south sides of the compartment is adequate from county roads. Jones Lake Road & North Down River Road are both paved. Lewiston Grade Road is seasonally maintained and serves as a snowmobile trail route in the winter. The Tank Access Trail is the primary north-south corridor within the compartment, but it is sandy and not always negotiable by conventional vehicles. In the NE quarter of Section 22, a state forest trail road signed “Woodruff Way” and “private road” is the only access for at least four seasonal residences along the river; two of those residences have yard trespasses. In Stand 44 a road (signed “Newatch Ave”) was built across state land to a residence.

Survey Needs: Prior to timber sale preparation, the center corner of the NE quarter of Section 27 needs to be located (Corner code #6).

Recreational Facilities and Opportunities: The Lovells Trail (#47), a designated snowmobile trail, runs down Lewiston Grade Road in the northwest quarter of Section 22. With the compartment’s mix of lowland swamp types & upland aspen, jack pine, oak and U-types, there is good potential for hunting a variety of game species. Fishing opportunities on this portion of the East Branch of the AuSable appear to be limited by habitat; the river corridor is largely unshaded and there is a significant bed load of sand within the relatively narrow channel itself.

Fire Protection: Training activities on the military range complex have the potential for causing wildfires, however, the cleared tank trail outside the range fence is wide enough to serve as a reasonably adequate fuel break. While the compartment does contain many jack pine stands, most of them are small in acreage and are broken up by numerous U-types, as in Section 22. The largest contiguous stands of jack pine occur along North Down River Road in Section 34; these stands are currently scheduled for harvest. Water sources for fire suppression include river crossings on Bobcat Trail, Wilcox Bridge Road and the Tank Access Trail. There is the potential for encountering unexploded military ordinance throughout the compartment.

LOTS Compartment Acreage: 1440

- **The following 5 reports from the Operations Inventory System (OIPC) are attached:**
 - ◆ **Cover Type by Age Class**
 - ◆ **Cover Type by Management Objective**
 - ◆ **Compartment Volume Summary**
 - ◆ **Proposed Treatments – No Limiting Factors**
 - ◆ **Proposed Treatments – With Limiting Factors**

- **The following information is displayed, where pertinent, on the attached compartment maps:**
 - ◆ **Base feature information, stand numbers, cover types**
 - ◆ **Proposed treatments**
 - ◆ **Proposed road access system**
 - ◆ **Suggested potential old growth**

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Michigan Department of Natural Resources - Operations Inventory System
Individual Compartment Report

AUSABLE STATE FOREST

GRAYLING FOREST MGT UNIT

CRAWFORD COUNTY

COMPARTMENT: 237

Table 3

(acres shown in boxes)

STAND AGE CLASS

COVER TYPE	Not	STAND AGE CLASS																Total	
	Coded	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	150-159		All Aged
Aspen				121	19	56													196
Grass	63																		63
Jack Pine			26			199	50	8	1									2	286
Local Name	67																		67
LowInd Brush	69																		69
LowInd Poplr						8													8
Mx Swmp Cnfr									29	18									47
Non Stocked	15																		15
Oak				25					136		56								217
Red Pine						4	4				30								38
Upland Brush	432																		432
White Pine										15									15
Total	646		26	146	19	267	54	8	166	33	86							2	1453

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Michigan Department of Natural Resources - Operations Inventory System
Individual Compartment Report

AUSABLE STATE FOREST

GRAYLING FOREST MGT UNIT

CRAWFORD COUNTY

COMPARTMENT: 237

Table 3A

(acres shown in boxes)

MANAGEMENT OBJECTIVE TYPE

COVER TYPE	A	S	V	C	G	H	J	I	L	P	N	Q	X	O	B	R	K	Y	F	E	T	D	U	M	Z	W	Total		
A Aspen	184																										12	196	
G Grass					63																							63	
J Jack Pine							250																				36	286	
I Local Name								67																				67	
L LowInd Brush									69																			69	
P LowInd Poplr										8																		8	
Q Mx Swmp Cnfr												47																47	
X Non Stocked													15															15	
O Oak														217														217	
R Red Pine																34											4	38	
U Upland Brush																											432	432	
W White Pine																										15	15		
Total	184				63		250	67	69	8		47	15	217		34											480	19	1453

AUSABLE STATE FOREST

GRAYLING FOREST MGT UNIT

CRAWFORD COUNTY

COMPARTMENT: **237**

Table 10 - COMPARTMENT VOLUME SUMMARY - ALL STANDS

COMPARTMENT SUMMARY			
TOTAL VOLUME		CUT VOLUME	
Hardwood	2158 Cds	Hardwood	714 Cds
Hardwood	503 Mbf	Hardwood	158 Mbf
Softwood	2401 Cds	Softwood	1371 Cds
Softwood	468 Mbf	Softwood	225 Mbf
Sum TotVol	6501 Cds	Sum CutVol	2851 Cds
Total Cmpt Acres		Acres Proposed For Cut.....	335
1453			

GRAYLING FOREST MGT UNIT

**Proposed Treatments
With NO Limiting Factors**

Compartment: 237 Entry Year: 2007

Stand	Cover Type	Acres	Age	Site Index	Mgt Obj	Condition	Method Cut	Harvest Priority	Cultural Need	FD Status
6	J6	7	49	56	upland brush	two aged	final harvest	1		
<p>comnts Fmd : Two-age JP: older JP saw acted as seed trees, resulting in a second age class of JP poles around them. Mortality in the overmature JP saw, including a quarter-acre pocket w/ 100% mortality. Small 1/10 acre leatherleaf bog on the E side; leave a 1/2 chain buffer around it. Per Wildlife Division's goal of setting back the tree cover encroachment on Stand 14's upland brush/grass cover type: final harvest all stems 2" and up, but leave the few scattered oak and red pine. Apply the same treatment specs & harvest along with stands 7, 8, 12 (note Natural Rivers set-back), 13 & 15. These stands will be converted back to an upland brush/grass cover type and will become part of stand 14 again. J6</p>										
7	J5	2	49	56	upland brush	two aged	final harvest	1		
<p>comnts Fmd : Multiple-aged JP & larger oak saw, both rel. poor quality; the younger JP short & branchy. Used adjacent stand 6's site index. Small stand area w/ diffuse boundary. Final harvest along with stands 6, 8, 12, 13 & 15; applying stand 6's harvest specs and objectives. J4/O7</p>										
8	A5	12	32	57	upland brush	immature	final harvest	1		
<p>comnts Fmd : Aspen stand in it's early 30's w/ ~1/2 the stems merchantable, occasional overmature stems, RP saw, U-inclusions. Final harvest to revert to U/G along with stands 6, 7, 12, 13 & 15, applying stand 6's harvest specs and objectives.. A4/R7</p>										
12	J8	8	62	53	upland brush	mature	final harvest	1		
<p>comnts Fmd : Overmature JP saw/poles along the river floodplain with dying & wind-thrown stems. Nice large oak saplings in the N 1/2, but not enough to call O1 overall. Did not take SIs on the oldest JP component & went with the more conservative estimate. Stand age based on the younger poles, not the overmature sawtimber. Final harvest along with stands 6, 7, 8, 13 & 15. Apply stand 6's harvest specs & objectives, except leave all white pine too and leave a 150' Natural Rivers buffer from the west edge of the East Branch of the AuSable's river channel. While the overall objective is to maintain a U/G type west of the road, a mix of oak, WP, RP & JP is likely to become established east of the road & is acceptable. J7/J4</p>										
13	J5	10	44	54	upland brush	two aged	final harvest	1		
<p>comnts Fmd : Gerrymandered stand boundary, picking up pockets of JP that have been slowly growing together like spots of mold in a petri dish. Ranges in density from U-inclusions to J4 to J6. There is a low-density overmature JP saw component that seeded in the now pole-sized JP, with an advancing perimeter of JP regen around each pocket of trees. Did only one SI since it was v. close to adjacent stands values. Final harvest with stands 6, 7, 8, 12 & 15, applying stand 6's harvest specs & objectives. J5</p>										
15	J5	9	45	55	upland brush	two aged	final harvest	1		
<p>comnts Fmd : Similar to stand 13: low-density overmature JP saw component seeded in pockets of JP that are spreading & growing together across the U-type. Decent site for JP -- the entire J/U area in Sec 22 is close to the water table, with small bogs in any depression >4' deep. Final harvest along with stands 6, 7, 8, 12 & 13, applying stand 6's harvest specs & objectives. J5</p>										
18	R8	26	91	65	red pine	two aged	seed tree	2	natural regeneration	
<p>comnts Fmd : Naturally-established RP stand that had portions thinned in '78 & '89: these areas were more or less seed-treed & have nice W2/R1 below. Recommend a seed tree cut over the rest of the stand. Average 20 BA in seed trees, reserving vigorous younger sawtimber & nearly saw-sized poles, where possible, for that purpose. Favor what few WP saw there are for seed trees. Remove all overstory sawtimber in previously-thinned areas if the regen stocking is adequate and don't count these areas against the 20 BA average target. Leave all good WP/RP poles: release them - don't leave seed trees nearby - and also don't count these areas toward the 20 BA target. Remove merchantable JP. Particularly along the N edge of the stand (bordering low-density P/L types) try to leave seed trees in clumps of 3 or 4 for windfirmness. Harvest when the ground is not frozen to maximize scarification and add harvest spec's to protect the regen. Protect 1/10 acre pot-hole bog in W center of stand. Potential cabin-long sale: set up with stands 26, 28, 32 & 34. R7/R4/W4</p>										
26	R9	2	43	66	red pine	two aged	delayed removal	2		
<p>comnts Fmd : Good site for RP & WP in terms of growth rate & ability to naturally regenerate; some 40 year old RP are in the 14" diam class & there is good WP/RP regen & small poles. Remove the sawtimber overstory to release the poles, saplings & seedlings. Remove the merchantable JP also. Set up as one sale with stands 18, 28, 32 & 34. Avoid putting landing within this small stand; skid through to nearby U-type. Used more conservative SI from young saw. '95 SI was on the older saw component RP-1946-57. R7/R4/W4</p>										
28	R6	2	43	66	red pine	two aged	delayed removal	2		
<p>comnts Fmd : Very similar to stand 26, but with regen heavier to RP than WP. Again, remove the overstory sawtimber to release nice poles & regen. Remove merchantable JP also. Leave few old WP saw for continued seed source. Used stand 26 SI. ('95 SI: RP-1946-57). Set up as one sale with stands 18, 26, 32 & 34.</p>										
32	R9	4	93	54	white pine	mature	delayed removal	2		
<p>comnts Fmd : Mixed RP/WP sawtimber stand, was thinned in '78. Has outstanding WP regen in lg seedlings & saplings, R2 to the south. Has overmature JP more to the south also. Some dieback in the WP saw. Remove the entire overstory to release the WP/RP regen. Apply harvest specs & monitor operations to protect regen as much as possible. Put landing in adjacent U-type. R8/W7/J4</p>										
34	J6	2	55	47	jack pine	mature	final harvest	2	natural regeneration	
<p>comnts Fmd : 50-60 year old JP stand with younger stems @ perimeter. Mortality & top-dieback beginning to occur in older component. Final harvest all merchantable JP. Given its small acreage, set up as one sale with adjacent stand 32 (& 18, 26, 28) that has a minor JP component to remove. Harvest when the ground is not frozen to maximize scarification. J6/J7</p>										

GRAYLING FOREST MGT UNIT

**Proposed Treatments
With NO Limiting Factors**

Compartment: 237 Entry Year: 2007

Stand	Cover Type	Acres	Age	Site Index	Mgt Obj	Condition	Method Cut	Harvest Priority	Cultural Need	FDF Status
40	O8	24	90	54	oak	two aged	seed tree	1	natural regeneration	
<p>comnts Fmd : Oak overstory ranges in age from the 80's & 90's (mostly large saw, often "wolf" trees, along with small saw & large unthrifty poles) down to the 50's & 60's (some poles & small saw). Decent quality RO & WO with the usual associates: BTA, JP, RM, RP & enough scattered WP saw to seed in a W2 understory. Oak is growing slow & some dieback is occurring in the older sawtimber. Recommend a seed tree cut, removing the mature oak sawtimber, aspen, JP & red maple, & selecting the best-quality, most vigorous & healthy oak poles & small saw to leave for cover, seed source & mast production, averaging 20 BA residual (Don't strictly follow the "partial cut volume" in OIPC -- the intention is not to remove every RO saw & leave all oak poles, but rather to remove just the mature, declining, or unthrifty oak in either class, down to 20 BA). Also leave all WP/RP for additional seed source & leave 1-3 of the WO "wolf" trees per acre as future den trees. Goals of the cut are to achieve stump-sprout & seed-source oak regen while the stand is still relatively healthy, release the existing oak & WP regen, & release the selected leave trees. Harvest in winter to reduce stress of harvest on the residual oak & prevent erosion on the hillsides. Short-wood harvest to limit damage to the regen & seek military approval to leave the tops where they fall to act as physical barriers to deer to reduce browse on regen. There is currently very little vehicle use in this stand because of terrain limitations. Treat as one sale with stand 41; also include in this sale stand 13 in the adjacent compartment 238. Leave an uncut buffer on the S & W edges (along the tank trail & range trail) of sufficient width to discourage off-roading & to exclude steep slopes. 07/O4/A4.</p>										
41	O8	32	91	52	oak	two aged	seed tree	1	natural regeneration	
<p>comnts Fmd : Mixed oak stand with the usual associates: JP, aspen, RM & scattered WP/RP saw. Terrain a series of ridges, up to 40% slope in places, but the hills are relatively short. Oak regen mostly heavily browsed. Nice WP saplings in areas but only W1 at best overall. Decent-quality RO with little hybridization. Oak age ranges from the 50's to the 90's. Treat the same as Stand 40 - see that stand's comments for specs - and set up as one sale. Also include stand 13 in the adjacent compartment 238 in this sale. Leave an uncut buffer on the stand's S & E edges (along the tank trail) to discourage off-roading and exclude steep slopes. 07/O4/M4</p>										
51	A6	29	47	75	aspen (upland)	two aged	final harvest	1	natural regeneration	
<p>comnts Fmd : While aspen (mostly BTA) dominates the site overall, the red maple component is just as dense & there is quality red oak along with WO. Good site; all species put on very good height growth. There are some inclusions of spindly aspen in the N & center of the stand, but most of the clones are mature & have a good proportion of saw-sized stems. The stand boundary also includes some opener areas (with low-density RM, RP & oak) in order to encompass outlying aspen clones. Most of the aspen clones & multiple-stem RM poles are younger than the oak and RM saw & most likely date back to 91-57A "National Guard Clearing"; a treatment found in the ownership card file. I adjusted my SI age to reflect that '58 treatment & dropped a couple of cores that were difficult to age & seemed extreme. Recommend final harvest to regenerate the aspen. There will be significant RM sprouting, too. Given the dominance of the aspen & RM, oak management is impractical, even though the oak there is good quality. There is no oak regen now, & leaving the oak while cutting the RM & aspen would not allow for seed-source regen. The best bet for maintaining any oak in the stand in the long run would be to cut it now & let it compete as it does best: as stump sprouts. A4/M4/A7/M7/O7</p>										
55	J5	35	46	54	jack pine	two aged	delayed removal	1	natural regeneration	
<p>comnts Fmd : Low density overmature JP saw over poles in their 40's & 50's, with scattered RP, WP & NPO. Areas to N & W with nice advanced WO regen. Individual trees with JP budworm defoliation. Remove all JP 6" DBH and up, releasing the JP & oak regen while leaving the small JP poles for additional seed. Leave all RP & WP. NPO is v. poor quality but it is seeding in viable oak regen, so leave for that function. Treat with stands 57, 59 & 60. Harvest when the ground is not frozen to maximize scarification but also add spec to protect the existing regen. Previous SI on the overmature saw was: JP-1936-42. J5/J7</p>										
57	J5	27	54	52	jack pine	two aged	delayed removal	1	natural regeneration	
<p>comnts Fmd : Two-aged+ JP: poles & occasional saw over large saplings approaching pole class. O2 below, some above the browse line, seeded in by poor-quality NPO. Treat along with stands 55, 59 & 60 (see stand 55 comments re spec's). J5/O7</p>										
59	J5	86	42	41	jack pine	two aged	delayed removal	1	natural regeneration	
<p>comnts Fmd : Most of this stand was cut in '63. Low-density JP poles & occasional saw over JP regen & areas of advanced O2. Poor-quality oak are concentrated more in the N1/2 but are scattered throughout & are seeding in viable oak regen. JP budworm defoliation present in older overstory stems, mostly in SE of stand. Dieback is just beginning to show in the suppressed JP regeneration. Because planting is unlikely in this heavy military-use area, I recommend cutting this stand now - even though it would normally be allowed to grow 10-20 more years - in order to take advantage of the existing regen to jump-start the stand's re-establishment. This relatively early removal would release the JP & oak saplings & leave the small JP poles & all oak for additional seed, thus maintaining more continuous cover over time than if the entire stand was allowed to reach maturity & was then final harvested. This treatment is based on the assumptions that the military would prefer quicker stand establishment & that the area probably would not be planted. Remove all JP that is 6" DBH & up, leave all oak, & protect the existing JP & oak regen. Harvest when the ground is not frozen to maximize scarification. Treat with stands 55, 57 & 60. J4/O4</p>										
60	J4	18	42	40	jack pine	two aged	delayed removal	1	natural regeneration	
<p>comnts Fmd : Part of stand was cut in '63. Low-density JP poles over oak saps & J1-J3 saps, scattered NPO saw. There is some mortality in the overstory JP w/ budworm damage, mostly along N. Down R. Rd. About half of the stems are merchantable. Remove the JP overstory now (6" DBH & up) to take advantage of the existing regen. See stand 59 comments regarding spec's. Set up as one sale with stands 55, 57 & 59.</p>										
Total Acres.....		335								

**Proposed Treatments
With Limiting Factors**

Compartment: 237 Entry Year: 2007

Stand	Cover Type	Acres	Age	Site Index	Mgt Obj	Condition	Method Cut	Harvest Priority	Cultural Need	FDF Status
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TREATMENT LIMITING FACTORS:

Total Acres..... 0

