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DNR

TRAVERSE CITY FOREST MANAGEMENT UNIT
COMPARTMENT REVIEW PRESENTATION

COMPARTMENT # 60 ENTRY YEAR: 2009

Compartment Acreage: 3584 County: Grand Traverse

Stand Examiner: Scott Lint

Legal Description: T25N, R12W, Sections 3-10, 16-20
T26N, R12W, Sections 15-22, 27-34,

Management Goals: Mixed Use

Soil and Topography: The southern and eastern parts of the compartment falls into Land Type Association 1111 characterized as steep, broken ridges with few kettle lakes and excessively drained sand. The northern and western parts of the compartment fall into LTA 5211, a pitted outwash plain with many kettle lakes and well drained sand or loamy sand.

Ownership Patterns, Development, and Land Use in and Around the Compartment: The compartment consists of one large block of land just south of the village of Karlin and several scattered smaller blocks of land around the village of Interlochen. Interlochen State Park and the Interlochen Arts Academy are located within the compartment. This is an area of high recreational use and continuing development. Several new subdivisions have been constructed and increased development continues in and around this compartment.

Unique, Natural Features: The Betsie River, a designated Natural River, originates in the compartment. Duck Lake and Green Lake, two of the larger lakes in the area are located within the compartment along with several smaller lakes.

Archeological, Historical, and Cultural Features: There are several prehistoric and woodland period archeological sites that have been identified by the State Bureau of History. Evidence of several old homesteads and railroad grades still remain within the compartment.

Special Management Designations or Considerations: The old Interlochen State Park dump is located in the NENE of section 3. There is a small private in-holding in section 34 that was part of an old plat. There is a residence located on the property and a driveway across state land to the parcel.

Watershed and Fisheries Considerations: The Betsie River, Mason Creek, and Horton Creek flow through Compartment 60. Mason Creek and Horton Creek are Designated Trout Streams, with naturally reproducing populations of brook trout. Duck, Green, and Bass Lakes are also located within the compartment. Green Lake is stocked with lake trout by MDNR, and also offers good fishing for largemouth

and smallmouth bass, northern pike, rainbow smelt, and panfish. Duck Lake is stocked with brown trout and lake trout by MDNR, and also provides good fishing for largemouth and smallmouth bass, northern pike, and panfish. Bass Lake offers good fishing for largemouth bass, northern pike, and panfish. For any treatments near water, MDNR BMPs should be adhered to.

Wildlife Habitat Considerations: Due to its sprawling and fragmented nature, this compartment encompasses a variety of glacial landforms. Flat sandy outwash plains dominate to the north in comparison to steep moraine ridges in the south. And flat outwash plains of poorly drained soils are associated with the Betsie River and Horton Creek drainages.

A mixture of oak, aspen, pine, and hardwood communities are found on the hills, which is consistent with the dry sandy soils that form these ridges. Occasionally, wildfire would make its way onto these ridges from the adjacent outwash plains. Therefore, managing this moraine complex for a variety of successional stages and age classes of pine-oak-aspen forest and grass-shrub openings, with some mid to late successional forest in places, is appropriate. Wildlife species typically found here include: deer, black bear, wild turkey, downy woodpecker, red bat, and eastern box turtle. The same forest communities are found on the outwash plain, again consistent with the dry and fire-related dynamics of these sandy soils. Consequently, management should again focus on maintaining a variety of age classes and successional stages appropriate to this landscape. Timber treatments should focus on mimicking fires or wind throws by protecting and creating snags and coarse woody debris, incorporating residuals of mast bearing and other species, and utilizing features like topography and water bodies in their design.

The saturated soils along the Betsie and Horton Creek support a variety of communities, including lowland deciduous and coniferous woods, thickets of lowland shrubs, and marshes. No treatments are currently prescribed for the lowland deciduous forests, but future harvests or habitat cuts are appropriate and should be carefully designed to optimize regeneration and to mimic naturally occurring blowdown pockets. Treatments such as these will benefit species like snowshoe hare, woodcock, bobcats, and chestnut-sided warblers. Care should also be taken to maintain the important winter cover provided by lowland conifer stands. Glossy Buckthorn, an aggressive invasive shrub has been found within these communities. Work has begun with MNFI to develop a strategy to monitor, contain, and hopefully eradicate it.

Openings, brushy areas, and semi-forested habitats are an integral part of this mosaic of upland and lowland communities. They provide grasses and forbs for foraging, nesting, and “bugging” areas; thickets provide nesting, bedding, and escape cover; fruiting shrubs and open-grown mast producing trees provide food and cover, and the “edge” component created by these openings is another important habitat component provided. Where possible, fire should be used to maintain the upland openings. In the lowland communities and where burning is not possible, selective hand felling should be used. A number of abandoned oil well pads exist in this compartment and need to be revegetated. These sites are comprised of mostly of sterile sandy soils and should be reconditioned and planted to suitable herbaceous cover.

Mineral Resource and Development Concerns and/or Restrictions: Surface sediments consist of glacial outwash sand and gravel and postglacial alluvium and an end moraine of coarse-textured till. The glacial drift thickness varies between 400 and 1,000 feet. Beneath the glacial drift is the Devonian Ellsworth Shale. The Ellsworth is used for cement products. Gravel pits are located in the Compartment and there is potential. The south part of the Compartment is located in the prolific Niagaran reef trend. Most of this are is currently leased. There are no leases in the northern part of the Compartment. The Antrim Shale has not been developed in this area and may be too deep.

Vehicle Access: no issues at this time.

Survey Needs: none at this time.

Recreational Facilities and Opportunities: Interlochen State Park is located within the compartment. There are Parks and Recreation Division maintained access sites on Green and Bass Lakes.

Fire Protection: This compartment is made up of several small blocks of state land scattered throughout many sections. Access to some of the areas is somewhat difficult. Travel time is somewhat of an issue, as it is located in the very west/southwest corner of Grand Traverse County. Typically Platte River Units respond at the same time. There is scattered pine in some areas, but the potential of large catastrophic fires is small. Traverse City Field Office and Grand Traverse Rural Battalion 4 in Interlochen are initial attack for this area.

Additional Compartment Information: none.

****** Cover type details, proposed treatments and stands designated as FDF are listed in the attached reports:**

- **Cover Type by Age Class**
- **Proposed Treatments – No Limiting Factors**
- **Proposed Treatments – With Limiting Factors**

****** The following information is displayed on the attached compartment maps:**

- **Base feature information, stand numbers, cover types**
- **Proposed treatments**
- **Proposed road access system**

Stage 1 Acres Summary By Level 3 Cover Type By A

Traverse City Mgt. Unit **Compartment: 060**

Date: 02/13/2008

	0	1-9	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	> 89	Uneven Age	Grand Total
Aspen Types	0	149.3	102.1	60.3	638.5	125.3	0	53.6	203.2	87.0	31.3	0	**1450.6**
Emergent Wetland	8.6	0	0	0	0	0	0	0	0	0	0	0	**8.6**
Herbaceous Openland	127.4	0	0	0	0	0	0	0	0	0	0	0	**127.4**
Low Intensity Urban	10.5	0	0	0	0	0	0	0	0	0	0	0	**10.5**
Low-Density Trees	33.5	0	0	0	0	0	0	0	0	0	0	0	**33.5**
Lowland Coniferous Forest	0	0	0	0	0	0	0	0	8.2	22.4	117.5	0	**148.1**
Lowland Deciduous Forest	0	0	0	0	5.6	0	8.9	1.7	4.2	5.9	70.6	0	**96.9**
Lowland Mixed Forest	0	0	0	0	0	0	0	0	0	84.0	0	0	**84.0**
Lowland Shrub	135.3	0	0	0	0	0	0	0	0	0	0	0	**135.3**
Mixed Upland Deciduous	0	15.4	0	0	9.5	0	0	0	43.1	235.0	254.2	0	**557.2**
Natural Pines	0	0	0	0	5.1	0	0	0	0	0	13.2	0	**18.3**
Northern Hardwood	0	0	7.7	0	0	0	0	42.2	35.3	76.1	62.3	3.5	**227.1**
Oak Types	0	0	9.9	9.3	0	11.2	0	6.1	165.0	139.1	219.5	0	**560.2**
Planted Pines	0	27.6	0	0	2.6	19.0	54.2	0	0	0	0	0	**103.4**
Upland Mixed Forest	0	0	0	0	0	0	3.2	0	0	0	0	0	**3.2**
Upland Shrub	7.3	0	0	0	0	0	0	0	0	0	0	0	**7.3**
Water	13.1	0	0	0	0	0	0	0	0	0	0	0	**13.1**
Grand Total	**335.8**	**192.2**	**119.7**	**69.66**	**661.3**	**155.5**	**66.28**	**103.7**	**459.0**	**649.4**	**768.5**	**3.524**	**3584.7**

Stand	Treatment Name	Acres	Stage1 CovType	Size Density	1st Age	2nd Age	Treatment Method	Treatment Purpose	Cover Type Objective
1	**61060001-Cut**	7.0		6	59	0	Clearcut	Habitat Management	Aspen

Rev Cmnt: --Stephen Griffith : 11/29/2007 comments: Create some (approximately 1-2 trees per acre) coarse woody debris (CWD) during harvest operations, preferably via timber sale specs. CWD trees should be log sized or bigger, the more decay resistant the tree species is the better, and cut approximately at breast height (4.5 feet). The log should be left within 3 feet it's stump.

Rev Spec: Single clone, small area, no retention other than cwd and snags.

Next Steps:

Stand	Treatment Name	Acres	Stage1 CovType	Size Density	1st Age	2nd Age	Treatment Method	Treatment Purpose	Cover Type Objective
5	**61060005-seed tree**	18.0		9	57	0	Seed Tree with Reserves	Regeneration	Planted Red Pine

Rev Cmnt:

Rev Spec: Seed tree to regenerate a mixed stand of red pine and hardwood. Supplement with red pine planting if natural regeneration is inadequate. Visual management concerns along north edge.

Next Steps: Regen survey within three years of timber completion report (per TMS at compartment review)

Stand	Treatment Name	Acres	Stage1 CovType	Size Density	1st Age	2nd Age	Treatment Method	Treatment Purpose	Cover Type Objective
5	**61060005-thin**	9.6		9	57	0	Crown Thinning	Intermediate Cut	Planted Red Pine

Rev Cmnt:

Rev Spec: Basal area higher in this portion of stand. The area located south of exposed sand spot (visible on imagery) and north of the old railroad grade. Thinning this portion of stand will help with visual managment and breaking up red pine age classes in this block of state ownership.

Next Steps:

Stand	Treatment Name	Acres	Stage1 CovType	Size Density	1st Age	2nd Age	Treatment Method	Treatment Purpose	Cover Type Objective
13	**61060013-clearcut**	13.6		9	57	0	Clearcut	Regeneration	Planted Red Pine

Rev Cmnt:

Rev Spec: Clear cut and replant with red pine. No retention.

Next Steps:

Stand	Treatment Name	Acres	Stage1 CovType	Size Density	1st Age	2nd Age	Treatment Method	Treatment Purpose	Cover Type Objective
13	**61060013-thin**	11.6		9	57	0	Crown Thinning	Intermediate Cut	Planted Red Pine

Rev Cmnt:

Rev Spec: Thin this portion of stand to serve as visual management while east portion of stand is being clearcut and regenerated.

Next Steps:

Stand	Treatment Name	Acres	Stage1 CovType	Size Density	1st Age	2nd Age	Treatment Method	Treatment Purpose	Cover Type Objective
23	**61060023-Cut**	20.3		9	80	0	Crown Thinning	Intermediate Cut	Red Oak

Rev Cmnt: --Stephen Griffith : 11/29/2007 comments: Create some coarse woody debris (CWD) in areas of the stand where little or none currently exist, during harvest operations. Can be cull lengths, tops of significant volume, or whole unmerchantable trees.

Rev Spec: Selectively remove some of the large mature oak sawlog trees from this stand and try to release some of the advanced red oak regeneration already present in stand.

Next Steps:

Stand	Treatment Name	Acres	Stage1 CovType	Size Density	1st Age	2nd Age	Treatment Method	Treatment Purpose	Cover Type Objective
37	**61060037-Cut**	19.0		6	67	0	Clearcut with Reserves	Regeneration	Aspen

Rev Cmnt: --Stephen Griffith : 11/29/2007 comments: Create some (approximately 1-2 trees per acre) coarse woody debris (CWD) during harvest operations, preferably via timber sale specs. CWD trees should be log sized or bigger, the more decay resistant the tree species is the better, and cut approximately at breast height (4.5 feet). The log should be left within 3 feet it's stump.

Rev Spec: Good red oak regen present in south part of stand. Release oak, and also try to expand aspen into east part of non-forested stand (#36). This area was scotch pine that was removed last entry period. Remove any scotch pine saplings if possible.

Next Steps:

Stand	Treatment Name	Acres	Stage1 CovType	Size Density	1st Age	2nd Age	Treatment Method	Treatment Purpose	Cover Type Objective
38	**61060038-Cut**	6.6		6	45	0	Crown Thinning	Intermediate Cut	Planted Red Pine

Rev Cmnt:

Rev Spec: Second thinning. Remove small diameter suppressed trees and poor quality trees by marking.

Next Steps:

Stand	Treatment Name	Acres	Stage1 CovType	Size Density	1st Age	2nd Age	Treatment Method	Treatment Purpose	Cover Type Objective
58	**61060058-Cut**	18.6		6	105	0	Crown Thinning	Intermediate Cut	Red with White Oak

Rev Cmnt:

Rev Spec: Thin to release crowns of good quality vigorous red and white oaks. Also, try to release good quality white pine saplings where possible. This was historically a good white pine site. Numerous old white pine stumps present in stand. Caution should be exercised to minimize risks of oak wilt spread. Oak wilt is common in this general area (Interlochen/Karlin).

Next Steps:

Stand	Treatment Name	Acres	Stage1 CovType	Size Density	1st Age	2nd Age	Treatment Method	Treatment Purpose	Cover Type Objective
98	**61060098-Cut**	46.8		9	72	0	Crown Thinning	TSI	White, Black, N. Pin Oak

Rev Cmnt: --Stephen Griffith : 11/29/2007 comments: Create some coarse woody debris (CWD) in areas of the stand where little or none currently exist, during harvest operations. Can be cull lengths, tops of significant volume, or whole unmerchantable trees.

Rev Spec: This is a predominantly white oak stand. Claculated cover type is misleading. Crown release good quality white oak, release white pine saps, regenerate small patches of aspen where possible, and cut all red maple to create browse. Oak wilt is present in stand across Nessen Rd to the east.

Next Steps:

Stand	Treatment Name	Acres	Stage1 CovType	Size Density	1st Age	2nd Age	Treatment Method	Treatment Purpose	Cover Type Objective
110	**61060110-Cut_1**	7.4		6	75	0	Clearcut with Reserves	Regeneration	Aspen

Rev Cmnt: --Stephen Griffith : 11/29/2007 comments: Create some (approximately 1-2 trees per acre) coarse woody debris (CWD) during harvest operations, preferably via timber sale specs. CWD trees should be log sized or bigger, the more decay resistant the tree species is the better, and cut approximately at breast height (4.5 feet). The log should be left within 3 feet it's stump.

Rev Spec: Treatment located in valley avoiding steep slopes and provding a buffer between this treatment and existing adjacent younger aspen age classes.

Next Steps:

Stand	Treatment Name	Acres	Stage1 CovType	Size Density	1st Age	2nd Age	Treatment Method	Treatment Purpose	Cover Type Objective
110	**61060110-Cut_2**	17.4		6	75	0	Clearcut with Reserves	Regeneration	Aspen

Rev Cmnt: --Stephen Griffith : 11/29/2007 comments: Create some (approximately 1-2 trees per acre) coarse woody debris (CWD) during harvest operations, preferably via timber sale specs. CWD trees should be log sized or bigger, the more decay resistant the tree species is the better, and cut approximately at breast height (4.5 feet). The log should be left within 3 feet it's stump.

Rev Spec: Treatment located in valley avoiding steep slopes and provding a buffer between this treatment and existing adjacent younger aspen age classes.

Next Steps:

Stand	Treatment Name	Acres	Stage1 CovType	Size Density	1st Age	2nd Age	Treatment Method	Treatment Purpose	Cover Type Objective
120	**61060120-Plant**	16.9	4123 - Red Oak	9	100	0	Hand Plant	Regeneration	

Rev Cmnt:

Rev Spec: Hand plant white pine in understory. This stand is poor quality on a poor site. Ridgetop with poor quality soil. Pine would likely do well on these sites. Could also plant some red pine along with the white pine. There are areas of good natural red pine in this compartment.

Next Steps:

Stand	Treatment Name	Acres	Stage1 CovType	Size Density	1st Age	2nd Age	Treatment Method	Treatment Purpose	Cover Type Objective
121	**61060121-Cut_small**	7.5		9	71	0	Clearcut with Reserves	Regeneration	Aspen, Oak

Rev Cmnt: --Stephen Griffith : 11/29/2007 comments: Create some (approximately 1-2 trees per acre) coarse woody debris (CWD) during harvest operations, preferably via timber sale specs. CWD trees should be log sized or bigger, the more decay resistant the tree species is the better, and cut approximately at breast height (4.5 feet). The log should be left within 3 feet it's stump.

Rev Spec: Retain conifer saplings where possible.

Next Steps:

Stand	Treatment Name	Acres	Stage1 CovType	Size Density	1st Age	2nd Age	Treatment Method	Treatment Purpose	Cover Type Objective
127	**61060127-Cut**	29.9		9	111	0	Crown Thinning	Intermediate Cut	Other Mixed Upland Deciduous

Rev Cmnt: --Stephen Griffith : 11/29/2007 comments: Create some coarse woody debris (CWD) in areas of the stand where little or none currently exist, during harvest operations. Can be cull lengths, tops of significant volume, or whole unmerchantable trees.

Rev Spec: Red oak sawlog sale to harvest mature oak sawlogs and release smaller diameter trees in the process.

Next Steps:

Stand	Treatment Name	Acres	Stage1 CovType	Size Density	1st Age	2nd Age	Treatment Method	Treatment Purpose	Cover Type Objective
134	**61060134-Plant**	18.3	4124 - Red with White Oak	8	100	0	Hand Plant	Regeneration	

Rev Cmnt:

Rev Spec: Poor quality soil/site. Ridge and south facing aspect with sparse understory. Hand plant white pine (and possibly red pine) in understory to restore pine component to this site.

Next Steps:

Stand	Treatment Name	Acres	Stage1 CovType	Size Density	1st Age	2nd Age	Treatment Method	Treatment Purpose	Cover Type Objective
136	**61060136-Cut**	17.0		8	100	0	Clearcut with Reserves	Regeneration	Aspen, Oak

Rev Cmnt: --Stephen Griffith : 11/29/2007 comments: Create some (approximately 1-2 trees per acre) coarse woody debris (CWD) during harvest operations, preferably via timber sale specs. CWD trees should be log sized or bigger, the more decay resistant the tree species is the better, and cut approximately at breast height (4.5 feet). The log should be left within 3 feet it's stump.

Rev Spec: Clearcut with reserves to regenerate aspen and remove mature oaks. Retain a few good quality oaks for mast production where possible.

Next Steps:

Stand	Treatment Name	Acres	Stage1 CovType	Size Density	1st Age	2nd Age	Treatment Method	Treatment Purpose	Cover Type Objective
137	**61060137-Cut**	133.8		9	85	0	Crown Thinning	Intermediate Cut	Other Mixed Upland Deciduous

Rev Cmnt: --Stephen Griffith : 11/29/2007 comments: Create some coarse woody debris (CWD) in areas of the stand where little or none currently exist, during harvest operations. Can be cull lengths, tops of significant volume, or whole unmerchantable trees.

Rev Spec: Oak sawlog sale to harvest high quality mature red oak trees. Mark some additional species to release crowns of smaller diameter oaks and release advanced oak regenertaion where possible.

Next Steps:

Stand	Treatment Name	Acres	Stage1 CovType	Size Density	1st Age	2nd Age	Treatment Method	Treatment Purpose	Cover Type Objective
138	**61060138-Cut1**	25.4		6	37	0	Clearcut with Reserves	Regeneration	Aspen

Rev Cmnt: --Stephen Griffith : 11/29/2007 comments: Create some (approximately 1-2 trees per acre) coarse woody debris (CWD) during harvest operations, preferably via timber sale specs. CWD trees should be log sized or bigger, the more decay resistant the tree species is the better, and cut approximately at breast height (4.5 feet). The log should be left within 3 feet it's stump.

Rev Spec:

Next Steps:

Stand	Treatment Name	Acres	Stage1 CovType	Size Density	1st Age	2nd Age	Treatment Method	Treatment Purpose	Cover Type Objective
139	**61060139-Cut_1**	27.1		6	34	0	Clearcut with Reserves	Regeneration	Aspen

Rev Cmnt:

Rev Spec: --Stephen Griffith : 11/29/2007 comments: Create some (approximately 1-2 trees per acre) coarse woody debris (CWD) during harvest operations, preferably via timber sale specs. CWD trees should be log sized or bigger, the more decay resistant the tree species is the better, and cut approximately at breast height (4.5 feet). The log should be left within 3 feet it's stump.

Next Steps:

Stand	Treatment Name	Acres	Stage1 CovType	Size Density	1st Age	2nd Age	Treatment Method	Treatment Purpose	Cover Type Objective
139	**61060139-Cut_2**	20.1		6	34	0	Clearcut with Reserves	Regeneration	Aspen

Rev Cmnt:

Rev Spec: --Stephen Griffith : 11/29/2007 comments: Create some (approximately 1-2 trees per acre) coarse woody debris (CWD) during harvest operations, preferably via timber sale specs. CWD trees should be log sized or bigger, the more decay resistant the tree species is the better, and cut approximately at breast height (4.5 feet). The log should be left within 3 feet it's stump.

Next Steps:

Stand	Treatment Name	Acres	Stage1 CovType	Size Density	1st Age	2nd Age	Treatment Method	Treatment Purpose	Cover Type Objective
143	**61060143-Cut_1**	36.5		6	34	0	Clearcut with Reserves	Regeneration	Aspen

Rev Cmnt: --Stephen Griffith : 11/29/2007 comments: Create some (approximately 1-2 trees per acre) coarse woody debris (CWD) during harvest operations, preferably via timber sale specs. CWD trees should be log sized or bigger, the more decay resistant the tree species is the better, and cut approximately at breast height (4.5 feet). The log should be left within 3 feet it's stump.

Rev Spec: Retain good quality beech, oak, and pockets of hardwood where possible.

Next Steps:

Stand	Treatment Name	Acres	Stage1 CovType	Size Density	1st Age	2nd Age	Treatment Method	Treatment Purpose	Cover Type Objective
143	**61060143-Cut_2**	38.7		6	34	0	Clearcut with Reserves	Regeneration	Aspen

Rev Cmnt: --Stephen Griffith : 11/29/2007 comments: Create some (approximately 1-2 trees per acre) coarse woody debris (CWD) during harvest operations, preferably via timber sale specs. CWD trees should be log sized or bigger, the more decay resistant the tree species is the better, and cut approximately at breast height (4.5 feet). The log should be left within 3 feet it's stump.

Rev Spec: Retain good quality beech, oak, and pockets of hardwood where possible.

Next Steps:

Stand	Treatment Name	Acres	Stage1 CovType	Size Density	1st Age	2nd Age	Treatment Method	Treatment Purpose	Cover Type Objective
146	**61060146-Cut**	44.7		9	85	0	Crown Thinning	Intermediate Cut	Other Mixed Upland Deciduous

Rev Cmnt: --Stephen Griffith : 11/29/2007 comments: Create some coarse woody debris (CWD) in areas of the stand where little or none currently exist, during harvest operations. Can be cull lengths, tops of significant volume, or whole unmerchantable trees.

Rev Spec: Red oak sawlog sale to harvest mature good quality red oak sawlogs. Thin/release crowns of smaller diameter red oaks and try to release any red oak advanced regeneration where possible.

Next Steps:

Stand	Treatment Name	Acres	Stage1 CovType	Size Density	1st Age	2nd Age	Treatment Method	Treatment Purpose	Cover Type Objective
149	**61060149-Cut**	56.3		9	85	0	Crown Thinning	Intermediate Cut	Mixed Northern Hardwoods

Rev Cmnt: --Stephen Griffith : 11/29/2007 comments: Create some coarse woody debris (CWD) in areas of the stand where little or none currently exist, during harvest operations. Can be cull lengths, tops of significant volume, or whole unmerchantable trees.

Rev Spec: Steep hills and some limited access within the AOI will result in actual treatment area being less than the entire AOI (treatment shape currently cover entire AOI). Selectively remove mature red oak sawlogs and thin remaining species to release.

Next Steps:

Stand	Treatment Name	Acres	Stage1 CovType	Size Density	1st Age	2nd Age	Treatment Method	Treatment Purpose	Cover Type Objective
3	**NF_61060003-Hand Fell**	2.3	Unspecified	0	0	0	Non-Forest Management	Opening Maintenance	

Rev Cmnt:

Rev Spec: Brush hog (or hand fell) around select leave trees and/or patches . Leave scattered mast producing trees and shrubs and/or conifers for wildlife food and cover.

Next Steps: Moniter site post tree removal for herbaceous growth. Seed, fertilize, and mow as needed.

Stand	Treatment Name	Acres	Stage1 CovType	Size Density	1st Age	2nd Age	Treatment Method	Treatment Purpose	Cover Type Objective
9	**NF_61060009-Invasive**	1.0	Unspecified	0	0	0	Other	Ecosystem Maintenance	

Rev Cmnt:

Rev Spec: Glossy Buckthorn (Rhamnus frangula) has been found in several locations within this compartment and sourrounding land. Work with MNFI to create monitoring, containment, and/or treatment strategy.

Next Steps:

10	**NF_61060010-Invasive**	3.0	Unspecified	0	0	0	Other	Ecosystem Maintenance	

Rev Cmnt:

Rev Spec: Glossy Buckthorn (Rhamnus frangula) has been found in several locations within this compartment and sourrounding land. Work with MNFI to create monitoring, containment, and/or treatment

Next Steps:

25	**NF_61060025-Mowing**	6.1	Unspecified	0	0	0	Non-Forest Management	Opening Maintenance	

Rev Cmnt:

Rev Spec: Selectively hand fell (or brush hog) woody encroachment to maintain upland brush/grassland community. Leave scattered mast producing trees and shrubs and/or conifers for wildlife food and cover. Mow repeatedly through growing season to set back some of the bracken.

Next Steps: Monitor response of existing herbaceous vegetation. Seed in grasses and/or forbs if needed to produce adequate forage.

27	**NF_61060027-Hand Fell**	8.0	Unspecified	0	0	0	Non-Forest Management	Opening Maintenance	

Rev Cmnt:

Rev Spec: Selectively hand fell woody encroachment to maintain upland brush/grassland community. Leave scattered mast producing trees and shrubs and/or conifers for wildlife food and cover.

Next Steps: If possible, in conjuction with stand 25 repeatedly mow an area on the east side of stand to set back bracken and promote expansion of existing herbaceous vegetaion. Refrain from seeding anything in this stand for now.

39	**NF_61060039-Invasive**	2.0	Unspecified	0	0	0	Other	Ecosystem Maintenance	

Rev Cmnt:

Rev Spec: Glossy Buckthorn (Rhamnus frangula) has been found in several locations within this compartment and sourrounding land. Work with MNFI to create monitoring, containment, and/or treatment

Next Steps:

Stand	Treatment Name	Acres	Stage1 CovType	Size Density	1st Age	2nd Age	Treatment Method	Treatment Purpose	Cover Type Objective
46	**NF_61060046-Invasive**	1.4	Unspecified	0	0	0	Other	Ecosystem Maintenance	

Rev Cmnt:

Rev Spec: Glossy Buckthorn (Rhamnus frangula) has been found in several locations within this compartment and sourrounding land. Work with MNFI to create monitoring, containment, and/or treatment

Next Steps:

47	**NF_61060047-Forage**	1.6	Unspecified	0	0	0	Non-Forest Management	Habitat Management	

Rev Cmnt: Alternative would be to establish a mid to late summer forage species.

Rev Spec: Very tillable but next to private on south and east. Decent sized cedar stand only several chains to the north. Proximity to winter yarding habitat would make this a nice location for late fall early spring forage species (i.e. annual rye, Canada wild rye, etc.).

Next Steps: Annual maintenance (mowing, fertilizing, seeding) as needed.

48	**NF_61060048-Invasive**	4.9	Unspecified	0	0	0	Other	Ecosystem Maintenance	

Rev Cmnt:

Rev Spec: Glossy Buckthorn (Rhamnus frangula) has been found in several locations within this compartment and sourrounding land. Work with MNFI to create monitoring, containment, and/or treatment

Next Steps:

50	**NF_61060050-Invasive**	12.8	Unspecified	0	0	0	Other	Ecosystem Maintenance	

Rev Cmnt:

Rev Spec: Glossy Buckthorn (Rhamnus frangula) has been found in several locations within this compartment and sourrounding land. Work with MNFI to create monitoring, containment, and/or treatment

Next Steps:

54	**NF_61060054-Invasive**	7.8	Unspecified	0	0	0	Other	Ecosystem Maintenance	

Rev Cmnt:

Rev Spec: Glossy Buckthorn (Rhamnus frangula) has been found in several locations within this compartment and sourrounding land. Work with MNFI to create monitoring, containment, and/or treatment

Next Steps:

Stand	Treatment Name	Acres	Stage1 CovType	Size Density	1st Age	2nd Age	Treatment Method	Treatment Purpose	Cover Type Objective
55	**NF_61060055-Hand Fell**	23.3	Unspecified	0	0	0	Non-Forest Management	Opening Maintenance	

Rev Cmnt:

Rev Spec: Selectively hand fell woody encroachment to maintain upland brush/grassland community. Leave scattered mast producing trees and shrubs and/or conifers for wildlife food and cover. Could use 6x6 Ranger and brush whacker and take out some wp saplings and seedlings.

Next Steps:

Stand	Treatment Name	Acres	Stage1 CovType	Size Density	1st Age	2nd Age	Treatment Method	Treatment Purpose	Cover Type Objective
57	**NF_61060057-Invasive**	2.4	Unspecified	0	0	0	Other	Ecosystem Maintenance	

Rev Cmnt:

Rev Spec: Glossy Buckthorn (Rhamnus frangula) has been found in several locations within this compartment and sourrounding land. Work with MNFI to create monitoring, containment, and/or treatment

Next Steps:

Stand	Treatment Name	Acres	Stage1 CovType	Size Density	1st Age	2nd Age	Treatment Method	Treatment Purpose	Cover Type Objective
62	**NF_61060062-Invasive**	4.6	Unspecified	0	0	0	Other	Ecosystem Maintenance	

Rev Cmnt:

Rev Spec: Glossy Buckthorn (Rhamnus frangula) has been found in several locations within this compartment and sourrounding land. Work with MNFI to create monitoring, containment, and/or treatment

Next Steps:

Stand	Treatment Name	Acres	Stage1 CovType	Size Density	1st Age	2nd Age	Treatment Method	Treatment Purpose	Cover Type Objective
72	**NF_61060072-Invasive**	11.6	Unspecified	0	0	0	Other	Ecosystem Maintenance	

Rev Cmnt:

Rev Spec: Glossy Buckthorn (Rhamnus frangula) has been found in this stand and at several other locations within this compartment and sourrounding land. Work with MNFI to create monitoring, containment, and/or treatment

Next Steps:

Stand	Treatment Name	Acres	Stage1 CovType	Size Density	1st Age	2nd Age	Treatment Method	Treatment Purpose	Cover Type Objective
74	**NF_61060074-Hand Fell and Prune**	14.4	Unspecified	0	0	0	Non-Forest Management	Opening Maintenance	

Rev Cmnt: Also prune apple trees.

Rev Spec: Selectively hand fell woody encroachment to maintain upland brush/grassland community. Leave scattered mast producing trees and shrubs and/or conifers for wildlife food and cover.

Next Steps:

Stand	Treatment Name	Acres	Stage1 CovType	Size Density	1st Age	2nd Age	Treatment Method	Treatment Purpose	Cover Type Objective
89	**NF_61060089-Mow**	1.3	Unspecified	0	0	0	Non-Forest Management	Habitat Management	

Rev Cmnt:

Rev Spec: Periodically top dress and mow to stimulate and maintain existing grass cover. Be sure to get soil sample(s).

Next Steps:

108	**NF_61060108-Revegetate**	1.6	Unspecified	0	0	0	Non-Forest Management	Habitat Management	

Rev Cmnt: Should gate, or at least sign the access road.

Rev Spec: Degraded site. Revegetate to a low maintenance herbaceous vegetation suitable for wildlife forage or cover. Soil will most likely need considerable reconditioning.

Next Steps: Annual maintenance of vegetation once established.

123	**NF_61060123-Revegetate**	2.0	Unspecified	0	0	0	Non-Forest Management	Habitat Management	

Rev Cmnt:

Rev Spec: Degraded site. Revegetate to a low maintenance herbaceous vegetation suitable for wildlife forage or cover. Soil will most likely need considerable reconditioning.

Next Steps: Annual maintenance as needed.

124	**NF_61060124-Revegetate**	1.0	Unspecified	0	0	0	Non-Forest Management	Opening Maintenance	

Rev Cmnt: Either gate or sign access road.

Rev Spec: Degraded site. Revegetate to a low maintenance herbaceous vegetation suitable for wildlife forage or cover. Soil will most likely need considerable reconditioning.

Next Steps: Annual maintenance as needed.

142	**NF_61060142-Forage**	17.8	Unspecified	0	0	0	Non-Forest Management	Habitat Management	

Rev Cmnt:

Rev Spec: Should look into possibility of establishing a food plot here, since this is already a heavily managed stand. Tillable portion has mainly bracken and sedge, but with some strawberry, seedlings, goldenrod, rubus, hawkweed, and minimal grass.

Next Steps: Annual maintenance as needed.

Total Treatment Acreage Proposed: 798.4

PROPOSED TREATMENTS WITH LIMITING FACTORS

Stand	Treatment Name	Acres	Stage1 CovType	Size Density	1st Age	2nd Age	Treatment Method	Treatment Purpose	Cover Type Objective

Limiting Factor and Comment:

Rev Cmnt:

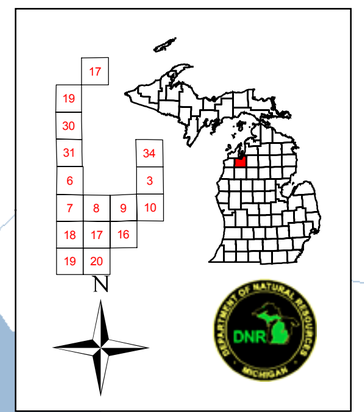
Rev Spec:

Next Steps:

Total Treatment Acreage Proposed: **0**

Field Map

Compartment 060
T26N, R12W, Sec. 17, 19, 30, 31, 34
T25N, R12W, Sec. 3, 6-10, 16-20
County: Grand Traverse
Unit: Traverse City
YOE: 2009
Acres: 3,584 GIS Calculated
Stand Examiner: Scott Lint
Map Revised: 12/19/2007
Map Phase: Pre-review



Legend

- Miris Corners
- Federal or Interstate Highway
- State Highway
- Highway
- County Paved Road
- Paved Road
- Gravel Road
- Poor Dirt Road
- Lakes and Rivers
- Intermittent Stream/Drain
- Stream
- State Highway
- Stands
- SCA - Special Conservation Area
- Clearcut
- Clearcut with Reserves
- Crown Thinning
- Seed Tree with Reserves
- Other Treatment - See Comments
- Opening Maintenance
- Planting
- Hand Seed
- Mowing

Forest Stands

Level 3

- 411 - Northern Hardwood
- 412 - Oak Types
- 413 - Aspen Types
- 419 - Mixed Upland Deciduous
- 421 - Planted Pines
- 422 - Natural Pines
- 430 - Upland Mixed Forest
- 612 - Lowland Coniferous Forest
- 613 - Lowland Mixed Forest

Non-Forest Stands

Level 3

- 310 - Herbaceous Openland
- 320 - Upland Shrub
- 330 - Low-Density Trees
- 500 - Water
- 622 - Lowland Shrub
- 623 - Emergent Wetland
- 790 - Other Bare/Sparsely Vegetated

1 0.5 0 1 Miles