

Master Plan Variance Approval

Property Name: Kettle Moraine State Forest – Northern Unit

Date Master Plan was approved: September, 1991

Proposed Change to the Master Plan: Section II. C. Proposed Development and Operations Forestry Management, 5. Timber Harvest. The Annual Allowable Cut (AAC) for the period of 2009 – 2018 shall be 440 acres per year. The average annual breakdown is 140 acres in conifer plantations and 300 acres of hardwoods per year. Following this period the AAC shall be re-evaluated by property specialists.

Approved: _____ Date: _____
Gloria McCutcheon, Director, Southeast Region

Approved: _____ Date: _____
Laurie Osterndorf, Administrator, Division of Land

Variance Author: Tim Beyer, Forester, Kettle Moraine State Forest – Northern Unit

Supporting Approvals

Jerome Leiterman, Superintendent Date: _____

Greg Pilarski, Southeast Regional Program Manager, Parks Date: _____

Frank Trcka, Southeast Regional Land Leader Date: _____

Jeff Weatherly, Southeast Regional Forester Date: _____

Jeff Prey, Program and Planning Analyst, Bureau of Parks and Recreation Date: _____

Dan Schuller, Director, Bureau of Parks and Recreation Date: _____

Tom Watkins, Department Master Planning Manager, Lands and Facilities Date: _____

Signed and Approved
August 7, 2009

Supporting Information

Purpose and need for the variance:

The Master Plan for the Kettle Moraine State Forest – Northern Unit (KMSF-NU) was approved in September of 1991. The Master Plan set forth the Annual Allowable Cut to be 200 acres per year. In Section II.C. Proposed Development and Operations, Forestry, Management, 5. Timber Harvest is stated “*Approximately 100 acres each of hardwood and softwood will be harvested annually. The majority of the softwood harvesting will be plantation thinning. Upon completion of the forest central-hardwood vegetation survey, harvesting guidelines will be written*”.

This variance is being requested to increase the annual allowable cut on the Kettle Moraine State Forest – Northern Unit for the period of 2009 – 2018 (Ten-Year Plan). The Annual Allowable Cut (AAC) is the amount of forest resource permitted to be harvested on a fixed landscape to ensure the sustainability and productivity of the forest. AAC is either regulated as volume (board feet/cords) or area (acres). In Wisconsin, AAC is area based and calculated by thinning cycles or desired rotation ages for specific cover types. For example, to maintain a healthy level of density, oak forests should be thinned every 20 years (on average). On the KMSF-NU there are 6000 acres of the oak type, a regulated thinning cycle would be 1/20th annually or 300 acres per year. When this is applied to all forest types on a property a total annual allowable cut can be determined.

The 1991 Master Plan also stated under Section II. C. Proposed Development and Operations, Forestry, Operations, 1; *Update forest vegetation surveys by 1994, including revised stand prescriptions to implement the integrated management recommended in this plan. And 2; Manage hardwood and conifer stands according to the accepted silvicultural guidelines as scheduled in the 1994 vegetation survey.*

In 2005 a complete vegetative re-inventory of the property began. The intent of that inventory was to update existing data that was collected in the mid 1970’s. That inventory data was then used to develop ‘stand’ and ‘landscape’ level management recommendations by using existing science while under the premise of multiple-use management. At the onset of the project, staff from the Wildlife, Endangered Resources, Forestry, Water, and Parks programs were consulted as to what information could be collected during this inventory. The level of inventory intensity was high and the opportunity to collect non-traditional information was present. Field meetings were held with staff from multiple programs to review the suggestions for data collection.

In addition to collecting the traditional forest reconnaissance data, information was also collected on presence and location of stick nests (Red-shouldered Hawk), ephemeral ponds (herptiles), invasive plants, unmapped streams and seeps, Swamp Metalmark habitat sites, forest health issues (gypsy moth egg masses, disease outbreaks), and property encroachments. The initial re-inventory of the property spanned two years (spring 2005 to spring 2007). Nearly 8000 plots were taken on over 29,000 acres.

The original inventory identified 9892 (990 acres per year) acres of forest that ‘could be managed’ over the 2009-2018 period. In this instance ‘could’ is defined as management would not compromise the structure of the stand or result in an under-stocked condition and would reduce high risk trees. For instance, if a forest pest such as Emerald Ash Borer was found on the landscape and it was desired to reduce the density of ash from forest stands within a certain area, any of the stands in the ‘could be managed’ data set could be scheduled for treatment.

All stands in the original 9892 acre set were re-visited between June of 2008 and March of 2009 to determine if they could physically be accessed for management and if there were any outstanding conflicts with other property uses. Parameters were evaluated for access to the stand, distance from a road (haul distance), slope stability, impact to riparian areas and wetlands, merchantability, presence of invasive plants, impacts on trails, adverse visual impacts, offset of habitat for species of greatest conservation need, and impact to sensitive communities.

Following this we discussed our findings with property specialists from the Parks and Recreation, Endangered Resources, and Wildlife programs. We identified their issues and concerns for management of the forest resource. We then consulted with forest ecologists from the Forestry Division and identified when management should be initiated to balance the goals of the different specialists. We set a level of forest density at which stands 'should be managed', according to silvicultural prescriptions, to maintain the health and vigor of the trees. Maintaining tree vigor is paramount to the forests ability to positively respond to the impacts of native and non-native plants, insects, and diseases. After revisiting the inventory we identified 5878 acres (588 acres per year) that 'should be managed' based solely on forest management guidelines. This sub-set removed all stands that were previously scheduled for management in State Natural Areas. It also maintained 70% canopy closure (maintain high canopy forest structure) and minimized re-entry periods for most hardwood forest types to 20 years.

Further reductions in management area were taken due to lack of access or impacts to sensitive sites and recreation areas. The final subset of management resulted in 4420 acres that are proposed for management under this variance (440 acres per year). This final set of stands provides high levels of protection to resources but still maintains the health and vigor of forest stands through active management where that management does not pose a significant adverse impact to other natural resources or the recreation community.

During the last several years the Kettle Moraine State Forest – Northern Unit has become a battle ground of dealing with the impacts of non-native plants and forest pests. The impacts of forest invasive plants has put an added stress upon the forest stands which often already deal with the stresses of being over-stocked or off site, or both. The loss of oak trees may increase from Gypsy moth outbreaks in stands that are older in age, and are over-stocked. Of the 6040 acres of Oak on the property over 2000 acres are over-stocked. Stands of red pine, which are already significantly south of their native range, are quickly fading on the landscape as stress based diseases of Diplodia Shoot Blight and Red Pine Pocket Decline take hold. The threat of Sirex Wood Wasp is great on this property as it preys heavily upon stands that are over-stocked and stressed. Over 25% of the 4146 acres of conifer plantations are over-stocked. Emerald Ash Borer has recently added a whole new level of concern on the landscape. In stands where Ash species are less than 20% of the stand composition, impacts will be negligible. Stands where composition levels are higher have the likelihood of greater impacts by the loss of the ash species, such as population build ups in high ash density stands, increase hazard trees along trails, loss of forest structure, and increased populations of invasive plants responding to unmanaged openings. Over 4000 acres of forest on the Northern Unit have ash densities exceeding 20% of the species present. Over 2000 acres exceed 50%. The increased management ability requested in the variance will give us a greater opportunity to actively manage stands and allow them to maintain desired compositions and vigor levels in light of the impacts of forest pests. The ability of resource managers to actively manage stand species composition and density is paramount to maintaining a healthy forest.

As part of this variance native stands will be thinned to maintain stem vigor and desired stand species composition, old growth characteristics and forest-interior bird habitat will be groomed in stands of high site potential, and off site conifer stands will be converted to native hardwood forests using natural and artificial regeneration. Other native conifer stands will be managed to their biological rotation based on site quality and then converted to native hardwood forest types.

How the proposed variance is supported by or inconsistent with the property vision, goals, and objectives:

The proposed variance is consistent with the property vision, goals, and objectives. Maintaining a healthy forest is in line with the existing Master Plan Goal Statement of "...to protect the natural landscape; and to protect rare species, communities, and ecosystems..." The other management proposals in the plan that are supported are:

- Base vegetation management decisions on integrated resource management principles with priority of wildlife habitat, recreation, restoration of native plant communities, and education and interpretation:
- Encourage and supplement natural regeneration of the forest using artificial regeneration techniques that imitate a natural appearing forest.
- Recognize outdoor recreation, wildlife habitat, and aesthetics as key objectives in making timber harvesting and other vegetation management decisions.

Section 1 – Goals and Objectives of the master plan states under sub (9): Implement integrated silvicultural and other vegetation management principles to promote a balance between recreational goals, aesthetic values, wildlife habitat, educational activities, and continued production of forest products.

Anticipated primary benefits of the proposed plan change:

The primary benefit of increasing the allowable cut on the property is to better align management with need. Keeping the harvest level at the existing level will only exacerbate the level of stressed stands on the landscape and escalate the impacts of forest pests. The increased harvest level should allow us to bring our backlog of management into regulation within the first five years. This will position us better for future impacts of major forests pests including but not limited to: Gypsy Moth, Sirex Wood Wasp, Emerald Ash Borer, Diplodia Shoot Blight, White Pine Blister Rust, and other diseases that affect off-site species such as red pine and spruces. The Kettle Moraine State Forest – Northern Unit is considered one of the highest risk state properties of losses from native and non-native forest pests.

Additional anticipated benefits:

Additional benefits of increasing the allowable cut include; reduction of hazard trees that are within falling distance of trail systems, cooperative vegetation management along trails with recreation staff (i.e. day-lighting trails), increased coarse woody debris in proximal location to vernal pools, maintaining mast species such as oak and hickory, creating additional age classes in shade tolerant stands, increasing early successional forest habitat (primarily aspen regeneration) to benefit Ruffed Grouse and Woodcock, increasing cover for wildlife across the landscape, and providing increased opportunities for forest management based employment to the private sector.

Unavoidable adverse impacts:

An increase in the harvest levels on the property will increase forest management activities adjacent to recreational trails during any given time period. These activities will include but are not limited to; pre-harvest invasive species control, timber harvest, and post harvest site preparation and tree planting. There are no planned closures of any trails in carrying out the management of the forest under this variance.

The increased activities can be mitigated thru seasonal restrictions on activities that would minimize user conflicts and allow for minimal interruption of trail use during peak use periods. For example, a recent

hardwood timber sale was established in proximity to the Forest Lake Equestrian Trail. In order to minimize impacts to the trail users on this popular loop trail we instigated a no harvest window from March 1st to November 1st. This restriction will not only protect wildlife species of concern during the spring nesting season, but will allow for uninterrupted trail use during peak use periods. Other examples of mitigations that have been used on this property include, no after dark logging near private dwellings and no weekend logging along hiking trails during fall color.

These restrictions will be determined by the Superintendent and the Forester with input from specific trail user groups affected.

Summary of Alternatives Considered:

The process used to identify the proposed AAC evaluated each stand on its level of opportunity and need for management, reasonable access, user conflict, ecological protection goals, threat of introduction or spread of non-native invasive plants, and goals and objectives of the property. As we filtered down from the initial set of stands (9892 acres), we evaluated the impacts of management on each of these parameters.

Stands were prioritized for management based on science and silviculture of maintaining landscape level species compositions as identified by property specialists and tree level vigor and health. Stands that could be managed without detriment, but were not at stocking levels or forecasted to be at stocking levels during the management period that would threaten tree level vigor were dropped out. Stands that had adverse topography in which the impacts to the site could produce long-term adverse impacts to the landscape or those that presented an access issue were also deferred from management during this period. Other stands were also deferred based on community sensitivity, impacts to wildlife, adverse impacts on the recreational use of the property, and marketability. Some of these factors contributed solely to the deferral of a stand from management, while other stands were deferred based on cumulative adverse impacts.

The option of 'No Change' alternative always exists. Under this alternative the AAC would remain at 100 acres of conifer and 100 acres of hardwoods per year. Continuing at this level rebukes the silvicultural science used to identify prudent management of the forest resources of the Kettle Moraine State Forest – Northern Unit and jeopardizes desired species compositions at the landscape level. Unmanaged oak forests will likely see elevated losses of oak species following infestations of Gypsy Moth, unmanaged Northern Hardwood forests would largely remain in even aged conditions, and the risk of the impacts of Emerald Ash Borer, Beech Bark Disease, Red Pine Pocket Decline, Diplodia Shoot Blight, and various other insect and disease threats to the forest will remain under-managed. Increased mortality levels will impact recreational users with reduced aesthetics and increased hazard trees. Forest management will become reactive instead of proactive.

We are entering a new time in the documented history of forest pest management in Wisconsin (1950's to present). Never before have the threats to tree and forest health been so great. If we continue with business as usual, we will lose sustainable forests to unhealthy, unsustainable forests – overrun with invasive plants. This is already happening on the Northern Unit and the cost of reclaiming that land is very high.

Compatibility with statutes, codes, and department policies:

The proposed variance fully complies with Chapter 28, Public Forests, of the Wisconsin State Statutes and supports the subsequent ideologies set forth in ss.28.04 Management of State Forests. Forest Management is also supported by the Bureau of Parks and Recreation, and other Department Policies. The variance updates the Master Plan of the Kettle Moraine State Forest – Northern Unit in regards to forest management. The proposed management is similar as to what is occurring on other state forests.

Federal Aid Limitations:

The proposed action is fully compatible.

Public Review Process Used:

During the inventory period of 2005-2008 we engaged the public in their concerns over forest management on the landscape. Annually from 2005 to 2009 Natural Resource Foundations tours were conducted by the Forester to engage the public in landscape level forest management discussions. During that period the Forester also conducted presentations on forest management of the property to both the Kettle Moraine Trail Riders Association (Equestrian) and the Northern Kettle Moraine Chapter of the Ice Age Trail Foundation.

After completion of the 10 year harvest plan a public meeting was held to present the proposed variance. The meeting was publicly advertised in the local new papers and personal invitations went to local officials, affected Towns, and affected trail and user groups. The April 8th, 2009 meeting which was attended by approximately 30 individuals representing a broad range of interest groups that included; Town officials, local business owners, Friends of the Kettle Moraine, Ice Age Trail Foundation, Kettle Moraine Trail Riders Association, hikers, cross country skiers, mountain bikers, dog trainers, campers and hunters.

There were a number of questions from those in attendance, but no real concerns were raised. Questions ranged from explaining specific forestry terms used, how silviculture is applied in different timber types, and what species of trees are used in replanting pine stands being converted to hardwoods. Property specialists and the public seem to embrace the plan especially given that its underlying premise is to improve tree vigor and forest health.

Description of the Support and/or Opposition to the proposal:

There has been no opposition to the proposal. Support came from a number of attendees that attended the public meeting. Property specialists from the Fisheries, Water, Wildlife, Endangered Resources, Forestry, and Parks and Recreation programs also are unified in their support of the variance.