APPENDIX 5 – Glossary of Forest Management Terms

Evenaged Management

1. Intermediate Thinnings - The objective of this treatment is to maximize volume yield by removing lower quality trees and by salvaging trees that would otherwise die; to concentrate growth on the better trees; and to improve conditions for residual trees (Marquis 1994). This is accomplished by reducing the number of trees in stands that are above 80 percent relative density (which equates to canopy closures above 71 percent) to approximately 60 percent relative density (54 percent canopy closure). Most thinnings occur in stands that are over 90 percent relative density (79 percent canopy closure). Trees to be removed are concentrated in the smaller diameter classes, leaving the larger, healthier trees on site. More open canopy conditions may persist for 15-20 years following the thinning.

2. Shelterwood System - The objective of this treatment is to establish seedling regeneration through the application of 1 or 2 preparation or seed cuts, followed by the almost complete removal of overstory trees in a removal harvest. Relative density is reduced from above 80 percent to 30 - 40 percent in the shelterwood seed cut. A reduced forest canopy permits greater amounts of sunlight to reach the forest floor and seedling growth is stimulated. It may take from 3-10 years for adequate seedlings to germinate and become established. Once adequate numbers of seedlings are in place, a shelterwood removal can be completed to permit the seedlings to grow in full sunlight.

3. Delayed-Shelterwood System - The objective of this treatment is to establish seedling regeneration of shade tolerant species (sugar maple, American beech, red maple) in areas where the second cut (removal cut) of a standard shelterwood is delayed for 40 to 60 years. Relative density is reduced from above 80 percent to 30 percent or 40 percent in the first cut (seed cut) of the shelterwood. The increased amount of sunlight reaches the forest floor and seedling growth is stimulated. Trees that need high levels of sunlight (yellow birch, white ash, black cherry) do not regenerate as well in a delayed shelterwood system when compared to a standard shelterwood system of regeneration cutting.

4. Clearcut - The objective of this treatment is to remove trees in stands where adequate numbers of seedlings exist in the understory, or to remove trees by cutting the existing stand which allows seedling regeneration to develop after the cut occurs. On the GMNF, this treatment is currently used primarily to regenerate low quality northern hardwood stands, in aspen stands to regenerate aspen, or to convert hardwood stands to softwood stands. Planting of softwoods would occur following the clearcutting of hardwoods. Between 1987 and 1996 approximately 250 acres of clearcutting has taken place per year.

Unevenaged Management

1. Improvement Cut - The objective of this treatment is to modify the age and size class distribution of an even-aged stand to that of an uneven-aged stand by removing designated trees through commercial harvest (Marquis 1994). By reducing the overstory to 60

percent of full stocking, and concentrating these removals in specific age and size classes, residual stand structure will become more like that of an uneven-aged stand. Some seedling regeneration may become established in this kind of harvest, however more emphasis would be placed on seedling establishment in subsequent entries.

2. Individual Tree Selection - The objective of this treatment is to maximize volume yield by removing lower quality trees and by salvaging trees that would otherwise die; to concentrate growth on the better trees; and to open the canopy enough to foster the development of a new age class after every cut (Marquis 1994). This is accomplished by reducing the number of trees in stands that are above 80 percent relative density (which equates to canopy closures above 71 percent) to approximately 60 percent relative density (54 percent canopy closure). Most selection harvests occur in stands that are over 90 percent relative density (79 percent canopy closure).

3. Group Selection - This treatment is similar to individual tree selection, but varies by the removal of small clumps of trees (usually 1/4 to 1/2 acre in size) in conjunction with removals similar to the individual tree selection. Post-harvest density will average slightly lower than in individual tree selection to as low as 50 percent relative density (45 percent canopy closure).

References

Marquis, D. A., ed. 1994. Quantitative silviculture for hardwood forests of the Alleghenies. Gen. Tech. Rept. NE-183. Northeastern Forest Experiment Station, USDA Forest Service, Radnor, PA.