

## APPENDIX L

### TOLERABLE EROSION LOSSES

Soil erosion associated with management activities on the National Forests is controlled by carrying out these activities with established standards and guidelines.

Erosion to some degree is an inevitable consequence of removing stabilizing vegetation, or soil surface disturbances. The amount of erosion to be allowed with varying degrees of activities depends on the ability of the soil to withstand the pressures of use and its ability once disturbed, to revegetate plant communities, either natural or planted, so that the productive organic mineral surface will be restored over a reasonable period following soil use.

A productive watershed must have in balance stable soil bodies with their ability to supply nutrients and water and sufficient vegetative cover to protect the soil. The water yielded to the streams within the watershed is both through the soil mass and over the soil surface, controlled in its velocity by the vegetative cover which also protects the soil surface from erosion.

The accompanying Tolerable Erosion Losses Table L-1 expresses erosional soil losses that can be tolerated over rotation periods and still reproduce a productive organic mineral soil surface, maintaining a healthy watershed. These erosional soil losses are associated with specific activities on specific soils and slopes for given areas. These soils are the most erosive on the Forest and potentially most adversely affected by poor management. Thus, an assumption is made that if good management is applied uniformly, and thereby protects the most sensitive soils, then all other less sensitive soil will also be protected.

The Activities column in Table L-1 include the activity "push down." The practice of push down, as used here, consists of using a bulldozer with its blade raised several inches above the ground, for the purpose of bending and crushing undesirable vegetation. This is a specific practice and is to be used only when (1) regenerated seedlings have been overcome by excessive undesirable growth; (2) the stands is in need of site preparation before replanting; and (3) chemical treatment is not an option. The maximum size of material which can be pushed down is 5" DBH. Uprooting is unacceptable in this practice and diameter limits may have to be lowered on some sites.

Present research is nonexistent; therefore, when the practice of push down is used, monitoring of sediment movement will need to be done immediately following the burn. Sediment screen traps need to be continually measured for at least one year, and possibly two, in order to assess the sediment derived from the total practice. Predicted erosion values in this table either may be verified or changed as appropriate.

Table L-1  
Tolerable Erosion Losses By Activities for Benchmark Soils

Soil Series	EMU Land Area	Ranger District	LRA 1/ R-Factor	EMU Slope (%)	Activities	Soil 2/ T Factor	Predicted Erosion (Tons/Ac.) per Rotation (yrs) 3/					Allowable Accelerated Erosion (Tons/Ac.) per Rotation (yrs) 2/				
							40	50	60	80	100	40	50	60	80	100
							Eustis	Upland	Biloxi, Black Creek, & Strong River	133-500	6	Burn Thin Log Disc	.68	6.4	6.5	6.6
Lexington	Side Slopes	Holly Springs	133-325	15	Burn Thin Log Shear & Windrow	.81	13.7	14.5	14.9	16.0	16.7	32.4	40.5	48.6	64.8	81.0
				20	Burn Thin Log Chop & Burn or Burn & Push Down	.81	7.2	9.5	10.2	11.8	12.9	32.4	40.5	48.6	64.8	81.0
				30	Burn Thin Log Burn & Push Down	.81	16.3	19.0	20.4	23.7	25.7	32.4	40.5	48.6	64.8	81.0
				30	Burn Thin Log	.81	6.3	8.9	10.2	13.6	15.6	32.4	40.5	48.6	64.8	81.0

Table L-1 (Continued)  
Tolerable Erosion Losses By Activities for Benchmark Soils

Soil Series	EMU Land Area	Ranger District	LRA 1/ R-Factor	EMU Slope (%)	Activ-ities	Soil 2/ T Factor	Predicted Erosion (Tons/Ac.) per Rotation (yrs) 3/					Allowable Accelerated Erosion (Tons/Ac.) per Rotation (yrs) 2/								
							40	50	60	80	100	40	50	60	80	100				
Lucy		Bude, Homo-chitto	134-400	15	Burn Thin Log Shear & Windrow	.81	16.8	17.9	18.4	19.8	20.6	32.4	40.5	48.6	64.8	81.0				
				20	Burn Thin Log Chop & Burn	.81	11.9	11.7	12.5	14.6	15.8	32.4	40.5	48.6	64.8	81.0				
				30	Burn Thin Log Burn & Push Down	.81	20.1	23.4	25.0	29.2	31.5	32.4	40.5	48.6	64.8	81.0				
	Side Slopes	134-400	30	Burn Thin Log	.81	6.6	11.0	12.6	16.8	19.3	32.4	40.5	48.6	64.8	81.0					
	Upland	Bude, Homo-chitto	134-400	6	Burn Thin Log Disc	.73	6.0	6.1	6.2	6.3	6.4	29.2	36.5	43.8	58.4	73.0				
				15	Burn Thin Log Shear & Windrow	.73	7.8	8.3	8.6	9.1	9.6	29.2	36.5	43.8	58.4	73.0				

Table L-1 (Continued)  
Tolerable Erosion Losses By Activities for Benchmark Soils

Soil Series	EMU Land Area	Ranger District	LRA 1/ R-Factor	EMU Slope (%)	Activ-ities	Soil 2/ T Factor	Predicted Erosion (Tons/Ac.) per Rotation (yrs) 3/					Allowable Accelerated Erosion (Tons/Ac.) per Rotation (yrs) 2/				
							40	50	60	80	100	40	50	60	80	100
							Lucy (cont.)				20	Burn Thin Log Chop & Burn or Burn & Push Down	.73	4.7	5.4	5.8
				30	Burn Thin Log Burn & Push Down	.73	9.3	10.9	11.7	13.6	14.7	29.2	36.5	43.8	58.4	73.0
				30	Burn Thin Log	.73	3.6	5.1	5.8	7.8	8.9	29.2	36.5	43.8	58.4	73.0
McLaurin	Ridge Top	Biloxi, Black Creek	133-500	6	Burn Thin Log Disc	.75	7.5	7.6	7.7	7.9	8.1	30.0	37.5	45.0	60.0	75.0
Smithdale	Upland	Bude, Homo - chitto	134-400	6	Burn Thin Log Disc	.80	8.4	8.6	8.7	8.9	9.0	32.0	40.0	48.0	64.0	80.0
	Side Slopes	Strong River & Tombigbee	135-400	15	Burn Thin Log Shear & Windrow	.80	11.0	11.6	12.0	12.9	13.4	32.0	40.0	48.0	64.0	80.0

Table L-1 (Continued)  
Tolerable Erosion Losses By Activities for Benchmark Soils

Soil Series	EMU Land Area	Ranger District	LRA 1/ R-Factor	EMU Slope (%)	Activities	Soil 2/ T Factor	Predicted Erosion (Tons/Ac.) per Rotation (yrs) 3/					Allowable Accelerated Erosion (Tons/Ac.) per Rotation (yrs) 2/				
							40	50	60	80	100	40	50	60	80	100
							Smithdale (cont.)				20	Burn Thin Log Chop & Burn	.80	6.5	7.6	8.1
				30	Burn Thin Log Burn & Push Down	.80	13.1	15.2	16.3	19.0	20.6	32.0	40.0	48.0	64.0	80.0
				30	Burn Thin Log	.80	5.0	7.2	8.2	10.0	12.5	32.0	40.0	48.0	64.0	80.0
Troup	Upland	Biloxi, Black Creek	133-500	6	Burn Thin Log Disc	.68	6.4	6.5	6.6	6.7	6.8	27.2	34.0	40.8	54.4	68.0
				15	Burn Thin Log Shear & Windrow	.68	8.3	8.8	9.1	9.8	10.2	27.2	34.0	40.8	54.4	68.0
				20	Burn Thin Log Chop & Burn	.68	5.0	5.8	6.2	7.2	7.8	27.2	34.0	40.8	54.4	68.0

1/ Land Resource Areas of Mississippi and Rainfall Erosion Index used in USLE

2/ From R-8 Tolerable Accelerated Soil Loss.

3/ Calculated from Universal Soil Loss Equation (USLE), and Predicted Erosion Rates for Forest Management Activities in the Southeast, April 1978

Table L-1 (Continued)  
Tolerable Erosion Losses By Activities for Benchmark Soils

Soil Series	EMU Land Area	Ranger District	LRA 1/ R-Factor	EMU Slope (%)	Activities	Soil 2/ T Factor	Predicted Erosion (Tons/Ac.) per Rotation (yrs) 3/					Allowable Accelerated Erosion (Tons/Ac.) per Rotation (yrs) 2/				
							40	50	60	80	100	40	50	60	80	100
Troup (cont.)				30	Burn Thin Log Burn & Push Down	.68	9.9	11.5	12.4	14.4	15.6	27.2	34.0	40.8	54.4	68.0
				30	Burn Thin Log	.68	4.0	5.4	6.3	8.1	9.5	27.2	34.0	40.8	54.4	68.0