RHEM Equation Summary

Updated: 3/31/2014

Ft (friction factor)

Log10(Ft) = −0.109 + (1.425 * *littercover)* + (0.442 * *rockcover*) + (1.764 * (*basalcover + cryptogams*)) + 2.068S

Ke (Green-Ampt Hydraulic Conductivity)

Shrub Vegetation Community

exp(Keb) = 0.174 - (1.450 * *meanclay*) + (2.975 * *groundcover*) + (0.923 * *canopycover*);
Ke = (Keb * 0.3) * 1.2;

Sod Grass Vegetation Community

exp(Keb) = 0.174 - (1.450 * *meanclay*) + (2.975 * *groundcover*) + (0.923 * *canopycover*)
Ke = (Keb * 0.3) * 0.8

Bunch Grass Vegetation Community

exp(Keb) = 0.174 - (1.450 * *meanclay*) + (2.975 * *groundcover*) + (0.923 * *canopycover*)
Ke = (Keb * 0.3) * 1.0

Forbs Vegetation Community

exp(Keb) = 0.174 - (1.450 * *meanclay*) + (2.975 * *groundcover*) + (0.923 * *canopycover*)
Ke = (Keb * 0.3) * 1.0

Kss (Splash and Sheet erosion parameter)

Shrub Vegetation Community

Log10(Kss) = 4.00836 - (1.17804 * *rockcover*) - (0.98196 * (*littercover + canopycover*))

Sod Grass Vegetation Community

Log10(Kss) = 3.13334   - (0.20055 * *canopycover*) - (0.50550 * *littercover*)
Kss = (Kss/1.5)

Bunch Grass Vegetation Community

Log10(Kss) = 3.13334   - (0.20055 * *canopycover*) - (0.50550 * *littercover*);

Forbs Vegetation Community

Log10(Kss) = 3.13334   - (0.20055 * *canopycover*) - (0.50550 * *littercover*)

Multiply Kss for all cases by 1.3 in order to account for the bias in the log transformation (relative to Duan 1989)
Kss = Kss * 1.3

[Duan, Naihua. 1983. Smearing Estimate: A Nonparametric Retransformation Method, *Journal of the American Statistical Association*, Vol., 78, No. 3838. (Sep., 1983), pp. 605-610.]