**Appendix C.** Plant functional types (PFT) used in the CLM and corresponding observationally derived estimates of litter fluxes and litter chemistry. Litter fluxes and litter chemistry in each CLM grid cell were calculated using values in the table below with the percent PFT coverage in each gridcell. Global area covered by each PFT as estimated in the CLM. We tried to match CLM PFTs with appropriate biome classifications from *Matthews* [1997] observations of litter fluxes. PFT classifications for litter chemistry data [*Brovkin et al.* 2012] more closely matched PFTs in the CLM.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| CLM PFT | Matthews Biome | Area  (106 km2) | Leaf litterfall  (g DW m-2 y-1)a | | | Litter chemistry  (%)b | |
| Leaf | Root | CWD | N | Lignin |
| Bare Ground | 30 | 34.9 | - | - | - | - | - |
| Needleleaf evergreen tree – temperate | 8 | 3.5 | 299 | 84 | 200 | 0.73 | 24.4 |
| Needleleaf evergreen tree – boreal | 8 | 9.5 | 299 | 84 | 200 | 0.96 | 25.6 |
| Needleleaf deciduous tree – boreal | 8 | 1.4 | 299 | 84 | 200 | 0.96 | 25.6 |
| Broadleaf evergreen tree – tropical | 1 | 11.4 | 910 | 539 | 360 | 0.95 | 17.8 |
| Broadleaf evergreen tree – temperate | 4 | 1.7 | 549 | 132 | 420 | 0.86 | 21.0 |
| Broadleaf deciduous tree – tropical | 9 | 9.2 | 447 | 667 | 20 | 1.63 | 14.5 |
| Broadleaf deciduous tree – temperate | 11 | 3.9 | 399 | 23 | 180 | 1.02 | 16.9 |
| Broadleaf deciduous tree – boreal | 10 | 1.7 | 448 | 126 | 180 | 0.89 | 22.3 |
| Broadleaf evergreen shrub –- temperate | 17 | 0.1 | 140 | 640 | 40 | 0.96 | 25.6 |
| Broadleaf deciduous shrub – temperate | 19 | 3.3 | 155c | 709 | 20 | 0.95 | 25.6 |
| Broadleaf deciduous shrub – boreal | 20 | 7.8 | 59c | 267 | 20 | 0.86 | 21.0 |
| C3 grass – arctic | 22 | 4.1 | 53 | 243 | 0 | 1.37 | 16.6 |
| C3 grass | 25 | 12.1 | 320 | 536 | 0 | 1.37 | 16.6 |
| C4 grass | 23 | 10.9 | 290 | 814 | 0 | 0.97 | 23.4 |
| Crop | 25d | 14.3 | 320 | 536 | 0 | 1.37 | 16.6 |

a Adapted from *Matthews* [1997] Table 5. We assumed litter inputs were 50% C by weight. Leaf litterfall (column 1D), fine root calculated (column 5M – 1D), CWD (column 4D).

b Adapted from PFTs in *Brovkin et al.* [2012].

c Leaf litterfall estimated from observations from *Matthews* [1997] biome #17 where leaf litterfall was 18% of total fine litter inputs.

d No data provided for crops, we assumed crop litterfall and litter chemistry was similar to inputs from C3 grasses.