**Main Tables and Figures**

**Table 1.** Summaries of N pools across NEON sites. (site-specific summaries provided as supp. Material).

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Pool or Flux | Mean | Standard Deviation | Average Sample Size | No. of Sites |
| % Total Soil N | 0.23 | 0.27 | 10 | 37 |
| Inorganic Soil N (mg N/mL KCL) | 0.53 | 0.45 | 11 | 32 |
| Soil C:N | 17.88 | 3.16 | 11 | 17 |
| % Root N | 0.9 | 0.25 | 22 | 29 |
| Root C:N | 59.24 | 15.34 | 22 | 28 |
| % Leaf N | 1.76 | 0.49 | 15 | 29 |
| Leaf C:N | 32.73 | 11.03 | 15 | 28 |
| N Resorption Efficiency (%) | 49.28 | 10.68 | 4 | 19 |
| % Litter N | 0.84 | 0.26 | 18 | 21 |
| Litter C:N | 63.99 | 22.52 | 18 | 20 |
| Net N Mineralization (ug N/day) | 0.27 | 0.34 | 9 | 32 |

**Figure 1:** Conceptual figure

**Figure 2:** Map of sites



**Figure 3.** Distribution of key N pools across vegetation types and climate gradients. Considerable overlap in N pools among woody- and herbaceous-dominated ecosystems (A, C, E). Cross-site relationships between N pools and climate were generally weak; % soil N had a weak positive spatial relationship with mean annual precipitation (B), % root N had a weak negative spatial relationship with mean annual precipitation (D), and % foliar N exhibited no relationship with mean annual precipitation (F).

****

**Figure 4.** Stoichiometric relationships between soil, root, and foliar C:N. Linear fit indicates a significant relationship. Can state the overlapping names in the figure legend.



**Figure 5.** Plant C:N feedbacks to soil C:N.