# Supplemental Material

## 1 Parameterization of Ecosystems

We drew general data on the properties of different ecosystems from the available literature. The differences between ecosystems were conservative, so when uncertainty in the parameters remained, we maintained the baseline values across ecosystem types.

### 1.1 Inputs

The data on nutrient inputs into the soil system were taken from Chapin et al. (2011). Of this total carbon input, we allocated a portion to symbionts based on data from Hobbie (2006) and Leake et al. (2004). We divided the symbiont carbon allocation between ectomycorrhizal fungi, arbuscular mycorrhizal fungi, and nitrogen fixing bacteria based on data of the relative abundance of these symbionts in different ecosystem types (Steidinger et al., 2019). We divided litter inputs into our two quality categories based on the ecosystem types. Boreal, Arctic, and Desert ecosystems had 40% labile litter inputs, the remaining forests had 60%, and grasslands had 80%. We used the SRDB (version 3.0) data to divide litter between aboveground and belowground inputs, allocating 50% belowground in forests and 70% belowground in grasslands (Bond-Lamberty and Thomson, 2014).

### 1.2 Loss of litter

We constrained the proportion of litter that could be lost to photodegradation by considering the differences between ecosystems and using available data for deserts, grasslands, and forests (Austin and Vivanco, 2006; Henry et al., 2008b; King et al., 2012). Desert and Mediterranean ecosystems could lose between 50-75% of their recalcitrant litter to photodegradation, tropical ecosystems could lose between 10-60%, and northern ecosystems less than 50%.

## 1.3 Stoichiometry

We considered differences in litter stoichiometry across ecosystem types using data on the ratios present in the dominant plant species (Bai et al., 2012; Hobbie and Gough, 2004; Moro, 2000; Ratnam et al., 2008; Zhao et al., 2014). We did not find good data for C:S ratios, so left those consistent across ecosystem types. Root C:N ratios across ecosystem types were constrained using the Fine-Root Ecology Database, FRED 2.0 (Iversen et al 2017; McCormack et al 2018). We set the ratios of root exudates based on limited data and kept them the same across ecosystems (Drake et al., 2013).

Data on the C:N:P:S ratios for mineral-associated organic matter across ecosystem types was sparse. We conducted a literature search for reported C:N, C:P, and/or C:S ratios of mineral-associated organic matter (Adams et al. 2018; Córdova et al. 2018; Hatton et al. 2012; Jones and Singh 2014; Kirkby et al. 2011; Kramer et al. 2017; McFarlane et al. 2013;Rumpel et al. 2012; Sollins et al. 2009; Stahr et al. 2017; Tipping et al. 2016), most often operationally defined as the “heavy” fraction characterized following density fractionation procedures (Sollins et al. 2006; Schrumpf et al. 2013). Where possible, we report molar ratios but include mass ratios when necessary.

Ranges of animal and microbial stoichiometry were the same across all ecosystems, since there was not enough data across ecosystems to justify differences (Cleveland and Liptzin, 2007; Fagan and Denno, 2004; Kranabetter et al., 2019; Landis and Fraser, 2007; Zhang and Elser, 2017). Furthermore, we expect that fine scale differences driven by community turnover are large enough that constraining these ratios at a biome scale is unlikely to be appropriate.

## 1.4 Substrate use efficiency

We acquired general data on CUE from available literature sources and adapted the known trends across temperature and chemical quality gradients (Frey et al., 2013, Qiao et al. 2019). Microbial CUE is known to vary with moisture availability, but the trends are too variable to provide a robust parameterization in our general model (Manzoni et al., 2012). Data on nutrient use efficiencies are scarce and we found no data to inform differences across ecosystems. Consequently, we left the ranges of these substrate use efficiencies at baseline (i.e. 5 to 95%).

**1.5 Information on stoichiometry and substrate use efficiency**

We examined the value of information on stoichiometry and substrate use efficiency by reducing the range between minimum and maximum values by 90% (increase minimum and decrease maximum by 45% of range). These reductions replicated the inclusion of data from field samples that would refine our estimates at a given site, but still contain variation.

**1.6 Comparison to a global database of soil respiration data**

We compared the predicted annual total litter input rates and heterotrophic soil respiration outputs of our model across biomes and ecosystem types to the SRDB dataset (version 3.0) to verify that our assumptions across ecosystems matched with available data (Bond-Lamberty and Thomson, 2014). Overall, our model performed well and only overestimated flows in forested ecosystems (Figure S6).

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Table S1: The state variable codes used in Figures S1.

| Code | Description |
|---|---|
| I | Inorganic |
| E | External (no mass balance) |
| L | Labile Litter |
| R | Recalcitrant Litter |
| A | Primary detritivores |
| S | Secondary detritivores |
| P | Labile particulate OM |
| H | Protected "P" |
| Q | Recalcitrant particulate OM |
| K | Protected "Q" |
| D | Labile dissolved OM |
| | |

| Code | Description |
|---|---|
| U | Recalcitrant dissolved OM |
| B | Bacteria |
| F | Saprotrophic fungi |
| Y | Ectomycorrhiza |
| Z | Arbuscular mycorrhiza |
| X | Nitrogen fixing bacteria |
| M | Stronger binding mineral-associated OM |
| G | Protected "M" |
| J | Weaker binding mineral-associated OM |
| T | Protected "J" |
| V | Labile root litter |
| W | Recalcitrant root litter |

Table S2: The parameter ranges used for each ecosystem.

| | | | Arctic | | | Boreal | | | Mediterranean | | | | Subtropical | | | | Temperate | | | | | | Tropical | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Parameter Name | Pool | Type | Desert | Shrublands | Tundra | Forest | Grassland | Agriculture | Forest | Grassland | Agriculture | Shrublands | Forest | Grassland | Agriculture | Shrublands | Forest | Grassland | Agriculture | Desert | Savanna | Shrublands | Forest | Grassland | Agriculture | Savanna | Shrublands | Units | Reference |
| iTOT | n.a. | Total C inputs | 180.00 | 180.00 | 180.00 | 380.00 | 380.00 | 610.00 | 1000.00 | 1000.00 | 610.00 | 1000.00 | 2500.00 | 1080.00 | 610.00 | 1080.00 | 1550.00 | 750.00 | 610.00 | 250.00 | 750.00 | 750.00 | 2500.00 | 1080.00 | 610.00 | 1080.00 | 1080.00 | g_C m-2 year-1 | Chapin 2011 |
| Temp | n.a. | Temperature | -15.00 | -15.00 | -15.00 | -5.00 | -5.00 | -5.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 10.00 | 10.00 | 10.00 | 10.00 | 10.00 | 10.00 | 25.00 | 25.00 | 25.00 | 25.00 | 25.00 | degrees C | |
| PropLabile | n.a. | | 0.40 | 0.40 | 0.40 | 0.40 | 0.80 | 0.80 | 0.60 | 0.80 | 0.80 | 0.60 | 0.60 | 0.80 | 0.80 | 0.60 | 0.60 | 0.80 | 0.80 | 0.40 | 0.80 | 0.60 | 0.60 | 0.80 | 0.80 | 0.80 | 0.60 | na | Bond-Lamberty and Thompson 2010 |
| PropLitter | n.a. | | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | na | Chapin 2011 |
| PropSymbiont | n.a. | Dividing total inputs | 0.35 | 0.35 | 0.35 | 0.35 | 0.35 | 0.35 | 0.35 | 0.35 | 0.35 | 0.35 | 0.35 | 0.35 | 0.35 | 0.35 | 0.35 | 0.35 | 0.35 | 0.35 | 0.35 | 0.35 | 0.35 | 0.35 | 0.35 | 0.35 | 0.35 | na | |
| PropEcto_Y | Ectomychorrize | | 0.00 | 0.80 | 0.80 | 1.00 | 0.00 | 0.00 | 0.80 | 0.00 | 0.00 | 0.60 | 0.50 | 0.00 | 0.00 | 0.30 | 0.80 | 0.00 | 0.00 | 0.00 | 0.80 | 0.80 | 0.50 | 0.00 | 0.00 | 0.30 | 0.00 | na | |
| PropAM_Z | Aruscular mychorrizae | | 1.00 | 0.20 | 0.20 | 0.00 | 0.80 | 0.65 | 0.10 | 0.80 | 0.65 | 0.25 | 0.35 | 0.80 | 0.65 | 0.50 | 0.20 | 0.80 | 0.65 | 0.50 | 0.20 | 0.20 | 0.35 | 0.80 | 0.65 | 0.50 | 0.80 | na | Steidinger et al. 2019 |
| Propfix_X | Nitrogen fixers | | 0.00 | 0.00 | 0.00 | 0.00 | 0.20 | 0.35 | 0.10 | 0.20 | 0.35 | 0.15 | 0.15 | 0.20 | 0.35 | 0.20 | 0.00 | 0.20 | 0.35 | 0.50 | 0.00 | 0.00 | 0.15 | 0.20 | 0.35 | 0.20 | 0.20 | na | |
| PDegPropmin | Photodegradation | Proportion | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.50 | 0.50 | 0.50 | 0.50 | 0.10 | 0.20 | 0.00 | 0.20 | 0.00 | 0.00 | 0.00 | 0.50 | 0.00 | 0.00 | 0.10 | 0.20 | 0.00 | 0.20 | 0.20 | na | Austin and Vivanco 2006; King et al. 2012; Henry et al. 2008 |
| PDegPropmax | Photodegradation | | 0.30 | 0.30 | 0.30 | 0.20 | 0.50 | 0.50 | 0.75 | 0.75 | 0.75 | 0.75 | 0.60 | 0.70 | 0.50 | 0.70 | 0.30 | 0.50 | 0.50 | 0.75 | 0.50 | 0.50 | 0.60 | 0.70 | 0.50 | 0.70 | 0.70 | na | |
| iLcnmax | | Max Ratio C:N | 53.00 | 200.00 | 111.00 | 197.00 | 45.00 | 45.00 | 87.00 | 45.00 | 45.00 | 200.00 | 87.00 | 45.00 | 45.00 | 200.00 | 87.00 | 45.00 | 45.00 | 53.00 | 45.00 | 200.00 | 73.00 | 65.00 | 45.00 | 65.00 | 200.00 | mol mol-1 | |
| iLcnmin | | Min Ratio C:N | 19.00 | 30.00 | 47.00 | 38.00 | 15.00 | 15.00 | 19.00 | 15.00 | 15.00 | 30.00 | 19.00 | 15.00 | 15.00 | 30.00 | 19.00 | 15.00 | 15.00 | 19.00 | 15.00 | 30.00 | 28.00 | 30.00 | 15.00 | 30.00 | 30.00 | mol mol-1 | |
| iLcpmax | Labile litter | Max Ratio C:P | 570.00 | 1600.00 | 1430.00 | 9466.00 | 600.00 | 600.00 | 2444.00 | 600.00 | 600.00 | 1600.00 | 2444.00 | 600.00 | 600.00 | 1600.00 | 2444.00 | 600.00 | 600.00 | 570.00 | 600.00 | 1600.00 | 1450.00 | 4895.00 | 600.00 | 4895.00 | 1600.00 | mol mol-1 | |
| iLcpmin | | Min Ratio C:P | 285.00 | 350.00 | 94.00 | 392.00 | 200.00 | 200.00 | 320.00 | 200.00 | 200.00 | 350.00 | 320.00 | 200.00 | 200.00 | 350.00 | 320.00 | 200.00 | 200.00 | 285.00 | 200.00 | 350.00 | 331.00 | 829.00 | 200.00 | 829.00 | 350.00 | mol mol-1 | Moro and Domingo 2000; Ratnam et al. 2008; Bai et al. 2012; Zhao et al. 2014; Hobbie and Gough 2004; Manzoni et al. 2010; Tripathi and Singh 1992; Berg and McClaugherty 1989; Trofymow and CIDET Team 1998 |
| iLcsmax | | Max Ratio C:S | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | mol mol-1 | |
| iLcsmin | | Min Ratio C:S | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | mol mol-1 | |
| iRcnmax | | Max Ratio C:N | 53.00 | 200.00 | 111.00 | 197.00 | 45.00 | 45.00 | 143.00 | 45.00 | 45.00 | 200.00 | 143.00 | 45.00 | 45.00 | 200.00 | 143.00 | 45.00 | 45.00 | 53.00 | 45.00 | 200.00 | 79.00 | 65.00 | 45.00 | 65.00 | 200.00 | mol mol-1 | |
| iRcnmin | | Min Ratio C:N | 19.00 | 30.00 | 47.00 | 38.00 | 15.00 | 15.00 | 38.00 | 15.00 | 15.00 | 30.00 | 38.00 | 15.00 | 15.00 | 30.00 | 38.00 | 15.00 | 15.00 | 19.00 | 15.00 | 30.00 | 59.00 | 30.00 | 15.00 | 30.00 | 30.00 | mol mol-1 | |
| iRcpmax | Recalcitrant litter | Max Ratio C:P | 570.00 | 1600.00 | 1430.00 | 9466.00 | 600.00 | 600.00 | 2120.00 | 600.00 | 600.00 | 1600.00 | 2120.00 | 600.00 | 600.00 | 1600.00 | 2120.00 | 600.00 | 600.00 | 570.00 | 600.00 | 1600.00 | 3615.00 | 4895.00 | 600.00 | 4895.00 | 1600.00 | mol mol-1 | |
| iRcpmin | | Min Ratio C:P | 285.00 | 350.00 | 94.00 | 392.00 | 200.00 | 200.00 | 392.00 | 200.00 | 200.00 | 350.00 | 392.00 | 200.00 | 200.00 | 350.00 | 392.00 | 200.00 | 200.00 | 285.00 | 200.00 | 350.00 | 2165.00 | 829.00 | 200.00 | 829.00 | 350.00 | mol mol-1 | |
| iRcsmax | | Max Ratio C:S | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | mol mol-1 | |
| iRcsmin | | Min Ratio C:S | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | mol mol-1 | |
| iVcnmax | | Max Ratio C:N | 119.87 | 119.87 | 119.87 | 196.54 | 117.00 | 45.00 | 196.54 | 117.00 | 45.00 | 200.00 | 57.00 | 45.00 | 45.00 | 40.80 | 313.00 | 116.25 | 45.00 | 53.00 | 129.00 | 114.20 | 133.00 | 137.00 | 45.00 | 65.00 | 89.00 | mol mol-1 | |
| iVcnmin | | Min Ratio C:N | 16.91 | 16.91 | 16.91 | 8.90 | 17.01 | 15.00 | 8.90 | 17.01 | 15.00 | 30.00 | 28.30 | 15.00 | 15.00 | 26.60 | 10.77 | 20.37 | 15.00 | 19.00 | 6.20 | 13.54 | 14.27 | 30.50 | 15.00 | 30.00 | 29.00 | mol mol-1 | |
| iVcpmax | Labile litter | Max Ratio C:P | 570.00 | 1600.00 | 1430.00 | 9466.00 | 600.00 | 600.00 | 2444.00 | 600.00 | 600.00 | 1600.00 | 2444.00 | 600.00 | 600.00 | 1600.00 | 2444.00 | 600.00 | 600.00 | 570.00 | 600.00 | 1600.00 | 1450.00 | 4895.00 | 600.00 | 4895.00 | 1600.00 | mol mol-1 | |
| iVcpmin | | Min Ratio C:P | 285.00 | 350.00 | 94.00 | 392.00 | 200.00 | 200.00 | 320.00 | 200.00 | 200.00 | 350.00 | 320.00 | 200.00 | 200.00 | 350.00 | 320.00 | 200.00 | 200.00 | 285.00 | 200.00 | 350.00 | 331.00 | 829.00 | 200.00 | 829.00 | 350.00 | mol mol-1 | |
| iVcsmax | | Max Ratio C:S | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | mol mol-1 | |
| iVcsmin | | Min Ratio C:S | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | mol mol-1 | |
| iWcnmax | | Max Ratio C:N | 119.87 | 119.87 | 119.87 | 196.54 | 117.00 | 45.00 | 196.54 | 117.00 | 45.00 | 200.00 | 57.00 | 45.00 | 45.00 | 40.80 | 313.00 | 116.25 | 45.00 | 53.00 | 129.00 | 114.20 | 133.00 | 137.00 | 45.00 | 65.00 | 89.00 | mol mol-1 | Iversen et al., 2017 |
| iWcnmin | | Min Ratio C:N | 16.91 | 16.91 | 16.91 | 8.90 | 17.01 | 15.00 | 8.90 | 17.01 | 15.00 | 30.00 | 28.30 | 15.00 | 15.00 | 26.60 | 10.77 | 20.37 | 15.00 | 19.00 | 6.20 | 13.54 | 14.27 | 30.50 | 15.00 | 30.00 | 29.00 | mol mol-1 | |
| iWcpmax | Recalcitrant litter | Max Ratio C:P | 570.00 | 1600.00 | 1430.00 | 9466.00 | 600.00 | 600.00 | 2120.00 | 600.00 | 600.00 | 1600.00 | 2120.00 | 600.00 | 600.00 | 1600.00 | 2120.00 | 600.00 | 600.00 | 570.00 | 600.00 | 1600.00 | 3615.00 | 4895.00 | 600.00 | 4895.00 | 1600.00 | mol mol-1 | |
| iWcpmin | | Min Ratio C:P | 285.00 | 350.00 | 94.00 | 392.00 | 200.00 | 200.00 | 392.00 | 200.00 | 200.00 | 350.00 | 392.00 | 200.00 | 200.00 | 350.00 | 392.00 | 200.00 | 200.00 | 285.00 | 200.00 | 350.00 | 2165.00 | 829.00 | 200.00 | 829.00 | 350.00 | mol mol-1 | |
| iWcsmax | | Max Ratio C:S | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | mol mol-1 | |
| iWcsmin | | Min Ratio C:S | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | mol mol-1 | |
| iDcnmax | | Max Ratio C:N | 35.00 | 35.00 | 35.00 | 35.00 | 35.00 | 35.00 | 35.00 | 35.00 | 35.00 | 35.00 | 35.00 | 35.00 | 35.00 | 35.00 | 35.00 | 35.00 | 35.00 | 35.00 | 35.00 | 35.00 | 35.00 | 35.00 | 35.00 | 35.00 | 35.00 | mol mol-1 | |
| iDcnmin | | Min Ratio C:N | 19.00 | 19.00 | 19.00 | 19.00 | 19.00 | 19.00 | 19.00 | 19.00 | 19.00 | 19.00 | 19.00 | 19.00 | 19.00 | 19.00 | 19.00 | 19.00 | 19.00 | 19.00 | 19.00 | 19.00 | 19.00 | 19.00 | 19.00 | 19.00 | 19.00 | mol mol-1 | |
| iDcpmax | Dissolved organic matter | Max Ratio C:P | 1000.00 | 1000.00 | 1000.00 | 1000.00 | 1000.00 | 1000.00 | 1000.00 | 1000.00 | 1000.00 | 1000.00 | 1000.00 | 1000.00 | 1000.00 | 1000.00 | 1000.00 | 1000.00 | 1000.00 | 1000.00 | 1000.00 | 1000.00 | 1000.00 | 1000.00 | 1000.00 | 1000.00 | 1000.00 | mol mol-1 | |
| iDcpmin | | Min Ratio C:P | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | mol mol-1 | Drake et al. 2013 |
| iDcsmax | | Max Ratio C:S | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | 900.00 | mol mol-1 | |
| iDcsmin | | Min Ratio C:S | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | mol mol-1 | |
| Mcnmax | | Max Ratio C:N | 27.00 | 27.00 | 27.00 | 27.00 | 27.00 | 27.00 | 27.00 | 27.00 | 27.00 | 27.00 | 27.00 | 27.00 | 27.00 | 27.00 | 23.00 | 15.00 | 27.00 | 27.00 | 27.00 | 27.00 | 21.00 | 27.00 | 27.00 | 27.00 | 27.00 | mol mol-1 | |
| Mcnmin | | Min Ratio C:N | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 8.00 | 9.00 | 5.00 | 5.00 | 5.00 | 5.00 | 6.00 | 5.00 | 5.00 | 5.00 | 5.00 | mol mol-1 | |
| Mcpmax | Labile compounds sorbed to mineral-associated organic matter | Max Ratio C:P | 1260.00 | 1260.00 | 1260.00 | 1260.00 | 1260.00 | 1260.00 | 1260.00 | 1260.00 | 1260.00 | 1260.00 | 1260.00 | 1260.00 | 1260.00 | 1260.00 | 367.00 | 1260.00 | 1260.00 | 1260.00 | 1260.00 | 1260.00 | 1260.00 | 1260.00 | 1260.00 | 1260.00 | 1260.00 | mol mol-1 | |
| Mcpmin | | Min Ratio C:P | 72.00 | 72.00 | 72.00 | 72.00 | 72.00 | 72.00 | 72.00 | 72.00 | 72.00 | 72.00 | 72.00 | 72.00 | 72.00 | 72.00 | 85.00 | 72.00 | 72.00 | 72.00 | 72.00 | 72.00 | 72.00 | 72.00 | 72.00 | 72.00 | 72.00 | mol mol-1 | Adams et al. 2018; Córdova et al. 2018; Hatton et al. 2012; Jones & Singh 2014; Kirkby et al. 2011; Kramer et al. 2017; McFarlane et al.. 2013;Rumpel et al. 2012; Sollins et al. 2009; Stahr et al. 2017; Tipping et al. 2016 |
| Mcsmax | | Max Ratio C:S | 400.00 | 400.00 | 400.00 | 400.00 | 400.00 | 400.00 | 400.00 | 400.00 | 400.00 | 400.00 | 400.00 | 400.00 | 400.00 | 400.00 | 400.00 | 400.00 | 400.00 | 400.00 | 400.00 | 400.00 | 400.00 | 400.00 | 400.00 | 400.00 | 400.00 | mol mol-1 | |
| Mcsmin | | Min Ratio C:S | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | mol mol-1 | |
| Jcnmax | | Max Ratio C:N | 27.00 | 27.00 | 27.00 | 27.00 | 27.00 | 27.00 | 27.00 | 27.00 | 27.00 | 27.00 | 27.00 | 27.00 | 27.00 | 27.00 | 23.00 | 15.00 | 27.00 | 27.00 | 27.00 | 27.00 | 21.00 | 27.00 | 27.00 | 27.00 | 27.00 | mol mol-1 | |
| Jcnmin | | Min Ratio C:N | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 8.00 | 9.00 | 5.00 | 5.00 | 5.00 | 5.00 | 6.00 | 5.00 | 5.00 | 5.00 | 5.00 | mol mol-1 | |
| Jcpmax | Recalcitrant compounds sorbed to mineral-associated organic matter | Max Ratio C:P | 1260.00 | 1260.00 | 1260.00 | 1260.00 | 1260.00 | 1260.00 | 1260.00 | 1260.00 | 1260.00 | 1260.00 | 1260.00 | 1260.00 | 1260.00 | 1260.00 | 367.00 | 1260.00 | 1260.00 | 1260.00 | 1260.00 | 1260.00 | 1260.00 | 1260.00 | 1260.00 | 1260.00 | 1260.00 | mol mol-1 | |
| Jcpmin | | Min Ratio C:P | 72.00 | 72.00 | 72.00 | 72.00 | 72.00 | 72.00 | 72.00 | 72.00 | 72.00 | 72.00 | 72.00 | 72.00 | 72.00 | 72.00 | 85.00 | 72.00 | 72.00 | 72.00 | 72.00 | 72.00 | 72.00 | 72.00 | 72.00 | 72.00 | 72.00 | mol mol-1 | |
| Jcsmax | | Max Ratio C:S | 400.00 | 400.00 | 400.00 | 400.00 | 400.00 | 400.00 | 400.00 | 400.00 | 400.00 | 400.00 | 400.00 | 400.00 | 400.00 | 400.00 | 400.00 | 400.00 | 400.00 | 400.00 | 400.00 | 400.00 | 400.00 | 400.00 | 400.00 | 400.00 | 400.00 | mol mol-1 | |
| Jcsmin | | Min Ratio C:S | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | mol mol-1 | |
| Acnmax | | Max Ratio C:N | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | mol mol-1 | |
| Acnmin | | Min Ratio C:N | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | mol mol-1 | |
| Acpmax | Primary Animal | Max Ratio C:P | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | mol mol-1 | |
| Acpmin | | Min Ratio C:P | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | mol mol-1 | |
| Acsmax | | Max Ratio C:S | 40.00 | 40.00 | 40.00 | 40.00 | 40.00 | 40.00 | 40.00 | 40.00 | 40.00 | 40.00 | 40.00 | 40.00 | 40.00 | 40.00 | 40.00 | 40.00 | 40.00 | 40.00 | 40.00 | 40.00 | 40.00 | 40.00 | 40.00 | 40.00 | 40.00 | mol mol-1 | |
| Acsmin | | Min Ratio C:S | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | mol mol-1 | |
| Scnmax | | Max Ratio C:N | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | mol mol-1 | Buchkowski et al. 2019 |
| Scnmin | | Min Ratio C:N | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | mol mol-1 | |
| Scpmax | Secondary Animal | Max Ratio C:P | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | mol mol-1 | |
| Scpmin | | Min Ratio C:P | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | mol mol-1 | |
| Scsmax | | Max Ratio C:S | 40.00 | 40.00 | 40.00 | 40.00 | 40.00 | 40.00 | 40.00 | 40.00 | 40.00 | 40.00 | 40.00 | 40.00 | 40.00 | 40.00 | 40.00 | 40.00 | 40.00 | 40.00 | 40.00 | 40.00 | 40.00 | 40.00 | 40.00 | 40.00 | 40.00 | mol mol-1 | |
| Scsmin | | Min Ratio C:S | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | mol mol-1 | |
| Bcnmax | | Max Ratio C:N | 4.81 | 4.81 | 4.81 | 4.81 | 4.81 | 4.81 | 4.81 | 4.81 | 4.81 | 4.81 | 4.81 | 4.81 | 4.81 | 4.81 | 4.81 | 4.81 | 4.81 | 4.81 | 4.81 | 4.81 | 4.81 | 4.81 | 4.81 | 4.81 | 4.81 | mol mol-1 | |
| Bcnmin | | Min Ratio C:N | 4.06 | 4.06 | 4.06 | 4.06 | 4.06 | 4.06 | 4.06 | 4.06 | 4.06 | 4.06 | 4.06 | 4.06 | 4.06 | 4.06 | 4.06 | 4.06 | 4.06 | 4.06 | 4.06 | 4.06 | 4.06 | 4.06 | 4.06 | 4.06 | 4.06 | mol mol-1 | |
| Bcpmax | Bacterial | Max Ratio C:P | 79.70 | 79.70 | 79.70 | 79.70 | 79.70 | 79.70 | 79.70 | 79.70 | 79.70 | 79.70 | 79.70 | 79.70 | 79.70 | 79.70 | 79.70 | 79.70 | 79.70 | 79.70 | 79.70 | 79.70 | 79.70 | 79.70 | 79.70 | 79.70 | 79.70 | mol mol-1 | |
| Bcpmin | | Min Ratio C:P | 64.60 | 64.60 | 64.60 | 64.60 | 64.60 | 64.60 | 64.60 | 64.60 | 64.60 | 64.60 | 64.60 | 64.60 | 64.60 | 64.60 | 64.60 | 64.60 | 64.60 | 64.60 | 64.60 | 64.60 | 64.60 | 64.60 | 64.60 | 64.60 | 64.60 | mol mol-1 | |
| Bcsmax | | Max Ratio C:S | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | mol mol-1 | |
| Bcsmin | | Min Ratio C:S | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | mol mol-1 | |
| Fcnmax | | Max Ratio C:N | 9.51 | 9.51 | 9.51 | 9.51 | 9.51 | 9.51 | 9.51 | 9.51 | 9.51 | 9.51 | 9.51 | 9.51 | 9.51 | 9.51 | 9.51 | 9.51 | 9.51 | 9.51 | 9.51 | 9.51 | 9.51 | 9.51 | 9.51 | 9.51 | 9.51 | mol mol-1 | Six et al. 2006; Sinsabaugh et al. 2016 |
| Fcnmin | | Min Ratio C:N | 7.25 | 7.25 | 7.25 | 7.25 | 7.25 | 7.25 | 7.25 | 7.25 | 7.25 | 7.25 | 7.25 | 7.25 | 7.25 | 7.25 | 7.25 | 7.25 | 7.25 | 7.25 | 7.25 | 7.25 | 7.25 | 7.25 | 7.25 | 7.25 | 7.25 | mol mol-1 | |
| Fcpmax | Saprotrophic fungi | Max Ratio C:P | 125.00 | 125.00 | 125.00 | 125.00 | 125.00 | 125.00 | 125.00 | 125.00 | 125.00 | 125.00 | 125.00 | 125.00 | 125.00 | 125.00 | 125.00 | 125.00 | 125.00 | 125.00 | 125.00 | 125.00 | 125.00 | 125.00 | 125.00 | 125.00 | 125.00 | mol mol-1 | |
| Fcpmin | | Min Ratio C:P | 90.90 | 90.90 | 90.90 | 90.90 | 90.90 | 90.90 | 90.90 | 90.90 | 90.90 | 90.90 | 90.90 | 90.90 | 90.90 | 90.90 | 90.90 | 90.90 | 90.90 | 90.90 | 90.90 | 90.90 | 90.90 | 90.90 | 90.90 | 90.90 | 90.90 | mol mol-1 | |
| Fcsmax | | Max Ratio C:S | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | mol mol-1 | |
| Fcsmin | | Min Ratio C:S | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | mol mol-1 | |
| Ycnmax | | Max Ratio C:N | 16.00 | 16.00 | 16.00 | 16.00 | 16.00 | 16.00 | 16.00 | 16.00 | 16.00 | 16.00 | 16.00 | 16.00 | 16.00 | 16.00 | 16.00 | 16.00 | 16.00 | 16.00 | 16.00 | 16.00 | 16.00 | 16.00 | 16.00 | 16.00 | 16.00 | mol mol-1 | |
| Ycnmin | | Min Ratio C:N | 10.00 | 10.00 | 10.00 | 10.00 | 10.00 | 10.00 | 10.00 | 10.00 | 10.00 | 10.00 | 10.00 | 10.00 | 10.00 | 10.00 | 10.00 | 10.00 | 10.00 | 10.00 | 10.00 | 10.00 | 10.00 | 10.00 | 10.00 | 10.00 | 10.00 | mol mol-1 | |
| Ycpmax | Ectomychorrize | Max Ratio C:P | 269.00 | 269.00 | 269.00 | 269.00 | 269.00 | 269.00 | 269.00 | 269.00 | 269.00 | 269.00 | 269.00 | 269.00 | 269.00 | 269.00 | 269.00 | 269.00 | 269.00 | 269.00 | 269.00 | 269.00 | 269.00 | 269.00 | 269.00 | 269.00 | 269.00 | mol mol-1 | |
| Ycpmin | | Min Ratio C:P | 177.00 | 177.00 | 177.00 | 177.00 | 177.00 | 177.00 | 177.00 | 177.00 | 177.00 | 177.00 | 177.00 | 177.00 | 177.00 | 177.00 | 177.00 | 177.00 | 177.00 | 177.00 | 177.00 | 177.00 | 177.00 | 177.00 | 177.00 | 177.00 | 177.00 | mol mol-1 | |
| Ycsmax | | Max Ratio C:S | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | mol mol-1 | |
| Ycsmin | | Min Ratio C:S | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | mol mol-1 | Landis and Fraser 2008; Kranabetter et al. 2019 |
| Zcnmax | | Max Ratio C:N | 16.00 | 16.00 | 16.00 | 16.00 | 16.00 | 16.00 | 16.00 | 16.00 | 16.00 | 16.00 | 16.00 | 16.00 | 16.00 | 16.00 | 16.00 | 16.00 | 16.00 | 16.00 | 16.00 | 16.00 | 16.00 | 16.00 | 16.00 | 16.00 | 16.00 | mol mol-1 | |
| Zcnmin | | Min Ratio C:N | 10.00 | 10.00 | 10.00 | 10.00 | 10.00 | 10.00 | 10.00 | 10.00 | 10.00 | 10.00 | 10.00 | 10.00 | 10.00 | 10.00 | 10.00 | 10.00 | 10.00 | 10.00 | 10.00 | 10.00 | 10.00 | 10.00 | 10.00 | 10.00 | 10.00 | mol mol-1 | |
| Zcpmax | Aruscular mychorrizae | Max Ratio C:P | 269.00 | 269.00 | 269.00 | 269.00 | 269.00 | 269.00 | 269.00 | 269.00 | 269.00 | 269.00 | 269.00 | 269.00 | 269.00 | 269.00 | 269.00 | 269.00 | 269.00 | 269.00 | 269.00 | 269.00 | 269.00 | 269.00 | 269.00 | 269.00 | 269.00 | mol mol-1 | |
| Zcpmin | | Min Ratio C:P | 177.00 | 177.00 | 177.00 | 177.00 | 177.00 | 177.00 | 177.00 | 177.00 | 177.00 | 177.00 | 177.00 | 177.00 | 177.00 | 177.00 | 177.00 | 177.00 | 177.00 | 177.00 | 177.00 | 177.00 | 177.00 | 177.00 | 177.00 | 177.00 | 177.00 | mol mol-1 | |
| Zcsmax | | Max Ratio C:S | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | mol mol-1 | |
| Zcsmin | | Min Ratio C:S | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | mol mol-1 | |
| Xcnmax | | Max Ratio C:N | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | mol mol-1 | |
| Xcnmin | | Min Ratio C:N | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | mol mol-1 | |
| Xcpmax | Nitrogen fixers | Max Ratio C:P | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | mol mol-1 | |
| Xcpmin | | Min Ratio C:P | 50.00 | 50.00 | 50.00 | 50.00 | 50.00 | 50.00 | 50.00 | 50.00 | 50.00 | 50.00 | 50.00 | 50.00 | 50.00 | 50.00 | 50.00 | 50.00 | 50.00 | 50.00 | 50.00 | 50.00 | 50.00 | 50.00 | 50.00 | 50.00 | 50.00 | mol mol-1 | Six et al. 2006; Sinsabaugh et al. 2016 |
| Xcsmax | | Max Ratio C:S | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | mol mol-1 | |
| Xcsmin | | Min Ratio C:S | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | mol mol-1 | |

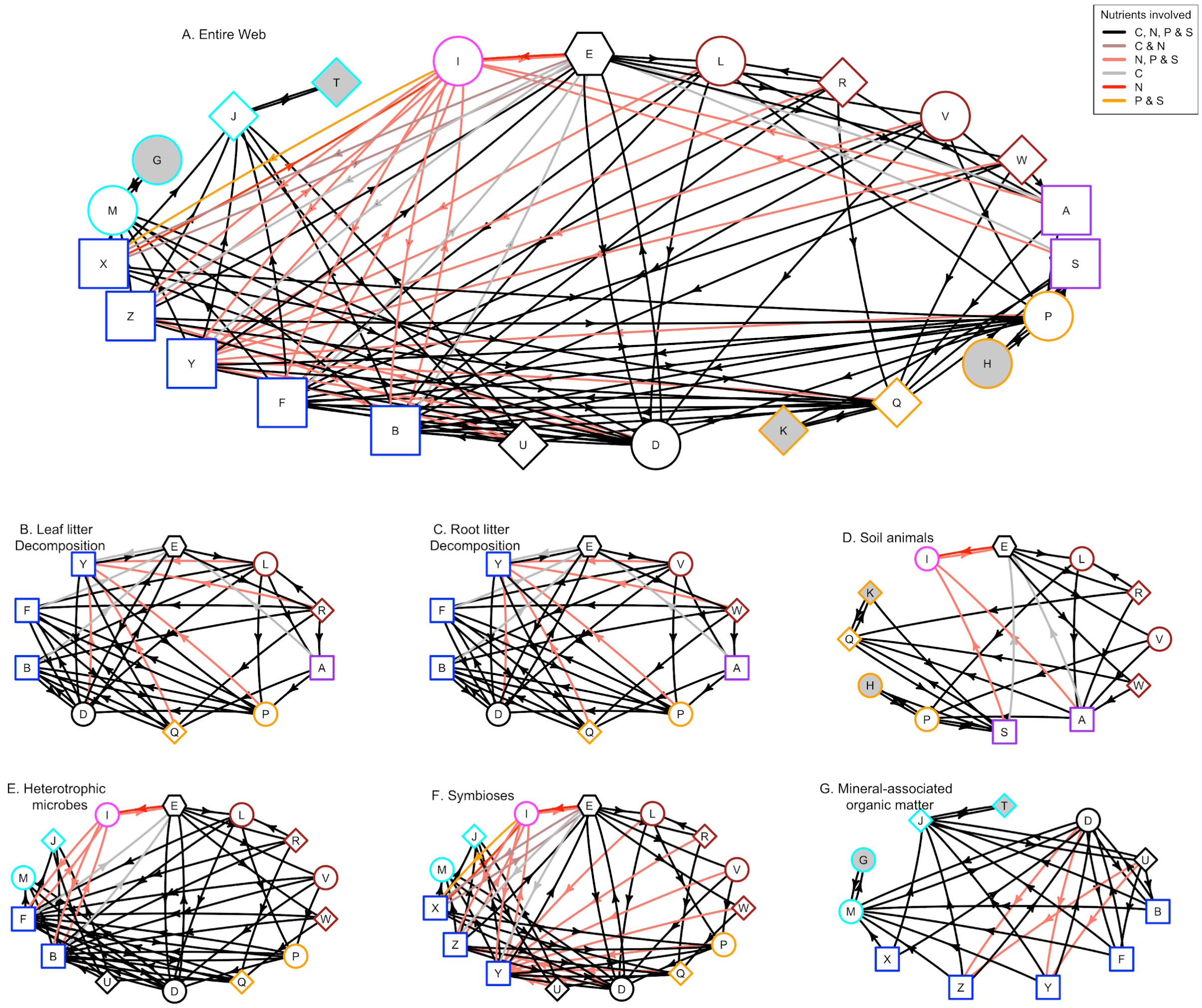


Figure S1: The most complex soil system considered in our analysis of C, N, P and S flow (A). The system can be broken into logical parts wherein empirical information on mechanisms and stoichiometry are available (B-G). Squares indicate biotic pools, circles labile abiotic pools, diamonds recalcitrant abiotic pools, and the hexagon indicates the external source/sink. Colors of each box indicate higher level groupings: cyan =mineral-associated; blue = microbial; black = dissolved; orange = particulate; purple = animal; brown = litter (leaf, wood, and root); magenta = inorganic. Grey fill indicates that the pool is physically protected and cannot be directly decomposed, except by secondary detritivores (e.g. earthworms). See Table S1 for letter codes.

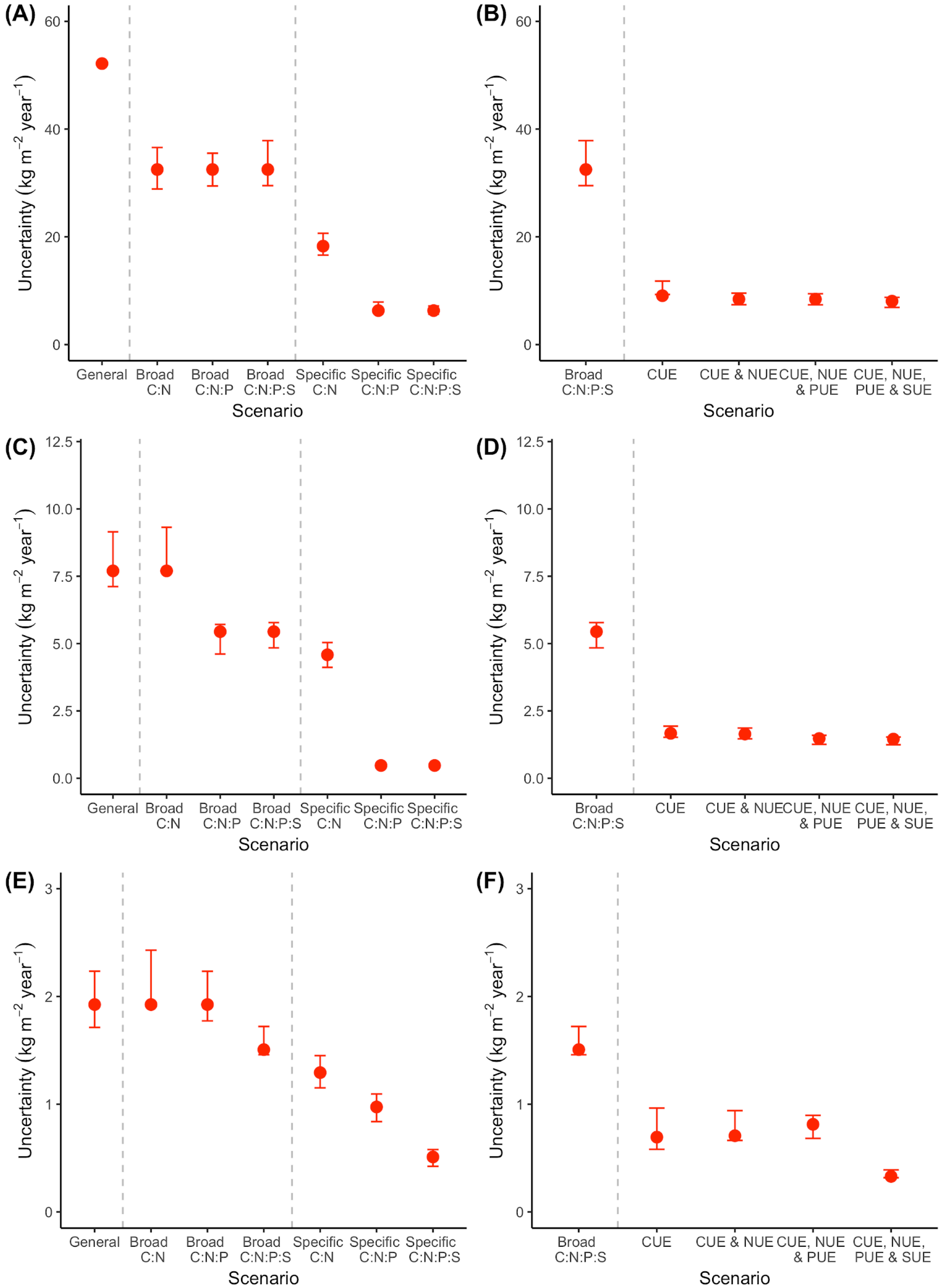


Figure S2: A version of Figure 3 for nitrogen (A-B), phosphorus (C-D), and sulfur (E-F).

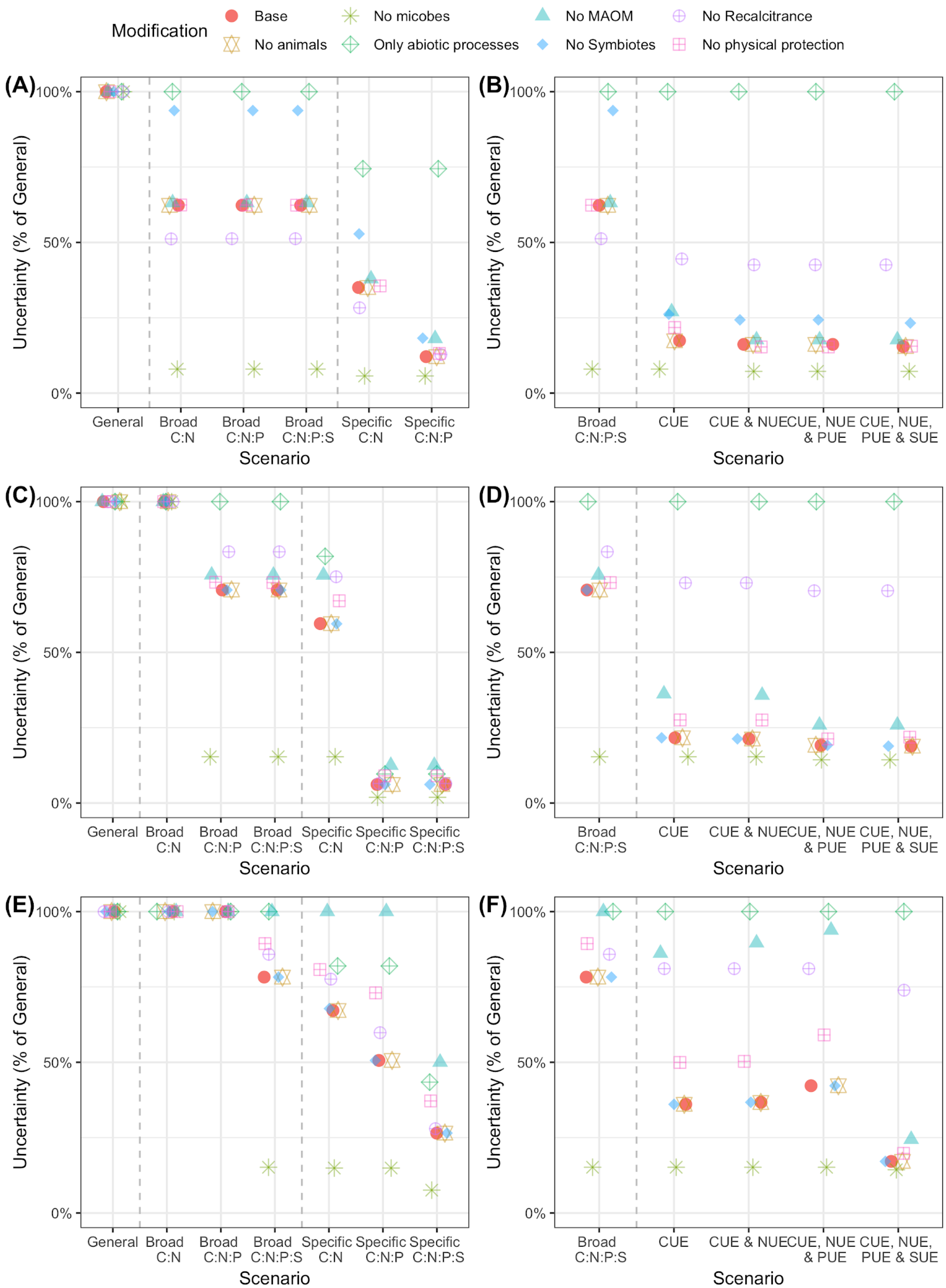


Figure S3: A version of Figure 4 for nitrogen (A-B), phosphorus (C-D), and sulfur (E-F).

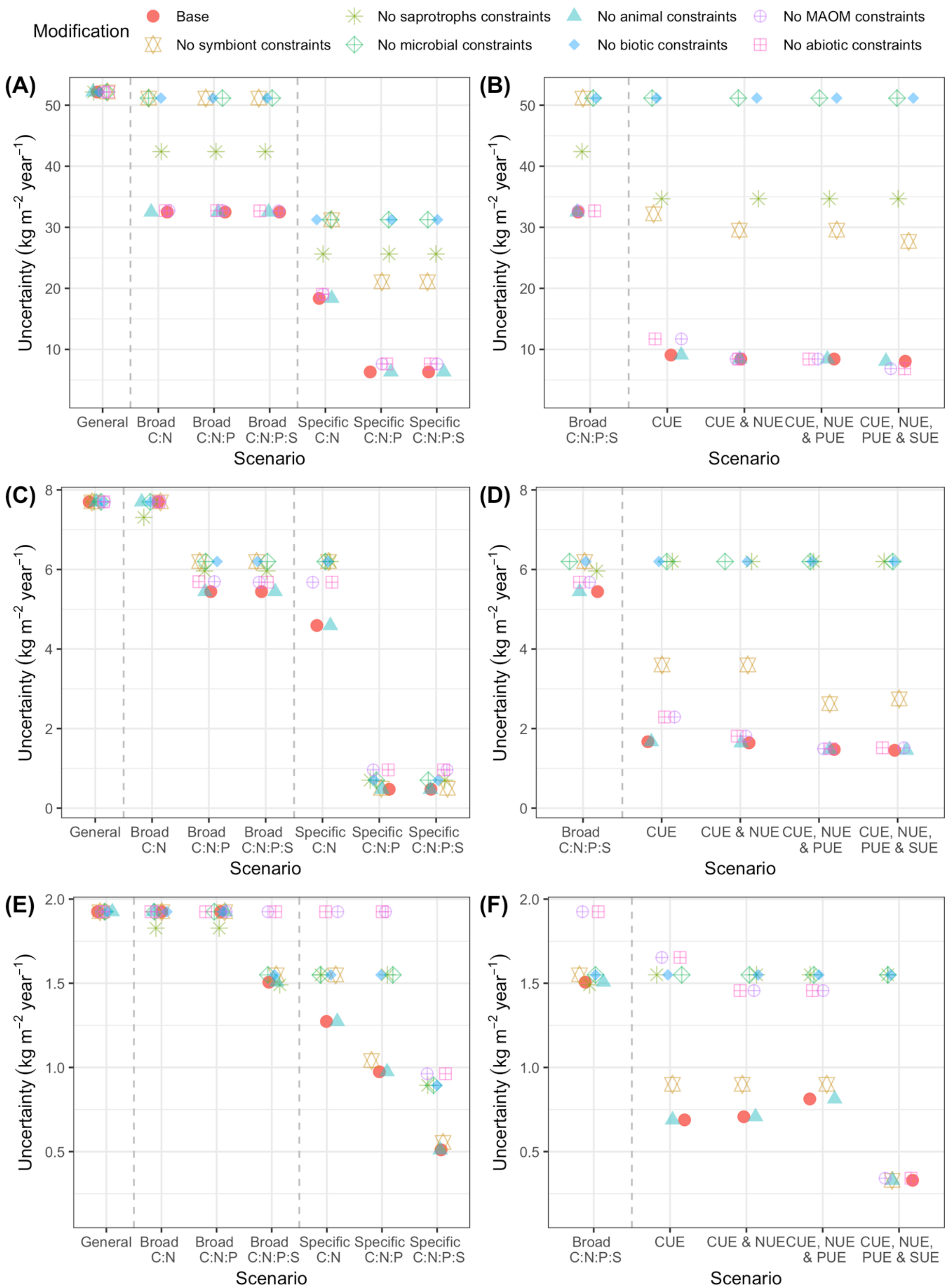


Figure S4: A version of Figure 5 for nitrogen (A-B), phosphorus (C-D), and sulfur (E-F).

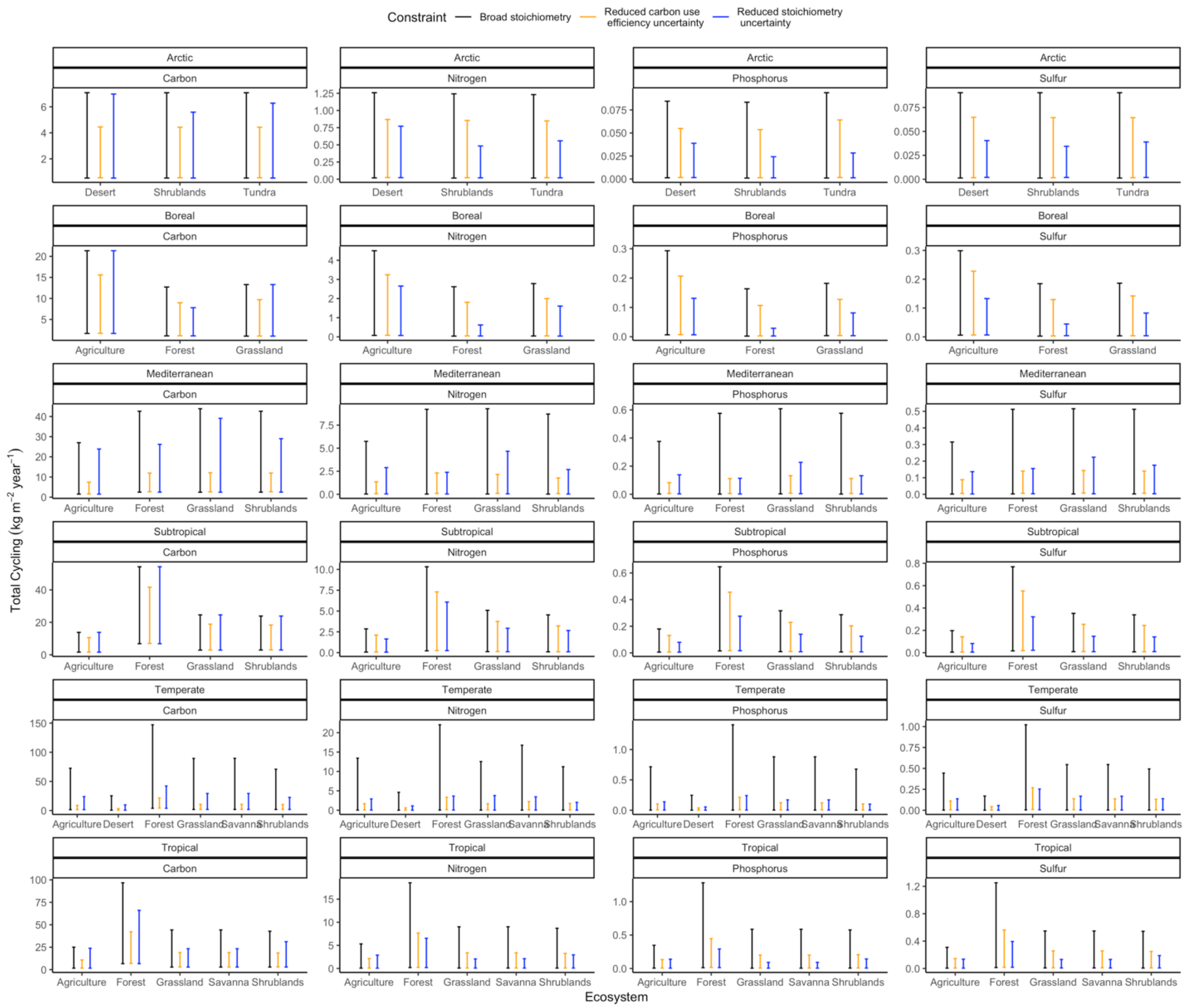


Figure S5: A version of Figure 6 showing all the biome and ecosystem combinations. Note that the exact relationships are sensitive to new information. The usefulness of the analysis is to show how differences in the value of stoichiometric information can be evaluated.

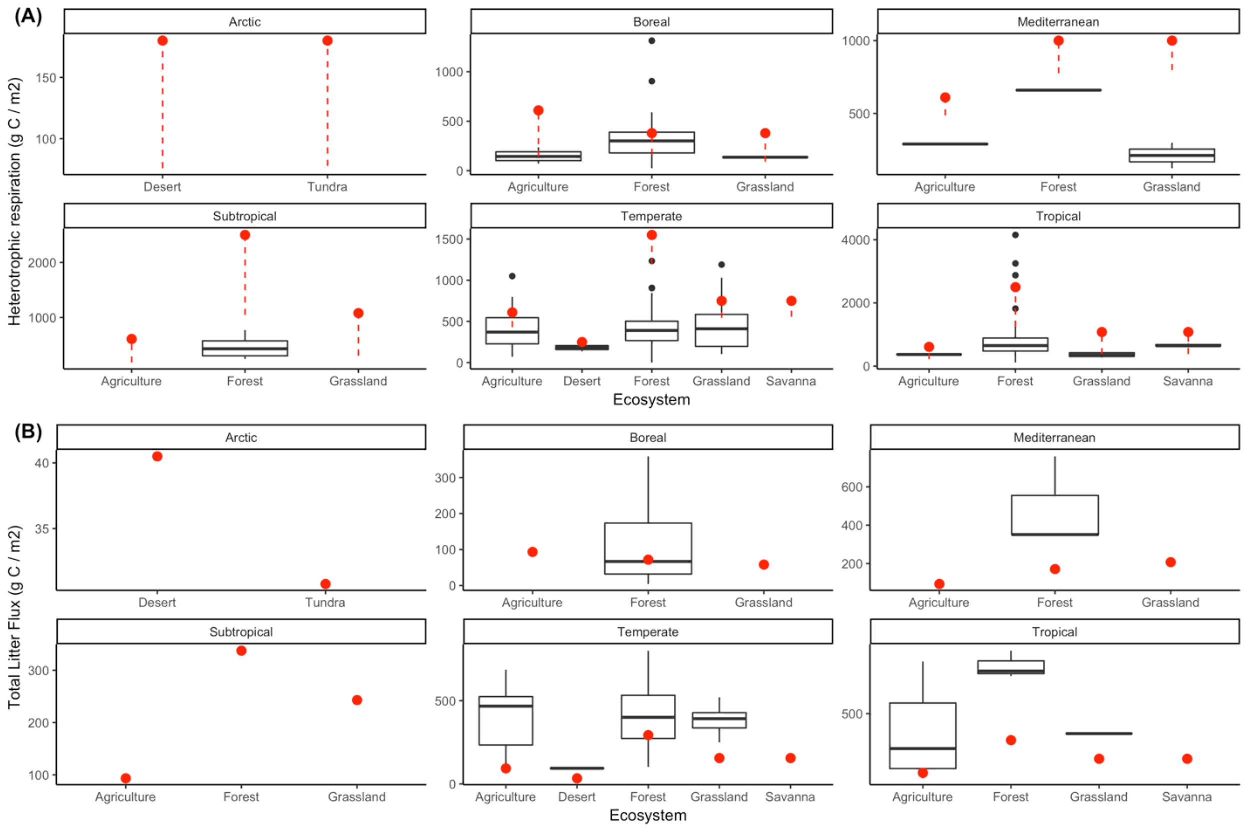


Figure S6: The comparison between our model output ranges (red dots and dashed lines) to the values collated in the SRDB (version 3.0) database (boxplots: when data was available). Boxplots represent the 25th to 75th quantiles and the median. Total litter flow includes leaf litter, wood, and root litter.