**Supplementary Table 1.** Effect sizes of microbial and soil parameters per year of warming.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Factor** | **Id** | **Duration of warming (y)** | **ln(R)** | **VR** |
| Soil respiration | BR | 1  2  3 | 0.586  0.434  0.193 | 0.005  0.007  0.076 |
| BW | 1 | 0.213 | 0.095 |
|  | 2 | 0.061 | 0.059 |
|  | 3 | 0.087 | 0.107 |
|  | 4 | 0.233 | 0.041 |
|  | 5 | 0.082 | 0.112 |
|  | 6 | 0.100 | 0.091 |
|  | 7 | 0.029 | 0.123 |
| DC | 1 | 0.016 | 0.003 |
|  | 2 | -0.077 | 0.003 |
| DJ | 0 | -0.010 | 0.184 |
|  | 1 | -0.162 | 0.115 |
|  | 2 | -0.614 | 0.060 |
|  | 3 | 0.063 | 0.019 |
|  | 6 | -1.062 | 0.033 |
| GP | 1 | 1.090 | 0.08 |
| HI | 1 | 0.200 | 0.006 |
|  | 2 | 0.318 | 0.014 |
|  | 3 | 0.125 | 0.020 |
| HF | 1 | 0.456 | 0.041 |
|  | 2 | 0.258 | 0.021 |
| I | 5 | -0.073 | 0.028 |
| KFF | 1 | 0.011 | 0.006 |
|  | 2 | 0.152 | 0.008 |
|  | 3 | 0.035 | 0.008 |
|  | 6 | 0.072 | 0.001 |
|  | 8 | 0.258 | 0.013 |
|  | 11 | -0.036 | 0.004 |
|  | 12 | -0.073 | 0.007 |
|  | 13 | -0.062 | 0.006 |
| MAI | 2 | 0.358 | 0.090 |
| MRS | 1 | 0.442 | 0.033 |
|  | 2 | 0.406 | 0.035 |
|  | 3 | 0.380 | 0.031 |
|  | 4 | 0.446 | 0.044 |
| NM | 2 | -0.245 | 0.028 |
| NTL | 1 | 0.438 | 0.127 |
|  | 2 | 0.385 | 0.074 |
|  | 3 | 0.286 | 0.050 |
|  | 4 | 0284 | 0.029 |
|  | 5 | 0.316 | 0.042 |
| PHA | 1 | 0.352 | 0.006 |
|  | 2 | 0.137 | 0.006 |
|  | 3 | 0.184 | 0.006 |
|  | 4 | 0.177 | 0.006 |
|  | 5 | 0.189 | 0.016 |
|  | 6 | 0.190 | 0.004 |
|  | 7 | 0.076 | 0.003 |
|  | 8 | 0.031 | 0.004 |
|  | 9 | -0.087 | 0.012 |
|  | 10 | 0.019 | 0.014 |
| PHB | 1 | 0.294 | 0.017 |
|  | 2 | 0.398 | 0.018 |
| SBB | 1 | 0.601 | 0.021 |
|  | 2 | 0.264 | 0.034 |
|  | 3 | 0.302 | 0.038 |
|  | 4 | 0.357 | 0.039 |
| TLA | 8 | 0.141 | 0.289 |
| TLB | 2 | 0.486 | 0.039 |
|  | 3 | 0.746 | 0.009 |
| TM | 3 | 0.341 | 0.065 |
| Fungal biomass | BR | 3 | 0.080 | 0.047 |
|  | C | 1 | -0.357 | 0.497 |
|  |  | 6 | -0.134 | 0.187 |
|  | DC | 1 | -0.069 | 0.007 |
|  |  | 2 | -0.143 | 0.017 |
|  |  | 4 | 0.202 | 0.087 |
|  | I | 13 | -0.063 | 0.017 |
|  | JR | 1 | 0.000 | 0.068 |
|  |  | 2 | -0.013 | 0.013 |
|  |  | 3 | 0.116 | 0.015 |
|  |  | 4 | 0.216 | 0.096 |
|  |  | 5 | 0.025 | 0.018 |
|  |  | 6 | -0.288 | 0.037 |
|  | NTL | 5 | -0.080 | 0.029 |
|  | PHA | 12 | -0.218 | 0.014 |
|  | RSS | 1 | -0.260 | 3.993 |
|  |  | 2 | -0.284 | 1.454 |
|  | TFS | 1 | 0.069 | 0.036 |
|  |  | 2 | -0.239 | 0.039 |
|  |  | 3 | -0.172 | 0.036 |
|  | UCP | 2 | 0.319 | 0.022 |
| Bacterial biomass | BR | 3 | 0.197 | 0.016 |
|  | C | 1 | -0.362 | 0.147 |
|  |  | 6 | -0.105 | 0.134 |
|  | DC | 1 | 0.050 | 0.006 |
|  |  | 2 | -0.075 | 0.011 |
|  |  | 4 | 0.007 | 0.002 |
|  | I | 13 | 0.129 | 0.001 |
|  | JR | 1 | -0.044 | 0.043 |
|  |  | 2 | -0.082 | 0.012 |
|  |  | 3 | -0.081 | 0.036 |
|  |  | 4 | -0.137 | 0.091 |
|  |  | 5 | 0.066 | 0.029 |
|  |  | 6 | -0.134 | 0.028 |
|  | NTL | 5 | -0.013 | 0.021 |
|  | PHA | 12 | -0.101 | 0.011 |
|  | TFS | 1 | -0.005 0.008 | 0.008 |
|  |  | 2 | -0.167 | 0.029 |
|  |  | 3 | -0.109 | 0.023 |
|  | UCP | 2 | 0.188 | 0.031 |
| Soil microbial C | C | 0 | 0.175 | 0.105 |
|  | DC | 1 | -0.214 | 0.013 |
|  |  | 2 | -0.310 | 0.030 |
|  |  | 3 | -0.058 | 0.059 |
|  |  | 4 | -0.114 | 0.016 |
|  |  | 5 | -0.131 | 0.005 |
|  | I | 5 | 0.199 | 0.079 |
|  | KFF | 3 | 0.023 | 0.029 |
|  |  | 4 | 0.570 | 0.023 |
|  |  | 9 | 0.577 | 0.028 |
|  |  | 10 | 0.410 | 0.044 |
|  | MES | 5 | 0.016 | 0.003 |
|  | NM | 2 | -0.140 | 0.021 |
|  | NTL | 3 | 0.051 | 0.001 |
|  |  | 5 | 0.044 | 0.028 |
|  |  | 9 | -0.196 | 0.030 |
|  | PHA | 12 | -0.299 | 0.018 |
|  |  | 15 | -0.507 | 0.085 |
|  | SBB | 4 | -0.142 | 0.002 |
|  |  | 6 | -0.036 | 0.008 |
|  |  | 7 | 0.021 | 0.012 |
|  |  | 15 | -0.175 | 0.013 |