Table S1 Summary of Pearson’s correlation analysis examining the relationships between impervious surface (IS) proportion a radius of 200 m (IS200), 500 m (IS500) and 1000 m (IS1000) and soil mesofauna and property. *H*: Shannon’s diversity index; *J*: Pielou’s evenness index; SOM: soil organic matter content; TN: soil total nitrogen content; Zn, Cu, Pb, Cd: soil total Zn, Cu, Pb and Cd concentration, respectively; CPI: heavy metal comprehensive index. Significant relationships have been highlighted in bold.

|  |  |  |  |
| --- | --- | --- | --- |
|  | IS200 | IS500 | IS1000 |
| Total abundance | *r* | -0.040  | -0.086  | -0.009  |
| *p* | 0.792  | 0.568  | 0.951  |
| *n* | 47 | 47 | 47 |
| Species richness | *r* | -0.199  | -0.101  | -0.213  |
| *p* | 0.180  | 0.501  | 0.151  |
| *n* | 47 | 47 | 47 |
| *H* | *r* | -0.117  | -0.091  | -0.114  |
| *p* | 0.434  | 0.545  | 0.444  |
| *n* | 47 | 47 | 47 |
| *J* | *r* | 0.002  | -0.066  | 0.004  |
| *p* | 0.989  | 0.658  | 0.976  |
| *n* | 47 | 47 | 47 |
| pH | *r* | 0.212  | **0.505**  | 0.209  |
| *p* | 0.178  | **0.001**  | 0.183  |
| *n* | 42 | **42** | 42 |
| SOM | *r* | 0.204  | 0.123  | 0.217  |
| *p* | 0.195  | 0.439  | 0.167  |
| *n* | 42 | 42 | 42 |
| TN | *r* | 0.250  | **0.424**  | **0.426**  |
| *p* | 0.111  | **0.005**  | **0.005**  |
| *n* | 42 | **42** | **42** |
| Zn | *r* | 0.120  | **0.324**  | 0.263  |
| *p* | 0.456  | **0.039**  | 0.096  |
| *n* | 41 | **41** | 41 |
| Cu | *r* | 0.085  | **0.334**  | 0.168  |
| *p* | 0.591  | **0.031**  | 0.288  |
| *n* | 42 | **42** | 42 |
| Pb | *r* | **0.370**  | 0.004  | **0.453**  |
| *p* | **0.016**  | 0.979  | **0.003**  |
| *n* | **42** | 42 | **42** |
| Cd | *r* | 0.029  | **0.353**  | 0.116  |
| *p* | 0.855  | **0.022**  | 0.466  |
| *n* | 42 | **42** | 42 |
| CPI | *r* | 0.052  | **0.344**  | 0.143  |
| *p* | 0.743  | **0.026**  | 0.366  |
| *n* | 42 | **42** | 42 |

Table S2 Overview of soil mesofauna, landscape and soil property parameter in the sampling sties. IS proportion: impervious surface proportion; *H*: Shannon’s diversity index; *J*: Pielou’s evenness index; SOM: soil organic matter content; TN: soil total nitrogen content; Zn, Cu, Pb, Cd: soil total Zn, Cu, Pb and Cd concentration, respectively; CPI: heavy metal comprehensive index.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Range | Average | Std. deviation | Median |
| Mesofauna |  |  |  |  |
| Mite (ind. m-2) | 9507-87259 | 32362 | 17725 | 30388 |
| Collembola (ind. m-2) | 6621-102369 | 29952 | 20393 | 24616 |
| Total (ind. m-2) | 21900-183686 | 71366 | 34844 | 64171 |
| Species richness | 7.00-18.67 | 11.67 | 2.68 | 11.67 |
| *H* | 1.10-2.15 | 1.70 | 0.21 | 1.72 |
| *J* | 0.606-0.808 | 0.707 | 0.051 | 0.716 |
| Landscape |  |  |  |  |
| IS proportion (%) | 6.1-97.3 | 53.9 | 26.7 | 57.1 |
| Area (ha) | 0.37-79.12 | 10.02 | 19.03 | 3.74 |
| Soil |  |  |  |  |
| pH | 3.98-7.95 | 6.09 | 1.34 | 6.10 |
| SOM (%) | 0.80-11.7 | 3.45 | 2.54 | 2.62 |
| TN (%) | 0.064-0.627 | 0.263 | 0.159 | 0.192 |
| Zn (μg/g) | 19.4-280.4 | 96.5 | 68.7 | 81.6 |
| Cu (μg/g) | 4.2-99.6 | 28.8 | 21.4 | 23.7 |
| Pb (μg/g) | 15.0-175.1 | 61.4 | 39.2 | 52.6 |
| Cd (μg/g) | 0.081-0.812 | 0.307 | 0.213 | 0.245 |
| CPI | 1.27-11.02 | 4.38 | 2.89 | 3.56 |

Table S3 Summary of Pearson’s correlation analysis examining the relationships between landscape parameter (impervious surface (IS) proportion and site area) and soil mesofauna and property. IS proportion: impervious surface proportion; SOM: soil organic matter content; TN: soil total nitrogen content; Zn, Cu, Pb, Cd: soil total Zn, Cu, Pb and Cd concentration, respectively; CPI: heavy metal comprehensive index. Significant relationships have been highlighted in bold.

|  |  |  |
| --- | --- | --- |
|  | IS proportion | Lg (site area) |
|  | *r* | *p* | *r* | *p* |
| Mesofauna |  |  |  |
| Mite | -0.217 | 0.144 | **0.411** | **0.024** |
| Collembola | 0.019 | 0.897 | **0.518** | **0.003** |
| Total | -0.086 | 0.568 | **0.533** | **0.002** |
| *H* | -0.091 | 0.545 | -0.068 | 0.721 |
| *J* | -0.066 | 0.658 | -0.220 | 0.242 |
| Richness | -0.101 | 0.501 | 0.055 | 0.772 |
| Soil |  |  |  |  |
| pH | **0.505** | **0.001** | -0.377 | 0.063 |
| SOM | 0.123 | 0.439 | 0.068 | 0.748 |
| TN | **0.424** | **0.005** | 0.131 | 0.533 |
| Zn | **0.325** | **0.036** | **-0.408** | **0.043** |
| Cu | **0.334** | **0.031** | **-0.471** | **0.017** |
| Pb | 0.004 | 0.979 | -0.112 | 0.593 |
| Cd | **0.353** | **0.022** | **-0.513** | **0.009** |
| CPI | **0.344** | **0.026** | **-0.503** | **0.010** |

Table S4 The effect of landscape and soil property on soil mesofauna community structure. SOM: soil organic matter content; TN: soil total nitrogen content; Zn, Cu, Pb, Cd: soil total Zn, Cu, Pb and Cd concentration, respectively; CPI: heavy metal comprehensive index. Significant relationships have been highlighted in bold.

|  |  |  |
| --- | --- | --- |
|  | *R2* | *p* |
| IS proportion | 0.067 | 0.250 |
| pH | 0.055 | 0.340 |
| SOM | 0.054 | 0.339 |
| TN | 0.020 | 0.672 |
| Zn | 0.030 | 0.553 |
| Cu | 0.007 | 0.877 |
| **Pb** | **0.174** | **0.036** |
| Cd | 0.016 | 0.731 |
| CPI | 0.012 | 0.785 |