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SPATIAL AND TEMPORAL VARIABILITY OF SOIL FAUNA UNDER COCONUT CULTIVATION ON LATERITIC SOIL

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ABSTRACT

A recent review has reported that spatial variability has become a limitation in soil fauna studies. The objectives of this study were to quantify the spatial and temporal variability of soil fauna under coconut cultivation on lateritic soil within a short period. The study was conducted in December 2021. In total, 114 pitfall traps were installed through systematic and random methods within the coconut garden located in Perlis, Malaysia. The traps were left in the field for 24 hours. The soil fauna was collected three times within a month and the specimens were identified up to family level. The geostatistical analysis was performed to quantify the spatial and temporal variability. As a result, about 1,608 specimens have been collected and 15 families of soil fauna from 10 orders were identified. The Formicidae (68.5%) and Scolopendridae (0.1%) families were the most and the least abundant soil fauna found in coconut cultivation, respectively. Among those examined soil fauna indices, only abundance showed a significant difference between the sampling time. The spatial and temporal variability of soil fauna were intermediate to high (coefficient of variation = 29.5%–123.8%). The spatial dependency of the examined soil fauna indices ranged from moderate weak to very strong at the distance of 5.5 m to 12.9 m and mainly has been affected by intrinsic factors. The interpolation maps were able to show the changes in the study with low errors. As a conclusion, this study was able to quantify the spatial and temporal variability of soil fauna.

1. RESULTS: Page 166, line 372
   Figure 5. Interpolation maps……..Missing and Insert diagram in Figure 5

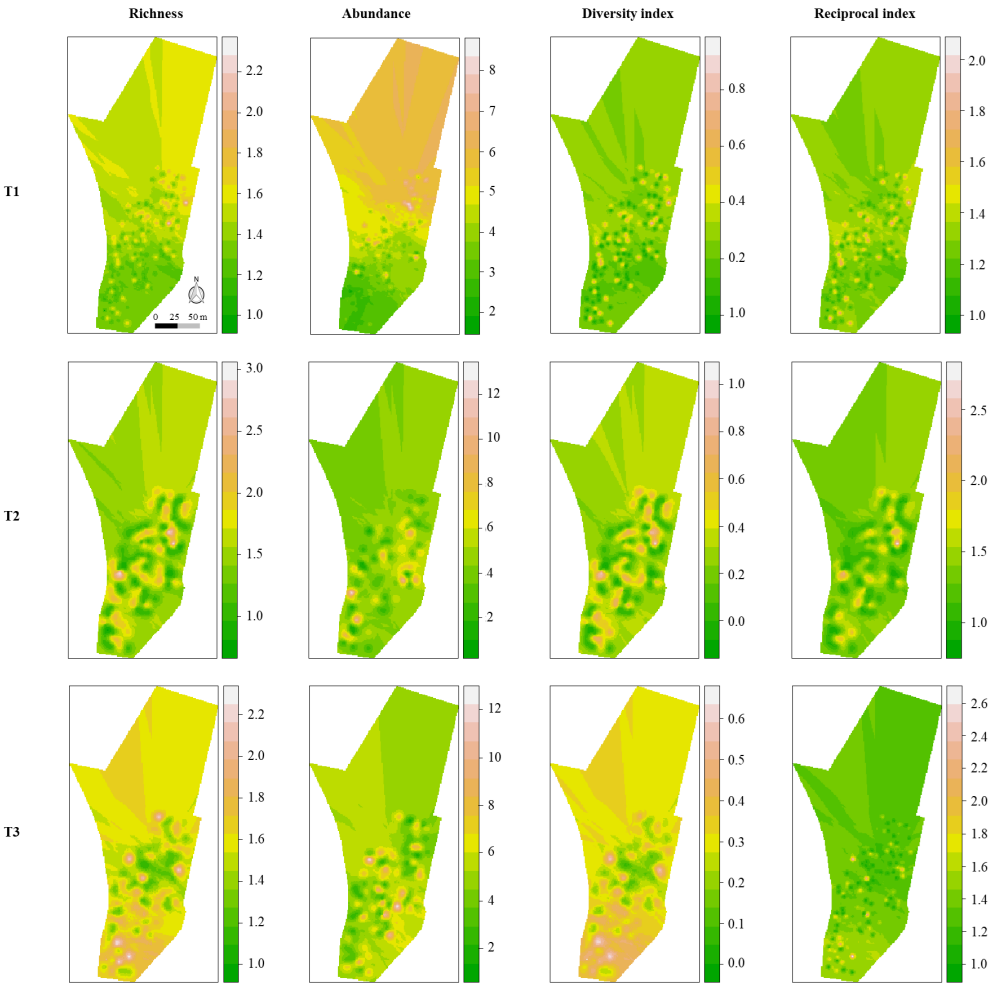

Figure 5. Interpolation maps of the examined diversity indices of soil fauna at the study site