



BAGECO 10

Bacterial Genetics and Ecology – Coexisting on a Changing Planet

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SPATIAL PATTERNS OF BACTERIA SHOW THAT MEMBERS OF HIGHER TAXA SHARE ECOLOGICAL CHARACTERISTICS

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Whether bacteria display spatial patterns of distribution and at which level of taxonomic organisation such patterns can be observed are central questions in microbial ecology. To investigate the spatial distribution of bacterial groups at high taxonomical levels, we quantified the abundance of eight bacterial taxa at the phylum or class levels in a pasture by using quantitative PCR. Geostatistical modelling was used to analyse the spatial patterns of the taxa distributions. The distributions of the relative abundance of most taxa displayed strong spatial patterns at the field scale (2 to 37 m). These spatial patterns were taxon-specific and correlated to soil properties, which indicates that members of a bacterial clade defined at high taxonomical levels shared specific ecological traits in the pasture. Ecologically meaningful assemblages of bacteria at the phylum or class level in the environment provides evidence that deep branching patterns of the 16S rRNA bacterial tree are actually mirrored in nature.