

4<sup>th</sup> International Congress on Biodiversity  
“Man, Natural Habitats and Euro-Mediterranean  
Biodiversity”, Malta, 17-19<sup>th</sup> November 2017

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## **Analysis and comparison of three Coleoptera families in organic and conventional orchards within the Etna Regional Park (Catania, Sicily)**

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Agro-ecosystems are integrated regions of agricultural production making up an ecosystem. The agro-ecosystem concept provides a framework with which to analyse food production systems as a whole, including the uncultivated areas making part of the system which effect the crops through exchanges between communities of organisms, substances and energy.

The objective of this work was to compare two agricultural management systems, organic and conventional, in the Etna Regional Park. The influence in both spatial and temporal dimensions, that natural habitats adjacent to these two different managed agricultural systems have on Coleoptera biocoenosis in orchards was also studied. This comparison was done through standardised data and multivariate analysis using a multi-taxa approach. Specifically, three families of the Order Coleoptera, namely Carabidae, Tenebrionidae and Staphylinidae (excluding Aleocharinae and Scydmaeninae) were studied.

Two areas within the Etna Regional Park were sampled and the results indicated that geographic and ecological factors play an important role in determining the structure of the Coleoptera soil communities at both family and species levels. The presence of strips of natural vegetation within agro-ecosystems was confirmed as one of the main factors which increase environmental heterogeneity, as opposed to the methods of cultivation, which had no significant relevance to soil fauna.

In conclusion, it is recommend that maintenance of high levels of landscape heterogeneity should be an important principle and strategy when setting up policy and management systems for protected areas.

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