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Ant (Formicidae) diversity of olive orchard agroecosystems in Crete, Greece. The effect of agroecological zone.

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INTRODUCTION & AIM

Formicidae are among the most abundant insects in natural and agricultural ecosystems. They play a key role in determining the structure and functioning of local arthropod communities and serve a wide variety of ecosystem services. In this study, for the first time the ant fauna of olive orchards in Crete (Greece) is investigated.

METHOD

Ants were surveyed with pitfall traps, placed in six neighboring conventional and organic olive orchards and three natural plots. Specimens were collected from October 2021 till July 2022. Orchards were located in two agroecological zones (hilly and plain), three in the plain ones and three in hills, where natural were also located.

In each plot 5 traps were placed containing propylene glycol. Specimens were identified to genus and species level using taxonomic keys.

RESULTS & DISCUSSION

We found 14 genera and identify 21 species. Common and in high numbers were the ants of *Aphaenogaster,* found in all olive orchards the most common genus occurred (Figure 1).

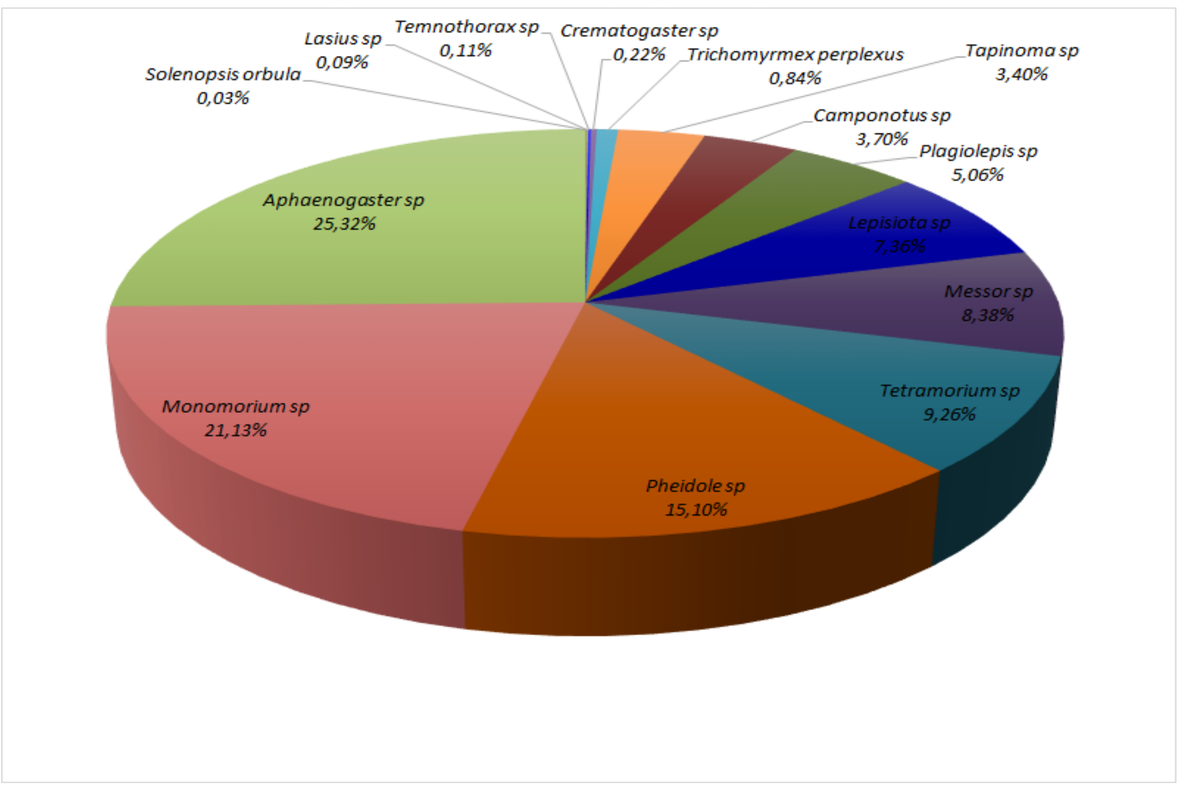

Figure 1. Total Formicidae genera and species abundance.

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Higher abundance of ants was found in the hilly olive orchards compared to the plain ones (Figure 2). This is probably due to the richness of plant diversity and the different soil management practices. Higher populations have been found in the conventional orchards (Figure 3).

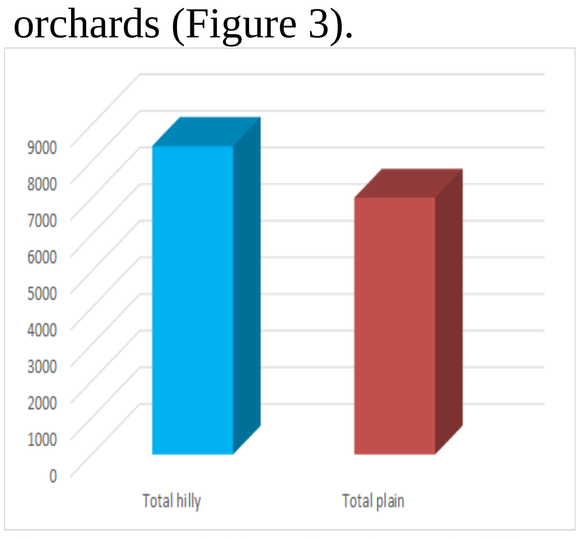

Figure 2. Formicidae abundance in hilly and plain olive orchards

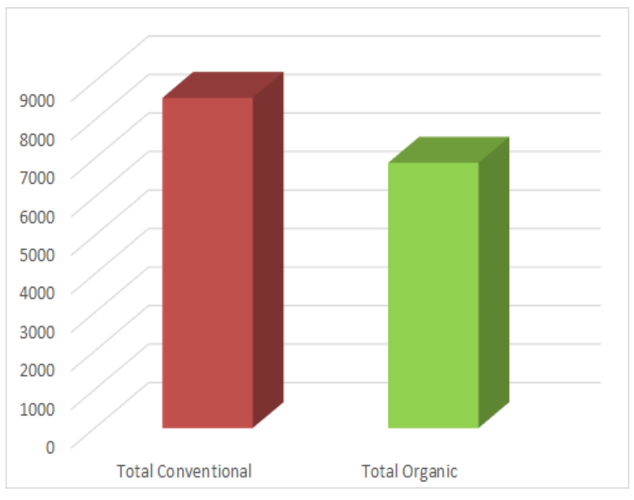

Figure 3. Formicidae abundance in conventional and organic olive orchards

In the hilly agroecological zone the natural ecosystems have the second higher abundance of Formicidae, after the conventional olive orchards (Figure 4).

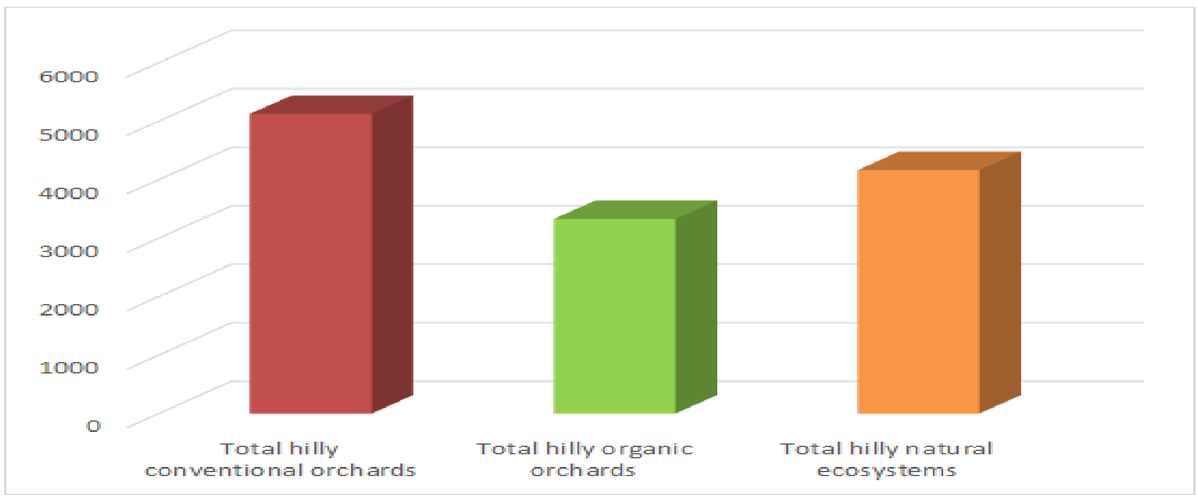

Figure 4. Formicidae abundance in the hilly agroecological zone

CONCLUSION

In the present survey, an attempt was made to record and create a database of the ant fauna (genus and species level) in the olive orchards of Crete. These database will be used as a tool for a) further research that will create a complete list of the Formicidae species in the agroecological zones and b) studying their functions and services in the olive agroecosystem.

FUTURE WORK / REFERENCES

Further analysis on the species found and of the effect of each farming practice to the ant diversity is required, to determine which practices are the most suitable for maintaining of olive orchard's ant functional diversity and ecosystem services.

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