

## Carabidae diversity in olive orchards in Crete, Greece. The effect of agroecological zone and management system.

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### INTRODUCTION & AIM

The aim of this study was a) to examine differences of Carabidae species in olive orchards (organic, conventional and abandoned) located in plain and hilly agroecological zones of Messara valley, Crete, Greece and b) to understand the impact of agricultural practices and inputs.

Carabidae were surveyed because of their sensitivity to anthropogenic interventions, such as the use of insecticides and the heavy metals accumulation in agroecosystems (Koivula, 2011).

### METHOD

Carabidae beetles were monthly surveyed (October 2021-October 2022), using pitfall traps filled with propylene glycol, in 18 olive orchards under different management (organic, conventional, abandoned) located across two agroecological zones, i.e., hilly and plain. In each orchard 5 traps were placed in fixed survey stations.

### RESULTS & DISCUSSION

We found 13 different genera and identified 12 species. The most common species were *Carabus banoni* and *Tapinopterus creticus* (Figure 1). Geographic proximity of the studied orchards probably limits strong differences in species composition among orchards.

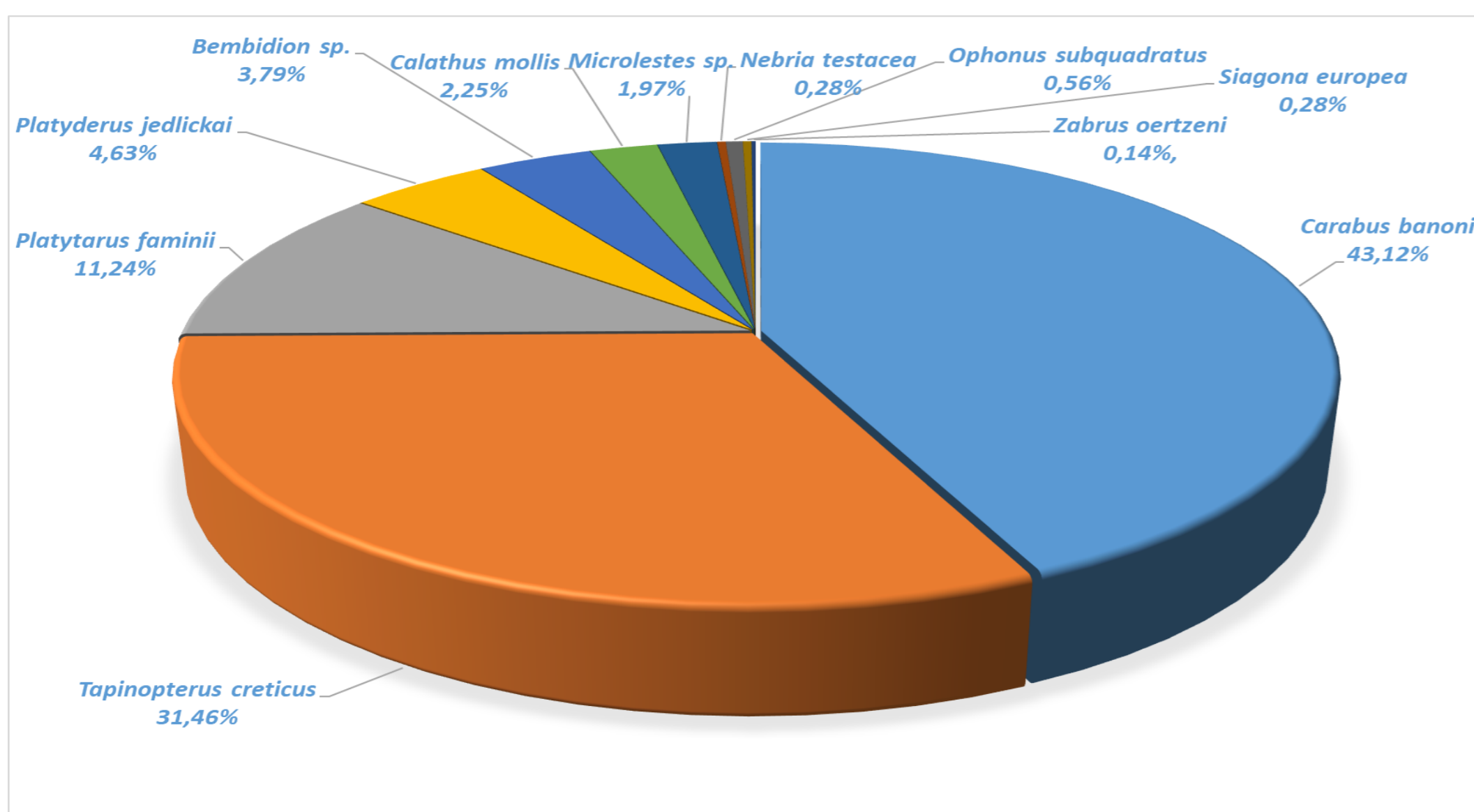


Figure 1. The percentage of carabidae species capture

**Acknowledgement:** This research was carried out in the context of the project Life IGIC “Improvement of Green Infrastructure in agroecosystems: reconnecting natural areas by countering habitat fragmentation” (LIFE16 NAT/GR/000575), cofounded by the EU LIFE programme and the Green Fund, Greece.

Olive orchards in the hilly zone present lower populations than the plain ones (Figure 2), although in previous studies hilly orchards presented higher total arthropod diversity (Gkisakis et al., 2015)

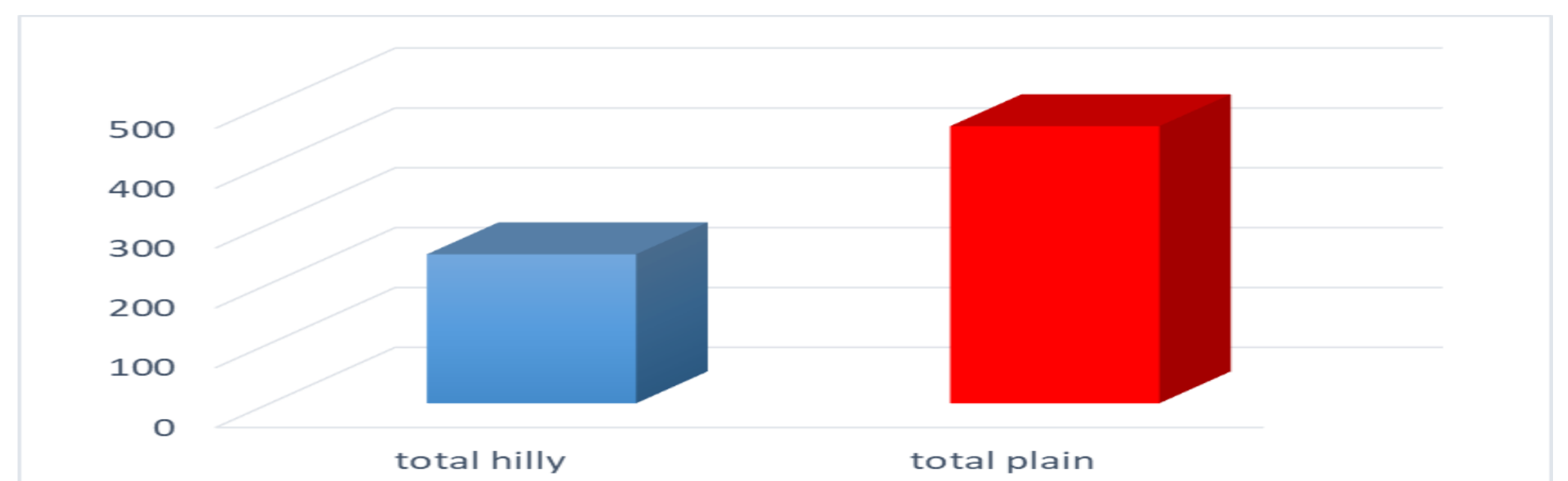


Figure 2. Total carabidae captures per agroecological zone. Higher numbers have been found in the organic orchards (Figure 3). This result confirms the positive role of organic management in terms of biodiversity (Rossi et al., 2019)

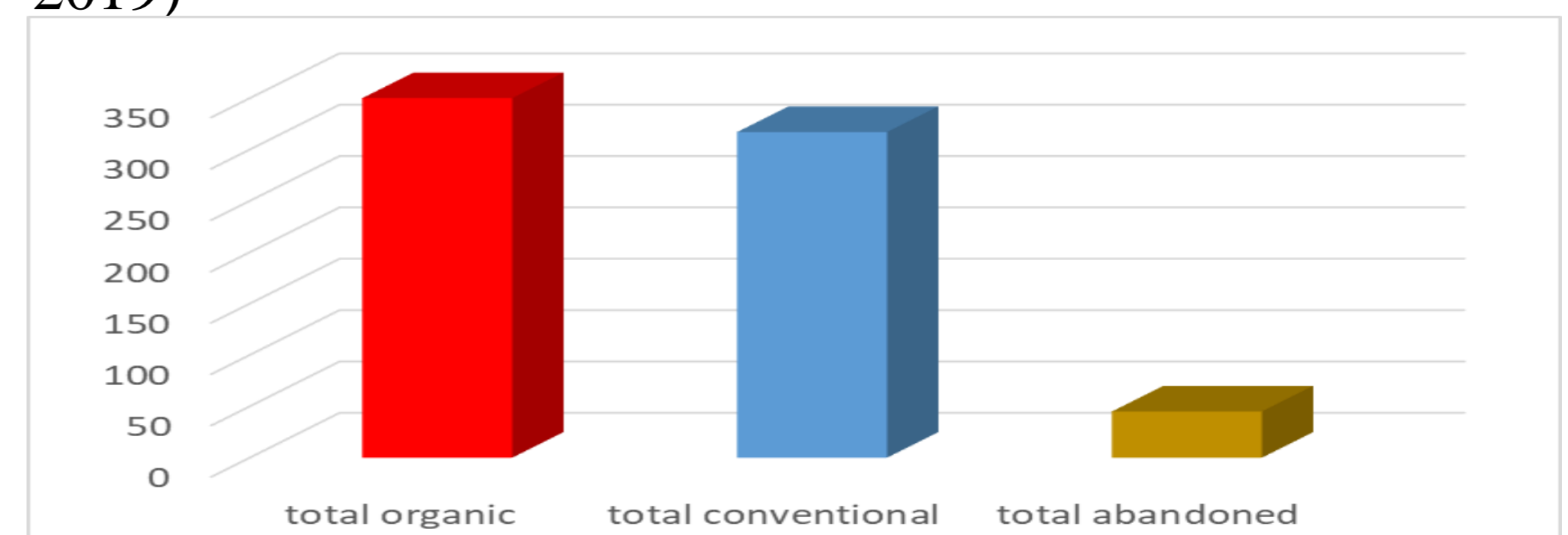


Figure 3. Total carabidae captures per management system.

### CONCLUSION

Richness differences among agroecological zones appear to be a result of altitudinal differences, related with climatic conditions, although this requires further investigation. Organic olive orchards show increased carabidae numbers due to the inputs and practices used.

### FUTURE WORK / REFERENCES

Further research is required to evaluate Carabidae as potential indicators for assessing the impact of agriculture on biodiversity.

#### References

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