# Preliminary palaeoecological results from the palaeolake of Pheneos Polje, N. Peloponnese, Greece, based on ostracods

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## INTRODUCTION

Pheneos Polje is an intermountain karstic basin in N. Peloponnese, Greece. Periodical flooding due to sinkhole blocking, generated an ephemeral lake several times during the late Quaternary. Our research is focused on the south part of the basin (regions:1,2,3 and 4) where shoreline features known as gravel bars are evident (Fig.1). Despite the coarse-grained material and the absence of typical lacustrine sediment deposits at the steep rocky margins of the polje, sediment samples were collected.

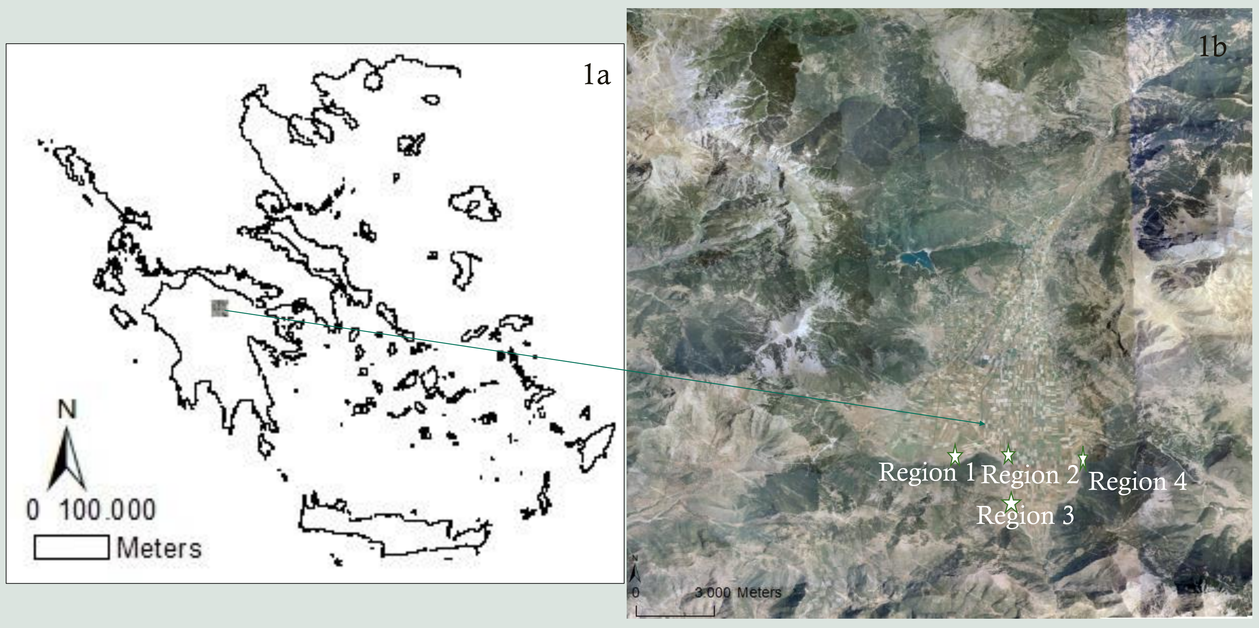


**Fig.1:1a**.The study area located in N.Peloponnese,Greece.**1b.**The study area and the 4 regions from which we collected the samples

## OBJECTIVES

Reconstructing the boundraries of the palaeolake and determining its palaeoenviromental evolution

## METHODOLOGY

Geomorphological analysis:
Orthophotos of 50cm &
5 cm spatial resolution
DEM of 5 cm and 5m
In situ observations

Micropalaeontological analysis:
27 Sediment Samples collected
for stereoscopical observation

## RESULTS & DISCUSSION

Ostracods and charophyte gyrogonites were collected from 4 respective palaeoshores at different altitudes (Table 1) at the south margins of the polje.

The ostracod taxa were identified to genus level and were found to belong to the genera *Candona* and *Ilyocypris* (Fig. 2). Species level identification was not possible, because all *Candona* sp. representatives are juvenile valves, while the identification of the valves of the genus *Ilyocypris* to the species level is still very puzzling (Meisch 2000, Mazzini et al 2014) and thus further determination was not possible for the time being.

In Fig. 3 the abundances of the three taxa for each possible palaeoshoreline (PLS) were plotted and we observe that the most abundant taxon in the two lower PLSs is juvenile *Candona* sp. and in the two upper charophyte gyrogonites .

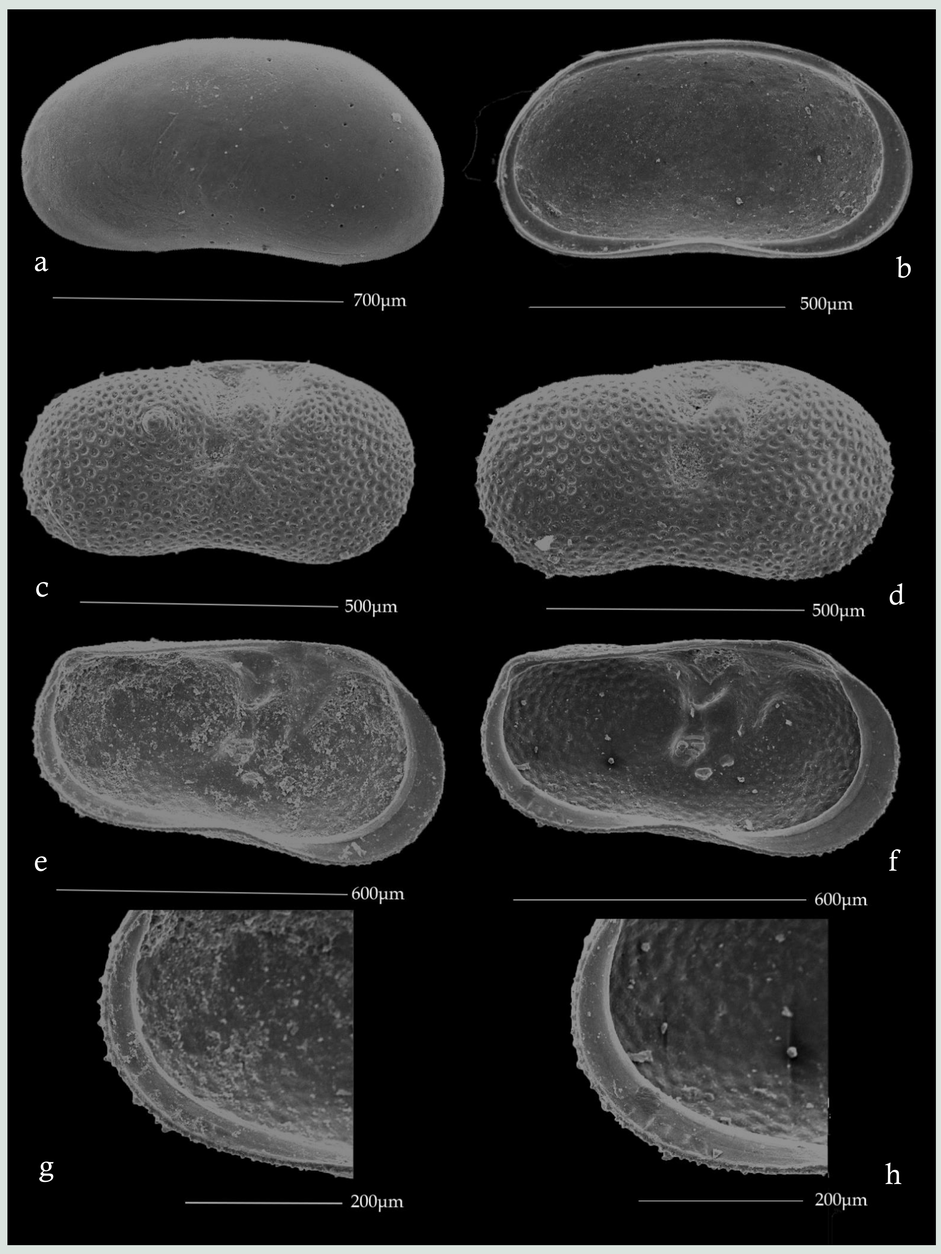


**Fig.2:** SEM photographs of the main ostracod representatives *Ilyocypris* sp. and *Candona* sp. from our samples: (a) external lateral view of *Candona* sp. (b) internal lateral view of *Candona* sp.(c),(d) RV; lateral view of *Ilyocypris* sp. (e),(f)LV; internal lateral view of *Ilyocypris* sp. (g),(h):inner marginal ripplets of the LV

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| PLS altitude m | Region 1 | Region 2 | Region 3 SE | Region 4 SE |
|---|---|---|---|---|
| 740 | - | - | 4 samples:<br>9 *Candona* sp.<br>79 *Ilyocypris* sp.<br>432 gyrogonites | 2 samples:<br>no findings |
| 730 | - | - | 1 sample:<br>8 *Candona* sp.<br>6 *Ilyocypris* sp.<br>29 gyrogonites | 1 sample:<br>96 *Candona* sp.<br>7 *Ilyocypris* sp.<br>284 gyrogonites |
| 720 | 8 samples:<br>209 *Candona* sp.<br>40 *Ilyocypris* sp.<br>40 gyrogonites | 1 gyrogonite | 3 samples:<br>305 *Candona* sp.<br>16 *Ilyocypris* sp.<br>257 gyrogonites | 2 samples:<br>120 *Candona* sp.<br>19 *Ilyocypris* sp.<br>136 gyrogonites |
| 710 | 1 sample:<br>76 *Candona* sp.<br>12 *Ilyocypris* sp.<br>11 gyrogonites | 3 samples:<br>607 *Candona* sp.<br>252 *Ilyocypris* sp.<br>318 gyrogonites | - | - |

**Table 1:** The number of the samples collected from each possible PLS altitude in the 4 regions from the study area and the microfauna identified in them

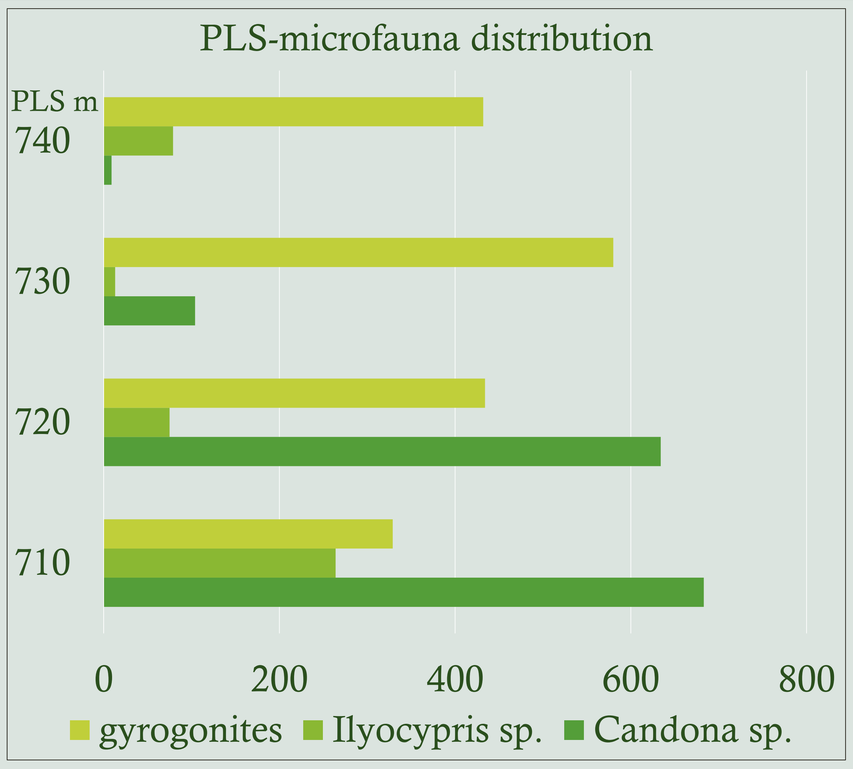


**Fig.3:** The *Ilyocypris* sp., *Candona* sp. and charophyte gyrogonites in each PLS

## CONCLUSIONS

The valves of *Candona* sp. and *Ilyocypris* sp. confirm the presence of freshwater bodies in the polje. Even though these species alone are not enough to indicate strict palaeoecological results, the fact that they are found in such a steep rocky terrain and in coarse-grained material is worth noting.

The juvenile *Candona* sp. in combination with the charophyte gyrogonites indicate the presence of lacustrine palaeoshorelines possibly in the altitudes that they were found (Fig.4).

Due to the presence of only juvenile valves of *Candona* sp., we assume that the ostracod valves were probably transferred by nearby streams or/and springs and finally were deposited at the palaeo-shores of Pheneos palaeolake. Further research is necessary to provide more specific palaeoecological results.

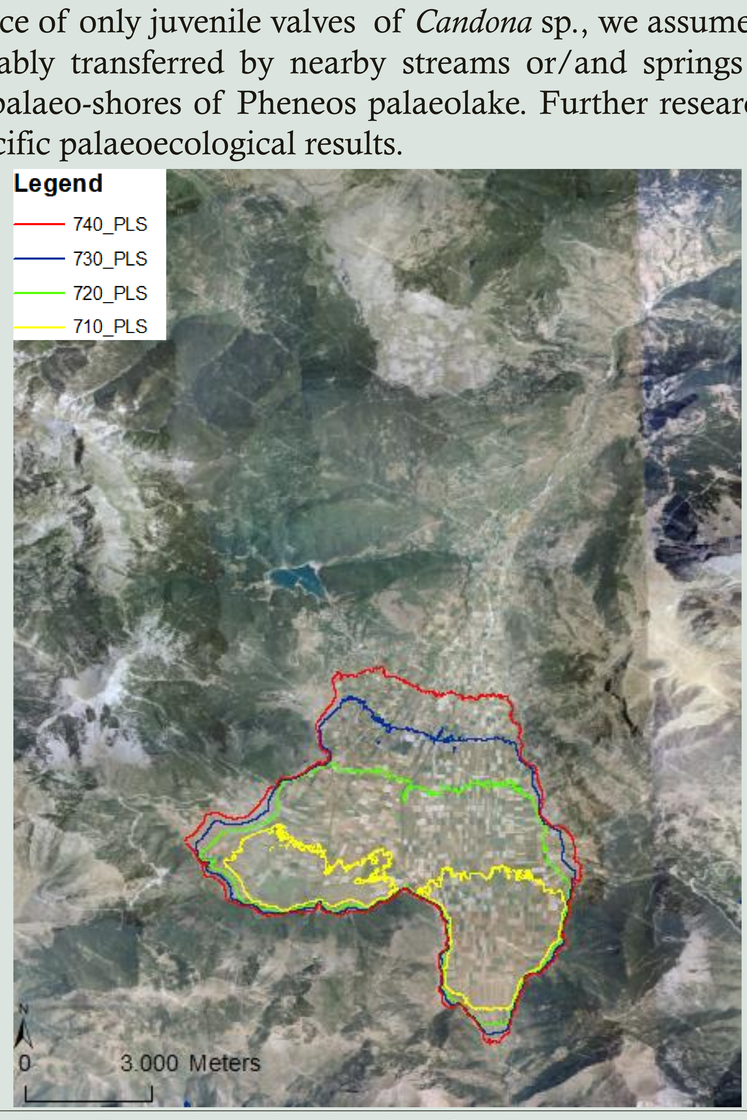


**Fig.4:** The possible palaeoshorelines of the Pheneos palaeolake

References
Mazzini I., Gliozzi E.,Rossetti G., Pieri V..2014.The ilyocypris puzzle:A multidisciplinary approach to the study of phenotypic variability. International Review of Hydrobiology, 99, 1-14
Meisch C. 2000.Freshwater Ostracoda of Western and Central Europe. Spektum Akademischer Verlag