

EXECUTIVE SUMMARY

The objective of this report is to present the results of the ecological monitoring in the Mediterranean temporary ponds and provide information about the temporal fluctuations of the habitat's biotic components (flora, avifauna) during the project's period. The main aim of ecological monitoring is the detection of changes and in turn the implementation of necessary measures to achieve management targets.

Monitoring took place followed a seasonal scheme (summer, fall, winter and spring) in order to record changes in the floristic composition due to species phenology and involved recording of species composition and frequency. For that purpose in the areas of Elafonisos, Falasarna, Kournas and Omalos 105 transects were established covering a total length of 3,556 metres.

The size of the sampling unit (quadrat) was 0.5 m x 0.5 m, divided in 25 squares. In the Kournas pond the quadrat's size was 2 m x 2 m while abundance measurement was based on the Braun-Blanquet method. The same method was employed also for recording species abundance in the area of Gavdos.

In Elafonisos, 11 seasonal sampling surveys were carried out resulting in recording 143 species belonging to 32 families. The dominant families were Leguminosae 20%, *Compositae* 16% and *Graminae* 8%. The 10 most frequent species were: *Plantago weldenii*, *Crepis cretica*, *Crepis pusilla*, *Poa infirma*, *Bubonium aquaticum*, *Dittrichia viscosa*, *Trifolium campestre*, *Lophochloa cristata*, *Erodium cicutarium* and *Hyoseris scabra*. In addition, the phryganic species *Sarcopoterium spinosum* and *Coridothymus capitatus* showed a high frequency. Cluster analysis showed that the ponds in Elafonisos fall into two main groups which are directly related to ponds' geomorphology and hydroperiod.

In Falasarna, 8 seasonal sampling efforts took place resulting in recording 40 species. The most frequent of those were *Phyla nodiflora*, *Juncus hybridus*, *Cynodon dactylon*, *Typha domingensis*, and *Eryngium maritimum*. Two species which are characteristic of the habitat were also recorded: *Zannichellia palustris* and *Isoetes histrix*.

In the Omalos pond, six sampling efforts were carried out resulting in recording 76 species belonging to 25 families. The dominant families were *Gramineae* 20% and *Leguminosae* 18%. Most of the species were recorded during spring 2006 (45 species). Three threatened species were also recorded: *Antinoria insularis*, *Elatine alsinastrum* and *Rancunculus lateriflorus*. Cluster analysis resulted in 4 groups that indicate a zonation of plant communities according to water level and hydroperiod gradient.

In Gavdos, 99 ponds were identified in 5 different locations. These are small rock pools termed "arolithi" by the locals. Most of them are up to 1m² and 10-70 cm deep. Two sampling efforts were carried out in Spring 2007 and Spring 2008 where 49 species were recorded belonging to 23 families. The dominant families were *Leguminosae* 14%, *Gramineae* 12%, and *Compositae* 10%. TWINSPLAN analysis resulted in 6 plant communities: *Zannichellia pedunculata* – *Chara vulgaris*, *Zannichellia pedunculata* – *Callitriche pulchra*, *Callitriche pulchra* - *Tillaea vailantii*, *Tillaea vailantii*, *Tillaea vailantii* – *Polypogon maritimus*, *Tillaea alata* – *Crepis pusilla*

In Kournas pond 5 sampling efforts were carried out and 91 species belonging to 37 families were identified. The dominant families were *Compositae* 15%, *Gramineae* 10% and *Leguminosae* 10%. The most dominant species were *Vitex agnus castus*, *Potentilla reptans*, *Cynodon dactylon*, *Cyperus sp.*, *Verbascum sinuatum* and *Agrostis stolonifera*. The following recorded species are characteristic of the Mediterranean temporary ponds: *Juncus bufonius*, *Centaureum pulchellum*, *Isoetes histrix* and *Lythrum hyssopifolia*. During the life of the project a significant increase in height and abundance of *Vitex agnus castus* in the pond was observed.

For monitoring/recording of avifauna 12 seasonal sampling efforts took place. Sampling demonstrated the importance of the ponds for passerines which comprise 67.2 - 85.3% of the total species recorded. The presence of water is very important for seedeaters mainly during spring and summer, while the increased number of insects close to water attracts insectivore species.

In the wider area of Elafonisos 58 species were recorded, 16 of which were residents and 3 breeding visitors while 31 were present during migration periods and 10 were wintering. The birds recorded belonged to the following categories: waders (4), raptors (6), passerines (39) and other (9).

In Omalos, 34 species were recorded, 16 of which are resident, 7 breeding visitors, 7 migratory and 4 wintering species. The birds recorded belonged to the following categories: waders (3), raptors (2) and passerines (29).

In Falasarana, 40 species were recorded, 15 of which were residents, 2 migratory and 4 wintering species. The birds recorded belonged to the following categories: waders (3), raptors (2), passerines (29), waterbirds (1) and Columbiformes (1).

In Kournas pond, 31 species were recorded comprising 11 resident, 3 breeding visitors, 10 migratory and 9 wintering species. The birds recorded belonged to the following categories: raptors (2), passerines (26), waterbirds (1) and other (2).