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## **ABSTRACTS**

### **KEYNOTE LECTURES, COMMUNICATIONS, POSTERS**

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## 2.8 = PRELIMINARY ECOLOGICAL DATA FROM A WETLAND AREA CHARACTERIZED BY MASSIVE INVASION OF MYRIOPHYLLUM AQUATICUM (VELL.) VERDC.

ELISA VALENTINI, LORENZO LASTRUCCI, LORENZO LAZZARO, LUCA MASSI, LORELLA DELL'OLMO, BRUNO FOGGI, CATERINA NUCCIO

Department of Biology, University of Florence, Via La Pira 4, 50121 Firenze, Italy

Biological invasions are causing extensive damages to the ecosystems and the economy in many countries around the world (1)(2) becoming a phenomenon of overriding concern. *Myriophyllum aquaticum* (Vell.) Verdc. (Fig.1) is an invasive macrophyte coming from South America, commonly used as an ornamental plant (3), and naturalized worldwide thanks to its phenotypic plasticity(3)(4). In Italy *M. aquaticum* has been reported in several regions (5). In Tuscany it was found in the wetlands of Lake Porta, between Lucca and Massa-Carrara (Fig. 2). This study aimed to provide a preliminary ecological survey of the invaded habitats around the Lake Porta and an assessment of *M. aquaticum* influence on these areas.

The study involved 16 plots: 8 invaded by *M. aquaticum* and 8 non-invaded. In each of the 16 sampled plots, temperature, pH, salinity, dissolved oxygen and global and underwater irradiance were measured. Water samples were filtered and used for nutrient ( $\text{NO}_2^-$ ,  $\text{NO}_3^-$ ,  $\text{PO}_4^{3-}$ ,  $\text{P}_{\text{tot}}$ ) and photosynthetic pigments (chlorophyll *a* and 8 diagnostic pigments) analysis.

The study area is characterized by channels of variable size, but the values of salinity and pH were similar in each channels and conform to freshwater environments. The water temperature and the percentage of dissolved oxygen, however, were highly variable in relation to the type and the size of the channels and their tree coverage. The average concentrations of  $\text{P}_{\text{tot}}$  and chlorophyll *a* (the autotrophic biomass indicator) have shown a mesotrophic condition in the tributary and an eutrophic condition in the other channels, characterized by stagnant and sediments-rich waters. The wetlands are spread between urban and rural areas and, probably for this reason, the whole area showed an average nitrate concentration that was within the attention threshold established by Directive 91/676 / EEC (Nitrates Directive). Nitrites, instead, were present with a lower average concentration. The accessory pigments with higher relative abundances were chlorophyll *b*, fucoxanthin and zeaxanthin, diagnostic of Chlorophyta/Euglenoidea, Diatoms, and Cyanobacteria, respectively. Analyzing the impact of *M. aquaticum* on the physical and chemical parameters, not significant differences between invaded and not-invaded areas were founded, with the exception of underwater irradiance that, as expected, was markedly attenuated by *M. aquaticum* coverage. These preliminary data suggest that variations in the microalgae communities are more related to the variability of the trophic status in the different channels rather than to the invasion status of the waters. However, in order to minimize the effect of the high environmental variability of the studied water courses and identify the possible influences of *M. aquaticum* on trophic status and microalgae communities, further samples in new channels and in different season will be carried on in the future.



Fig. 1 *M. aquaticum*



Fig. 2 Invasion of *M. aquaticum* in the tributary of Lake Porta

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