FLORA ALONG THE COURSE OF THE ŽRNOVNICA RIVER (DALMATIA, CROATIA)

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INTRODUCTION

River Žrnovnica (Fig 1) is the short karst river, only 4,8 km in lenght. It rises on the southern slopes of the mountain Mosor (near place Žrnovnica) and flows into the Adriatic Sea near the settlement Stobreč.

MATERIALS AND METHODS

Floristic research of the area along the course of the Žrnovnica river has been conducted during the years 2013 and 2014. The study area includes both left and right waterside, in the line width of 10 m. Taxa were determined using standard determination keys and iconographies (Javorka & Csapody, 1975; Tutin et al., 1968-1980, Tutin et al., 1993; Domac, 1994, Pignatti, 1982). The nomenclature has been adjusted according to the Croatian Flora Checklist (Nikolić ed 2014 http://hirc.botanic.hr/fcd). Life forms are given according to Pignatti 1982, and floristic elements (acoording to: Horvatić 1963, Horvatić et al. 1967/68, Ruščić 2010 and others):

RESULTS & DISCUSSION

The obtained floristic list contains 555 vascular plant taxa. From that number, 135 taxa were already noticed (according to the literature data: Petter 1832; Visiani 1847, 1852, 1872; Pichler Th. 1885. – herbarium sample; Studniczka 1890; Nikolić 1902; Hirc 1903-1912; Krpan 1955/56; Rubić 1968; Šegulja, Bedalov 1978, 1984; Bedalov, Šegulja 1983, 1987; Vladović 1994; Vladović, Ilijanić 1992, 1993, 1995; Smital, Marković, Ruščić 1998; Pandža, Stančić 1999; Pandža, Franjić, Trinajstić, Škvorc, Stančić 2001; Vladović, Ževrnja, Mitić, Tomasović, Bradarić 2007 and Ževrnja, Mitić, Vladović 2010) and 420 taxa were recorded for the first time.

Taxonomic analysis

There are altogether 109 families of vascular plants, and most of them belong to the group Magnoliopsida (444 taxa). Then follows the group Liliopsida with 15 families (99 taxa), Filicopsida with 5 families (7 taxa), and the group Coniferopsida with 3 families (5 taxa).
The family represented by the higher number of taxa is Fabaceae with 56 taxa and then follow the family Poaceae (48 taxa).

Analysis of floral elements and life forms

Analysis of life-forms (fig. 2) shows the domination of terophytes (186 taxa), followed by hemicryptophytes (173). The group with the smallest number of taxa is the hydrophytes. Terophytes, plants with a short vegetation cycle, are the best adapted to the conditions of the Mediterranean climate. However, the large numbers of therophytes (also widespread, cultivated and adventious plants) is also indicator of antropogenic influence for investigated area.
Few decades ago large part of the shore line has been walled, with artifficially made waterfalls. Landscaping of the river mouth scenery of the place has been utterly changed. Marshes are covered with earth and the place has been converted to golf course. Today, only small portion of the river Žrnovnica is not under large human impact.
The most common floral elements (Fig. 3) were Mediterranean plants (223; 40 %), widespread plants (93, 17 %) and South-European plants (92, 16 %). Among the Mediterranean geoelement (Fig. 4), the most frequent are the Circum-Mediterranean plants (132 taxa). The Illyrian-Adriatic plants (11 taxa), whose center of distribution is in the East Adriatic Littoral, have a special significance.
The following (according to Nikolić & Topić 2005) taxa belonging to different Red Data categories occur on the investigated territory: critically endangered species (CR): Beckmannia eruciformis (L.) Host and Baldellia ranunculoides (L.) Parl., endangered relatives (EN): Carex extensa Gooden., Delphinium peregrinum L., Blackstonia perfoliata (L.) Huds. ssp. perfoliata and Ophrys apifera Huds., vulnerable species (VU): Hainardia cylindrica (Willd.) Greuter, Orchis tridentata Scop., Ophrys bertolonii Moretti, Cyperus longus L. and Trifolium resupinatum L.

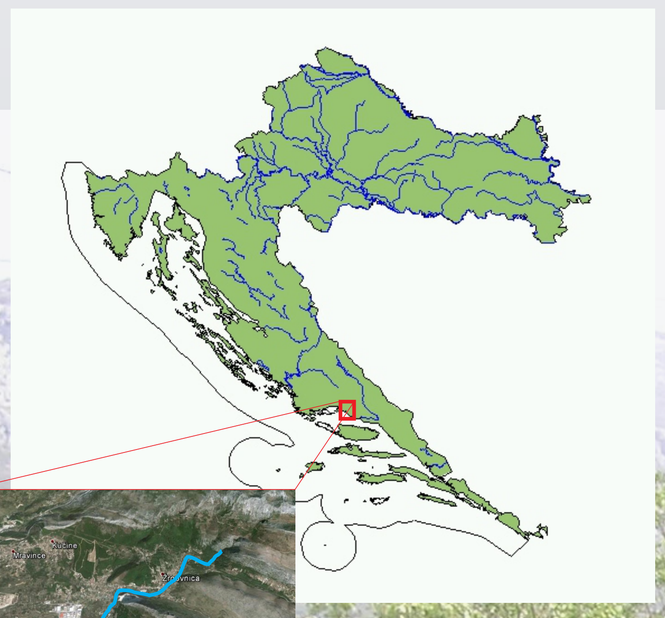

Figure 1. Geographical position of the Žrnovnica river (investigated territory)

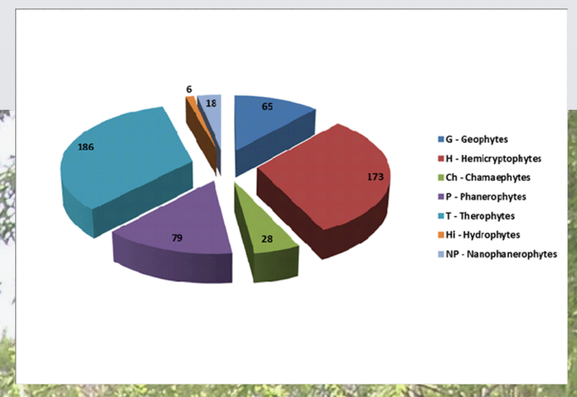

Figure 2. Live form spectrum of the investigated territory of the Žrnovnica river

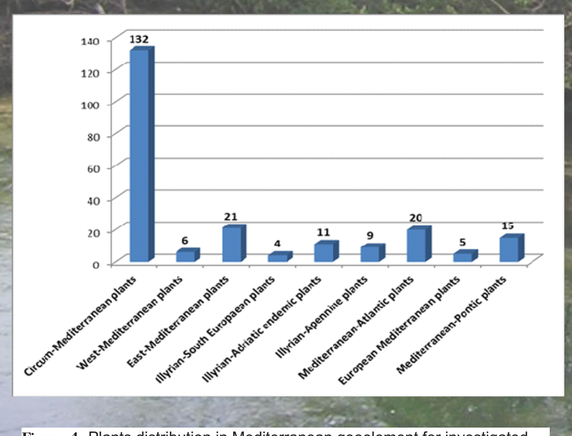

Figure 4. Plants distribution in Mediterranean geoelement for investigated territory of the Žrnovnica river

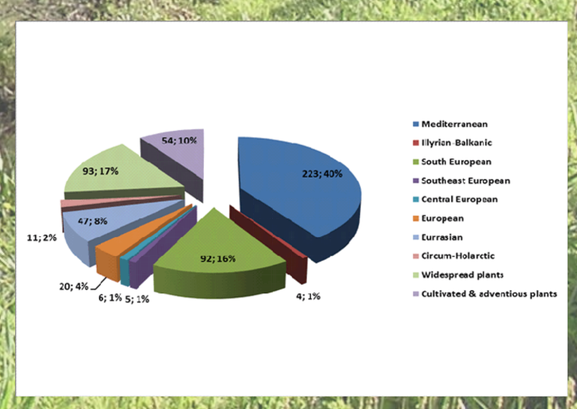

Figure 3. Floral elements spectrum of the investigated territory of the Žrnovnica river