



Environmental quality of a semi-natural area of the Po Valley (northern Italy): aspects of soil and vegetation.

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This work, originating in the preliminary analyses of a Life project and co-financed by the European Union ("Environmental recovery of degraded soils and desertified by a new treatment technology for land reconstruction", Life 10 ENV IT 400 "New Life"; <http://www.lifeplusecosistemi.eu>), aims to evaluate the environmental quality of a semi-natural area of the Po Valley (northern Italy) by analysing the characteristics of soil and vegetation. The area of study is located in the municipal territory of Piacenza (Emilia-Romagna, Italy) along the eastern shores of the river Trebbia and is made up of the closed landfill of Solid Urban Waste of Borgotrebbia (active from 1972 to 1985) and of the neighbouring areas (in North-South order: riverside area, northern borders of the landfill, landfill disposal, southern borders and cultivated corn fields).

For each area pedological and vegetational analyses were carried out and in particular, as regards the soil, various chemical-physical analyses were done among which: pH, organic carbon, total nitrogen, salinity, exchangeable bases and granulometry. The ground vegetation data were collected using phytosociological relevés according to the method of the Zurich-Montpellier Sigmatis School, (Braun-Blanquet, 1964). For the analysis of the environmental quality of each area, the floristic-vegetation indexes system was applied as proposed by Taffetani & Rismondo (2009) (updated by Rismondo et al., 2011) conveniently created for analysing the ecological functionality of the agro-ecosystems. The results obtained by such applications drew attention to a dynamic vegetation mass in the landfill which, despite a value of the floristic biodiversity index (IFB) comparable to that of the borders, shows a much lower value of the maturity index (IM). This is due to the elevated percentage of annual species (index of the therophytic component = 52.78%) belonging to the phytosociological class *Stellarietea mediae* Tüxen, Lohmeyer & Preising ex von Rochow 1951.

From a first comparison of the information obtained from the vegetation and soil analyses, it would appear that the areas with a lower environmental quality are those in which there is (or was) a greater human disturbance.

Keywords: Degraded soil, Environmental quality, Floristic-vegetational indexes, Landfill, Phytosociology.