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The Influence of Stational Factors over Indicator Species

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Abstract. In this paper, the direct links between the herbaceous vegetation and soil pH has been analyzed, also taking in consideration other stational elements. For a more relevant result, the study was conducted in a secular forest because the natural balance and processes are way superior to the ones of a small planted forest. In order to achieve the proposed objectives, 136 circular sample surfaces, with a radius of 12,62 m, were created after a grid reference, 50 m apart, on the entire 35B, LIP VIII, Slătioara, Stulpicani forestry, Forestry Department Suceava, landscape surface. Otherwise, on this surface, the bonds between the information provided by the indicator species and soil pH, altitude and climate factors are not the usual ones. They are the ones from the North East side of the studied terrain, on a cone shaped micro-form of landscape where according to the relative low altitude the reactions should have been registered as having a more reduced acid pH. An important phenomenon that was observed in this place is cavitation. The influences of the phenomenons such as cavitation must be studied more extensive in the future, because they could have a direct effect, unknown yet, over the local vegetation.

Keywords: cavitation, hydrodynamics, indicator plants, micro topography, pH, weather factors.

Introduction. It is well known the fact that the intimate bond between the station and its vegetation offers its source territory a great informational value in the characterization of that station. (Jalubă and Mutu, 2012). Mainly, the indicator plants will show the effects of the stational factors. (Chiriţă *et al*., 1964). In order to obtain some representative results, the study took place in a secular forest because the balance and the natural processes are way superior to the ones of a small planted forest.

Aims and objectives. The research aims to highlight the bonds that form between the indicator plants and stational factors, by achieving the following objectives:

- distribution of indicator flora on the studied territory and comparison of the necessary optimum pH with the pH value in the field;
- determining the bond between the active acidity, existing indicator flora and altitude;
- the influence of the hydrographic network, of the micro topography, the exposition and some climate elements over the flora.

Materials and methods. In order to achieve the proposed objectives, 136 circular sample surfaces, with a radius of 12,62 m, were created after a grid reference, 50 m apart, on the entire 35B, LIP VIII, Slătioara, Stulpicani forestry, Forestry Department Suceava, România, landscape surface. On the inside of every sample surface, the entire indicator flora was inventoried by using the Braun-Blanquet scale (Bărbos and Târziu, 2009), and a soil sample was also collected from the middle of the first existing soil horizon. From the center of each circular surface, a soil sample was extracted.

Those samples were passed through a grinding mortar and afterwards they were passed through a grid with a 2 mm gap. Twenty grams of soil obtained from every sample are mixed with 50 ml of distilled water in Berzelius cups. The resulted mixed samples were left in

the laboratory for 24 hours, in batches of 20, and later the pH was determined with the help of the electro-metric method by using a Microprocessor pH Meter. The pH values were recorded at 25 degrees Celsius.

Results and Discussion. Following the classification of the active acidity in relation to the pH values (Buzdugan and Savin, 2003) a pH average value of 5.06 was obtained (strong acid reaction). Regarding the distribution of pH values obtained in the lab, it is highlighted the fact that most of the test surfaces with very acidic pH values (pH<4), are concentrated in the North Eastern part of the landscape unit. Here, it is also observed that it's the only deviation between the drop in pH level with increasing altitude (Jalubă and Mutu, 2012). Following the category classification of the indicator plants (Beldie and Chiriță, 1967; Horeanu, 2008) it is shown that these are correctly grouped according to the necessary pH requirement against the necessary pH obtained again in the lab.

On these surfaces, the only breed that could indicate a much lower pH level and is found with a high grade of coverage in the field is *Polytrichum commune.* This also indicates shade and moisture, because it is a breed of water dependent plant, both for nutrition and also for reproduction, the antherozoid being released in a drop of rain water that covers the antheridium, and from here, through small drops of water that come from the impact between rain drops and plants, the male sacks reach the water that covers the archegonium. (*)

An important phenomenon that was observed in this place is cavitation. Reference is made to a series of dynamic processes that involve thermo-aero-hydrodynamic aspects that inevitable lead to relative sudden modifications in pressure. In their development, they grow until they implode or explode like very small bubbles (cavities), of millimetric or tenths of a millimeter and have a liquid membrane, usually almost sphere shaped, in this case, the liquid being water (Baran, 2001; Baran and Ciocanea, 2005).

The resulted water drops resulted from the cavitation process can influence in a direct manner, according to the ones presented earlier, the reproduction process of the *Polytrichum commune* breed.

Conclusion. The informational value of the indicator plants is more precise as the climate phenomenon's and the landscape elements from the analyzed station are studied better, otherwise the indications given by the studied plants are no longer truthful.

The influences of the phenomenons such as cavitation must be studied more extensive in the future, because they could have a direct effect, unknown yet, over the local vegetation.

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