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Pedological constraints controlling the occurrence of mire plant bioindicators from north Atlantic formerly frozen soils to present-day Mediterranean sandy wet habitats

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Unlocking the palaeoenvironmental context, in which present peaty sols in former cold regions of Western Europe, may contribute to the understanding of the actual distribution of three acid-soil vascular plants. Likewise can the role played by similar soil and water conditions (due to other context) be the key to explain their expansion further South. The present work aims to compare the origins and traits of such similar ecotons and to verify how these vascular plants can be use as bioindicators for the presence of peaty soils, picking the proper variables and their geographical variation fits in the Ecological amplitude of the species. The soil and the water are the two compartmeents in which some of the variables might control the present-day distributions of the three taxa.
The reactions of a certain number of soil samples carefully taken at shallow depths in the profiles of peaty soils of mires or peat-reach habitats, which cover more than fifty tiny to moderate sampled areas of western Europe (Atlantic Façade and the Iberian Península) and Northwestern Morocco, are being determined in the laboratory of the Geology Department of the University of Lisbon, where some characteristic mire-akin plant taxa have their southernmost range, somewhat in disharmony with meso-to thermomediterranean climates (Rivas Martínez, Global Bioclimatics). Two samples (A and B) were collected per site, the A corresponding to the presence of one of the three bioindicators, the B dug where the species ceases to be present.
The present soil processes in the northern part of this sampling is in many cases related to a cold region, glaciated or under periglacial conditions during LGM, but the sedimentary and hydrologic analogies further south might help to explain how euro-siberian species can migrate that long and withstand present-day warmer and drier climates.
The pH values of samples were plotted against the depth, and curves, correlations and other possible relationships will be sought, focusing on the obtained acidity in a depth of from zero to one foot, at which these plants normally install their root systems.
The organic content, the percentages of clay, lime and sands the, total iron (Fe), and the anions, calcium, sodium are techniques to be employed.