



European beach and foredune habitat types (92/43/EEC). A comparison between Atlantic and Mediterranean habitats using large scale vegetation databases.

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The "Habitats" Directive 92/43/EEC of the European Union is at present one of the world's most effective legal instruments concerning biodiversity and nature conservation. This Directive aims to protect the unique natural European heritage creating a coherent network of protected habitats under the name of Natura 2000. Coastal dune systems, although covering relatively small areas, show an extremely specialized flora and fauna that include many exclusive species. In the Habitats Directive Annex, 19 Habitat Types were scheduled to describe the vast environmental heterogeneity of coastal sand dune habitats in Europe. However, for the Mediterranean drift lines beaches and fore dunes ecosystems this description is currently incomplete.

Because of the importance of a comprehensible Habitat Types definition for the conservation and monitoring of this threatened ecosystems, in this study we analyze and characterize the Atlantic and Mediterranean beach and foredunes habitat types using two comparable examples, located in The Netherlands and Italy respectively. We try to answer the following questions:

1) are the communities of the embryonic (2110) and white (2120) dunes of the Mediterranean and Atlantic coasts similar enough (floristically, structurally and ecologically) to be included in the same Habitat Type?

2) are the Atlantic and the Mediterranean plant communities actually scheduled as the Habitat Type 1210 (Annual vegetation of drift lines), truly comparable and floristically similar in both regions?

This comparative approach is based on pre-existent classification of vegetation types using Turboveg and around 400 phytosociological relevés, considering Ellenberg indicator values and life forms. Floristic information was analyzed using Detrended Correspondence Analysis, and habitat types were compared through life form frequency spectra and Ellenberg mean values.

Results confirmed similar floristic and ecological characteristics for the Habitat Type 1210, however, for embryonic and white dunes floristic, structural and ecological differences were found. These results underline the necessity to add two new Habitat Types to the 92/43/EEC Directive aiming to describe and correctly protect the heavily threatened Mediterranean foredune communities still distributed in Italy, France, Spain and Greece.