Journal of Ecology,
89, 502-506

Petersen, J. (2000)
Die Dünentalvegetation der Wattenmeer-Inseln in der südlichen Nordsee: Eine pflanzensoziologische und ökologische Vergleichsuntersuchung unter Berücksichtigung von Nutzung und Naturschutz.
Pp. vi + 205 (+124 of tabulated matter). Husum Druck- und Verlagsgesellschaft, Husum, Germany. ISBN 9-783880-429352. Price DM78 (hardback).

The vegetation of sand-dune slacks is amongst the richest, most diverse and most attractive of seminatural habitats in Europe. Petersen's volume gives an exhaustive account of this vegetation, which is very well represented in the many islands of the Wadden Sea. The book is based an a dissertation presented in the Institute for Geobotany in the Biology Department of the University of Hannover, Germany.

No fewer than 17 islands were covered in the phytosociological and ecological survey: five west Frisian, seven east Frisian, three north Frisian and two Danish islands. Standard Zurich-Montpellier phytosociological methodology was used throughout the study, with information from former surveys dating from 1930 being compared with the detailed research undertaken from 1994 to 1997. Some 2775 relevés (ranging in size from 0.5 to 12 m^2) were monitored, the majority of them relating to the last decade. Tabular comparisons of the Braun-Blanquet vegetation units were made, attention also being given to life-form and phreatophyte characteristics, the latter based an the classification proposed by Londo (1988). In addition, vegetation height and cover were recorded, as well as measurements of pH, soil conductivity, salinity, organic matter, nitrogen content and water regime.

The focus of the book is an the vegetation units represented, involving six classes (Littorelletea uniflorae, Isoëto-Nanojuncetea, Saginetea maritimae, Scheuchzerio-Caricetea nigrae, Calluno-Ulicetea and Oxycocco-Sphagnetea), eight orders, 10 alliances, and encompassing some 30 associations. Syntaxonomy is clearly indicated throughout. For each of the associations or subassociations, there are sections an distribution, general description, ecology, regional comparisons and local features, development, use and aspects of nature conservation. In some associations, such as the Pilularietum globuliferae, an interesting contrast is shown resulting from wet and dry years. *Pilularia globulifera* is denser and much more intensely green under wet conditions, and *Persicaria amphibia* strikingly dominates *Littorella uniflora* in wet years, but the situation is reversed in dry years. These contrasts are well shown in appealing colour photographs, attractive features throughout the book.

Although *Salix repens* is present in nearly all of the communities, sometimes in considerable quantity, its name is given only in Pyrolo-Salicetum repentis, one of the rather few Frisian Island communities represented in Britain. In parts of England, the spread of *S. repens* is the cause of some concern, but this does not appear

to be a major problem in the Wadden Sea islands. In all five of the dune slack communities in Britain recognized in the National Vegetation Classification (Rodwell 2000), *S. repens* is a chief component and gives its narre to three of the communities. Comparison of the lists of species of these communities with those of the Frisian Islands brings home how rich the latter are, and how impoverished the British flora is. However, despite the many liverworts cited for the islands, there appears to be no record of *Petalophyllum ralfsii,* now a highly threatened species in British dune slacks.

An informative feature of the book is the display on a 1-km grid of eight of the most widespread vegetation units (Cicendietum filiformis, Centaurio-Saginetum, Junco baltici-Schoenetum nigricantis, Littorelletea, Caricion nigrae, Pyrolo-Salicetum, Sphagno-Rhynchosporetum and Empetro-Ericetum). These units, colour-coded, are given for each of the 17 islands. The remarkable diversity is shown by the presence of all or almost all of these vegetation units in the larger islands, including Texel, Terschelling and Borkum, as well as the Danish islands Rømø and Fanø. Perhaps not surprisingly, it was shown that the number of vegetation units in a hygrosere is correlated positively with the dune area of a particular island. Relationships between vegetation units are depicted in colour in 'ecograms' indicating, for example, the influence of pH, salinity and water regime. The succession from the pioneer Centaurio-Saginetum stage, with base-rich substrate, ultimately to damp heath Empetro-Ericetum, with base-poor acidic substrate, is discussed with reference to changing ecological conditions; special reference is made here to Terschelling, the largest of the islands, for which much information spanning some 60 years is available.

For each island, active and passive conservation measures are considered. The value of grazing, mowing and cutting sods (the last particularly to control *Calamagrostis* spp.) is indicated, as well as the need to promote natural successional processes. All interested in phytosociology, the ecology of dune systems and their management will find this handsome book a fount of information.

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References

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Rodwell, J.S. (ed.) (2000) *British Plant Communities, Vol.* 5. *Maritime Communities and Vegetation of Open Habitats*. Cambridge University Press, Cambridge.