

MEETINGS OF THE ROYAL BOTANICAL SOCIETY OF THE NETHERLANDS

SECTION FOR VEGETATION RESEARCH

HISTORIC AND DYNAMIC ASPECTS OF COASTAL DUNE VEGETATIONS IN THE NETHERLANDS

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SUMMARY

In a symposium of the Royal Botanical Society of the Netherlands, held in 1966, facts and theories concerning the relation between pattern and process were discussed on geological, historical and ecological time scales respectively. An introduction is given to the various approaches and their mutual connections. Some recent developments, particularly in the field of human interference, are discussed.

1. INTRODUCTION

This paper gives some general remarks on a symposium of the Royal Botanical Society of the Netherlands, section for Vegetation Research, held at Utrecht on December 20th 1966, presided by Dr. V. Westhoff and organised and edited by the authors.

The symposium aimed at bringing together facts and theories concerning the relation between pattern and process in Dutch coastal dune systems, especially those South of Bergen, comprising the "Dune District", which is characterised by a certain amount of lime in the young dune soils.

This central theme has been elucidated on different time scale levels, varying from geological periods (time unit 1000 years), via historical periods (time unit 100 years) to ecological periods (time unit 1–10 years).

2. SURVEY OF CONTRIBUTIONS

The paper by Jelgersma gives the geological basis of the symposium. It has been published elsewhere: S. JELGERSMA & J. F. VAN REGTEREN ALTENA (1969): An outline of the geological history of the coastal dunes in the Western Netherlands. *Geologie en Mijnbouw* 48(3): 335–342.

The paper by Zagwijn links the geological and the historical periods on the basis of palaeobotanical and archaeological data.

The contribution by Doing & Doing-Huis in 't Veld starts with the end phase in Zagwijn's survey, i.e. the Middleages, which are still liable to divergent interpretations; it ends with a description of the major vegetational pattern resulted so far from the historical development. In the meanwhile more documentation has been published: J. G. G. JELLES & C. J. DOING-HUIS IN 'T VELD

(1968): *Geschiedenis van beheer en gebruik van het Noord-Hollands Duinreservaat. Meded. ITBON 87*, 143.

Van Leeuwen & van der Maarel deal with the actual dynamics of dune ecosystems and present thoughts and data on the relation between pattern and process, with special emphasis on the intimate relationship between vegetation and environment and the influences of animals and man.

Sloet & Adriani elaborate the complex patterns in the vegetation – soil complex with the dune scrubs as an example.

Westhoff briefly summarised these contributions (not to be published) and led a vivid discussion which concentrated on two still rather inscrutable phenomena: the background of the connection between the obvious rapid changes and the more obscure long term stability in the dune environment and further the complex relationship between variation in vegetation and variation in soil factors.

SOME RECENT DEVELOPMENTS

Due to several personal circumstances the symposium report could only be offered for publication almost three years after the symposium was held. Since then the dynamics of coastal dunes are getting more and more determined by large scale human activities, particularly recreation pressure, coastal defence and extension of harbour areas.

Recreation is still not an overall serious problem, due to the careful management of most dune areas, but integrated research is necessary to cope with future developments. Very recently a working committee has been established to set up this research.

The conflict between ecology and economy has already become acute in the coastal area of Voorne, cf. M. J. ADRIANI & E. VAN DER MAAREL (1968): *Voorne in de branding*. Oostvoorne, 104 pp.

Nomenclature

Nomenclature of phanerogams mentioned in the following paper follows HEUKELS-VAN OOSTSTROOM (1962); *Flora van Nederland*. Groningen ed. 15.