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JR. WOODHOUSE & R. E. HANES

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AUGUST, 1967 TECHNICAL MEMORANDUM NO. 22

DUNE STABILILIZATION WITH VEGETATION ON THE OUTER BANKS OF NORTH CAROLINA

by

W. W. Woodhouse, Jr. and R. E. Hanes

U.S. ARMY
COASTAL ENGINEERING RESEARCH CENTER

ABSTRACT

Experiments at the shore and in the nursery were conducted to develop an accelerated and more effective revegetation program on beach and dune areas. Four grasses show promise: American beachgrass, sea oats, dune panic grass, and saltmeadow cordgrass. Randomized blocks of plantings, with at least three replications, were used in the experiments. Comparison of various methods of producing nursery stock, transplanting at the shore, and fertilization produced positive results shown in figures, tables and photographs. The most practical and economical methods for each step of the program are suggested.

American Beachgrass is best planted between 1 November and 1 April. Plants, of 3 to 5 stems, dipped in a clay slurry, are spaced 18 inches by 18 inches by a machine planter. Depth of planting is 6 to 8 inches. Such a planting, properly fertilized, was used in dune "growing". Fifteen months after planting, a strip 100 feet wide had accumulated 16 cubic yards of sand per running foot of beach. Experiments are being continued.

FOREWORD

Dunes serve as an effective barrier between the sea and low shore areas. They also serve as a storehouse for windblown sand, and release this material to the beach during severe storms. An important feature of the program at CERC is to collect data that will help coastal engineers stabilize existing dunes or build artificial dunes as protective structures. CERC is publishing this paper in order to give a wider dissemination to this significant information about dune "growing".

This paper was prepared by Professor W. W. Woodhouse, Jr. and R. E. Hanes (a research instructor) of the Department of Soil Sciences, North Carolina State University, Raleigh, North Carolina.

This paper was originally presented as a progress report on studies initiated in March 1961 under a grant from the Cape Hatteras National Seashore, National Park Service, U. S. Department of the Interior. This support was supplemented by funds from the North Carolina Department of Water Resources in 1962 and 1963.

The authors express appreciation to the membership of the North Carolina Seashore Commission and the Board of Water Resources for support and encouragement of this work; to the personnel of the Forestry Division, North Carolina Department of Conservation and Development for cooperation in developing supplies of planting stock; to L. O. Highfill, Dwight Bryan, and N. Berenyi who carried out much of the field operations; and to J. R. Piland and his staff for the chemical determinations.

The cooperation of the staff of the Cape Hatteras National Seashore over the past five years is especially appreciated. Without their facilities, funds and personnel, this work could not have been accomplished.

At the time of publication J. M. Caldwell was Acting Director of the Coastal Engineering Research Center.

NOTE: Comments on this publication are invited. Discussion will be published in the next issue of the CERC Bulletin.

This report was prepared under authority of Public Law 166, 79th Congress, approved July 31, 1945, as supplemented by Public Law 172, 88th Congress, approved November 7, 1963.

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