

Soil and Topographic Factors Influencing

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The Growth of *Pinus Radiata*

by

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Introduction

A number of randomly located 0.1 acre plots were established in 500 acres of 35 years old *Pinus radiata* in the Pierce's Creek Plantation of the Australian Capital Territory.

Pierce's Creek is a plantation of 6,000 acres, 16 miles W.S.W. of Canberra, in the foothills of the Great Dividing Range. The area in which this study took place is not dissimilar to some of the *Pinus radiata* areas of Western Australia in that rainfall is 35", granite is the main country rock, the topography undulating and soils vary from suitable to unsuitable for *Pinus radiata*. The main dissimilarities are the higher altitude (2,300 - 2,600') and colder winter.

Methods

In each plot, soil samples were collected, soil descriptions compiled and topographical and mensurational information recorded. The soil samples were later analysed for various chemical and physical properties.

The plots were grouped by 5 foot site index classes (e.g. site index class 55 includes plot site indices 52.5' to 57.4'). Site index being actual or predicted average height of the 30 tallest trees per acre at age 20. Correlations between site index class and various soil and topographic properties were then tested by computer.

Results

Some of the results are presented graphically in figures 1, 2 and 3. Note that these results apply to a small area of *Pinus radiata* in the Eastern States and may not be applicable elsewhere.

Conclusion

In areas where climate is suitable for growth, variation in site index (an indicator of site productivity) is correlated with soil and topographic properties reflecting the available supplies of water, nutrients and air.

FIGURE 1. SOIL PROPERTIES AND P. RADIATA SITE INDEX

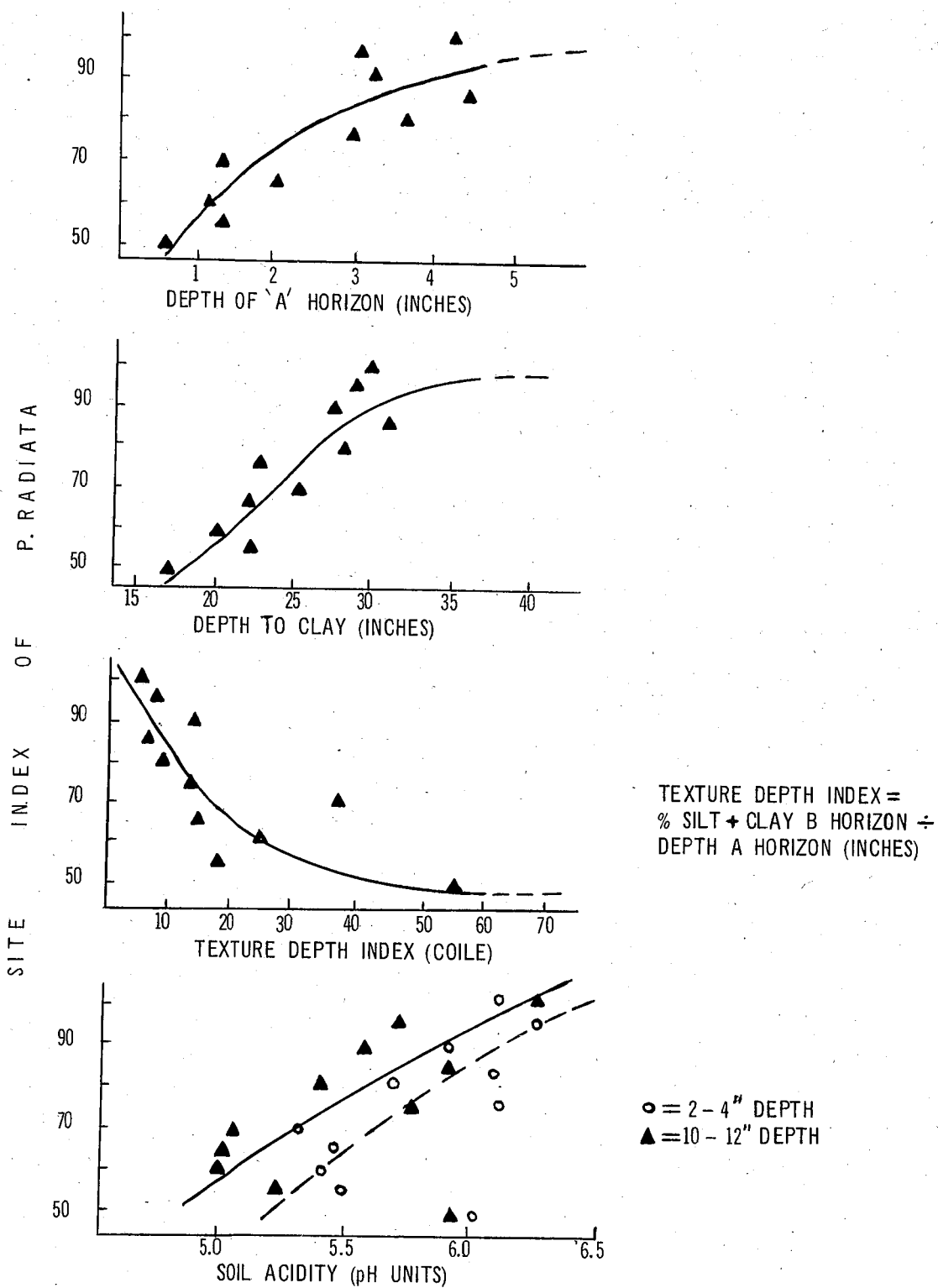


FIGURE 2. SOIL PROPERTIES AND P. RADIATA SITE INDEX

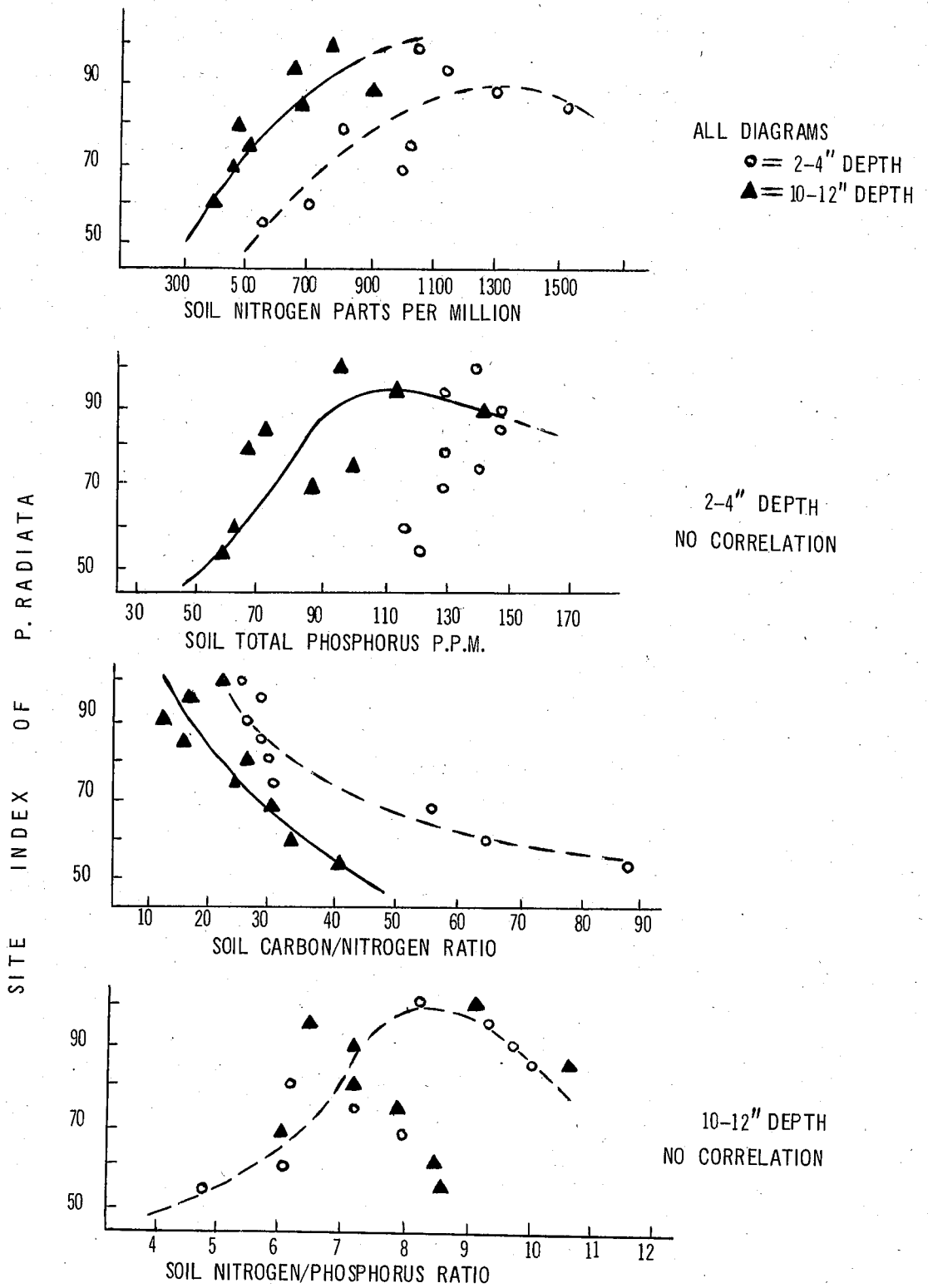


FIGURE 3. TOPOGRAPHY AND P. RADIATA SITE INDEX

