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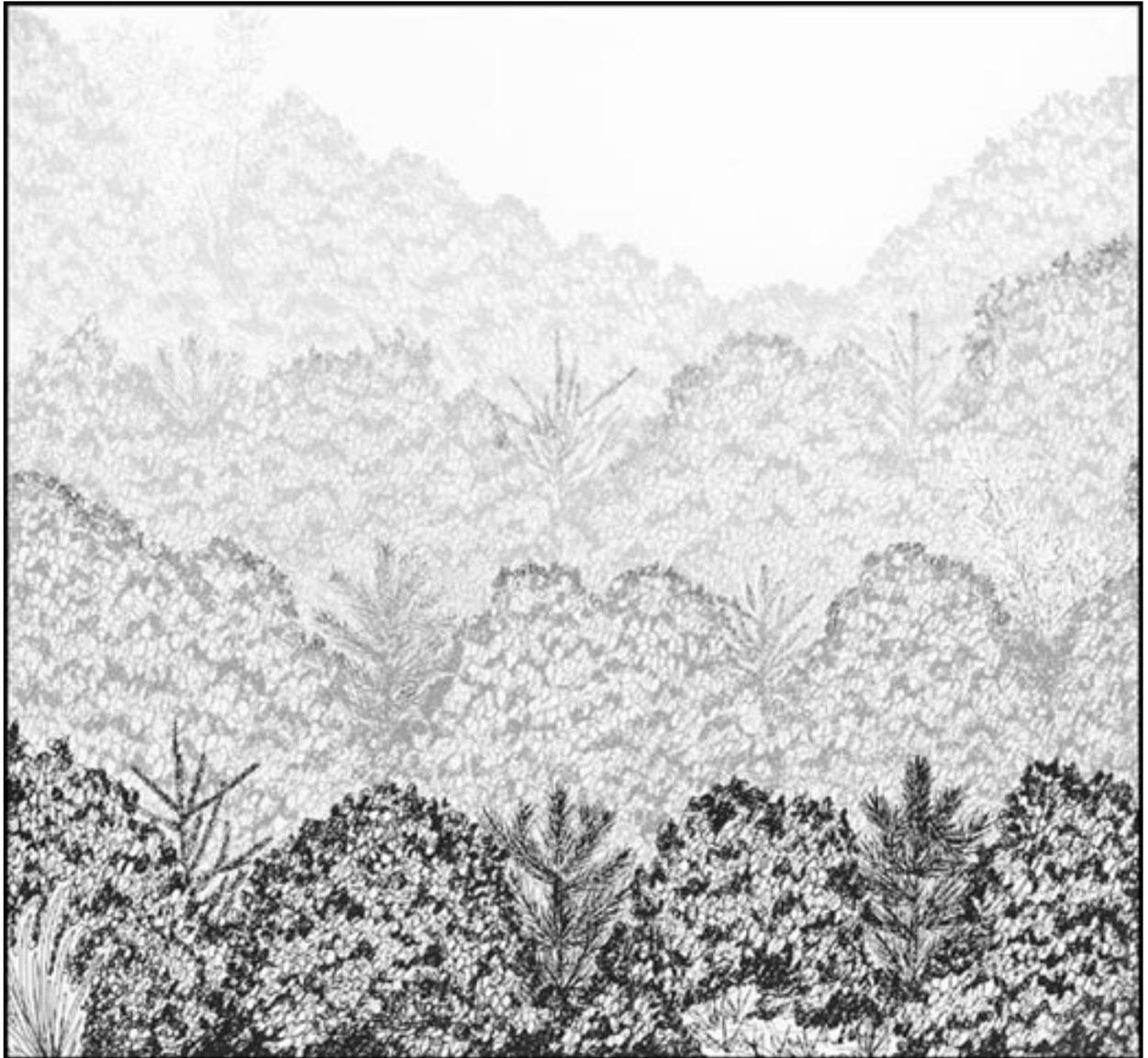
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Crown Area Equations for 13 Species of Trees and Shrubs in Northern California and Southwestern Oregon

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Abstract:

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The equations presented predict crown area for 13 species of trees and shrubs which may be found growing in competition with commercial conifers during early stages of stand development. The equations express crown area as a function of basal area and height. Parameters were estimated for each species individually using weighted nonlinear least square regression.

Retrieval terms: growth and yield, simulators

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Growth and yield simulators are valuable tools in forest management decision making. A number of simulators have been developed to meet current management challenges. However, little attention has been given to the impact of brush and non-commercial hardwood trees on stand dynamics. This presents a serious problem when attempting to predict the early stages of stand development where shrubs and sprouting hardwood trees may have a significant impact on growth of commercial species. Crown area may be useful as an index of the competition level. One means of estimating crown area is to predict it as a function of variables which may be readily available in a simulator, such as height or diameter. In this paper, we present crown area equations for 13 species of plants common to southwestern Oregon and northern California. Crown area is expressed as a function of stem basal area and height for each plant. Parameters were estimated for each species individually using weighted nonlinear least square regression. For the purpose of this study, crown area is defined as the area of a vertical projection of the crown to a horizontal plane.

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