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Ecological Characteristics of Old-Growth Douglas-Fir Forests

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Interim Definitions for Old-Growth Douglas-Fir and Mixed-Conifer Forests in the Pacific Northwest and California

Old-Growth Definition Task Group

Abstract

Interim definitions of old-growth forests are provided to guide efforts in land-management planning until comprehensive definitions based on research that is currently underway can be formulated. The basic criteria for identifying old-growth Douglas-fir (*Pseudotsuga menziesii* (Mirb.) Franco) and mixed-conifer forests in western Washington and Oregon and California are given.

Keywords: Old growth, old-growth stands, mixed stands, Coniferae, Pacific Northwest, California.

Introduction

Old-growth forests are of increasing interest in the Pacific Northwest. The acreage of such forests in the Douglas-fir (*Pseudotsuga menziesii* (Mirb.) Franco) region has declined from approximately 15 million acres at the time of settlement to 5 million acres at present (Society of American Foresters 1984). Almost all the remaining acreage is on Federal lands and about 80 percent is unreserved and potentially available for logging. Concerns are emerging about old-growth forests and their various functions, such as providing habitat for wildlife. Consequently, disposition of old-growth forests has become an important and controversial issue in land-use planning on National Forests and Bureau of Land Management lands.

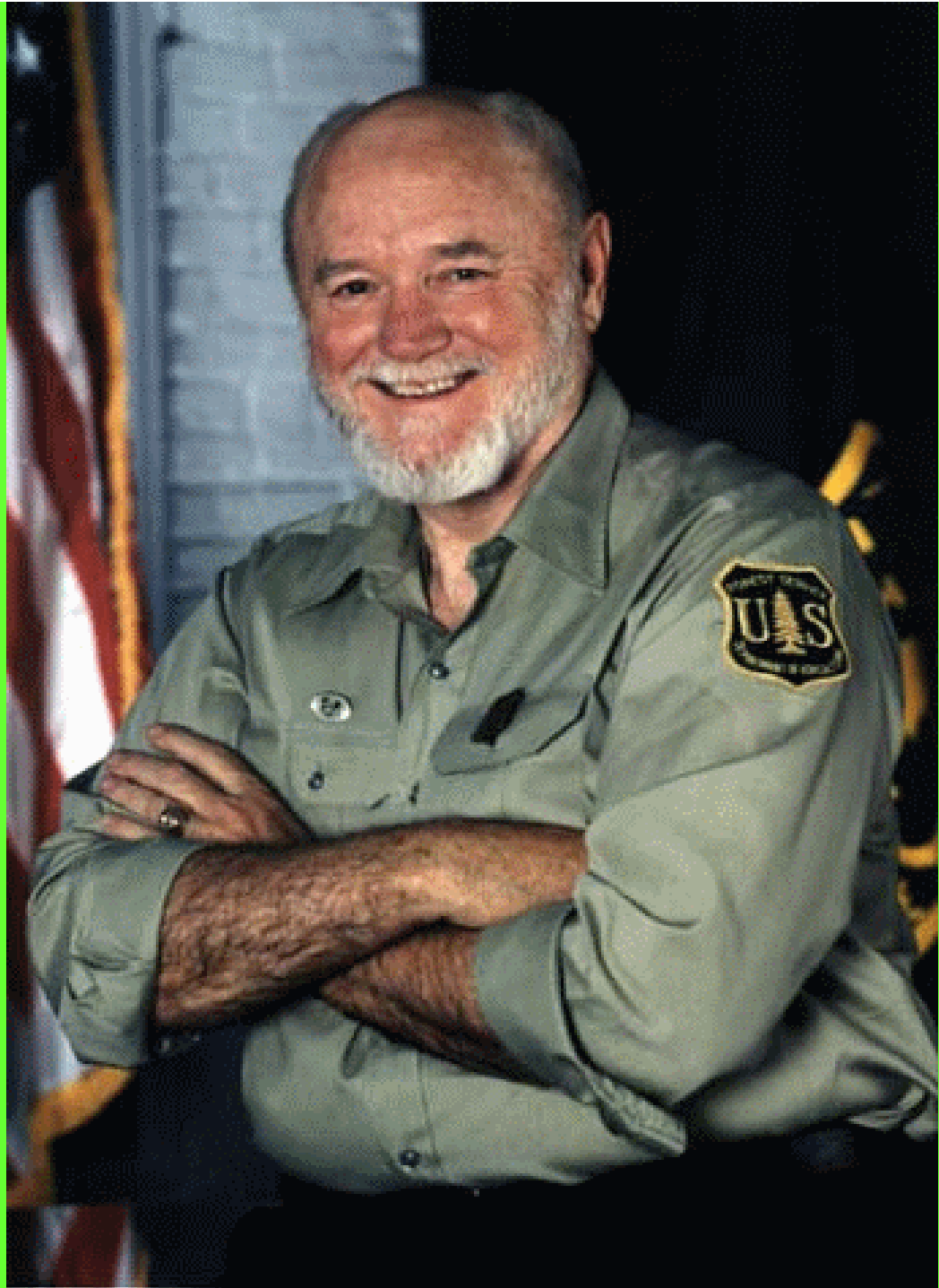
Consideration of the issue has been hampered by different concepts of old-growth forests. For example, economists often view any forest past financial maturity as "overmature" or "old" in contrast with biological or esthetic definitions. Uniform definitions of old-growth forests are essential for a variety of purposes, including inventories to estimate the remaining acreage. Research is underway that will provide objective criteria for old-growth conditions in various forest types. An example is the Old-Growth Wildlife Habitat Research and Development Program and related projects initiated in western Oregon and Washington and northwestern California in 1982.

The Task Group is composed of: J.F. Franklin (chairman), chief plant ecologist, USDA Forest Service, Pacific Northwest Research Station; F. Hall, regional ecologist, USDA Forest Service, Pacific Northwest Region; W. Laudenslayer, regional wildlife ecologist, USDA Forest Service, Tahoe National Forest; C. Maser, research biologist, U.S. Department of the Interior, Bureau of Land Management, Oregon State Office; J. Nunan, silviculturist, USDA Forest Service, Pacific Northwest Region; J. Poppino, project leader, Forest, Inventory and Analysis for Pacific Coast States, USDA Forest Service, Pacific Northwest Research Station; C.J. Ralph, project leader, USDA Forest Service, Pacific Southwest Forest and Range Experiment Station; T. Spies, research forester, USDA Forest Service, Pacific Northwest Research Station, formerly research associate, Department of Forest Science, Oregon State University.

Interim Minimum Standard for Old-Growth Douglas Fir

(On Western Hemlock Sites)

Live Trees	<p>2 or more species with wide range of ages and tree sizes</p> <p>Douglas fir ≥ 8 per acre of trees > 32 in diameter or > 200 years old</p> <p>Tolerant associates (western hemlock, western redcedar, Pacific silver fir, grand fir, or bigleaf maple) ≥ 12 per acre of trees > 16 in diameter</p>
Canopy	Deep, multilayered canopy
Snags	Conifer snags ≥ 4 per acre which are >20 in diameter and >15 ft tall
Logs	Logs ≥ 15 tons per acre including 4 pieces per acre ≥ 24 in diameter and >50 ft long





What Constitutes an Old-Growth Stand?

*Toward a conceptual definition
of old-growth forests*

AGE CRITERIA

Has the forest reached an age at which the **species composition** is stabilized; in other words, has it reached a climax?

Has the forest reached an age at which **net annual growth** is close to zero?

Is the forest older than the average interval between **natural disturbances** severe enough to lead to succession?

Have the dominant trees reached the average **life expectancy** for that species on that type of site?

Has the forest's current **annual growth** declined below the lifetime average annual growth?

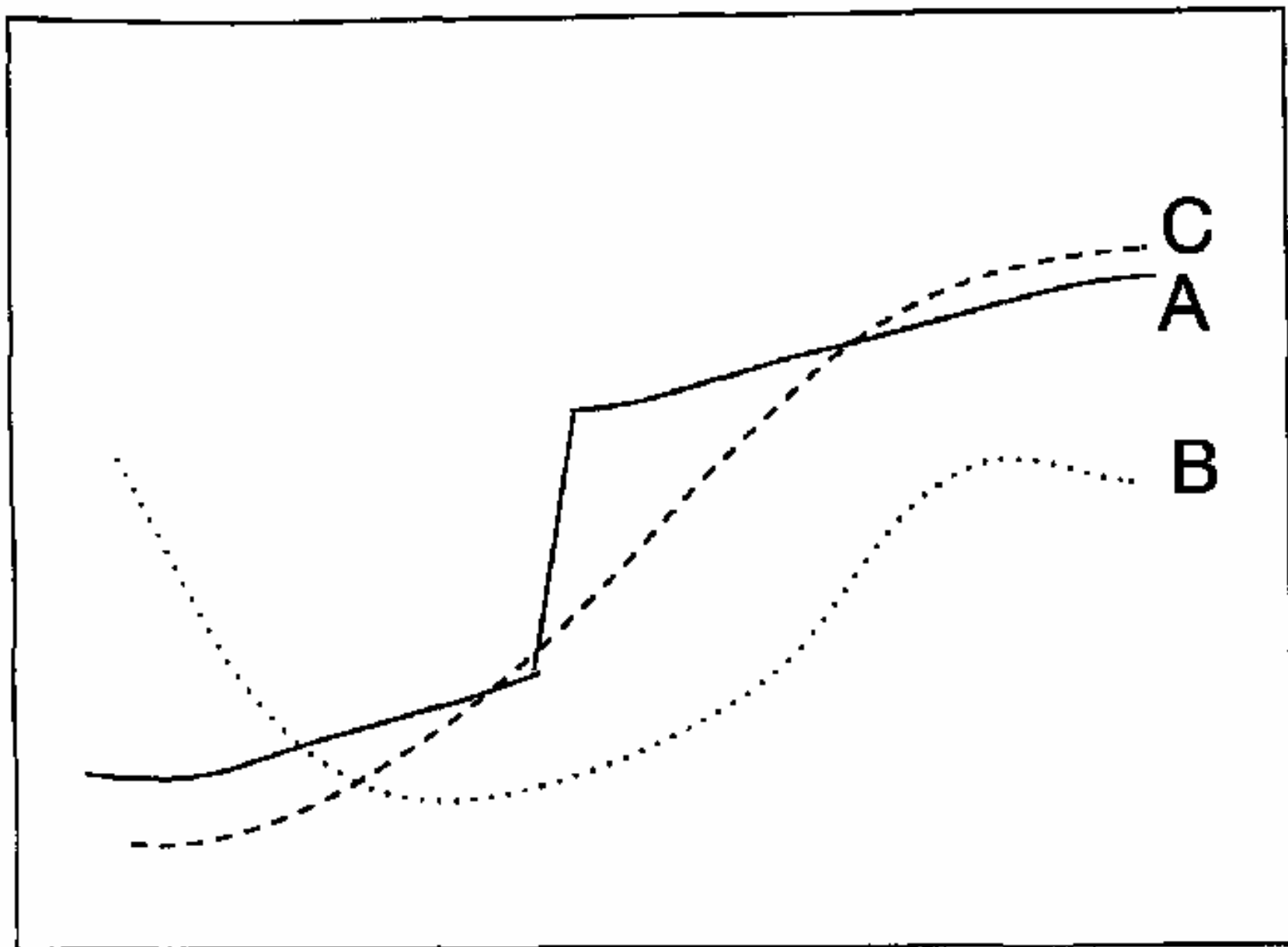
Disturbance Criteria

Has the forest ever been extensively or intensively **cut**?

Has the forest ever been **converted** by people to another type of ecosystem



Forest Attribute



Time



200-year cutoff

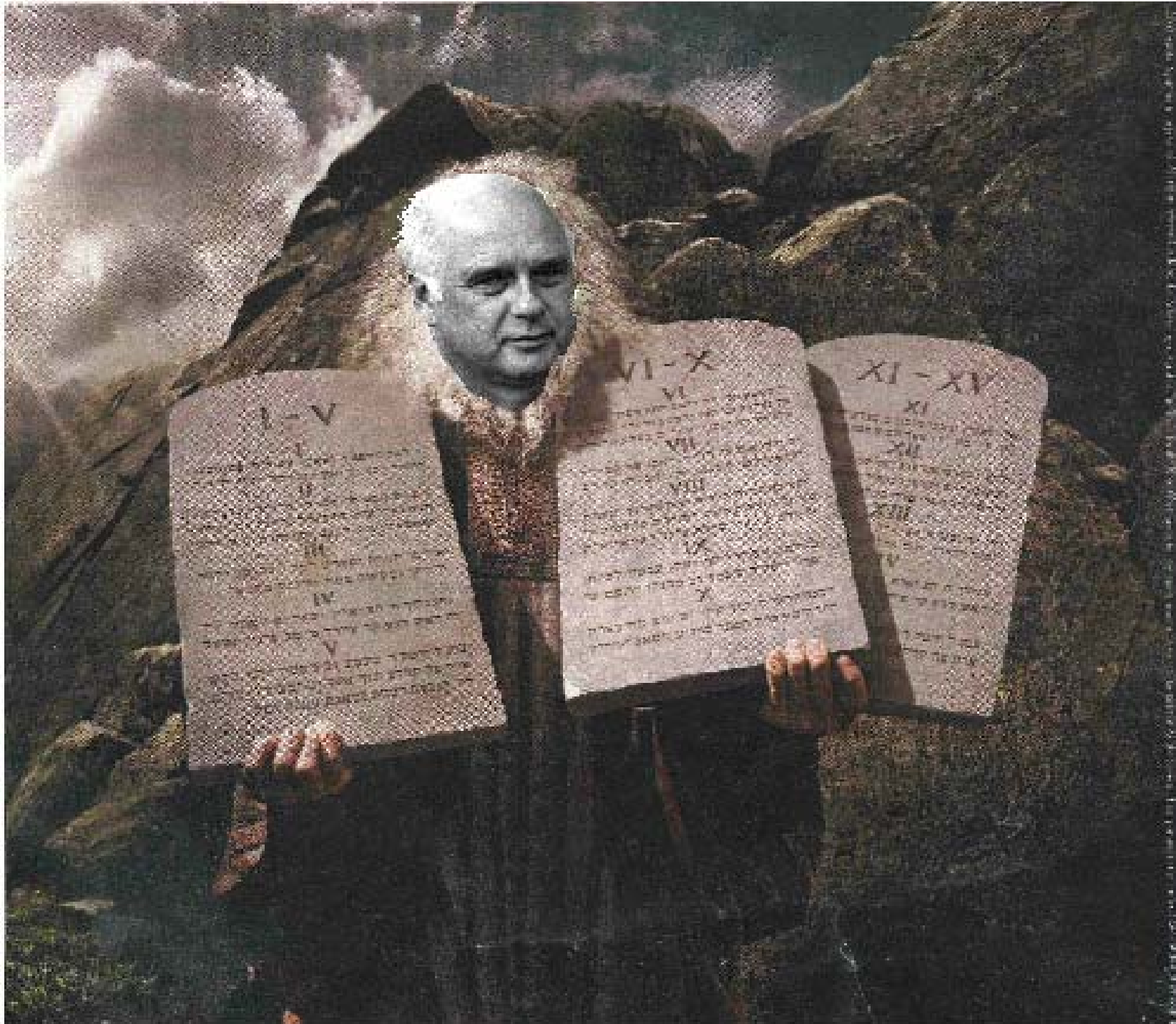
150-year cutoff

100-year cutoff









Severity of
Human Disturbance

