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PORT-ORFORD-CEDAR--A POOR RISK FOR REFORESTATION

by

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EDITOR'S
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Port-Orford-cedar (Chamaecyparis lawsoniana (A. Murr.) Parl.) has been the most widely used introduced species in reforestation projects in western Washington and Oregon. However, as a result of two recent and unrelated occurrences, a severe early cold wave and a destructive root disease, the advisability of continued planting of Port-Orford-cedar outside its natural range is questioned.

The species is native to a rather restricted area in Coos, Douglas, Curry, and Josephine Counties in southwestern Oregon and in Del Norte, Humboldt, and Siskiyou Counties in northwestern California. The best stands are found mainly within about 30 miles of the Pacific Coast, but the species occurs naturally as far inland as the western slope of the Cascade Range. In its natural range Port-Orford-cedar is normally associated with Douglas-fir and other conifers--usually as an understory species. It reproduces readily, has good form, puts on rapid initial growth when not subject to overstory competition, and is apparently adaptable to many different sites. The tree has a pleasing appearance and has been widely planted as an ornamental.

In mid-November 1955, following a mild fall with above-normal temperatures, the Pacific Northwest was subjected to a severe cold wave. The cold period was accompanied by high winds and sunny weather. Serious damage resulted to both native and introduced species in the forests of western Washington and northwestern Oregon. The bright red crowns of Port-Orford-cedars in mixed stands became conspicuous during the 1956 growing season.

Duffield ^{1/} summarizes the findings of a survey assessing damage to forests in western Washington. Among introduced species mentioned, Duffield reports that Port-Orford-cedar suffered heavy damage and mortality throughout the western part of the State. However, damage seemed to follow no consistent pattern of incidence or severity.

In Oregon, losses up to 100 percent of Port-Orford-cedar were encountered in parts of some plantations on the Tillamook Burn, whereas intermingled planted Douglas-firs were relatively unharmed. Other plantings, as far north as the Olympic Peninsula in Washington, showed varying degrees of damage, which ranged widely from stand to stand as well as within individual plantations. A typical example of the recent frost damage may be found near Ryderwood, Washington, in two plantations of mixed Douglas-fir and Port-Orford-cedar on Weyerhaeuser's St. Helens Tree Farm.^{2/} Sample plots within these 25-year-old stands reveal that about three-fourths of the cedars were seriously affected (table 1). Here, also, damage to Douglas-fir was negligible.

Table 1.--Damage to Port-Orford-cedar near
Ryderwood, Washington, resulting
from mid-November 1955 cold wave

Plot	Elevation	Mortality	Foliage kill of 60% or more
	<u>feet</u>	<u>percent</u>	<u>percent</u>
G-1	2,100	26	58
G-2	800	7	55

Although the circumstances associated with the cold wave were unusual, recurrence of similar phenomena in the Pacific Northwest is entirely possible.

^{1/} Duffield, John W. Damage to western Washington forests from November 1955 cold wave. U. S. Forest Serv. Pacific Northwest Forest and Range Expt. Sta. Research Note 129, 5 pp., illus. 1956.

^{2/} King, James E. Unpublished manuscript, Forestry Research Center, Weyerhaeuser Timber Company, Centralia, Washington. 1956.

In the late 1930's, a species of Phytophthora (P. lateralis Tuck. and Milb.) was found to be the cause of a serious root disease of varieties of Port-Orford-cedar used in nursery, landscape, and windbreak plantings in the Willamette Valley. It has proved to be almost 100 percent pathogenic to all varieties of Port-Orford-cedar, both in the natural state and in plantings.

The fungus has now been recorded on Port-Orford-cedar ornamentals and nursery stock throughout much of northwestern Oregon, western Washington, and southwestern British Columbia. In 1952, the disease was found on native Port-Orford-cedar near Coos Bay in southwestern Oregon. By 1956, it had spread within the natural range of Port-Orford-cedar through an area along the Pacific Coast from just south of Reedsport to Port Orford, and inland from the coastal shelf about 8 to 10 miles up the main drainages. Phytophthora lateralis has been found up the Coquille River as far as the Douglas County line between Remote and Camas Valley and between Myrtle Point and Powers.

No control method that would make it economically feasible to protect Port-Orford-cedar under forest conditions has yet been devised. Present evidence indicates that the species will be almost totally destroyed in any area where the disease becomes established.

It is recommended that because Port-Orford-cedar is more susceptible to cold injury than are native conifers and is subject to a very destructive root disease, the species not be used for reforestation projects in areas outside of its natural range.