



Abies amabilis

Pacific Silver Fir

In Washington, Pacific silver fir (*Abies amabilis*) occurs in the Olympic Mountains and the Cascade Range (Fowells 1965). It is found primarily on the western slopes of the Cascades, but does extend across the crest where it is a minor component in stands along the upper eastern slopes (Franklin and Dyrness 1973). Occasionally, Pacific silver fir is found near sea level on the western side of the Olympic Mountains, but in that area better growth tends to occur between elevations of 1500 and 4500 feet. In the northern Washington Cascades, Pacific silver fir occurs at elevations of 1900 to 4300 feet, while in the southern Washington Cascades it occurs between 3200 and 5000 feet (Franklin and Dyrness 1973).

Trees that are associated with Pacific silver fir include western hemlock, noble fir, Douglas-fir, mountain hemlock, Alaska yellow-cedar, western white pine, and subalpine fir.

Fowells (1965) noted that temperature has a greater influence on the range of Pacific silver fir than does precipitation. Campbell and Sorensen (1978) stressed that north-to-south seed movement has less risk than east-to-west movement in the Cascades, and that risk increases as elevation increases. A chemical analysis of resins in this species showed no differences between trees near Alaska and trees from northern California (Zavarin *et al.* 1979) suggesting there is little genetic variation within the species. Canadian seed transfer guidelines limit north-to-south movement of this species to two degrees latitude, east-to-west movement to three degrees longitude, and vertical movement to 300 meters (1000 feet) in elevation (BC Ministry of Forests 1995). These guidelines are based on several small, unpublished genetic studies of Pacific silver fir conducted in British Columbia (Cheng Ying, personal communication, August 2000).

The Olympic Mountains have greater annual precipitation, later fall frost, and more summer moisture than the Cascades (St. Clair and Vance-Borland 1998). Since the climate of the Olympic Mountains is slightly different than that of the Cascades and the two areas are geographically separate, the Olympic Mountains should be a separate seed zone.

New recommendations for seed transfer zone boundaries

ELWHA (Zone 1): The species range in the Olympic Mountains.

SKAGIT (Zone 2): Species range in the Washington Cascades from the Canadian border south to Interstate 90.

COWLITZ (Zone 3): Species range in the Washington Cascades from Interstate 90 south to the Columbia River.

Elevation bands within geographic seed transfer zones

Within each seed movement zone, 1000-foot elevation bands should be established.