Arbutus (Ra) - *Arbutus menziesii*

Page Index

BC Distribution of Arbutus (Ra)

Range of Arbutus

Pacific madrone very frequently grows in association with common douglas on rock outcrops along the shoreline of southern and eastern Vancouver Island, the Sunshine Coast, and the Gulf Islands

Geographic Range and Ecological Amplitudes

Description

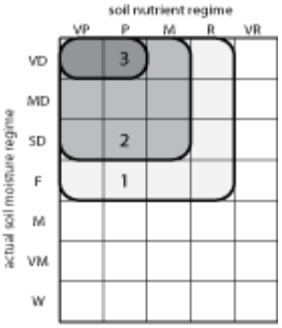
Pacific madrone is a tall shrub to small or medium-sized (< 30 m tall), evergreen broad-leaved tree, at maturity with an irregular, commonly short, umbrella-like shaped crown, leaning and crooked stem, and smooth, thin, reddish-brown bark, peeling in papery flakes and strips in summer to reveal olive green beneath. The bark is scaly at maturity. Pacific madrone is not grown for timber production; its wood utilization potential is very low.

Geographic Range

Geographic element:
Western North American/mainly Pacific and less Cordilleran

Distribution in Western North America:
central and south in the Pacific region; (central) and (south) in the Cordilleran region

Ecological Amplitudes



generalized edaphic amplitude of Pacific madrone according to actual soil moisture and nutrient regimes

Climatic amplitude:
cool and warm mesothermal

Orographic amplitude:
submontane - montane

Occurrence in biogeoclimatic zones:
CDF, (CWH)

Edaphic Amplitude:

Range of soil moisture regimes:
very dry - moderately dry - slightly dry - (fresh)

Range of soil nutrient regimes:
very poor - poor - medium - (rich); oxylophytic

On the basis of field studies, Krajina (1969) concluded that the nutritional requirements of Pacific madrone for nitrogen, calcium, magnesium, potassium, and phosphorus are low; no plant indicators of available soil nitrate-N grow in

the understory of Pacific madrone-dominated ecosystems.

Tolerance and Damaging Agents

Root System Characteristics

The root system of Pacific madrone exhibits large variations in pattern and length. 50-year-old trees often have a well-developed root burl from which a spreading root system composed of deep-spreading lateral roots develops. Roots are associated with ericoid mycorrhizae.

Tolerances

tolerance to	tolerance class	comments
low light	L	high tolerance in the seedling stage
frost	L	very sensitive to frost
heat	H	tolerates insolated sites
water deficit	H	very frequent on water-deficient sites
water surplus	L	absent on water-surplus sites
nutrient (mainly N) deficiency	H	tolerates acid, leached, very poor soils

Damaging Agents

damaging agent	resistance class	comments
snow	M	snowpack is infrequent in submaritime cool mesothermal climates
wind	M	firmly rooted, even on rock outcrops
	risk class	
fire	H	a major damaging agent
insect	L	not a serious concern
fungi	M	not a serious and major concern; leaf spots, leaf rust, tar spot, cankers (madrone canker), root disease

Associated tree species and successional role

In British Columbia, Pacific madrone grows in small, open to closed-canopy stands or, more often, mixed with common douglas, less often, with lodgepole pine, and rarely with Garry oak, on warm-aspect, water-deficient sites in southwestern coastal B.C., typically on rocky shores. It is often a pioneer species in primary succession on rock outcrops, and is present in early, mid-, and late (old-growth) stages of secondary succession.

Silvical Characteristics

characteristic	interpretive class	comments
reproduction capacity	H	fruit (drupe) production after 5 years; reproduces vegetatively by sprouting from numerous dormant buds formed at or just above the root collar
seed dissemination capacity	H	distributed by birds and animals
potential for natural regeneration in low light	L	higher, providing the presence of exposed mineral soil
potential for natural regeneration in the open	H	providing the presence of exposed mineral soil
potential initial growth rate (<5 years)	H	when originated from sprouts
response of advance regeneration to release	na	advance regeneration does not develop in the absence of adequate light and seedbeds
self-pruning capacity in dense stands	M	dense stands are infrequent
crown spatial requirements	L	develops an irregular crown
light conditions beneath closed-canopy, mature stands	H	closed-canopy stands are infrequent; associated with well-developed understory vegetation
potential productivity	na	non-crop species; site index functions have not been

		determined
longevity	M	occasionally >500 years

Genetics and Notes

Genetics

No natural varieties or hybrids of Pacific madrone are known.

Notes

Pacific madrone is the only broad-leaved evergreen tree species of British Columbia. Although not grown commercially for timber production, scattered native trees and stands are valued scenic assets in wildlands, parks, and urban areas with its limited B.C. range. More detailed silvics information is given by:

McDonald, P.M. and J.C. Tappeiner, II. 1990. Arbutus menziesii. Pp. 124-132 in R.M. Burns and B.H. Honkala (technical coordinators) Silvics of North America, Vol. 2. Agri. Handbook 654, USDA For. Serv., Washington, D.C.