

# Mountain alder (Dm) - *Alnus tenuifolia*

Tree Species > Mountain alder



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## BC Distribution of Mountain alder (Dm)

Range of Mountain alder



Mountain alder grows on very moist to wet, rich to very rich sites that typically support only marginal tree growth. These sites, usually stream-edge or depressions with small water pools, feature a well-developed herb layer and a low shrub layer, both consisting of nitrophytic species.

# Geographic Range and Ecological Amplitudes

## Description

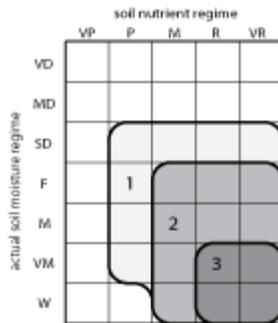
Mountain alder is a tall shrub to small-, rarely medium-sized (<15 m), deciduous broad-leaved tree, at maturity with a clumped, crooked stem and smooth grey or reddish-grey bark with horizontal orange lenticels. Mountain alder is a much less aggressive species than the related European grey alder [*Alnus incana* (L.) Moench] with which it is joined by some taxonomists as ssp. *tenuifolia* (Nutt.) Breitung.

## Geographic Range

Geographic element:  
Western North American/Pacific, Cordilleran, and marginally Central

Distribution in Western North America:  
(north) in the Pacific region, **north, central**, and south in the Cordilleran region

## Ecological Amplitudes



generalized edaphic amplitude of mountain alder according to actual soil moisture and nutrient regimes

### Climatic amplitude:

subarctic - subalpine boreal - montane boreal - cool temperate

### Orographic amplitude:

montane - subalpine

### Occurrence in biogeoclimatic zones:

(lower SWB), (lower ESSF), (MS), BWBS, SBS, (SBPS), IDF, ICH

### Edaphic Amplitude

#### Range of soil moisture regimes:

(slightly dry) - fresh - moist - **very moist - wet**

#### Range of soil nutrient regimes:

(poor) - medium - **rich - very rich**; calciphytic, living in symbiosis with nitrogen-fixing Frankia spp.

The nutritional requirements of mountain alder are similar to those of red alder.

## Tolerance and Damaging Agents

### Root System Characteristics

Mountain alder develops a fibrous root system with nodules that fix atmospheric nitrogen. The nodules are a symbiotic association between the tree and an actinomycete (*Frankia* spp.). Nodulation occurs soon after seed germination. Roots are associated with ecto- and endo-mycorrhizae.

### Tolerances

tolerance to	tolerance class	comments
low light	M	generally an exposure-requiring species
frost	H	frequent in frost pockets
heat	L	infrequent on insolated sites
water deficit	L	infrequent on slightly dry sites
water surplus	H	tolerates wet sites, flooding, and sites with a strongly fluctuating water table
nutrient (mainly N) deficiency	H	absent in acid, very poor soils

### Associated tree species and successional role

Mountain alder grows scattered in marginally forested, riparian and wetland ecosystems and in some areas forms dense thickets. It may be present as a pioneer species (primary succession) on floodplains; and occurs often in early and intermediate stages of secondary succession on floodplains and upland sites. As a moderately shade-tolerant tree, mountain alder maintains its presence in open-canopy riparian stands and wetlands.

### Silvical Characteristics

characteristic	interpretive class	comments
reproduction capacity	H	reproduces vegetatively from stump sprouts; early and frequent seed producer

seed dissemination capacity	H	dispersed by wind and water
potential for natural regeneration in low light	L	practically nil; developed mainly in canopy gaps
potential for natural regeneration in the open	H	providing the presence of exposed mineral soil
potential initial growth rate (<5 years)	H	if full light conditions are present
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	na	dense stands are very infrequent
crown spatial requirements	M	rarely develops to tree size
light conditions beneath closed-canopy, mature stands	na	closed-canopy stands are very infrequent
potential productivity	na	a non-crop species
longevity	L	rarely >60 years

## Genetics and Notes

### Notes

Unlike red alder, mountain alder is not a potential timber crop species; however, it is a useful component of wetland ecosystems, and its presence on upland sites results in increases in both nitrogen content and its availability in the soil, along with increases of organic matter and soil acidity, and decreases in bulk density.

Another two shrub alders occur frequently in interior British Columbia across a wide range of sites: Sitka alder [*Alnus sinuata* (Regel) Rydb.] and green alder [*Alnus viridis* (Chaix) DC. in Lamb & DC.]. They are calciphytic and grow in symbiosis with nitrogen-fixing bacteria. Because both are moderately shade-tolerant, they are very suitable as soil-ameliorating nurse species in the understory of coniferous stands, especially on nitrogen-poor sites, and on landslides.

Sitka alder hybridizes with green alder. This interspecific breeding would be intraspecific if Sitka alder is interpreted only as a subspecies of green alder, i.e., *Alnus viridis* (Chaix) DC. in Lam. & DC. ssp. *sinuata* (Regel) Love & Love. The North American and North Asian race of the circumpolar green alder was described as *Alnus viridis* (Chaix) DC. in Lam. & DC. subsp. *fruticosa* (Ruprecht) Nyman.