

DOUGLAS-FIR/DULL OREGON-GRAPE

Pseudotsuga menziesii/Mahonia nervosa

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Plant Community Information

Description

Old forests of this community are moderately open to closed stands of Douglas-fir (*Pseudotsuga menziesii*), with some grand fir (*Abies grandis*) and western redcedar (*Thuja plicata*). The last two tree species are more shade tolerant, but Douglas-fir can also regenerate in these stands, especially in small canopy gaps resulting from the death of trees. The moderate to dense shrub layer is dominated by dull Oregon-grape (*Mahonia nervosa*), salal (*Gaultheria shallon*), oceanspray (*Holodiscus discolor*), and trailing blackberry (*Rubus ursinus*). The herb layer is sparse but broad-leaved starflower (*Trientalis borealis* ssp. *latifolia*), sword fern (*Polystichum munitum*), and bracken fern (*Pteridium aquilinum*) are usually present. The well-developed moss layer is dominated by Oregon beaked moss (*Kindbergia oregana*) with electrified cat's-tail moss (*Rhytidiadelphus triquetrus*) and step moss (*Hylocomium splendens*) (Green and Klinka 1994).

This community occurs on middle slopes, on all aspects, at low elevations in the relatively dry and warm Strait of Georgia of coastal British Columbia. Parent materials are mostly morainal, occasionally colluvial or marine. Soils are mostly sandy loams with some gravelly, sandy, and silty loams, and are classified typically as Orthic Dystric Brunisols. Sites have a moderately dry moisture regime (relative within subzone) and a very poor to medium nutrient regime.

Distribution

Global

Originally these forests were widespread in the drier warmer portions of the Pacific coastal formation of western North America, from northwestern United States to southwestern British Columbia.

British Columbia

This community is restricted to low elevations along southeast Vancouver Island from Bowser to Victoria, the Gulf Islands south of Cortes Island, a narrow strip along the Sunshine Coast between Powell River and Lund, and near Halfmoon Bay, and on the Fraser River delta.

Forest region and districts

Coast: Chilliwack, South Island, Sunshine Coast

Ecoprovince and ecosections

GED: FRL, GEL, NAL, SGI, SOG

Biogeoclimatic unit

CDF: mm/01

Broad ecosystem unit

CD

Elevation

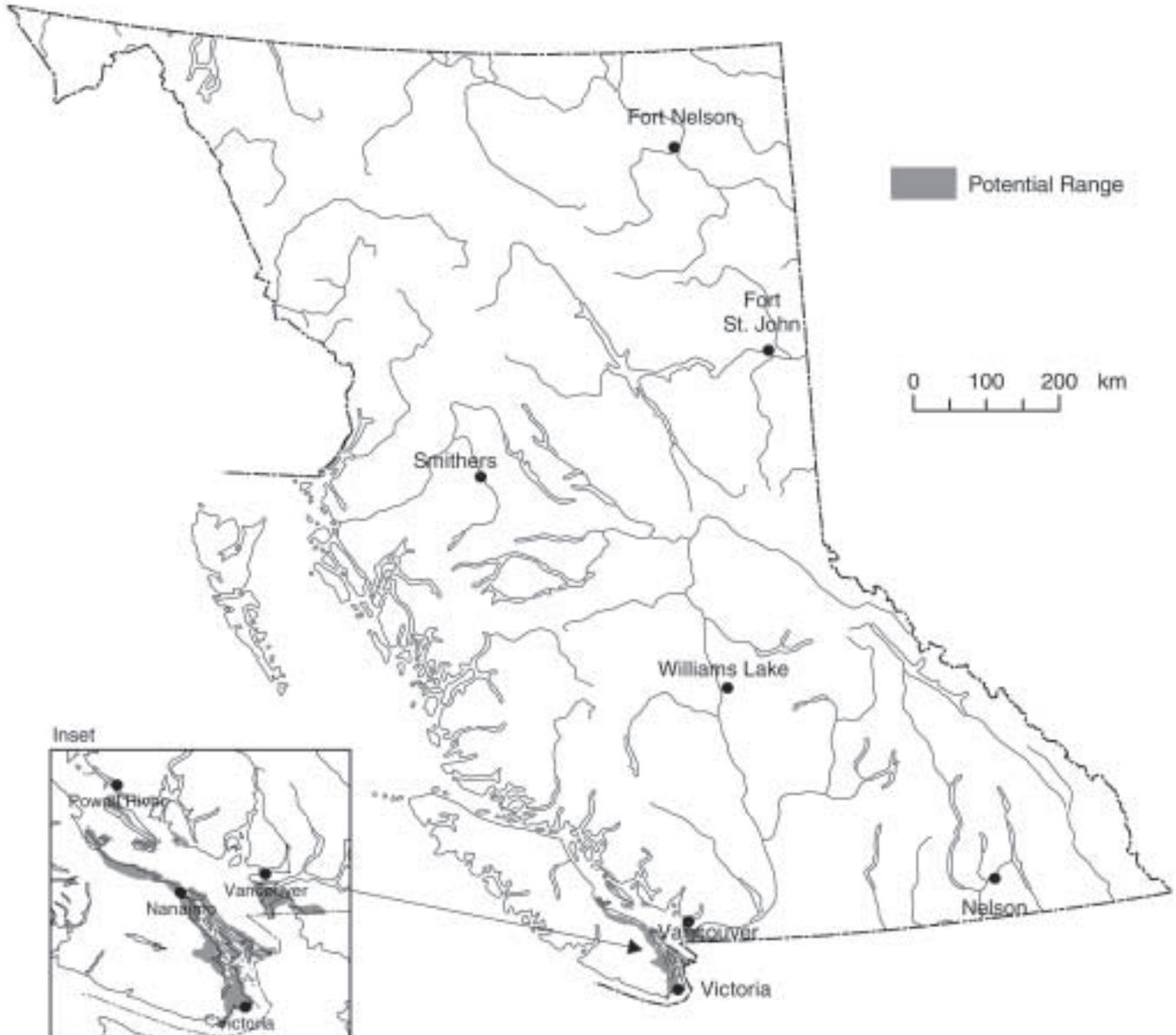
0–200 m

Plant Community Characteristics

Structural stage

- 5: more structurally complex stands, usually >80 years
- 6: mature forest
- 7: old forest

Douglas-fir / Dull Oregon-grape (*Pseudotsuga menziesii* / *Mahonia nervosa*)



Note: This map represents the potential area where this plant community may be found. The map is based on the Ecoregion and Biogeoclimatic ecosystem classifications as well as current knowledge of the distribution of the plant community. This plant community occurs as localized areas within the range represented.

Natural disturbance regime

Infrequent stand-initiating events (NDT2) (MOF and MELP 1995), primarily medium to high intensity but relatively small crown fires (perhaps every 150–200 years and 5–50 ha, on average) and occasionally windthrow. Individual or small groups of trees suffer direct mortality due to root rots, bark beetles, or indirect mortality via predisposition of attacked trees to blowdown. Locally, surface fires, due to aboriginal and post-contact burning as well as natural causes, were more frequent (perhaps every [20–] 50–100 years; see Brown and Hebda 1999) but were smaller and usually not stand replacing. These small surface fires likely contributed to the maintenance of a moderately open forest canopy and contributed to Douglas-fir regeneration. Gap dynamics prevail in old forests.

Fragility

Moderately fragile. At some sites, soils may be rather shallow around rock ridges and outcrops, so can be susceptible to degradation due to soil erosion and nutrient losses. These ecosystems may recover relatively quickly after stand-destroying disturbances, provided biological legacies such as standing dead trees, large old live trees, and large downed logs persist on site and there has been no damage or displacement of soil materials. Periodic summer drought could delay forest regeneration and slow recovery after disturbance. These forests are very susceptible to the introduction and spread of invasive species, especially after clearcut logging. Stands adjacent to urban or farm areas are susceptible to invasion by introduced garden species such as English ivy (*Hedera helix*), spurge-laurel (*Daphne laureola*), Scotch broom (*Cytisus scoparius*), and gorse (*Ulex europaeus*).

Conservation and Management

Status

The Douglas-fir/dull Oregon-grape plant community is on the provincial *Red List* in British Columbia. In British Columbia this community is ranked S2. Its global status is unknown; however, two similar plant communities in Washington and Oregon are ranked G3 and G2G3.

Trends

Almost gone. Less than 1% (possibly <0.5%) of the entire CDF zone remains in mature or old forest condition in British Columbia. These forests have been heavily logged virtually everywhere and sizeable areas were cleared for agriculture and human settlement. Approximately 30% of the original forest land in the CDF zone in British Columbia is currently non-forested developed land. The remaining secondary forests in both British Columbia and the U.S. Pacific Northwest have largely been industrialized and are managed on short rotations. Consequently, very little of this kind of coastal old growth is left in the world, and virtually all of it is in fragments.

Old remnants of this community are all small fragments (<40 ha) including those in protected areas. Most of what little remains outside of protected areas occurs on private land, and will continue to be lost to urban development and forest harvesting (as recently on Denman Island). Saltspring Island still has a few significant areas of old forest of this community on private and Crown lands (T.L. Fleming, pers. comm.).

Threats

Threats include urban and semi-rural development, small-scale but intensive agriculture, forest harvesting, livestock (sheep and goats) grazing, ungulate browsing (on Sidney Island), the introduction and spread of invasive species (e.g., daphne laurel, Scotch broom in early seral stages), and probably climate change.

Legal Protection and Habitat Conservation

There is no legal protection for plant communities except for those within protected areas and parks.

About 3% (~6700 ha) of the entire CDFmm subzone occurs in protected areas, of which little is mature or old forest. There are 27 small, mature, or old occurrences of this plant community in or partly within protected areas including John Dean, Goldstream, Gowlland Tod, South Otter Bay, Prevost Island, Tumbo Island, Ruckle, South Texada, Jedediah, and Sargeant Bay provincial parks, and Woodley Range, Mount Tuam, Mount Maxwell, Saturna, and Lasqueti ecological reserves. Thetis Lake, Mill Hill, and Francis-King regional parks on Saanich Peninsula, and Mill Farm Regional Park on Saltspring Island all support occurrences in older forest stages (T.L. Fleming, pers. comm.) as do Rocky Point/William Head and parts of Mary Hill (Dep. National Defense lands), and parts of Royal Roads (A. Ceska, pers. comm.).

Even within protected areas, much of the forest is secondary forest (i.e., logged from the mid-1800s on). Ecological integrity of all occurrences has been compromised by the unnatural ecosystem dynamics resulting from decades of fire prevention and suppression, from attrition of native species, from the introduction and spread of invasive species, and in many cases from grazing and browsing by domestic stock (sheep and goats in particular). These changes are exacerbated by the insular nature of the remnant older forests.

The *Forest Practices Code* guidelines for riparian management areas would not apply to this community. In addition, it is uncertain whether old growth management areas (OGMAs) will protect known occurrences because little old forest remains (<1%) within the CDF zone and current policy requires OGMAs to be selected from the non-timber harvesting land base wherever possible.

Identified Wildlife Provisions

Sustainable resource management and planning recommendations

This plant community was originally the matrix community type for the CDFmm. It was the most common and widespread community type of the subzone and may have covered as much as 135 000 ha. Today most of the remaining occurrences within the CDF are younger secondary forests. It is recommended to:

- ❖ maintain or recover at least 20 occurrences in good condition across the range of the plant community;
- ❖ maintain or restore occurrences to as close to natural condition as possible and practical;
- ❖ maximize connectivity of old forest within the CDFmm; and
- ❖ wherever possible, protect remaining occurrences through the placement of old growth management areas.

Wildlife habitat area

Goals

Maintain or recover known occurrences that could not be addressed through landscape level planning and the designation of old growth management areas.

Feature

Establish WHAs at occurrences that have been confirmed by a registered professional in consultation with the B.C. Conservation Data Centre or Ministry of Forests regional ecologists. Priority for WHAs should be any old or mature (structural stage 6 or 7) occurrences of this community that are in a relatively natural state and included within a larger area of younger forest. As a lower priority, establish WHAs within regenerating younger forests belonging to the same plant community, to recover community to climax condition. Select areas that are (in order of priority):

- the oldest, most structurally complex secondary forests available, ideally stands containing some old residual conifers;

- relatively lightly damaged and can be expected to recover to a more natural state;
- adjacent to occurrences of other natural plant communities;
- part of a network of reserve areas; and
- in areas where the forest community has been severely depleted.

Size

The size of the WHA should be based on the extent of the plant community occurrence including areas of younger stands where adjacent which will maximize the long-term viability of the plant community at a site. WHAs will be ~50 ha when in relatively pure composition, or where recovery is the main objective. However, WHAs may be larger (~200 ha) when the understorey community or tree layer has a patchy distribution or when the community occurs in complexes with other at-risk plant communities.

Design

The WHA should include the entire occurrence of the community plus a minimum of 80 m within adjacent natural area, or more at some sections if a barrier (e.g., road, agricultural area, developed area) is encountered at other sections of the boundaries. Boundaries should be designed to minimize edge effects and to the extent possible, be windfirm.

General wildlife measures

Goals

1. Maintain or restore plant community to a natural state (i.e., same species composition, physical structure and ecological processes as natural examples of the plant community) (see Roemer 1972; Meidinger and Pojar 1991; Green and Klinka 1994).
2. Maintain or enhance old forest structure (i.e., some large old trees, range of tree sizes, large snags, down logs, canopy depth and roughness, multiple vegetation strata, horizontal patchiness of understorey) (Spies 1998).
3. Maintain the ecological functions and processes of the plant community.
4. Maintain interior forest conditions and minimize edge effects.

5. Prevent physical disturbance, especially of the soil.
6. Minimize introduction and spread of invasive species.

Measures

Access

- Do not develop roads or trails.

Harvesting and silviculture

- Do not harvest or salvage except when required to create windfirm boundaries.
- Do not remove non-timber forest products.

Pesticides

- Do not use pesticides.

Recreation

- Do not develop recreational sites, trails, or facilities.

Additional Management Considerations

Minimize impacts to vegetation, soils, and hydrology when operating adjacent to a WHA, particularly during adjacent road development and maintenance.

Prevent or eliminate livestock grazing.

Restrict recreational use (i.e., dirt bikes, mountain bikes, and other off-road vehicles).

Reduce fuel accumulations and shade-tolerant understorey vegetation through controlled prescribed fire (where practical), manual or mechanical removal, which may or may not be combined with piling and burning.

Information Needs

1. Further inventory and confirmation of classification to clarify the extent of this community.
2. Mapping and assessment of the quality of remaining occurrences.
3. Identification of candidate forests for recruitment.

Cross References

Lewis's Woodpecker, "Interior" Western Screech-Owl, Keen's Long-eared Myotis, Red-Legged Frog

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