

# DOUGLAS-FIR/ALASKA ONIONGRASS

*Pseudotsuga menziesii/Melica subulata*

Original<sup>1</sup> prepared by J. Pojar

## Plant Community Information

### Description

Forests of this community have an open canopy of Douglas-fir (*Pseudotsuga menziesii*), often with Garry oak (*Quercus garryana*). Although this plant community has several manifestations, depending on disturbance and successional stage and chance, it usually includes both Douglas-fir and Garry oak as dominant or frequent trees. Hairy honeysuckle (*Lonicera hispidula*) is usually present in the sparse shrub layer. The herb layer is dominated by Alaska oniongrass (*Melica subulata*), with long-stoloned sedge (*Carex inops*), blue wildrye (*Elymus glaucus*), Pacific sanicle (*Sanicula crassicaulis*), big-leaved sandwort (*Moehringia macrophylla*), broad-leaved shootingstar (*Dodecatheon hendersonii*), nodding trisetum (*Trisetum canescens* var. *cernuum*), and cleavers (*Galium aparine*). Electrified cat's-tail moss (*Rhytidiadelphus triquetrus*) is the dominant moss. See Roemer (1972) and Green and Klinka (1994).

These communities occur on dry warm sites, typically on southerly aspects over inactive colluvial and sometimes morainal parent materials, at low elevations in the southern Strait of Georgia area. Soils are shallow, mostly sandy loamy, often with moderate coarse fragments, and are classified as Sombric Brunisols. Soil moisture is rated as very dry and the soil nutrient regime is rich to very rich.

### Distribution

#### Global

Originally this plant community was scattered and localized in the driest warmest portions of the Pacific coastal formation of western North America, especially in the Strait of Georgia–Puget Sound area

of British Columbia/Washington and in the Willamette Valley of Oregon. It is considered to be extirpated from Washington State.

### British Columbia

This community is restricted to low elevations along southeast Vancouver Island from Bowser to Victoria, and on the Gulf Islands south of Hornby and Lasqueti islands.

#### Forest region and districts

Coast: South Island, Sunshine Coast  
(Lasqueti Island)

#### Ecoprovince and ecosections

GED: NAL, SGI, SOG

#### Biogeoclimatic unit

CDF: mm/03

#### Broad ecosystem units

CD, GO

#### Elevation

0–150 m

## Plant Community Characteristics

### Structural stage

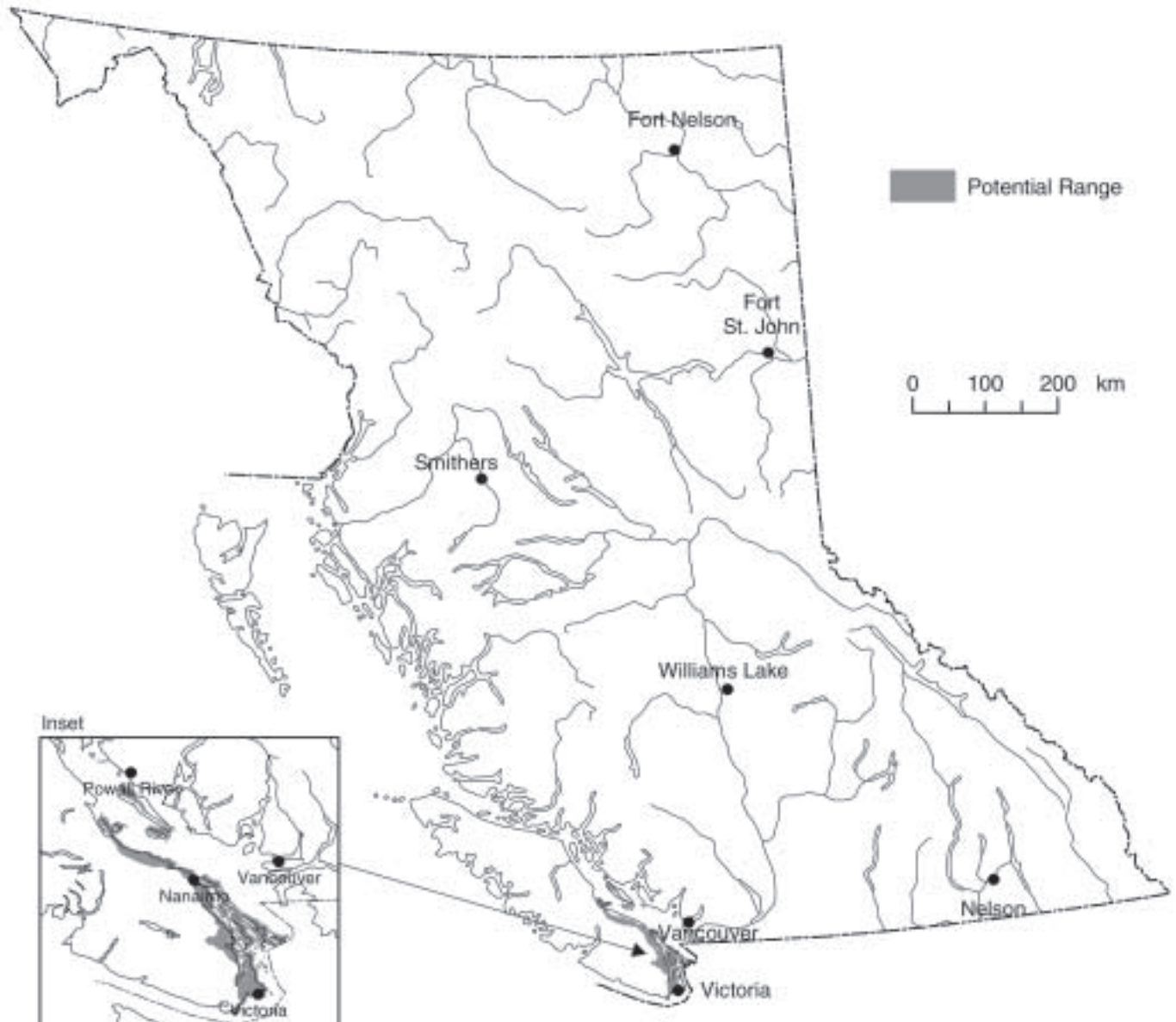
3–7

### Natural disturbance regime

Most likely a variant of frequent stand-maintaining fires (NDT4) (W.R. Erickson, pers. comm.). Infrequent stand-initiating events (NDT2) appear to have been the norm for this landscape (MOF and MELP 1995), primarily medium to high intensity

<sup>1</sup> Volume 1 account prepared by S. Flynn and C. Cadrin.

## Douglas-fir / Alaska Oniongrass (*Pseudotsuga menziesii* / *Melica subulata*)



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.

but relatively small crown fires (perhaps every 150–200 years and 5–50 ha, on average), and occasionally windthrow. However, local surface fires, due to First Nations and post-contact burning as well as natural causes, were more frequent but were smaller and usually not stand replacing. These fires helped maintain the open canopy, mixed nature, and understorey diversity of these forests. Individual or small groups of trees also suffer direct mortality due to root rots and defoliating insects and occasional severe drought, or indirect mortality via predisposition of attacked trees to blowdown. Possibly periodic mortality of Douglas-fir on sites rather extreme for the species allows the drought-tolerant but shade-intolerant Garry oak to persist. Roemer (2000) suggests that outbreaks of western oak looper (*Lambdina fiscellaria somnaria*) attack Douglas-fir as well as Garry oak and Douglas-fir bark beetle (*Dendroctonus ponderosae*) could be responsible for some of the Douglas-fir mortality. Garry oak seems to be able to largely survive the looper outbreaks, and so can persist in the stand even without fire.

### Fragility

Very fragile. Soils often are shallow around rock ridges and outcrops, so can be susceptible to degradation due to soil compaction and erosion. These ecosystems recover rather slowly after stand-destroying disturbances, due to droughty soils, invasion by exotic species like Scotch broom (*Cytisus scoparius*), gorse (*Ulex europaeus*), and spurge-laurel (*Daphne laureola*), and prolonged recruitment of structural elements such as standing dead trees, large old live trees, and large downed logs. Moisture stress can delay forest regeneration and slow recovery after disturbance. These mixed forests are very susceptible to invasive species, especially after logging or roadbuilding or any disturbance that exposes mineral soil.

## Conservation and Management

### Status

The Douglas-fir/Alaska oniongrass plant community is on the provincial *Red List* in British Columbia. It is ranked S1 in British Columbia. Its global rank is unknown.

### Trends

Almost gone. Less than 1% and possibly <0.5% of the entire CDF zone remains in mature or old forest condition in British Columbia. This community has a very restricted range and, historically, occurred infrequently and mostly in small patches in the natural landscape. Intact remnants of this community are all small fragments, including those in protected areas. Most of what little remains outside of protected areas occurs on private land. Few, if any, high quality occurrences are left.

### Threats

The CDFmm is a very small biogeoclimatic subzone with a high density of humans and long history of disturbance by humans, including extensive clearing and settlement. This plant community is naturally small and local in extent, but the localities are highly prized for upscale residences on favourable, scenic aspects, as well as small-scale logging and has been depleted to near-extirpation in British Columbia. Originally fragmentary and insular, it is even more so now.

Other threats include small but intensive agriculture, fire suppression, invasive species, recreation (especially mountain bikes, dirt bikes, all-terrain vehicles), grazing and browsing by domestic livestock (sheep and goats in particular), and deer (native and introduced, as on Sidney Island), and probably climate change.

## Legal Protection and Habitat Conservation

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

Approximately 3% (6700 ha) of the entire CDFmm is in protected areas but little of this is mature or old forest. There are several known occurrences within protected areas or parks (e.g., John Dean Provincial Park in North Saanich and Thetis Lake Regional Park in Victoria); however, many occur in active recreational areas and/or are fragmented by trails and subject to soil degradation and invasive species.

## Identified Wildlife Provisions

### Sustainable resource management and planning recommendations

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; and
- ❖ maximize connectivity between occurrences and within occurrences fragmented by development.

### Wildlife habitat areas

#### Goals

Maintain or recover known occurrences.

#### 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. All remaining occurrences >3 ha in any structural stage and in a relatively natural state should be designated as WHAs. As a lower priority, WHAs could be established within younger forests belonging to the same plant community. When choosing candidate areas for recovery, choose (in order of priority):

- the oldest, most structurally complex secondary forests available, ideally stands containing a component of veteran Douglas-fir and Garry oak;

- communities that are relatively lightly damaged—especially due to grazing/browsing—and can be expected to recover to a more natural state;
- communities that could become part of a network of reserve areas; and
- communities that are adjacent to natural occurrences of other plant communities.

#### Size

The size of the WHA should be based on the extent of the plant community occurrence. Remaining occurrences are typically <20 ha.

#### Design

A WHA should include the entire occurrence of the community and  $\pm 60$  m (approximately two tree heights) surrounding the occurrence. Boundaries should be designed to minimize edge effects and to the extent possible, be delineated along windfirm boundaries. This community tends to be adapted to strong winds.

### 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) (Roemer 1972; Meidinger and Pojar 1991; Green and Klinka 1994; Erickson 1996).
2. Maintain an open forest canopy or a range form very open to closed, but maintain a sparse shrub cover.
3. Prevent physical disturbance, especially of the soil.
4. Maintain or enhance old forest structure (at least some large old trees, range of tree sizes, large snags, down logs, canopy depth and roughness, multiple vegetation strata, horizontal patchiness of understory) (Spies 1998).
5. Maintain regeneration and recruitment of Garry oak.
6. Minimize introduction and spread of invasive species.

## Measures

### Access

- Do not develop roads or trails.

### Harvesting and silviculture

- Do not harvest or salvage.
- Do not conduct any silvicultural practices, other than those prescribed fire or restoration activities that fulfil the management goals and are approved by the statutory decision maker.

### 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 road development and maintenance and development of recreational trails or facilities.

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

Implement silvicultural and prescribed burning to reduce conifer ingress, fuel accumulations, and shade-tolerant understorey vegetation. Prescribed burning must be planned and implemented carefully and may be difficult to implement.

## Information Needs

1. Further inventory and confirmation of classification to clarify the extent of this community.
2. Mapping and assessment of the quality and integrity of remaining occurrences.
3. Assessment of the effectiveness of conservation efforts for this community.

## Cross References

Douglas-fir/dull Oregon-grape, Keen's Long-Eared Myotis, Lewis's Woodpecker, "Queen Charlotte" Goshawk

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