Western Redcedar–Douglas-fir/Vine Maple

Thuja plicata–Pseudotsuga menziesii/Acer circinatum

Original prepared by J. Pojar

Plant Community Information

Description

This forest community has a canopy of western redcedar (*Thuja plicata*) and Douglas-fir (*Pseudotsuga menziesii*). Western hemlock (*Tsuga heterophylla*) is usually present, but with low cover and as a subcanopy or suppressed tree, and Pacific yew (*Taxus brevifolia*) can be present, also with low cover. Black cottonwood (*Populus balsamifera* ssp. *trichocarpa*), red alder (*Alnus rubra*), and, in the south, bigleaf maple (*Acer macrophyllum*) can persist in mature seral stands. The shrub layer is usually sparse except for regeneration of redcedar and western hemlock, but vine maple (*Acer circinatum*) is locally frequent and often abundant in the south. The herb layer is diverse and characterized by false Solomon's-seal (*Maianthemum racemosum*), clasping twistedstalk (*Streptopus amplexifolius*), queen's cup (*Clintonia uniflora*), wild ginger (*Asarum caudatum*), and one-leaved foamflower (*Tiarella trifoliata* var. *unifoliata*); rattlesnake-plantain (*Goodyera oblongifolia*) and broadleaved starflower (*Trientalis borealis* ssp. *latifolia*) are common. Sword fern (*Polystichum munitum*) and spiny wood fern (*Dryopteris expansa*) are often abundant. The moss layer is dominated by step moss (*Hylocomium splendens*), coastal leafy moss (*Plagiomnium insigne*), Oregon beaked moss (*Kindbergia oregana*), and electrified cat's-tail moss (*Rhytidiadelphus triquetrus*), frequently also with pipecleaner moss (*Rhytidiopsis robusta*). See Green and Klinka (1994).

These forests occur at low elevations, on lower or level slope positions, on colluvial fans and aprons, on fluvial/colluvial fans and upper fluvial terraces, and sometimes on morainal deposits. Soils are moderately well drained but sometimes exhibit seepage or fluctuating water tables, and are sandy or loamy, frequently with lots of coarse fragments. Sites are slightly dry to fresh (relative within subzone), and nutrient conditions are rich to very rich.

Distribution

Global

Unknown.

British Columbia

Western redcedar–Douglas-fir/vine maple occurs in the drainages of the lower Fraser River east and north of Chilliwack, and in the eastern portion of the Coast/Cascade Mountains from upper Harrison Lake to the Homathko River.

Forest regions and districts

Coast: Chilliwack, North Island, Squamish, Sunshine Coast

Southern Interior: Cascades, Chilcotin

Ecoprovinces and ecosections

CEI: CCR, WCR

COM: EPR, KIM, NPR, SPR

SOI: LPR

Biogeoclimatic units

CWH: ds1/05

Broad ecosystem unit

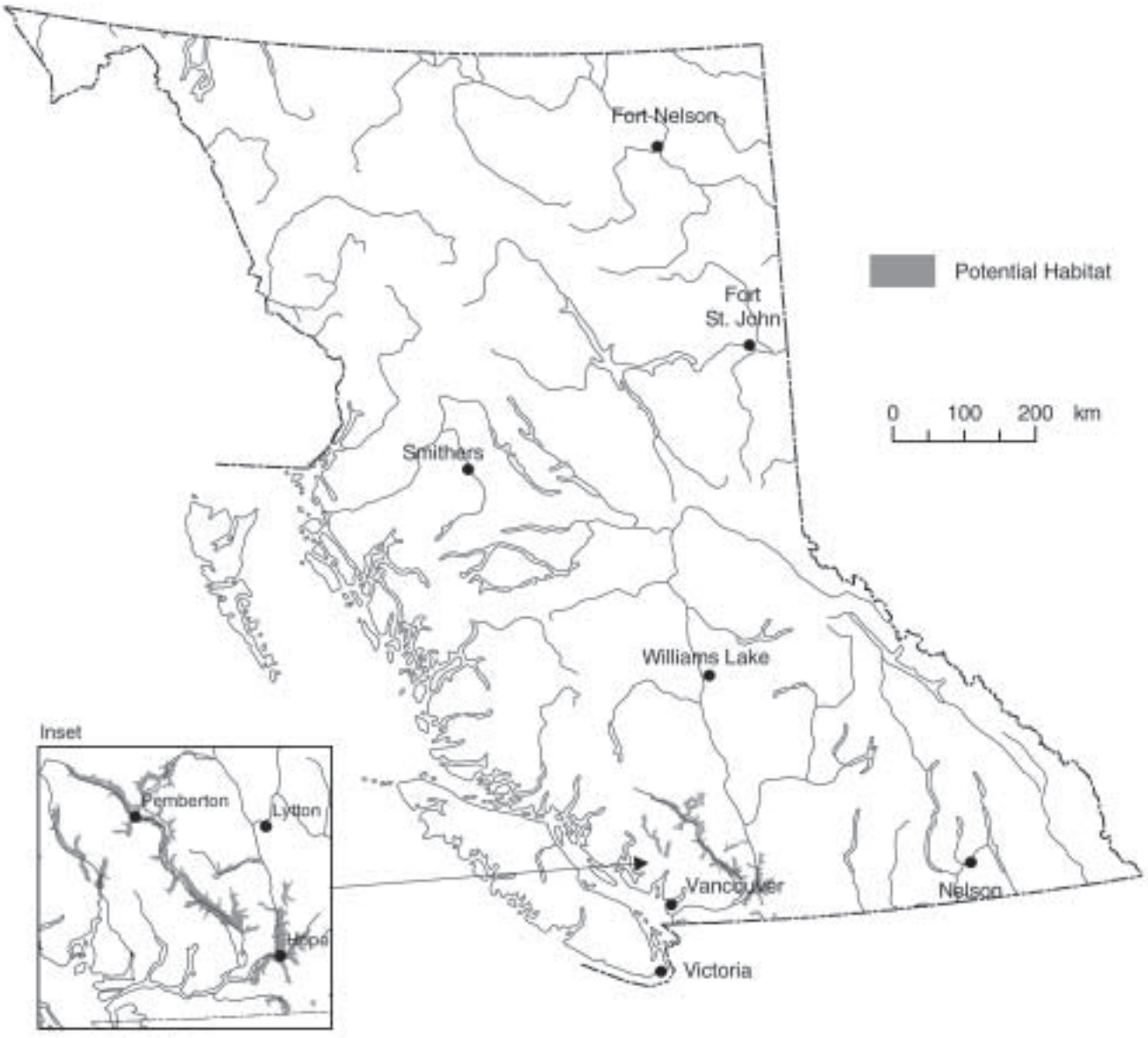
CW

Elevation

Near sea level to 650 m

Western Redcedar - Douglas-fir / Vine Maple

(Thuja plicata - Pseudotsuga menziesii / Acer circinatum)



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.

Plant Community Characteristics

Structural stage

6: mature forest
7: old forest

Natural disturbance regime

Infrequent stand-initiating events (NDT2) (MOF and MELP 1995), primarily wildfire (perhaps every 200–300 years, on average) and windthrow, sometimes snow avalanches and landslides. Occasional direct mortality of individual or small groups of trees due to defoliating insects and root rots, or indirect mortality via predisposition of attacked trees to blowdown (see Pojar et al. 1999). Gap dynamics prevail in old forests.

Fragility

Relatively robust. Soils typically are deep, somewhat coarse-textured, and nutrient-rich. Hence these sites are less susceptible to degradation due to soil compaction, erosion, and nutrient losses. They do sometimes occur on unstable landforms, however, and could be susceptible to mass movements, especially those triggered by forestry activity such as road building. They should also recover relatively quickly after stand-destroying disturbances, provided biological legacies such as snags and large downed logs persist on site. However, the transitional (i.e., between coast and interior) nature of the climate is reflected in periodic climatic extremes (summer drought, cold air ponding, outflow winter winds, heavy snows). The climatic factors can delay forest regeneration and could slow recovery after disturbance.

Conservation and Management

Status

The western redcedar–Douglas-fir/vine maple plant community is on the provincial *Red List* in British Columbia. It is ranked S1S2 in British Columbia. Its global rank is unknown.

Trends

The CWHds is a moderately sized subzone with a long history (by B.C. standards) of disturbance by humans. Many forest sites are productive with much old-growth Douglas-fir; thus, timber harvesting has been extensive. This plant community was rather widely distributed as small to moderately large patches over a localized area, but has been heavily logged over much of its range, and continues to be logged. It has also been reduced by urban and agricultural developments. Timber harvesting of remaining patches of old growth on these productive sites will continue, as will localized urbanization.

Threats

This plant community is primarily threatened by forest harvesting and consequent rarity of sizeable, old, high quality occurrences. Such high quality occurrences are rare both because they are naturally small, patchy, and heterogeneous, and because of the history of disturbance of these forests and the areas surrounding them. This community is also threatened from agricultural, rural, urban development (Fraser, Pemberton, and Bella Coola valleys) and probably climate change.

The greatly diminished connectivity of old forest in the CWHds is a serious issue, especially at the lower elevations typically occupied by this subzone. Most of the remaining patches of old growth outside of parks are fragments in a matrix of second growth.

Legal Protection and Habitat Conservation

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

Several occurrences potentially occur within parks and protected areas including Tweedsmuir (especially along middle Dean River and on the east side of Talchako River), Homathko, Mehatl, Chilliwack Lake, Skagit Valley, Garibaldi, and Birkenhead Lake parks.

The *Forest and Range Practices Act* guidelines for riparian management may not apply to some occurrences of this plant community. Old growth management areas (OGMAs) could address, at least in part, some occurrences provided old forest retention objectives cannot be met in the non-contributing land base. At this time it is not known to what extent OGMAs can address the occurrences of this plant community.

Identified Wildlife Provisions

Sustainable resource management and planning recommendations

Western redcedar–Douglas-fir/vine maple historically was widely distributed across the lower slopes of both large and small valleys within its range. It occurs as small to large patches, occasionally as linear systems along small creeks and streams. 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 both the CWHds1 and the CWHds2; 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 (structural stage 7) occurrences >10 ha and mature (structural stage 6) occurrences >50 ha and in a relatively natural state. Old patches should be buffered by younger stands in as natural a condition as possible. As a lower priority, establish WHAs within regenerating younger forests containing 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;
- part of a network of reserve areas;
- in areas where the forest community has been severely depleted; and
- 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. Typically occurrences of this plant community are between 30 and 200 ha.

Design

The WHA should include the entire occurrence of the community and ~100 m (approximately two tree heights) surrounding the perimeter of the occurrences. Boundaries should be designed to minimize edge effects and to the extent possible, be delineated along windfirm boundaries.

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 Green and Klinka 1994).
2. Maintain or enhance old forest structure (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 interior forest-interior conditions.
4. Prevent physical disturbance, especially of the soil.

5. 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 a windfirm boundary.

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.

Consider using prescribed fire in larger occurrences that are part of a very large protected area (e.g., Tweedsmuir) to promote natural characteristics.

Consider restoration techniques such as accelerating development of old forest structure or to replace (recruit) shade-intolerant species (e.g., when large veteran Douglas-fir or cottonwood die and are not naturally replaced). Consider fill-planting in a natural gap sufficiently large that full light conditions would occur in part of the opening, or create suitable openings through small-group selection logging.

Information Needs

1. Further inventory and confirmation of classification to clarify the extent of this community.
2. Mapping of present-day occurrences and assessment of structural stages and successional dynamics of the occurrences.
3. Identification of the most optimal networks to connect this and other listed communities in the CWHds.

Cross References

Grizzly Bear, Spotted Owl, western hemlock–Douglas-fir/electrified cat's-tail moss, western redcedar–Douglas-fir/devil's-club

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