

WESTERN HEMLOCK–DOUGLAS-FIR/ELECTRIFIED CAT’S-TAIL MOSS

Tsuga heterophylla–*Pseudotsuga menziesii*/*Rhytidiadelphus triquetrus*

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Plant Community Information

Description

This forest community has a canopy composed primarily of western hemlock (*Tsuga heterophylla*) and Douglas-fir (*Pseudotsuga menziesii*), with a lesser component of western redcedar (*Thuja plicata*). The shrub layer is rather sparse and not vigorous, with low cover of falsebox (*Paxistima myrsinites*), red huckleberry (*Vaccinium parvifolium*), black huckleberry (*Vaccinium membranaceum*), baldhip rose (*Rosa gymnocarpa*), and sometimes dull Oregon-grape (*Mahonia nervosa*). Twinflower (*Linnaea borealis*), queen’s cup (*Clintonia uniflora*), and prince’s pine (*Chimaphila umbellata*) dominate the moderately diverse herb layer. Other common herbs include rattlesnake-plantain (*Goodyera oblongifolia*), pink wintergreen (*Pyrola asarifolia*), one-sided wintergreen (*Orthilia secunda*), sword fern (*Polystichum munitum*), and bracken fern (*Pteridium aquilinum*). The moss layer is dominated by step moss (*Hylocomium splendens*), pipecleaner moss (*Rhytidiopsis robusta*), electrified cat’s-tail moss (*Rhytidiadelphus triquetrus*), and red-stemmed feathermoss (*Pleurozium schreberi*). See Green and Klinka (1994).

Zonal sites in the CWHds1. These forests occur mostly on middle slopes and higher terraces, on a variety of surficial deposits and on moderately well-drained soils with a range of textures, but tending to coarse-loamy rather than fine-loamy. Sites have medium to poor nutrient regime and fresh to somewhat dry soil moisture (relative within subzone).

Distribution

Global

Unknown.

British Columbia

In British Columbia, this community 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. It also occurs in subarctic and subcontinental areas north of the head of Knight Inlet, especially in the lower Klinaklini, Bella Coola, Talchako, and Dean valleys.

Forest regions and districts

Coast: Chilliwack, North Island, Squamish,
Sunshine Coast

Southern Interior: Cascades, Chilcotin

Ecoprovinces and ecosections

CEI: WCR

COM: CPR, EPR, NPR, SPR

SOI: LPR

Biogeoclimatic unit

CWH: ds1/01, ds2/01

Broad ecosystem unit

CW

Elevation

Near sea level to 650 m

Plant Community Characteristics

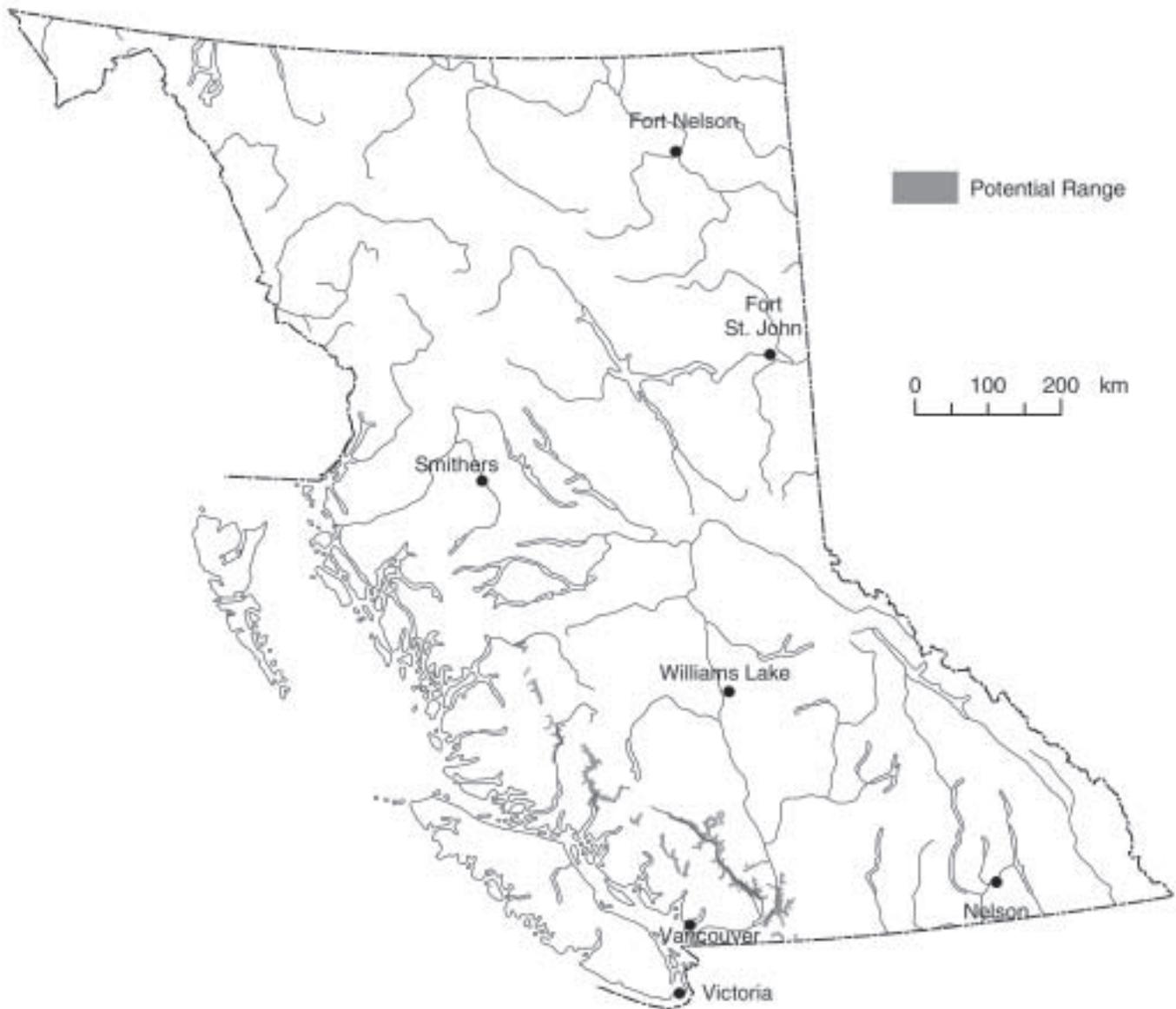
Structural stage

6: mature forest

7: old forest

Western Hemlock - Douglas-fir / Electrified Cat's-tail Moss

(*Tsuga heterophylla* - *Pseudotsuga menziesii*
/ *Rhytidiadelphus triquetrus*)



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 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

Low to moderate. Soils typically are deep, somewhat coarse-textured with a medium to poor nutrient regime. This plant community sometimes occurs on unstable landforms, and could be susceptible to mass movements, especially those triggered by forestry activity such as road building. It 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 hemlock–Douglas-fir/electrified cat’s-tail moss plant community is on the provincial *Red List* in British Columbia. It is ranked S2 in British Columbia. Its global status is unknown.

Trends

Exact calculations of the areal extent of this once predominant forest system are difficult to project. By definition, the zonal forest type of each biogeoclimatic subzone is the expression of the dominant landscape and climatic conditions and frequently

represents the largest area, proportionally, of all ecosystems within the subzone. However, this plant community has been heavily logged over much of its range, and continues to be logged. Urban and agricultural developments have also impacted this plant community. Timber harvesting of remaining patches of old and mature forest will continue, as will localized urban development. Large old or mature, high quality occurrences are now rare.

Threats

Primarily threatened by forest harvesting and the resulting loss and fragmentation of sizeable, old, high quality occurrences. Agricultural, rural, and urban development (Fraser Valley, Pemberton Valley, Bella Coola Valley) have also reduced the occurrence of this plant community.

The greatly diminished connectivity of old forest in the CWHds is a serious issue in the valleys, 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 younger second growth.

Legal Protection and Habitat Conservation

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

Known sites occur within several provincial parks including Tweedsmuir (especially along middle Dean River and on east side of Talchako River), Homathko, Mehatl, Chilliwack Lake, Skagit Valley, Garibaldi, and Birkenhead Lake.

Riparian management area guidelines are unlikely to be relevant for most occurrences of this plant community. Old growth management areas could address, at least in part, some occurrences provided old forest objectives cannot be met in the non-timber harvesting land base.

Identified Wildlife Provisions

Sustainable resource management and planning recommendations

This matrix forest community used to be widespread, forming the predominant forest matrix throughout much of its range. It is recommended to:

- ❖ maximize connectivity of old forest within the CWHds1;
- ❖ maintain or recover at least 20 large 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
- ❖ 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 of this community and include within a matrix of younger stands if necessary to attain a 40 ha minimum size that and mature (structural stage 6) occurrences >100 ha that are in a relatively natural state. As a lower priority, establish WHAs up to 100 ha 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 (e.g., adjacent or linked to other WHAs or to OGMAs or to riparian reserves);
- 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 a minimum of 40 ha.

Design

The WHA should include the entire occurrence of the community plus ± 100 m (approximately two tree heights) surrounding the community. Boundaries should be designed to minimize edge effects and 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 Green and Klinka 1994).
2. Maintain or enhance old forest structure (i.e., large old trees, range of tree sizes, large snags, down logs, canopy depth and roughness, multiple vegetation strata, horizontal patchiness of understory) (Spies 1998).
3. Maintain forest-interior conditions.
4. Prevent physical disturbance, especially of the soil.
5. Minimize introduction and spread of non-native species.

Measures

Access

- Do not develop roads or trails.

Harvesting and silviculture

- Do not harvest or salvage except when required to create a windfirm edge.
- 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 road development and maintenance.

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 stage and successional dynamics of the occurrences.
3. Identification of the most optimal networks to link this and other listed communities in the CWHds1.

Cross References

Spotted Owl

References Cited

- B.C. Ministry of Forests and B.C. Ministry of Environment, Lands and Parks (MOF and MELP). 1995. Biodiversity guidebook. Victoria, B.C. Forest Practices Code of B.C. guidebook.
- Green, R.N. and K. Klinka. 1994. A field guide to site identification and interpretation for the Vancouver Forest Region. B.C. Min. For., Victoria, B.C. Land Manage. Handb. No. 28.
- Pojar, J., C. Rowan, A. MacKinnon, D. Coates, and P. LePage. 1999. Silvicultural options in the Central Coast. Land Use Coordination Office, Victoria, B.C. Unpubl. report.
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