Landscape Forest Modelling: British Columbia Data Collection

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1 Introduction

The starting point of any landscape level forest model is the collection of data that will be included. This document outlines a starting point for this data collection for the province of British Columbia (BC). BC has an existing comprehensive online data base that will be the main source of data in this document. Different landscape models might require different data from alternative or private sources, depending on the scope, scale and objectives of the project. However, this documentation aims to outline the starting steps of creating a landscape level model with only publicly available data, that would be compatible with creating a status quo base-case scenario for BC.

2 DataBC Catalogue

The DataBC catalogue is an online data repository developed and maintained by different branches of the BC government. It hosts thousands of different datasets, generally in a variety of file formats. Identify and isolating the relevant datasets can be a lengthy process in the landscape level modelling process.

The DataBC Catalogue can be found at the following URL: https://catalogue.data.gov.bc.ca/.

DataBC has a limit on the amount of data that can be downloaded at one time. Many of the layers required for a forest model are too large to download the entire dataset. As such before starting to download layers the user must first spatially define an Area of interest (AOI). While there are a few ways to define an AOI in DataBC portal the most consistent way is to create a shapefile of the AOI that is held in a .zip file. To be compatible with DataBC this .zip file must only contain one single shapefile.

3 Starting Layers

The following are the starting layers that I recommend starting with to build a landscape level forest model in BC:

- Agricultural land reserves
- Biogeoclimatic regions with natural disturbance type
- Caribou herd locations
- Community watersheds
- Federal and Provincial parks
- First Nations statement of intent
- First Nations reserves
- Forest Tenure roads
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3.1 Detailed Layer Description

The following sections provides details on the starting layers. Each layer can be found by searching for the name in the DataBC catalogue.

Information in this section is adapted from the DataBC Catalogue unless otherwise indicated.

3.1.1 Agricultural land reserves

Description: Boundaries of the Agricultural land Reserves (ALR), which are parcels of land based on soil and climate deemed necessary to be maintained for agricultural use.

Name in DataBC Catalogue: ALC ALR Polygons

Layer Name: WHSE_LEGAL_ADMIN_BOUNDARIES.OATS_ALR_POLYS

Columns of importance: No individual columns are important. Need to know location to remove from the Timber harvesting land base (THLB). Selection binary.

3.1.2 Biogeoclimatic regions with natural disturbance type

Description: The Biogeoclimatic (BEC) system groups ecosystems at three levels of intergration: regional, local and chronological and combines four classification: vegetation, climate, site and seral stage [**?**].

Name in DataBC Catalogue: BEC Map

Layer Name: WHSE_FOREST_VEGETATION.BEC_BIOGEOCLIMATIC_POLY

Columns of importance:

> **Natural Disturbance Name:**Short column name: NTRLDSTRBN. Classifies the landscape in five categories indicating the frequency of stand-initiating events.

3.1.3 Caribou herd locations

Description: Contains the current caribou sub-population (herd) boundaries. Boundaries are derived from the best available science and expert knowledge. Sub-population boundary is the area required to be managed to achieve a self-sustaining populations. Boundaries do not overlap even though caribou ranges can overlap.

Name in DataBC Catalogue: Caribou Herd Locations for BC

Layer Name: WHSE_WILDLIFE_INVENTORY.GCPB_CARIBOU_POPULATION_SP

Columns of importance:

Herd Status: Indicates whether the polygon defines a caribou herd, trace occurrance or extirpated area.

Herd Name: User identifier for the herd name. Typically is a placename but can include name of individuals.

Risk Status: Indicates the level of risk that the caribou herd is experiencing at present.

3.1.4 Community watersheds

Description: Polygons designated as community watersheds by the BC government. They are all or part of the drainage area that is upslope of the lowest point from which water is diverted for human consumption. These areas require special management to conserve the quality and quantity and timing of water flow or to prevent the cumulative hydrological effects that could adversely impact water.

Name in DataBC Catalogue: Community Watersheds - Current

Layer Name:WHSE_WATER_MANAGEMENT.WLS_COMMUNITY_WS_PUB_SVW

Columns of importance:

CW Name: The name of the community watershed.

3.1.5 Federal Parks

Description: Provides the administrative boundaries of National Parks and National Park Reserves within the province of BC. Dataset is compiled from Legal Surveys Division's cadastral dataset and survey records.

Name in DataBC Catalogue: National Parks of Canada within BC

Layer Name:WHSE_ADMIN_BOUNDARIES.CLAB_NATIONAL_PARKS

Columns of importance:

English Name: The full official name of the federal park in English.

3.1.6 First Nations reserves

Description: Provides the administrative boundaries of Canada Lands which includes Indian Reserves.

Name in DataBC Catalogue: Indian Reserves - Administrative Boundaries

Layer Name:WHSE_ADMIN_BOUNDARIES.CLAB_INDIAN_RESERVES

Columns of importance: No individual columns are important. Need to know location to aid in identification of management objectives.

3.1.7 First Nations Statement of Intent

Description: Statement of intent (SOI) boundaries registered with the BC Treaty Commission.

Name in DataBC Catalogue: First Nation Statement of Intent Boundaries BC

Layer Name:REG_LEGAL_AND_ADMIN_BOUNDARIES.QSOI_BC_REGIONS

Columns of importance:

Name: The name of the First Nations group that has expressed a SOI for that specific area.

3.1.8 Forest Tenure Roads

Description: The spatial layer for road segments within a road permit. Contains the center line of the roads.

Name in DataBC Catalogue:

Layer Name:WHSE_FOREST_TENURE.FTEN_ROAD_LINES

Columns of importance: No individual columns are important. Need to know location to remove from the THLB and create buffers.

3.1.9 Geographic watersheds

Description: Polygons delineating the watershed boundaries, which are mesoscale aquatic units.

Name in DataBC Catalogue: Freshwater Atlas Assessment Waterhseds

Layer Name:WHSE_FISH.WDIC_WATERSHED_GROUP_POLY

Columns of importance: No individual columns are important. Polygons are used to delineate the AOI.

3.1.10 Harvested cut blocks

Description: Combines forest harvesting data from multiple data sets. Dataset depicts historical cut blocks on all land owner types that are recorded in the Ministry of Forest's system and estimations of the harvest year.

Name in DataBC Catalogue: Harvested Areas of BC (Consolidated Cutblocks)

Layer Name:WHSEFOREST_VEGETATION.VEG_CONSOLIDATED_CUT_BLOCKS_SP

Columns of importance:

Harvest year: The year of the harvest. Derived from the disturbance start date or from the year the disturbance was detected.

3.1.11 Lakes

Description: All lake polygons for the province.

Name in DataBC Catalogue: Freshwater Atlas Lakes

Layer Name:WHSE_BASEMAPPING.FWA_LAKES_POLY

Columns of importance: No individual columns are important. Need to know location to remove from the THLB and create buffers.

3.1.12 Landscape units

Description: Landscape unit (LU)'s are spatially delineated areas used for long-term planning and resource allocation. They are used in the development of strategic planning and provide direction on biodiversity, old growth retention, wildlife and timber harvesting.

Name in DataBC Catalogue: Landscape units of British Columbia - Current

Layer Name: WHSE_LAND_USE_PLANNING.RMP_LANDSCAPE_UNIT_SVW

Columns of importance:

Landscape unit name: Identifies the LU with the assigned name.

Biodiversity emphasis option: Has a range of three options: low, intermediate and high. Each options is designated to provide a different level of natural biodiversity within a given area. They are assigned using several criteria: topographic and ecosystem complexity, wildlife and fisheries species diversity,significance of key management species and social and economic consideration.

3.1.13 Old Growth Management Areas

Description: Contains the most current legal Old growth management area (OGMA) polygons and excludes sensitive information.

Name in DataBC Catalogue: Old Growth Management Areas - Legal - Current

Layer Name:WHSE_LAND_USE_PLANNING.RMP_OGMA_LEGAL_CURRENT_SVW

Columns of importance: No individual columns are important. Need to know location to remove from the THLB. Selection binary.

3.1.14 Provincial Parks

Description: Contains parks and protected areas managed for conservation values and are dedicated for the preservation of their natural environments for the inspiration, use and enjoyment of the public.

Name in DataBC Catalogue: BC Parks, Ecological Reserves and Protected Areas

Layer Name:WHSE_TANTALIS.TA_PARK_ECORES_PA_SVW

Columns of importance:

Protected Lands Name: Identifies the legal name of the provincial park.

3.1.15 River networks

Description: Contains line data for rivers in BC.

Name in DataBC Catalogue: Freshwater Atlas Rivers

Layer Name:WHSE_BASEMAPPING.FWA_RIVERS_POLY

Columns of importance: No individual columns are important. Need to know location to remove from the THLB and create buffers.

3.1.16 Road Network

Description: Provides information about roads in BC.

Name in DataBC Catalogue: Digital Road Atlas (DRA) - Master Partially-Attributed Roads

Layer Name:WHSE_BASEMAPPING.DRA_DGTL_ROAD_ATLAS_MPAR_SP

Columns of importance: No individual columns are important. Need to know location to remove from the THLB and create buffers.

3.1.17 Stream networks

Description: Flow network arcs (observed, inferred and constructed). Contains no banks, coast or watershed bourdary arcs. Directionalized and connected.

Name in DataBC Catalogue: Freshwater Atlas Stream Network

Layer Name:WHSE_BASEMAPPING.FWA_STREAM_NETWORKS_SP

Columns of importance: No individual columns are important. Need to know location to remove from the THLB and create buffers.

3.1.18 Tenure holder types

Description: Identifies the primary ownership of forest lands across BC.

Name in DataBC Catalogue: Generalized Forest Cover Ownership

Layer Name:WHSE_FOREST_VEGETATION.F_OWN

Columns of importance:

> **Ownership Description:**Describes the highest ranked ownership and administrative responsibility for the area within the polygon.

3.1.19 Timber supply units

Description: Spatial representation for a Timber supply area (TSA) or a glstsa supply block. Areas are designated by the government for Annual allowable cut (AAC) determination, and allocation.

Name in DataBC Catalogue: FADM - TSA

Layer Name:WHSE_ADMIN_BOUNDARIES.FADM_TSA

Columns of importance:

> **TSA:**The unique number that identifies an area of the province for the purpos of analysis, planning and management of the timber resources.

3.1.20 Ungulate winter range areas

Description: Contains approved legal boundaries for ungulate winter range and specified areas for ungulate species.

Name in DataBC Catalogue: Ungulate Winter Range - Approved

Layer Name:WHSE_WILDLIFE_MANAGEMENT.WCP_UNGULATE_WINTER_RANGE_SP

Columns of importance:

> **UWR Number:** An alphanumeric tag identifying the group of polygons in the ungulate winter range.
>
> **UWR Unit Number:** A unique alphanumeric string assigned to each plygon unit with a group of polygons that have the same ungulate winter range tag.
>
> **Timber Harvest Code:** The information on timber harvest in the ungulate winter range polygon under Forest Ranges and Practices Act (FRPA).

3.1.21 Visual landscape inventory

Description: Delineates areas of visual sensitivity near communities and along travel corridors throughout the province. Includes information about the visual condition, characteristics and sensitivity to alteration.It includes the VQO attributes.

Name in DataBC Catalogue: Visual Landscape Inventory

Layer Name:WHSE_FOREST_VEGETATION.REC_VISUAL_LANDSCAPE_INVENTORY

Columns of importance:

REC VAC Final Value Code: Visual absorption capacity

REC EVQO Code: Established VQO

3.1.22 Vegetation Resource Inventory

Description: A composite table comprising of the polygon table attributes joined to the attributes from the non-vegetated, non-treed, land cover component, map label and history linkage tables. Comprised of spatial layers for the collection, manipulation and production of forest inventory data, which has an accompanying texual attributes.

Name in DataBC Catalogue: VRI - 2022 - Forest Vegetation Composite Polygons

Layer Name:veg_comp_poly_and_layer_2022.gdb

Columns of importance: Detailed information about all of the columns in the VRI can be found in the vri Relational Data Dictionary

3.1.23 Wetlands

Description: All wetland polygons for the province.

Name in DataBC Catalogue: Freshwater Atlas Wetlands

Layer Name:WHSE_BASEMAPPING.FWA_WETLANDS_POLY

Columns of importance: No individual columns are important. Need to know location to remove from the THLB and create buffers.

3.1.24 Wildlife habitat areas

Description: Contains the approved legal boundaries for wildlife habitat areas and specified areas for species at risk and regionally important wildlife.

Name in DataBC Catalogue: Wildlife Habitat Areas - Approved

Layer Name:WHSE_WILDLIFE_MANAGEMENT.WCP_WILDLIFE_HABITAT_AREA_POLY

Columns of importance:

Common Species Name: The common name of the species that is protected by wildlife legal boundaries.

Timber Harvest Code: Information about timber harvest in the wildlife habitat area under FRPA.

4 Summary

If all of the previous datasets have been successfully downloaded, you should have all the starting data required to build a landscape level forest model. For the next steps in creating the input files check out ... CURRENTLY IN PROGRESS.