

FRST 547: Forestry in British Columbia

Objectives: *To introduce you to -*

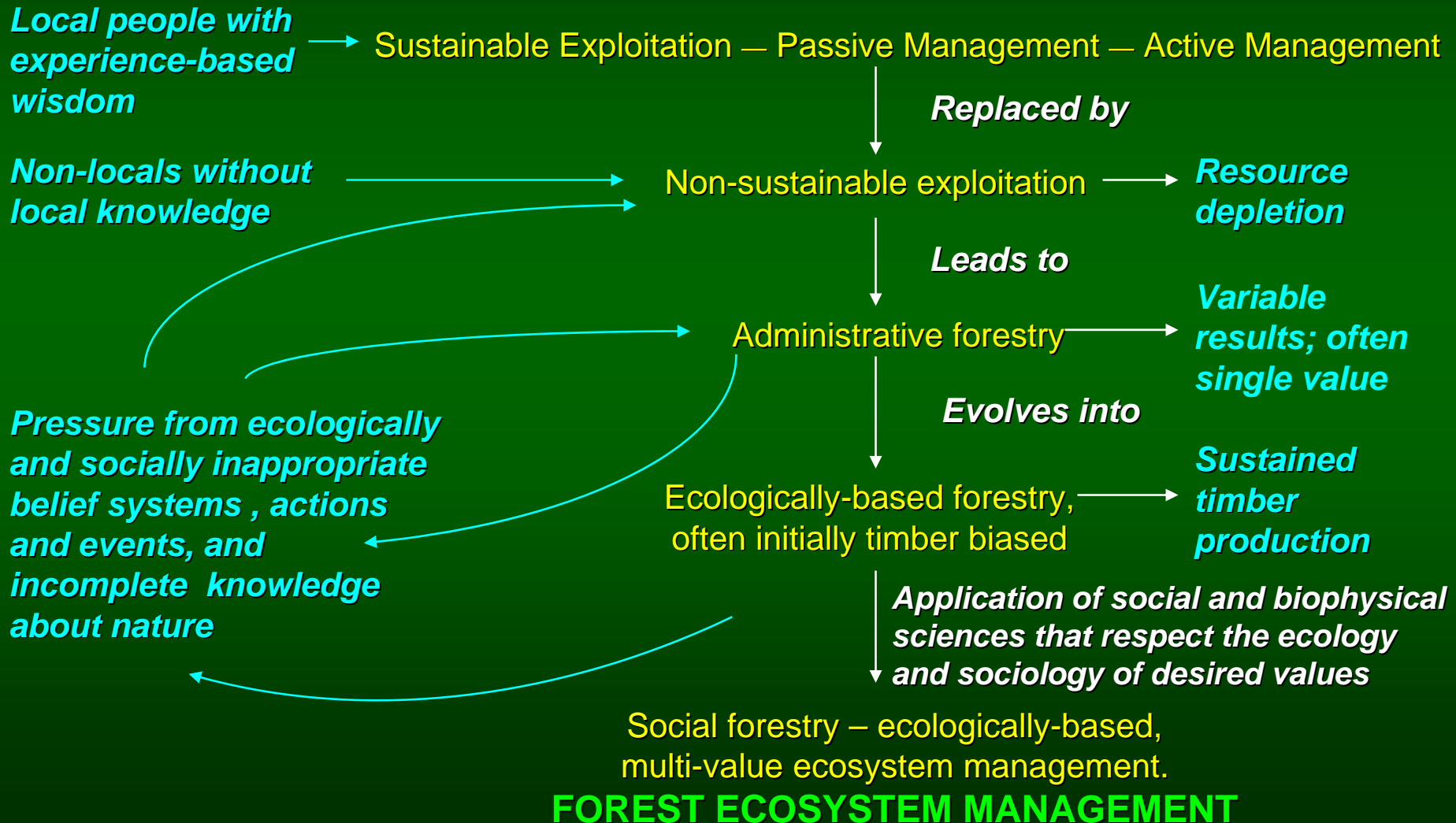
- the biophysical and social diversity of B.C. forests
 - the regulation of forestry on public forest lands
 - issues in B.C. forestry
- so that you can make informed judgment about what you see and hear about our forests and their management*

Forestry: what is it?

The art (skill), practice, science and business of managing forest stands and landscapes to sustain an ecologically possible and socially desirable balance of values over appropriate spatial and time scales

Forestry is managing forest ecosystems to sustain desired values by sustaining the necessary ecological processes and components

The Evolution of Forestry



Brief History of Forestry in B.C.

- 6,000 years+ of sustainable exploitation, and passive or active management

Brief History of Forestry in B.C.

- 6,000 years+ of sustainable exploitation, and passive or active management
- In eastern Canada, 200 years of non-sustainable exploitation followed by 100 years of management following European contact

Brief History of Forestry in B.C.

- 6,000 years+ of sustainable exploitation, and passive or active management
- In eastern Canada, 200 years of non-sustainable exploitation followed by 100 years of management following European contact
- 150 years of the same in B.C.

Brief History of Forestry in B.C.

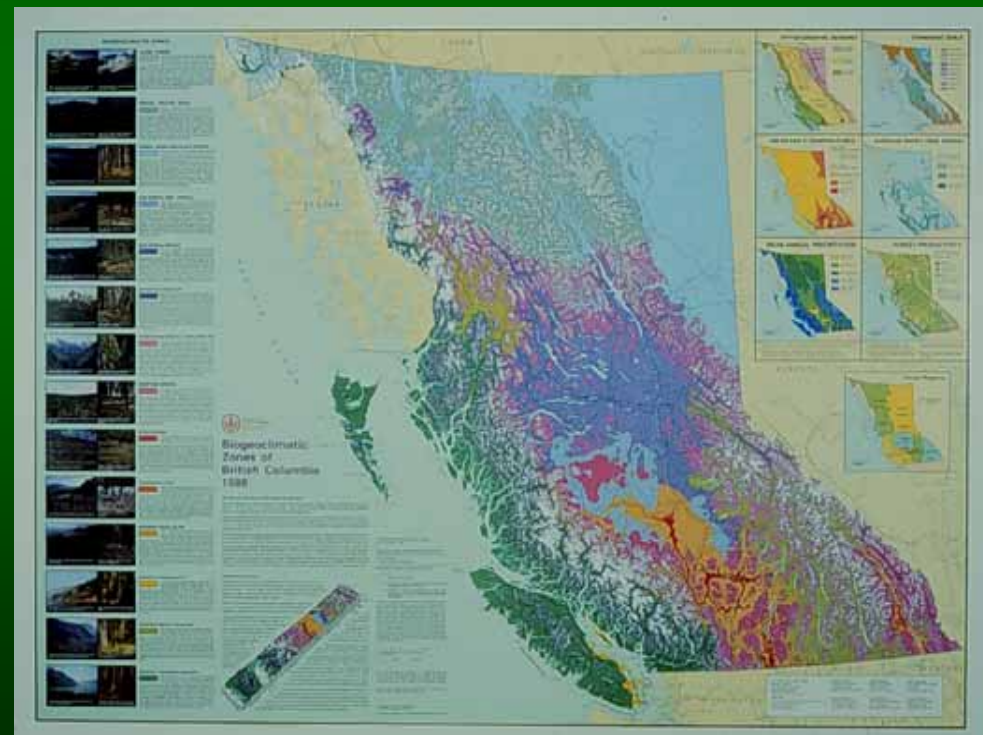
- 6,000 years+ of sustainable exploitation, and passive or active management
- In eastern Canada, 200 years of non-sustainable exploitation followed by 100 years of management following European contact
- 150 years of the same in B.C.
- Development of ecologically-based forest management in B.C. only in the past 25 years – much evidence of the consequences of exploitative logging remain

British Columbia: What is it?

The Ecological and Biological Diversity of BC.

Described in the bio – geo- climatic classification of British Columbia

Good web site: <http://hlfimages.com/bec/>



BIOGEOCLIMATIC ZONES



ALPINE TUNDRA
 This zone is found in the high mountains of the Coast Range and the Selkirk Mountains. It is characterized by low-growing, hardy plants and a short growing season. The climate is cold and dry, with heavy snow cover in winter.

SPARSE MOUNTAIN SPRUCE
 This zone is found in the high mountains of the Coast Range and the Selkirk Mountains. It is characterized by low-growing, hardy plants and a short growing season. The climate is cold and dry, with heavy snow cover in winter.

SPARSE MOUNTAIN WEST-SIDE SPRUCE
 This zone is found in the high mountains of the Coast Range and the Selkirk Mountains. It is characterized by low-growing, hardy plants and a short growing season. The climate is cold and dry, with heavy snow cover in winter.

U.S. MOUNTAIN WEST-SIDE SPRUCE
 This zone is found in the high mountains of the Coast Range and the Selkirk Mountains. It is characterized by low-growing, hardy plants and a short growing season. The climate is cold and dry, with heavy snow cover in winter.

U.S. MOUNTAIN SPRUCE
 This zone is found in the high mountains of the Coast Range and the Selkirk Mountains. It is characterized by low-growing, hardy plants and a short growing season. The climate is cold and dry, with heavy snow cover in winter.

WESTERN REDWOODS
 This zone is found in the high mountains of the Coast Range and the Selkirk Mountains. It is characterized by low-growing, hardy plants and a short growing season. The climate is cold and dry, with heavy snow cover in winter.

WESTERN REDWOODS (WEST-SIDE)
 This zone is found in the high mountains of the Coast Range and the Selkirk Mountains. It is characterized by low-growing, hardy plants and a short growing season. The climate is cold and dry, with heavy snow cover in winter.

WESTERN REDWOODS (EAST-SIDE)
 This zone is found in the high mountains of the Coast Range and the Selkirk Mountains. It is characterized by low-growing, hardy plants and a short growing season. The climate is cold and dry, with heavy snow cover in winter.

WESTERN REDWOODS (WEST-SIDE)
 This zone is found in the high mountains of the Coast Range and the Selkirk Mountains. It is characterized by low-growing, hardy plants and a short growing season. The climate is cold and dry, with heavy snow cover in winter.

WESTERN REDWOODS (EAST-SIDE)
 This zone is found in the high mountains of the Coast Range and the Selkirk Mountains. It is characterized by low-growing, hardy plants and a short growing season. The climate is cold and dry, with heavy snow cover in winter.

WESTERN REDWOODS (WEST-SIDE)
 This zone is found in the high mountains of the Coast Range and the Selkirk Mountains. It is characterized by low-growing, hardy plants and a short growing season. The climate is cold and dry, with heavy snow cover in winter.

WESTERN REDWOODS (EAST-SIDE)
 This zone is found in the high mountains of the Coast Range and the Selkirk Mountains. It is characterized by low-growing, hardy plants and a short growing season. The climate is cold and dry, with heavy snow cover in winter.

Biogeoclimatic Zones of British Columbia 1988

Biogeoclimatic Zones of British Columbia

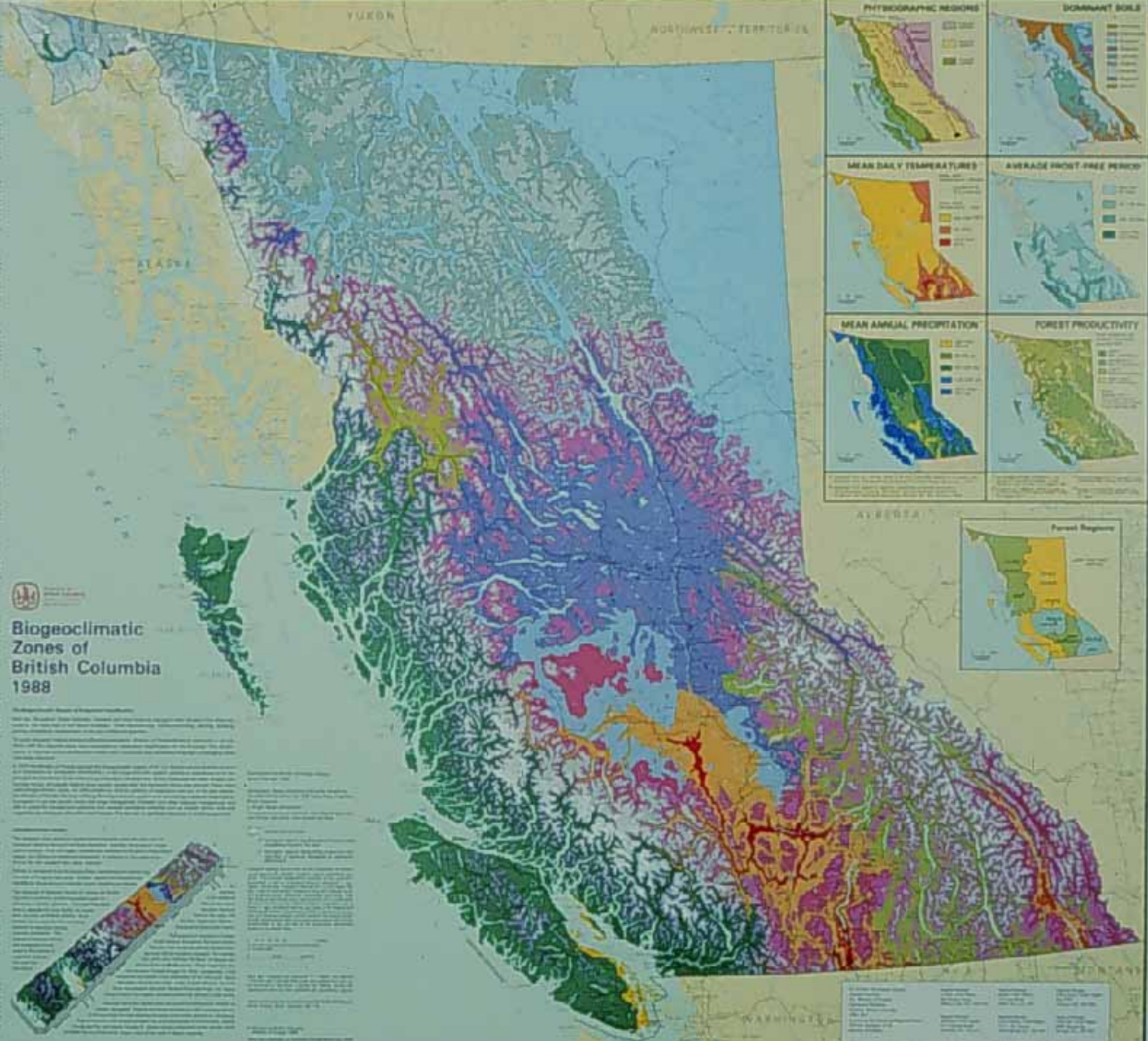
This map shows the distribution of 12 biogeoclimatic zones across British Columbia. The zones are defined by their climate, vegetation, and soil characteristics. The map is color-coded to show the geographic extent of each zone, from the alpine tundra in the north to the temperate rainforests in the south.

Legend:

- Alpine Tundra
- Sparse Mountain Spruce
- Sparse Mountain West-Side Spruce
- U.S. Mountain West-Side Spruce
- U.S. Mountain Spruce
- Western Redwoods
- Western Redwoods (West-Side)
- Western Redwoods (East-Side)
- Western Redwoods (West-Side)
- Western Redwoods (East-Side)
- Western Redwoods (West-Side)
- Western Redwoods (East-Side)



YUKON NORTHWEST TERRITORIES

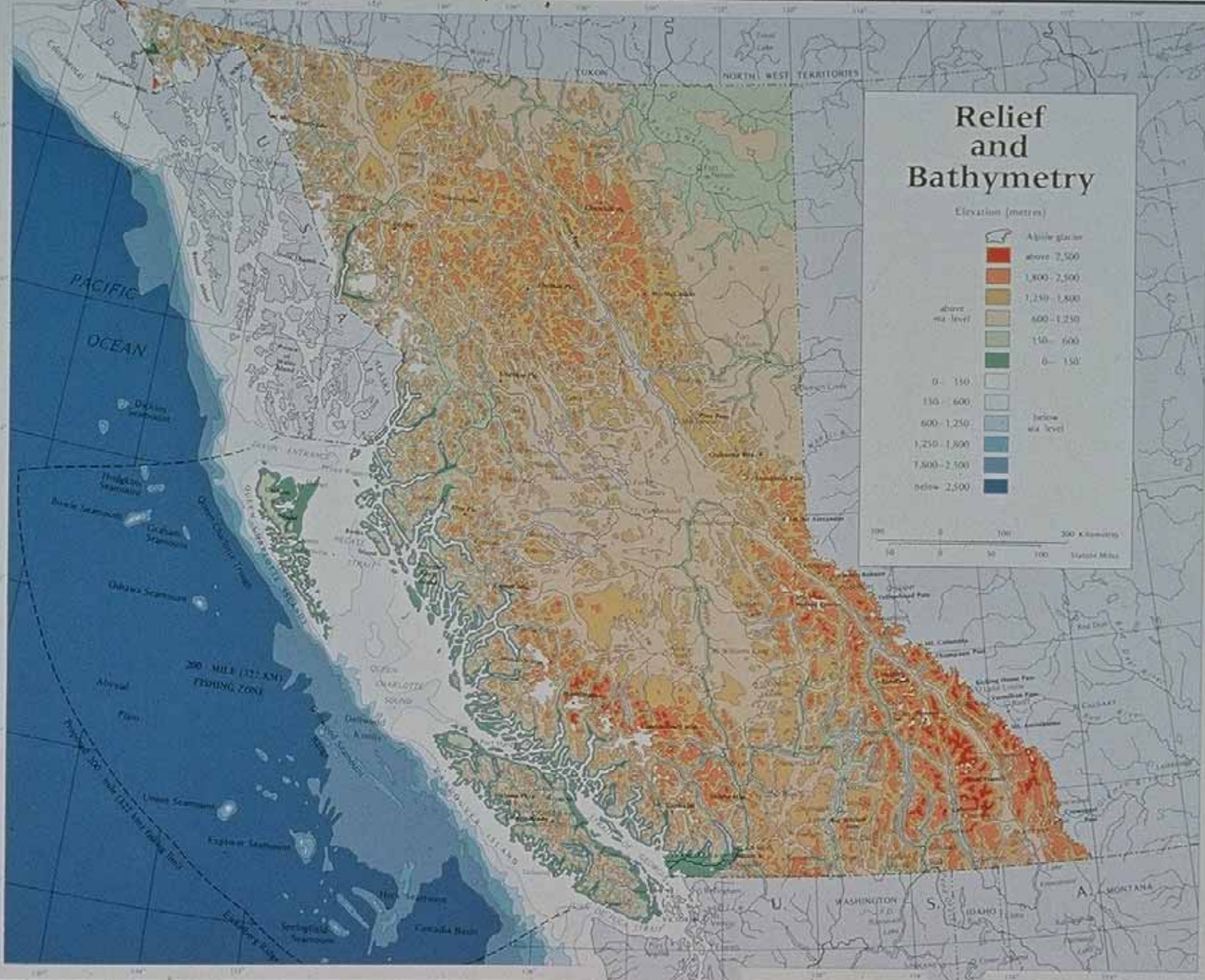
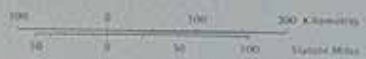


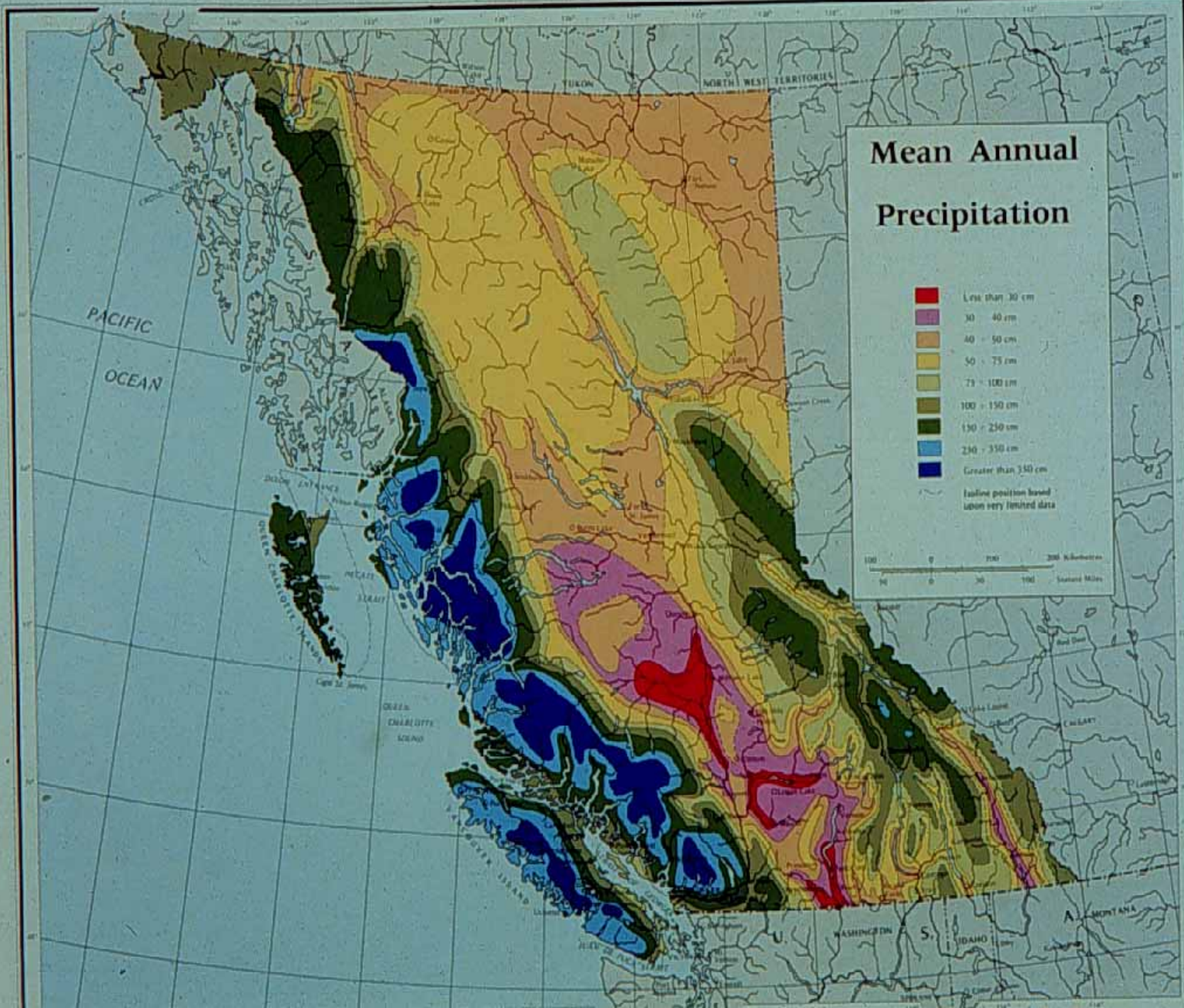
Zone	Climate	Vegetation	Soils
Alpine Tundra	Cold, dry, high elevation	Low-growing, hardy plants	Thin, rocky soils
Sparse Mountain Spruce	Cold, dry, high elevation	Low-growing, hardy plants	Thin, rocky soils
Sparse Mountain West-Side Spruce	Cold, dry, high elevation	Low-growing, hardy plants	Thin, rocky soils
U.S. Mountain West-Side Spruce	Cold, dry, high elevation	Low-growing, hardy plants	Thin, rocky soils
U.S. Mountain Spruce	Cold, dry, high elevation	Low-growing, hardy plants	Thin, rocky soils
Western Redwoods	Temperate, moist	Old-growth forest	Deep, fertile soils
Western Redwoods (West-Side)	Temperate, moist	Old-growth forest	Deep, fertile soils
Western Redwoods (East-Side)	Temperate, moist	Old-growth forest	Deep, fertile soils
Western Redwoods (West-Side)	Temperate, moist	Old-growth forest	Deep, fertile soils
Western Redwoods (East-Side)	Temperate, moist	Old-growth forest	Deep, fertile soils
Western Redwoods (West-Side)	Temperate, moist	Old-growth forest	Deep, fertile soils
Western Redwoods (East-Side)	Temperate, moist	Old-growth forest	Deep, fertile soils

Relief and Bathymetry

Elevation (metres)

Alpine glacier





Bedrock Geology

APPROXIMATE AGE

INTRUSIVE ROCKS

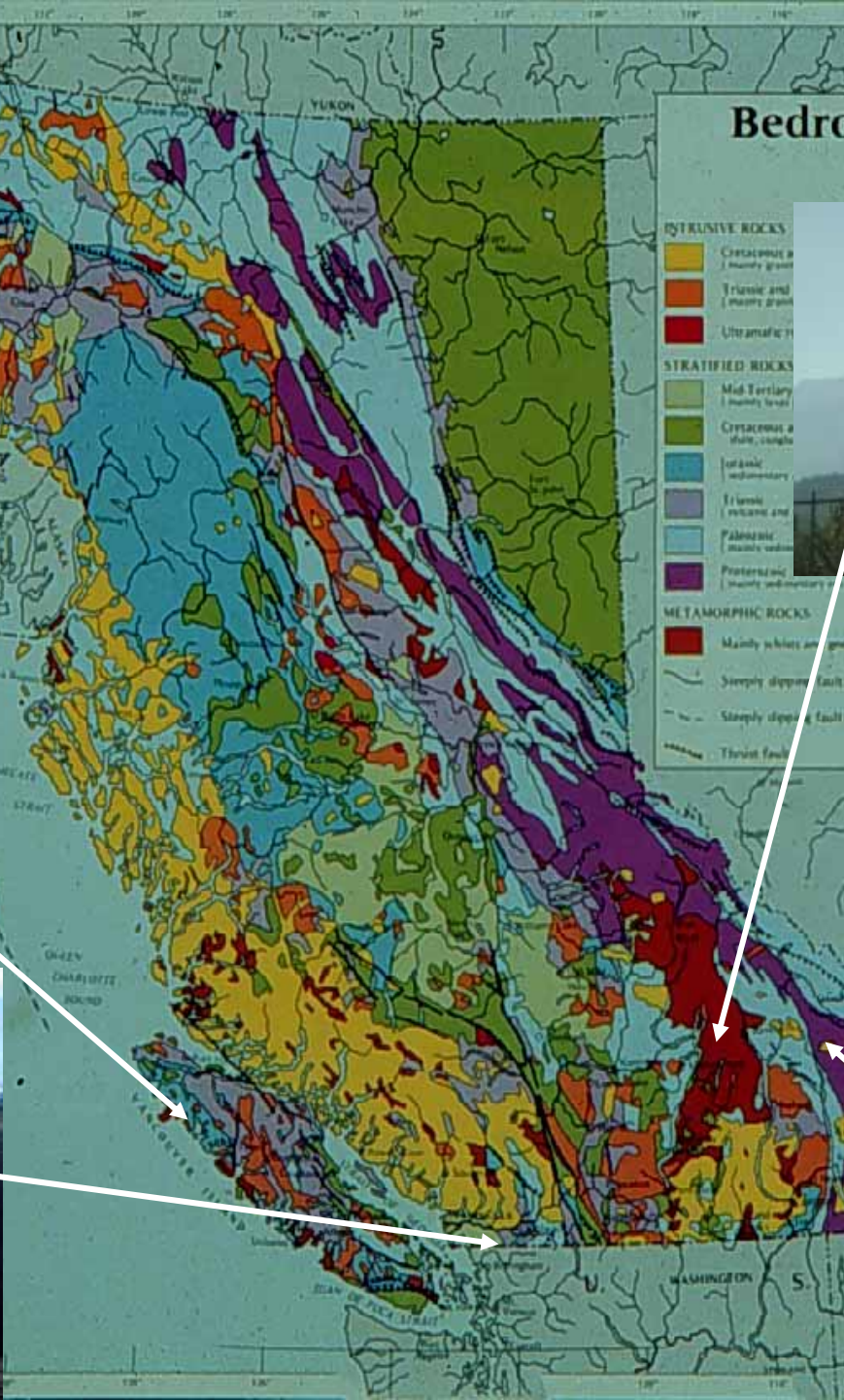
- Cretaceous and Tertiary (mainly granite)
- Tertiary and Quaternary (mainly granite)
- Ultramafic

STRATIFIED ROCKS

- Mid-Tertiary (mainly lava)
- Cretaceous and Tertiary (shale, sandstone)
- Island sedimentary
- Tertiary (volcanic and sedimentary)
- Paleozoic (mainly sedimentary)
- Proterozoic (mainly sedimentary and igneous volcanic rocks)

METAMORPHIC ROCKS

- Mainly schists and gneisses
- Steeply dipping fault
- Steeply dipping fault
- Thrust fault



Coastal Douglas-fir Zone –

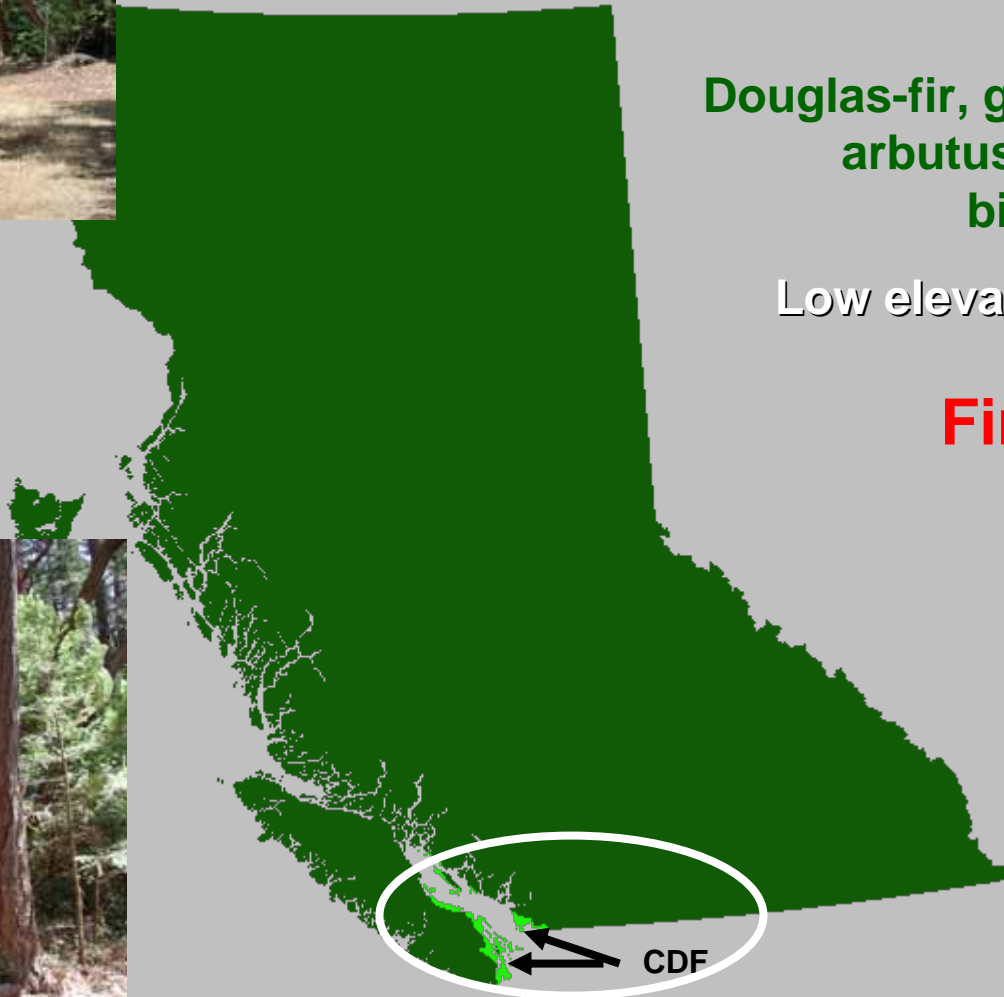
dry, warm summers; wet, mild winters. **Maritime(oceanic), semi-Mediterranean (subtropical) climate**

Canada's "banana belt"

**Douglas-fir, grand fir,
arbutus, Garry oak,
bigleaf maple**

Low elevation

**Fire, root rots,
drought**



Coastal Western Hemlock Zone –

wet cool winters, generally mild to warm summers.

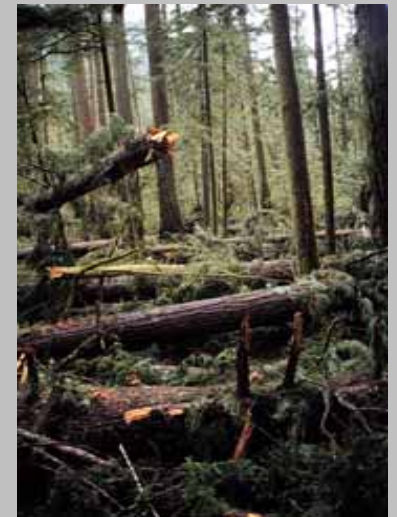
Coastal, montane climate

Canada's temperate rainforest

Western hemlock , Douglas-fir,
amabilis fir, western redcedar

Low to medium elevation

Wind, landslide



Mountain Hemlock Zone –

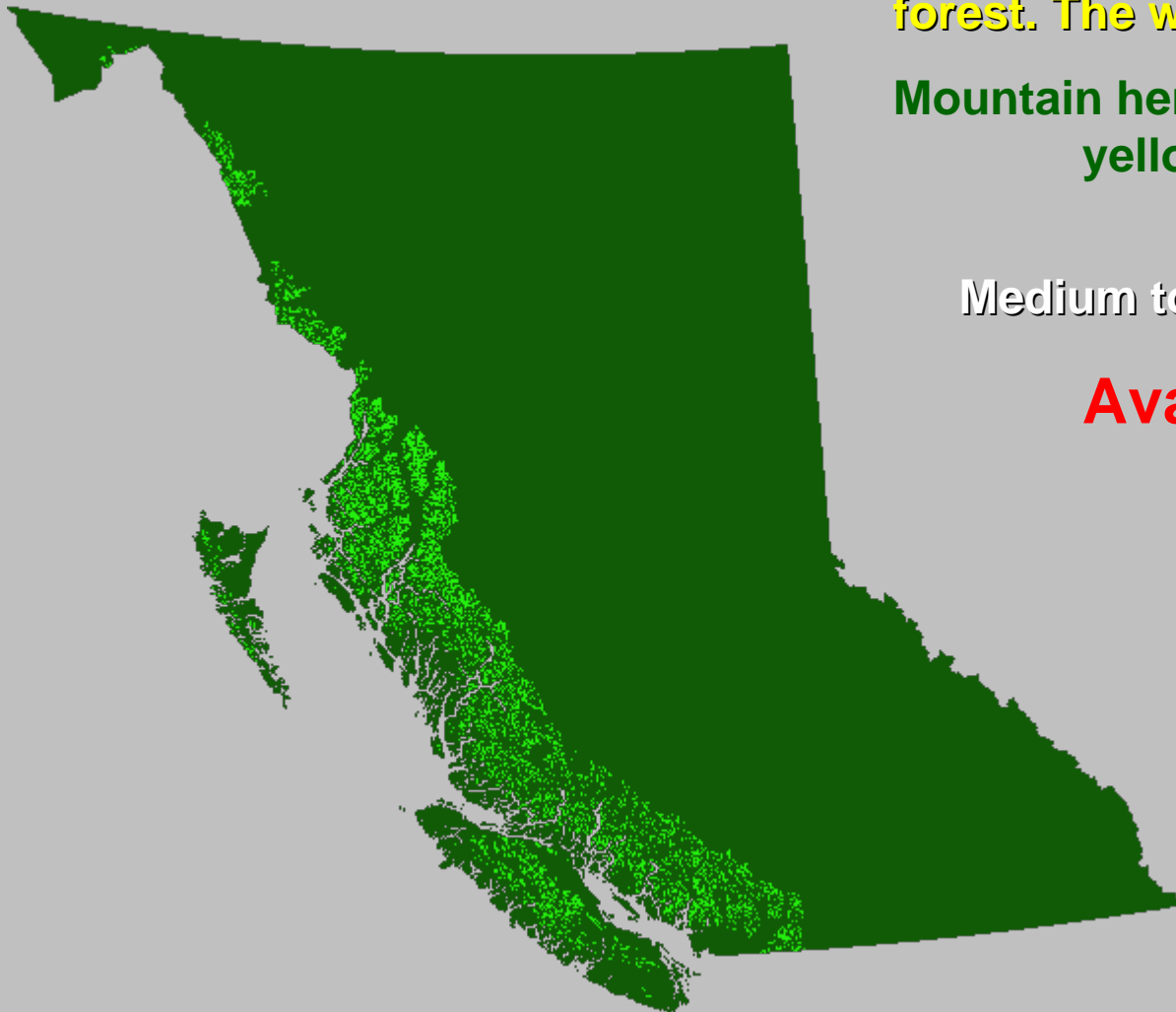
long, cool–cold winters, deep snowpack (2-10m), short warm summers. **Coastal subalpine climate**

Canada's west coast , “warm snowpack” subalpine forest. The west coast ski zone

Mountain hemlock, amabilis fir, yellow cedar

Medium to high elevation

Avalanche, snowpress



Interior Douglas-fir Zone –

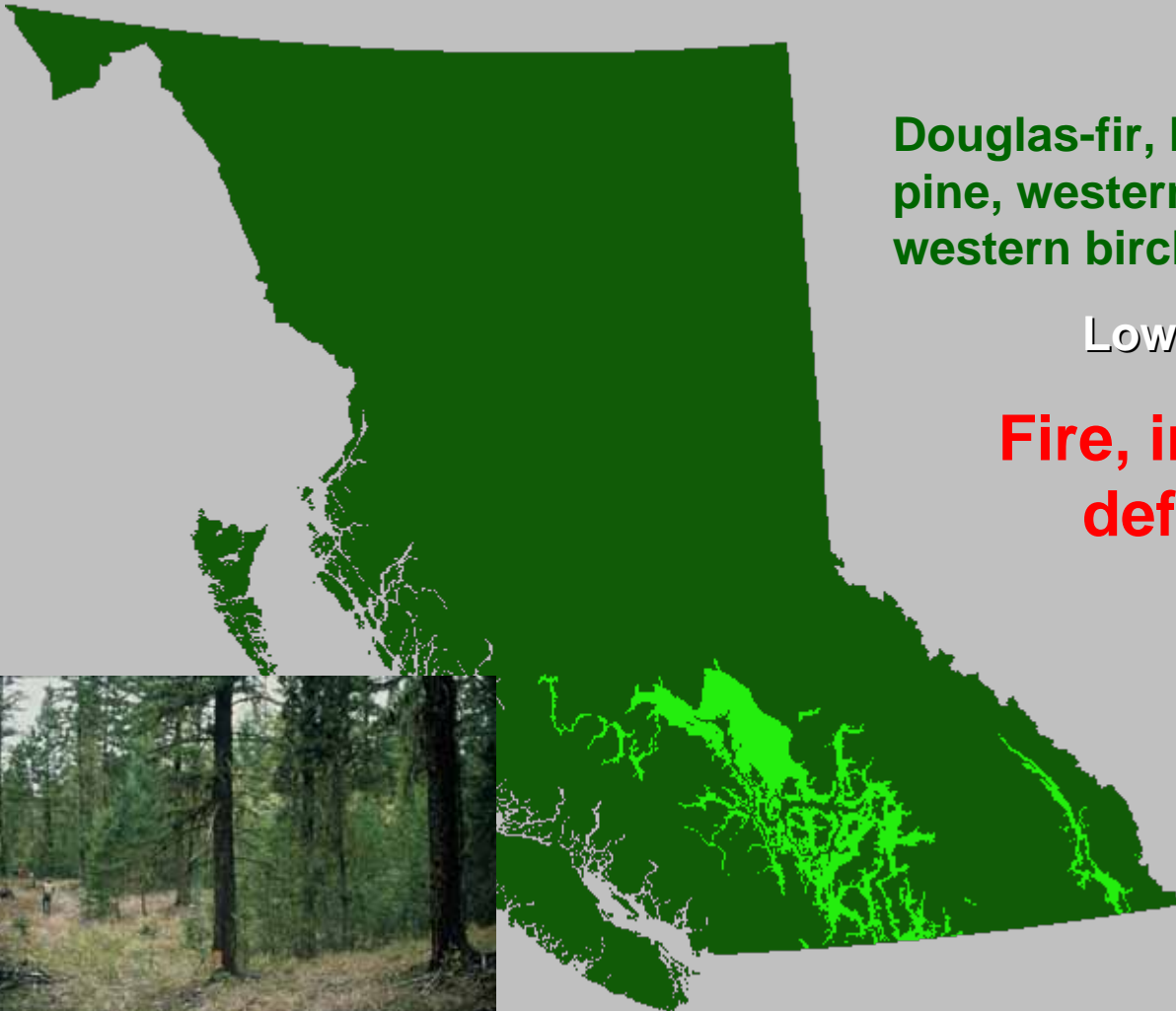
Relatively short cool to cold winters; long, hot, dry summers. **Sub-continental climate**

Canada's western savannah forest

Douglas-fir, lodgepole pine, ponderosa pine, western larch, grand fir, western birch, aspen

Low to medium elevation

Fire, insects (bark beetles, defoliators), root rots



Ponderosa Pine and Grassland Zones –

Very dry, long hot summer, relatively mild to cool winters.

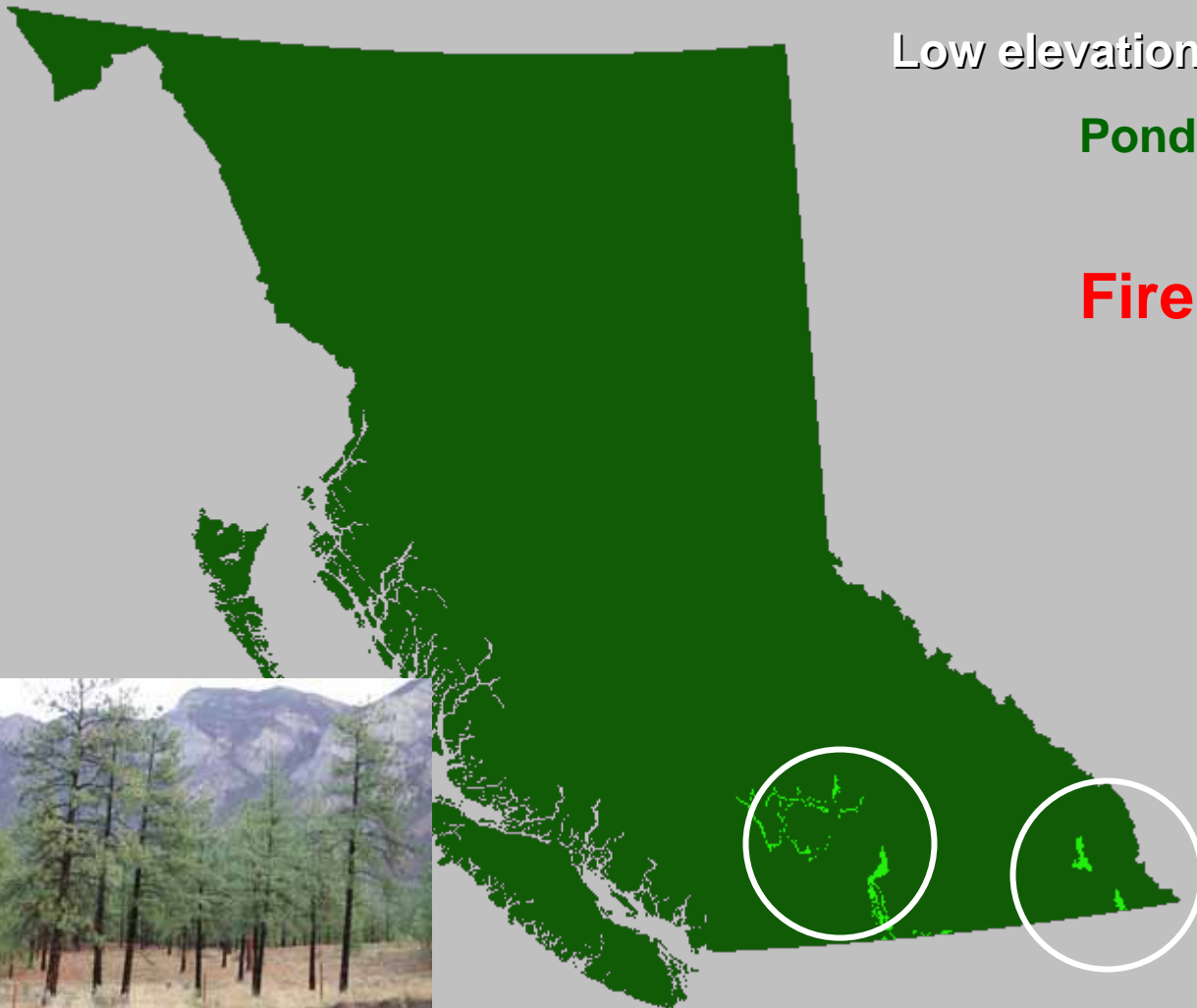
Semi-arid, subcontinental climate

Canada's semi-desert forest/western grasslands

Low elevation – valley bottoms

**Ponderosa pine, Douglas fir,
juniper, sage, grass**

Fire, drought, browsing



Montane Spruce Zone –

Long, cold, snowy winters, warm summers; relatively dry.

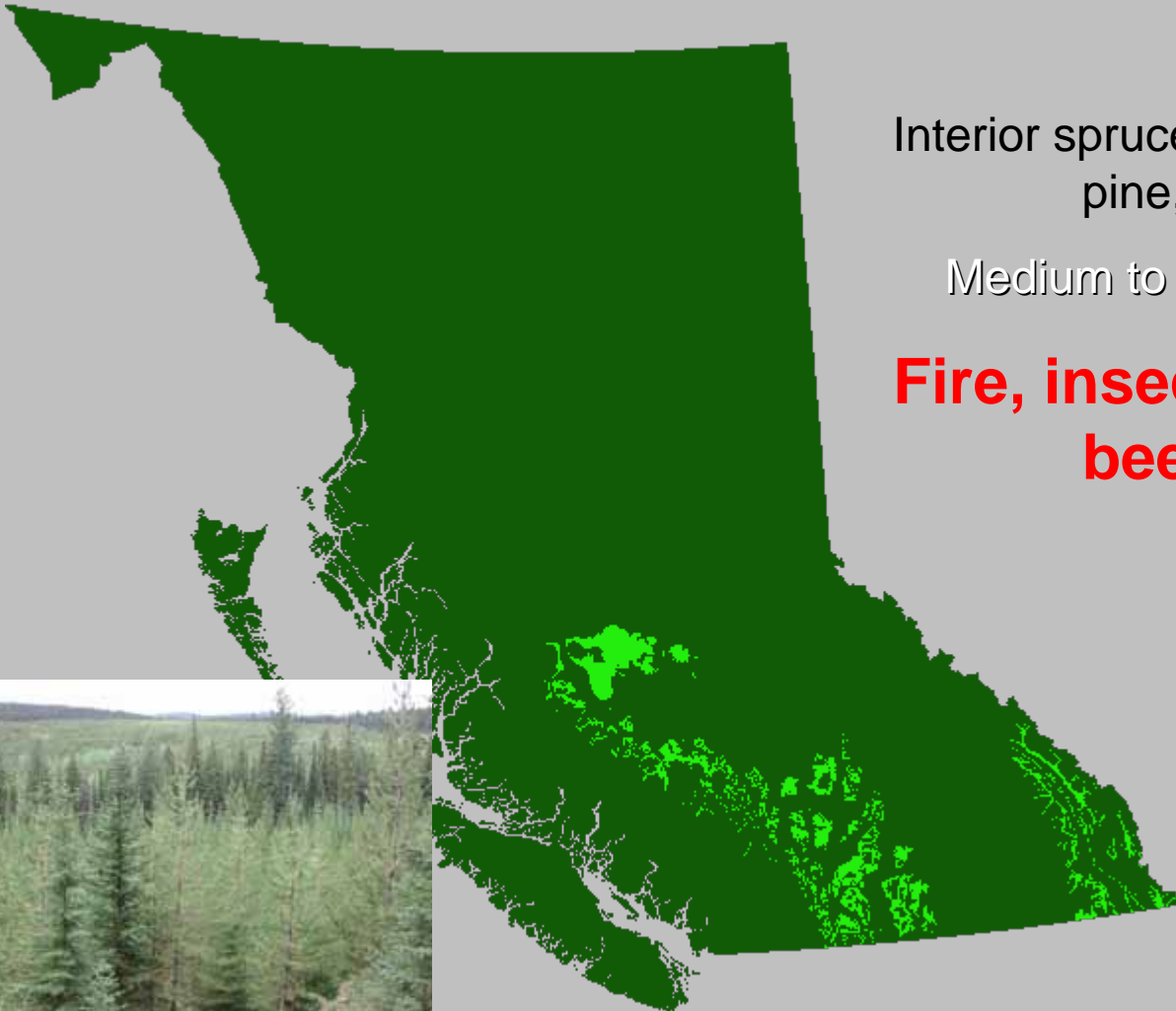
Subcontinental, montane climate

Medium to high elevation plateaus

Interior spruce, subalpine fir, lodgepole pine, Douglas-fir, aspen

Medium to high elevation

Fire, insects (bark beetles, defoliators)



Interior Cedar-Hemlock Zone –

wet, mild to cool winters; warm, relatively moist summers.

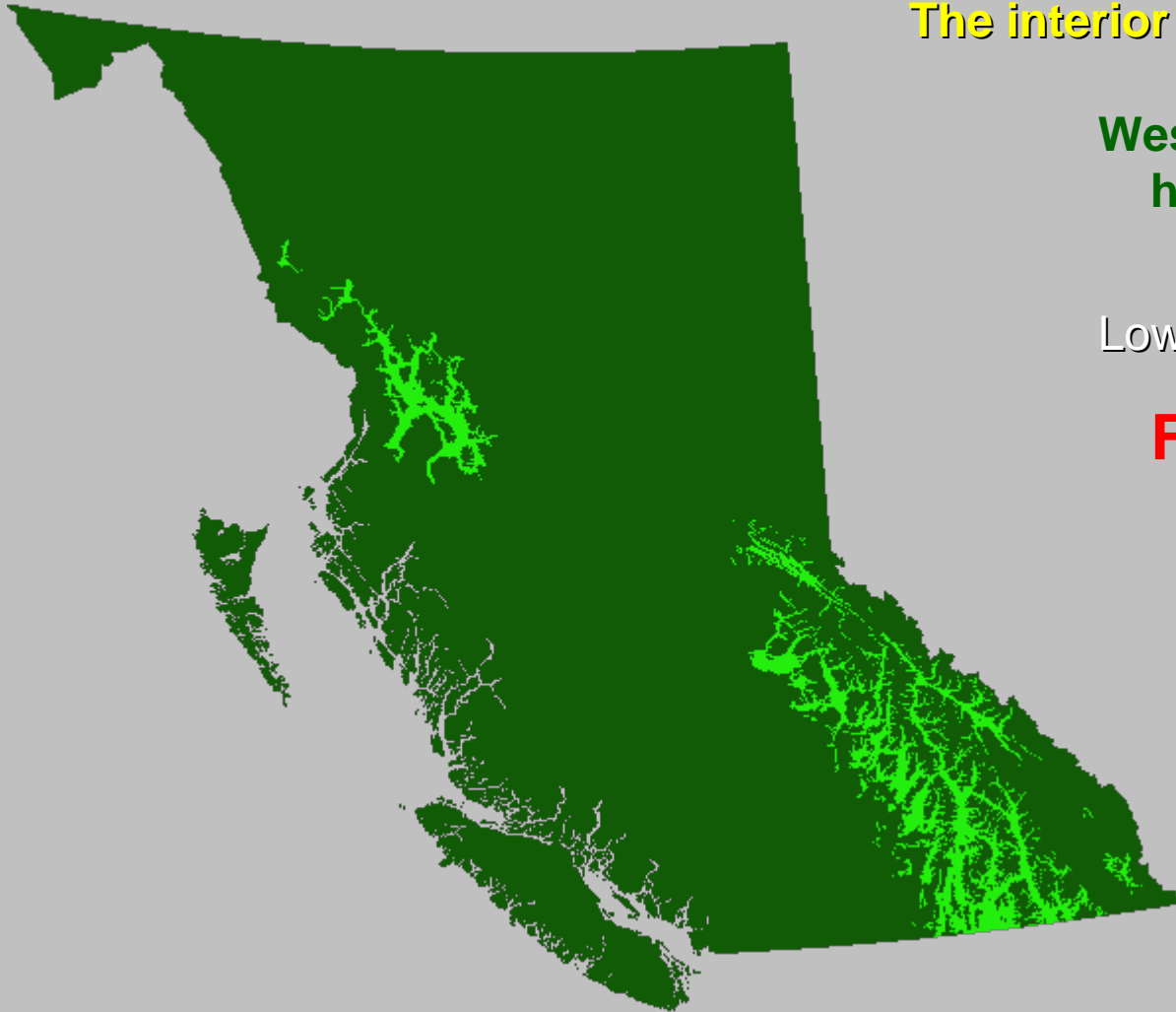
Subcontinental, humid climate

The interior wet belt forest

Western redcedar, western
hemlock, Douglas-fir,
lodgepole pine

Low to medium elevation

Fire, defoliators



Engelmann Spruce Subalpine fir Zone –

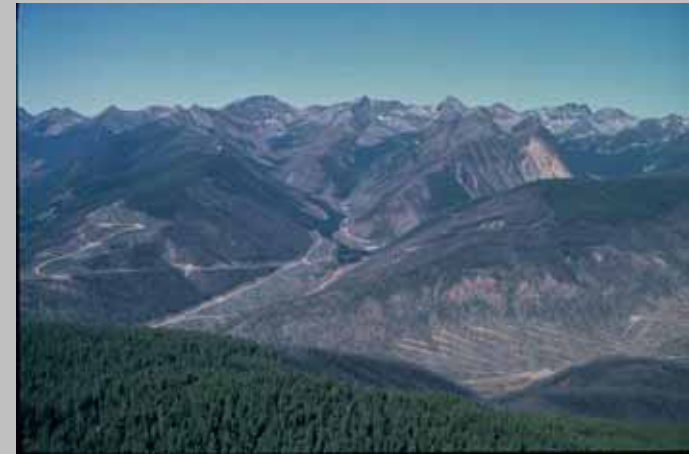
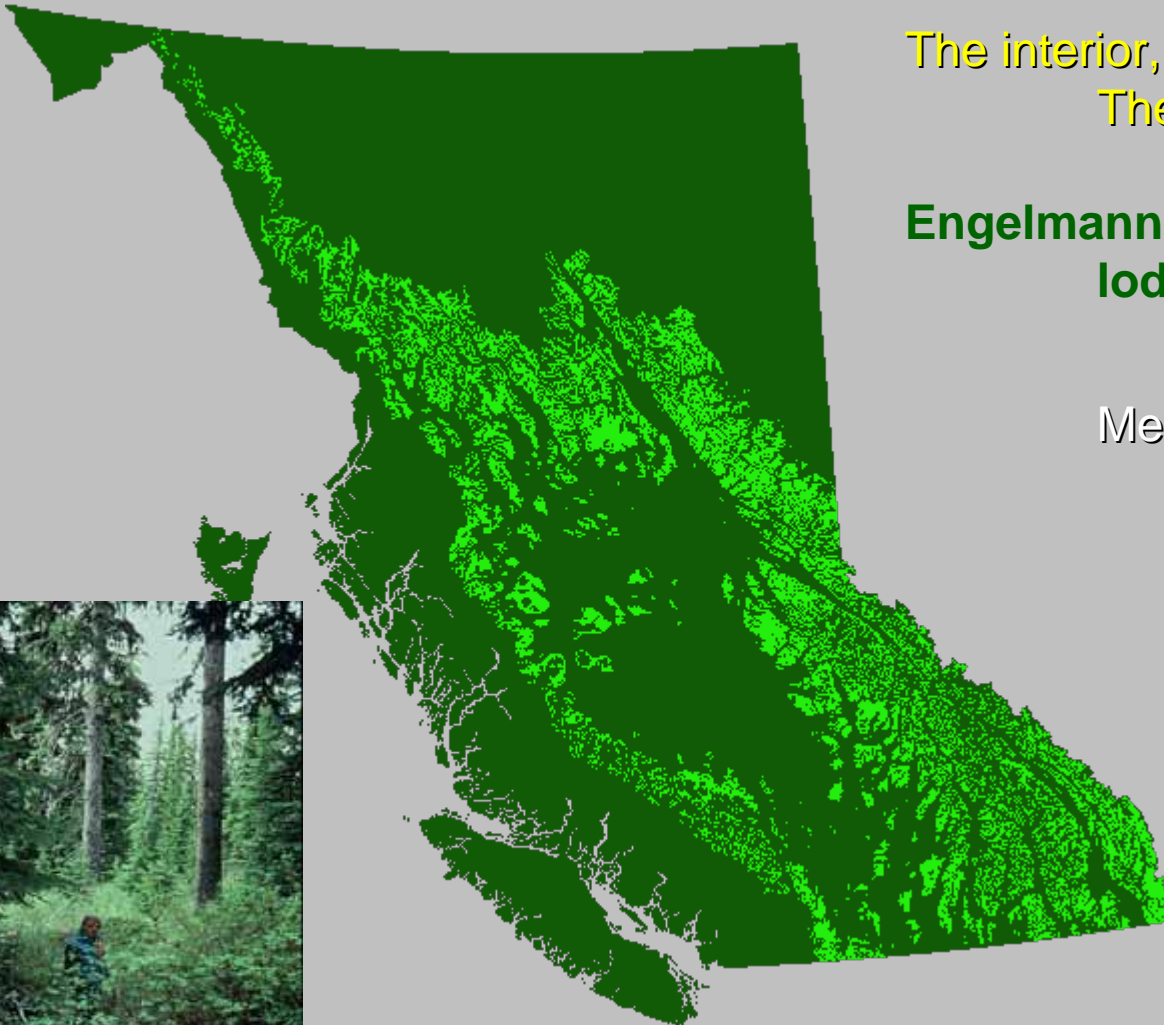
Long, cold to very cold, snowy winters; short warm summers with frequent frost, dry to humid. **Continental – subcontinental subalpine climate**

The interior, cold snowpack, subalpine forest
The interior ski zone

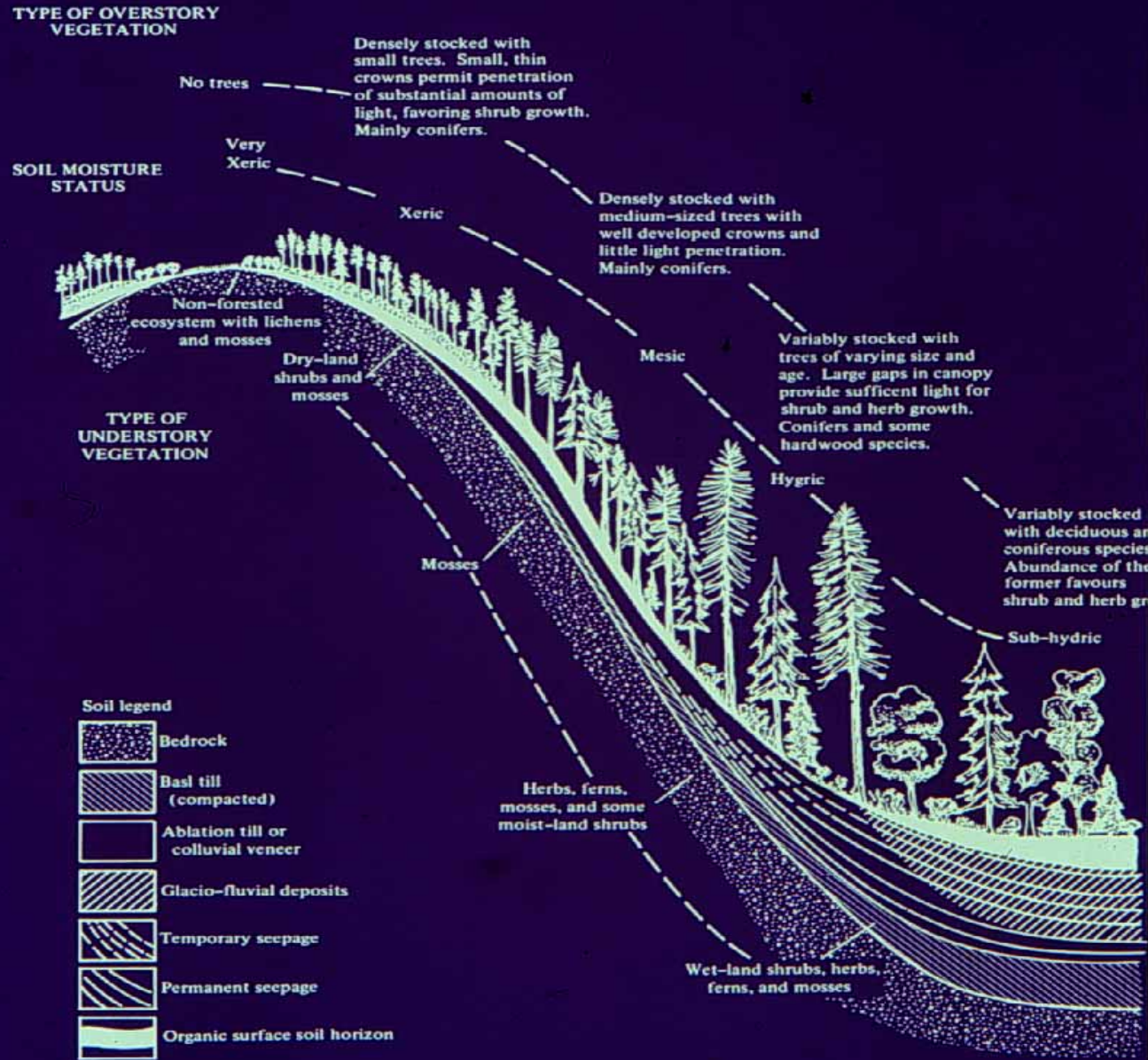
**Engelmann spruce, subalpine fir,
lodgepole pine, whitebark pine,
subalpine larch**

Medium to high elevation

Fire, insects



Ecological and biological variation along a local topographic transect – a soil moisture and nutrient gradient



Most of our forest ecosystems are disturbance driven, and disturbance dependent

Landslide

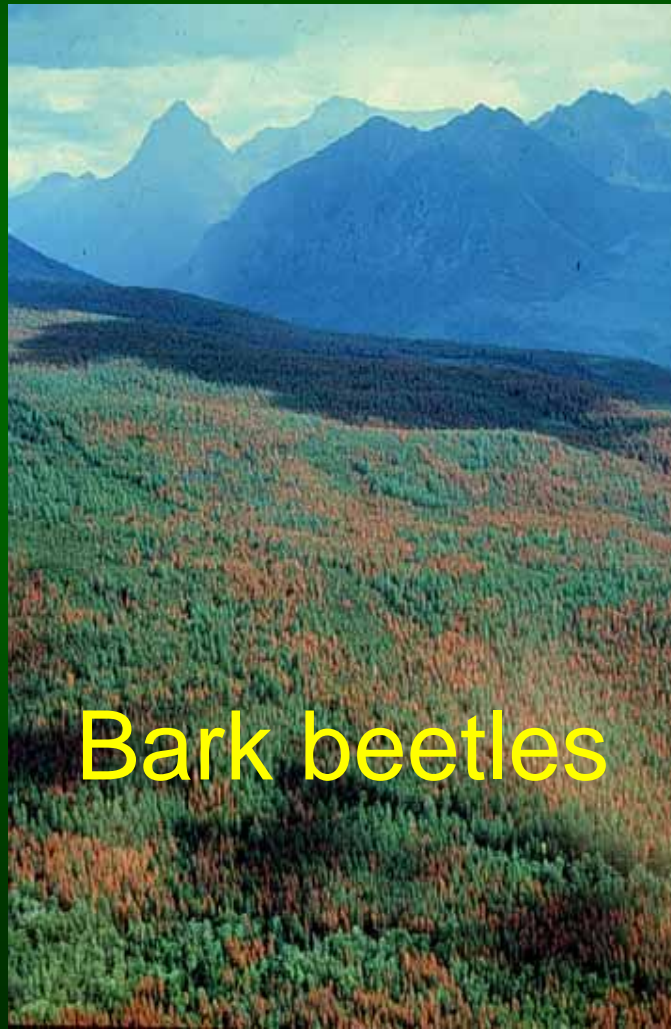


Wind



Fire

Most of our forest ecosystems are disturbance driven, and disturbance dependent



Bark beetles

