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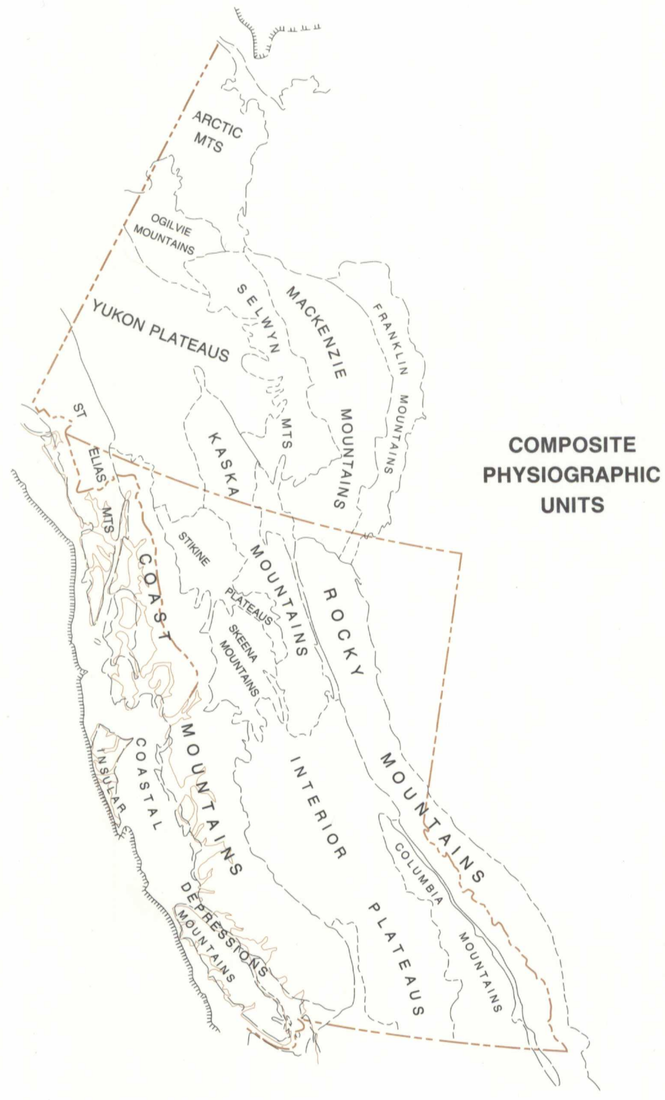
DEPARTMENT OF ENERGY, MINES AND RESOURCES
MINISTÈRE DE L'ÉNERGIE, DES MINES ET DES RESSOURCES



COMPOSITE PHYSIOGRAPHIC UNITS

Physiographic Map of the Canadian Cordillera

The physiographic map outlines regions of homogeneous topographic character which are more or less distinct from adjacent areas having different physiographic expression. Gradual changes both across boundaries and within physiographic units, "boundaries of convenience" established from historic usage, or, introduced to subdivide unacceptably large units, and the scale of the map are but some of the difficulties encountered in constructing a modern physiographic map of the Cordillera. The resolutions to these problems herein offered are intended to supplement those of previous maps (e.g. Daly, 1912; Bostock, 1948; Holland, 1964; and Hughes et al., 1981).

(1) Only physiographic features are used as a basis for discrimination; purely geological boundaries have been avoided.
(2) A uniform set of criteria for the entire Canadian Cordillera is used.
(3) Emphasis is given to origin and form of topographic lows (either erosional or tectonic).
(4) The Cordillera is subdivided mostly into units having areas of no more than 50 000 km^2; map scale precludes designation of regions of less than about l000 km^2.
(5) Nomenclature has been modified to more clearly identify the hierarchy of physiographic subdivisions.
(6) Some ambiguous terms have been rejected (see below).

Criteria for boundaries include:

(i) An abrupt change in slope, steepening upward to an escarpment underlain by bedrock, and, in the downward direction, approaching a horizontal surface underlain by Quaternary fill with little or no exposed bedrock (e.g. margins of the Rocky Mountain trenches or the southern limit of the Coast Mountains).
(ii) An abrupt change in elevation (e.g. much of the east front of the Coast Mountains and Continental Ranges).
(iii) An abrupt change in local relief (e.g. the Milbanke strandflat with low local relief (10s of metres) vs. the mountains to the east (relief 100s of metres)).
(iv) A change from glacier-mantled summits to those devoid of glaciers (e.g. Pacific vs. Fiord Ranges) or from ragged summits, recording former mountain glaciers, to more or less rounded summits without cirques (e.g. Boundary Ranges vs. Teslin Plateau).
(v) A drainage divide separating short, steep valleys leading directly to the sea, from long, gentle, commonly drift- and lake-filled valleys leading into the interior of the Cordillera (e.g. Kitimat vs. Tahtsa Ranges).
(vi) An abrupt change in structural trend as expressed in topography (e.g. Northern vs. Southern Ogilvie Mountains).
(vii) A limit of bedrock folds displaying topographic expression (e.g. eastern limit of Rocky Mountain foothills).
(viii) Historic usage (e.g. northeast and northwest limits of the Cascade Mountains) and subdivisions of large physiographically homogeneous areas to provide more specific designations by means of 'boundaries of convenience' (e.g. Chilcotin vs. Cariboo Plateau).

Solid, broken, or dashed lines are used to designate boundaries of decreasing relative sharpness. Boundaries of convenience, separating two similar physiographic areas, are identified by the letter C.

The following terminology is adopted:

Ranges: a unit comprising many individual mountains and ridges, generally with ragged summits and commonly mantled with glaciers.
Highland: an elevated area, higher than adjacent plateaus, in which the summits lack a ragged character.
Foothills: a region containing hills or low mountains adjacent to a much higher mountain belt.
Plateau: an elevated area in which the summits commonly have gentler slopes than those of nearby incised valleys, either because of rejuvenation of streams occupying these valleys or because of a capping of resistant flat-lying rocks.
Lowland: a low area commonly mantled by Quaternary fill with little or no exposed bedrock.
Trench: an elongated valley generally occupied by streams draining in opposite directions.
Depression: an irregular to elongate area of low elevation relative to the surrounding land; some depressions may lie below sea level and be covered by water.
Pediplain: a widespread, uniformly gently sloping (one to a few degrees) alluvium-covered surface, continuous or interrupted by local steep-sided bedrock hills, extending from a range front down to a flat or a major river.
Flat: a swampy lake-dotted area of very low relief at the foot of a pediplain.
Strandflat: a low coastal platform, partly submerged, that abuts inland against higher, and much more irregular terrain (adapted from AGI dictionary of geological terms).
Trough: a well-defined broad but relatively shallow and flat-floored valley cut into the continental shelf.

Composite units of the Canadian Cordillera include

Mountains: elevated tracts comprising two or more ranges.
Plateaus: elevated tracts comprising two or more units each referred to as a plateau, plus adjacent highlands, trenches, depressions or lowlands.

Alaska data adapted from Wahrhaftig, 1965 (USGS Prof. Paper 482) with boundaries locally adjusted to meet criteria used in adjacent Canadian areas.

References

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LEGEND

Abrupt, well defined boundary scarp or river
Approximate or narrowly gradational boundary
Broadly gradational, ill-defined, or ambiguous boundary
Boundary of convenience between areas of little physiographic contrast
Quaternary volcanic rocks or volcano with residue of original form
Shield volcano with radial drainage
Axis of topographic high
Break in slope, edge of continental shelf

Copies of this map may be obtained
from the Geological Survey of Canada:
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3303-33rd Street, N.W., Calgary, Alberta T2L 2A7
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MAP 1701A

PHYSIOGRAPHIC MAP OF THE CANADIAN CORDILLERA

Scale 1:5 000 000 - Échelle 1/5 000 000

Kilometres 100 0 100 200 300 400 Kilomètres

Canada

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