

## A continental transect – Canada from east to west

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Banff Sunset. Source: Wikimedia Commons

Canada is a vast country. Only Russia is bigger. The nation covers 9,984,670 km<sup>2</sup> and stretches more than 5,514 km from the Atlantic Ocean in the east to the Pacific Ocean in the west, and up to 4,600 km from the Canada-USA border in the south to the Arctic Circle and Alaska in the north.



Figure 1a & b: Canada Day parade, Montreal. Canada is ethnically diverse and has embraced multiculturalism. Source: Wikimedia Commons

Canada is famous for the diversity of its landscapes and people. Canada prides itself on what it refers to as the 'Canadian mosaic' – a reference to multiculturalism – how the country has accommodated the cultural needs of an increasingly diverse population.

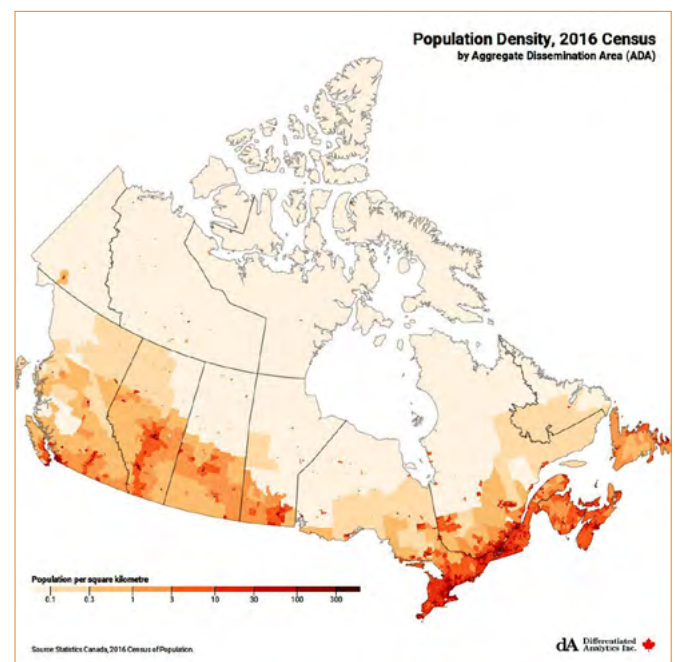


Figure 2: Canada's population is concentrated in the south of the country.

Canada's population is unevenly distributed across the country's vast expanses. Of its 37.6 million people, 80 per cent live in the south of the country, within 200km of the border with the USA (see Figure 2) where the climate is less extreme. This is not surprising given that 40 per cent of the country's landmass lies to the north of the treeline (60°N); this extraordinarily hostile and sparsely inhabited wilderness is bitterly cold in winter averaging -30°C and plagued by millions of insects in summer. Ontario is the most populous province. Nunavut is the province with the smallest population, see Figure 3.

# CANADA FROM EAST TO WEST

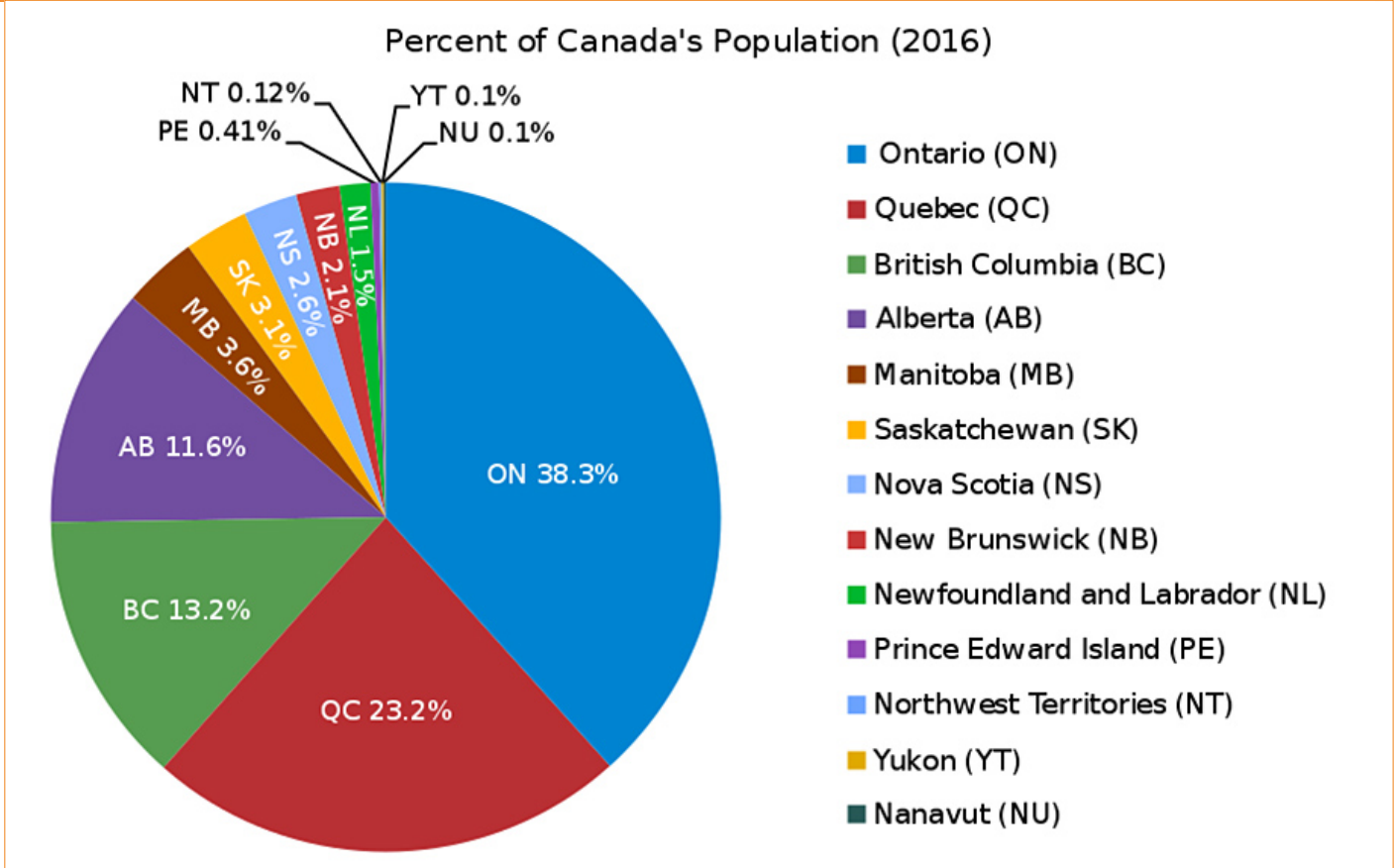


Figure 3: Distribution of the Canadian population by province and territory. Source: Supplied by author

In this article, we undertake a transect across Canada from east to west. In doing so, we explore the country's diverse of landforms, land uses and social/cultural characteristics.

## In focus: Indigenous Canadians

Canada has a rich indigenous heritage. The ancestors of the country's First Nations peoples (The Métis and Inuit) can trace their cultural heritage back 20,000 years (about one-third the time Indigenous Australians have occupied the Australian continent). Today, there just over 1.6 million people in Canada identified as Indigenous, making up 4.9 per cent of the national population. The Inuit primarily inhabit the northern regions of Canada.



Their homeland, known as Inuit Nunangat, includes much of the land, water and ice contained in the Arctic region. Métis peoples are of mixed European and Indigenous ancestry and live mostly in the Prairie provinces and Ontario, but also in other parts of the country. before the arrival of Europeans Canada's Indigenous Canadians had established complex social, political, economic and cultural systems. All this was compromised by the process of colonisation and white settlement. The traditional Indigenous ways of life were forever altered. Colonial practices and policies sought to control and assimilate Indigenous peoples. These have had historic and ongoing impacts on generations of Indigenous peoples. Acts of segregation, loss of land, and lack of access to services such as healthcare and education, have had devastating consequences on the health and socio-economic well-being of Indigenous peoples.

Figure 4: First Nations people march against the Trans Mountain expansion. The Coast Salish peoples want to protect their spiritual land. Source: Wikimedia Commons



# CANADA FROM EAST TO WEST

## Canada's physiographic divisions

Canada has seven distinct physiographic divisions, see Figures 5 and 6. From east to west, they are the Appalachia, Great Lakes - St Lawrence Lowlands, the Canadian Shield, Arctic Lands and Hudson Bay Lowlands, Interior Plains and the Western Cordillera. Each of these has its own physical and social/cultural character. On our journey from east to west, we will use these divisions to help frame our study.

Figure 5 (right) : Canadian cross-section.  
Source: Supplied by author

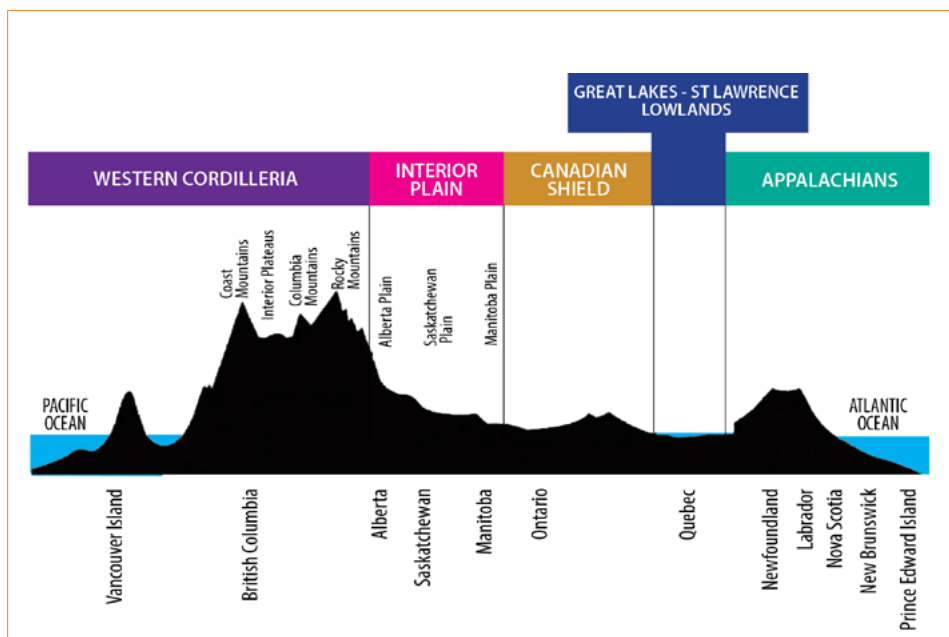
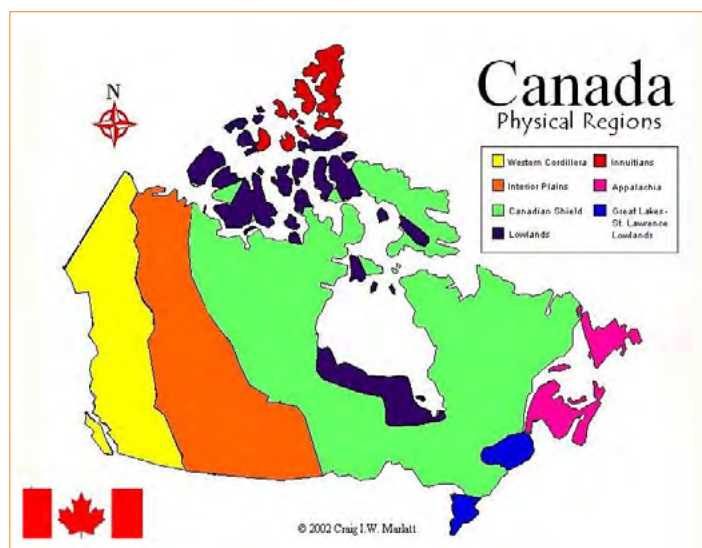


Figure 6 (below): Canada's seven distinct physiographic divisions and 10 Provinces and two territories.. Source: Supplied by author



## Appalachia and the maritime provinces

Appalachia constitutes the northern end of the Appalachian Mountains, the great highland system of eastern North America. The Appalachians extend from the Canadian provinces of Newfoundland and Labrador, Nova Scotia and New Brunswick down through the north-eastern and eastern states of the USA to central Alabama in the south.



The landscape of the provinces that make up Appalachia features spectacularly rugged coastlines and towering peaks. Low population densities mean that wild, open spaces, rich in wildlife dominate.

In Newfoundland and Labrador, massive icebergs drift along the coast and whales swim in the crystal-clear waters of the North Atlantic. Moose graze in marshlands. The Gros Moran National Park is famous for its granite mountains and deep fjords.

The provinces of New Brunswick, Nova Scotia (Figure 7) and Prince Edward Island (Figure 8) feature coastal scenery with quiet coves and long sandy beaches.

Figure 7: Coastal landscape, Nova Scotia.  
Image supplied by author



# CANADA FROM EAST TO WEST



Figure 8: The lush fields of Prince Edward Island. Also shown is the island's distinctive red stone and sand. Source: MKdrone on Unsplash

The first humans to occupy the area were the Paleo-Indians who spread into this part of Canada as the ice sheet retreated between 10,000-6,000 years ago. The population of the Maritimes, as this region of Canada, is known, numbers just 1.8 million. The Maritimes was among the earliest parts of Canada to be settled by Europeans.

Both the British and French showed interest in the lands of the Maritimes but it was the explorer Jacques Cartier who made the first detailed study of the region for European power and, in doing so, claimed the region for the King of France. The French established a settlement at Port-Royal, Nova Scotia, in 1605. The replica settlement is a National Historic Site of Canada (see Figure 9).



Figure 9: Port-Royal, National Historic Site of Canada. Source: Wikimedia Commons

Figure 11: (right) Panorama of Halifax. Image supplied by author



Figure 10: The City of Québec's historic streetscape. Image supplied by author

French settlers (known as Acadians) would subsequently drain and farm the fertile tidal marshes surrounding the south-eastern and north-eastern reaches of the Bay of Fundy. Over time, the Acadians built small settlements throughout what is today mainland Nova Scotia and New Brunswick, as well as Prince Edward Island and Cape Breton Island, and other shorelines of the Gulf of St. Lawrence in present-day Newfoundland and Labrador, and Quebec.

The growth of English colonies along the American seaboard to the south and various European wars between England and France during the 17th and 18th brought the French presence in Acadia to the centre of world-scale geopolitical tensions. From 1621 to 1755 control of the region moved between the French and British several times until, in 1755, the British began the expulsion of the Acadians. Over the next nine years, over 12,000 Acadians of an estimated 15,000 were removed from Nova Scotia. The empty Arcadian lands were settled by British farmers.

The Acadians have left their mark on Canadian society, especially in French-speaking Quebec. Canada is distinctive in that it has two official languages – English and French.

The largest cities in the Maritime provinces are Halifax (with a population of just over 400,000), Saint John in Nova Scotia (population 126,000) and Charlottetown (the capital of Prince Edward Island – population 70,000).







Figure 12: Niagara Falls. Source Wikimedia Commons

## The Great Lakes–St. Lawrence Lowlands

The West Lowland is divided by the Niagara Escarpment and is a plain-like area that was all shaped by glacial processes during the Pleistocene. The surface west of the escarpment slopes gradually south-westward through an area of rolling topography of low relief. East of the escarpment, the land rises gently northward from Lake Ontario. The Central Lowland includes the area between the Ottawa and St. Lawrence rivers, straddling the St. Lawrence as far as the city of Québec (see Figure 10). The land is rarely more than 150 metres above sea level. The East Lowland includes Anticosti Island and several small areas bordering the Gulf of St. Lawrence and the Strait of Belle Isle, as well as the Newfoundland Coastal Lowland.

The East Lowlands is one of the most densely populated, prosperous and productive regions in Canada. Major urban areas include Quebec City, Montreal, Ottawa and Pembroke. About 50 per cent of Canada's population live in the region.

While the Lowlands are in the traditional territories of the Mohawk, the Algonquian and Iroquoian peoples and the Cree it attracted European immigrants and the British loyalist who fled the United States following the American Revolution. The St. Lawrence lowlands formed Canada's industrial and manufacturing heartland.



Figure 13: Ottawa, from the Parliament precinct. Source: Wikimedia Commons

## The Canadian Shield

The landscape of the Canadian Shield has been levelled by the great ice sheet that once covered it and the long period of erosion that occurred as the ice retreated to the north. Today the landscape is flat and even with the skyline interrupted by rounded or flat-topped summits and ranges of hills. Large parts of the shield are covered by water in the form of lakes, ponds and swamps. The most outstanding characteristic of the Shield is the homogeneity of the terrain.

The Hudson Bay Lowland, of northern Ontario and Manitoba, forms the main central depression on the surface of the Canadian Shield. The region is a low, swampy plain with remnant glacial features and a belt of raised beaches that border Hudson Bay.

The first of the Canadian Shield provinces is Quebec, it is the second-most populous in Canada, after Ontario, and it is the only one to have a mainly French-speaking population. French is the province's sole official language. Most of the province's population lives in the south, in urban areas stretching along the Saint Lawrence River between Montreal and Quebec City, the provincial capital. About 50 per cent of Quebec's residents live in the Greater Montreal Area and on the Island of Montreal. The latter is home to most of the English-speaking population, as well as most English-language institutions. The Nord-du-Québec region, occupying the northern half of the province, is sparsely populated and inhabited primarily by First Nations people.

The citizens of Quebec hold firmly to the language and culture inherited from their French ancestors. Quebec City and Montreal, the province's two largest cities, are the centre of French-speaking culture in Canada. Even the architecture of the cities reflects its cultural origins. See Figure 14.



# CANADA FROM EAST TO WEST



Figure 14: Montreal streetscape. Source: Wikimedia Commons

Life in Quebec, as if life in much of continental Canada, is shaped by the climate. The climate is classified as continental with four distinct seasons. Winters are cold and snowy. Summers are warm to hot and humid. Farther north long winter seasons dominate and as a result the northern areas are marked by tundra conditions. Even in central Quebec, winters are severe. During winter outdoor activities (other than winter sports such as skiing) are kept to a minimum as people take shelter in their centrally heated homes and workplaces. Summers are keenly awaited, and outdoor activities are popular. In the Fall, the deciduous forests of the region, mount an amazing display of autumn colour. The leaf of the maple tree is the symbol of Canada and features on the country's distinctive flag.

Continuing our journey to the west, across the Canadian Shield, we enter Ontario, Canada's second-largest province, covering over a million square kilometres and stretching from the Great Lakes on the US border to the frozen shores of Hudson Bay. Much of the north of the province is a sparsely populated wilderness of turbulent rivers, extensive coniferous forests and Arctic Tundra. This is a stark contrast to the fertile lands in the south of the province. Both Toronto and Niagara Falls, Canada's largest city and its most visited tourist attraction, are found in the south of the province. Ottawa, Canada's capital city, is found in the southeast of the province.

Toronto, with a population of more than 6.5 million, is the country's largest city and its business and financial capital.) It is also an important centre for the arts and culture and is recognised as one of the most multicultural and cosmopolitan cities in the world. Five of Canada's largest banks have their headquarters in the city as is many of Canada's largest multinational corporations. The city is also one of the fastest-growing cities in North America.

Quebec and Ottawa (Canada's capital city) have retained and celebrate much of their architectural heritage. Toronto has lost significant pieces of its architectural heritage during the 1960s and 1970s. More recently, Toronto has experienced a construction boom and architectural revival, with several buildings by world-renowned architects having been built. Many of Toronto's former industrial sites close to (or in) the Downtown area have been redeveloped. This includes parts of the city's waterfront and rail yards.

Much of the city's redevelopment, especially the construction of high-rise residential towers, has been driven by Canada's one million-plus 'Snowbirds' those, largely older Canadians who head to the warmer climate of Florida and California during winter. The retention of residential property in Canada being a precondition for accessing the nations Australian-like Medicare system. The alternative would be very expensive, a user pays medical system of the USA.



Figure 15: Toronto, with a population of more than 6.5 million, is the country's largest city and its business and financial capital. Source: Wikimedia Commons



# CANADA FROM EAST TO WEST

Toronto is one of Canada's principal centres of culture. The city's theatre and performing arts scene features more than fifty ballet and dance companies, six opera companies and two symphony orchestras. The city is home to the National Ballet of Canada, the Canadian Opera Company, the Toronto Symphony Orchestra, the Canadian Electronic Ensemble, and the Canadian Stage Company.

Toronto, like much of Canada, is sports-obsessed. The city is represented in five major league sports, with teams in the National Hockey League (NHL), Major League Baseball (MLB), National Basketball Association (NBA), Canadian Football League (CFL), and Major League Soccer (MLS).



Figure 16: Toronto's Hockey Hall of Fame, an ice hockey Museum Dedicated to the history of the sport in Canada. Source: Wikimedia Commons

## The Interior Plains

Canada's Interior Plains occupy the region between the Canadian Shield in the east and the mountains of the Western Cordillera in the west. The fertile Interior Plains, often referred to as the Canadian Prairies, stretch across three Canadian provinces – Manitoba, Saskatchewan and Alberta.

### Manitoba

The first of the plains provinces we visit on our journey to the west is Manitoba – the province that lies in the longitudinal centre of Canada. The province has just 1.4 million people spread across its almost 650,000 sq km. Its landscape ranges from arctic tundra in the north to dense boreal forest, lakes and prairie grasslands in the central and southern parts of the province. Manitoba's capital, and largest city, is Winnipeg.

Canada's First Nations people have occupied the lands of Manitoba for thousands of years. The Cree, Ojibwa, Dene, Sioux and Assiniboine peoples lived off the land in search of herds of bison. In the early 17th century,



Figure 17: Oil Wells on the Canadian Prairie. Source: Wikimedia Commons

fur traders began arriving in the area establishing settlements on the Hudson shoreline from which they headed inland in search beaver pelts and other furs.

Today, Manitoba's economy is focused on agriculture, oil, mining, electricity generation, forestry and tourism. Agriculture is critical to the state's economy and is found mostly in the southern half of the province. The most extensive agricultural activity is cattle grazing (34.6% of the land area) followed by grain production.

### Saskatchewan

Saskatchewan is a province dominated by prairie grasslands and boreal forests. For thousands of years, Saskatchewan has been inhabited by various groups of First Nations groups including the members of the Sarcee, Niitsitapi, Atsina, Cree, Saulteaux, Assiniboine (Nakoda), Lakota and Sioux. Europeans first explored the area in 1690 and first settled in the area in 1774.

Today, Saskatchewan's population of nearly 1.2 million, mostly in the southern prairie half of the province. The northern half dominated as it is by boreal forest is sparsely populated.

Historically, Saskatchewan's economy has been based on agriculture, with wheat and canola being the main crops grown. However, with economic diversification agriculture, together with forestry, and fishing, now make up 8.9 per cent of the province's GDP. Mining, quarrying and oil and gas extraction now contribute the largest share (17.05%). Saskatchewan is the world's largest exporter of potash and uranium.



Figure 18: Grasslands National Park, Saskatchewan. Source: Wikimedia Commons



# CANADA FROM EAST TO WEST



Figure 19: Edmonton, Alberta. Source: Wikimedia Commons

## Alberta

Alberta is the last of the plains states we visit as we continue our journey west. The province's capital, Edmonton, is located near the geographic centre of the province and is a supply and service hub for Canada's crude oil, the Athabasca oil sands and other northern resource industries. Calgary, located about 290 km to the south of Edmonton is Alberta's largest city.

Most of the northern half of the province is boreal forest while the southern quarter of the province is prairie. The Rocky Mountains run along the province's south-western boundary. Much of the unforested part of Alberta is given over either to grain production or dairying, with mixed farming more common in the north and centre, while ranching and irrigated agriculture predominate in the south.

The province's key economic sectors include energy, agriculture and petrochemicals. Alberta contains the bulk of Canada's fossil fuel reserves. Oil and natural gas occur widely, and major deposits of heavy crude oil and oil sand (see Figure 20). Alberta produces the vast majority of Canada's natural gas and crude oil and roughly half of its coal. The province's forests, which cover more than one-half of its land surface supply wood for lumber, newsprint, pulp and paper. While spruce is the principal commercial species.



Figure 20: Excavation of oil sand at Fort McMurray in Alberta, Canada. The Athabasca oil sands deposit is among the largest in the world. The bitumen contains lots of hydrocarbons but is notoriously hard to extract. It is only economically viable when world oil prices are high. It also makes a major contribution to Canada's greenhouse gas emissions. Source: Wikimedia Commons

Alberta is a multi-cultural society, with a variety of ethnicities and religions. The largest ethnic groups after Canadians are the English, Germans, Scottish and French. The number of immigrants coming from China, The Philippines and India have increased significantly in the last decade or so.

Calgary is internationally famous for its annual rodeo, exhibition, and festival. The Calgary Stampede, as it is known, is held every July and is billed as 'The Greatest Outdoor Show on Earth' (see Figure 19). More than a million visitors flock to the city to participate in the world's largest rodeos, a parade, stage shows, concerts, agricultural competitions, chuckwagon racing, and First Nations exhibitions.



Figure 21: Bronc riding, Calgary Stampede Parade. Source: Wikimedia Commons

## The Canadian Rockies

The Canadian Rockies are the easternmost part of the Canadian Cordillera, the collective name for the mountains of Western Canada. The Rockies lie between the Interior Plains of Alberta and Rocky Mountain Trench of British Columbia.

Most visitors to the Rockies start their trip at Calgary, the closest international airport to Banff, visit Banff National Park and then drive the scenic Icefields Parkway to Jasper National Park. Moraine Lake (see Figure 22), Lake Louise and Peyto Lake are amongst the world's most iconic and most photographed vistas. Equally beautiful is Lake Agnes (see Figure 23), which lies in the mountains above Lake Louise.



# CANADA FROM EAST TO WEST



Figure 22: Mirror Lake is one the world's most photographed tourist destinations. Source: Wikimedia Commons

Four national parks are located within the Canadian Rockies – the Banff, Jasper, Kootenay and Yoho national parks. The four parks form part of a complex of protected areas designated as a UNESCO World Heritage Site. The region is rich in wildlife, see Figures 21a–c).



Figure 24 c: Cougar, Jasper National Park. Source: Wikimedia Commons

## The Western Cordillera and the Canadian Rockies

A Western Cordillera is a major system of often parallel mountain ranges separated by intervening plateaus, valleys and plains.

While the Cordillera extends from Alaska to Mexico, the Canadian portion of this system includes the Rocky Mountains and the Coast Mountains and covers most of the provinces of British Columbia, Yukon and parts of Alberta and the Northwest Territories.

The Canadian Rockies forms part of a 4,800 km range stretching from the northernmost part of British Columbia to New Mexico in the Southwestern United States. It was formed as several plates began to slide under the North American plate some 80–55 million years ago.

Figure 25: The Rocky Mountains were formed as several plates began to slide under the North American plate. Supplied by author



Figure 23: Lake Agnes, Banff National Park. Source: G. Kleeman

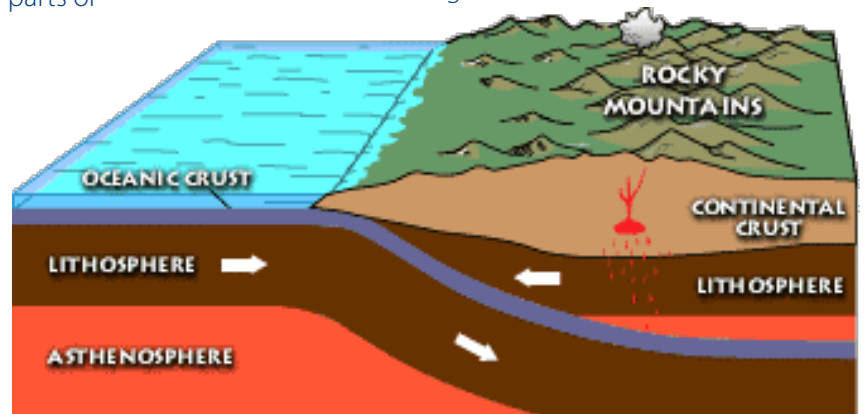


Figure 24 a: Bull Elk (Wapiti), Banff National Park. Source: Wikimedia Commons



Figure 24 b: Grizzly bear (*Ursus arctos*), Jasper National Park. Source: Wikimedia Commons

The angle of subduction was relatively shallow, resulting in a broad belt of mountains running down western North America. See Figure 25.





# CANADA FROM EAST TO WEST

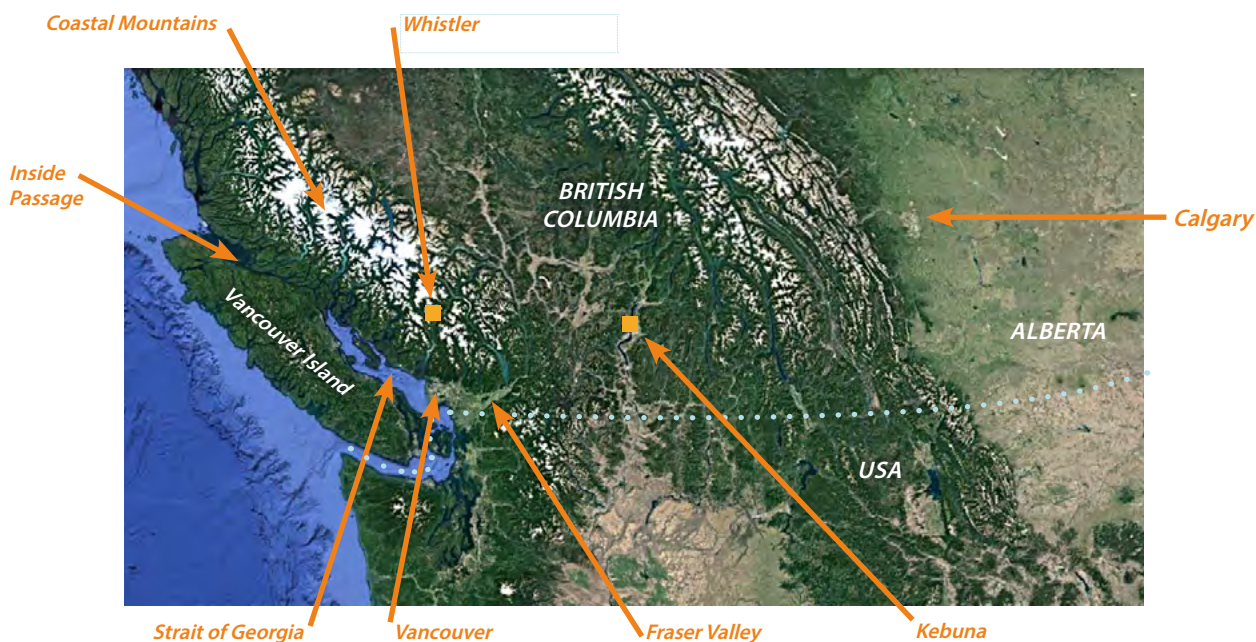


Figure 26: Landform elements of Canada's Western Cordillera. Image source: Google Earth

## British Columbia

Just to the west of the Canadian Rockies lies the Thompson-Okanagan region, an area of grassland ecosystems, numerous lakes, mountain ranges, and some of the driest places in Canada. The human history of the area dates back over 10,000 years and is rich with the indigenous culture of the Secwépemc, Syilx, Nlaka'pamux, and St'át'imc nations.

Tourism, agriculture, mining, and forestry have been the principal economic activities in the region. Ranching is widespread, and orchards and vineyards are common in the south. The natural resource-based economy in the region is, however, transforming, with an increase in renewable energy development. The Okanagan region is one of Canada's major wine-producing regions.

Further to the west, is the Mainland/Southwest region of British Columbia's, the province's most populous region. It is home to 2.8 million Canadians or 61 per cent of the province's population. The largest population centre is the City of Vancouver, a dynamic and ethnically diverse metropolitan area offering a wide range of economic opportunities. It also features a mild climate, an active lifestyle and all the amenities of a major urban centre. (See Figure 27)

Vancouver is consistently named in the top 10 of the world's most liveable cities in terms of the quality of life it offers residents. This helps to explain why Vancouver is one of the most ethnically and linguistically diverse cities in Canada. The city is a magnet for immigrants

seeking to maximise the opportunities for themselves and their children. Just over half the population are not native speakers of English and 50.6 per cent of residents belong to visible minority groups.

As partly a result of this diversity, Vancouver is often referred to as a 'city of neighbourhoods', each with its distinct character and ethnic mix. People of English, Scottish, and Irish heritage, historically the largest ethnic groups, together with elements of British society and culture, are still visible in some areas, especially South Granville and Kerrisdale. Germans make up the next largest ethnic group of European background and played an important role in shaping the city's early development. Today, the Chinese are the most visible ethnic group in the city. Neighbourhoods with a distinct ethnic character include Chinatown, Punjabi Market, Little Italy and Greektown.

Vancouver is the most densely populated cities in Canada. Urban planning in the city has promoted the construction of high-density residential and mixed-use developments in accessible centres, as an alternative to urban sprawl.

Vancouver's economy is based on trade and financial services, education, manufacturing, transportation, tourism and agricultural services. The development of major film production studios in Vancouver and nearby Burnaby have turned Greater Vancouver into one of the largest film production centres in North America.



# CANADA FROM EAST TO WEST



*Figure 27: Vancouver is among Canada's most ethnically diverse cities. It is also one of the world's most scenic harbour cities.  
Source: Supplied by author*

The Vancouver region also includes the communities in the Fraser Valley and world-famous Whistler ski resort to the north. Whistler is located in the Coast Mountains – a major coastal mountain range in western North America. The Coast Mountains extend from south-western Yukon to the Fraser River in the south of British Columbia.

Those who live within the region enjoy an active outdoor lifestyle, taking advantage of the region's mountains, oceans, lakes, rivers and beaches. Workers in Vancouver can, for example, head to Grouse Mountain for an evening ski or board after a day in the office.

Throughout British Columbia, as a whole, forestry remains the largest industry, see Figure 29. The province's internationally recognised natural beauty makes tourism its second-largest industry.



*Figure 29: Logboom on the Fraser River, British Columbia. Rivers are used to transport logs to sorting yards. Source: Wikimedia Commons*

*Figure 28 (below): Residents of Vancouver can spend the evening skiing on Grouse Mountain after work or school.. Image supplied by author*





## Vancouver Island

Vancouver Island (population 400,000) is 456 km in length, 100 km in wide at its widest point and covers 32,134 km<sup>2</sup>. This makes it the largest island on the west coasts of the Americas. Nearly half of the island's population live in the metropolitan area of Greater Victoria, the capital city of British Columbia. Other notable urban places on Vancouver Island include Nanaimo, Port Alberni, Parksville and Courtenay.

For thousands of years before the arrival of Europeans, indigenous peoples inhabited Vancouver Island. The rich cultural conditions of these First Nations people continue to this day. The groupings, by language, are the Kwakwaka'wakw, the Nuuchahnulth and various Coast Salish peoples. While there is some overlap, Kwakwaka'wakw territory includes northern and north-western Vancouver Island and adjoining areas of the mainland, the Nuuchahnulth span most of the west coast, while the Coast Salish occupy the south-eastern Island and southern-most extremities along the Strait of Juan de Fuca (see Figure 30). Their cultures are closely linked to the natural resources abundant in the area.



Figure 31 Butchart Gardens, Victoria, Vancouver Island.  
Source: Wikimedia Commons

Vancouver Island's principal economic activities include tourism (see Figure 31), forestry, fishing, dairying, food processing, breweries and wineries. The island's largest city, Victoria is home to a significant number of IT and technology-based industries.



Figure 30: The Strait of Juan de Fuca and the Salish Sea, pictured from the International Space Station, separate the western-most border of the United States and Canada. Source: Wikimedia Commons