

GEOGRAPHIC PERSPECTIVES OF A NATIONAL PARK AND A PROVINCIAL PARK ON THE GASPE PENINSULA

Margaret F. Boorstein
Department of Earth and Environmental Science
C.W. Post College of Long Island University
Brookville, New York 11548

ABSTRACT: *Forillon National Park and Bonaventure Island and Perce Rock National Park, on the Gaspé Peninsula, Quebec, both established in the 1970s, mesh unique geologic landscapes, biogeographic ecosystems, and human geographic environments. While Forillon is a Canadian national park, Bonaventure Island and Perce Rock, though actually a Quebec provincial park, is referred to as a Quebec national park because of its management policy. Forillon was formed to protect colonies of seabirds and marine mammals, arctic-alpine plants, and ten different rock formations in one narrow strip, as well as artifacts of the cod-fishing economy. Bonaventure Island Park, also designated as a national bird sanctuary, is the home of the largest colony of northern gannets in North America, as well as geologic formations of the Devonian and Carboniferous periods. The parks allow the public to appreciate geology, marine life, and cultural history. They are spectacular examples of physical and human geography. One often thinks of national parks as natural entities, but their perpetuation as ecologically balanced entities involves proper management from a human and a natural perspective.*

INTRODUCTION

Forillon National Park and Bonaventure Island and Perce Rock Provincial Park, established in the 1970s, mesh the preservation of the natural environment with cultural and historic sites. Located on the eastern end of Quebec's Gaspé Peninsula (Map 1), these parks offer unique geologic landscapes, biogeographic ecosystems, and human geographic environments.

The major objectives of this study are to gain a better understanding of human use of these biophysical environments through geographic analysis. The study is significant both in the information it presents and also in its perspective. The study will examine the history and the reasons behind past human-environmental interactions; it will show how and why the preservation of the remnants of these interactions and the natural landscapes remains worthwhile today.

The Gaspé was an important cod fishing and dried-cod producing region for hundreds of years. A valuable commodity before refrigeration, dried cod was shipped long distances, including to the

Mediterranean. Although the dried-cod industry is now largely defunct, the cod-industry heritage continues to permeate the history and the current economy. The two parks serve to preserve a record of that heritage as well as marine life and geological formations. Geographic analysis sheds light on the properties of the parks and of human interaction within them.

National parks in Canada are mandated to preserve the natural environment and at the same time allow for present-day enjoyment (National Parks Act, 1885), a rather formidable task. The parks are established by Parliament and administered by Parks Canada, part of Environment Canada. The country has set a goal of one national park or park reserve for each of the 39 natural regions of the country. There are currently 30 national parks (39 total national parks and park reserves) with 14 new national parks needed to meet the goal (Parks Canada, 2002). Quebec, like all provinces, has its own provincial parks. Some Quebec parks, including Bonaventure, are called national parks reflecting the management policy of the province. SEPAQ (Société des établissements de plein air du Québec or the Society of Outdoor Establishments) is a "government agency mandated to operate..." the provincial parks. Its

mission is to do so “in conjunction with local partners, with a view to protect, conserve, ensure profitability, and foster sustainable development” (SEPAQ, 2002). It works with Parcs Quebec, which emphasizes the management of the natural features of the park (SEPAQ, 2002). Both the two provincial agencies and the national department aim to preserve the natural environment, although their perspectives differ in terms of scale of operation and emphasis on the built or natural environment.

FORILLON NATIONAL PARK

Establishment and Raison d’Etre

Forillon, formed in 1970 as the first national park in Quebec, is “located in the Atlantic Maritime Ecozone” and protects “a sample of the Notre-Dame and Megantic Mountains Natural Region.” “Its marine component represents the Gulf of St. Lawrence National Marine Region” (Parks Canada, 2002). Located south of the St. Lawrence River, on the eastern edge of the Gaspé Peninsula, it contains 244 square kilometers, including 4.4 square kilometers of marine area (Map 1). Forillon National Park was formed to protect colonies of seabirds and marine mammals, arctic-alpine plants, and ten different rock formations in one narrow strip, as well as the heritage and artifacts of the fishing economy. Several origins of its name have been suggested. One is the French word, *pharillon*, which first referred to a small pot on a fishing boat used by fishermen to attract fish. Later it referred to a lighthouse. Another meaning, probably used by Champlain, is “small rock separated from the land by a stone’s throw.” Since the 1600s, the name has been used to refer to an ever-larger region, the peninsula of the park (St- Amour, 1985).

Forillon, like its name, does not have one overriding feature. It consists of several sectors, each so distinctive in its own way that one might think that it could stand as a park on its own. The many features of the park are extensive and have geographic qualities that are important to the functioning and existence of the park. Together the sectors form a cohesive national park. The park’s theme, “The Harmony Between Man, the Land and

the Sea,” is evidenced throughout. Ten distinct ecosystems: “forest, cliffs, alpine meadows, fallow fields, sand dunes, lakes, streams, freshwater and saltwater marshes, and the shore” (Parks Canada, 2002) contain 69 plant communities, over 690 plant species and a variety of animal species, including over 200 bird species, many land animals ranging from large mammals, like black bear and moose to many invertebrates, but few, if any, biting insects, to water mammals like seals and seven species of whales (*Ibid* and St- Amour, 1985). With so many environments and animals in one locale, this park lends itself to a variety of geographic analyses, including the characteristics of places.

Birds, Mysteriously Located Habitats and Geographical Analysis

Components of geography are major contributing factors explaining the large number of birds that have been spotted in, migrate through, or actually live in, the park. The first component is the wide variety of habitats. The seacoast, the hills, beaches, and cliffs are each distinctive habitats and places for shelter for a wide variety of species. The second component is the park’s location along or near the St. Lawrence River and it is jutting into the Gulf of St. Lawrence. Forillon is under the migration paths of birds of many types (St-Amour, 1985)

Similarly, components of geography are involved in understanding why Forillon contains several habitats which, according to normative expectations based on climate and location, it should not. The first habitat is the Penouille Peninsula, a narrow 1.5 kilometer-long sand spit with one side facing a salt marsh and the other facing the Gulf of St. Lawrence. It is the only sand dune in the park. The inland salt marsh supports plant species especially “adapted to the brackishness of the water and the action of the tides,” including rare eelgrass, an underwater plant (CanadianParks.com, 2000). This type of vegetation is not unexpected, although the presence of the rare species is an added bonus enhancing the park.

Yet, the middle of the Penouille is classified as taiga, which is mystifying because taiga is normally found at higher altitudes or higher latitudes in Quebec. One possible explanation is the combination of harsh conditions of “sandy ground, poor soil, and climatic factors” (St-Amour, 1985).

As part of these particular conditions, Penouille supports at least 36 species of lichens and other plants, including a pioneer plant, *Hudsonia tomentosa*, the false heather (*Ibid*, 1985; CanadianParks.com, 2000). The habitat of Penouille is important not so much for the plants that live there, but for the “unusual associations” present (St-Amour, 1985).

The forests, covering about 95 percent of the park, present similar mysteries. Boreal coniferous forests of white spruce, balsam, and black spruce are found at higher altitudes. In the lower altitudes and along the river glens are found a variety of trees including sugar maples, white pine, hemlock and oak (CanadianParks.com, 2000). The coniferous associations are generally to be expected. Yet, the climax forest of “sugar maple with yellow birch” as well as red oak, elm and ash should not be here. They are adapted to warmer climates and should not be found in a boreal forest region. While no definitive answer exists, one possibility is that a warm period of 5,000 to 7,000 years ago supported the growth of these deciduous trees to the end of the Gaspé Peninsula. With climatic cooling and modification by people, these forests survive in limited areas as relics (St-Amour, 1985).

Arctic-Alpine plants are another plant association whose location in the park at first seems inexplicable. These hardy and small plants live on the cliffs under harsh conditions of cold winds and little sunlight. Similar to plants found in the Rockies and the western Cordilleras, these species are found elsewhere exclusively at high altitudes, high latitudes or Alpine environments. Thus, a question is how did they and two other groups of plants, Boreal Disjunct species and Endemic species, get to the east, to the Gaspé Peninsula and other locales far away from their major areas of concentration. Several explanations have been developed since the 1880s (*Ibid*, 1985). One possibility advanced by M.L. Fernald at the beginning of the twentieth century is that during glaciation the plants survived on nunataks (mountain tops high above the glaciers). This theory has a couple of difficulties, including the assumption that there were nunataks, which has not been proven. If nunataks did exist, one might ask how the plants migrated down to their present location. A theory advanced by Wynne Edwards in the 1930s, Ecological Isolation, is that the plants were restricted to alkaline (calcium-rich) soils. Marie-Victorin

suggested the Rainbow Theory to account for the movement of these plants (Bridgland, 1989). The plants originated in the Arctic, and as the glaciers receded and melted about 10,000 years ago, they left behind a harsh habitat in which only these hardy plants could live. Plants that normally grew at higher altitudes could, under these conditions, reproduce at the base of the mountains (St-Amour, 1985). Later as climate warmed and conditions in general became less severe these hardy plants could not compete. They were displaced and their “rainbow or arch shape distributions were broken up” (Bridgland, 1989). About 30 species remain, living on the cliffs and tops of mountains (Lefebvre, 1983). Yet, this theory too has problems. One question is why the plants, also found in other parts of Canada including the Cape Breton Highlands of Nova Scotia, do not live only in calcium-rich soil. Thus, the reason(s) for the locational distribution of these plants remains unresolved (Bridgland, 1989).

Components of Human Geography

The area now composing Forillon National Park has been occupied or used by people for thousands of years. Yet, as is true for almost all of America, most significant modifications of the natural environment occurred primarily in the last few centuries, when French and English settlers displaced the First Nations. Probably the last of these were the Huron-Iroquois, who used the Gaspé for fishing, and the Micmacs (also called Souriquois), who engaged in a variety of activities, including ice fishing, but turned to fur trading with the French. With the European arrival, natural vegetation was replaced by farmlands, and exotic plants and animals were both accidentally and deliberately introduced. Fishing settlements developed a significant dried cod exporting business.

Interactions of the Physical Setting and Technology

In its role as a national park, Forillon has preserved remnants of this life in Grande-Grave, which has also been designated as a national historic site. This site serves also as an excellent case study of the role of physical and human geography. Grande-Grave has been translated as big beach (Samson, 1980) or wide pebble beach (St-Amour,

1985). Regardless of its English meaning, it provided an ideal physical geographic environment for cod fishing and processing. The large pebbles themselves served as an excellent surface on which to dry cod under the prevailing winds. The characteristics of the water bodies also contributed. Large boats could come close to shore because the water was deep up to the coast. A small stream flowed across the beach, permitting inland movements (*Ibid*, 1985).

The cod fishing itself involved management of multiple biological, economic and technological resources. Cod eat a wide variety of foods, but they are particularly fond of herring, mackerel, capelin, and the American sand lance, which, because of their natural migrations, were plentiful at successive times of the year. First the cod fishers had to catch these fish as bait. To do so, the Gaspé fishermen used appropriate sized nets for each of these fish. The nets were purchased from the merchants, thus keeping the fishermen in debt. The bait fish were then used to attract the cod, which were caught using fishing lines (Samson, 1984; Samson, 1980). Depending on the time of year, fishermen either stayed in the Bay of Gaspé or ventured a few miles into open water. The voyage usually lasted a day, albeit a long day, perhaps from 3:00 am to 4:00 pm (Samson, 1984).

Demographics and Economic Geography

The demographic and economic components of the human geography are fascinating as well. In-migration to this part of the Gaspé was at first largely the result of events occurring elsewhere. During the last half of the eighteenth century, British officers from the Seven Years (French and Indian) War settled here on land grants from the government. They were followed by Loyalists from the American Colonies, who in turn were followed by Irish Catholics escaping famine (St-Amour, 1985). In the closing years of the eighteenth century, families from the Channel Islands set up cod-fishing and trading companies. They encouraged families from Guernsey and Jersey to settle along the Gaspé Peninsula (Parks Canada, 2002). In the beginning of the nineteenth century many migrants came largely from the lower St. Lawrence, down river from the city of Quebec. At first largely summer workers, after a while they stayed as permanent residents. The combination of high in-migration and a high birth

rate led to the population's increasing from about 3,000 at the beginning of the 19th century to 20,000 in 1850. This diverse group of people in terms of ethnicity, religion, and income level evolved into a unique culture, called Gaspésie (St-Amour, 1985).

External land connections were few; villages were isolated; and the sea was the primary connection with the outside world. At first the laborers were largely seasonal migrants, called Canadiens. By the 1880s, economic opportunities in other parts of Quebec were more plentiful, allowing the Canadiens to demand higher wages. One very important merchant, Isaac Hyman, chose to hire locals instead (Samson, 1984).

Economically, from the late 18th century well into the early 20th century, the Gaspé fishing way of life was almost totally controlled by Anglo-Norman companies, based in Jersey and Guernsey Islands (a type of precursor of multi-national corporations). Through a credit-barter system the fishers were almost completely dependent on the merchants. Isolation from other settlements ensured the success of this system, in which cod served as money. The merchants competed among themselves, sometimes colluding as well, including agreeing to the price to be paid to the fishers. The store of the last merchants, William Hymian and Sons, which went bankrupt in 1967 after 122 years of business, and a cod-drying building, along with the Blanchette homestead depicting life in the 1920s, are preserved as part of the Grande-Grave National Historic Site.

The Physical Environment: A Laboratory and a Place for Recreation

The underlying rock structure of Forillon is geologically outstanding, albeit originating underground, another reason for the national park designation. Consisting primarily of sedimentary rocks, shale, sandstone, and limestone, the region is the northernmost extent of the Appalachian Mountains. The tallest peak, Mount St. Jacques, is over 1300 meters tall.

The unique geology includes a series of ten rock formations, closely situated within a very short distance of about 7 km or 4 ½ miles. Dating back over 425,000 years, the rocks were formed by depositions and uplifts during the Ordovician, Silurian, and Devonian periods. They exist among landscapes further shaped by glaciations of 50,000 to

10,000 years ago. The many geologic formations, including anticlines and synclines, cross-bedding stratifications, fossils from the tropics, sand pits, and erratics, make the park useful to geologists. The limestone cliffs and beaches resulting from erosion are attractive to tourists.

The park thus serves as a place for recreation and a scientific laboratory. Visitors hike the mountain, walk along the shore, admire the scenery, and play on the beach. Historic exhibits educate the public about the culture and economy of the region. Geologists and geographers can study the rock formations of the past as well as current geologic processes. Yet, as powerful and as important as human beings think they are, they cannot stop the eventual erosion of the Forillon peninsula as the forces of the ocean wear it way—another facet of physical geography.

BONAVENTURE ISLAND AND PERCE ROCK NATIONAL PARK

The Physical Environment

About 12 highway miles from Forillon is Bonaventure Island and Perce Rock National Park, the home of more than 250,000 sea birds as well as the largest colony of northern gannets in North America. It consists of Bonaventure Island and neighboring Perce Rock. Bonaventure Island is over 400 hectares in size with cliffs on two sides about 75 meters high. It is composed largely of conglomerate as well as some sandstone and siltstone of the Carboniferous period. Balsam fir and spruce are the dominant species in the Atlantic Highlands biome. In addition, over 570 vascular plant species have been identified, of which eight are rare in Quebec and five are vulnerable or threatened (International Bird Association, 2002).

Human Interference and Conservation

Bonaventure Island and Perce Rock's designation as a provincial park and bird sanctuary resulted from its natural characteristics and from the threat of human degradation. Here, too, components of geography are important. Bonaventure Island was

first permanently settled in 1787; agriculture changed the natural vegetation and birds were hunted for food and other purposes. With the resultant decline in the bird population, the northern and eastern cliffs were declared a migratory bird sanctuary in 1919. The bird population, although protected from direct predation, was adversely affected decades later by DDT and other pesticide poisoning. With regulation greatly restricting such pesticide use in the 1970s, the bird population has been able to recover significantly. Quebec bought the island in 1971 as permanent and summer residents left. In 1985, the Parc de L'Île-Bonaventure-et-du-Rocher-Perce was established as a conservation park. It now operates as a provincial park and a migratory bird sanctuary under federal-provincial agreement. Quebec calls the park a national park, not for political reasons, but because the management policies are the same as for national parks.

Many Birds, but Not the Most

Despite the impressively large number of northern gannets (40,000 nest on Bonaventure), the island is the nesting home to only about one half of this species in North America. The birds migrate from their winter homes on the eastern coast of the United States spreading from New England to the Gulf of Mexico in March to Bonaventure Island as well as to other islands in the Gulf of St. Lawrence and eastern Newfoundland. Nevertheless, the presence on Bonaventure of so many birds nesting so close to each other on the cliffs is an overwhelming site and is a major attraction to about 60,000 visitors each year. Significant numbers of the Black-legged Kittiwake (25,000), the Common Murre (28,000), and other seabirds live on the island as well (Environment Canada, 1994).

Human Geography of the Past and Present

Facets of human geography accompany the geology and the avian biology. Starting from the 1830s, using the same credit system as in Forillon, the LeBoutillier family (of Jersey) dominated the dried-cod economy of the island for about 100 years. The family house is now operated by the Quebec provincial park system and is open to visitors. Several hiking trails are available including one to the gannet rookery.

At the other end of the spectrum of human-environmental interaction is Perce Rock. About 400 million years old, it is composed of limestone of the Devonian period and consists of a long, high blade of rock, penetrated by an arch and a split. The split occurred during a storm in the 1700s. Containing many fossils, Perce Rock has been of interest to geologists for over 100 years. The state paleontologist of New York State wrote an extensive report in 1903 about Gaspé fossils in order to understand better "ancient faunas of New York" (Clarke, 1903.) It is about 1400 feet (430 meters) tall and 280 feet (90 meters) high and its apparent colors change with the sunlight and the rising and falling tide. Nowadays, Perce Rock serves as what might be called a geologic amusement park attraction. Tourists wait until low tide to walk onto the rock. In fact, hotels list the high and low tides, much as a movie theater might post the times of the film presentations. Like lemmings, streams of people move towards the rock as low tide approaches. Yet, unlike lemmings, they come back before the high tide drowns them!

Fascination with this region is not new. Samuel de Champlain described Perce Rock, Bonaventure Island, and the fish [green (salted) and dry] in his diaries of his voyages of 1603. Perce Rock is described as "Ile Percee, which is like a Roche, very steepe, rising on both sides, wherein there is a hole, through which Shallops and Boats may pass at an high water; and at a lowe water one may goe from the maine Land to the said Ile" (Champlain, 1603). How little times change!

National parks are often thought of as natural entities, but their perpetuation as ecologically balanced entities involves proper management from a human and a natural perspective. As in the United States, private concessionaires provide some services in these public parks, resulting in subtle, and sometimes not so subtle, conflicts. For Bonaventure, one service is boat trips to the island. At one time, during the height of the tourist season, private boat companies vied with each other for passengers. Passengers could even bargain over the price.

SUMMARY OF FINDINGS AND FUTURE AREAS OF RESEARCH

This study has used a geographic perspective to analyze human-environmental relations. The physical setting attracted fishermen for hundreds of years. Now tourists are attracted, but not for the same reasons. The Canadian and Quebec governments decided that this physical region is worth preserving, partially because of its geology and biology, but also because the region affords visitors the opportunity to learn about and remember the ways of life of former residents of the Gaspé.

Remarkably, conflicts among users of the parks are few. Both parks provide food service through concessions, including a café on Ile Bonaventure. Yet, the parks are not overly commercialized. Forillon, located on the mainland, contains campgrounds. Motels and restaurants are located in Gaspé, a significant town for Quebec, located about 20 kilometers away. The town of Perce is very much dependent on the tourist trade, with the usual variety of restaurants, hotels, and souvenir shops. The rock's image is a prominent part of the advertising for the town. Provincial and government management of the park permits enjoyment and preservation at the same time.

Future areas of research include gaining more information about plant and animal life in the parks, including the mutual interactions of the gannets and park visitors. More information about pre-European human inhabitants would enrich the understanding of human geography. Seasonal patterns of visitation to the park, nationalities of park visitors, and intensity of use within the parks should be analyzed. These examinations would allow a greater depth of how well the mission of the Canadian Parks service is being followed. Are the parks being preserved while allowing for present-day enjoyment?

The parks allow the public to appreciate geology, marine life, and cultural history. They are home to significant geologic structures and marine ecosystems. They are parks and not wilderness areas. Yet the touch of human beings is relatively light. This study has shown that plant and animal species have been protected, although not perfectly, at the same time that people have been able to enjoy the

parks.

National Parks Act, 1885.

REFERENCES

Bridgland, J. 1989. Rare Plants in the Highlands: Key to Glacial History. *Conservation*. Nova Scotia Department of Natural Resources. Summer.

Parks Canada. Spring 2001. *The National Parks and National Historic Sites of Canada. Forillon National Park*.

Parks Canada, 2002.

CanadianParks.com, 2000.

St-Amour, M. 1985. *Forillon National Park: The Harmony Between Man, the Land and the Sea*. Vancouver, Canada and McIntyre in association with Parks Canada.

Champlain, S. 1603. *The Voyages and Explorations of Samuel de Champlain: 1604-1616 Narrated by Himself*. Translated by Annie Nettleton Bourne together with The Voyage of 1603 Edited by Edward Gaylord Bourne, New York: Allerton Book Co. 1902.

Samson, R. 1984. *Fishermen and Merchants in 19th Century Gaspé: The Fishermen-Dealers of William Hyman and Sons*. Studies in Archaeology, Architecture and History. Parks Canada. Hull, Quebec: National Historic Parks and Sites Branch.

Clarke, J.M. 1903. *Perce*. New York State Museum Bulletin No. 80.

Samson, R. 1980. *Fishing at Grande-Grave in the Early 1990s* Parks Canada. National Historic Sites and Parks Branch. Hull, Quebec: Minister of Supply Services Canada.

Environment Canada. 1994. *Hinterland's Who's Who*.

International Bird Association, 2002.

SEPAQ (Société des établissements de plein air du Québec). 2002. www.sepaq.com.

Lefebvre, G. 1983. *The Rare Plants of Forillon National Park*. Parks Canada. Ottawa: Minister of Supply and Services.

-----Telephone conversation, October 8, 2002.