QUEBECERS ON THE MOVE
OUTDOORS!

Brief on Outdoor Activity

ENSEMBLE on fait avancer le Québec

Québec

Title of original document

Au Québec, on bouge en plein air!
Avis sur le plein air

Production

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Camille V. Lefebvre (page 30)
Sépaq (page 35)
Sépaq (page 39)
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La Ferme du Joual Vair (page 57)
Société québécoise de spéléologie (page 60)
Vicky Neveu (page 62)
Sépaq (page 72)

TABLE OF CONTENTS

HIGHLIGHTS

OUTDOOR ACTIVITY IN QUÉBEC

1. Time spent outdoors is also time spent socializing. Most people engage in outdoor activities with their partners, families or friends.
2. Young Quebecers want to be outdoors: 84% say they would take part in more outdoor and nature-based activities given the opportunity.
3. Demand for more family-oriented outdoor activities is high in Québec. Nearly one-third of people who practise outdoor activities do so with their families.
4. The most popular outdoor activities are cycling, hiking, snowshoeing, flatwater canoeing and recreational kayaking.
5. Sépaq facilities alone report 6.8 million visitor days per year. Each visitor day generates economic spinoffs of $60 outside the facilities.

THE BENEFITS OF OUTDOOR ACTIVITY

For individuals

6. Contact with nature fosters physical activity and social connection, and also helps to reduce stress, leading to positive impacts on health and well-being.
7. Children can engage in unstructured play in natural environments, thereby stimulating their creativity, helping with their motor development and increasing their levels of physical activity.
8. Physical activity in natural environments improves one's mood and reduces rumination tendencies, thereby helping to mitigate symptoms of depression.
9. Physiological manifestations of reduced stress as a result of contact with nature include lower cortisol levels, lower blood pressure and lower heart rate.
10. Time spent outdoors helps to protect against the development of myopia.
11. People who engage in outdoor activities and live in "green neighbourhoods" report superior physical and mental health.
12. Contact with nature improves concentration and reduces symptoms associated with attention deficit disorder (with or without hyperactivity).
13. The presence of natural space in a neighbourhood fosters social contact and helps to alleviate feelings of isolation.

For the community

14. Nature improves quality of life given the lower noise levels, cleaner air and availability of urban cool islands. Temperatures underneath trees can be up to 4 °C lower than those in sunny areas.
15. Downtown areas with natural spaces are appealing to employers and make it easier for them to retain employees.
16. Investing in natural spaces, especially in ecological corridors, helps to maintain biodiversity and attract visitors. These investments help to boost recreational tourism and generate significant economic spinoffs for municipalities.
17. The presence of natural spaces can increase local property values by up to 5%.
18. Social gatherings in parks constitute an implicit form of neighbourhood surveillance. They help to reduce criminal and anti-social behaviour and enhance the sense of security.
19. The ecosystem services offered by urban parks provide significant economic and environmental benefits for municipalities and governments. For example, each dollar invested in a tree generates $4 for society.

TOWARD THE DEVELOPMENT OF AN OUTDOOR CULTURE

The following steps should be taken to promote outdoor activity in Québec:

20. Create activities that will enable people to discover and learn more about the great outdoors.
21. Facilitate access to activities for families.
22. Promote outdoor activities and the sites at which they can be practised.
23. Loan or rent out equipment.
24. Facilitate transportation to outdoor activity sites.

INTRODUCTION

This document follows the many initiatives introduced by the Ministère de l'Éducation et de l'Enseignement supérieur (the Ministère) in connection with outdoor activity in Québec. The Ministère's Direction du sport, du loisir et de l'activité physique provides support to recognized outdoor organizations to enable them to offer consulting expertise and help to promote outdoor activities. Moreover, its regional sport and recreation offices are also responsible for supporting local and regional organizations involved in the development and promotion of outdoor activities in their respective regions.

In recent years, the Ministère has supported a variety of initiatives, including the Mécanisme de concertation sur les enjeux de pérennisation et de développement des sentiers et des lieux de pratique de loisir de plein air (co-operative mechanism for preserving and developing trails and outdoor activity sites) and the Table de concertation Ados plein air (co-operative panel on outdoor activities for teens), both of which are responsible for encouraging Quebecers to practise outdoor activities. The results of these initiatives revealed a lack of information on the benefits of outdoor activity to support the actions of stakeholders in the educational childcare, preschool, school, municipal, government, associative, community and entrepreneurial sectors.

A review of the literature on the benefits and practices of outdoor activity, as well as its related policies, was therefore carried out, the findings of which were used to document the challenges currently faced by Québec's outdoor activity sector, draw conclusions and propose potential lines of action. This document is the next step in this process: its main purpose is to **equip the sectors concerned so as to foster the development and promotion of outdoor activity in Québec.**

This document highlights a number of inspiring actions to illustrate different ways of developing and promoting outdoor activity throughout the province. Section 1 presents observations on the current social context in Québec, while Section 2 addresses the positive impacts of outdoor activity on individual physical and mental health and well-being. Section 3 outlines the social, environmental and economic benefits of outdoor activities for communities. Section 4 discusses the challenges of developing and promoting outdoor activities in Québec, based on the four issues (Accessibility, Quality of experience, Promotion, and Leadership and concerted action) identified in the Policy on Physical Activity, Sport and Recreation entitled *Quebecers on the Move!*,[55] published in April 2017. The last section proposes potential avenues for promoting and developing outdoor activities in Québec.

1 A FEW OBSERVATIONS

The current social context supports the development and promotion of outdoor activity in Québec. Stakeholders from a variety of sectors (educational childcare, preschool, school, municipal, regional and provincial government, associative, community and entrepreneurial) are able to meet social demand for these activities in their respective fields, but first they must be convinced of the benefits. This brief therefore describes the positive effects of outdoor and nature-based activities on individuals and communities, presents the challenges associated with such activity and proposes some potential lines of action.

In this document, an "outdoor activity" is defined as follows:

A physical activity practised outdoors, in a dynamic and harmonious relationship with elements of nature.

Outdoor activity:

- is generally recreational in nature and is practised in an unstructured context, although it may include events and other structured activities
- allows people to adjust the level of physical intensity required by the activity to their own abilities and need to excel
- involves moving around without motorized assistance
- excludes the purely competitive element that aims to identify high performance athletes
- requires an attitude that is usually in line with the surrounding environment, often dominated by elements of nature
- focuses on relaxation, discovery, exploration or adventure
- can take place equally well in environments ranging from large urban parks to wilderness areas

1.1 Social demand for outdoor and nature-based activities

Many people want to be closer to natural spaces or use them on a daily basis.[83] In a 2010 survey of young people in Québec, 90% of respondents stated that they enjoyed nature because it made them feel good, and 84% reported that, given the opportunity, they would choose to increase their practice of outdoor and nature-based activities.[120] Outdoor enthusiasts enjoy immersing themselves in nature for an authentic adventure experience. Outdoor activities also meet the need to escape[48] and to excel,[113] and are therefore beneficial to individual health.[52,131]

This desire to reconnect with nature is also reflected in certain architectural trends, such as biophilic design,[72] which incorporates patterns or evocations of nature into buildings and urban facilities. This type of design also uses urban planning strategies that aim to provide people with access to a "greener" environment.[71] In Québec, urban planning and land use specialists work to stress the importance of nature in urban areas.[93]

PUBLIC ACCESS TO NATURE IS POSSIBLE!

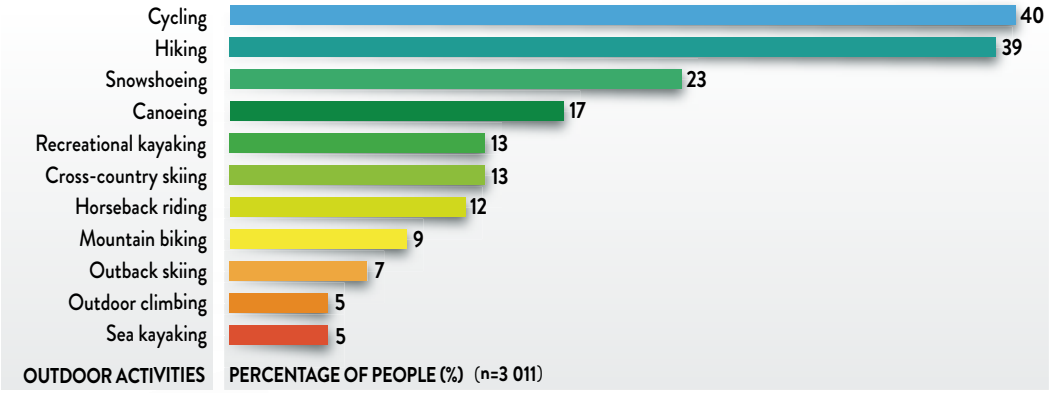
As a result of a public initiative carried out in 1993, the Fondation de la faune du Québec, in collaboration with the city of Châteauguay and the Sisters of Charity of Montréal, created the Refuge faunique Marguerite-D'Youville (Marguerite-D'Youville wildlife sanctuary) on Île Saint-Bernard. A non-profit organization, **Héritage Saint-Bernard** was set up to manage the new protected area, which covers 90% of the island's total area.

To ensure peaceful cohabitation between the island's inhabitants and its visitors, the organization built footbridges and trails (roughly 8 km) to limit movement within the more sensitive areas while making the island accessible for hiking and nature observation. It has also built on the tranquility of the space by using electric vehicles as well as planning maintenance work based on the location of nesting areas and nests.

Île Saint-Bernard, along with Ruisseau Saint-Jean and the Fernand-Séguin ecological centre, forms part of an unconsolidated ecological corridor where the residents of Châteauguay can take part in activities such as bird-watching, cross-country skiing, snowshoeing, cycling and hiking, without harming local wildlife and vegetation.

At the same time, the number of outdoor enthusiasts in North America has increased in recent years, a trend that is reflected in the related data.[109,112] For example, visitor numbers at Québec's national parks rose by 18% over the five-year period[a] from 2011-2012 to 2016-2017.[139,140] Moreover, outdoor activity sites near large urban centres are used extensively, to the point of saturation at times. The busiest national parks, including Mont-Saint-Bruno, Oka, Mont-Orford, Mont-Tremblant and Jacques-Cartier, are all located close to cities.[139] A recent study has also confirmed Quebecers' interest in outdoor activities (see Diagram 1): 9 respondents out of 10 reported being interested in discovering a new outdoor activity.[20]

DIAGRAM 1: OUTDOOR ACTIVITIES PRACTISED AT LEAST ONCE BETWEEN 2014-2017



Source: Chaire de Tourisme Transat.[20]

However, there are a number of social issues that go hand in hand with society's demand for outdoor activities, including work-family-recreation balance, nature deficit disorder and the need for an alternative offer of physical activity. These topics will be discussed in the sections that follow. In addition, aspects relating to the history of outdoor activities and the Québec territory, which possesses an undeniable potential to foster the practise of nature activities, will be addressed.

[a] Based on annual visitor days.

1.2 Work-family-recreation balance

A shortage of time and difficulty incorporating recreational activities into busy schedules constitute the main obstacles to practising outdoor activities. For many families, it can be very hard to balance school, work and family obligations with recreation. Data regarding time spent on recreation and on work show that there has not been any increase in free time in the last 30 years.[119] As a result, unstructured recreational activities, including those of the outdoor variety, may prove to be more appealing than activities that take place at set times,[152] because they have fewer time management constraints. In addition, according to a recent study, Québec families declared that improved access to family-oriented outdoor activities was a priority, given that nearly one-third of those who take part in such activities do so with their families.[20]

1.3 A response to nature deficit disorder

Nature deficit disorder, or the lack of contact with elements of nature mainly as a result of the urban development boom in recent decades, is a reality for many people. Out of a total Québec population of nearly 8 million people,[66] over 6.5 million (80% of the total population[146]) live in urban areas. Some researchers have observed that the general population—and young people in particular—are increasingly affected by nature deficit disorder.[19,84] Its manifestations include a suppressed use of the five senses and poor concentration. Additionally, nature deficit disorder can adversely affect physical and mental health.[84] Human beings are products of nature, and outdoor activities therefore meet their fundamental need for contact with nature. Such activities are an excellent opportunity not only for overcoming the nature deficit disorder, but also for interacting with natural elements, including in urban areas when natural spaces are available.

RESTORING A CITY'S ACCESS TO WATER

With its ***Métropole au fil de l'eau*** plan, the city of Montréal has developed financial tools to help restore public access to the waterfront. For example, a financial assistance program is now in place to support the organization of events (cultural, sports, etc.) and new non-motorized water activities by non-profit organizations and boroughs. A second program has also been launched to improve access to the Rivière des Prairies. Moreover, two beach construction projects are currently underway, one in the eastern portion of Rivière-des-Prairies–Pointe-aux-Trembles and one in Verdun, where a number of water-based activities will be offered.

The plan also includes financial support to protect standing waves used for surfing. Surfing is popular in the region, and this support will help mitigate the erosion problems caused by the sport.

By restoring public access to water, the city of Montréal hopes to reassert its status as an island metropolis.

1.4 An alternative offer

For young people, outdoor activities may offer an attractive alternative to the types of sports that make up most school programs. Experts recommend a variety of activities suited to different interests, especially for girls.[100,171] Throughout adolescence, girls and boys do not display the same level of interest in physical activities. A report by Kino-Québec found that, among 12- to 17-year-olds, only one girl out of three was physically active for seven hours per week, compared to one out of two boys.[2] In some cases, the emphasis on performance and competition may hinder participation in sports, especially for girls.[123] Outdoor activities provide a real alternative to the current offering, since they usually take place in a non-competitive context and include a social component.

Generally speaking, adolescents and young adults enjoy activities that offer a certain challenge and are more stimulating and varied.[176] Outdoor activities can fulfill this need for excitement because participants are able to self-regulate the intensity level to match their own abilities.

Many outdoor activities are accessible to people throughout their entire lives. This important characteristic was one of the elements retained by Kino-Québec as a basis for diversifying programs and increasing physical activity levels.[92] Recognition of the importance of outdoor activities is therefore essential to providing a diverse, accessible offering.

A PROGRAM OFF THE BEATEN TRACK

Since 1998, more than 15 000 students in 8 administrative regions have participated in the **Programme Santé Globale** (global health program), implemented in 21 elementary schools and 9 secondary schools. The program is divided into five components: physical and outdoor activity, diet, the human body, life skills, and first aid and risk management.

In secondary schools, students chosen for the global health option are required to meet standards of educational success while taking part in eight or nine periods of outdoor-oriented Physical Education and Health classes spread over a nine-day period. In addition to learning about healthy living habits, the students participate in a variety of outdoor activities, including wilderness camping, sea kayaking, cycling, cross-country skiing, scuba diving and dogsledding.

Two other options have recently been introduced in secondary schools: the global health profile for students in the general education sector (four periods over nine days) and the special education global health option for special needs students (six periods over nine days). The program is an excellent example of how outdoor activity can be promoted in schools.

1.5 Outdoor activities: Anchored in history

Outdoor activities are not a recent phenomenon; rather, they are firmly anchored in Québec's collective history. Some are directly or indirectly connected to the province's cultural development. They may not have always been considered recreational, but, nevertheless, they are an intrinsic part of Québec's history.[10] For example, snowshoes and canoes were essential means of transportation for First Nations and *coureurs des bois*. As for cross-country skiing, it was imported from Norway in the early 1900s by Herman Smith-Johannsen, known as "Jackrabbit." These activities played a role in the evolution of outdoor activity and have since gained popularity throughout the province.[10] Outdoor activity truly flourished in the 1970s, when federations were created specifically to promote and develop the outdoor sector.[10]

1.6 A region with high potential

Québec is a veritable outdoor playground. Over 22%[67] of its total area (1 667 712 km^2) is covered by water, specifically in the form of half a million lakes, 4 500 rivers[54] and, of course, the St. Lawrence River, one of the longest in the world.[58] Over half of the province's population (60%) lives within 10 kilometres of the shores of the St. Lawrence River.[65] Yet despite this proximity, both water sport enthusiasts and the media have reported numerous problems with waterfront access for recreational purposes.

Québec is also known for its vast forests, which cover 761 000 km^2[b,56] of the province's diverse topography that bears the marks of the last ice age. The St. Lawrence Valley is mainly flat, with mountains cropping up in the Laurentides and the Appalachian Geological Regions, both of which are popular with hikers and outback skiers.

Québec's territory and climate follow the rhythm of the seasons, which transform landscapes and provide a multitude of possibilities for engaging in a host of outdoor activities such as hiking, cycling, fat biking, snowshoeing, rock and ice climbing, kite surfing and cross-country skiing. The province therefore offers numerous opportunities to be active outdoors.

However, Quebecers have a somewhat ambivalent relationship with winter. Many regard it as a deterrent, especially given the temperature variations and snow cover that can affect their ability to practise winter activities.[158] Nevertheless, many Quebecers have reconciled to winter through outdoor activities (e.g. fat biking, snowshoeing, cross-country skiing and winter hiking).

> "Pairing physical activity with nature-based outings fills two needs with one deed: people get moving and they maintain a contact with nature that enhances their psychological well-being. Contact with nature also helps them recover more quickly from illness and injury. In all fairness, any actions carried out must take into account the needs of different users, including the disadvantaged."[c]

[b] This figure excludes the Low Arctic subzones (236 000 km^2), the forest tundra (217 100 km^2) and the taiga (299 900 km^2).

[c] Gouvernement du Québec, Ministère du Développement durable, de l'Environnement et de la Lutte contre les changements climatiques, *Stratégie gouvernementale de développement durable 2015-2020* (Québec: Gouvernement du Québec, 2015), 57. [Translation]

2 ADDED VALUE OF OUTDOOR ACTIVITY FOR INDIVIDUALS

The objective of this brief is to document the added value of outdoor activities to individual and community health, and to identify the challenges related to the development of outdoor activity in Québec. Nature is conducive to physical activity.[17] It satisfies the need to excel, to escape and to be in contact with natural elements, and helps to improve and maintain individual health. The many benefits of regular physical activity have been amply proven. This section will therefore focus on the added value derived from contact with nature during outdoor activities.

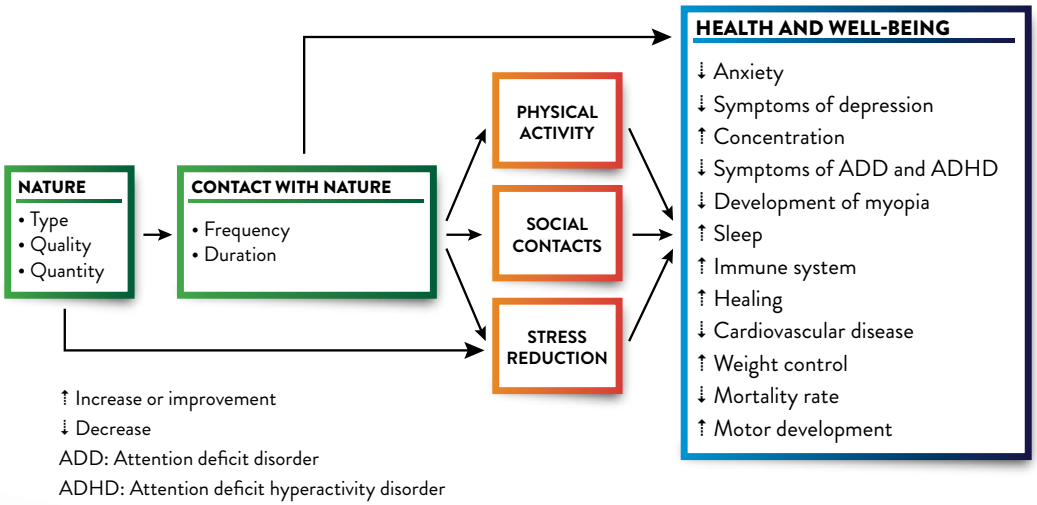
REGULAR PHYSICAL ACTIVITY HELPS TO:[127]

- reduce the risk and severity of strokes
- prevent falls by the elderly
- reduce the risk of certain cancers
- fight diabetes
- prevent hypertension
- manage weight
- improve body image and self-esteem
- improve mood and cognitive function
- strengthen the immune system
- maintain bone density and reduce the risk of osteoporosis

2.1 The influence of nature

People who engage in outdoor activities and those who live in "green neighbourhoods" report being in better physical and mental health.[36,88,148,154,173] According to de Vries and van Dillen, nature can have a positive effect on mental health by means of three key variables: stress reduction, stimulating physical activity and the facilitation of social cohesion.[35] The benefits of outdoor activity on health and well-being are summarized in the figure below.

FIGURE 1: THE BENEFITS OF OUTDOOR ACTIVITY ON HEALTH AND WELL-BEING



Source: Adapted from Hartig et al.[64]

Natural spaces, especially those close to where people live, provide local spaces where people can be active. Access to parks and inviting natural spaces is linked to higher levels of physical activity,[25,51,174] since people are more motivated to get active than they would be in a built environment.[51] A literature review by Gray et al.[60] revealed a positive correlation between the time people spend outdoors and their level of physical activity, especially among young people.

Nature, along with its various forms, textures and elements, is a source of challenge for children and offers them an environment in which they can invent their own games and activities. Branches, leaves and stones—examples of elements that are freely available in nature and that are easy to pick up and carry—entice children to spend more time outdoors and interest them more than manufactured objects.[38] For adults, nature can be a source of inspiration to explore and escape.[18,69]

THE BEGINNINGS OF A NATURE PROGRAM

The **Coopérative de solidarité Enfant Nature** in Shawinigan has designed a nature immersion program for 4- and 5-year-olds, focusing on overall child development.

Before the children begin the program, the cooperative meets with the parents to inform and reassure them. It also provides the children with all the materials (clothing and equipment) they need to ensure their comfort and maximize their enjoyment of nature, whatever the season. Parents and grandparents are also welcome to join the field trips, which last between three and five hours each.

The program consists of five interactive nature-based modules: meditation, music awareness, natural science, art and nature, and free, active, creative play. In 2016-2017, 315 children from 4 early childhood education centres and 5 schools took part in between 4 and 20 field trips to natural environments.

In short, this nature program benefits the children and serves as a source of inspiration for their parents.

When people are given the choice between practising an activity indoors or outdoors, they often prefer the outdoors because it is more enjoyable and satisfying.[153] Not only does the natural environment usually offer a wider range of activities than a built environment, but it is also better suited to group activities. Many people choose outdoor activities specifically for the social aspect,[17] and, in Québec, most people practise these activities with their partners, families or friends.[20]

Researchers have suggested that nature may help to restore emotional stability[159] by:

- eliciting involuntary attention
- generating positive emotions
- limiting negative thoughts

Nowadays, the pervasiveness of artificial colours, lights and sounds demands almost permanent, sustained and constant attention. In the long run, these cues force the brain to use a significant amount of energy, bringing about mental fatigue and a decreased attention span.

Thus, in order to recover, the brain must make use of involuntary attention mechanisms, and, for this to be possible, the person must be in an environment that:

- is vast or has scope, and can therefore occupy a substantial portion of the mind (*extent*)
- is a source of fascination and wonder (*fascination*)
- frees the mind from its worries by giving the feeling of being elsewhere (*being away*)
- is consistent or compatible with the activity the person would like to practise (*compatibility*)[70]

Nature fulfills all these criteria and is an ideal environment for the brain to engage in involuntary attention. Some scientists have even suggested that the human brain may be biologically programmed to switch to involuntary attention in natural environments given our history as hunters and gatherers.[70,159] In other words, natural environments allow the brain to rest, enabling the person to recuperate from the stresses of worries and obligations.

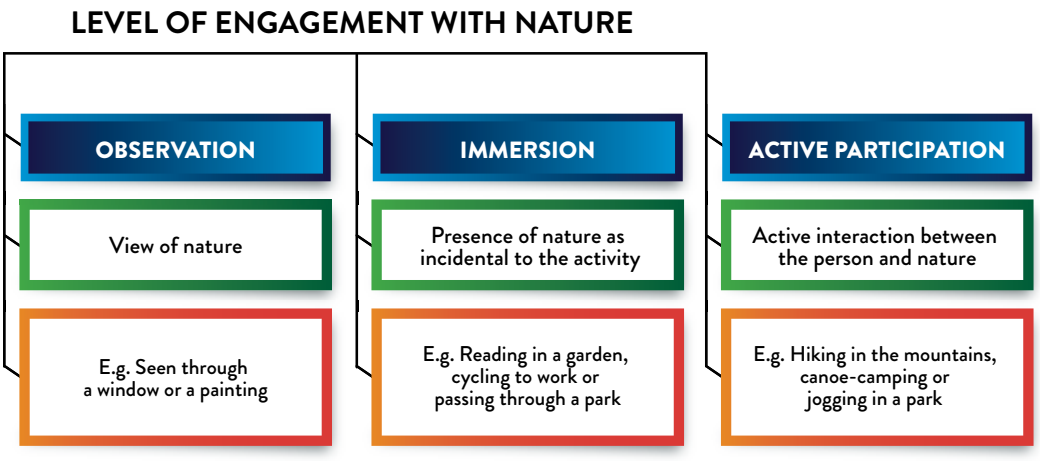
Observing an appealing nature scene or landscape produces a positive emotional response due to the presence of natural elements such as lakes, mountains or forests. These intrinsic elements of nature can help ward off stress and create a sense of well-being.

At the same time, nature also appears to trigger physiological changes. For example, research has shown that observing a nature scene after experiencing a threatening or difficult situation brings about changes in heartbeat, pulse, muscle tension and skin conductivity[d] that are indicative of lower stress levels.[64,159]

According to Pretty et al., contact with nature can occur in three ways: through observation, through immersion and through active participation[118] (see Figure 2). The benefits vary according to the type of contact. For example, the more sustained the contact and interaction with nature, the greater its impact on the creation and duration of the benefits.

[d] Characteristics relating to systolic pressure and used to measure stress.

FIGURE 2: THREE TYPES OF CONTACT WITH NATURE



Source: Adapted from Pretty et al.[118]

Similar benefits appear to derive from the quality of the natural environment and the frequency and duration of the visits. According to Shanahan et al.,[133] frequent weekly visits lasting 30 minutes or more can have a positive impact on health.

THE IMPORTANCE OF ACCESS TO LOCAL SITES

An **international study** conducted in 14 cities spread over 10 countries drew the following conclusions:

- People living in high-density residential areas with lots of street intersections, bus stops and parks within walking distance engaged in 68 to 89 more minutes of physical activity per week than people living in other neighbourhoods. These additional minutes are equal to half (45% to 59%) of the recommended 150 minutes of moderate-to-vigorous-intensity physical activity per week.
- People with access to a large number of parks within a radius of 500 metres of their homes engaged in an average of 21 more minutes of physical activity than people with access to fewer parks near their homes.[129]

2.2 The benefits of outdoor activity and nature on mental health and well-being

Some of the benefits of outdoor activities stem from the fact that people, when outdoors, are inevitably in contact with elements of nature. Lower stress levels, fewer symptoms of depression, improved concentration, less severe symptoms of attention deficit disorder (with or without hyperactivity) and increased social interaction are just some of the positive effects of contact with nature.

2.2.1 Reduced stress

In Québec, one person out of four feels fairly or extremely stressed most of the time.[145] Furthermore, people dealing with stress and anxiety are more likely to experience so-called negative emotions such as sadness and anger. Roughly 87% of Quebecers who have taken part in outdoor activities at least once in the last three years believe that being outdoors helps to reduce stress.[20] This belief is supported by scientific studies, many of which have found that respondents experience fewer negative emotions after participating in a nature-based activity than after taking part in the same activity either indoors or in an urban environment.[13,15,90]

A study[7] of three groups of people with different degrees of mental health problems examined the benefits of natural exercise for them. The first group took part in a social activity, the second went swimming and the third followed a natural exercise program. The study's authors found that socialization played an important role in all three activities. They also noted the significant positive impact of nature on the mood and self-image of the third group, as well as the group's lower level of anxiety compared with the other two.[7]

When a person is under stress, the body reacts by raising cortisol levels, blood pressure and the heart rate.[118] Although findings vary from one study to the next,[87,90,111,143,167] depending on the study population, the consensus is, nevertheless, that contact with nature helps reduce stress-related cortisol levels.[131]

Another study, carried out in Japan, delved even further. The authors measured salivary cortisol, pulse rate, blood pressure and heart rate before, during and after a 15-minute walk both in a forest and in a city. The study sample consisted of 280 young adults and the experiment took place in 24 different forests. The findings were conclusive: after walking in the forest, the participants had lower cortisol levels, lower blood pressure and lower heart rates. They also exhibited less sympathetic nervous activity (stress-related) and enhanced parasympathetic nervous activity (which generally slows down the organism), compared to the levels recorded after walking in the city.[111] These findings clearly demonstrate the positive impact nature has in reducing the physiological effects of stress.

2.2.2 Reduced symptoms of depression

The beneficial impact of nature on mood and depression has been studied extensively,[7,63,90] and researchers have found that outdoor activities are an inexpensive way of countering depression.[7,49,89,133] In addition, they have an impact on rumination (fixating on negative emotions or thoughts about the past), which is associated with the risk of depression.[74,106]

In a 2015 study, Bratman et al.[15] found a positive correlation between reduced rumination, reduced neural activity in the prefrontal cortex (the part of the brain active during depressive episodes) and walks in a natural setting. The participants who reported reduced rumination (assessed using questionnaires and magnetic resonance scans) had all taken a 90-minute walk in a natural setting. The results differed in participants who walked for the same length of time through a city, leading the researchers to suggest that access to nature may be vital to mental health, especially in urban environments.[15]

A 1995 survey of experienced runners conducted by Harte and Eifert[63] showed the beneficial impacts of outdoor physical activity on depression. The researchers suggested that hormone excretion during physical activity may not be solely responsible for the activity's positive effects on depression; the location at which the activity takes place may also play a significant role. They therefore measured the indicators in two separate environments, one indoors and one outdoors. Among other things, their findings showed that the outdoor environment had a higher positive impact on the runners' emotional experience than the indoor environment. In addition, the subjects were less tired and more alert when they exercised outdoors.[63] Similar observations were also made by Kjellgren and Buhrkall in a study published in 2010.[73]

According to a 2016 study, up to 7% of cases of depression in city dwellers could be avoided if the people in question developed the habit of spending at least 30 minutes in a natural environment, at least once a week.[133]

"FOREST BATHING" AS A MEANS OF REDUCING SYMPTOMS OF DEPRESSION

A Japanese study of 498 people carried out in 2007 found that ***shinrin-yoku***, or "forest-baths," were an effective way of countering depression.[101] Study participants went on four two-hour walks, two in a forest and two in an urban area. They completed a questionnaire before and after each walk. The researchers found a significant correlation between reduced symptoms of depression and forest bathing. The effects were even more significant in people with high stress levels.

Nature-based activity therefore seems to be an effective way of improving mood and reducing stress and rumination, which, in turn, helps to mitigate the symptoms of depression.

2.2.3 Concentration

Several researchers have found that people of all ages, regardless of their socio-demographic profile, can benefit from the positive impacts of nature on restoring attention and concentration.[13,41,76,108]

The link between concentration and contact with nature was studied in California, using a sample of 112 young adults divided into two groups.[64] Participants in the first group began by taking a concentration test in a room with a view of trees. They then went on a walk in an ecological reserve before taking a second concentration test on site. Participants in the second group carried out the same activities, except that the first concentration test took place in a room with a view of the city, and the walk and second test took place in an urban setting.

Overall, the first group scored better results in both concentration tests. However, the difference between the results of the two groups on the first test (view of trees compared with view of the city) was smaller than the difference between the results on the second test, after the walk (ecological reserve compared with urban setting),[64] suggesting that nature significantly impacts concentration.

2.2.4 Mitigation of symptoms associated with attention deficit disorder with or without hyperactivity

Outdoor activities help to mitigate the symptoms[e] associated with attention deficit disorder (ADD), with or without hyperactivity. They also help to improve concentration and behaviour in people who have been diagnosed.

In 2004, a research team collected information from 452 parents of children aged 5 to 18 from different socio-demographic backgrounds and diverse environments (rural areas; suburbs; small, medium or large cities; etc.) throughout the United States who were living with attention deficit hyperactivity disorder (ADHD). Overall, the findings showed that, regardless of the children's profile (gender, age, socio-economic status, living environment), outdoor activity helped reduce their ADHD symptoms.[75]

The same team of researchers led another study, this time in 2011, producing identical results. They assessed the decrease in the overall severity of the symptoms (ADD with or without hyperactivity) by analyzing the parents' responses to a questionnaire.[42] The findings from both studies were published in several literature reviews.[21,22,131]

A study by Amoly et al. of 2111 children aged 7 to 11 from 36 schools in Barcelona also revealed a positive correlation between outdoor activities and less severe ADHD symptoms.[3] Interestingly, the researchers included what they referred to as "blue" spaces, i.e. seaside beaches. The results were conclusive: children who spent more time in natural spaces (both green and blue) obtained better results on focus and behaviour tests.

ADD and ADHD are complex conditions involving a number of factors and it is too soon to consider the possibility of exclusive nature-based treatments. However, the research thus far has been promising and suggests that regular, if not daily, outdoor activity may help reduce the severity of ADD and ADHD symptoms.

[e] Examples of symptoms: difficulty concentrating on and completing a given task, and difficulty listening to and following instructions.

2.2.5 Promotion of social interactions

Research has shown that a park or other natural space with more abundant and high-quality vegetation will attract more visitors, thereby increasing opportunities for social interaction.[18,78,81,86,149]

A Dutch study of 10 098 subjects aged 12 and over from various backgrounds found that people living less than a kilometre from a large number of natural spaces feel less isolated and benefit from better social support.[86] It also revealed that natural spaces are an excellent place for social interaction and have a significant impact on quality of life.

2.3 The benefits of outdoor activity and nature on physical health

Extensive research has shown that outdoor activity and nature are beneficial not only to mental health, but also to physical health.[174] The authors of *Your Brain on Nature: The Science of Nature's Influence on Your Health, Happiness, and Vitality* go as far as to suggest that the benefits associated with physical activity double when that activity occurs in a natural environment.[131]

2.3.1 Contribution to motor development

Nature is an endless source of inspiration for children. It stimulates unstructured, active play and encourages them to move and explore, thereby fostering their motor development.

A Norwegian study examined the potential for unstructured play in natural environments and its positive impacts on motor development in young children.[46] The study assessed the impact nature has on unstructured play in two groups of children with an average age of six years. The first group played on a traditional playground, and the second in a natural space located near the school. The natural space comprised uneven rocky terrain and sandy areas interspersed with vegetation, and presented many navigational challenges for the children. The vegetation and topography to which the children had to adjust made for a stimulating play environment.

The study's findings were convincing. Throughout the duration of the study, the children in the natural space group developed more advanced motor skills and achieved significantly higher results in the physical tests than the group that played on the traditional playground.[46] The children who had access to natural spaces handled the rugged, unstructured terrain better. The opportunity to climb trees, hide in bushes, jump, and build shelters or structures using natural materials allowed them to use their imaginations and perform a broader range of bodily movements than if they had been on a traditional playground.

A LITTLE SCHOOL WITH BIG AMBITIONS

The École primaire Saint-Félix in Saint-Félix-d'Otis (Saguenay–Lac-Saint-Jean) launched an **outdoor activity, nature and sustainable development educational project** after school attendance fell by 53% between 1998 and 2012. To remedy the situation, the school implemented a program tailored to the environment in which the students live and that includes two periods of outdoor activity per week. It focuses on educational success for all, even those with learning disabilities, and allows students to practise a range of outdoor activities throughout the school year.

The approach has worked: student numbers are no longer declining and success rates have risen to over 90%. The new program has therefore brought significant change to this little school with big ambitions!

Thus, a natural environment, given its diversity, is well-suited to unstructured, active play and discovery. It allows children to awaken their senses (sight, smell, touch, hearing and taste)[47,102] and is an opportunity for them to run, climb, jump, lift weights and so on. As they play, the children acquire motor development skills such as agility, flexibility, motricity, coordination and balance.[16,46,47,102,115]

2.3.2 Myopia prevention

Spending time outdoors also appears to help protect against myopia.[23,121,165] The results of a meta-analysis have demonstrated that children and adolescents who spend several hours per week outdoors are less likely to develop myopia.[135]

The effects of outdoor activities on myopia were also examined by researchers in Taiwan, using a sample of 571 elementary school students.[175] One of the two schools studied applied a program called Recess Outside the Classroom. The teachers turned off the classroom lights during recess, so that the students were more likely to go out; as a result, they played outside for 80 minutes per day. A year later, the incidence of myopia was significantly lower (8%) among students at the school that applied the program than among those at the other school (18%).[175] Another study, this time in Australia, produced similar findings.[124]

Several factors might explain the problem of myopia,[135,165] including genetics, reading, precision work and computer use. Outdoor activities alone do not protect against eyesight problems, but, based on current knowledge, it is not unreasonable to think that they might help to prevent the development of myopia in many young people. Research suggests that the case may also apply to adults.[135,165]

> In 2010, the World Health Organization's Regional Office for Europe made a commitment "to provide each child by 2020 with access to healthy and safe environments and settings of daily life in which they can walk and cycle to kindergartens and schools, and to green spaces in which to play and undertake physical activity."[f]

2.3.3 Facilitating sleep

Outdoor activities expose people to sunlight, which plays a key role in sleep. The circadian rhythm—a human being's internal clock—is guided by natural light,[137] which mediates the hormonal signals that indicate the appropriate time to trigger the sleep cycle.

Natural morning light is important in triggering this cycle: its absence delays sleep. Since waking times are often dictated by school and work, this delay often leads to less sleep.[45,134] However, a good night's sleep is essential to feeling healthy.

[f] WHO Regional Office for Europe, *Urban green spaces and health* (Copenhagen (DK): WHO Regional Office for Europe, 2016), 1.

2.3.4 Faster healing

The benefits of nature on physical health were first studied by Ulrich in a Pennsylvanian hospital in the early 1980s.[160] The 46 patients who took part in the study all underwent the same operation and were then placed in rooms with an identical layout, save one major difference: the view from the window. Half the windows looked out onto a brick wall, and the other half onto a landscape consisting mainly of trees. The findings showed that the patients whose windows looked out onto the trees:

- healed more quickly and remained in the hospital for a shorter period of time (one day less)
- took less pain relief medication
- generally recovered better from the operation[160]

Another study, on differences in sunlight levels, produced similar findings: patients whose rooms were filled with sunlight took less pain medication than those whose rooms received less natural light.[164] Nature therefore appears to be beneficial to health, even when the latter is impaired.

2.3.5 Improved immune system

Research on the immune system, although still in its early stages, tends to suggest that close contact with nature improves its function. It appears that this effect can be attributed to the way in which contact with nature encourages relaxation and exposes the person to a variety of physical and chemical components in the air.[174]

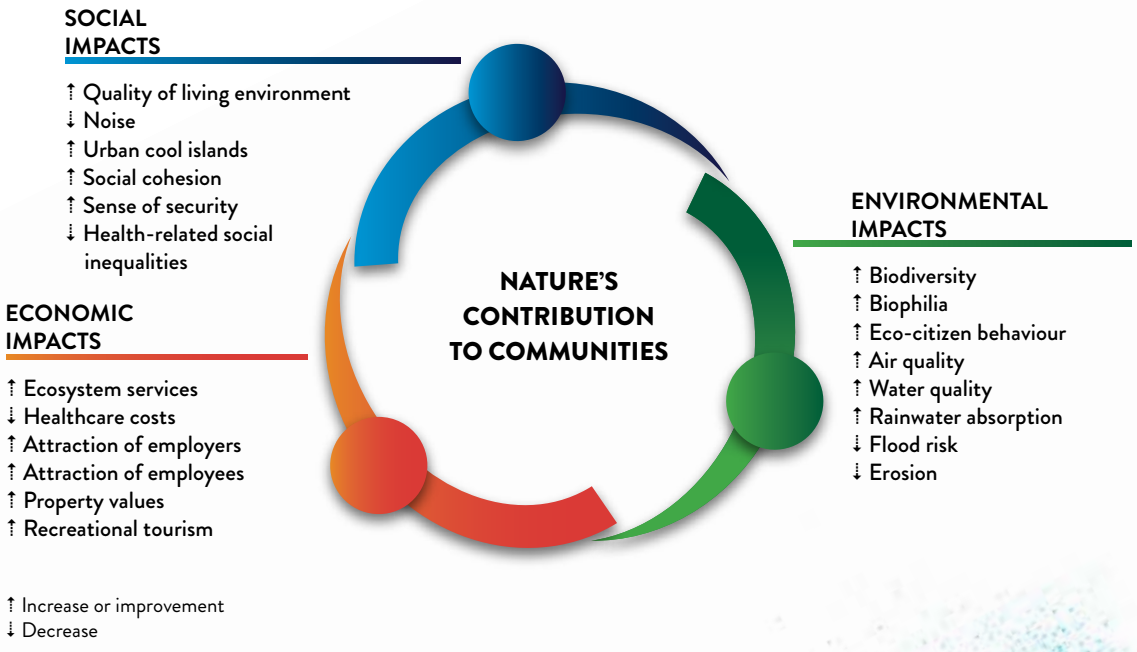
For example, children who come into contact with natural allergens at an early age appear to be less sensitive to them. The authors of one study of children aged 6 and over noted a positive correlation between atopic desensitization (reduced sensitivity to allergens) and the number of natural spaces within a radius of two to five kilometres of the children's homes.[128] These findings were corroborated in 2016 in the document *Urban Green Spaces and Health*, published by the World Health Organization's Regional Office for Europe.[174]

Some studies have suggested that nature might reduce the number of people suffering from allergies or the severity of allergy symptoms by helping to minimize air pollution in cities through, among other things, the filter effect of trees.[62,79,128] That being said, asthma and certain respiratory allergies are directly related to pollen from the blossoming of trees and plants. According to the studies consulted for this document, physical activity in urban parks and natural spaces is recommended nevertheless, since it is not thought to exacerbate the condition of asthma sufferers.

3 NATURE'S CONTRIBUTIONS TO COMMUNITIES

Natural space is an attractive feature for outdoor activities in communities. The presence of nature helps to improve living environments and reduce health-related social inequalities, since people whose homes are near natural spaces enjoy a better quality of life, live longer and are in better health. This section will present the benefits of nature, mainly in urban environments, based on the social, environmental and economic aspects of sustainable development. Figure 3 summarizes the impacts of nature that are described in the paragraphs that follow.

FIGURE 3: NATURE'S CONTRIBUTION TO COMMUNITIES



3.1 Social impacts

Natural spaces have positive impacts on communities, as they have been shown, for example, to improve quality of life, reduce health-related social inequalities and foster social cohesion.

3.1.1 Better quality of life

For most people, better quality of life is associated with the presence of natural spaces, whether natural or man-made. Improvements include the existence of cool islands and a perceived reduction in urban noise levels.

> In a study of urban natural space carried out in Lyon in 2012, 38% of French citizens ranked urban parks first in terms of public amenities that contribute to improving quality of life in urban areas.[g]

[g] N. Long, B. Tonini, *Les espaces verts urbains: étude exploratoire des pratiques et du ressenti des usagers* (VertigO – La revue électronique en sciences de l'environnement, 2012), 3. [Translation]

a) Reduced noise

Exposure to urban noise, in addition to being unpleasant, can disrupt sleep and lead to cardiovascular disease, tinnitus and hearing loss.[91]

Natural parks contribute greatly to changing the perception of ambient noise by providing pleasant, "good quality" natural sounds such as birdsong or running water in fountains, which mask unpleasant city noises.[34]

The impact of urban parks on noise reduction varies according to several factors, including their size, type of layout or surface (e.g. plant cover, gravel or asphalt), the presence of shrubs and trees, species and age of trees, and the activities that take place there.[26,40] The effectiveness of a park appears to be greatest when several strategies are combined, since their impacts are cumulative.

Although large public gatherings in parks for festivals, shows or competitions can actually increase noise levels,[114] the fact remains that urban parks play an effective role in reducing overall noise pollution.[26]

b) Creation of urban cool islands

Forest cover creates shaded areas where the ambient air is cooler, especially in cities where asphalt and concrete surfaces are prevalent and are partly responsible for urban heat islands.[68]

According to a literature review, forest cover helps to reduce local microclimate temperatures by up to 4 °C[14] due to shade and evapotranspiration produced by trees and vegetation.[14,147] Another, more recent, literature review by the Institut national de santé publique du Québec suggests that temperatures may be reduced by up to 8 °C.[9]

An empirical study carried out in Toronto showed that very few trees are needed to cool the air. In fact, researchers found that a single tree is sufficient, although groups of trees as well as mature trees located five metres from buildings are more effective at cooling the air than single trees, especially on the western and southern fronts.[96]

The presence of wooded areas encourages people to take part in outdoor activities as they are pleasant environments that offer protection from the sun. Increasing access to such areas would not only facilitate physical activity, but also increase the number of cool islands in cities.

3.1.2 Fewer health-related social inequalities

Access to urban natural space currently varies by neighbourhood and by municipality. In some Western countries, people living in disadvantaged areas often have poorer access to good quality, safe parks and natural spaces, thereby negatively impacting their health.[11,99,166]

Mitchell and Popham[99] examined the health records of people in England who died before the average age of retirement (60 years of age for women, 65 for men) and found that lower mortality rates could be associated with a greater number of natural spaces. Data processing revealed a positive correlation between deaths from circulatory diseases and living environments with the least natural spaces, even after taking into account other factors such as the individuals' socio-economic level. The same connection was noted for all causes of death combined. However, no correlation could be found between the amount of natural space and deaths from lung cancer or by suicide.[99] These findings were corroborated by a systematic literature review.[50]

In the Netherlands, a lower prevalence of certain diseases could also be connected to the presence of natural space in the subjects' immediate environment. The authors of an extensive study combined the medical data of 345 143 people with geospatial data on their living environments (e.g. the presence of trees or water) while also accounting for socio-economic and demographic aspects, and the rate of urbanization. For 15 out of the 24 diseases analyzed in the study, a low annual prevalence rate was linked to the proximity of natural space within a one-kilometre radius of the participants' homes.[87]

The presence of natural space had a positive impact on cardiovascular disease, migraines, depression and anxiety, in particular.

A meta-analysis carried out in 2011 also revealed a positive relationship between the proximity of natural space and physical activity (33 studies out of 50) as well as body mass indicators (9 studies out of 13).[80]

The findings of these studies demonstrate a link between health and access to natural space in urban areas. They also suggest that a more balanced distribution of natural space would help to reduce the health-related inequalities that are observed primarily among people living in disadvantaged areas.

3.1.3 Greater social cohesion

Natural areas are focal points and gathering places that help to break isolation and establish or strengthen community ties.

Communities with natural spaces are also more supportive. The results of a comprehensive study by Kuo and her team[43] found greater social cohesion among people whose residences overlook and give access to natural spaces. These individuals also shared the same concern for collective well-being and supported one another more than other tenants, which helped to develop and maintain social contacts and fostered intercultural dialogue.[27,78]

Social cohesion and the amount of natural space in a neighbourhood are associated with a general sense of attachment and belonging to the community.[86] Moreover, residents of areas with natural space have a stronger sense of security, since the social gatherings that take place there provide an implicit form of surveillance, thereby reducing the rate of crime and anti-social behaviour.[77,149]

ᓄᕐᕌᐃᑦ NURRAIT

The **Nurrait Program** (Jeunes Karibus) was introduced into secondary schools in Nunavik in 2014 with the aim of enabling groups of 13- to 17-year-olds from Inuit communities to take part in a five-day cross-country skiing expedition in the Arctic tundra. Among other things, the experience helps these young people to develop positive leadership skills throughout the school year, adopt local values and healthy lifestyle habits, work as a team and demonstrate both independence and unity in the wild.

The students train throughout the school year to prepare for the expedition. The project has the greatest impact on the students' self-confidence, as the teens prove that they are able to rise to the considerable challenge.

A total of 80 people (students and adult guides) from 7 of the 14 communities in Ungava Bay and Hudson Bay took part in the 2016-2017 expedition. The organizers' longer-term goal is to create a program that is available in all Nunavik communities.

3.2 Environmental impacts

The environmental contributions of urban parks and natural spaces range from the protection of biodiversity to higher quality air and water in city areas. Furthermore, natural spaces allow people of all ages to discover nature and learn more about wildlife and plants.

3.2.1 Contribution to biodiversity

The creation and protection of natural spaces in urban and semi-urban areas has a positive impact not only on residents, but also on animals, insects and plants, providing them with shelter and habitats while helping to preserve biodiversity.

Natural spaces that are connected to one another form ecological corridors along which species can travel between different natural environments, thereby helping to avoid the fragmentation and isolation of wildlife and plant habitats.[5,125] Such an environment helps to increase ecological resilience to epidemics and diseases by improving genetic diversity.[97,98]

GREATER MONTREAL'S *TRAME VERTE ET BLEUE*

The **Trame verte et bleue du grand Montréal**[30] (Greater Montréal green and blue framework) is an integrated development project for landscapes, natural spaces and built heritage. It is a by-product of Greater Montreal's first Plan d'aménagement et de développement (land use development plan), which aims to preserve these elements while providing public access to them.[29] Specifically, the framework is designed to:

- increase the number of access points for water-based recreational activities
- develop a sailing and cycling network
- introduce public transit options serving access points to framework components
- consolidate the recreation and tourism aspects of areas of interest in the Greater Montréal region

The action plan provides for reforestation that will increase forest cover in the Greater Montréal area to 30%.

The size of a park or natural space affects its capacity to accommodate the habitats of a greater or lesser diversity of species. Nonetheless, even small natural spaces can play a role in the preservation of biodiversity by providing habitats for birds, plants and insects.[82] Thus, their presence is beneficial.

Moreover, a large urban park or natural space featuring an abundance of natural elements and biodiversity will be more attractive to visitors. As noted by Arrif, Blanc and Clergeau, the presence of unspoilt nature and a preserved environment plays a role in a city's ability to attract tourists and enhance quality of life, due to, among other things, the possibility of discovering nature.[h] Maintaining and protecting a high level of biodiversity is significantly beneficial for the environment, the local population and tourists alike, and helps to support learning, education and training.

3.2.2 Development of biophilia and ecological citizenship

Biophilia[170]—or the innate desire to seek connections or affiliate with other forms of life—is the basis of ecological citizenship. The relationship between humans and the earth has deteriorated over the last several decades and must be restored if future generations are to enjoy a better environment. One step that must be taken in this direction is to renew the appeal of nature and the attachment the public feels to it. People need to learn more about and appreciate nature in order to want to protect it, given that we generally protect what we know and like.

Knowledge of natural environments serves as a bridge between the understanding, appreciation and protection of these often fragile ecosystems,[170] and education and frequent contacts with nature foster a sense of belonging.[168]

Awareness of the importance of protecting nature is essential, but contact with nature is even more vital in developing biophilia. According to a literature review, children who explore in nature often, be it through education or play, display more empathy and concern for other life forms.[24]

A WEEK IN THE CANADIAN ARCTIC

Every year from 1995 to 2006, a dozen secondary school students from the **Northwest Territories** were given the opportunity to live out an experience at a self-sufficient winter camp. Indigenous and non-Indigenous guides taught them about nature as a "culture," and passed on their ancestral and contemporary knowledge and survival techniques. The students developed a new appreciation of nature specifically because it could meet their needs even in the most primitive and extreme conditions.[37]

Young people who forge strong ties with nature are likely to develop a biophilia relationship and adopt a positive attitude toward the environment and eco-citizenship.[117] Their relationship with nature will also have lifelong impacts on both their health and their community.[168]

[h] T. Arrif, N. Blanc, P. Clergeau, *Trame verte urbaine, une rapport nature-urbain entre géographie et écologie* (Cybergeo – Revue européenne de géographie, 2011), 16. [Translation]

3.2.3 Air purification and carbon capture

According to the World Health Organization, "few risks have a greater impact on global health today than air pollution."[172] It is therefore important to protect woodlands and create urban forests that will improve air quality by acting as natural filters.

Air pollution, which occurs mainly in cities, is composed of particles of several thousands of elements that are, or are suspected to be, harmful to health.[163] As a team of Spanish researchers demonstrated in 2015, plants, including trees, have the ability to capture these air pollutants, especially carbon, and, in doing so, they help to improve ambient air quality. Over the course of six months, the team measured a number of traffic-related air pollution indicators inside and outside 39 schools. A high presence of greenery around the schools correlated in all cases with a low level of indoor and outdoor air pollution.[33]

3.2.4 Absorption of rainwater and decrease in runoff

Natural elements such as vegetation-covered soil and trees have the ability to intercept, absorb and filter rainwater.[147] These capacities are especially important in urban areas, where there are large concentrations of impermeable materials such as concrete and asphalt. Thus, urban natural spaces:

- help to capture and drain water surpluses after heavy rainfall or storms[6]
- help to reduce urban watercourse latency and increase maximum discharge levels,[147] considerably reducing water inflows and river flows, and diminishing both the risk of flood and the additional risk of pollution associated with overflow
- help to reduce runoff, the risk of erosion and sediment delivery in lakes and watercourses[147]

The conservation of wetlands and wooded areas near watercourses, especially in urban and semi-urban areas, helps to maintain and improve water quality.

3.3 Economic impacts

According to recent estimates made using new mathematical models, the economic impacts of natural spaces are impressive and are felt in a number of sectors: lower healthcare costs, attraction of employers and employees, higher property values, and increased recreational tourism. The advantages of an integrated approach to and management of natural space are, in many respects, clear.

3.3.1 Contribution to ecosystem services

Ecosystem services are the benefits that ecosystems provide humans. Their economic impacts can be measured using indicators such as water, soil and air quality; pollination; windbreak effect; mineralization of nutritive elements in the soil; and climate regulation.[107]

In Québec, researchers have estimated the value of the ecosystem services provided by Grand-Coteau Park (239 hectares) in Mascouche at more than $2.5 million per year. To calculate this figure, they took into account the park's woodlands, wetlands and open areas, and included runoff control (erosion and flood prevention), air and water filtration, carbon capture, pollination, temperature regulation, recreational activities (e.g. outdoor activities), tourism and increased property values near the park.[94]

Urban parks and wooded areas contribute to a reduction in rainwater runoff and, consequently, the volume of water that municipalities must manage, thereby supporting the maintenance of the water network, culverts and ditches. A study carried out in Seattle estimated the value of park-related rainwater management savings at roughly US$0.48/m^3.[i] This translates into annual savings of more than US$2 million for the city. This same study concluded that between the filtration of air pollution and the decrease in damaging effect to infrastructure, buildings and the health of the population, parks also generated estimated savings of over US$500 000.[157]

> **TREES THAT PAY OFF**
>
> A study by **Portland Parks & Recreation** revealed that for every dollar invested in a tree, society reaps $4 in benefits.[116] Endowing urban and semi-urban areas with natural spaces therefore makes sense, because not only do they promote outdoor activity, but they also contribute to the economy.

[i] Conversion carried out using the American figure of $0.0135 per cubic foot.

3.3.2 Reduction of healthcare costs

A population that is active due to the proximity of urban natural space—where the level of physical activity is generally moderate or high[25,136]—is also one that is in better overall health,[39] resulting in lower healthcare costs for society as a whole.[25]

The authors of a 2010 study estimated that the use of Denver's parks generated savings of nearly US$65 million in healthcare costs. They arrived at this sum by taking into account the number of physically active people using the parks and multiplying this figure by the difference in annual healthcare costs between sedentary and active people.[156] A recent study conducted in England estimated the savings at CAN$3.8 billion per year for the country as a whole.[169] Therefore, urban parks and a physically active lifestyle appear to be closely linked, since the accessibility and layout of parks influence lifestyle choices.

3.3.3 Location factor for employers and employees

The proximity of natural space to the workplace attracts both employers and employees because it improves quality of life by, among other things, encouraging outdoor activities at lunchtime and at the end of the work day. In his report for the American Planning Association, researcher John L. Crompton noted that quality of life is a major concern in the choice of company location and relocation. The presence of parks, natural spaces and areas for recreational purposes is associated with quality workplaces. Small business owners therefore target areas with such spaces, as this enables them to attract a qualified workforce that, beyond salary, seeks a superior living environment.[31]

Downtown areas with natural spaces also attract businesses and can be a factor in a company's decision to remain in a given location. As such, the development of natural space plays a role in the area's economic vitality.[4]

3.3.4 Higher property values

Numerous studies have shown that parks have a positive impact on the value of nearby residential properties,[12,85,95,110,157,155] since most people are willing to pay more for a property near a park.

The larger the natural space, the better its layout, and the closer its proximity to a property, the greater its impact on the property value. However, assessing the impact of proximity to a specific park on the value of an individual home remains difficult. Generally speaking, the presence of natural space within 150 metres of a property increases its value by 5%.[156]

Higher property values mean higher property taxes and higher revenue for municipalities. In the case of Seattle, for example, the added revenue for 2011 was estimated at nearly US$15 million.[157]

In developing neighbourhoods, lots located near natural spaces sell more quickly and few remain vacant. Economically speaking, this is of benefit to municipalities.[1] It is not unreasonable to think that the desire for an active lifestyle is a factor here, in addition to the aesthetics and other benefits of living near natural space.

3.3.5 Contribution to recreational tourism

Woodland areas and natural spaces attract tourists.[32,61] Large parks are an excellent source of revenue, too, since they have the capacity to host events such as festivals and cultural, recreational and sports activities (e.g. the Pentathlon des neiges on the Plains of Abraham in Québec City and the Défi du Parc – Nordique at La Mauricie National Park).

A REGIONAL PARK FREE TO ALL

The **Parc régional des Appalaches** was created 1997 through the concerted efforts of eight municipalities in the Montmagny Regional County Municipality (RCM). The park's area is fragmented and it has several entrances. The 70 000 or so visitors who use it every year can access more than 120 kilometres of hiking trails and 70 kilometres of snowshoe trails—at no cost, since the park does not charge an entrance fee.

The number of tourists visiting the RCM has risen dramatically since the park was created. The park is a viable entity thanks to the involvement of local communities and numerous partners. It goes to show that a no-charge facility can, in fact, be profitable when everyone works together!

Investments in urban natural space can generate significant revenue for municipalities. The city of Denver is a prime example. It estimated the economic impacts of an investment of US$70 million to create and maintain an ecological corridor known as the Platte River Greenway, which is made up of more than 15 parks spread over a total of 160 kilometres. Taking into account the impact on residential and commercial plans, retail sales and sports- and recreation-related projects, the city estimated that the Greenway has generated total revenues of US$2.5 billion.[105,155]

Regional and national parks represent collective wealth. They create jobs, promote local entrepreneurship, generate significant impacts on local economies and help bolster regional vitality.

SÉPAQ'S ECONOMIC SPINOFFS

In 2015-2016, the 6.8 million visitor days registered by the 49 establishments managed by the **Société des établissements de plein air du Québec** (Sépaq) generated significant economic spinoffs for the regions in question:[142] for each visitor day, $60.72 was spent outside Sépaq facilities.[141]

Sépaq's Stratégie famille (family strategy) was implemented to increase the number of families who visit Sépaq sites.[142] As a result, children aged 17 or under no longer pay for:

- entry into Québec's national parks
- camping and canoe-camping
- equipment rental (e.g. bicycles, skis, snowshoes, strollers, etc.)

Since the strategy was introduced, the number of young visitors has increased by 44%,[139] highlighting the leverage effect of no-cost amenities on the rate of children's participation in outdoor activities.[140]

4 DEVELOPMENT AND PROMOTION OF OUTDOOR ACTIVITY IN QUÉBEC

In light of the benefits described in previous sections, the need to develop and promote outdoor activities and activity sites cannot be ignored. For this to be possible, stakeholders must consider the issues to be addressed in their various sectors. This section will examine the amenities currently available in Québec as well as some of the issues outlined in the Policy on Physical Activity, Sport and Recreation, *Quebecers on the Move!*,[55] with the aim of identifying the obstacles to developing and promoting outdoor activity.

4.1 A natural playground

Vast natural spaces are part of Québec's collective identity. Publicly owned land, classified as wilderness, accounts for 92% of the province's total territory.[28] This expansive natural heritage includes areas with landscape components and natural features that are ideally suited to outdoor activities. It offers sites and trails that can be enjoyed by beginners and experts alike, according to their experience, physical fitness and desired level of intensity.

The purpose of the national parks managed by Parks Canada (4),[j] the National Capital Commission,[k] Nunavik Parks (4)[l] and Sépaq (24) (see map) is "to ensure the conservation and permanent protection of areas representative of the natural regions of Québec and of natural sites with outstanding features, in particular because of their biological diversity, while providing the public with access to those areas or sites for educational or cross-country recreation purposes."[59] This mission of conservation and protection guides the development of recreational potential and the nature of the activities carried out in these parks.

In addition to its national parks, Québec has roughly 200 regional parks and recreational spaces. These natural spaces vary in size and have been developed specifically for outdoor activities. Offering hundreds of kilometres of hiking, mountain bike, snowshoe and cross-country skiing trails, as well as other amenities such as climbing walls, boat launches and tubing, these sites attract outdoor enthusiasts due to their relative proximity and accessibility.

[j] The natural parks in Québec managed by Parks Canada are Mingan Archipelago National Park Reserve, Forillon National Park, Saguenay–St. Lawrence Marine Park and La Mauricie National Park.

[k] The park managed by the National Capital Commission is Gatineau Park.

[l] The natural parks managed by Nunavik Parks are Pingualuit, Kuururjuaq, Ulittaniujalik and Tursujuq parks.

REGIONAL AND NATIONAL PARKS IN QUÉBEC

- Canadian national park
- Québec national park
- **Regional park** (Under the Municipal Powers Act, Chapter III)
- *10* Administrative region

Source: MRNF.
Base map: Esri, DeLorme et al.
Direction de l'information décisionnelle et de la géomatique, August 2017.

Éducation et Enseignement supérieur
Québec

1927 boundary established by the Privy Council (undefined)

09
10
02
08
11
01
04
03
15
07
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16
05

Mingan Archipelago National Park Reserve
Parc national d'Anticosti
Parc du Centre Boréal du Saint-Laurent
Parc national de la Gaspésie
Parc national d'Aiguebelle
Parc national de la Pointe-Taillon
Parc national des Monts-Valin
Parc national du Fjord-du-Saguenay
Saguenay–St. Lawrence Marine Park
Parc régional de la Seigneurie du Lac Matapédia
Forillon National Park
Parc national de l'Île-Bonaventure-et-du-Rocher-Percé
Parc national des Hautes-Gorges-de-la-Rivière-Malbaie
Parc national du Bic
Parc national de Miguasha
Parc régional des Trois-Soeurs
Parc national de la Jacques-Cartier
Parc régional du Lac Taureau
Parc national d'Opémican
Parc national des Grands-Jardins
Parc national du Lac-Témiscouata
Parc régional de la Montagne du Diable
Parc national du Mont-Tremblant
La Mauricie National Park
Parc régional de Portneuf
Parc régional des Appalaches
Parc régional du Kiamika
Parc régional des Sept-Chutes
Parc régional des Grandes Coulées
Parc régional du Massif du Sud
Parc régional du Poisson Blanc
Parc régional de la Forêt-Ouareau
Parc régional de la Chute-à-Bull
Parc national de la Yamaska
Parc national de Frontenac
Gatineau Park
Parc national d'Oka
Parc national de Plaisance
Parc national des Îles-de-Boucherville
Parc national du Mont-Saint-Bruno
Parc national du Mont-Orford
Parc régional du Mont-Ham
Parc national du Mont-Mégantic

0 70 140
Kilometres

Parc national des Pingualuit
Parc national Kuururjuaq
Parc national Tursujuq
Parc national Ulittaniujalik
0 250 500
Kilometres

The profile of these natural spaces also includes:

- urban parks, constituting natural spaces suitable for local outdoor activities
- vacation camps and outdoor activity areas, ideal locations to discover and learn about outdoor activities
- 63 controlled harvesting zones (*zones d'exploitation controlée* or ZECs), originally created for hunting and fishing enthusiasts, as well as 13 wildlife reserves managed by Sépaq and roughly 350 outfitters that are gradually beginning to offer a range of other, mostly outdoor, activities

Extensive networks have also been developed across Québec to provide access to outdoor activities, some of which are listed in the table below.

TABLE 1: EXAMPLES OF PROVINCIAL OUTDOOR NETWORKS

NETWORKS	ACTIVITIES	NUMBER OF KILOMETRES, SITES OR ROUTES
Route verte	Bicycle touring and road cycling	More than 5 300 km[162]
St. Lawrence Water Trail	Sea kayaking and light non-motorized pleasure boating	More than 2 700 km[132]
Sentier national au Québec (provincial trail in Québec)	Hiking and snowshoeing	More than 1 000 km[122]
Réseau Accès Montagne (mountain access network)	Rock and ice climbing	More than 50 sites[44]
Routes des Via ferrata du Québec	Hiking up a rock face	12 routes[126]

Quebecers practise a wide variety of outdoor activities, including kite surfing, scuba diving, outback skiing, paragliding, canoeing, whitewater kayaking, stand-up paddle boarding, rafting, horseback riding, fat biking, caving, canyoning and sailing.

AN ALTERNATIVE ISLAND EXPERIENCE

The **Îles-de-la-Madeleine Water Trail** was inaugurated in 2008 as a tool for both locals and tourists to plan their sea kayaking routes. Launched by Tourisme Îles-de-la-Madeleine, it offers eight enchanting routes. Originally developed to showcase the natural beauty of the islands, the water trail also helps to ensure the safety of sea kayakers. Maps illustrating roughly 100 kilometres of tried-and-tested kayak routes are available free of charge. It is safe to say that the water trail is an excellent way for visitors to explore the islands' unique character.

4.2 The outdoor activity continuum

Space and time are important factors in the decision to practise an outdoor activity, given that such a choice is based on personal preference. The amount of time available and distance to be travelled must both be considered; it is important for people to have access to space near their homes to allow for regular outdoor activity. Urban natural spaces—usually open areas available year-round, often at no cost—give people an opportunity to learn new outdoor activities and practise them regularly.

Visitor numbers at natural spaces located near residential areas are highest, since these areas are easily accessible and meet part of the community's need for contact with nature. Urban parks are an important part of the accessibility of nature, and in many cases are the only daily contact many people will have with nature.

Wilderness areas, national parks, Québec's networks and regional parks are also fundamental components in the continuum of outdoor activity sites (illustrated in Figure 4). They are ideal locations for outdoor enthusiasts to immerse themselves in nature and flourish. Developed or not, these natural environments can accommodate beginners on day trips and adventure seekers out on longer excursions.

FIGURE 4: OUTDOOR ACTIVITY CONTINUUM

Source: Adapted from Beatley[8]

4.3 Issues surrounding outdoor activity in Québec: A few challenges

Although Québec offers ample opportunities for outdoor enthusiasts, a number of challenges must nevertheless be met if outdoor activity is to be developed and promoted throughout the province. These challenges have been grouped into four categories, based on the following four issues identified in the Policy on Physical Education, Sport and Recreation, *Quebecers on the Move!:* accessibility, quality of experience, promotion, and leadership and concerted action.[55] They are included in this brief as a result of the information collected during studies with outdoor activity stakeholders.

4.3.1 Accessibility

Challenges related to access vary, and it is vital that sector-based stakeholders address them in such a way so as to increase the regular practice of outdoor activities and meet population needs.

> **THE RIGHT OF PUBLIC ACCESS TO NATURE**
>
> A Scandinavian custom—in Sweden in particular—allows people to roam freely in nature, either to get from point A to point B, or simply to enjoy the views. This custom has evolved into an usufructuary right known as **the right of public access.**[103] With this right, everyone is entitled to access land, both public and private, virtually anywhere in Sweden, without restriction, to hike, climb, canoe, camp, swim and even build campfires. However, this right must be exercised in accordance with certain ethical standards, such as the right to privacy. For example, people are asked not to camp near a house.

a) Access to land

Access to land (trails and land- and water-based activity sites) is a major accessibility challenge. Privatization, changes in land use and refusals to grant access easements have all restricted access to land, and have on occasion led to conflicts. The sustainability of trails and outdoor activity sites would be further enhanced if they were better recognized as recreational heritage.

The accommodation capacity of facilities and the creation or improvement of outdoor activity sites also remains challenging. Urban and semi-urban planning continues to present difficulties for municipalities, RCMs and other stakeholders.

PUBLIC ACCESS TO COASTLINES

France's **pedestrian coastline access easement**[53] provides pedestrians with the right to access and use coastal trails on both public and private land. The trails, a product of a partnership known as the Sentier du littoral, are developed and maintained by municipalities, departments, regions and State services.

The easement grants pedestrians access to private coastal property, sometimes via private roads intended for community use. The overriding benefits of this public right have been to ensure the coastal trail's continuity and provide free access to coastal areas. The right of way is protected by law, thereby ensuring its long-term survival.

Another factor to consider is the difficulty that organizations seeking to create, develop or maintain trails or outdoor activity sites may face in obtaining access easements on public and private land. Furthermore, procedural complexity can cause such organizations and volunteers to lose their drive. For their part, private landowners worry about vandalism, loss of enjoyment of their property and legal action resulting from accidents.

Access to outdoor activity sites is sometimes limited by insufficient transport options (e.g. no shuttle service or public transit). A more diversified transport offering would provide a partial solution to this problem, in particular for teens, seniors and low-income families.

b) Urban nature

Natural spaces in the city are crucial to fostering the regular practice of outdoor activities. Existing natural spaces must therefore be preserved, especially in suburban areas, where they are likely to be encroached upon by urban sprawl.

Given the expansion of urban cores in many cities—including Montréal, which ranks second in Canada for urban growth (816 km^2 from 1971 to 2011[144])—many specialists feel the necessity to create new natural spaces within these centres.

Some of the biggest challenges to overcome in order to promote access to local outdoor activity sites include the creation, harmonious development and recognition of urban natural spaces.

IN GATINEAU, NATURAL ENVIRONMENT GOES HAND IN HAND WITH QUALITY OF LIFE

When revising its land use and development plan, the city of **Gatineau** consulted its citizens on their development priorities and needs. This consultation led to the city's Plan de gestion des milieux naturels (greenspace management plan): since December 2015, the city has taken natural space into account in all of its various phases of urban planning. The objective is to preserve natural space connectivity by protecting and creating ecological corridors and eco-territories.

Eco-territories are vast areas (municipal parks, for example) with high ecological, economic and social value in which 25% to 50% of the forest cover must be maintained. They are also somewhat scarce and have enormous recreational and heritage potential. Ecological corridors serve as connectors between eco-territories, large natural spaces (such as Gatineau Park) and residential neighbourhoods. They provide easy public access to natural spaces as well as links between wildlife habitats.

In response to the population's priorities, the city of Gatineau also undertook to not destroy wetlands, except in the case of public utility work, and to preserve 85% of wetland areas.

c) Socio-economic and cultural access

In Québec, 20% of the population—one person out of five—lived in poverty for at least one year between 2005 and 2010.[130] Such a financial situation makes it more difficult for people to practise recreational and outdoor activities. For example, the cost of purchasing outdoor equipment, paying for transportation, or access fees can be prohibitive factors. These problems as well as planning are of concern for the education community. This is why it is important to promote fair access to outdoor activities in social institutions such as schools, community recreation centres and vacation camps. Everyone should have access to outdoor activity, and special efforts are required if the population groups typically less involved in recreational activities in general are to be reached.

THE GREAT OUTDOORS: BRINGING CULTURES TOGETHER

Plein air interculturel, launched in 2010 by the Association récréative Milton-Parc in Montréal, organizes outdoor activities for people from different cultural backgrounds. The aim of these activities is to bring cultures together and break the isolation often experienced by newcomers. The outings give participants the chance to talk to and get to know one another. In short, they help people to integrate into Québec culture.

Since the program was first introduced, more than 3 000 people, individually or with their families, have taken part in activities such as camping, canoe-camping and hiking. Ensuring the participants' comfort and satisfaction is a priority: for example, transportation and equipment (tents, sleeping bags, etc.) are provided. Many people have enjoyed enriching and unforgettable experiences as a result.

Cultural issues and lack of knowledge can also limit access to outdoor activities. For example, newcomers may find themselves at a "cultural distance" from activities such as camping, which may be perceived differently in their country of origin. They may also find it difficult to adjust to a country with a temperate climate and harsh winters that require sufficiently warm clothing. Other problems may include the transportation- and equipment-related costs associated with such activities.

Outdoor discovery activities tailored to the interests, cultural heritage and situation of newcomers can be an interesting way to help them to discover Québec and meet people from the receiving community.

4.3.2 Quality of the experience

If the general population is to practise outdoor activities on a regular basis, the experience must be enjoyable. A number of factors can be examined to maximize the quality of an activity.

a) Quality of the amenities

Québec has many trails and outdoor activity sites that attract large numbers of enthusiasts of all ages. The quality of these amenities has a significant impact on the experience. One of the main challenges is to ensure the sustainability of outdoor activity sites, facilities and equipment by maintaining or improving their quality. Amenity development has evolved considerably in recent years, and, in some cases, specific expertise is required to create high-quality amenities.

If participants are to have the type of experience that will encourage them to practise outdoor activities on a regular basis, they must have access to modern, safe facilities, well-maintained trails and sites, and clear signage. So long as there is a shortage of programs in place to upgrade and improve outdoor activity facilities, the quality of trails and sites will remain uncertain.

A WELL-DESIGNED VALLEY

For the last 15 years, the **Coopérative de solidarité Vallée-Bras-du-Nord** in Saint-Raymond, in the Portneuf region, has opened up the region's mountains, rivers and valleys to outdoor enthusiasts.

The cooperative, created jointly by companies, landowners and local leaders, has become a model in terms of trail planning and development, mainly for mountain biking. To help prevent unbridled exploitation of the area, it adopted principles of sustainable development in tourism from the start and has since transformed these principles into a philosophy, a duty and, above all, a responsibility.[161]

The Coopérative Vallée-Bras-du-Nord is proof that members, outdoor enthusiasts and landowners can co-exist peacefully if they are willing to work together.

b) Natural beauty

The popularity of outdoor activities is closely tied to the beauty of the surrounding landscapes. Destruction of the landscapes can therefore affect the quality of the outdoor experience[20] and impact users' interest in a given site.

When carrying out projects that affect the landscape, such as logging or erecting wind turbines and high-voltage lines, existing outdoor amenities and the area's recreational potential must be taken into account. Thus, changes to natural landscapes should be avoided, and outdoor activity organizations should be involved in land use planning.

A LINEAR PARK WITH MANY BENEFITS

In the mid-1990s, Québec City undertook an extensive renaturalization project on the banks of the **Saint-Charles River**, which had been covered in concrete in the 1970s.

Since then, an enormous amount of development and landscape harmonization work has been carried out on the river banks to create a 32.5-kilometre linear park.[138] The project's positive environmental and social impacts are clear. The Saint-Charles River linear park has become a sought-after venue for outdoor activities and a symbol of local pride.

In response to local demand, the Société de la Rivière-Saint-Charles was set up in 2000 to enhance the entire Saint-Charles River. The Société maintains the trail and horticultural elements, and also offers year-round activities. Skiers, joggers, cyclists, kayakers, canoers and hikers can now bask in the site's beauty and be active in nature on a daily basis.

c) Recognition of the associative and volunteer communities

Experience quality also depends on the expertise of the organizations and volunteers who invest their time and energy to create, develop and maintain high-quality trails, sites, facilities and services. However, such invaluable commitment can be exhausting.[151] In some cases, specialized technical expertise may be needed to support them.

If the quality of the outdoor activity offering is to be maintained, the efforts of the associations and volunteers involved must be recognized. This recognition can take a number of different forms, such as inviting them to take part in consultations or sharing knowledge with them. Facilitating access to training for volunteers is another way of supporting and recognizing their contribution.

MUNICIPAL RECOGNITION

Saguenay has taken several steps to recognize the contributions made by outdoor associations and volunteers. At the beginning of each activity season, the heads of outdoor associations (cross-country skiing, canoeing, climbing, kayaking and mountain biking clubs) meet with municipal leaders. The aim is to foster communication between the associations and municipal services, thereby forging a relationship of trust that facilitates the sharing of information.

As a result, the outdoor community can make sure that the municipality is aware of its proposals and expectations, and the municipality, by treating outdoor organizations and volunteers as its partners, effectively recognizes and respects their expertise.

d) Stakeholder competency

A successful introduction to outdoor activities, especially those that are technically complex, must be planned, organized and supervised. Qualified professional resources are able to provide safe, quality supervision. Adequate training of outdoor activity personnel (teachers, instructors, educators, trainers, monitors and activity leaders) is therefore important. Training should be made available to different communities and be adapted to their needs. Access to training, especially in areas where it is limited or non-existent, will also require some thought. Moreover, professional development is essential, not only to maintain existing knowledge, but also to develop new skills.

It is also vital that outdoor activity be more regularly included in the basic training of daycare, preschool, elementary and secondary school personnel. In some cases, qualified professional resources may not always be used to their full potential, and it may be necessary to consolidate the complementary relationship between institutions and trained professionals.

ADAPTED TRAINING FOR ALL!

Québec's outdoor federations offer a broad range of training by qualified instructors. This training is available to different client bases (trainers, monitors, participants) and, in some cases, has been adapted to meet special needs (those of vacation camps, for example). Training clearly plays a role in the quality of the experience.

In Québec, **adventure tourism** activities and the supervision provided have been vastly improved by integrating specialized training, available through colleges and universities. The expertise it provides is highly valued.

e) Risk management

The safety of children and adolescents during outdoor activities is a source of concern. Several authors have pointed out that parents are often anxious about their children's education and are afraid to leave them alone in an unsupervised environment.[19] As Richard Louv[84] pointed out, given the existence of the nature deficit disorder, it is unfortunate that young people's opportunities for contact with nature should be limited. Furthermore, outdoor activities, through the challenges they offer, provide an interesting means of promoting global development, especially for children who are learning to understand their own limits.[150]

Although the benefits of outdoor and nature-based activities are undeniable, they do have their risks. The environmental elements to which participants are exposed and the location of the activity site present their share of hazards (e.g. wild animals, stinging insects, allergenic plants, variable weather, injuries, etc.). In supervised activities, leaders must therefore be trained to manage these risks. In unstructured activities, participants must learn to adjust their actions to their own skill level.

In the case of organized activities, the challenge lies in changing negative perceptions of nature and outdoor activities, and the belief that they may be dangerous. The question of civil liability and insurance also raises many questions and can lead organizations to review their practices. All these perceptions can be changed by activity supervisors who are qualified and able to reassure parents and authorities.

f) Adjusting to new developments

Outdoor activity needs and trends must be addressed. For example, diversification can be achieved by, among other things, introducing new activities such as paddle boarding, kite surfing, fat biking, via ferrata and canyoning, and by revitalizing existing activities. These needs can also be met by redeveloping existing facilities and ensuring that they, and any future facilities, are versatile enough to support a range of activities.

Outdoor equipment manufacturers can also help to achieve diversity and make activities more technically accessible. Strategic monitoring is needed to identify trends in new activities and technical equipment development.

A PROJECT UPGRADE

An exhaustive study carried out between 2008 and 2010 found that the hebertism trails[m] in Québec's summer camps were in very poor condition.

As a result, the Association des camps du Québec published two guides:

- one for camp managers
- one for activity leaders

Thanks to a financial assistance program, 300 hebertism modules received safety upgrades and 60 new modules were built in 30 vacation camps.

4.3.3 Promotion

Many different communication channels can be used to promote outdoor activities, and to inform and encourage the general public to take part.

a) Dissemination of information at activity sites

Stressing the importance of exercise among Quebecers is vital, as is making them aware of the sites at which outdoor activities can be practised. This information must be reliable and up-to-date. The implementation of a simple and effective information strategy will promote access to activity sites and help to ensure that more people use them.

AN OUTDOOR NETWORK CONNECTION AT YOUR FINGERTIPS

The **Fondation SuisseMobile** launched a website bringing together the best of Switzerland's outdoor trails. The site, available to the public since 2008, received 10.5 million hits in 2016 alone. The SuisseMobile network makes use of standardized online and on-site signage, systematic data collection methods and integrated geomatic data management. Thanks to the georeferencing of the region and the contributions of numerous partners, the site presents not only routes, but also accommodation options and modes of transportation to trails and sites. By using the SuisseMobile drawing tool and mobile application, outdoor enthusiasts can prepare, manage and share their own itineraries and access them on a mobile device during their activities. As of May 2017, the application had been downloaded more than 650 000 times.

The SuisseMobile network lists trails for hiking, cycling, mountain biking, inline skating and canoeing. By November 2017, the Fondation plans to include winter activities, such as winter hiking, snowshoeing, cross-country skiing and sledding, for a total of 500 "top" routes.

[m] A hebertism trail is a trail built with obstacles to promote physical activity in the outdoors.

b) Discovery of and introduction to outdoor activities

One effective way of generating interest in outdoor exercise is to create opportunities to introduce people to a variety of outdoor activities. These opportunities can take the form of introductory sessions or discovery workshops, such as those offered by the scouting movement, vacation camps and outdoor clubs.

Apart from those mentioned above, opportunities to discover and try outdoor activities form only a very small part of the recreation and educational program offering. New discovery and introductory activities would encourage people to develop new passions and new interests.

AN INTRODUCTION TO CROSS-COUNTRY SKIING

The **Fédération Ski de fond Québec** has set up four cross-country skiing youth initiation programs, as well as its Ski-Mobile project, which allows young people to discover the sport.

1. The Iniski program trains elementary school teachers and early childhood educators to enable them to lead four introductory cross-country skiing sessions for children.
2. The Bunnnyrabbit program, offered by cross-country skiing clubs, is intended for children aged 3 to 5, to help them develop basic cross-country skiing skills.
3. The Jackrabbit program, for 6- to 9-year-olds, uses the same play-based method as the Bunnyrabbit program, but works on more advanced skills. During the 2016-2017 season, more than 2 540 children followed these two introductory programs.
4. The Track Attack program is for 10- to 16-year-olds and allows them to put the skills they acquired into practice in different contexts, including off-trail skiing.

Ski-Mobile travels to areas within a 200-km radius of Montréal, renting roughly 50 pairs of cross-country skis to municipalities and schools for full-day or half-day sessions. In February 2017, more than 2 500 people were able to practise the sport thanks to Ski-Mobile.

These four programs, as well as Ski-Mobile, have introduced many young people to cross-country skiing using an interesting, play-based approach.

Outdoor activities are mainly practised freely. However, organized events held at activity sites, such as workshops, demonstrations and open houses, are an interesting way of introducing visitors to the areas and bringing them in contact with nature.

AN UNUSUAL FESTIVAL

The ice-climbing site at Parc des Chutes in Rivière-du-Loup is the only one of its kind in Québec. The **Festival Grimpe en Ville** (climb in the city festival) has been held at this outstanding, artificially frozen site since 2012.

The festival is organized by a local committee with support from the Fédération Québécoise de la montagne and the city of Rivière-du-Loup, and usually takes place over three days in February. The program includes entertainment, introductory activities for all and skill development clinics. In 2017, the festival welcomed more than 70 certified climbers and 150 visitors.

The Festival Grimpe en Ville brings ice climbing to the masses in the heart of downtown Rivière-du-Loup. This original and promising initiative has been duplicated as far away as Europe!

c) Awareness of respect for nature

Many natural sites contain fragile environments that are home to protected wildlife or plant species. These environments must be managed in compliance with certain restrictions and requirements. Some activities may be banned in sectors where overuse has placed too much pressure on the environment, although new development methods can sometimes alleviate these problems.

The challenge here is twofold: meeting strong public demand without compromising fragile environments and developing multiple-use protected areas.

Unfortunately, environmental damage is sometimes caused by inappropriate behaviour (e.g. illegal fires, littering) on the part of a minority that lacks respect for the environment and for others. Awareness programs such as Leave No Trace[n] have proven to be effective in encouraging responsible behaviour. More eco-citizenship awareness and education programs are therefore needed to help protect natural spaces and avoid destruction.

[n] Leave No Trace is a program promoted by Leave No Trace Canada to reduce the environmental impacts of individuals who use trails and outdoor activity sites.

4.3.4 Leadership and concerted action

Concerted action is appropriate to harmonize the efforts of outdoor activity organizations, which can share their resources and expertise within the confines of their respective roles and responsibilities in order to ensure that their actions meet the community's needs. Coordination between the different levels of government is also important to ensure consistency of action.

AN INTER-GOVERNMENT PROGRAM FOR OUTDOOR ACTIVITY

The **Network of Outdoor Organisations in the Nordic Countries** was founded in 1993 through a partnership between Denmark, Sweden, Finland and Norway. The network works to support and enhance outdoor activity policies in Nordic countries. It also serves as a platform for discussion and support in relation to common challenges faced by the outdoor community.

The *Political Programme for the Network of Outdoor Organizations in the Nordic Countries* was adopted in 2014[104] and was supported by the Nordic Council of Ministers, an inter-governmental authority set up to coordinate actions in Nordic regions of Europe. The program targets priorities for the network's members and lists nine major challenges on which the network will focus its actions. It offers clear evidence of a political will to provide access to trails and outdoor activity sites, and to ensure that activity development is included in the policies of Europe's Nordic countries.

A PROVINCE-WIDE COLLABORATION CONSENSUS ON OUTDOOR ACTIVITY

The **Comité pour le développement et la promotion du plein air** (committee for the development and promotion of outdoor activity) is attached to the Table sur un mode de vie physiquement actif (round table on physically active lifestyles). It consists of two representatives from the Direction du sport, du loisir et de l'activité physique of the Ministère de l'Éducation et de l'Enseignement supérieur, along with a dozen representatives from outdoor activity organizations.

The committee's mandate is to identify and implement interventions to support the development and promotion of outdoor activities in Québec. Its objectives are to:

- foster dialogue and collaboration among the main provincial stakeholders influencing the development and promotion of outdoor activities
- come to an agreement on priorities and propose an action plan or strategy
- foster the emergence of projects for the development and promotion of outdoor activities
- maximize the benefits for the outdoor community

REGIONAL LEADERSHIP

The **Table nationale de plein air des unités régionales de loisir et de sport** (provincial outdoor activity round table of the regional recreation and sports offices) was set up to oversee the new responsibilities of the regional recreation and sports offices. It is composed of representatives from the Ministère's Direction du sport, du loisir et de l'activité physique and from all resources demonstrating an interest in the offices' outdoor activity mandate.

The round table's aims are to:

- ensure a common, collaborative understanding of the offices' responsibilities in connection with outdoor activities
- discuss regional and provincial issues related to outdoor activity
- pool best practices and tools for the development of regional outdoor activity potential
- carry out concerted projects

5 IDEAS FOR ACTION

Many different stakeholders from the educational childcare, preschool, school, municipal, government, associative, community and entrepreneurial sectors can play a role in fostering the development and promotion of outdoor activity, within the scope of their respective responsibilities. It is through their combined efforts that outdoor activities and natural spaces will become more widely available. In some cases, their actions will impact accessibility; in others, they will impact the quality of the experience. There will always be a need for the continuous promotion of activity sites and of the benefits of outdoor activities to encourage more people to take them up and to foster contact with nature. By working together, these organizations also play a vital role in the sharing of expertise and circulation of information.

In Québec, current information on the public's expectations regarding the nature and growth of outdoor activity suggests that more effort is needed to improve access to these activities. The analysis that led to the preparation of this brief revealed a number of avenues for action that should increase people's participation in outdoor activity, with all the attendant benefits to their health and quality of life.

5.1 What can be done to protect, develop and promote outdoor activity trails, sites and natural spaces?

- **Acknowledge the existence** of trails, sites and natural spaces that can be used for outdoor activity in land use planning documents.
- **Take concrete steps** to address easement issues and continuity of access to sites.
- Develop **high-quality amenities**, assisted by financial measures and incentives to support upgrading, maintaining and marking trails and developing outdoor activity sites. These amenities should be suited to different skill levels and comply with recognized guidelines in their respective sectors.
- Introduce **strategies** conducive to the development and promotion of outdoor activity in urban areas, in order to:
  - prepare an action plan
  - structure a policy to acquire land and public use easements
  - create new urban activity sites and nature access sites

5.2 What can be done to improve the outdoor activity service offer?

- **Promote quality leadership, supervision and management of outdoor experiences, for example by:**
  - hiring qualified outdoor people with knowledge and experience specific to the domain of practice
  - using training offered by recognized outdoor organizations (federations and post-secondary educational institutions)
- **Simplify access to activities, by:**
  - providing opportunities to discover and try outdoor activities (e.g. open houses, workshops, demonstrations, free trials)
  - introducing more collaborative initiatives giving access to outdoor activity equipment (loans, rentals, group purchases)
  - providing more family-oriented activities and services
  - ensuring that the main local activity sites are served by public transit (e.g. bus, shuttle, carpool service) and that lightweight outdoor equipment (e.g. cross-country skis, snowshoes) is allowed on board the vehicles
- **Monitor the development of practices and their impacts through:**
  - participation statistics
  - good development practices
  - interventions and leadership, especially with population groups that are harder to reach
  - monitoring of emerging practices to renew the offering and upgrade more traditional practices, based on the needs expressed by the community

5.3 What else can be done to bring the outdoor activity offering within the reach of citizens?

- **Encourage outdoor activity leaders**, such as associations, local clubs, schools, educational childcare centres and local businesses, to work on a concerted action plan with municipal authorities.
- **Ensure that elementary schools and educational childcare centres** become the places where children are initially made aware of nature by encouraging them to take part in outdoor activities.
- **Publicize the outdoor activity offering**, by involving stakeholders such as the metropolitan communities, RCMs, regional recreation and sports offices, outdoor federations and the Québec government.

CONCLUSION

Outdoor activities are highly beneficial to those who practise them, and natural spaces generate many positive impacts on communities. There is no doubt that Québec has the assets it needs to promote a broad range of outdoor activities.

However, if Quebecers are to take full advantage of these benefits, constant effort will be required from the educational childcare, preschool, education, municipal, government, associative, community and entrepreneurial sectors. These sectors can draw on the concerns raised in this document in order to meet society's need for outdoor activity and natural space.

Many different factors play a role in creating an environment suited to regular outdoor activity, including the quality of trails and activity sites, the presence of safe facilities, the skill levels of instructors and other stakeholders, the choice of promotional activities tailored to the various target audiences, and productive collaboration among the organizations involved. The need to bring people closer to nature, along with the stakeholders' commitment to sustainable development, have come together to create a context conducive to the development and promotion of outdoor activities and a perfect opportunity to create a true outdoor culture: **Quebecers on the move . . . outdoors!**

APPENDIX 1

DEFINITIONS

Outdoor activity:

Physical activity practised outdoors, in a dynamic and harmonious relationship with elements of nature.

- is generally recreational in nature and is practised in an unstructured context, although it may include events and other structured activities
- allows people to adjust the level of physical intensity to their own ability and need to excel
- involves moving around without motorized assistance
- excludes the purely competitive element that aims to identify high performance athletes
- requires an attitude that is usually in harmony with the surrounding environment, often dominated by elements of nature
- focuses on relaxation, discovery, exploration or adventure
- can take place equally well in environments ranging from large urban parks to wilderness areas

Nature: An environment in which natural process dynamics create balance and biological diversity. Nature is part of a continuum ranging from wilderness, where natural processes are respected, to artificial systems that have been altered by humans.

Natural space: A large area in which natural elements dominate the environment. In a natural space, recreational developments are usually minimal and are respectful of the environment. Natural space is the preferred venue for outdoor activities.

Urban park: A space developed for recreation and used for a variety of purposes or specialized activities. Urban parks vary in size and are intended mainly for the residents of the municipality or neighbourhood in which they are located. Although they contain some natural elements, in the form of landscaping for example, they are dominated by recreational and sports facilities.

Ecological corridor: A transition zone connecting areas of natural space. Ecological corridors tend to be linear in form, with minimal development. They provide a means for species to move between environments, thereby promoting the spread of colonies.

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