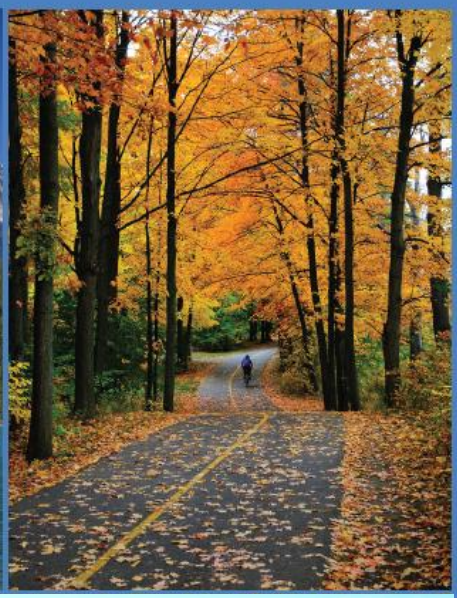

2012 Canadian Nature Survey:

Awareness, participation, and expenditures in nature-based recreation, conservation, and subsistence activities

Federal, Provincial, and Territorial Governments of Canada
www.biodivcanada.ca

2012 CANADIAN NATURE SURVEY

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The 2012 Canadian Nature Survey is a collaborative initiative of the federal, provincial, and territorial (FPT) governments of Canada through the FPT *Value of Nature to Canadians Study* (VNCS) Taskforce.

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PREFACE AND ACKNOWLEDGEMENTS

The *2012 Canadian Nature Survey* has generated information on the importance of nature to Canadians, much of which is collected for the first time ever on a national scale in Canada. Its development is the result of a strong collaboration between six of Canada's Federal government departments and agencies with all thirteen Provincial and Territorial governments. The survey is one of many products developed through the collaboration of these governments, particularly their departments responsible for the conservation and sustainable use of biological diversity in Canada. It was produced through the work of the Federal-Provincial-Territorial (FPT) *Value of Nature to Canadians Study* taskforce, reporting to the FPT Assistant Deputy Ministers' Biodiversity Steering Group*. Testing of the survey instrument, data collection**, data management, analysis and reporting were completed by ICF International under contract, with guidance from the FPT Taskforce throughout every phase of the work. The work was co-funded by FPT governments.

This work was made possible through the vision and commitment of Assistant Deputy Ministers reporting to the Canadian Councils of Resource Ministers, and the dedication and expertise of public servants in the following organizations:

Aboriginal Affairs and Northern Development Canada
Agriculture and Agri-food Canada
Alberta, Department of Environment & Sustainable Resource Development
British Columbia, Ministry of Environment
Environment Canada, Environmental Stewardship Branch
Fisheries and Oceans Canada
Manitoba, Department of Conservation and Water Stewardship
Ministère du Développement durable, de l'Environnement, de la Faune et des Parcs du Québec
Natural Resources Canada, Canadian Forest Service
New Brunswick, Department of Natural Resources
Newfoundland and Labrador, Department of Environment and Conservation
Northwest Territories, Department of Environment and Natural Resources, and Bureau of Statistics
Nova Scotia, Department of Natural Resources
Nunavut, Department of Environment
Ontario, Ministry of Natural Resources
Parks Canada Agency
Prince Edward Island, Department of Agriculture and Forestry, Forests
Saskatchewan, Ministry of Environment
Yukon, Department of Environment

Taskforce members extend their thanks to colleagues across each of their governments for their participation in developing the questionnaire and providing expert advice throughout the process. Special thanks go to the over 24,000 Canadians who volunteered their time to complete the questionnaire and provide Canadians with vital information to support the conservation and sustainable use of our natural environments in Canada.

**Although Quebec participated in the production of this report, Quebec is an observer on the FPT Assistant Deputy Ministers' Biodiversity Steering Group.*

***In Nunavut the questionnaire was administered face-to-face by Conservation Officers of the Territorial government, based on a field guide developed for their use by ICF International.*

EXECUTIVE SUMMARY

Background and Purpose

This report presents the results of the *2012 Canadian Nature Survey*, the first national survey of its kind in Canada in over 15 years. It provides concrete evidence for the significant contribution that nature makes to the national economy and individual Canadians' quality of life. The survey enriches our understanding of the importance of nature to Canadians by measuring their awareness, participation, and investments in a wide range of nature-based activities, including valuable results at the national level and for each province and territory. This information is essential to support the diverse policy and program needs of the sponsoring agencies in meeting their obligations to manage the conservation and sustainable use of Canada's biodiversity.

Overview of Approach

Under contract to Environment Canada, and on behalf of federal, provincial, and territorial government departments responsible for biodiversity, an independent survey research team from ICF International (ICF) administered the survey to a nationally representative sample of approximately 15,000 Canadian adults and a selection of nearly 9,000 Web panelists during 2012-2013.[1]

Data collection occurred in two time periods, or "waves" – during Fall 2012 and Winter 2013 – and consisted of:

1) ***A mail survey*** with a Web response option administered to a random sample of residential addresses in Canada stratified by province and territory (excluding Nunavut) and urban versus rural location.
2) ***A Web survey*** administered to Web panelists who were recruited to complete the survey by a third party.
3) ***An opt-in supplement*** in the Northwest Territories where local Department of Environment and Natural Resources officials: a) contacted a small number of potential respondents, provided an electronic version of the survey, and asked for their participation; and b) provided hard copy versions of the survey at Department offices.
4) ***An opt-in community-based survey*** in Nunavut involving door-to-door administration, using paper-based data collection instruments.

The survey was offered in English, French, and Inuktitut (in Nunavut).

Responses to the survey were weighted to ensure that survey estimates are representative of the Canadian adult population. All references to "Canadians" in this report should be understood as describing Canadian adults only (age 18 and older), as minors were not included in the survey.

Estimates at the national level generally achieve a margin of error of no more than +/-2% when the full address-based sample is available. Estimates at the province and territory levels generally achieve a margin of error of +/-4%.

Highlights of Results

I. Connection to Nature & Awareness

Half of Canadians age 18 and older (approximately 13 million) chose where they live in part to have access to nature. This proportion was significantly higher in certain provinces and territories, for instance, among residents of Yukon (84%), British Columbia (68%) and the Northwest Territories (67%). Nature considerations extended into other areas of life as well. Approximately 11% of Canadian adults (2.7 million people) derive their primary income directly from a nature-related profession. Farming, forestry and landscaping were the most frequently-cited nature-related professions (each selected by 2% of respondents).

More than two-thirds of Canadians (70%) chose to spend time outdoors in the last year in order to experience nature, and almost half of Canadians travelled to experience more nature (47%). Furthermore, more than half (57%) of Canadians purchased products services that are more environmentally friendly than those of their competitors and 45% adjusted their lifestyle to reduce their ecological footprint within the previous 12 months.

[1] Respondents reported on their activities during the 12 months prior to completing the survey.

Awareness of the concepts of *species at risk*, *biodiversity*, and *ecosystem services* was consistently high nationally and across all provinces and territories. Nationally, 92% of Canadians had heard of "species at risk" and three-quarters (76%) had heard of the term "biodiversity". While more than two-thirds (69%) of Canadians had heard of the term "ecosystem services", even more were aware of specific examples of these services, such as nature's role in producing oxygen and cleaning pollutants from the air (97%), keeping the soil fertile and productive (96%), and filtering water to keep it clean and safe (95%).

Awareness of nature-related concepts tended to increase with education and with income, but decreased with age. This means that older Canadians, particularly those over 70, were somewhat less aware of nature-related concepts than younger Canadians. Respondents with a nature-related profession, those who identified as an Aboriginal Canadian, and those living in rural areas were also more aware of these concepts.

More than 3.5 million Canadians (14%) had donated money on behalf of species at risk within the last year. Of those who donated money, Canadians were most likely to donate to "habitat protection for species anywhere in Canada" (21%) and "species at risk in general" (19%). Furthermore, nearly half (46%) of Canadians reported taking some form of direct action to assist in the recovery of species at risk.

Canadians obtained information about nature most commonly through watching visual media (63%) and reading publications (62%), while the most common sources of this information were journalists and media writers (61%), and friends, family or colleagues (55%). Those who obtained nature-related information through educational opportunities and personal experience reported higher awareness of nature-related concepts. Similarly, Canadians who obtained nature-related information most often from conservation groups and scientists were more aware of key terms.

II. Nature-based Activities, Participation and Expenditures

The largest section of the *2012 Canadian Nature Survey* asked respondents to report on their participation in more than 30 different nature-based activities. Eighty-nine percent of Canadian adults participated in some form of nature-based activity. The most popular activity was picnicking or relaxing in nature (71%), followed by reading or viewing nature media (66%); hiking, climbing, horseback riding (64%); and gardening or landscaping with plants (51%). More than half of Canadian adults participated in some form of nature education activity (53%), with 46% visiting a zoo, aquarium, public garden, or museum of natural history.

Canadians who engaged in watching, monitoring, feeding, filming, or photographing birds (birding) did so for an average of 133 total days per participant, more than for any other single activity. Other popular activities included hiking, climbing and horseback riding (84 days per participant), and gardening or landscaping with plants (more than 70 days per participant).

Thirteen percent of Canadian adults volunteered in nature conservation away from their homes in the previous 12 months. A majority reported that their involvement remained stable (59%) or increased (25%) over the past five years. The top reasons for not volunteering in nature conservation were lack of time (47%) and not being aware of an opportunity (32%). Canadians working in a nature-related profession, Aboriginal Canadians, and Canadians living in rural locations all engaged in significantly more nature conservation activity.

The majority of Canadians (57%) took at least one trip of more than 20 km from their home to participate in a nature-based activity. Banff National Park, Jasper National Park, and Fundy National Park were the most often cited protected area destinations. A quarter of Canadians (6.5 million people) owned or used a secondary property such as a cottage, cabin, or camp and spent an average of 25 days there over the previous 12 months.

Canadians made an estimated $41.3 billion in nature-related expenditures.[2] Within that total, $40.4 billion dollars was spent in Canada engaging in nature-related activities. Expenditures included transportation (e.g., gasoline, plane, or bus tickets); accommodations (e.g., hotels); food; and equipment, fees, and supplies (e.g., camping or hiking gear, entry fees, boats) as well as investments in maintaining land at least partly for conservation purposes. A further $874 million was contributed by Canadian individuals for donations or memberships to nature or conservation groups.

Of all nature-related expenses, Canadians overwhelmingly spent money on non-motorized, non-consumptive nature-based recreation activities—totaling slightly less than $14.5 billion, or roughly 36% of all reported nature-related expenditures. Expenses

[2] It should be understood that while the *2012 Canadian Nature Survey* included a large selection of nature-based activities, it is likely that there are others which were not included, and therefore the total expenditure on all possible nature-based activities by Canadians will be higher than shown in this report.

on motorized recreation (snowmobiles, ATVs or motorboats) totalled approximately $6.1 billion (15% of all expenses); nature-based leisure accounted for $6.2 billion (15%); non-commercial fishing $2.2 billion (5%); and non-commercial hunting and trapping $1.8 billion (5%). Birding accounts for $537 million, or 1% of all expenditures.

Canadian individuals who participated in some kind of motorized recreation spent $1,052 on average in the previous 12 months, the highest per-person expense on a single activity. Those who participated in non-motorized, non-consumptive nature-based recreation spent $914 on average over the previous 12 months, and all hunting activities combined incurred average per-person expenditures of $996. Of the hunting and trapping activities, average expenditures ranged as high as $814 in the previous 12 months (for hunting large game) to as low as $244 in the previous 12 months (for hunting small game). Similarly, daily expenditures by Canadians participating in those activities ranged from $78 per day of activity (hunting large game) to $40 per day (hunting small game) and were highest for hunting waterfowl ($83 per day). Canadians participating in birding reported the lowest average expenditures per year ($201) or approximately $12 per day of active participation.

Summary of Activities Addressed in the Survey[3]

Nature-based Recreation	Hiking, walking in natural areas, backpacking, climbing, caving, geo-caching, horseback riding; cycling, mountain-biking; camping in tents; non-motorized water and beach activities; alpine skiing, snowboarding; cross-country skiing, snowshoeing; golfing
Nature-based Leisure	Photographing or filming nature in general; gardening or landscaping with plants; reading or viewing nature-focused media; picnicking and relaxing in nature
Nature-based Education	Attending nature festivals, retreats, workshops, lectures about nature; visiting a farm, ranch, or maple sugarbush for agritourism experience; visiting a zoo, garden, or museum of natural history
Nature Conservation	(Voluntarily) restoring natural habitat or urban green spaces; cleaning up shorelines, rivers, lakes, or roadsides; monitoring or assessing species or habitats; teaching about nature, giving guided nature walks; managing conservation organizations. Also owning, renting, or leasing land at least partly to: provide food or shelter for wildlife; conserve, enhance or restore a natural setting; maintain forest for non-timber uses (such as maple syrup, nuts, berries, etc.); or have a recreational property
Birding	Watching, monitoring, photographing, filming, and/or feeding wild birds
Hunting and Trapping	(Non-commercial) hunting waterfowl, game birds other than waterfowl, small game mammals, large game mammals, other wild animals
Fishing	(Non-commercial) fishing, including catch and release (freshwater or saltwater), includes all types of fish and shellfish
Motorized recreation	Motorized recreational vehicle use on land (ATV, snowmobile, etc.); Motorized recreational vehicle use on water (motorboat, motorized personal watercraft, etc.)

DEMOGRAPHICS OF PARTICIPATION IN NATURE-BASED ACTIVITIES

Canadians who were more aware of nature-related concepts, such as ecosystem services, tended to participate more frequently in nature-based activities overall. Similarly, overall participation in nature conservation (such as restoring natural habitats or cleaning up shorelines) was strongly associated with participation in other nature-based activities. In particular, Canadians who participated in nature conservation were more likely to participate in nature education, nature-based leisure, fishing, and hunting/trapping. The survey data also reveal other "clusters" of activities. For instance, Canadians who participated in fishing also tended to participate in hunting/trapping and in motorized recreation.

Whereas women participated more frequently in nature education, nature-based leisure, and birding, men participated more frequently in motorized recreation, hunting/trapping, and fishing. Participation in nature-based recreation and nature conservation

[3] Throughout the report, nature-based activities are examined at different levels, beginning with an analysis of eight broad activity groups and followed by a closer look at participation in 22 categories of activities. A chart showing how the activity groups and categories correspond to specific survey items, as well as examples of what activities fall within each group or category, is presented in *Appendix A: Activities Crosswalk.*

was roughly equal for men and women. Canadians who did not participate in hunting, trapping, or fishing within the previous 12 months were asked what prevented them from doing so. For all demographic groups, "do not like to/not interested" was the most commonly cited reason for not participating in hunting/trapping (41%) and fishing (31%). The most commonly cited reasons for not participating in volunteer nature conservation activities was "lack of time" (47%) and "not being aware of an opportunity" (32%).

Immigrants and first generation Canadians reported participating less frequently in all categories of nature-based activities that were measured compared to other Canadians.

A dramatic difference in general participation levels was found when comparing Canadians who consumed nature-related media to those who did not: among those who did, the average number of nature-based activity-days in the previous 12 months was 199, compared to only 83 for those who did not.

III. Human/Wildlife Conflict[4]

Nationally, 22% of Canadian adults experienced a threat from wild animals to their safety or the safety of people, pets, or farm animals in their care within the previous 12 months, while 25% experienced damage to their personal property caused by wild animals. A small mammal (such as a groundhog, skunk or raccoon) was the most cited (69%) type of animal involved in the conflict, followed by deer, elk or moose (22%) or a coyote or wolf (20%).

Of Canadians who experienced threat or damage from wild animals, 26% reported that the conflict occurred in an area where nearby housing developments have recently expanded into a formerly natural area. The percentage of residents that experienced conflict in this type of area was significantly higher in Yukon (41%), Alberta (35%), and Nova Scotia (31%), compared to the national percentage.

Over one-third (36%) of Canadians who reported a conflict took no action in response to it. Of those who did act, the most commonly cited action was removing or relocating items known to attract wildlife (27%), followed by fencing-off or otherwise protecting property (20%). The way an individual handled human-wildlife conflicts was related to that individual's awareness of nature-related issues (such as the types of ecosystem services). Individuals who followed authorities' recommended safety procedures for dealing with a wildlife conflict were more aware of nature-related concepts compared to those who did not follow such procedures. Conversely, individuals who took no action, or who put out poison, reported lower levels of awareness about nature-related concepts.

This summary highlights only a small portion of the rich results generated by the *2012 Canadian Nature Survey* that are presented throughout this report. The first three chapters present extensive details at a national scale with many comparative results among all provinces and territories. The fourth chapter provides additional results for each province and territory individually. The information gathered in these pages demonstrates many aspects of the extraordinary role that nature plays in the lives of Canadians, and will be a valuable resource for decision-makers and other professionals in environmental resource management, land use planning, economic development, tourism and many other fields.

[4] Human-wildlife conflicts refer to interactions in which harm is caused to the wild animal, humans, or property.

INTRODUCTION

THE 2012 CANADIAN NATURE SURVEY

Canadians understand that healthy ecosystems provide vital life support and security functions as well as supporting a positive quality of life. Healthy ecosystems underpin our economy in ways that are both obvious and subtle, as the basis of key sectors such as agriculture and forestry, and in providing supporting infrastructure for goods and services such as clean water that are used daily by industry and individuals alike. These "ecosystem services" also include other benefits that until recently have been largely taken for granted, such as storm flow mitigation, crop pollination, carbon sequestration, and controlling the spread of vector-borne disease.

Nature also provides many socio-cultural benefits that are sometimes less tangible but no less important. These include the ways that interaction with nature informs cultural identity and heritage, spirituality, science and education. Recent scientific research has demonstrated that in addition to the enjoyment provided by recreation and leisure in natural settings, direct interaction with nature is an essential component of human mental and physical health, including cognitive and behavioural development in infants and children.[5,6]

Degraded ecosystems lose their ability to provide these services. In some cases ecosystem services act as natural subsidies that are unaccounted for in economic sectors, and in other cases the services do not have an economic "output" but their loss does come with real economic and social costs when governments, businesses, and individuals experience the negative consequences of such losses.

Healthy ecosystems depend on biodiversity, which is the variability of life at all scales, from genes, to species, and ecosystems. The *Canadian Biodiversity Strategy* (1995) – endorsed by federal, provincial, and territorial governments' ministers – acknowledged this importance and the concurrent global declines in biodiversity. The *Canadian Biodiversity Strategy* identified the need for research on Canadians' use of nature, and research on the values that Canadians hold and ascribe to nature, as important tools in support of decision-making for sustainability.

With a changing climate, less predictable weather and oceanic systems, as well as increasing rates of land conversion and land use in many areas of Canada, the need for better information about the values of nature – social, cultural, and economic – has intensified. The *Canadian Biodiversity: Ecosystem Status and Trends 2010* assessment found cause for concern in the health of all 25 Canadian ecozones (15 terrestrial, 1 freshwater, and 9 marine). Canada's governments at all levels are actively working to balance the human uses of the environment with the need to conserve the vital natural systems that support our society.

The *2012 Canadian Nature Survey* is significantly contributing to our understanding of the importance of nature to Canadians, by measuring their awareness, participation, and investments in a wide range of nature-based activities. The survey is a large-scale, fact-based study and does not include questions about attitudes, beliefs, or opinions.[7] It includes residents of all 13 provinces and territories and addresses some issues for the first time on a truly national scale.

The overarching objective of the survey was to collect reliable, current information about Canadians' awareness and involvement in nature-based activities, using scientifically robust survey methods. This information is essential to support the diverse policy and program needs of the sponsoring agencies in meeting their obligations to manage the conservation and sustainable use of Canada's biodiversity.

The 2012 *Canadian Nature Survey* was designed to update and significantly expand upon information collected in the series of national surveys on the "Importance of Wildlife" that were completed for 1981, 1987, 1991, and the "Importance of Nature" in 1996. Those surveys focused on measuring participation rates and associated expenditures for nature-based activities.

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[5] A.C. Logan and E.M. Selhub, "*Vis Medicatrix naturae*: does nature 'minister to the mind'?," *Biophychosocial Medicine* 6, no. 11 (2012). Accessed August 5, 2013, doi: 10.1186/1751-0759-6-11. URL: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3353853

[6] S. Strife and L. Downey. 2009. Childhood Development and Access to Nature. *Organization & Environment* 22 (1): 99-122.

[7] The *2012 Canadian Nature Survey* was developed specifically to collect fact-based data. It is recognized that to fully grasp the importance of a subject to a population, research will also include collection and qualitative analysis of attitudes, opinions, and beliefs. That type of research is far more complex and costly to complete if the objective is to obtain nationally, provincially, or territorially representative results. Quantitative analysis of behaviours (e.g. choices of activities and commitments of time and resources to participate) is a conventional approach that provides meaningful evidence to infer, at a minimum, the importance of the subject to respondents.

Building on the scope of the 1996 questionnaire, the *2012 Canadian Nature Survey* increased the number of nature-based activities that were included. It added the new dimension of having respondents indicate the number of days that they participated in each of many different sets of activities at distances of less than 20 km from home and greater than 20 km from home over the 12 month period prior to completion of the questionnaire.[8] It documented their expenditures in the standard categories of transportation, accommodation; food; equipment fees and supplies for most of these activities. This attention to participation in nature-based activity in terms of geographic proximity to home is of particular interest as the Canadian population is increasingly urbanized.

In addition to the categories that were examined in depth in the earlier surveys, the *2012 Canadian Nature Survey* looked in more detail at a wider array of activities relating to subsistence, recreation, and leisure, and added activities relating to education and conservation. This provides managers with a more complete picture of the breadth of demands and opportunities for the conservation and sustainable use of nature in urban, rural, and wilderness areas.

Two further dimensions were added in 2012. The first of these focused on awareness of the central concepts of biodiversity, ecosystem services, and species at risk, and included questions about actions people have taken to assist species at risk. Globally and within Canada the scientific evidence clearly shows that natural habitat loss has placed substantial pressure on many wildlife species. Steps that can be taken include government regulation such as the federal *Species at Risk Act*, but public awareness is also very important.

The other new element was the inclusion of a set of questions designed to measure the extent of human interactions with wildlife that resulted in conflict, termed by wildlife managers as "human-wildlife conflict". The questions were designed to gain a better understanding of how people respond to such challenges. The responses provide wildlife managers with important insight for development of programs to reduce or mitigate conflict.

This report takes a unique approach in comparison to the reports on the importance of wildlife and nature to Canadians[9] by combining under one cover the overall highlights of the survey results, and integrating the economic analysis with the participation rates. It is available primarily as an electronic document to significantly reduce costs and waste associated with high-volume printing.

The *2012 Canadian Nature Survey* is the result of a strong collaboration among agencies responsible for biodiversity and ecosystems including wildlife, agriculture, forestry, water, parks and protected areas in all of Canada's provincial and territorial governments and 6 federal government departments, led by Environment Canada. The survey is one of the major products generated through the work of the *Value of Nature to Canadians Study* taskforce based on a thorough review of information needs pertaining to how Canadians value nature. More information on the study can be found at www.biodivcanada.ca.

The questionnaire was developed collaboratively by the federal, provincial, territorial taskforce on the *Value of Nature to Canadians Study*. Under contract to Environment Canada and on behalf of the federal, provincial, and territorial government departments responsible for biodiversity, ICF International tested and refined the survey, collected and managed the data, completed the analysis, and authored this report with oversight from the taskforce.

In demonstrating the statistically meaningful extent of Canadian adults' nature-based activity and associated expenditures, the survey provides concrete evidence for the significant contribution that nature makes to the national economy and individual Canadians' quality of life. There is much more to the importance of nature than the nature-based activities that are reported here. The information obtained from this survey, together with additional social and scientific research, will be of enormous value to environmental managers, decision-makers, and all Canadians working to better identify and understand how society benefits from nature.

[8] A chart showing the complete list of activities addressed by the *2012 Canadian Nature Survey* is provided in *Appendix A: Activities Crosswalk*.
[9] The 1981, 1987, 1991, and 1996 surveys were each reported in multiple documents covering highlights, economic analysis, and in some cases trends/forecasts for demand, see *Appendix D: References*.

Report Structure and Scope

This report's structure follows the survey instrument's content, with a few exceptions (see *Appendix B: Survey Instrument*). The report is organized as follows:

- *Chapter 1: Connection to Nature & Awareness* presents results for questions about nature-related choices, awareness of key nature-related terms and concepts, and actions related to these concepts.
- *Chapter 2: Nature-based Activities, Participation and Expenditures* presents results about participation in, amount of participation, and expenditures related to nature-based activities.
- *Chapter 3: Human-Wildlife Conflicts* presents results about questions related to negative interactions between humans and wild animals.
- *Chapter 4: Province and Territory Reports* presents selected survey results from each of the previous three chapters specific to each province and territory.

Within the first three chapters, results are primarily presented at the national level, with some analyses at the provincial and territorial levels. While presentation of results from individual questions is the primary focus of this report, each chapter includes a section titled *Cross-Analysis and Demographic Insights* in which results are considered across demographic clusters and 'response clusters' (see *Survey Methods*, below).

Within each the first three chapters is a section titled *Mixed-sample Data Insights*; these sections include discussion of survey results from all respondents, including Web panel and opt-in survey data. Because of the large number of Web panel survey responses collected in Alberta, Ontario, and Quebec, the Provincial Reports for these jurisdictions also include a *Mixed-sample Data Insights* section. To allow for tests of significance and other statistical analysis, unless clearly noted, all other sections of the report are based on the address-based sample results only.

The tables and figures in this report were prepared by ICF. A selection of the most significant data is included in these tables and figures and also discussed in the text. However, all data discussed in the text are not necessarily displayed in tables and figures. Data from Nunavut are shown in graphics with an asterisk as a reminder of the distinctive data collection technique used in that jurisdiction, and that they can be viewed as indicative rather than representative (see *Survey Methods*, below).

Comparability to 1996 Survey Data

This survey is comparable in many ways to the *1996 Survey on the Importance of Nature to Canadians*, with a few differences in methodology and presentation. Perhaps most importantly, the *2012 Canadian Nature Survey* was distributed to residents in the Northwest Territories and Nunavut—these jurisdictions were not included in the 1996 iteration.

While comparisons can be made between results obtained from the two surveys, they are not identical. This report does not focus on such comparisons. Data users are invited to reference the 1996 survey when looking at these results, and may be assured that such comparisons can be made for survey items that have not changed between 1996 and 2012.

One area where the question structure has changed is the assessment of the number of persons included in reported expenditures. In the 2012 survey, the selected respondent was asked to indicate how many persons in the household were covered by each reported expenditure that they personally made. For the 1996 survey, each person was asked about individual expenditures. This change in question structure was made to more accurately assess individual expenditures. Details on how responses to these questions were used to estimate total national expenditures may be found in the *Survey Methods: Economic Analysis* section.

Some participation category groupings are different for the *2012 Canadian Nature Survey* compared to the 1996 survey. Similarly, some questions are worded differently between the two surveys, and the results are presented differently by category. For example, expenditures on "outdoor activities in natural areas" may not align with "nature-based recreation activities."

Other differences in the design of the two surveys are noted at the beginning of this introduction and reflect the addition of new subjects.

SURVEY METHODS

An independent survey research team from ICF International administered the *2012 Canadian Nature Survey* to a nationally representative sample of Canadian adults (n= 15,207) and a selection of Web panelists (n= 8,972) during 2012-2013. The report refers to "Canadians" throughout for brevity; however, please note that the population for this survey is Canadian adults 18 years of age and older, which is approximately four-fifths of the total Canadian population (26.5 million out of 33.1 million). It does not include the activities of children and youth under the age of 18, nor the expenditures associated with their nature-based activities.[10]

This section of the report describes the methods and protocols used to develop the survey instrument, select the survey sample, administer the survey, and analyze results.

SURVEY INSTRUMENT DEVELOPMENT

The Federal-Provincial-Territorial Taskforce on the *Value of Nature to Canadians Study* developed the initial survey questionnaire. To permit comparison, many survey items were modelled after questions that had been included in the *1996 Survey on the Importance of Nature to Canadians*. In addition, several new sets of questions were added in 2012, including those related to awareness of, and actions related to, nature and interactions with wildlife; additional nature-based activities; and nature conservation. New demographics questions were also added. Many questions asked respondents to recall and report on awareness, participation and expenditures made during the 12 months immediately prior to completing the survey; results can be expected to cover a period beginning October 2011 and ending May 2013. The survey instrument was designed as a fact-based questionnaire and did not include questions about attitudes, beliefs, or opinions.

After the ICF survey research team reviewed and refined the initial instrument, the questionnaire was tested for question clarity, question order, and overall structure by conducting 53 one-on-one cognitive interviews. These cognitive interviews were conducted in English (n=35) and French (n=18), with Canadians of different ages, geographic status (urban, rural, rural-northern), and cultural identity (Aboriginal, non-Aboriginal). This process guided additional improvements and refinements to the survey questions.[11]

SAMPLING

The *2012 Canadian Nature Survey* employed a stratified probability design to draw a representative[12] sample of Canadian adults (age 18 and older) for a dual-mode (mail and Web) survey. This probability sample[13] was supplemented in most provinces by a volunteer Web panel, as well as by a community-based sample in Nunavut and a small opt-in sample in the Northwest Territories. Participation in the survey was voluntary. *Table 1* provides a demographic breakdown of the samples and survey respondents.

ADDRESS-BASED SAMPLE

A random sample of residential addresses in Canada was selected to receive the survey. The address sample was stratified by province and territory (excluding Nunavut, see below) and by urban versus rural status.[14] The address-based sample was drawn directly from the Canada Post address file, which is one of the most comprehensive lists of houses and apartments in Canada. To ensure random selection within household, the adult (age 18 and older) at each dwelling with the most recent birthday was requested to complete the survey. The address-based sample was allocated to achieve a target minimum of 1,000 completed questionnaires in each province and territory; resources were provided to increase the address-based sample in some cases. Within each province and territory the sample was allocated proportionally across urban/rural status. The unique approach taken for sampling in Nunavut is outlined below.

[10] While all ancestry groups were represented, there was not sufficient data collected from any individual ancestral group, including Aboriginal Canadians, to allow their relationship with nature to be addressed in depth.

[11] The questionnaire is included in this report as *Appendix B: Survey Instrument*.

[12] The term "representative" has a statistical meaning with a mathematical definition: estimates of characteristics based on the response data do not systematically differ from the true population value. In lay terms, this means that the results are not skewed in one direction or another, and that all demographic subgroups identified in *Table 1* are accounted for in the response data.

[13] A probability sample is one in which each element of the population under study – in this case, households, and persons within households–has a non-zero chance of being included in the sample, and that the chance, or probability, can be calculated. This is a multistage sample as first households were selected via a sample of addresses, and then a single person was selected from within each household.

[14] Addresses were defined by Canada Post as being either urban or rural during the sampling process.

Web Panel Sample

A Web panel is a group of pre-recruited individuals who have agreed to be contacted by a vendor to complete surveys. Most Web panels are developed using non-probability methods; typically, panelists volunteer to join a panel as a result of an online banner or advertisement. Most Web panels consist of individuals from a wide range of demographic groups, but because of the volunteer nature of their inclusion in the panel, the respondents do not constitute a probability sample, and may not be statistically representative of the population. For a discussion on how to interpret Web panel results, please see *Use of Analytic Weights*, below.

The non-probability Web panel samples used for the *2012 Canadian Nature Survey* were managed by Survey Sampling Inc. (SSI) and Marketing Systems Group (MSG). Both companies recruit Canadian panelists from social media sources and a variety of Websites and monitor the demographic composition of their panels to ensure that Canadians of all backgrounds, ages, education, and income levels are included. Panelists were randomly assigned to complete the survey, and were contacted throughout the field period until the target number of questionnaires was completed in each province. Web panel data was not collected for British Columbia, Prince Edward Island, the Northwest Territories, Yukon, and Nunavut. While all Web panelists completed the survey by Web, some address-based sample respondents also completed by Web as all address-based sample respondents were given the option of completing the survey on paper or online.

Northwest Territories Opt-in Sample

To supplement the address-based sample in the Northwest Territories, officials from the Northwest Territories' Department of Environment and Natural Resources facilitated two additional opt-in options. First, some residents were contacted by e-mail, provided an electronic copy of the survey, and asked to participate. Additionally, surveys were made available at Department of Environment and Natural Resources offices.

Nunavut Community Sample

Address-based sampling can be technically unsuccessful in places where the population is thinly spread around a town centre and shared addresses, general delivery, and post office boxes make up the bulk of the mail delivery system. Further, limitations on internet service make Web-based surveying technically infeasible among the general population of Nunavut. On advice from Territorial government officials including statisticians, ICF worked with Nunavut officials to develop a constructive solution to obtain meaningful data in that jurisdiction. ICF developed a field guide for face-to-face data collection, translated the survey questionnaire into Inuktitut, and provided guidance on random household selection. It was agreed and understood that the number of completed questionnaires would be much fewer than in other jurisdictions of Canada, but that the opportunity to participate in the survey and to obtain valuable information to support Nunavut resource management made it worth the extra effort to develop and implement this unique approach. Nunavut Department of Environment Conservation Officers administered the survey in-person (in English, French, or Inuktitut as requested by each respondent) at the selected household or left a survey with the respondent to complete and return. Most surveys were completed in Inuktitut, and the Nunavut Department of Environment translated the completed questionnaire responses into English and returned them to ICF for analysis.

Response Rates

Participation in the survey was voluntary. Response rates (reported in *Table 1*) are calculated using the standard established by American Association of Public Opinion Research (AAPOR) for mail surveys. Response rates can be calculated for the address-based sample only – the Web and opt-in samples did not have an explicit sample draw to serve as a denominator for response rates. Of the addresses sampled, 15,207 resulted in a Completed Interview, and 61,156 resulted in an Eligible Non-interview.[15] Determining eligibility is difficult when conducting a mail survey. AAPOR methodology allows the use of one of several methods to account for records of unknown eligibility. For the *2012 Canadian Nature Survey*, a conservative assumption was made that addresses for which eligibility could not be determined (N=4,847), due to an undeliverable address, for example, would be counted as an Eligible Non-Interview. ICF determined this assumption to be sound, as the only eligibility criterion for addresses was that they reach a household in Canada. Thus, the response rates in *Table 1* are simply equal to the number of completed interviews divided by the total sample draw. Given the assumption about treatment of addresses with unknown eligibility, figures in *Table 1* represent a lower-bound estimate of the response rate.

[15] Meaning that the survey package reached a valid address (eligible) but no resident at that address participated in the survey (non-interview).

Both the Web panel sample and the opt-in samples are "volunteer" samples. That is, respondents self-select to have the opportunity to participate in the survey. Such samples are subject to self-selection bias; that is, persons who are more interested in the subject matter are more likely to respond to the survey. For the Nunavut community sample a random selection process was designed that provided some protection against selection bias. For the Web panel survey, the panel vendors employ proprietary methods to ensure that panel members and respondents are obtained from a cross section of the population. During post processing possible self-selection bias was mitigated via weighting adjustments that correct the demographic structure of the data. While response to the mail survey is voluntary as well, potential respondents for the mail survey are selected via a probability sample.[16]

Table 1: Sample and Respondent Demographics (unweighted)[17]

Demographic Group		Address-Based Sample			Web Panel/Opt-In Sample		Combined Sample
	Sample	Target Completes	Responses	Response Rate	Target Completes	Responses	Responses
Canada Total	76,363	15,125	15,207	20%	8,972	8,897	24,104
Province/Territory							
Alberta	7,727	1,500	1,511	20%	813	818	2,329
British Columbia	5,138	1,176	1,184	23%	0	0	1,184
Manitoba	4,478	1,000	989	22%	135	137	1,126
New Brunswick	7,389	1,570	1,551	21%	96	96	1,647
Newfoundland and Labrador	9,096	1,475	1,478	16%	26	26	1,504
Nova Scotia	7,478	1,615	1,629	22%	60	60	1,689
Northwest Territories	7,096	935	962	14%	65	5	967
Nunavut (Opt-In Sample)	0	0	0	—	125	57	57
Ontario	4,368	1,000	1,011	23%	4,580	4,584	5,595
Prince Edward Island	5,940	1,000	996	17%	0	0	996
Quebec	3,333	1,000	1,029	31%	2,971	2,986	4,015
Saskatchewan	7,161	1,354	1,329	19%	101	128	1,457
Yukon	7,159	1,500	1,538	21%	0	0	1,538
Gender							
Male			7,305			3,800	11,105
Female			7,574			5,092	12,666
Age							
18 – 24			337			1,301	1,638
25 – 34			1,658			1,768	3,426
35 – 44			1,997			1,591	3,588
45 – 54			3,173			1,724	4,897
55 – 64			3,804			1,647	5,451
65+			3,803			827	4,630
Urban vs. Rural							
Urban			12,294			7,567	19,861
Rural			2,913			1,331	4,244

Table 1 continued on next page

[16] Self-selection bias will be a possibility for any voluntary survey, regardless of the mode of sampling – people can choose wether or not to participate. The primary difference is that an address-based sample provides the equal probability that all members of a population who reside at a postal address have equal opportunity to participate, and the randomness of their selection is intended to assure that respondents with the broadest possible range of interests are invited to participate. This is not achieved with Web panels, because their 'members' are a subset of the population. Very large Web panels, such as those managed by SSI have millions of members spanning all demographic groups and a very wide range of lifestyles; the common characteristic is that members make use of the internet and email, and *have agreed in advance to be available to participate in surveys*. Results from Statistics Canada's 2010 *Canadian Internet Use Survey* found that 78.9% of Canadian households had access to the internet, and that 93.5% of Canadians age 16 and over use the internet for email. http://www.statcan.gc.ca/daily-quotidien/130419/dq130419d-eng.htm. More recent data have not been published.

[17] *Table 1* presents unweighted response counts. As described in *Survey Methods: Weighting*, below, responses to the *2012 Canadian Nature Survey* were weighted to ensure that survey estimates would be representative of the Canadian population.

Demographic Group		Address-Based Sample			Web Panel/Opt-In Sample	Combined Sample
Nature-Related Profession						
No			12,471		7,962	20,433
Yes			1,739		914	2,653
Aboriginal Canadian						
Non-Aboriginal			14,358		8,605	22,963
Aboriginal			535		284	819
Immigrant or 1st generation Canadian						
No			11,341		6,386	17,727
Yes			3,520		2,502	6,022
Education						
Elementary only			301		33	334
Some high school			1,170		601	1,771
High school graduation			2,842		2,429	5,271
College/Vocational/Commercial diploma			4,652		3,243	7,895
University Bachelor's degree			3,595		1,836	5,431
University Master's degree			1,396		491	1,887
University PhD or Doctoral degree			399		135	534
Household Income						
Less than $24,999			1,978		1,628	3,606
$25,000-$49,999			3,454		2,598	6,052
$50,000-$74,999			2,864		2,126	4,990
$75,000-$99,999			2,083		1,304	3,387
$100,000 or more			3,350		1,234	4,584

DATA COLLECTION

2012 Canadian Nature Survey data were collected using three modes – mail, Web, and in-person. The data collection mode(s) available to a respondent were based on whether the individual was: selected as part of the address-based sample, a member of the Web panel, or a resident of the Northwest Territories or Nunavut (as described above in *Sampling*). Canadians selected for the address-based sample were offered the opportunity to complete the survey by mail or on the Web. Web panelists completed only by Web. A customized approach involving in-person distribution of the mail instrument was used in Nunavut. The print and Web surveys were offered in both official languages to all contacts; in Nunavut respondents were also offered the questionnaire in Inuktitut. The following sections describe the protocols for each type of data collection.

MAIL DATA COLLECTION

Mail data collection occurred in two waves. Wave 1 was initiated in the Fall of 2012, and Wave 2 in the Winter of 2013.[18] The mail data collection protocol was based on a multi-contact strategy designed by Dillman et al [19] to optimize response rates. Addresses selected for the address-based sample received up to four mail contacts: a pre-notification letter, an initial survey packet, a thank you/reminder postcard, and a second survey packet. All provinces and territories were represented in the address-based sample, except for Nunavut as described below, and in *Sampling* above.

STEP 1. PRE-NOTIFICATION LETTER

First, a pre-notification letter was mailed to introduce the survey and encourage response. The letter explained that the survey was sponsored by the federal, provincial and territorial governments. To reinforce the survey's legitimacy, the letter was printed using Environment Canada letterhead, and was signed by the Director General of the Canadian Wildlife Service. The letter was provided in

[18] In most cases respondents were asked to report on awareness and activities during the 12 month period immediately prior to their completion of the questionnaire; results can therefore be expected to cover a period beginning September 2011 and ending May 2013.

[19] Don A. Dillman, Jolene D, Smyth and Leah Melani Christian, *Internet, mail, and mixed-mode surveys: The tailored design method* (Hoboken, New Jersey: Wiley & Sons, 2009).

English and in French, and offered contact information for respondents who had questions about the survey. The pre-notification letter also offered the option of completing the survey immediately online in either official language.

To further encourage response in Yukon, Nunavut and the Northwest Territories, territory-specific letters were included in this initial mailing. The photos, text, and overall look of these letters were customized by taskforce members in these jurisdictions to appeal specifically to residents of each territory; the letters were signed by their respective deputy ministers. The cover letter stressed the importance of each person's participation.

Step 2. Survey Mailing

Next, all sampled addresses were mailed a printed survey packet containing a cover letter, a survey, and a postage-paid return envelope. Recipients were asked to have the person in the household 18 years of age or over, who had the most recent birthday, to complete the survey. This protects against self-selection bias, and ensures that a representative sample of persons is drawn for the address sample.

Step 3. Thank You/Reminder Postcard

All sampled addresses were mailed a bilingual postcard thanking those who had completed the survey, and encouraging response from those who had not yet responded.

Step 4. Second Survey Mailing

Finally, selected addresses who had not yet responded were mailed a second (identical to the first) survey packet.

Web Option for Address-Based Sample

During Wave 1 (Fall 2012), both the pre-notification letter and the postcard mailed to the address-based sample provided the URL of a Web-based version of the survey. During Wave 2 (Winter 2013), this Web option was provided in all contacts: the pre-notification letter, postcard, and cover letters. Respondents who chose to complete the survey by Web were required to use their unique master identification number to access the survey for security and to ensure no possibility of duplication.

Web Panel Data Collection

Data were also collected via two Web panels operated by Marketing Systems Group (used for Quebec only) and Survey Sampling International (used for all other provinces). Web panel data collection occurred in late 2012.

Panelists were sent an initial e-mail similar in content to the pre-notification letter, containing a secure link to the Web survey hosted by ICF. The web survey was identical to the print survey, and was provided in both official languages.

Data Collection in the Northwest Territories

Data collection in the Northwest Territories consisted primarily of print surveys sent to the address-based sample, with a Web option. However, as described in *Sampling*, some respondents received electronic copies of the survey instrument via an e-mail and some may have picked up a copy of the survey instrument provided at Department of Environment and Natural Resources offices. Surveys completed by either opt-in option were collected by the Department and provided to ICF for processing.

Data Collection in Nunavut

Based on advice from - and in collaboration with - Territorial officials, an alternate design was developed to collect data in Nunavut. Government of Nunavut Department of Environment Conservation Officers were trained to administer the survey in-person to adults using a method to select every other household in specific areas (see *Sampling*, above). Within households, the adult (age 18 years or older) with the most recent birthday was selected to complete the survey. This method of randomly selecting an adult is consistent with the mail survey, and is designed to reduce self-selection bias; it is the same method that was used in the address-based sample in all other jurisdictions. Surveys were offered in Inuktitut, English, or French; most were administered in Inuktitut. Completed surveys were translated into English by Nunavut officials and provided to ICF for processing.

Weighting

Responses to the *2012 Canadian Nature Survey* were weighted to ensure that survey estimates would be representative of the Canadian population. Two sets of weights were computed: one "address" weight for data analysis from the address-based

probability sample and a second "combined" analysis weight to support analyses of Web panel and opt-in responses. These are explained in detail in this section.

The combined weight was produced using a statistical technique that attempts to reduce response bias arising from a non-random selection mechanism (such as that used to construct the Web panel). Although this technique has been shown to reduce response bias in non-probability Web panel surveys,[20] the variance properties of the resulting weights are not well understood. Because the variance of estimates is used to quantify their statistical precision,[21] the unknown variance properties of the combined weights leads to the recommendation that these weights (and the Web panel data to which they apply) not be relied on for population estimates, as it is not possible to quantify the precision of these estimates accurately.

Within this report, all of the overall Canadian population estimates are therefore computed only from the address-based sample using the address-based sample weight, unless explicitly noted. This is because only the address-based sample is based on a probability sample which allows confidence intervals to be placed around population estimates (see *Statistical Reliability of Results,* below).

Where estimates for Nunavut are shown in the tables and figures below, these are based on weighting of the community-based sample and are not generalizable for reasons outlined in *Sampling*, above. Nunavut estimates are best interpreted as reflecting the activities of a 57-person focus group; they are indicative rather than representative.

Address-Based Sample Weight

The weighting approach for the address-based sample is made up of two components: a sampling weight, which adjusts for unequal selection probabilities due to the stratified design, and a calibration adjustment, which adjusts for survey non-response and calibrates the weights to known population totals.[22] The sampling component of the address-based weight is the inverse of the probability of selecting a given residence from the Canada Post address file within each sampling stratum. The sampling component was then calibrated (or post-stratified) to known population totals. This adjustment was made along the following dimensions:

- Age (independently within each province and territory)
- Gender (independently within each province and territory)
- Urban/Rural (independently within each province and territory)
- Aboriginal/non-Aboriginal identity

The result of this adjustment is the final address-based sample weight.

Combined (Mixed-Sample Method) Sample Weight

Highlights of results based on the weighted combination of the address-based sample, Web panel, and opt-in responses are presented briefly at the end of each of the first three chapters under the heading *Mixed-sample Data Insights*.

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[20] Sunghee Lee, "Propensity score adjustment as a weighting scheme for volunteer panel web surveys." *Journal of Official Statistics* 22, no.2 (2006): 329-49. http://www.jos.nu/Articles/abstract.asp?article=222329 [Accessed August 5, 2013].

[21] E.g., through the construction of confidence intervals used to specify the statistical reliability of estimates from the data as a percentage +/- from a baseline, see *Statistical Reliability* below.

[22] Population counts by age (for persons age 18 and older) and gender were obtained from the 2011 Census of Canada. Statistics Canada, *2011 Census of Canada: Topic-based Tabulations: Age and Sex for the Population of Canada, Provinces, Territories, Census Divisions, Census Subdivisions and Dissemination Areas, 2011 Census*. Catalogue number 98-311-XCB2011018. (Ottawa, Ont.: Statistics Canada, 2012), http://www12.statcan.gc.ca/census-recensement/2011/dp-pd/tbt-tt/Ap-eng.cfm?LANG=E&APATH=3&DETAIL=0&DIM=0&FL=A&FREE=0&GC=0&GID=0&GK=0&GRP=1&PID=101998&PRID=0&PTYPE=101955&S=0&SHOWALL=0&SUB=0&Temporal=2011&THEME=88&VID=0&VNAMEE=&VNAMEF= [accessed June 20, 2013]; Population counts for urban and rural areas were obtained from Gordon Dewis, Statistics Canada, email communication, June 2013; For a more in-depth discussion on population centres and rural areas, see Statistics Canada, "From urban areas to population centres," February 7, 2011, http://www.statcan.gc.ca/subjects-sujets/standard-norme/sgc-cgt/notice-avis/sgc-cgt-06-eng.htm [accessed June 21, 2013]; Population counts by Aboriginal identity were obtained from Statistics Canada, *Table: Aboriginal identity population by age groups, median age and sex, 2006 counts for both sexes, for Canada, provinces and territories,* http://www12.statcan.ca/census-recensement/2006/dp-pd/hlt/97-558/pages/page.cfm?Lang=E&Geo=PR&Code=01&Table=1&Data=Count&Sex=1&Age=1&StartRec=1&Sort=2&Display=Page. All totals were adjusted to be consistent to 2011 data.

The weighting approach for the combined sample has two components: a sampling component based on an estimated probability of selection for each respondent, and a calibration adjustment, which adjusts the first component to known population totals.

The unknown selection probability for individuals responding from the Web panel and opt-in samples is estimated by modelling their propensity of inclusion in these samples using three stages.

First, the address selection probability of each case was estimated as if it were selected via the address-based sampling mechanism. This is the same as the address-based probability for respondents in the address-based sample.

Second, the probability of being selected for the Web panel sample[23] was estimated by the modelled probability of being included in the panel data. That is, the event of responding via the non-probability sample is taken as the event of being sampled for the non-probability sample.

The modelling relies on logistic regression to predict propensity of inclusion based on geographic location and most survey responses. In provinces and territories where both an address-based sample and Web panel sample were used, logistic regression was used to combine respondents from the Web panel survey and respondents from the address-based sample who responded on the Web. Predictor variables included response and demographic data obtained from survey responses, as well as the stratification variables. Logistic regression yields a probability of being selected for the panel for each respondent (not just those who answered using the Web).

Finally, the third step accounted for the fact that there were now two probabilities of selection (address-based and panel propensity). The two probabilities were combined through a procedure known as cumulating cases.[24,25] This procedure calculates the probability of a respondent being selected for the address-based sample, the panel propensity sample, or both.

The sampling component of the combined sample weight becomes the inverse of this estimated probability of selection. For the Northwest Territories and Nunavut community opt-in survey, a constant selection probability was assumed.

To produce the combined analysis weight, the sampling component of the combined sample weight was then calibrated (or post-stratified) to known population totals, using the approach described above for the address-based sample weight for Web surveys.

For the Nunavut community opt-in survey, the sampling component was post-stratified using a ratio adjustment to Territory population totals by gender.

USE OF ANALYTIC WEIGHTS

Weighting is used in survey research to ensure that the estimates from the study appropriately reflect the sampling design.[26] Weights are calibrated as a means of mitigating the potential impact of response biases (see additional discussion of response bias in *Statistical Reliability of Results*, below). This calibration shifts the demographic distribution of the data to match that of the population. Each record in the response dataset contains two analytic weights; one of these must be used when conducting data analysis.[27]

Both the address-based and combined sample weights will estimate similar population totals and distributions with respect to the variables used in the calibration adjustments. As mentioned above, the difference between the address-based sample weight and the combined sample weight is that the former is based on a probability sample and can be relied upon for estimates and analyses that seek to draw conclusions about the Canadian population with quantifiable precision using standard procedures. The combined

[23] The selection process for both inclusion into the general Web panel, and for participation in this survey, are proprietary processes employed by the third party Web survey vendors.

[24] Steven Pedlow, Kanru Xia and Michael Davern, "Dual-Frame Sample Sizes (RDD and Cell) for Future Minnesota Health Access Surveys" *Proceedings of the Survey Research Methods Section,* American Statistical Association (2010): 2279-2288, http://www.amstat.org/sections/srms/proceedings/y2010/Files/307156_57962.pdf.

[25] Colm O'Muircheartaigh and Steven Pedlow "Combining samples vs. cumulating cases: A comparison of two weighting strategies in NLSY97," *Proceedings of the Survey Research Methods Section,* American Statistical Association (2002): 2557-2562, http://www.amstat.org/sections/srms/proceedings/y2002/Files/JSM2002-001082.pdf.

[26] United Nations Statistics Division Department of Economic and Social Affairs, *Designing Household Survey Samples: Practical Guidelines,* Series F No. 98 (2005) New York, NY.

[27] While weighted and unweighted estimates may differ, a comparison of these differences is only of interest methodologically, and a full analysis of these differences beyond the scope of this report. In terms of substantive analysis, only weighted estimates should be reported.

weight provides representative estimates with precision that cannot be estimated using standard procedures. That is, variances from the address-based sample can be estimated, but not, given standard statistical methodologies, from the combined sample.

The two weights allow two general types of analysis to be conducted. ICF recommends that the choice of weight be based on the user's goals:

- The address-based sample weight should be used for analyses that require confidence intervals (e.g., population estimates) or statistical testing.
- The combined sample weight should be used for analyses that do not require confidence intervals or statistical tests (which require variance estimates). These data provide a representative set of responses from Canadian adults whose statistical reliability cannot be quantified.

Statistical Reliability of Results

The *2012 Canadian Nature Survey* was designed to produce reliable estimates of participation by Canadians in nature-based activities as well as estimates of related days, trips, and expenditures. Reliable estimates accurately reflect the population values being estimated and would not vary greatly if the survey were repeated. The reliability of a survey estimate depends on both sample size used to compute the estimate and the variability of the characteristic being estimated in the sample. Estimates based on smaller sample sizes (e.g., demographic subgroups), and/or highly variable characteristics, will be less reliable than other estimates. The statistics reported within this report have been screened for reliability to ensure that only percentages and extrapolated totals that accurately reflect the Canadian adult population are reported.

Variance estimation procedures that take into account the complex design of the *2012 Canadian Nature Survey* were used to confirm that estimates at the national level generally achieve a margin of error of no more than +/-2 percent when the full address-based sample is available. Reported estimates at the province and territory levels generally achieve a margin of error of +/-4 percent, although this margin differs due to variation in the size of the address-based sample in each province and territory. For percentages and totals based on questions with less than full response, either due to skip patterns or respondents refusing to provide an answer, the error margin will be wider. The margin of error will also be wider for provincial or territorial sub-analysis of activities in which only a small number of respondents participate.

The notion of reliability of a statistical estimate of a real-world quantity encompasses concepts of precision and representativeness. Precision measures provide information about an estimate's ability to measure the same quantity consistently–if these measures indicate that the survey statistic contains a high proportion of random error, the estimate is deemed unreliable. Representativeness is more difficult to quantify. Robust sample sizes (that will be reflected in low error measures) play a part. Other indicators can include response rates, especially at the sub-group level. These provide assurance that no segment of the population has been under-covered by the survey process. The overall response rate achieved in the *2012 Canadian Nature Survey* (20%—a conservative estimate, as explained above) is not atypical for such surveys.[28] In addition, empirical research suggests that survey response rates are not a valid indicator of the presence of non-response bias.[29] These findings notwithstanding, best practices for increasing response rates in household surveys were followed, including multiple, customized contacts using official government identification, non-response follow-ups, and multiple completion modes.[30] To further reduce the threat of non-response bias, surveys mailed to the address-based sample implemented a standard random selection technique by requesting that the adult household member who had the most recent birthday complete the survey. To account for unit non-response in the *2012 Canadian Nature Survey*, a standard non-response adjustment was applied within each survey stratum, which causes individuals who did respond to the survey to represent individuals who were selected for the survey but did not respond.

[28] Holbrook, Allyson L., Jon A. Krosnick and Alison Pfent, "The causes and consequences of response rates in surveys by the news media and government contractor survey research firms," in *Advances in Telephone Survey Methodology,* edited by James Lepkowski et al, 499-528. Hoboken, NJ: Wiley & Sons, 2007.

[29] Groves, R. M. "Nonresponse rates and nonresponse bias in household surveys." *Public Opinion Quarterly*, 70, no. 5 (2006): 646-675

[30] Don A. Dillman, Jolene D, Smyth and Leah Melani Christian, *Internet, mail, and mixed-mode surveys: The tailored design method* (Hoboken, New Jersey: Wiley & Sons, 2009).

There are no hard-and-fast rules for assessing reliability. A statistical note from the U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, "Healthy People 2010 Criteria for Data Suppression"[31] guided the development of the criteria employed for the *2012 Canadian Nature Survey*. The approach used to screen estimates for reliability is based on assessing both the accuracy (measured by the relative standard error) and the sample size (measured by the number of cases,) that form the base of the estimate. For percentages and totals, the estimate is suppressed (meaning that it is not shown in the report) if the number of cases is less than 30 or the relative standard error is greater than 30%. Statistics Canada follows similar procedures for screening published estimates for reliability.[32]

Data points which do not meet the threshold for statistical reliability are noted with a "^" symbol in tables and figures and, except in some expenditure tables, are not displayed (suppressed). In order to assist the reader in understanding column totals, some expenditure tables display suppressed data points, but they are shown with a "^" to indicate that the data point is not statistically reliable. Where two or more statistically unreliable data points are included in a set of responses to one question, these data points are grouped at the low end of the graphic simply to show this status, but does not imply the relative ranking of those options in the results. Furthermore, the tables included in this report contain subtotals and/or overall totals that aggregate across multiple component estimates. Such totals and subtotals are treated as separate estimates and are independently screened for reliability; they are statistically reliable unless specifically indicated otherwise.

Because data from the Nunavut community-based opt-in sample were not collected via random sampling, it is recommended that the 57 Nunavut responses be interpreted like a focus group, as indicative rather than representative. That is, they provide insight into nature-related activities for a representative group of Nunavut residents, but cannot be reliably generalized to the population of the Territory as a whole.

Participation Analysis Methods

The *2012 Canadian Nature Survey* measured the rate of participation among Canadians in a variety of nature-related activities, as well as the number of Canadians participating in those activities. This report compiles nature-related activities into sets of eight broad groups and 22 categories (see *Chapter 2: Nature-based Activities, Participation and Expenditures*), each of which includes multiple specific activities that were measured in the survey. For example, the nature education group of activities measures three specific types of activity: "attending nature festivals, retreats, workshops, lectures about nature"; "visiting a nature exhibit such as a zoo, public garden, arboretum, aquarium, wildlife garden, museum of natural history"; and "visiting a farm, ranch, or maple sugarbush for agritourism experience". To estimate the rate of participation in the overall category of nature education, a survey respondent was counted as a participant if he or she indicated at least one day of participation in *any* of the activities in these three types of nature education activities. This prevents double-counting respondents who indicated participation in more than one such activity within a category. The weighted average of participation status is therefore an estimate of the participation rate among the adult population, and the weighted sum of participants is an estimate of the number of Canadians age 18 and older who participated in an activity within that category.

In general, any analyses in this report that involve rates of participation, or numbers of participants in a category that has multiple, non-exclusive response options, are computed in the same way to avoid double-counting respondents.

With regard to counts of *days* spent participating in activities, it is important to note that frequencies of participation were measured by asking respondents to indicate how many calendar days in the previous 12 months they participated in a specific activity (e.g., nature photography, birding, or gardening). Summing across activities (for example, summing across these three activities to produce a count of total participation-days for the nature-based leisure group) has the potential to double-count calendar days if a respondent participated in multiple different nature-based activities on the same calendar day. Consequently, participation-day frequencies for activity groups (such as nature-based leisure) should not be interpreted as the average number of calendar days per year of participation. Rather, participation-day frequencies for activities should be interpreted in terms of the average number of within-group or within-category activity days that took place during previous 12 months, with the possibility that some activities occurred on the same calendar day. Participation-day frequencies for individual groups or categories thus represent

[31] Klein, Richard, Suzanne E. Proctor, Manon A. Boudreault and Kathleen M. Turczyn, "Healthy People 2010 criteria for data suppression," *Statistical Notes*, no 24. Hyattsville, Maryland: Centers for Disease Control and Prevention National Center for Health Statistics, July 2002. http://www.cdc.gov/nchs/data/statnt/statnt24.pdf.

[32] Statistics Canada, "Households and the Environment Survey (HES)," September 4, 2012, http://www23.statcan.gc.ca/imdb/p2SV.pl?Function=getSurvey&SDDS=3881&Item_Id=54484&lang=en#a3 [accessed June 3, 2013].

an upper-bound figure on estimates of calendar days spent on all activities within a given group or category. They are useful for demonstrating the amount of participation in each activity.

Outliers in the address-based data responses were reviewed and checked against hard copy mail surveys to identify data entry errors. Confirmed values that were within the possible range (e.g., number of days between 0-365) were retained in the data. This means that abberant results that were within the *possible* range were not excluded as this would impose a subjective judgement on the data.

Economic Analysis Methods

Because expenditures are drawn from an address-based probability sample, and are therefore statistically reliable, the total summation (or average of the summation) for each variable can be extrapolated to represent the entire Canadian population age 18 and older. This section provides detail on how each of the three summary figures—total expenditures, average annual expenditures, and average daily expenditures—were calculated nationally and by province/territory.

Total expenditures represent the total amount spent by all individuals in the country, in a province or territory, or on a specific expenditure or activity type (details of reported expenditures for Nunavut respondents are shown in *Chapter 4: Province and Territory Reports*; for the rest of the report they should be viewed as indicative rather than comparable to the other jurisdictions due to differences in data collection methods, as explained above). To calculate total expenditures, per-person expenditures (the expenditure divided by the number of people covered by the expenditure) were calculated first, and then summed. Where the respondent did not indicate how many people were included in the reported expense(s), the number of household members was imputed (i.e., how many people the expenses covered) based on the average reported by all respondents nationally and by territory for that question. (Additional details about imputation methodology are provided later in this section).

Average annual (i.e., per-person) expenditures represent the amount that the average person spends on a given activity (or on all activities) over the course of a year. Average annual expenditures are presented nationally and by province/territory, as well as for each specific question. To calculate average annual expenses, the expenditure was first divided by the number of people for whom the expenditure was made (as reported by each respondent), and then the quotient was averaged. Therefore, "per person" expenditures in this report are different than "per capita" expenditures. Again, if a respondent did not indicate how many people were included in the expense figure they reported, the number of household members was imputed based on the average reported by all respondents nationally and by province or territory for that question.

Average daily (i.e., per-person, per-day) expenditures represent the average amount that a person spends on a given activity (or all activities) over the course of the year, divided by the number of days in which that person participates in the activity. Therefore, average daily expenditures are not simply the annual average amount spent divided by 365 days. Once again, if a respondent did not indicate how many people were included in the expense figure they reported, the number of household members was imputed based on the average reported by all respondents nationally and by province or territory for that question.

Average Household Members Imputation Methodology

The *2012 Canadian Nature Survey* asked respondents to report the number of days spent participating in a given activity in Canada within the previous 12 months both within and farther than 20 km from their home. Respondents were also asked to report total money spent to participate in these activities on transportation; accommodation; food; and equipment, fees and supplies, as well as how many people in their household those expenditures covered.[33]

Some respondents reported spending money on a given activity, but did not indicate the number of members in their household included in those expenditures. Each calculation for total, per-person, and per-person per-day costs, however, relies on both the

[33] Given that the survey questions were addressed to individual respondents, rather than asking about household activities and expenditures, it is possible that some respondents did not specify the number of persons covered by their reported expenditures because they were providing answers about their own activity; in those cases some respondents could reasonably be expected to leave the field blank to indicate that the expenditures only applied to themselves and no other people. The survey instrument provided the opportunity to report the number of people covered by an expenditure because it is often the case that an individual adult within a household will pay for the expenses of themselves and family members together when participating in activities together. This clarification was intended to remove the possibility of significantly over-calculating expenditures for participation, and enable the data analysts to more correctly calculate individual expenditures. The imputation of multiple individuals for fields left blank may therefore result in conservative estimates for expenditures.

reported activity expenditures and the number of household members covered by the reported expenditure. Therefore, to be able to include these incomplete responses in our analysis, it was necessary to impute a value for the number of members in a household covered by the expenditures on the given activity.

For incomplete responses (i.e., where expenditures were completed but number of persons were left blank), the number of members in each household that participated in each activity (e.g., nature-based recreation) was imputed using the average of all the completed responses for that activity in each province or territory. Because this methodology is specific to each activity and province/territory, it utilizes the characteristics of each activity and province/territory to provide information on the incomplete responses. For instance, activity expenditures in a province or territory that are distributed over a greater number of people, according to respondents, are similarly distributed over a greater number of people using the imputed value.

Other Analysis Methods

In order to compare certain survey results from provinces and territories to national data, the *z*-test was used for two independent proportions with a 95% confidence level. The *z*-test tests whether two proportions are significantly different by computing the ratio of the difference between the proportions to the pooled standard error of those proportions (a measure of their variance). Proportions are said to be significantly different when the resulting ratio exceeds that which would be observed by chance fewer than 5 times in 100 if there were no difference in the population; in other words, an observed difference between proportions is flagged as significant if it is unlikely to be due to chance.[34] Province or territory results which are significantly different from the national data are noted with an "*" in tables, and a footnote "* Indicates significant difference from national result." The result refers to the type of data point presented, and could be an average or some other statistic.

Response category percentages for all survey items were computed after excluding invalid and missing responses.

Cross Analysis & Demographic Insights

The first three chapters of the report each contain a section that provides additional insight by examining the inter-relationships among responses, including demographic variables. All analyses are conducted at the national level using the address-based sample, so that estimates are representative of the Canadian population. Associations between continuous variables (e.g., General Awareness score and age) are tested for a linear relationship using the Pearson correlation, *r*. The *r*-value varies from -1 (strong negative correlation) to 0 (no correlation) to +1 (strong positive correlation). Comparisons of continuous variables between groups (e.g., General Awareness scores compared for men vs. women) are tested using *t*-tests or ANOVAs as appropriate for the number of groups being compared. All associations and comparisons discussed are significant at the 95% confidence level unless otherwise noted. See Appendix C: Construction of Aggregate Scores for the formula of specific survey items used to compute each aggregate score as well as its interpretation and relevant quantitative metrics.

[34] David J. Sheskin, *Handbook of parametric and nonparametric statistical procedures,* 3rd ed. *(*Boca Raton, FL: Chapman & Hall/CRC, 2004).

CHAPTER 1: CONNECTION TO NATURE & AWARENESS

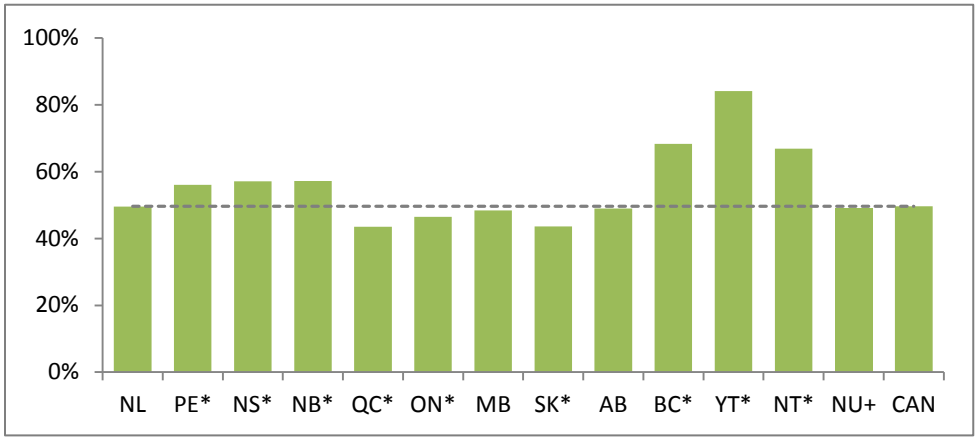
INTRODUCTION

Within the parameters of a fact-based survey, the *2012 Canadian Nature Survey* sought to understand the extent to which Canadians are connected to nature by gathering data related to:

- Whether nature played a role in Canadians' choices and decisions;
- Awareness of key nature-related concepts such as biodiversity, ecosystem services, and species at risk;
- Actions that Canadians may have taken related to these concepts;
- Ways Canadians obtain information about nature; and
- The extent to which nature-related professions are primary sources of income for Canadians.

Survey results show that, for a large number of Canadians, nature does play a role in their choices and decisions. Nationally, nearly 50% of respondents, representing approximately 13 million Canadian adults, reported choosing where they live partly to have access to nature (see *Figure 1*). This number was significantly higher[35,36] in certain provinces and territories: 84% of Yukon residents, 68% of British Columbia residents, 67% of Northwest Territories residents, 57% of Nova Scotia and New Brunswick residents, and 56% of Prince Edward Island residents reported choosing where they live partly to have access to nature. Residents of Quebec (43%), Ontario (46%), and Saskatchewan (44%) were significantly less likely than Canadians nationally to choose where they live to have access to nature, but even in these cases the percent of residents who did so is considerable. As described in *Survey Methods*, above, data from Nunavut cannot be generalized to the population of the Territory. However, survey results show that 49% of respondents from Nunavut reported that they chose where to live partly to have access to nature.

Figure 1: Canadians Who Chose Where to Live Partly to Have Access to Nature



* Indicates statistically significant difference from national result.
\+ Data from Nunavut cannot be generalized to the population of the Territory, and are not calculated in national totals. See *Survey Methods*, above.

Considerations related to nature extended into other areas of life. More than two-thirds of Canadians (70%) spent time outdoors within the previous 12 months[37] in order to experience nature, and more than half (57%) purchased products and services that are more environmentally friendly than their competitors' products. Furthermore, 47% of Canadians traveled to experience more nature, and 45% adjusted their lifestyle to reduce their ecological footprint.

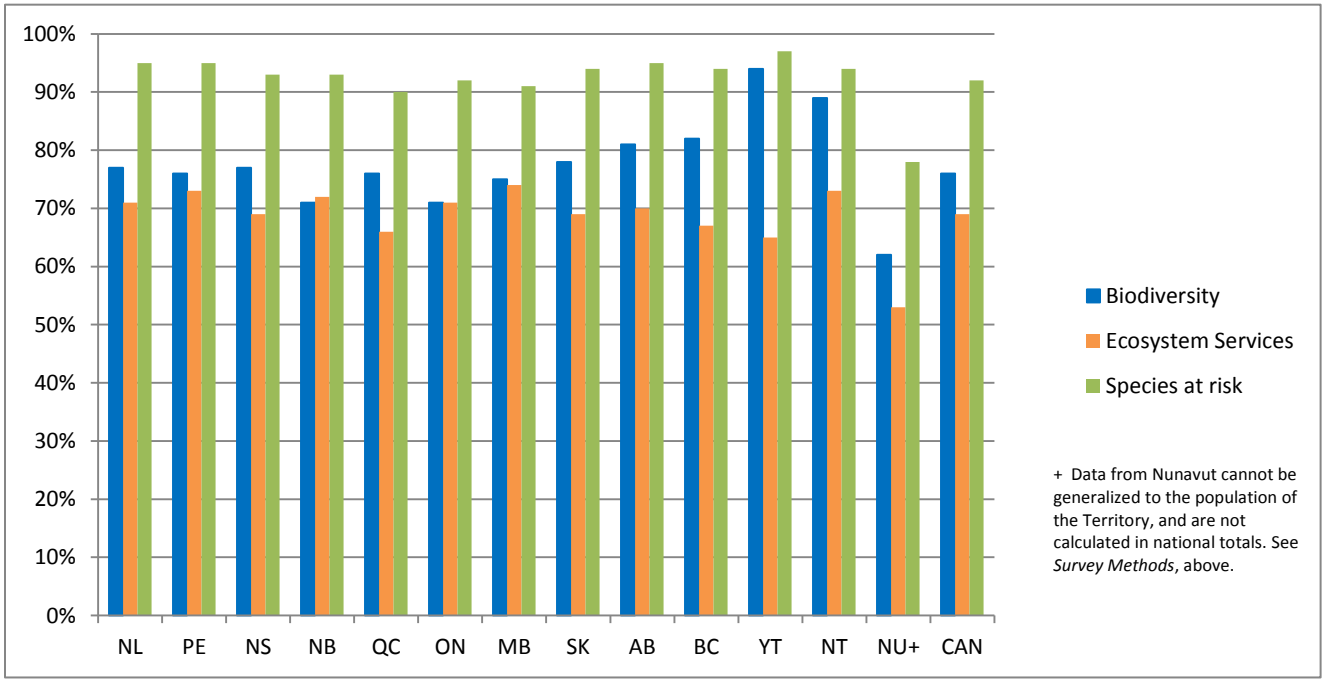
[35] Proportions were compared using the z-test for two independent proportions at a 95% confidence level. Statistically significant differences are those that are unlikely (< 5%) to be due to chance (see *Survey Methods: Other Analysis Methods*, above).
[36] Sheskin, D. J. (2004). *Handbook of parametric and nonparametric statistical procedures* (3rd ed.). Boca Raton, FL: Chapman & Hall/CRC.
[37] Note that throughout this report, references to "the previous 12 months" refer to the 12 months prior to the respondents' completion of the questionnaire. Because data collection occurred over several months (see *Survey Methods*), the previous 12 months referenced in the report spanned more than one year and can be expected to cover a period beginning October 2011 and ending May 2013.

AWARENESS OF BIODIVERSITY AND ECOSYSTEM SERVICES

When prompted, awareness of the terms "biodiversity" and "ecosystem services," as well as specific examples of them, was consistently high. Nationally, three-quarters (76%) of Canadians had heard of the term "biodiversity," while more than two-thirds (69%) had heard of "ecosystem services." Nationally, awareness of "species at risk" was very high, at 92%. Species at risk is discussed more fully in the next section, but reported here and shown in *Figure 2* for comparison purposes.

Results from individual provinces and territories (*Figure 2*) show very high awareness across the country for all three nature-related concepts.

Figure 2: Percent Aware of the Terms "Biodiversity," "Ecosystem Services," and "Species at Risk"



When provided with definitions for these terms, 77% of Canadians were aware that biodiversity contributes to ecosystem services and provides life support and other important benefits to people.

While awareness of the term "ecosystem services" was high, even more Canadians were aware of the eleven examples of ecosystem services, or ways that nature can provide benefits, which were included in the survey. Nearly 90% or more of Canadians were aware that nature can be essential to:

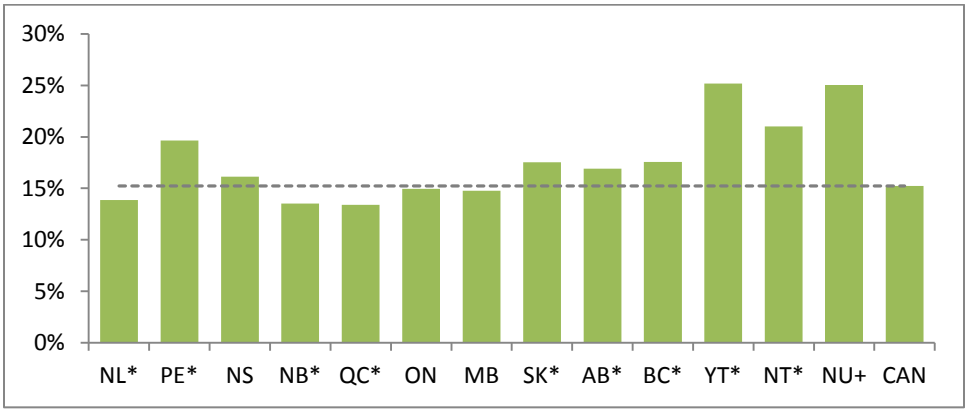
- Produce oxygen, and clean pollutants from the air (97%);
- Keep soil fertile and productive (96%);
- Provide places for recreation, fitness, and leisure (96%);
- Filter water to keep it clean and safe (95%);
- Pollinate plants and crops to produce food (94%);
- Provide raw materials for making and building things (93%); and
- Provide places for inspiration and spiritual renewal (89%).

More than two-thirds of Canadians were aware that nature can be essential to:

- Provide raw materials for most medicines (83%);
- Protect communities and property from storm impacts (79%);
- Support human psychological and cognitive development (73%); and
- Reduce or control the spread of many diseases (67%).

While large numbers of Canadians were aware of ecosystem services benefits, at the national scale 15% reported having been directly affected (within the previous 12 months) by the loss of an ecosystem service that would normally be provided by nature. At the provincial and territorial scale, a significantly higher percentage of Yukon (25%), the Northwest Territories (21%), Prince Edward Island (20%), British Columbia (18%), Saskatchewan (18%), and Alberta (17%) residents reported experiencing such a loss. A significantly lower percentage of Newfoundland and Labrador (14%), New Brunswick (14%), and Quebec (13%) residents reported being directly affected by the loss of an ecosystem benefit (see *Figure 3*).

Figure 3: Percent Directly Affected by Loss of an Ecosystem Service



* Indicates statistically significant difference from national result.
\+ Data from Nunavut cannot be generalized to the population of the Territory, and are not calculated in national totals. See *Survey Methods*, above.

Nationally, of those reporting a loss, "emotional, psychological, or spiritual well-being" was the most frequently selected (44%, representing nearly 1.75 million Canadians overall) way this loss had affected them. Additional responses included "medical health" (14%), "economic well-being" (9%), and "cultural heritage (8%).

Awareness of Species at Risk

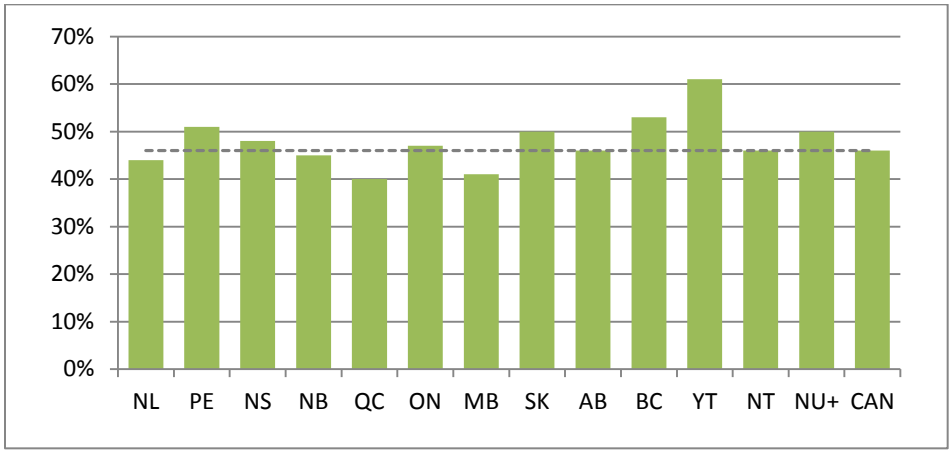
As noted above, the survey also examined awareness of the term "species at risk" and actions related to species at risk awareness; about nine in ten Canadians (92%) were aware of the term "species at risk."

The survey contained a question which presented a list of possible actions that respondents may have taken to assist in the recovery of species at risk and asked to them check all actions that they personally took in the previous 12 months. Nationally nearly half (46%, or nearly 12 million) of Canadians reported taking some action to assist in the recovery of species at risk by selecting at least one action from the list. The most frequently reported actions were:

- Changing how I use the land or place where I live to avoid impacts on the habitat of these species (24%);
- Supporting conservation agencies and organizations to educate people and to protect habitat (19%); and
- Educating other people about risks to those species and how they can help (17%).

Further, in *each* province and territory, 40% or more of respondents reported taking at least one of the actions listed in the survey on behalf of species at risk (see *Figure 4*).

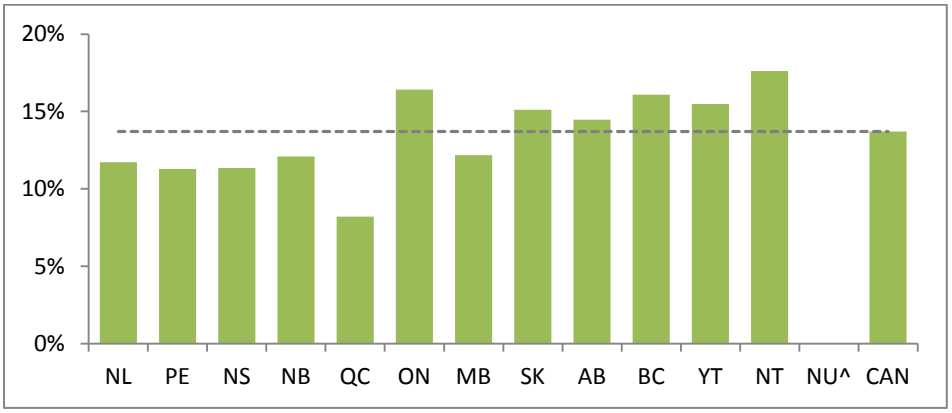
Figure 4: Took Action to Assist in the Recovery of Species at Risk



+ Data from Nunavut cannot be generalized to the population of the Territory, and are not calculated in national totals. See *Survey Methods*, above.

Nationally, more than 3.5 million Canadians (14%) donated money on behalf of species at risk[38] within the previous 12 months (see *Figure 5*). The percent of residents of the Northwest Territories (18%), Ontario (16%), British Columbia (16%), Yukon (15%), and Saskatchewan (15%) who donated to species at risk was significantly higher than the percent who did so nationally.

Figure 5: Percent Who Donated Money on Behalf of Species At Risk Within Previous 12 Months

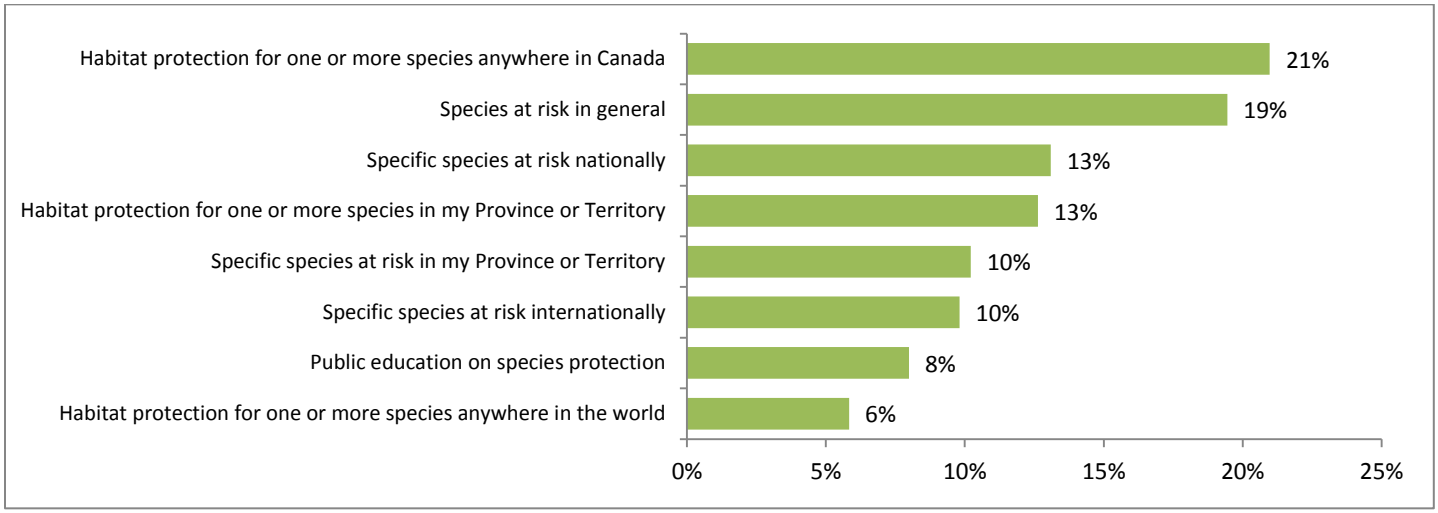


^Data point does not meet threshold for statistical reliability. See *Survey Methods* for explanation.

Of those who donated money for species at risk specifically, the survey asked the respondent to select the primary area of their donation. Options focused on habitat protection or on species directly, as well as the geographic scale ranging from provincial/territorial, to national, and even global. The most cited response was for habitat protection for species anywhere in Canada (21%), followed by species at risk in general (19%), see *Figure 6,* below.

[38] It is possible that respondents donated money to conservation organizations for a variety of campaigns, including species at risk, without some respondents fully understanding the technical meaning of that term. This could account for the incidences of donations for species at risk concurrent with a stated lack of prior knowledge about the term, but recognition of the issue upon reading its definition in the survey.

Figure 6: Of Those Who Donated to Species at Risk, Area of Donation



ACCESSING INFORMATION ABOUT NATURE

Another way that the *2012 Canadian Nature Survey* measured connection to nature was through questions in the "About You" section which asked Canadians to report the three *ways* they most frequently obtain information about nature (see *Table 2*). From the options provided, respondents were mostly likely to report "watching visual media" (63%), followed by "reading publications" (62%) and "conversation" (40%).

Table 2: Ways Canadians Most Frequently Obtain Information about Nature

Options Listed in Survey	Canadian Adults	
	Population Estimate	Percent
Watch visual media	16,757,641	63%
Read publications	16,422,926	62%
In conversation	10,607,372	40%
Through personal experience	8,641,448	33%
Read informal communications	5,865,512	22%
Listen to audio media	3,674,698	14%
Educational opportunities	1,422,049	5%
Other	351,664	1%

Canadians were also asked about the three *sources* from which they most frequently obtain nature-related information, reported in *Table 3*. More than half of Canadians reported obtaining information from "journalists and media writers" (61%) and "friends, family or colleagues" (55%). Thirty-seven percent of Canadians cited "government" as one of their three main sources for nature-related information. In the "other" category, the most common response was "the internet;" also mentioned were "libraries" and "nature itself."

Table 3: Sources From Whom Canadians Most Frequently Obtain Information About Nature

Options Listed in Survey	Canadian Adults	
	Population Estimate	Percent
Journalists/Media writers	13,989,371	61%
Friends, family or colleagues	12,542,646	55%
Government	8,572,304	37%
Conservation groups	8,359,508	36%
Scientists	6,087,836	27%
Teachers/Educators	3,305,832	14%
Other	1,690,093	7%
No one	1,324,643	6%

Another way Canadians can be connected to nature is through their professional work. Respondents were asked to "Please indicate which, if any, of the nature-related professions in the following list are the primary source of your income." Respondents could select all that apply or specify a profession that was not provided in the list, thus a total percent is not provided. Results, presented in *Table 4*, show that approximately 11% of Canadian adults (approximately 2.7 million people) derive their primary income directly from a nature-related profession. Just over a half million Canadians depend on farming as their primary source of income. Forestry and landscaping were the next most frequently-cited nature-related professions (each selected by 2% of respondents).

Table 4: Nature-related Professions Which Are Primary Source of Income

Options Listed in Survey	Canadian Adults	
	Population Estimate	Percent
My income does not rely on a nature-related profession	22,052,886	89%
Farming	574,796	2%
Forestry	404,318	2%
Landscaping	387,848	2%
Nature-based recreation or tourism	314,330	1%
Environmental science	272,308	1%
Environmental consultation	189,105	1%
Nature-based therapeutic/health care	142,608	1%
Fisheries	134,995	<1%
Wildlife management	104,341	<1%
Wildlife-activity outfitting	68,145	<1%
Non-Government conservation	67,581	<1%
Non-timber forest products	^	^
Nature-oriented arts and crafts	^	^
Non-fish marine products	^	^
Other	730,249	3%

^ Data point does not meet threshold for statistical reliability. See *Survey Methods* for explanation.

CROSS-ANALYSIS & DEMOGRAPHIC INSIGHTS

The analyses in this section of *Chapter 1* provide additional insight into Canadians' connection to nature by examining the inter-relationships among responses, including demographic variables. All analyses are conducted at the national level using the address-based sample only, so that estimates are representative of the Canadian population. Associations between continuous variables (e.g., General Awareness score and age) are tested for a linear relationship using the Pearson correlation, r. The r-value varies from -1 (strong negative correlation) to 0 (no correlation) to +1 (strong positive correlation). Comparisons of continuous variables between groups (e.g., General Awareness scores compared for men vs. women) are tested using t-tests or ANOVAs as appropriate for the number of groups being compared. All associations and comparisons discussed are significant at the 95% confidence level unless otherwise noted. See Appendix C: Construction of Aggregate Scores for the formula of specific survey items used to compute each aggregate score as well as its interpretation and relevant quantitative metrics.

GENERAL AWARENESS OF NATURE-RELATED ISSUES

The survey found several demographic differences in "General Awareness" as described above. General Awareness of nature-related issues tended to decrease with age, (r = -.10, indicating a weak negative correlation: increased age is associated with slightly lower General Awareness). In particular, Canadians age 70 and over[39] were less aware of nature-related issues in general (with an average General Awareness score of 79%) compared to Canadians under age 70 (with an average General Awareness score of 86%). General Awareness of the three nature-related concepts tended to increase with education (r = .24) and with income (r = .18). *Table 5* compares General Awareness scores among several demographic groups. The largest differences were observed in those with a nature-related profession (a 3% increase), identifying as an Aboriginal Canadian (a 3% increase), and living in a rural rather than urban location (a 3% increase). There was little difference in General Awareness between immigrants/first-generation Canadians and other Canadians. General Awareness was substantially higher for Canadians who consumed nature-related media in the past year (89% vs. 76%).

Table 5: **General Awareness Scores by Demographic Group**

Demographic Group									
Gender		**Nature-Related Profession**		**Aboriginal Canadian**		**Immigrant/1st Generation**		**Geographic Location**	
M	F	No	Yes	No	Yes	No	Yes	Urban	Rural
86%	84%	85%	88%	85%	88%	85%	84%	84%	87%

Note: All within-group comparisons are statistically significant at the .05 level.

Figure 7 shows differences in General Awareness based on the *ways* nature-related information was obtained. *Figure 8* shows differences in General Awareness based on the *source* of nature-related information. Obtaining nature-related information through educational opportunities and personal experience appears to be most strongly associated with increased General Awareness. Similarly, obtaining nature-related information from conservation groups and scientists are most strongly associated with increased General Awareness. On the other hand, Canadians who said they obtained nature-related information from "no one" had the lowest General Awareness scores (74%) compared to Canadians who indicated at least one source of information (87%).

[39] Age categories were developed from the survey item which asked respondents, "In what year were you born?"

Figure 7: General Awareness Score Based on *Ways* that Information about Nature was Obtained

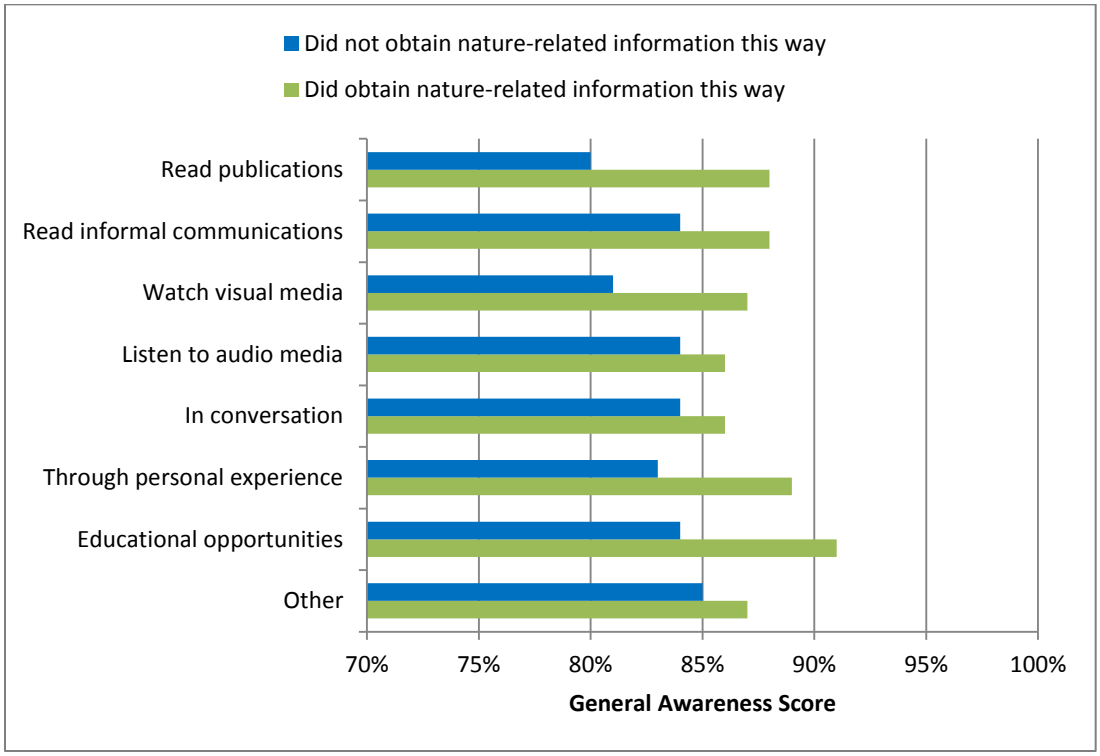
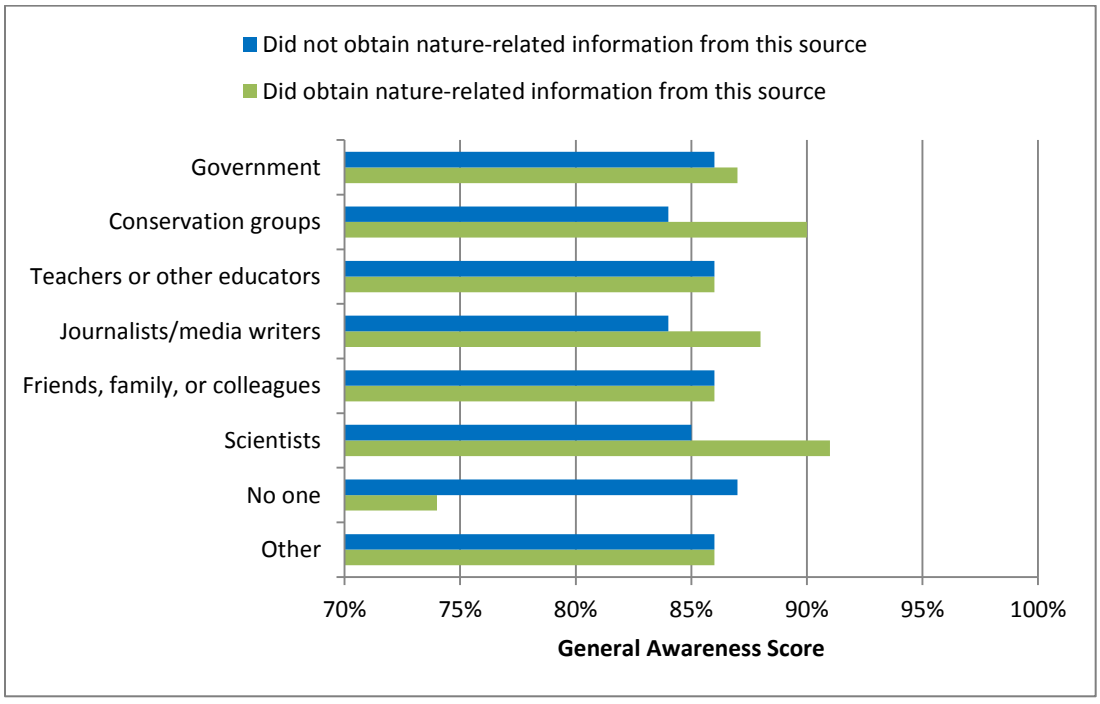


Figure 8: General Awareness Scores Based on *Sources* of Information about Nature



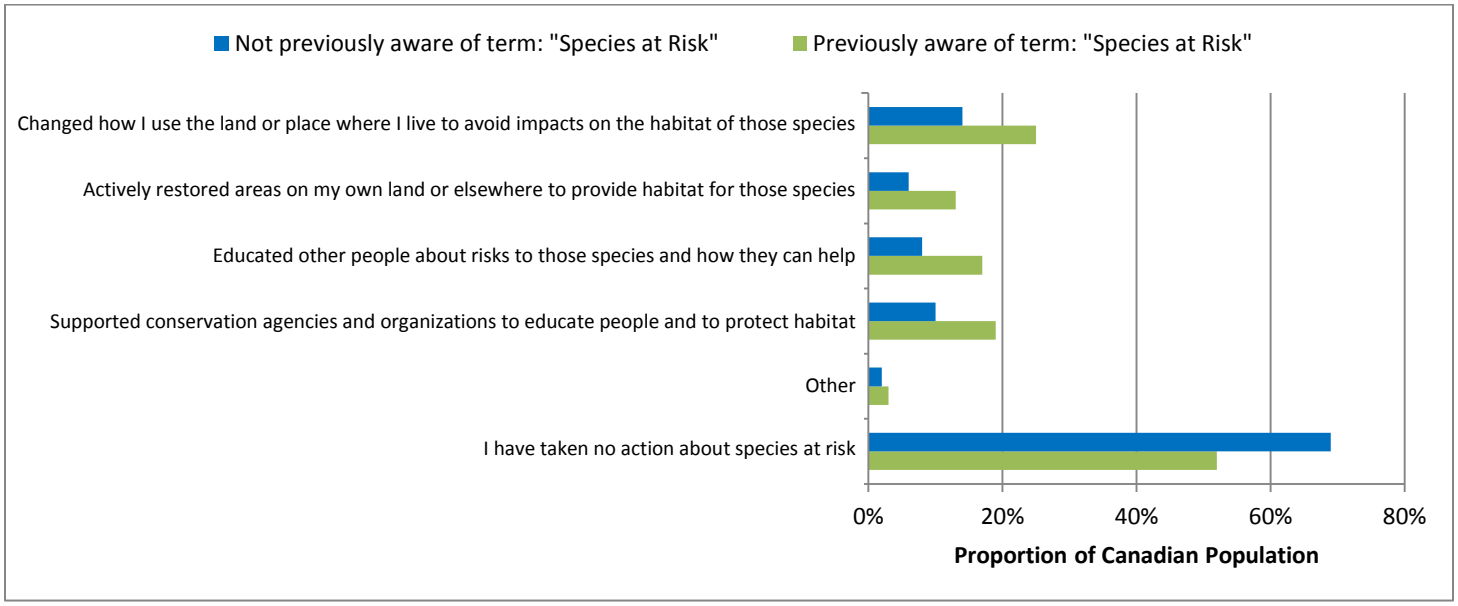
The frequency of nature conservation behaviours was not strongly associated with higher General Awareness, although this association was slightly stronger for nature conservation activities at one's place of residence (r = .16) compared to volunteer nature conservation activities at other locations (r = .09).

Species at Risk

The survey also investigated the specific consequences of awareness about the term "species at risk". Canadians who had heard of this term before completing the survey were significantly more likely to donate money on behalf of at-risk species. Specifically, 14% of "aware" Canadians, compared to 10% of those who were "unaware" of the term, made a donation in the previous 12 months.[40]

Awareness of the term "species at risk" showed clear positive associations with actions taken to assist in the recovery of at-risk species. Overall, 47% of Canadians who indicated prior awareness of the term engaged in at least one recovery action, compared to only 26% of Canadians who reported not having heard of the term prior to reading about it in the survey. As shown in *Figure 9* Canadians who reported prior awareness of the term were more likely to engage in each of the actions to assist in the recovery of species at risk that were measured in the survey. The results also show that lack of awareness of "species at risk" as a concept is not necessarily a barrier to taking action to assist wildlife species.

Figure 9: Percent of Canadians Taking Action to Support Recovery of Species at Risk and Prior Awareness of the Term



Ecosystem Services

Prior awareness of the term *"ecosystem services"* was also associated with known loss of these services. Of the Canadians who were previously aware of the concept of ecosystem services, 16% reported having been personally affected by the loss of an ecosystem service in the previous 12 months after receiving a definition and examples, compared to 13% who were not previously aware of the term. Of the Canadians who were previously aware that biodiversity contributes to ecosystem services, 17% reported having been affected by the loss of an ecosystem service, compared to only 8% who were not aware of this relationship.

Canadians depending on a nature-related profession for their primary income were more likely to be aware of ecosystem services than the general Canadian population (75% vs. 69%) and to have reported being personally affected by the loss of an ecosystem service in the previous 12 months (23% vs. 14%). Similarly, Aboriginal Canadians were more likely to be aware of ecosystem services than other Canadians (75% vs. 69%) and to have reported being affected by the loss of an ecosystem service (24% vs. 15%). Ecosystem services awareness also differed by geographic location, with Canadians living in rural locations being more aware of the

[40] It is possible that respondents donated money to conservation organizations for a variety of campaigns including species at risk without the respondent fully understanding the technical meaning of that term. This could account for the incidences of donations for species at risk concurrent with a stated lack of prior knowledge about the term, and recognition of the issue upon reading the definition in the survey.

term compared to Canadians living in urban locations (74% vs. 68%); however, neither group was more likely to report having been personally affected by the loss of an ecosystem service (15% for Canadians living in either location). Once again, prior lack of awareness of the formal concept of "ecosystem services" appears not to have been a barrier to recognition of the benefits that nature provides (which are referred to in the expert literature as "ecosystem services").

MIXED-SAMPLE DATA INSIGHTS

As explained in *Survey Methods*, above, most results in this report are based on the address-based sample results ***only***, as only these data allow for tests of significance and other statistical analysis. All previous results reported in this chapter are based on the address-based sample. Discussion in this brief section, however, presents findings from both the address-based sample and the Web panel and opt-in responses. These findings are not compared to the address-based results presented elsewhere because inferential statistical analyses are not recommended when using the "combined" (all samples) analysis weight, due to its unknown variance properties. In addition, the address-based data are a subset of the data presented in the "Mixed-Sample Data Insights" sections, so comparisons would involve substantial overlap. These findings are best viewed on their own as a way to provide additional perspective on the topics measured in this survey because they comprise a larger sample (which has been weighted to the Canadian population by Province and Territory).

When looking at all *2012 Canadian Nature Survey* data together, 59% of respondents reported choosing where they live partly to have access to nature. A similar proportion (58%) reported spending time outdoors to experience nature in the previous 12 months. Also in the previous 12 months, 40% or more reported purchasing products and services that are more environmentally friendly than those offered by competitors (43%), and traveling to experience more nature (40%).

Two-thirds of all respondents (67%) had heard of "biodiversity" and 68% had heard of "ecosystem services." Additionally, 67% of all respondents were aware that biodiversity contributes to ecosystem services. Respondents were presented with a list of benefits arising from nature that are also known as "ecosystem services." They reported if, prior to the survey, they were aware that nature can be essential to each one. Of the 11 examples, awareness was 92% for "produce oxygen and clean pollutants from the air," 91% for "filter water to keep it clean and safe," 90% for "keep soil fertile and productive," and 90% for "provide places for recreation, fitness and leisure." Awareness was lowest for "support human psychological and cognitive development" (63%) and "reduce or control the spread of many diseases" (62%). About one-fifth (22%) of respondents reported that they had been directly affected by the loss of an ecosystem service. Of those that reported a loss, approximately equal proportions cited "medical health" (24%), "emotional, psychological, or spiritual well-being" (22%), and "physical fitness" (22%); this was followed by 14% that cited "cultural heritage" and 12% that cited "economic well-being."

Most respondents (87%) had heard of the term "species at risk," and 24% had donated money on behalf of such species. When asked where their donation was targeted, the largest proportion of respondents (20%) reported donating to specific species at risk in their province. This was followed by 17% that donated to "specific species at risk nationally," 15% that donated to specific species at risk internationally," 15% that donated to "habitat protection for species anywhere in Canada," 12% that donated to "habitat protection for species anywhere in their province, and 12% that donated to "species at risk in general." Approximately 56% reported taking some action to assist in the recovery of species at risk. The most commonly selected action was "changing how I use the land or place where I live to avoid impacts on the habitat of these species" (30%).

Of all survey respondents, more than half obtained information about nature by "watching visual media" (57%) and "reading publications" (51%). The most commonly cited source of information was "friends, family, or colleagues" (51%), followed by "journalists/media writers" (47%). Of all survey respondents, about 18% selected a nature-related profession as a primary source of income.

CHAPTER 2: NATURE-BASED ACTIVITIES, PARTICIPATION AND EXPENDITURES

INTRODUCTION

The largest section of the *2012 Canadian Nature Survey* questionnaire was devoted to collecting information about Canadians' participation in nature-based activities in Canada during the previous 12 months[41], and collecting information about related expenses. Canadian individuals age 18 years and over, in all 13 provinces and territories, were asked the number of days they participated in more than 30 different activities; for many of these activities, the survey collected both the number of days of participation within 20 km from home and farther than 20 km from home. Individual Canadians were asked to report how much money was spent to participate in most of these activities (or groups of activities) for transportation; accommodation; and food, equipment, fees and supplies. Directions and examples of what type of expenses were to be included in each of these categories were provided in the questionnaire (see *Appendix B: Survey Instrument*). Recognizing that many individual respondents may have paid for others in their household to participate in the same activities, each was asked to report the number of household members who were included in their reported expenses. See *Survey Methods* for details regarding how these figures were calculated.

NATIONAL HIGHLIGHTS

This section of *Chapter 2* presents national highlights of the rates of participation by Canadians 18 years of age and over in the nature-related activities that were asked about in the *2012 Canadian Nature Survey*, as well as their related expenditures. The report examines nature-based activities at different levels, beginning with an examination of eight broad activity groups and followed by a closer look at participation in 22 categories of activities. A chart showing how the eight activity groups and 22 activity categories correspond to specific survey items, as well as examples of what activities are within each group or category, is presented in *Appendix A: Activities Crosswalk.* Later sections in this chapter present more detail about activity participation, with in-depth attention to hunting, trapping and fishing; travel; and nature conservation both at home and through volunteering. As described *Survey Methods* (above) throughout this report participation, frequency, and expenditure data are based only on address-based sample survey responses, and are generalizable to the adult Canadian population, except where explicitly noted.

PARTICIPATION

The *2012 Canadian Nature Survey* measured participation across many different nature-related activities. These activities are grouped into eight broad groups as follows:

- Nature-based recreation,
- Nature education,
- Nature-based leisure,
- Birding,[42]
- Motorized recreation,
- Hunting or trapping (non-commercial),
- Fishing (non-commercial), and
- Nature conservation.

Figure 10 shows the number of Canadians age 18 and over (in millions) who participated for at least one day in each of the eight activity groups within the previous 12 months. The corresponding percentage is presented in parentheses. Overall, 89% of Canadian adults, representing nearly 23 million people, participated in at least one of these activity groups during the 12-month

[41] Note that throughout this report, references to "the previous 12 months" refer to the 12 months prior to the respondents' completion of the questionnaire. Because data collection occurred over several months (see *Survey Methods*), the previous 12 months referenced in the report spanned more than one year and can be expected to cover a period beginning October 2011 and ending May 2013.
[42] "Birding" is a common term to denote watching, monitoring, filming, photographing or feeding birds.

reference period. As shown, more than 19 million Canadian adults (75%) participated in activities in the survey's nature-based recreation group during the previous 12 months. Additionally, more than half participated in activities in the nature-based leisure group (59%) and the nature education group (53%).[43]

Figure 10: Number in Millions, and Percentage, of Canadian Adults Participating in 8 Broad Groups of Nature-Related Activities during the Previous 12 Months

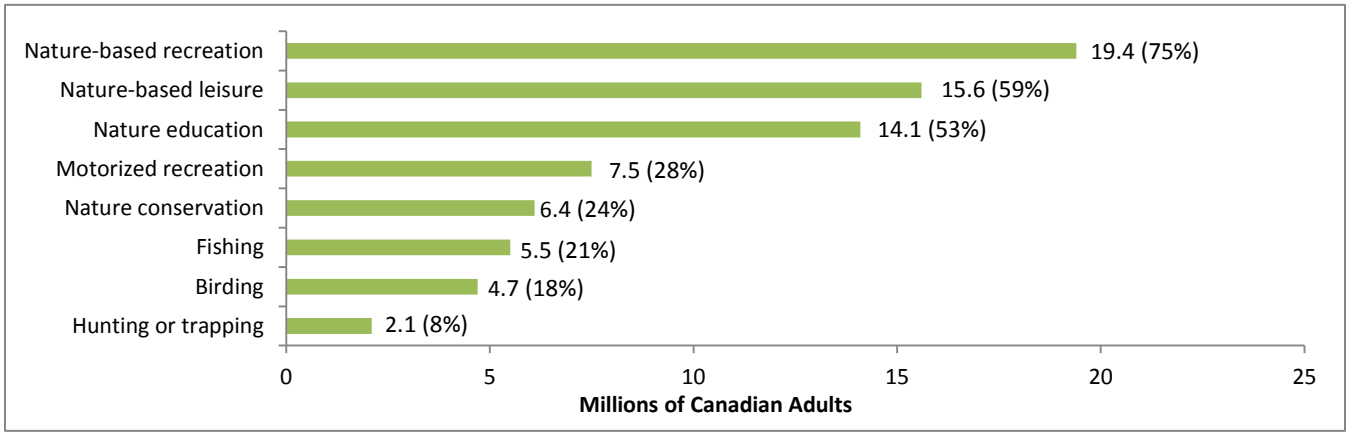


Figure 11 shows the percentage of Canadians age 18 and older who participated in each of 22 activity categories during the previous 12 months (see *Appendix A: Activities Crosswalk*) for a crosswalk of these categories to questionnaire items, and specifically what activities were included in each category). The most popular activity was "picnicking or relaxing in nature," with nearly three-quarters (71%) having participated in this activity during the previous 12 months. Other popular activities include reading or viewing nature media (66%); hiking, climbing, horseback riding (64%); and gardening or landscaping with plants (51%).

As an additional measure of engagement with nature, respondents were asked if they purchased or viewed a variety of media (e.g., books, magazines, articles, videos, DVDs, films, TV programs, websites) about nature within the previous 12 months. More than 17.5 million (69%) Canadians had engaged with nature in this way.

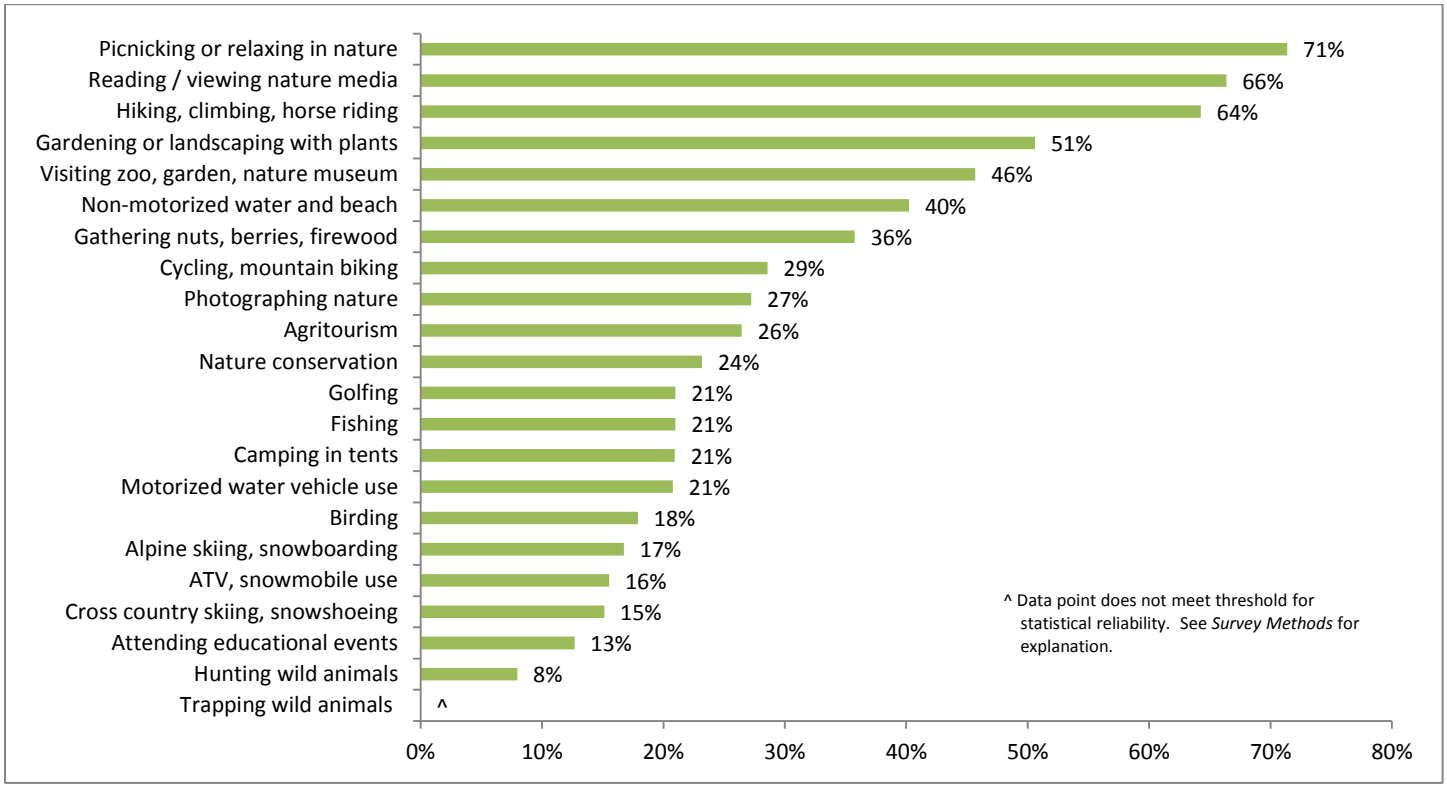
For consistency in analysis the broader nature-based leisure group (shown in *Figure 10*) excludes "picnicking or relaxing in a natural area" because the survey asked only for extent of participation in this activity, but due to the nature of the activity itself no expenditure data were requested of respondents. If participating in "picnicking or relaxing in a natural area" is considered in addition to the other activities in nature-based leisure, the total number of participants in the nature-based leisure group increases to 79% of Canadian adults. Further, if the number of Canadians who read or viewed nature-oriented media is also considered in this group, the total participation in nature-based leisure increases to 87% of Canadian adults.

Likewise, participation in the broader nature conservation group could be calculated to include respondents who indicated taking conservation-related actions that were measured indirectly in different parts of the survey, thereby raising the numbers of participants. This was not done due to the variability in how questions were stated, specifically in not requesting information about numbers of days or associated expenditures, with two exceptions. Full detail is provided in the section on nature conservation below.

The small number of respondents that reported participation in "trapping wild animals" is below the threshold for statistical reliability and is therefore not shown in *Figure 11*; for general (rather than statistical) purposes, the estimate generated for that activity through this survey is approximately 0.5%.

[43] Participation in Nature Conservation activities as shown in *Figure 10* above, *Figure 11* and *Table 9* below, is based on respondents who reported participation in at least one of the nature conservation activities at home (parts of Q42) or through volunteer activity in their community or elsewhere (Q36, Q39), see *Appendix A: Activities Crosswalk* which shows the corresponding questionnaire items. Days of participation for Nature Conservation were only recorded for volunteer activity away from the respondents' residence, and are reported in *Figure 12*, below. Conversely, expenditures for Nature Conservation were only recorded for activity on property for which the respondent was responsible (parts of Q42) and are reported in *Table 6*, below.

Figure 11: Percentage of Adult Canadians Participating in Nature-related Activities



AMOUNT OF PARTICIPATION

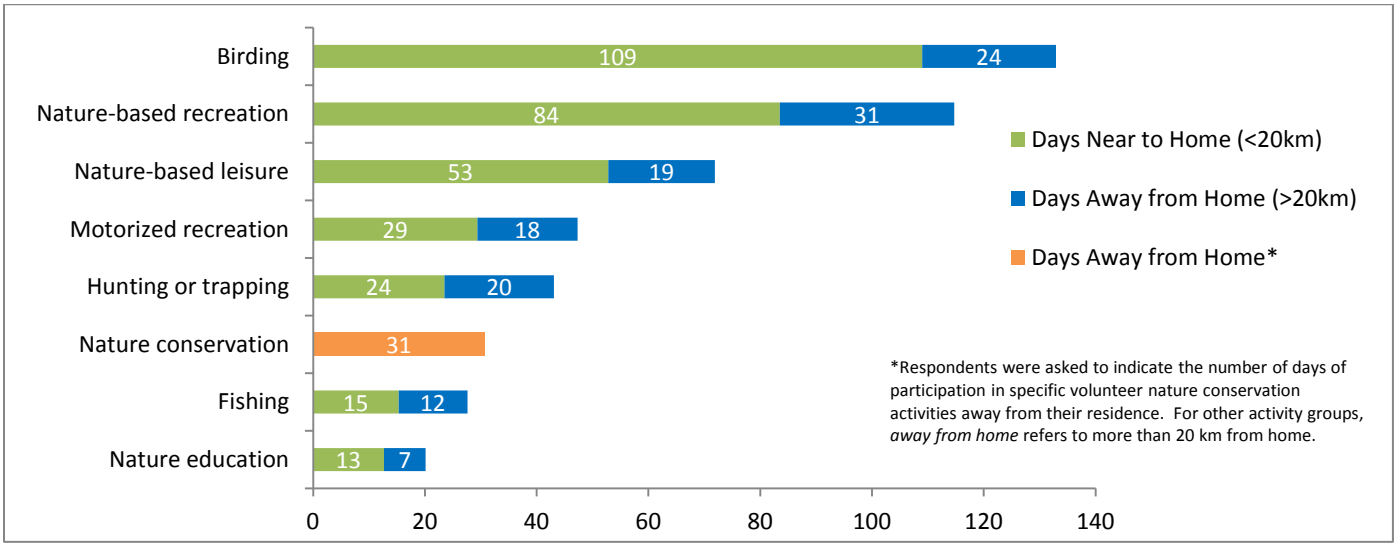
In addition to the proportions of Canadians participating in nature-related activities (known as *participation rates*), the *2012 Canadian Nature Survey* collected data on the *amount* of participation in nature-related activities. For most activities, respondents were asked to report the number of days during which they participated in each activity in the previous 12 months in Canada. In order to obtain important insights into the role of urbanization in Canadians' interactions with nature, the survey asked respondents to report the number of days that they participated in a given set of activities both within 20 km from their home, and farther than 20 km away from their home.

Participation days are not necessarily mutually exclusive; respondents may participate in more than one nature-related activity in one calendar day. Involvement in nature conservation can be measured through several different questions in the survey; for purposes of reporting days of participation this report used only the question specifically focused on volunteer activity away from the respondents' residence (either in their community or away from their community). Participation days for nature conservation are presented in orange in the graphics below to highlight this difference. More details on this activity are provided in the section about nature conservation later in this chapter.

Figure 12 shows the average number of days near to home (within 20 km) and away from home (more than 20 km away) that participants in each activity spent engaged in those activities (referred to as "participant days"). In this figure, activities are organized into eight broad activity groups (see *Appendix A: Activities Crosswalk* for examples of activities within each group). For each group, more days of activity were reported within 20 km from home than at distances greater than 20 km from home; noting that volunteer nature conservation days were not measured in this same way.

Watching, feeding, monitoring, filming or photographing birds (birding) had the highest number of participant days near to home, at an average of 109. Away from home, nature-based recreation had the highest number of participant days, at an average of 31 per person. Considering days both near home and away, birding participants spent an average of 133 days engaged in this activity during the previous 12 months, while Canadians participating in nature-based recreation spent an average of 115 days at these activities in the previous 12 months.

Figure 12: Average Participation Days in Nature-related Activities, Near Home and Away from Home, Per Participant



Activity Expenditures

In the previous 12 months, Canadians spent $40.4 billion dollars in Canada engaging in nature-related activities and contributing to nature conservation efforts that were included within the scope of this survey. In addition to these expenditures, Canadians contributed a further $874 million in donations and membership dues to nature organizations. When combined, this brings the total amount of expenditures by adult Canadians on nature-related expenditures within the previous 12 months to $41.3 billion.

Expenditures related to participation include transportation (e.g., gasoline, plane, or bus tickets); accommodations (e.g., hotels); food; and equipment, fees, and supplies (e.g., camping or hiking gear, entry fees, boats). Expenditures related to nature-based conservation include investments in maintaining land at least partly for conservation purposes. Expenditures for the purchase or rental of nature-focused media (books, audio, video) were also recorded.

This section organizes expenditures according to eight broad activity groups: nature-based recreation, nature education, nature-based leisure, birding, motorized recreation, hunting and trapping, fishing, and nature conservation.[44] See *Appendix A: Activities Crosswalk* for a chart of how each category relates to individual survey questions, with the activities included in each group. Expenditures by Canadians in the previous 12 months for each of these activity groups are presented throughout this section.

Total, Annual, and Daily Expenditures

Of all nature-related expenses, Canadians overwhelmingly spent money on nature-based recreation activities[45]—totaling $14.5 billion in the previous 12 months,[46] or roughly 36% of all reported nature-related expenditures. In comparison, expenses on motorized recreation totalled roughly $6.1 billion (15% of all expenses); nature-based leisure $6.2 billion (15%); fishing $2.2 billion (5%); and hunting and trapping $1.8 billion (5%). Hunting, fishing, and trapping combined accounted for 10% of all expenditures on the activities recorded through this survey, or $4.0 billion. Birding was the category with the lowest expenditures in the previous 12 months, totaling $537 million, or 1% of all expenditures on nature-related activities that were recorded through the survey.[47]

For comparison with the results of the 1996 *Survey on the Importance of Nature to Canadians*, *Table 6* shows average yearly expenditures by participant (i.e., average 12-month expenditure per-person) and average daily per participant (i.e., average per-person expenditure per-day) expenses for each activity category. The average annual expenditure represents the amount that the

[44] Respondents were asked to report on hunting, trapping and fishing activity *only* for non-commercial personal use or sharing, or for recreation.
[45] Specifically non-motorized and non-consumptive recreation that depends on a natural setting, see *Appendix A: Activities Crosswalk* for listing of specific activities included in "nature-based recreation" and other activity groups used in this report.
[46] The 12-month period was unique for each respondent depending exactly on when the respondent completed the questionnaire. However, the period can be expected to cover a period beginning October 2011 and ending May 2013.
[47] It should be understood that while the *2012 Canadian Nature Survey* included a large selection of nature-based activities, it is likely that there are others which were not included, and thus the total expenditure on nature-based activity by Canadians will be higher than shown in this report.

average person *who participates in a given activity* spends on the activity over the course of the year. Therefore, the average daily expenditure represents the amount that the average participant[48] in that activity spends over the course of the year, divided by the number of days that they participate in the activity.[49]

Table 6: Total Expenditures by Activity in the Previous 12 Months[50]

	Total by all Canadians age 18+		Avg. Yearly by Participant	Avg. Daily by Participant
	$million	%	$	$
Nature-based Recreation	**$14,457**	**36%**	**$914**	**$18**
Nature Education	***$3,077^***	**8%**	***$275^***	***$34^***
Nature-based Leisure	**$6,223**	**15%**	**$232**	**-**
Photographing Nature	$2,244	6%	$475	$37
Gardening/Landscaping	$2,628	7%	$252	$13
Reading/Viewing Nature Media	$1,351	3%	$94	-
Birding	**$537**	**1%**	**$201**	**$12**
Motorized Recreation	**$6,099**	**15%**	**$1,052**	*****
Land-Based	*$4,024^*	10%	*$1,228^*	*$66^*
Water-Based	$2,074	5%	$512	$49
Hunting & Trapping	**$1,803**	**5%**	**$996**	*****
Hunting Waterfowl	$327	1%	$609	$83
Hunting Other Game Birds	$312	1%	$375	$54
Hunting Small Game	$114	0%	$244	$40
Hunting Large Game	$1,003	3%	$814	$78
Hunting Other Animals	*$5^*	0%	*$88^*	*$7^*
Trapping Game	$42	0%	$549	$54
Fishing	**$2,169**	**5%**	**$469**	**$52**
Nature Conservation (on private land)	***$6,043^***	**15%**	***$556^***	**-**
Providing Food/Shelter for Wildlife	*$5,199^*	13%	*$510^*	-
Conserving Natural Setting	$709	2%	$74	-
Maintaining Forest for Non-timber Use	*$135^*	0%	*$15^*	-
Total	**$40,410[51]**	**100%**		

^ Data point does not meet threshold for statistical reliability due to the number of respondents who participated in a given activity or who provided responses to a given question. The screening threshold for statistical reliability applied to each data point was a minimum of 30 responses and a CV < .3. See *Survey Methods* for explanation. Such figures are rolled up into higher-level calculations, and are presented. If a higher-level calculation does not meet the statistical test for reliability it is indicated as such.

***** Figure was not calculated because it was unclear when the activities were completed (i.e., one person may participate in two hunting activities on the same day, while others may participate in two hunting activities on two separate days).

- Per-day figures not available because the survey did not ask how many days per year the respondent participated in the activity/ies.

[48] Therefore it is *not* an average across the total (including non-participants) Canadian adult population.

[49] The average expenditure per participant for purchasing, viewing, or reading media about nature excludes respondents who indicated that they did consume nature-related media in the past year but left the associated expenditure amount blank. If these blank responses are assumed to represent zero dollar values, the average multimedia expenditure per participant is $77. Both the total dollar amount and total number of participants (and participation rate) are unaffected by this distinction.

[50] Category and overall totals aggregate across all subcomponents (including those individually below the reliability threshold) and are independently screened for reliability.

[51] The grand total for expenditures is calculated as an independent figure, equal to the sum of all component totals, and was independently screened for reliability. Consequently, the grand total includes expenditure amounts for all component activities, including those that were individually below the reliability threshold.

The average yearly and average daily expenditures are also presented graphically in *Figure 13* (yearly) and *Figure 14* (daily). The highest statistically reliable per-person expense on a single activity by Canadians who participated in the activity was for the combination of water-based and land-based motorized recreation, where participants spent roughly $1,052[52] on average in the previous 12 months. Individual Canadian adults who participated in nature-based recreation spent $914 on average to do so during the previous 12 months.[53] All types of hunting activities combined incurred average expenditures of $996 in the previous 12 months. Some activities tend to be low-frequency, high daily expense (e.g., hunting waterfowl), whereas other activities are high-frequency, low daily expense (e.g., nature-based recreation). Low-frequency events include those where the average daily expenditure (in *Figure 14*) accounts for a significant percentage of the average yearly expenditure (in *Figure 13*); high-frequency events are where daily costs amount to only a small percentage of annual costs, indicating the annual costs are spread over multiple days.

Average expenditures on each sub-category within each of the eight categories, where applicable, varied significantly. For example, of the hunting and trapping activities, average expenditures ranged as high as $814 in the previous 12 months (hunting large game) to as low as $244 per year (hunting small game). Similarly, daily expenditures by Canadians participating in those activities ranged from $78 per day (hunting large game) to $40 per day (hunting small game). Daily expenditures were highest for hunting waterfowl ($83 per day) and lowest for birding ($12 per day). Canadians participating in birding reported the lowest average expenditures per year ($201) and per day ($12) of the eight categories for which average yearly and daily expenditures were calculated. Of the more specific sub-categories, Canadians spent the smallest (statistically reliable) amount annually on nature conservation of their privately-owned or rented land ($74).[54]

As an additional measure of engagement with nature, the *2012 Canadian Nature Survey* recorded how much money respondents paid to purchase, read, or view a variety of media (e.g., books, magazines, articles, videos, DVDs, films, TV programs, websites) about nature within the previous 12 months. More than 17.6 million (69%) Canadians had engaged with nature in this way. Furthermore, they reported spending an average of $93.70 per person to purchase, read, or view these media during the previous 12 months.[55]

[52] The average expenditure for motorized recreation activities is raised significantly by the average expenditure on land-based motorized recreation only ($1,228). Note that the $1,228 figure for land-based motorized recreation is statistically unreliable, however, and is therefore not included in the text. See *Survey Methods: Statistical Reliability of Results* for explanation.

[53] The questionnaire did not ask respondents to report expenditures for individual non-motorized non-consumptive nature-based recreation activities, but rather grouped them together to reduce burden of effort on respondents for completing the survey.

[54] The data used to estimate this amount is based on options 1 through 3 of survey question 42, a limited scope that does not include donations or membership dues to nature organizations, or expenditures incurred in any volunteer activity away from respondents' residences. It is not based on the same categories of expenditures used for most other activities in the survey (transportation, accommodation, food, equipment, fees, and supplies) that are often associated with a "travel cost" type of analysis.

[55] The average expenditure per participant for purchasing, viewing, or reading media about nature excludes respondents who indicated that they did consume nature-related media in the past year but left the associated expenditure amount blank. If these blank responses are assumed to represent zero dollar values, the average multimedia expenditure per participant is $77. Both the total dollar amount and total number of participants (and participation rate) are unaffected by this distinction.

Figure 13: Average Total Expenditure per Participant by Activity in the Previous 12 Months

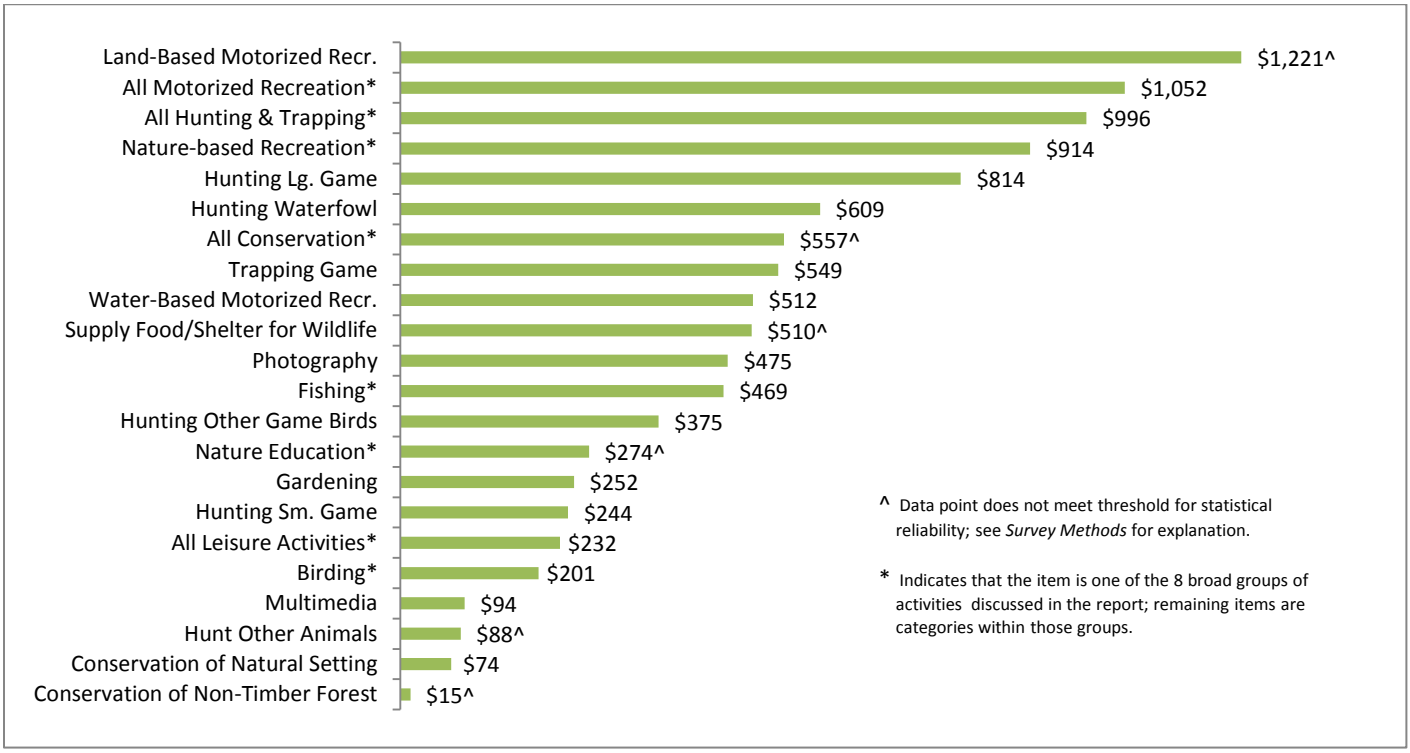
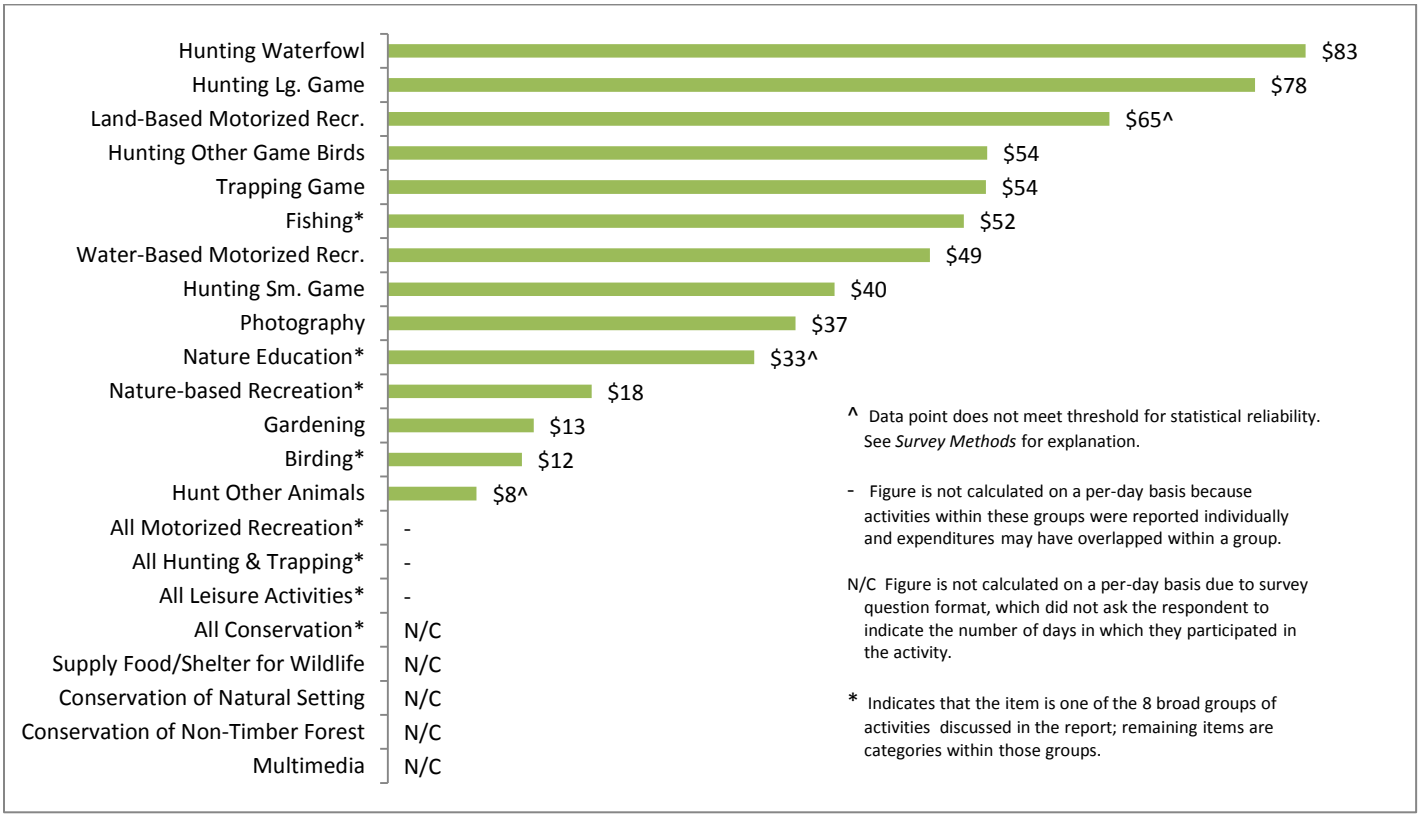


Figure 14: Average Daily Expenditure per Participant by Activity in the Previous 12 Months



EXPENDITURES BY EXPENDITURE TYPE

Total expenditures by Canadians, in the 12 months previous to completion of the survey, for equipment, fees and supplies; transportation; food; and accommodation for the activities and services explored by the *2012 Canadian Nature Survey* exceeded $33.0 billion. Expenditures on equipment, fees, and supplies totalled $13.1 billion, or 32% of all nature-related expenses over the year (see *Table 7*). Transportation expenditures were similarly high, totally $10.6 billion and accounting for roughly one-quarter of all expenses. Nationally, Canadians spent $5.0 billion (12%) and $4.4 billion (11%) on food and accommodation, respectively. Another $7.4 billion[56] (18%) was spent on other activities that were not included in one of the four expenditure categories, specifically, nature conservation on privately owned or rented land ($6.0 billion[57]) and nature-related multimedia purchases ($1.4 billion). A further $874 million was paid by Canadians in donations or memberships to nature organizations which is not factored into the participation-oriented expenditure totals, and raises the total amount that individuals personally spent to approximately $41.3 billion.

Table 7: Expenditures by Expenditure Type (million$)

Expenditure Types	Total Expenses	
	$million	%
Equipment, Fees & Supplies	$13,058	32%
Transportation	$10,567	26%
Food	$4,953	12%
Accommodation	$4,437	11%
Other*	$7,395	18%
Total	**$40,410**	**100%**

* Other includes expenditures that were not disaggregated by these expense types, including nature conservation activities and multimedia purchases.

Canadians who participated in nature-based leisure activities[58] allocated 47% of all expenses, or $2.9 billion, on equipment, fees, and supplies, and those participating in motorized recreation activities spent 47% of all expenditures on transportation (also $2.9 billion), the highest amounts allocated to one expenditure category of all activities. An additional 34% of expenditures on motorized recreation were for equipment, fees, and supplies ($2.1 billion), representing capital expenditures such as purchases and rentals of ATVs, motorboats, as well as smaller items such as hiking gear and entry fees. Participants in motorized recreation spent comparatively lower amounts on food ($725 million, 12%) and accommodation ($444 million, 7%).

Expenditures on fishing were significant ($2.2 billion), for which the majority was spent on transportation ($756 million, 35%) and equipment, fees, and supplies ($748 million, 34%). Expenditures for hunting and trapping totalled over $1.8 billion in the previous 12 months, and were spent mostly on equipment, fees, and supplies ($753 million, 41%) and transportation ($666 million, 36%).

Though not quite as significant as total expenditures for fishing, Canadians spent $1.0 billion in total expenditures for hunting large game animals, which accounts for 56% of all hunting and trapping related expenses. The breakdown of these expenditures for each of the eight categories and each of the 14 subcategories are presented in *Table 8*.

For each of the broad[59] categories of nature-based activities, expenditures on equipment, fees, and supplies ranged from 34% to 47% of all expenditures. Similarly, expenditures on transportation for each of the broad categories ranged from 16% to 47%. Expenditures on food and accommodations ranged from 8% to 23% for food and from 7% to 18% on accommodations. For each of the subcategories, there was more variation among the share of expenditures attributed to each expense type.

[56] Data point does not meet threshold for statistical reliability. See *Survey Methods* for explanation.
[57] Data point does not meet threshold for statistical reliability. See *Survey Methods* for explanation.
[58] Not including picnicking or relaxing in nature.
[59] Due to the survey format, conservation activities and nature-related multimedia were not measured by these same expense types.

Table 8: Expenditures by Expenditure Type and Activity Type (million$)

Activity Types	Transportation		Accommodation		Food		Equipment, Fees & Supplies		Total ($M)
	Total	%	Total	%	Total	%	Total	%	
Nature-based Recreation	$4,233	29%	$2,648	18%	$2,389	17%	$5,186	36%	**$14,457**
Nature Education	$881	29%	$378	12%	$575	19%	*$1,242^*	40%	***$3,077^***
Nature-Based Leisure	$1,015	16%	$438	7%	$517	8%	$2,939	47%	**$6,261**
Nature Photography	$739	33%	$363	16%	$401	18%	$741	33%	$2,244
Gardening/Landscaping	$272	10%	*$73^*	3%	$107	4%	$2,178	83%	$2,629
Nature Media	-	-	-	-	-	-	-	-	$1,351
Birding	$151	28%	$70	13%	$125	23%	$191	36%	**$537**
Motorized Recreation	$2,885	47%	$443	7%	$718	12%	$2,053	34%	**$6,099**
Land-based	*$2,191^*	54%	$162	4%	*$421^*	10%	$1,251	31%	*$4,024^*
Water-based	$694	33%	$281	13%	$297	14%	$802	39%	$2,075
Hunting & Trapping	$666	36%	$145	8%	$283	15%	$753	41%	**$1,803**
Hunting Waterfowl	$96	30%	*$29^*	9%	$40	12%	$162	49%	$327
Hunting Game Birds	$130	41%	$37	12%	$59	19%	$86	29%	$312
Hunting Small Game	$58	51%	*$9^*	8%	$17	15%	$31	27%	$114
Hunting Large Game	$3548	34%	$68	7%	$157	15%	$431	44%	$1,003
Hunting Other Animals	*$3^*	59%	*$0^*	4%	*$1^*	19%	*$1^*	19%	*$5^*
Trapping	$21	50%	*$1^*	3%	*$6^*	14%	*$14^*	34%	$42
Fishing	$751	35%	$317	15%	$359	17%	$742	34%	**$2,169**
Nature Conservation (on private land)	-	-	-	-	-	-	-	-	***$6,043^***
Food/Shelter for Wildlife	-	-	-	-	-	-	-	-	*$5,199^*
Conserve Natural Setting	-	-	-	-	-	-	-	-	$709
Maintain Forest for non-timber use	-	-	-	-	-	-	-	-	*$135^*
	$10,567	**26%**	**$4,437**	**11%**	**$4,953**	**12%**	**$13,059**	**32%**	**$40,410**

^ Data point does not meet threshold for statistical reliability due to the number of respondents who participated in a given activity or who provided responses to a given question. The screening threshold for statistical reliability applied to each data point was a minimum of 30 responses and a CV < .3. See Survey Methods for explanation. Such figures are rolled up into higher-level calculations, and are presented. If a higher-level calculation does not meet the statistical test for reliability it is indicated as such.

- Category is not measured by this expenditure type.

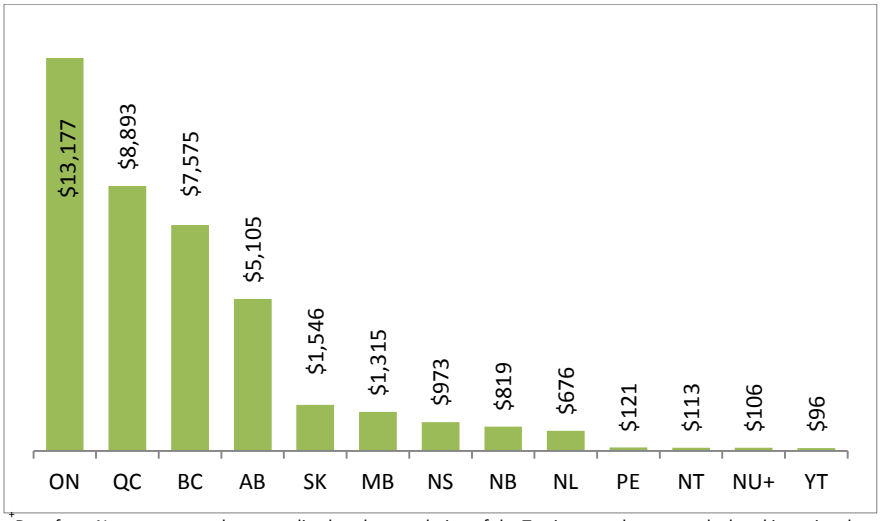
Percents are presented as the share of expenditures for the activity spent on each expense type. Totals may not sum due to rounding.

Expenditures by Province & Territory

Total expenditures on nature-related activities in the previous 12 months varied by province and territory. Residents of Ontario (the country's most populous province) spent $13.2 billion on nature-related activities, accounting for 33% of all expenses on nature-related activities included in this study nationally. Residents of Quebec, the second-largest province by population[60], spent significantly less ($8.9 billion), though still accounting for 22% of all expenditures. The Northwest Territories ($113 million), Yukon ($96 million), and Prince Edward Island ($121 million) collectively accounted for less than 1% of all expenses—reflecting their smaller populations.

[60] Statistics Canada, "Population by year, by province and territory," September 27, 2012, http://www.statcan.gc.ca/tables-tableaux/sum-som/l01/cst01/demo02a-eng.htm [accessed August 21, 2013].

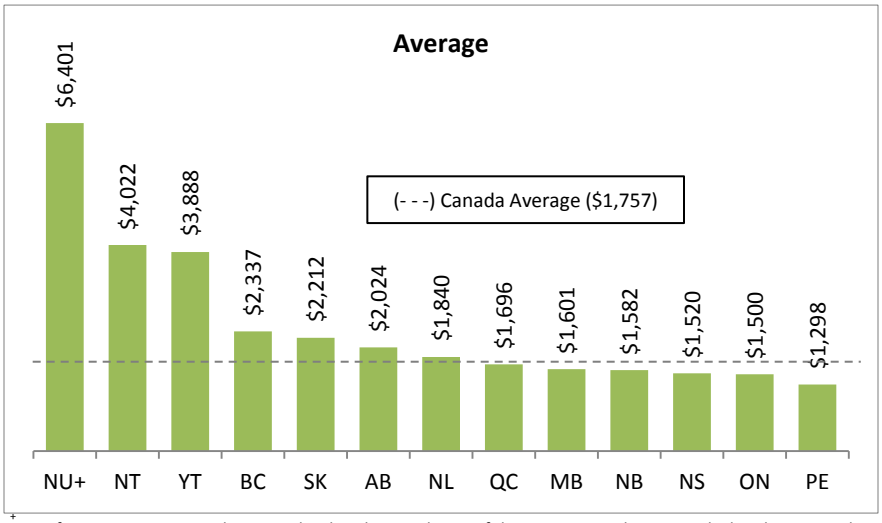
Figure 15: Total Expenditures by Province/Territory ($ millions)



+Data from Nunavut cannot be generalized to the population of the Territory, and are not calculated in national totals. See *Survey Methods*, above.

In general, per-person expenditures by province hovered around the average per-person expenditure in Canada, or $1,757 per person. Per-person expenditures were well above the national average in Yukon and the Northwest Territories. Prince Edward Island had the lowest per-person expenses at nearly $460 below the national average. Residents in Nunavut spent the most on average ($6,401) and the Northwest Territories and Yukon spent $4,022 and $3,888 per person, respectively, on all nature-related activities included in the scope of this survey. Differences can be explained partly by extent of participation (see *Table 9,* below) and partly by the cost of participating in the different regions.

Figure 16: Average Per-Person Expenditure in the Previous 12 Months



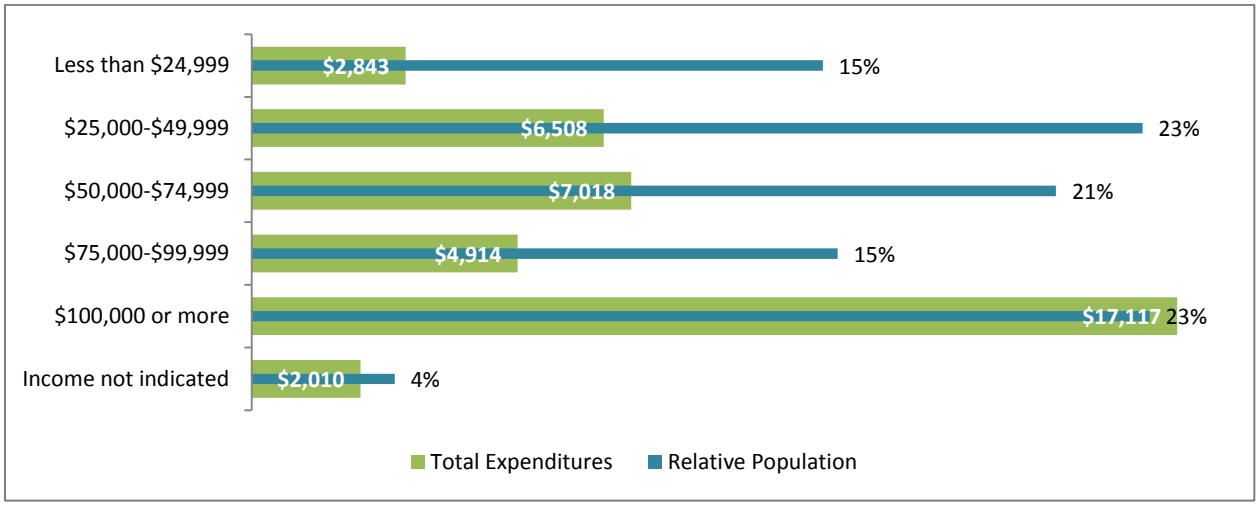
+Data from Nunavut cannot be generalized to the population of the Territory, and are not calculated in national totals. See *Survey Methods*, above.

EXPENDITURES BY INCOME GROUP

Expenditures reported by income group varied across income groups, but generally increased with increasing income. As shown in *Figure 17*, the highest earners (households earning $100,000 or more per year) spent significantly more (in absolute terms) on the nature-related activities included within the scope of this survey than other income groups. The $100,000 or more income group spent $17.1 billion in the previous 12 months, accounting for 42% of all expenditures. Total expenditures by the remaining four income groups varied between just over $2.0 billion (those not indicating an income group) to just over $7.0 billion (households earning $50,000-$74,999) in the previous 12 months. The high expenditures by the $100,000 or more group are a result of both

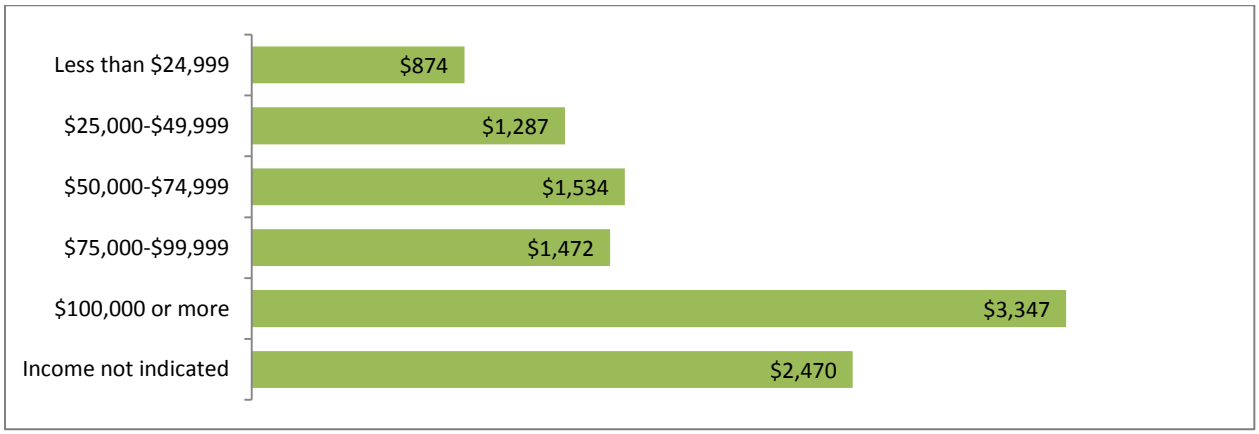
higher per-person expenditures and a larger population represented. The relative amount of population represented by this group is comparable to the next two highest spending groups ($50,000-$74,999 and $25,000-$49,999), but expenditures are nearly 2.5 times greater than each of those groups.

Figure 17: Total Expenditures by Income Groups ($millions)



As shown in *Figure 18*, average annual expenditures per-person generally increased as household income increased. A person in a household earning less than $24,999 per year spent $874 per year, on average, to pursue nature-related activities included in the scope of this study. Alternatively, individuals living in households earning $100,000 or more per year spent, on average, $3,347 per year on those activities.

Figure 18: Average Individual Expenditure by Income Group



Expenditures by activity type and by income followed the national trend—the majority of expenses were incurred on nature-related recreation activities which encompass all of the non-motorized and non-consumptive, active forms of nature-based recreation such as hiking and skiing; the survey listed 16 such activities in 7 sub-groupings. Individuals in households earning less than $24,999 spent comparatively more than individuals in other groups: individuals in this group spent roughly 50% of all expenditures on nature-based recreation activities, whereas the $50,000-$74,999 group spent 40% and the $100,000 and above group spent 31%.

Expenditures on land-based motorized recreation by income group were the exact opposite: individuals in households earning less than $24,999 spent 5% of their nature-related expenditures on this category, whereas individuals in the $100,000 or more income group spent 15% of expenditures on land-based motorized recreation. This is an absolute difference of $2.4 billion between the lowest and highest income levels on land-based motorized recreation activities.

Other Economic Indicators

Many survey questions did not specifically request expense or economic information, but the responses to the questions, in aggregate, have general economic implications regarding the scope of nature-related economic activity in Canada. This brief section presents results that may further contextualize the size and breadth of Canada's nature-based activities economy. For example, in the 12 months prior to completing the survey, 47% of all Canadians "travelled to experience more nature." Additionally, in the same time period, 57% of Canadians "purchased products and services that are more environmentally friendly than their competitors."

Other responses providing information on nature-related economic activity include:

- 19% reported paying membership fees or donating funds to nature conservation organizations, totaling $874 million;
- 14% reported donating to support recovery of a species at risk (which likely overlaps somewhat with the 19% just noted);
- 4% reported spending money on maintaining, restoring, or purchasing land for wildlife or to conserve, enhance, or restore a natural setting;
- 1% reported that they personally donated their own land or signed an agreement with a land trust or other organization for conservation through an easement or other protective measure within the last five years, which statistically represents as many as 319,000 Canadians; and
- Of the Canadians who were directly affected by the loss of an ecosystem service (15%), approximately 9% described the loss as primarily having an effect on their economic well-being, whereas 44% of those affected described the loss as primarily having an effect on their emotional, psychological, or spiritual well-being.

Detailed National Results

This section presents more detailed findings related to the full suite of nature-based activities that were assessed in the survey.

Participation

Table 9 presents information about participation in nature-based activities by each province and territory. In these tables, activities are organized into 22 categories (see *Appendix A: Activities Crosswalk* for examples of activities within each category). Discussion of activities for each province and territory is presented in *Chapter 4: Province and Territory Reports*.

Table 9: Percentage of Adult Canadians Participating in Nature-related Activities by Province/Territory

	Hiking, climbing, horse riding	Cycling, mountain biking	Camping in tents	Non-motorized water and beach	Alpine skiing, snowboarding	Cross country skiing, snowshoeing	Golfing
Canada	64%	29%	21%	40%	17%	15%	21%
AB	70%	34%	28%	40%	23%	15%	29%
BC	76%	31%	29%	46%	22%	17%	21%
MB	59%	31%	20%	47%	14%	15%	25%
NB	62%	19%	26%	44%	8%	23%	17%
NL	68%	13%	17%	38%	8%	21%	17%
NS	63%	22%	24%	49%	12%	11%	19%
NT	76%	38%	41%	59%	^	27%	23%
NU[+]	43%	^	^	^	^	^	^
ON	65%	28%	18%	42%	15%	9%	23%
PE	61%	21%	20%	44%	10%	21%	26%
QC	55%	28%	18%	31%	17%	22%	13%
SK	62%	30%	21%	42%	13%	15%	31%
YT	84%	44%	49%	55%	30%	47%	21%

Table 9 continued from above

	Attending educational events	Visiting zoo, garden, museum	Agritourism	Photographing nature	Birding	Gardening/ landscaping with plants	Reading, viewing nature media
Canada	13%	46%	27%	27%	18%	51%	66%
AB	13%	54%	18%	32%	14%	55%	72%
BC	14%	50%	24%	36%	19%	50%	78%
MB	11%	54%	16%	26%	19%	55%	65%
NB	10%	40%	27%	27%	22%	50%	66%
NL	11%	39%	18%	36%	23%	50%	67%
NS	12%	45%	27%	30%	23%	51%	68%
NT	17%	39%	17%	46%	15%	48%	73%
NU+	^	^	^	35%	19%	^	79%
ON	14%	47%	32%	30%	19%	52%	67%
PE	13%	32%	24%	29%	23%	56%	69%
QC	10%	38%	26%	15%	15%	44%	55%
SK	11%	42%	20%	29%	22%	61%	71%
YT	26%	46%	21%	47%	27%	61%	84%

	Gathering nuts, berries, firewood	Picnicking or relaxing in nature	ATV, snowmobile use	Motorized water vehicle use	Hunting wild animals	Trapping wild animals	Fishing	Nature conservation[61]
Canada	36%	71%	16%	21%	8%	^	21%	23%
AB	36%	78%	18%	19%	9%	0%^	19%	23%
BC	48%	79%	13%	22%	7%	<1%^	21%	23%
MB	41%	71%	21%	31%	14%	2%^	32%	28%
NB	48%	74%	24%	19%	17%	1%^	22%	28%
NL	60%	74%	30%	23%	19%	^	33%	26%
NS	51%	73%	15%	18%	10%	<1%^	22%	29%
NT	59%	82%	40%	40%	22%	^	43%	29%
NU+	54%	79%	72%	49%	66%	^	63%	48%
ON	31%	70%	12%	22%	5%	<1%^	21%	26%
PE	46%	72%	14%	16%	5%	^	20%	34%
QC	29%	66%	17%	16%	9%	1%^	17%	17%
SK	46%	78%	30%	38%	19%	2%^	34%	24%
YT	73%	85%	38%	34%	29%	2%^	48%	36%

^ Data point does not meet threshold for statistical reliability. See *Survey Methods* for explanation.
+ Data from Nunavut cannot be generalized to the population of the Territory, and are not calculated in national totals.

[61] Participation in Nature Conservation activities as shown in *Table 9* (and *Figure 10* and *Figure 11*) is based on respondents who reported participation in at least one of the nature conservation activities at home (parts of Q42) or through volunteer activity in their community or elsewhere (Q36, Q39), see *Appendix A: Activities Crosswalk* which shows the corresponding questionnaire items. Days of participation for Nature Conservation were only recorded for volunteer activity away from the respondents' residence, and are reported in *Figure 12*. Conversely, expenditures for Nature Conservation were only recorded for activity on property for which the respondent was responsible (parts of Q42) and are reported in *Table 6*.

AMOUNT OF PARTICIPATION

The *2012 Canadian Nature Survey* collected data on the amount of participation in nature-related activities. For most activities, respondents were asked to report the number of days that they spent participating in each activity in the previous 12 months in Canada, both within 20 km of their home, and more than 20 km away. The question was structured differently in the case of nature conservation, where respondents were asked to report the number of days they spent engaged in a volunteer nature conservation activity away from their residence (either in their community or away from their community). Participation days for this nature conservation activity are presented in orange in the graphics within this chapter to highlight this difference. *Figure 19* shows the average number of days near to home (within 20 km) and away from home (more than 20 km away) that participants in each activity spent engaged in that activity (referred to as "participant days"). In this figure, activities are organized as categories[62] (see *Appendix A: Activities Crosswalk* for examples of activities within each category).

Note that *Figure 19* presents the number of days of participation only by those people who participated in an activity, not by the entire Canadian population. For comparison, *Figure 11* shows the proportion of Canadians who participate in each of these activities. Therefore, for example, while birders participated in that activity a total of 133 days in the previous 12 months, this reflects the activity of 18% of the Canadian population age 18 and over. Furthermore, *Figure 19* shows that those who participated in picnicking or relaxing in nature did so for an average of 41 days in the previous 12 months, and *Figure 11* shows that 71% of Canadian adults did so.[63]

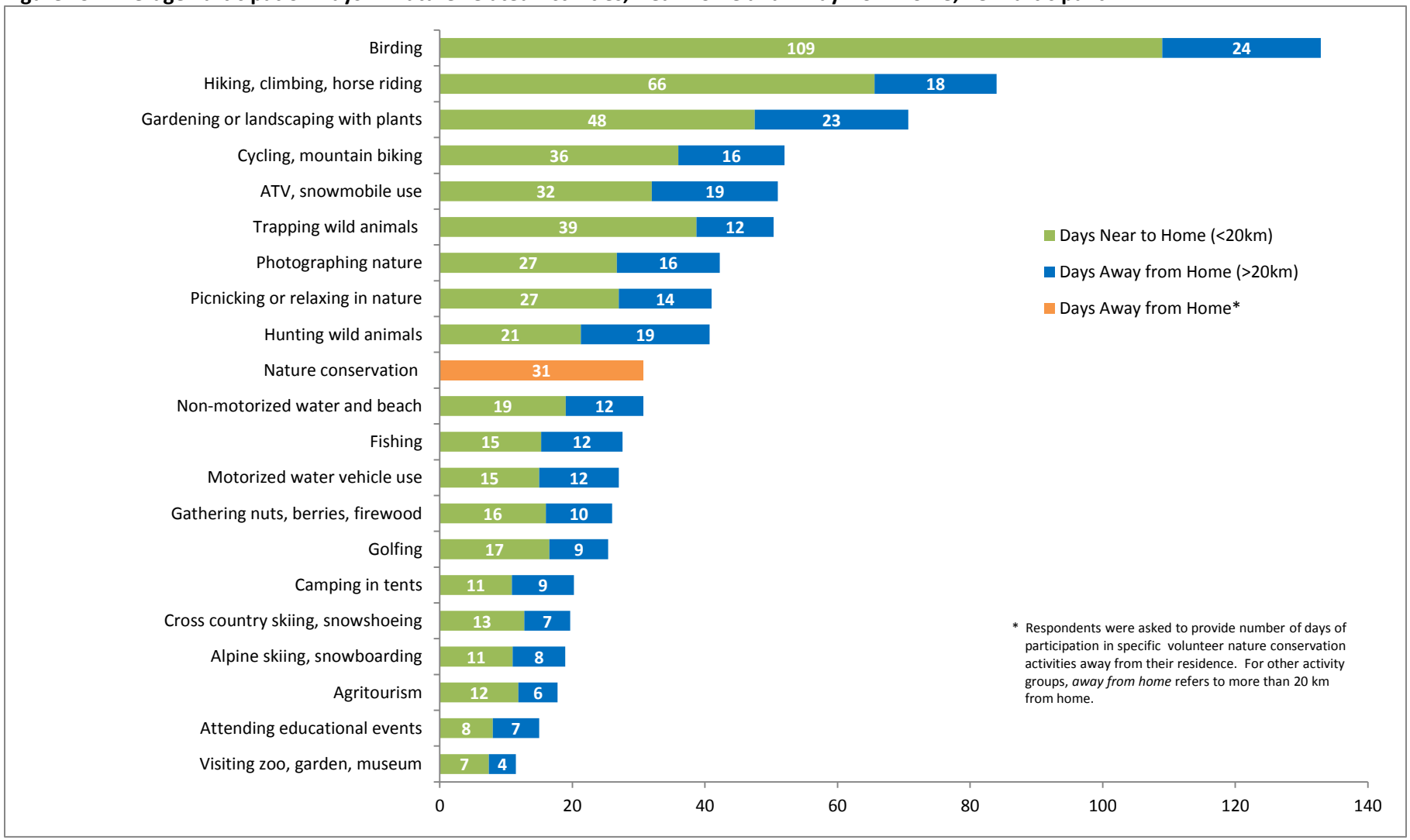
As described above, Canadians who participated in birding spent 109 days near to home and 24 days away from home engaged in this activity; this means that more days in the previous 12 months were devoted to birding by its participants than days that were devoted to other individual activities by their participants. Other popular activities that participants engaged in over the previous 12 months included hiking, climbing, and horseback riding (84 total days, on average) and gardening or landscaping with plants (more than 70 total days, on average); and cycling, mountain biking (52 total days, on average).

For every activity, the number of days participants engaged in the activity within 20 km of home was greater than the number of days participants engaged in that activity farther than 20 km from home. However, the number of days of participation near to home and away from home was similar for camping in tents (11 days near to home, 9 days away from home) and attending educational events (8 days near to home, 7 days away from home).

[62] These activities align with the 22 activity categories, except that reading/viewing nature media is not included, because the number of days of participation in this activity was not collected.

[63] By extension, 18% of the adult population (approx. 4,750,000 individuals) participated in birding for an average of 133 days resulting in 631,750,000 person-days of participation in birding during the previous 365 calendar days in Canada. Likewise, 71% of the adult population (approx. 18,950,000 individuals) each participated in picnicking or relaxing in nature for an average of 41 days resulting in 776,950,000 person-days of participation in picnicking or relaxing in nature during the previous 365 calendar days in Canada.

Figure 19: Average Participation Days in Nature-related Activities, Near Home and Away from Home, Per Participant



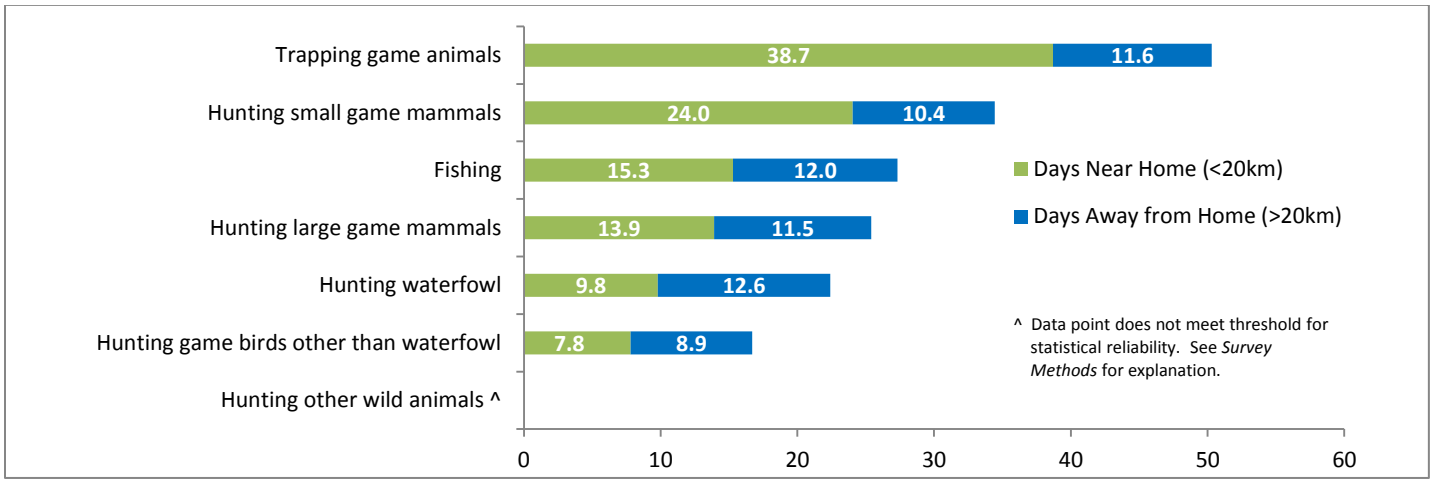
HUNTING, TRAPPING, OR FISHING

The *2012 Canadian Nature Survey* asked respondents about participation in several different types of hunting, trapping, or fishing for personal, non-monetary use or for recreation.

Figure 11 and *Table 9* (above) show the percentage of Canadians (nationally and by province and territory, respectively) who participated in hunting, trapping or fishing. *Table 6* and *Table 8* (above) show the expenditures for hunting (including its subcategories), trapping, and fishing in context with the other major nature-based activities reported in the survey.

Figure 20 presents the average number of days that those who participated in hunting (8%), trapping (<1%) or fishing (21%) did so within the previous 12 months, both within 20 km from home and 20 km or more away from home. Of Canadians who participated in hunting, trapping, or fishing for personal non-monetary use or for recreation in the previous 12 months, trappers spent the greatest number of days engaged in this activity, both near home (average of 39 days) and overall (average of 50 days). Other popular hunting activities include hunting small game mammals, engaged in by participants for an average of 34 total days within the previous 12 months. Hunting large game mammals was engaged in by participants for an average of 26 total days within the previous 12 months. Of Canadians who fished within the previous 12 months, participants spent about 15 days near home, and about 12 days away from home, on average, engaged in this activity. Note that The "hunting other wild animals" category did not generate statistically meaningful data; the category was included in the survey in order to provide comparison with the 1996 *Survey on the Importance of Nature to Canadians*.

Figure 20: Average Participation Days in Hunting, Trapping, or Fishing Activities, Near Home and Away from Home, per Participant



Canadians who participated in hunting, trapping, or fishing for wild animals within the previous 12 months were asked whether this activity was practiced "under Aboriginal treaty rights," "licensed, not under Aboriginal treaty rights" "unlicensed," "primarily for sport or recreation," and/or "for personal use or sharing." Respondents were asked to indicate all options that applied. The first three response categories provided (licensed, unlicensed, and Treaty rights) are *access options* which are normally mutually exclusive. However, the two *use options* response categories (primarily sport/recreation or primarily personal) can apply to any of the three access options.

As shown in *Table 10*, a total of 49% of participants selected at least one of the three access options, with 42% of participants reporting use as "licensed, not under Aboriginal treaty rights", while 4% selected "unlicensed" and three percent selected "under Aboriginal treaty rights." The legal access circumstances of the remaining 51% of participants are not revealed in responses to the survey. Approximately 53% of respondents selected the use option "primarily for sport/recreation" and 34% selected "primarily for personal use, or sharing". It is possible that the remaining 13% who did not select a use option had a different primary purpose for participating in these activities.

Table 10: **Access Options and Use Options Reported for Fishing, Hunting, or Trapping**

Options Listed in Survey	Canadian Adults	
	Population Estimate	Percent
Under Aboriginal treaty rights	221,157	3%
Licensed, not under Aboriginal treaty rights	3,120,664	42%
Unlicensed	293,219	4%
Primarily for sport/recreation	3,971,331	53%
Primarily for personal use, or sharing	2,577,100	34%

Canadians who did not participate in hunting, trapping, or fishing for wild animals within the previous 12 months were asked what prevented them from doing so. Respondents representing more than 13 million Canadians chose to write in another reason. Because a substantial number of these write-in responses were related to two themes, described below, two additional categories of responses were defined to report in this analysis:

1. **Don't like hunting/trapping or fishing; Not interested –** This category includes respondents who indicated they are not interested in, do not want to, do not like to, or simply "don't" participate in these activities.
2. **Ethical Reasons; Don't Want to Hurt Animals/Fish** – This category includes respondents that expressed their opposition to hunting/trapping or fishing either because of ethical/moral reasons or because they do not approve of hurting or killing animals.

Table 11 presents the reasons cited for not hunting or trapping wild animals for personal use or for recreation during the previous 12 months. One of these newly created categories, "don't like hunting/trapping; not interested" was the most often cited, with 41% writing a comment to this effect. The next most often cited reason was "lack of knowledge about hunting" (17%), followed by lack of time (14%) and the other new category "ethical reasons/don't want to hurt animals (14%).

Table 11: What Prevented You from Hunting/Trapping?

Options Listed in Survey	Canadian Adults	
** volunteered response, see text*	Population Estimate	Percent
Don't like hunting, trapping; not interested*	8,869,794	41%
Lack of knowledge about hunting	3,558,083	17%
Lack of time	3,046,400	14%
Ethical reasons; don't want to hurt animals*	2,925,598	14%
Lack of equipment	2,577,151	12%
Cost	2,076,629	10%
Personal health	1,396,058	7%
Safety	1,139,251	5%
No access to hunting territory	951,129	4%
Laws	927,208	4%
Unable to get to places where I can hunt	604,907	3%
Not enough wildlife left to hunt	541,101	3%
Other reason	1,163,464	5%
I hunted or trapped, does not apply	2,482,678	12%

Similarly, *Table 12* presents results on what prevented Canadians from participating in fishing. Again, one of the new response categories, "don't like fishing/not interested" was the most often cited with nearly one-third (31%) of Canadians providing this response. "Lack of time" was cited by 20% of Canadians as a factor that prevented them from fishing. Of those who wrote in an "other" reason, the most common was "age," followed by "don't eat fish" and "no one to go fishing with."

Table 12: What Prevented You from Fishing?

Options Listed in Survey	Canadian Adults	
** volunteered response, see text*	**Population Estimate**	**Percent**
Don't like fishing/ not interested*	6,371,764	31%
Lack of time	4,073,125	20%
Lack of knowledge about fishing	2,258,115	11%
Lack of equipment	2,022,441	10%
Personal health	1,247,735	6%
Cost	1,433,962	7%
Unable to get to places where I can fish	830,533	4%
No access to fishing areas	800,587	4%
Ethical reasons; Don't want to hurt fish*	595,679	3%
Laws	575,091	3%
Not enough fish	509,569	2%
Safety	506,804	2%
Other reason	1,691,091	8%
I fished, does not apply	4,860,068	23%

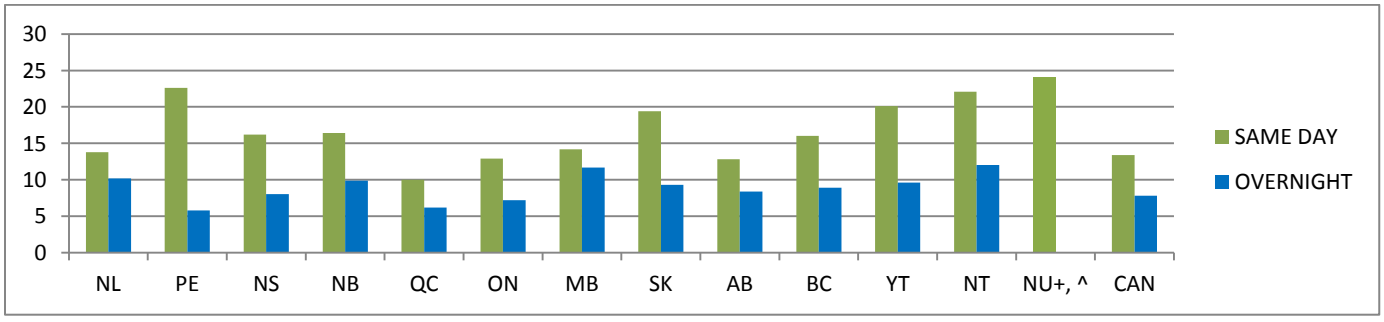
NATURE-BASED TRAVEL

The *2012 Canadian Nature Survey* asked Canadians detailed questions about their nature-based travel, including the number of same-day and overnight trips taken during the previous 12 months, the typical duration of trips, and the common location of those trips.

More than 15 million (57%) Canadians reported taking trips greater than 20 km from their home to participate in nature-based activities during the previous 12 months. The average number of same-day trips was 13.4, while the average number of overnight trips was 7.8.

Figure 21 shows the average number of same day trips and overnight trips, by province and territory. Residents of Prince Edward Island reported the highest number of same-day trips, with an average of 22 trips. Residents of the Northwest Territories reported the highest number of overnight trips, with an average of 12 trips.

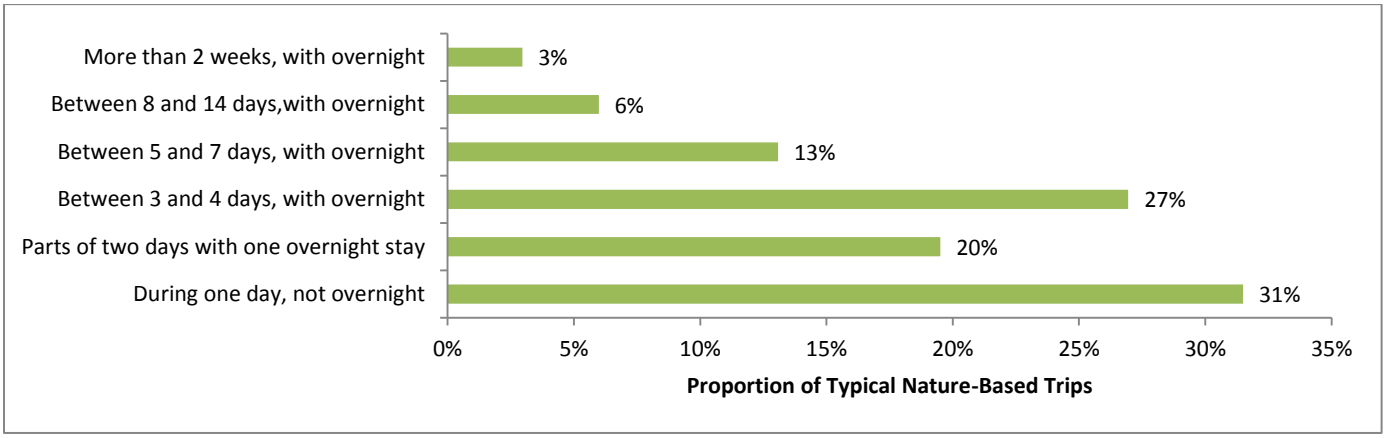
Figure 21: Number of Same Day and Overnight Trips, by Province and Territory



^ Data point does not meet threshold for statistical reliability, see *Survey Methods* for explanation.
+ Data from Nunavut cannot be generalized to the population of the Territory, and are not calculated in national totals. See *Survey Methods*, above.

Figure 22 shows the responses for the typical duration of trips. The most often-cited trip duration was a day trip without an overnight stay (31%), followed closely by "between 3 and 4 days, with overnight" (27%).

Figure 22: **Duration of Trips more than 20 km from Home**



Additionally, the *2012 Canadian Nature Survey* collected information about the three locations in Canada where Canadians spent the most time on trips more than 20 km from home.

Respondents were asked to write-in the name of the province or territory where they went without limitation (within or outside of their home province or territory). *Table 13* shows these responses tabulated at a national scale of analysis. Nationally, Ontario was cited most often, with 37% of Canadians listing it as one of the provinces or territories where they spent the most time on trips away from home.

Table 13: **Provinces/Territories Where Canadians Spent Most Time Away from Home Within Canada**

	Canadian Adults	
	Population Estimate	**Percent**
Ontario	5,079,316	37%
Quebec	2,437,559	18%
British Columbia	2,383,519	17%
Alberta	1,712,648	12%
Manitoba	458,089	3%
Nova Scotia	424,981	3%
Saskatchewan	397,429	3%
New Brunswick	313,717	2%
Newfoundland and Labrador	264,254	2%
Prince Edward Island	115,621	1%
Yukon	20,864	0%
Nunavut	^	^
Northwest Territories	^	^

^ Data point does not meet threshold for statistical reliability, see *Survey Methods* for explanation.

Canadians were asked if the locations they visited to participate in nature-based activities could be classified as a national park, a provincial park, or other protected area, and if so, to provide the name of that place. *Table 14* provides the "top 10" of these locations named on a national scale. Because of the way this open-ended question was coded in the dataset, the results presented in *Table 14* are from all respondents, including Web panel and opt-in.

Table 14: 10 Most Cited National, Provincial, and Territorial Parks or Protected Areas Visited by Canadians Overall

Rank	Name	Province/Territory
1	Banff National Park	AB
2	Jasper National Park	AB
3	Fundy National Park	NB
4	Algonquin Provincial Park	ON
5	Kluane National Park	YT
6	Tombstone Territorial Park	YT
7	Gros Morne National Park	NL
8	Whiteshell Provincial Park	MB
9	Kananaskis Country	AB
10	Kejimkujik National Park	NS

The *2012 Canadian Nature Survey* asked Canadians whether they owned or used a personal or family secondary property in Canada, such as a cottage, camp, or cabin in the previous 12 months. Nearly 6.5 million Canadians owned or used such a property; those that did spent an average of 24.6 days there during the previous 12 months. Owners/users of these properties were asked to write in the three main nature-based activities that they participated in at that cottage, camp, or cabin. Respondents were referred to lists of activities in the survey for examples, but were not limited to these activities. The most commonly cited activities participants engaged in while at these properties were hiking/nature walks, swimming, and fishing. Other popular activities included photographing and observing birds and animals, camping, picking berries, and making campfires. A wide variety of winter sports were also mentioned, such as snowmobiling and skiing (both alpine and cross-country).

Nature Conservation

The *2012 Canadian Nature Survey* collected information about different types of nature conservation activity in several different survey sections. For example, donations for species at risk and actions taken to assist in the recovery of species at risk, discussed in *Awareness of Species at Risk* (*Chapter 1: Connection to Nature & Awareness*), are examples of nature conservation activities. As discussed above, participation in the broader nature conservation group could be calculated to include respondents who indicated taking conservation-related actions that were measured indirectly in different parts of the survey, thereby raising the numbers of participants. This was not done due to the variability in how questions were stated, specifically in not requesting information about numbers of days or associated expenditures.

The following paragraphs report results from survey sections entitled “Nature Conservation” and “Conservation at Home” (see *Appendix B: Survey Instrument*). The “Nature Conservation” section of the questionnaire asked about membership and support of nature organizations, and participation in volunteer nature conservation activities.

Nationally, 10% of Canadians reported that they were a member of at least one nature or conservation organization.[64] An estimated $874 million was spent by 4.6 million Canadians (almost 19%) on membership dues or donations to nature or conservation organizations in previous 12 months, and the average of reported expenditures for this was $188.

Canadians were asked to indicate the total number of days that they participated in several different types of volunteer nature conservation activities away from their residence in the previous 12 months (see list of activities in *Table 15*). Nationally, 13% of Canadians participated in at least one of these conservation activities. This includes 8% who participated in “cleaning up shorelines, rivers, lakes or roadsides,” while 5% participated in “restoring natural habitat or urban green spaces” and 3% participated in “teaching about nature; giving guided nature walks”. The greatest number of days per participant was spent “monitoring or assessing species or habitats” (28.5 days), followed by “teaching about nature; giving guided nature walks” (23 days). Activities cited

[64] The survey did not limit responses regarding nature or conservation organizations to those of any particular size, scope of activity, or geographic reach; organizations could therefore include anything ranging between international organizations to local community groups.

most often in the "Other" category include picking up litter and trash from roadsides and trails; advocacy, such as petitioning and fundraising; and recycling and composting as part of daily life.

Table 15: **Participation Rates and Average Number of Days Spent on Volunteer Nature Conservation Activities**

Volunteer Nature Conservation Activity	Participation Rate, Adult Canadians	Average Days per Participant
Cleaning up shorelines, rivers, lakes or roadsides	8%	^
Restoring natural habitat or urban green spaces	5%	10.5
Teaching about nature; giving guided nature walks	3%	23.0
Monitoring or assessing species or habitats	3%	28.5
Other	2%	36.6
Managing conservation organizations	1%	^

^ Data point does not meet threshold for statistical reliability, see *Survey Methods* for explanation.

The survey also asked respondents who participated in these volunteer conservation activities[65] how they organize their time for volunteer nature conservation activities. Survey results indicate that 26% of Canadians volunteer occasionally when it interests them, and an additional 22% of Canadians volunteer an occasional day or hour here and there, while 45% of Canadians are not currently participating in volunteer nature conservation activities (see *Table 16*).

Table 16: **How Adult Canadians Organize Volunteer Conservation Time**

Options Listed in Survey	Canadian Adults	
	Population Estimate	Percent
I am not currently participating in volunteer nature conservation activities	1,655,953	45%
I volunteer occasionally when it interests me	973,322	26%
I volunteer a day here and there	412,171	11%
I volunteer an hour here and there	410,584	11%
I have a regular schedule of volunteer nature conservation activities	227,534	6%

Of those participating in volunteer nature conservation away from their residence, 59% indicated that their nature-related volunteer involvement has stayed the same over the past five years, 25% reported an increase in their volunteer conservation activity, and 16% reported a decrease.

"Citizen Science" is a term used to describe the science activities of volunteers who perform or manage research-related tasks such as wildlife or habitat observation, measurement, or assessment. Respondents were asked whether they had participated in citizen science in the previous 12 months; 15% of Canadians reported that they had. The most often-cited skill or expertise that participants brought to these activities was "biology/environmental expertise" (43%), followed by "teaching and communications skills" (39%), and "traditional or local ecological knowledge" (34%).

When Canadians were asked what prevented them from participating in volunteer nature conservation activities during the previous 12 months, the most often-cited reason was "lack of time" (47%), followed by "not being aware of an opportunity" (32%) and "personal choice" (31%). Approximately 8% of respondents provided a wide variety of responses in an "other" category (*Table 17*) and in this category the most frequently volunteered response was "not interested."

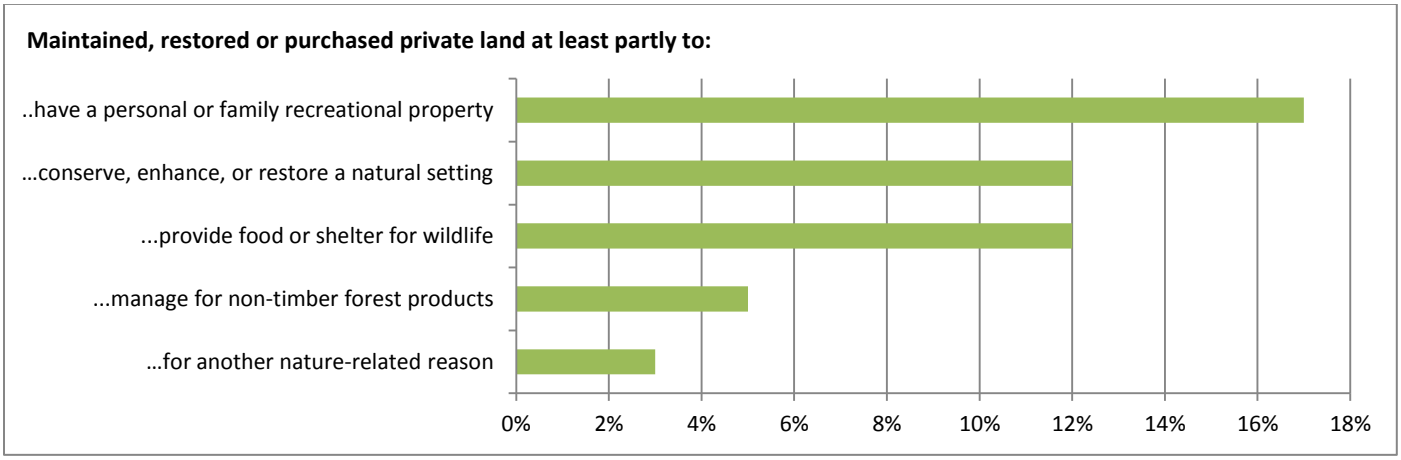
[65] See *Appendix B: Survey Instrument*, question 36.

Table 17: **Barriers to Nature Conservation Volunteerism**

Options Listed in Survey	Canadian Adults	
	Population Estimate	Percent
Lack of time	11,483,323	47%
I was not aware of an opportunity	7,776,738	32%
Personal choice	7,568,521	31%
Personal health	3,389,630	14%
Cost	1,959,352	8%
Unable to get to places where I could volunteer	1,661,566	7%
Other	1,845,714	8%

In the "Conservation at Home" section of questionnaire[66] Canadians were asked a series of questions about activities and expenses for nature conservation on land where they lived and/or at a cottage, camp, cabin, or farm, or other lands that they rented, leased, or owned in the previous 12 months in Canada. Canadians reported whether they maintained, restored, or purchased private land in the previous 12 months, at least partly for a variety of conservation reasons. *Figure 23* shows the percent of Canadians reporting "yes" to this question.

Figure 23: **Percent of Adult Canadians that Maintained, Restored or Purchased Land for Conservation**



Another type of conservation activity addressed in the *2012 Canadian Nature Survey* is the use of easements or other agreements to conserve personally-owned property. Very few Canadians reported that they had ever personally donated their owned land or signed an agreement with a land trust or other organization for conservation through an easement or other protective measure. Less than 1% of Canadians did this "more than one year ago but less than five years ago;" 1% of Canadians (approximately 87,000) did so "more than five years ago."

Table 18 reports the size of the land parcel for respondents who had personally donated land or signed an agreement with a land trust or other organization for conservation through an easement or other protective measure. One-third of donated or conserved parcels were less than one acre, while one-quarter were one to 10 acres in size.

[66] See *Appendix B: Survey Instrument*.

Table 18: **Area of Private Land Protected through Easement, Agreement, or Donation to Land Trust**

Options Listed	Canadian Adults	
	Population Estimate	Percent
less than 1 acre (0.4 hectares)	106,686	33%
1-10 acres (0.4-4.4 hectares)	81,248	25%
10.1-50 acres (4.5-20.2 hectares)	^	^
50.1-100 acres (20.3-40.5 hectares)	^	^
more than 100 acres (40.5 hectares)	52,938	16%

^ Data point does not meet threshold for statistical reliability, see *Survey Methods* for explanation.

CROSS-ANALYSIS & DEMOGRAPHIC INSIGHTS

The analyses in this part of *Chapter 2* provide additional insight into Canadians' nature-related activities by examining the inter-relationships among responses, including demographic variables. All analyses are conducted at the national level using the address-based sample, so that estimates are representative of the Canadian population. Associations between continuous variables are tested for a linear relationship using the Pearson correlation, *r*. The *r*-value varies from -1 (strong negative correlation) to 0 (no correlation) to +1 (strong positive correlation). Comparisons of continuous variables between groups are tested using *t*-tests or ANOVAs as appropriate for the number of groups being compared. All associations and comparisons discussed are significant at the 95% confidence level unless otherwise noted. See *Appendix C: Construction of Aggregate Scores* for the formula of specific survey items used to compute each aggregate score as well as its interpretation and relevant quantitative metrics.

PARTICIPATION

DEMOGRAPHIC DIFFERENCES IN NATURE-BASED ACTIVITIES

Table 19 shows the demographic profile of the adult Canadian population (age 18 and older) who participated in nature-based activities, based on demographic and activity questions included in the survey. In this table, activities are organized into eight broad groups. A crosswalk of how the eight activity groups correspond to specific survey items, as well as examples of what activities fall with each group, is presented in *Appendix A: Activities Crosswalk*. The right-hand column in the table ("adult population of Canada") represents the weighted proportion of respondents in each demographic group based on the analytic weight developed for the address-based sample in this survey. Because this weight was post-stratified to population ("control") totals obtained from Statistics Canada for age, gender, urban/rural, and Aboriginal status, the estimated proportions for these groups should match estimates provided by Statistics Canada (any differences are due to missing demographic data in the survey). The population proportions reported for other demographic groups, such as education, are estimates of population proportions and may not match estimates produced by other sources, if available.

The percentages within each demographic category total to 100% for each activity. For example, of the 2.1 million Canadian adults (age 18 or older) who participated in hunting or trapping in the previous 12 months, 54.4% lived in urban areas and 45.6% lived in rural areas. By comparison, 81.1% of the Canadian adult population lived in urban areas and 18.9% lived in rural areas, indicating that Canadians living in rural areas were disproportionately more likely to participate in hunting or trapping.

Age was not strongly associated with the amount of participation in the nature-based activities measured in the survey, with the exception that older Canadians tended to participate somewhat more frequently in birding (r = .17). Education was also not strongly associated with participation in these activities (all absolute rs < .10), although there was a slight tendency for more educated Canadians to participate less frequently in hunting/trapping activities (r = -.10) and in fishing (r = -.11). Income was not associated with participation in any of the activities measured (all absolute rs < .10).

Table 19: Participation in Eight Categories of Nature-related Activities by Demographics

Demographic Variable	Nature-based recreation	Nature education	Nature-based Leisure	Birding	Motorized recreation	Hunting or Trapping	Fishing	Nature Conservation	Adult Population of Canada
Participants age 18+ in millions	**19.5**	**14.1**	**15.6**	**4.7**	**7.5**	**2.1**	**5.5**	**6.1**	**26.5**
Gender									
Male	50.2%	47.0%	48.5%	47.7%	54.9%	79.9%	64.0%	50.5%	48.7%
Female	49.8%	53.0%	51.5%	52.3%	45.1%	20.1%	36.0%	49.5%	51.3%
Age									
18 - 24	11.5%	11.5%	9.5%	^	13.0%	^	11.9%	9.8%	10.6%
25 - 34	22.3%	23.7%	20.5%	16.4%	23.3%	19.1%	22.3%	18.1%	20.1%
35 - 44	21.1%	23.9%	21.1%	17.9%	21.1%	21.6%	22.0%	21.0%	19.5%
45 - 54	23.5%	21.4%	25.4%	27.2%	24.5%	25.5%	26.0%	25.2%	23.5%
55 - 64	17.3%	15.1%	19.2%	24.4%	15.3%	17.6%	15.0%	21.1%	19.4%
65+	4.3%	4.3%	4.3%	7.0%	2.8%	^	2.9%	4.8%	6.9%
Urban vs. Rural									
Urban	80.9%	82.2%	79.4%	75.7%	70.7%	54.4%	73.1%	72.6%	81.1%
Rural	19.1%	17.8%	20.6%	24.3%	29.3%	45.6%	26.9%	27.4%	18.9%
Education									
Elementary	0.6%	^	0.6%	^	0.6%	^	0.8%	^	2.0%
Some high school	4.6%	3.8%	4.6%	5.5%	5.7%	11.1%	7.5%	5.3%	8.2%
High school graduation	16.6%	15.1%	16.5%	21.3%	19.4%	22.9%	18.8%	18.4%	18.9%
College/Vocational/Com	31.4%	30.4%	31.8%	31.3%	36.5%	37.1%	33.0%	28.7%	30.0%
University Bachelor's	31.2%	33.9%	30.6%	27.8%	26.0%	19.8%	27.3%	32.1%	27.3%
University Master's	10.3%	11.2%	10.7%	9.9%	7.3%	5.1%	7.6%	10.0%	8.8%
University PhD or	3.0%	3.1%	3.1%	1.7%	1.6%	^	1.9%	2.8%	2.5%
Other (Specify)	2.4%	2.0%	2.1%	2.0%	^	2.0%	^	2.1%	2.4%
Household Income									
Less than $24,999	12.8%	13.6%	12.0%	15.4%	8.9%	12.8%	9.8%	15.2%	17.1%
$25,000-$49,999	22.3%	21.1%	21.1%	22.2%	21.8%	23.7%	23.0%	21.4%	25.0%
$50,000-$74,999	22.6%	21.4%	22.1%	22.2%	21.5%	19.1%	20.5%	21.0%	20.8%
$75,000-$99,999	15.8%	17.1%	17.2%	18.4%	16.5%	17.7%	15.5%	15.8%	14.6%
$100,000 or more	26.5%	26.8%	27.7%	21.8%	31.4%	26.7%	31.2%	26.6%	22.5%
Nature-Related Profession									
Nature related profession	11.8%	11.4%	12.3%	15.5%	16.5%	26.0%	17.2%	18.6%	10.9%
Non-nature related	88.2%	88.6%	87.7%	84.5%	83.5%	74.0%	82.8%	81.4%	89.1%
Aboriginal Canadian									
Aboriginal	4.2%	4.2%	4.0%	5.3%	6.1%	9.4%	6.8%	6.2%	3.7%
Non-Aboriginal	95.8%	95.8%	96.0%	94.7%	93.9%	90.6%	93.2%	93.8%	96.3%
Immigrant or 1st Generation Canadian									
Immigrant/1st generation	33.2%	35.7%	33.0%	36.0%	23.1%	16.1%	25.3%	31.5%	34.0%
2nd generation +	66.8%	64.3%	67.0%	64.0%	76.9%	83.9%	74.7%	68.5%	66.0%

^ Data point does not meet threshold for statistical reliability, see *Survey Methods* for explanation.

Table 20 compares the average number of participation days per participant between demographic groups for eight broad groups of nature-based activities. A chart showing how the eight activity groups correspond to specific survey items, as well as examples of what activities fall within each group, is presented in *Appendix A: Activities Crosswalk*. For most activities, respondents were asked to report the number of days that they spent participating in each activity in the previous 12 months in Canada, both within 20 km from their home, and more than 20 km away. Participation days are not necessarily mutually exclusive; respondents may participate in more than one nature-related activity in one calendar day. Data on participation in nature conservation was based on a question that asked respondents to report the number of days they spent engaged in a volunteer nature conservation activity away from their residence (either in their community or away from their community). "General Participation" represents the total number of participation days per individual participant on average, summed across all eight of these groups.

One notable pattern is the difference between males and females in the types of nature-based activities they participated in. Specifically, among participants in nature-based recreation, nature education, nature-based leisure activities, birding, and nature conservation, women engaged in these activities for more days within the previous 12 months than men. Conversely, among participants in motorized recreation, hunting/trapping, and fishing, men engaged in these activities for more days within the previous 12 months than women. Notably, the average number of hunting/trapping days per participant was 2.7 times higher for men compared to women.

Among participants in all activity categories, Canadians whose primary source of income was a nature-related profession (e.g., farming, wildlife management, etc.) spent more days participating compared to other Canadians. The largest differences were found in the average number of days per participant engaged in hunting or trapping (2.2 times higher than other Canadians) and fishing (2.1 times higher than other Canadians).

A similar overall pattern was observed for Aboriginal Canadians, with the average number of participation days per participant in nature-based activities higher for this demographic compared to other Canadians for all activity categories. For this demographic, the largest differences were found in the average number of days per participant engaged in nature education (2.7 times higher than other Canadians) and motorized recreation (2.6 times higher than other Canadians).

Participants who self-identified as immigrants and first generation Canadians, by contrast, participated less frequently in all categories of nature-based activities compared to other Canadian participants (although the difference in nature education participation was not statistically significant). In particular, those who identified as an immigrant/first generation Canadian and who participated in hunting/trapping spent an average 4.3 days doing so and of those who participated in motorized recreation spent an average of 5.5 days doing so, compared to other Canadian participants in these activities who spent on average 11.1 days hunting/trapping and 12.1 days engaged in motorized recreation.

Finally, with regard to geographic location, participants living in rural areas participated more frequently in all categories of nature-based activities compared to participants living in urban areas. The largest differences were found in the average number of days per participant engaged in motorized recreation (3.4 times higher for Canadians living in rural areas) and hunting/trapping activities (2.3 times higher for Canadians living in rural areas).

Table 20: Average Nature-Based Activity-Days by Demographic Group

Demographic variable	Nature-based recreation	Nature education	Nature-based Leisure	Birding	Motorized recreation	Hunting or Trapping	Fishing	Nature Conservation[67]	General Participation
Gender									
Male	80.47	8.06	33.24	19.51	11.61	12.35	15.53	6.06	154.30
Female	86.53	9.69	45.35	29.53	8.02	4.61	10.65	9.81	173.25
Age									
18 - 24	81.23	11.37	27.30	18.79	9.57	11.01	10.8	5.92	148.36
25 - 34	83.61	9.69	31.75	5.98	8.09	7.30	12.34	8.61	148.50
35 - 44	97.83	9.85	38.31	15.34	12.97	9.45	12.52	9.38	177.43
45 - 54	85.69	7.40	45.42	36.28	10.85	9.84	17.34	10.62	183.42
55 - 64	81.26	6.78	49.43	40.70	9.52	10.32	14.20	6.08	174.7
65+	69.58	8.14	39.67	39.07	7.65	10.28	13.93	4.56	142.01
Urban vs. Rural									
Urban	79.92	7.84	35.56	21.20	6.68	7.00	12.60	5.24	147.07
Rural	99.21	12.89	54.74	44.11	22.84	15.72	16.75	^	233.24
Education									
Elementary	38.37	1.76	16.27	16.7	6.38	11.01	12.63	0.41	64.79
Some high school	62.21	12.25	30.3	33.01	13.24	11.13	18.01	2.14	133.26
High school graduation	77.92	7.04	38.05	29.24	13.65	12.31	15.88	9.39	163.06
College/Vocational/Com	86.25	6.85	47.49	27.03	12.59	10.92	15.35	6.91	176.95
University Bachelor's	90.89	10.62	33.92	20.10	7.03	6.28	9.79	5.49	162.57
University Master's	82.70	9.63	43.48	20.62	3.43	3.63	7.91	9.02	157.5
University PhD or	92.88	8.61	30.16	12.06	3.50	1.72	6.17	4.48	145.85
Household Income									
Less than $24,999	75.87	9.49	35.85	19.01	4.63	13.70	15.00	8.78	143.81
$25,000-$49,999	80.20	8.58	38.51	27.52	11.69	6.73	13.57	5.48	156.88
$50,000-$74,999	86.25	8.42	43.16	27.85	7.53	6.97	9.76	8.12	171.25
$75,000-$99,999	82.43	9.33	38.03	24.14	10.41	13.6	17.60	4.47	164.79
$100,000 or more	93.41	8.02	40.66	21.66	14.61	9.31	12.88	12.41	183.53
Nature-Related Profession									
Non-nature related	80.22	7.46	36.88	23.74	8.28	6.98	12.69	4.55	151.82
Nature related profession	102.41	20.30	54.38	33.03	21.22	16.40	18.54	^	252.02
Aboriginal Canadian									
Non-Aboriginal	82.00	8.53	38.52	23.72	9.52	8.96	12.81	6.14	158.77
Aboriginal	115.13	^	61.46	^	^	19.27	26.32	^	284.49
Immigrant or 1st Generation Canadian									
2nd generation +	87.83	8.81 (ns)	40.97	26.42	12.10	11.14	14.95	9.14	174.44
Immigrant/1st generation	74.35	9.03 (ns)	36.12	21.07	5.52	4.25	9.74	5.69	141.47

Note: All within-group comparisons are significant at the .05 level except where marked by the superscript *ns* (non-significant).

^ Data point does not meet threshold for statistical reliability, see *Survey Methods* for explanation.

[67] "Nature conservation" consists of the sum of survey items 36.1-36.6 and reflects only volunteer activities away from the respondent's residence.

Relationships among Nature-Based Activities

Examining the relationships among the eight nature-based activity groups (see *Appendix A: Activities Crosswalk*) reveals that there were clusters of particular activities that Canadians tended to participate in together. The strongest association was between nature-based leisure (i.e., photography/filming and gardening/landscaping) and birding (r = .43). Canadians who participated in nature-based leisure also tended to participate in nature-based recreation (e.g., hiking, cycling, camping, etc.; r = .34). Canadians who participated in fishing also tended to participate in hunting/trapping (r = .35) and in motorized recreation (r = .33).

Canadians who were more aware of nature-related issues in general also tended to participate more frequently in nature-based activities overall (r = .20). Looking at individual activity groups, General Awareness was most strongly associated with increased participation in nature-based leisure (r = .17) and in nature-based recreation (r = .16).

Overall participation in nature conservation activities (see *Chapter 2: Nature-based Activities, Participation and Expenditures*) was even more strongly associated with participation in nature-based activities. In particular, Canadians who participated in nature conservation activities were also more likely to participate in nature education (r = .29), nature-based leisure (r = .26), fishing (r = .22), and hunting/trapping (r = .21).

Information Sources

To provide an overview of the relationship between Canadians' consumption of nature-related information and their amount of participation in nature-based activities, a General Participation score, equal to the average number of activity-days per Canadian across all activity categories that were measured (see *Appendix C: Construction of Aggregate Scores*) was computed. Higher General Participation scores indicate more frequent overall participation in nature-based activities.

A dramatic difference in General Participation was found when comparing Canadians who consumed nature-related media in the past year to those who did not. Among those who did, the average number of nature-based activity-days in the previous 12 months was 199, compared to only 83 for those who did not.

Increased General Participation scores were most strongly associated with obtaining information through personal experience (1.7 times higher for those who did vs. those who did not), through reading publications (1.5 times higher), and through educational opportunities (1.5 times higher). In terms of the sources of nature-related information, increased General Participation scores were most strongly associated with obtaining information about nature from conservation groups (1.4 times higher). On the other hand, General Participation scores for Canadians who do not receive information about nature were 51% lower compared to Canadians who received information about nature from at least one source.

Hunting, Trapping & Fishing

Differences in Hunting, Trapping, and Fishing Participation

As shown in *Table 22*, clear demographic differences were observed in the amount of participation in hunting/trapping activities and in fishing. These activities were more frequent for men, Canadians working in nature-related professions, Aboriginal Canadians, and Canadians living in rural locations and were less frequent for immigrants/first-generation Canadians. Age, education, and income, however, were not associated with amount of participation in these activities (all absolute rs < .10).

General Awareness of nature-related issues (see *Chapter 1: Connection to Nature & Awareness*) was not strongly related to participation in hunting/trapping or fishing (absolute rs < .10). Canadians who participated in nature conservation activities were more likely than those who did not to participate in hunting/trapping (r = .21) and in fishing (r = .22). In terms of proportions, 16% of Canadians who participated in nature conservation also participated in hunting/trapping activities, whereas only 5% of Canadians who did not participate in nature conservation participated in hunting/trapping activities.

Barriers to Hunting/Trapping Participation

For all demographic groups, the most commonly cited barrier to participation in hunting/trapping was "do not like to hunt or trap/not interested." The three most frequently cited barriers to participation in hunting/trapping are discussed in more detail below for each group.

For men, the most frequently cited barriers among those who did not participate in hunting or trapping were "do not like to hunt or trap/not interested" (cited by 35% of men), "lack of time" (cited by 21% of men), "lack of knowledge about hunting" (cited by 20% of men), and "lack of equipment" (cited by 16% of men). For women, the most frequently cited barriers to hunting/trapping

participation were "do not like to hunt or trap/not interested" (cited by 48% of women), "ethical reasons/do not want to hurt animals" (cited by 18% of women, compared to 9% of men), and "lack of knowledge about hunting" (cited by 14% of women).

For Canadians working in a nature-related profession, the most frequently cited barriers to hunting/trapping participation were "do not like to hunt or trap/not interested" (cited by 36%), "lack of time" (cited by 17%), and "lack of knowledge about hunting" (cited by 15%).

For Aboriginal Canadians, the most frequently cited barriers among those who did not participate in hunting or trapping were "do not like to hunt or trap/not interested" (cited by 35%) and "ethical reasons/do not want to hurt animals" (cited by 19%, compared to 14% of other Canadians).

For immigrants and first generation Canadians, the most frequently cited barriers among those who did not participate in hunting or trapping were "do not like to hunt or trap/not interested" (cited by 36%), "lack of knowledge about hunting" (cited by 20%, compared to 15% of other Canadians), and "lack of time" (cited by 19%, compared to 12% of other Canadians).

For Canadians living in urban locations, the most frequently cited barriers among those who did not participate in hunting or trapping were "do not like to hunt or trap/not interested" (cited by 42%), "lack of knowledge about hunting" (cited by 18%, compared to 12% of Canadians living in rural locations), and "lack of time" or "ethical reasons/do not want to hurt animals" (each cited by 14%, with only 10% of Canadians living in rural locations citing ethical reasons).

For Canadians living in rural locations, the most frequently cited barriers among those who did not participate in hunting or trapping were "do not like to hunt or trap/not interested" (cited by 39%), "lack of time" (cited by 14%), and "lack of knowledge about hunting" (cited by 12%). Notable differences within demographic groups were that non-Aboriginal Canadians cited "lack of knowledge about hunting" more often (17%) than did Aboriginal Canadians (11%); immigrants and first generation Canadians cited "lack of time" more often (19%) than did other Canadians (12%); and Canadians living in urban areas cited "lack of knowledge about hunting" more often (18%) than did Canadians living in rural areas (12%).

In general, age, education and income were not strongly associated with the frequency with which any of the barriers to hunting/trapping were cited, with a few exceptions. Lower-income Canadians tended to cite "personal health" as a barrier more frequently. Older Canadians also tended to cite "personal health" as a barrier to participation in hunting/trapping more often than younger Canadians. Finally, increasing education increased the proportion of Canadians citing ethical concerns as a barrier to hunting/trapping participation.

Barriers to Fishing Participation

For all demographic groups, the most commonly cited barrier to participation in fishing was "do not like to fish/not interested." The three most frequently cited barriers to participation in fishing are discussed in more detail below for each group.

For both men and women, the barriers to fishing participation were similar. The most frequently cited barriers among those who did not participate in fishing were "do not like to fish/not interested" (cited by 25% of men and 37% of women), "lack of time" (cited by 25% of men and 15% of women), and "lack of knowledge about fishing" (cited by 11% of men and 11% of women). Note that this is the same pattern of barriers that men reported with regard to participation in hunting/trapping. For women, however, ethical concerns about fishing were much lower (cited by only 4%) compared to hunting/trapping (cited by 18%).

For Canadians working in a nature-related profession, the most frequently cited barriers among those who did not participate in fishing were "do not like to fish/not interested" (cited by 21%), "lack of time" (cited by 22%), and "lack of knowledge about fishing" (cited by 10%). This is the same pattern of barriers that this group reported with regard to participation in hunting/trapping.

For Aboriginal Canadians, the most frequently cited barriers among those who did not participate in fishing were "do not like to fish/not interested" (cited by 20%), "lack of time" (cited by 17%), and "ethical reasons/do not want to hurt animals" (cited by 10% compared to 3% of other Canadians).

For immigrants and first generation Canadians, the most frequently cited barriers among those who did not participate in fishing were "do not like to fish/not interested" (cited by 29%), "lack of time" (cited by 23%), and "lack of knowledge about fishing" (cited by 15%, compared to 9% of other Canadians). This is the same pattern of barriers that this group reported with regard to participation in hunting/trapping.

For Canadians living in urban locations, the most frequently cited barriers to fishing participation were "do not like to fish/not interested" (cited by 32%), "lack of time" (cited by 20%), and "lack of knowledge about fishing" (cited by 12%, compared to 7% of

Canadians living in rural locations). Canadians living in urban locations cited ethical concerns about fishing less frequently than they did about hunting/trapping (3% vs. 14%).

For Canadians living in rural locations, the most frequently cited barriers to fishing participation were "do not like to fish/not interested" (cited by 26%), "lack of time" (cited by 19%), and "lack of knowledge about fishing" (cited by 7%). This is the same pattern of barriers that this group reported with regard to participation in hunting/trapping.

Within demographic groups, men cited "lack of time" substantially more often (25%) than did women (15%); Aboriginal Canadians cited "unable to get to places where I can fish" more often (9%) than did other Canadians (4%); and immigrants and first generation Canadians cited "lack of knowledge about fishing" more often (15%) than did other Canadians (9%). Notably, Canadians living in urban areas did not cite "unable to get to places where I can fish" as a barrier to fishing much more frequently than Canadians living in rural areas (4% vs. 3%, respectively); the largest difference between these two demographic groups was in "lack of knowledge about fishing," with Canadians living in urban areas citing this barrier more often (12%) than Canadians living in rural areas (7%).

Older Canadians, less educated Canadians, and lower-income Canadians tended to cite "personal health" more often as a barrier to participation in fishing. Lower-income Canadians also tended to cite "no access to fishing areas" more frequently as a barrier to fishing participation. In the case of fishing participation, education also showed a similar, though weaker, pattern as observed with hunting/trapping, such that the proportion of Canadians citing ethical concerns as barriers to fishing participation increased slightly with increasing education.

Nature- Based Travel

Differences in Nature-Based Travel

Age, education, and income were not strongly associated with the frequency of nature-based trips (all absolute *rs* < .10). The tendency, however, was for younger Canadians, more educated Canadians, and higher-income Canadians to engage in nature-based trips more frequently. In addition, Canadians with a household income under $50,000 engaged in nature-based travel less often (an average of seven trips per year) compared to Canadians with a higher household income (an average of 10 trips per year).

Table 21 compares the average number of reported nature-based trips per person per year among demographic groups. Men, Canadians working in a nature-related profession, Aboriginal Canadians, and Canadians living in rural locations all engaged in significantly more nature-based travel. Immigrants and first generation Canadians, however, engaged in less nature-based travel compared to other Canadians.

Table 21: **Average Nature-Based Trips per Person per Year by Demographic Group**

Demographic Group									
Gender		**Nature-Related Profession**		**Aboriginal Canadian**		**Immigrant/ 1st Generation**		**Geographic Location**	
M	F	No	Yes	No	Yes	No	Yes	Urban	Rural
9.82	7.40	8.23	11.80	8.40	13.91	9.35	7.26	8.15	9.64

Note: All within-group comparisons are significant at the .05 level.

The frequency of nature-based travel increased slightly with increases in General Awareness (see *Chapter 1: Connection to Nature & Awareness*; r = .12) and participation in nature conservation activities (see *Chapter 3*; r = .15). The frequency of nature-based travel increased more strongly with increases in General Participation (see *Chapter 3*; r = .31) and hunting/trapping/fishing activities in particular (r = .39).

Secondary Property

Table 22 shows the proportion of Canadians who owned or used a personal or family secondary property such as a cottage, camp, or cabin within the previous 12 months by demographic groups. The largest difference occurs with immigrants and first generation Canadians, of whom 20.7% owned or used secondary property compared to 28.2% of other Canadians. Canadians who owned or used secondary property also tended to be older, more educated and have higher incomes.

Table 22: **Proportion of Canadians Owning/Using Secondary Property by Demographic Group**

Demographic Group									
Gender		Nature-Related Profession		Aboriginal Canadian		Immigrant/ 1st Generation		Geographic Location	
M	F	No	Yes	No	Yes	No	Yes	Urban	Rural
26.3%	25.1%	24.9%	29.9%	25.5%	29.6%	28.2%	20.7%	24.5%	28.6%

Note: All within-group comparisons are significant at the .05 level. Estimates in this table are the proportion of adult Canadians within a given demographic group (e.g., males) who own/use a secondary property. Proportions therefore do not sum to 100% across different groups.

Nature Conservation

Differences in Nature Conservation Activity

Age, education, and income were not strongly associated with the amount of participation in nature conservation activity[68] at home or at other locations. There was also little association between age, education, and income, and nature conservation organization support through memberships and donations[69].

Whereas women engaged in more volunteer nature conservation activity away from home than men, the reverse was true for conservation activity at home. Canadians working in a nature-related profession, Aboriginal Canadians, and Canadians living in rural locations all engaged in significantly more nature conservation activity, both at home and through volunteer activity, compared to their complementary groups. Immigrants and first generation Canadians, however, engaged in less nature conservation activity than other Canadians. The difference in nature conservation activity between Aboriginal Canadians and other Canadians was particularly large (7.8 times more conservation activity away from home for Aboriginal Canadians), as was the difference between Canadians living in rural vs. urban locations (3.6 times more conservation activity away from home for Canadians in rural locations).

Nature conservation activity was strongly associated with General Participation in nature-based activities both at home (r =.33) and in other locations (r =.51). The same held for participation in hunting/trapping/fishing activities specifically (r =.18 and r =.26, respectively). General Awareness of nature-related issues (see *Chapter 1: Connection to Nature & Awareness*) was not strongly associated with nature conservation activity or with nature conservation organization support.

Information Sources

A dramatic difference in conservation activity was found when comparing Canadians who consumed nature-related information in the past year to those who did not. Among those who did, the average number of volunteer conservation activity days away from home in 2012 was 10 compared to only one for those who did not. A similar pattern was found for nature conservation activities at home. In addition, Canadians who consumed nature-related information in the past year were more likely to be members of conservation organizations and to spend money on such organizations compared to Canadians who did not consume such information (an annual average of $194 vs. $128 for those who did not).

Increased conservation activity and support of conservation-related organizations were also associated with particular ways that respondents obtained information about nature. Canadians who obtained information through informal communications such as e-mails and newsletters participated in more conservation activity days away from home (13 days) compared to other Canadians (six days). In addition, Canadians tended to spend substantially more money on conservation organizations when they obtained nature-related information through personal experience (an annual average of $237 vs. $153 otherwise).

In terms of sources of nature-related information, participation in conservation activity days away from home was higher for Canadians who received information from scientists (17 days vs. five days otherwise) and from teachers or other educators (16 days vs. seven days otherwise). As might be expected, monetary support for conservation organizations was highest for Canadians who received nature-related information from such organizations (an annual average of $234) compared to those who did not (an annual average of $119). On the other hand, monetary support for conservation organizations was lower for Canadians who reported that

[68] See Appendix C: Construction of Aggregate Scores for the survey items used to define Conservation at Home and Conservation Away from Home for these analyses.

[69] The survey did not limit responses regarding nature or conservation organizations to those of any particular size, scope of activity, or geographic reach; organizations could therefore include anything ranging between international organizations to local community groups.

they received nature-related information from "no one" (an annual average of $56 vs. $194 otherwise) or who received such information from the government (an annual average of $132 vs. $225 otherwise).

MIXED-SAMPLE DATA INSIGHTS

As stated in *Report Structure and Scope* and *Weighting*, most results in this report are based on the address-based sample results ***only***, as only these data allow for tests of significance and other statistical analysis. All results reported in this chapter up until this point are therefore based on the address-based sample only. Discussion in this section of *Chapter 2*, however, presents findings from all survey data, including Web panel and opt-in responses, as well as the address-based sample data. These findings are not compared to the address-based results presented elsewhere because inferential statistical analyses are not recommended when using the "combined" analysis weight, due to its unknown variance properties. In addition, the address-based data are a subset of the data presented in the "Mixed-Sample Data Insight" sections, so comparisons would involve substantial overlap. These findings are best viewed on their own as a way to provide additional perspective on the topics measured in this survey because they comprise a larger sample (which has been weighted to the Canadian population by Province and Territory).

PARTICIPATION

When looking at all survey responses combined, including Web panel responses and the community-based Nunavut sample, survey results show that rates of participation in the broad nature-based activity groups are as follows:

- Nature-based recreation (72%)
- Nature-based leisure (57%)
- Nature education (51%)
- Nature conservation (30%)
- Motorized recreation (28%)
- Birding (26%)
- Fishing (20%)
- Hunting or trapping (11%)

Furthermore, when looking at all survey responses combined, 58% of respondents reported that they had read or viewed a variety of media about nature within the previous 12 months. Additionally, 37% of respondents reported that they had spent time gathering firewood, nuts, berries, mushrooms, or other plants or natural materials for personal use. Finally, 65% of all respondents reported that they spent time picnicking or relaxing in an outdoor setting within the previous 12 months.

HUNTING, TRAPPING & FISHING

When including the Web panel data and the opt-in survey data, the most common *access option* cited for hunting, fishing, or trapping was "licensed, not under Aboriginal treaty rights" (46%) and the most common *use option* was "primarily for sport/recreation" (33%). The most common reason for not hunting was "don't like hunting, trapping/ not interested" (27%), followed by "lack of knowledge about hunting" (18%). The most common reasons cited by all survey respondents for not fishing included "lack of time" (21%), and "don't like fishing/ not interested" (18%).

TRAVEL

About half of all survey respondents (49%) reported taking trips more than 20 km from their home within the previous 12 months. The typical duration of these trips was "during one day, not overnight" (35%), followed by "between 2-4 days, with overnight" (24%). Additionally, 19% of respondents reported that they own or used a secondary property in Canada in the previous 12 months.

CONSERVATION

Results from the combined web panel, address sample, and opt-in samples show that 15% of respondents reported being a member of a nature conservation organization. In terms of organizing time for volunteer nature conservation organizations, 22% reported having a "regular schedule of volunteer nature conservation activities," followed by 17% each who reported that they volunteer "an hour here or there," and "occasionally when it interests me." Of all respondents, 43% reported that their nature-related volunteer involvement has increased over time; 22% reported that it decreased; and 36% reported that it has stayed the same.

Slightly less than half (44%) of all respondents reported participating in citizen science in the previous 12 months. The most often cited skill or expertise that this group brought to these activities was "teaching and communications skills" (41%), "management

skills" (39%), and "biology/environmental expertise" (37%). When describing what prevented them from participating in volunteer nature conservation activities, 35% of respondents cited "lack of time," followed by "not being aware of an opportunity" (29%).

When analyzing all survey responses, less than 1% of respondents reported that they maintained, restored, or purchased private land, at least partly for conservation reasons, "in the previous 12 months." Additionally, less than 10% of respondents reported that they had ever personally donated their owned land or signed an agreement with a land trust or other organization for conservation through an easement or other protective measure. Of those who did, less than 1% did so "more than one year but less than five years ago." One percent reported that they had "more than five years ago". Further, one-third (33%) reported affected parcels of less than one acre/0.4 hectares, while one-quarter (25%) reported affected parcels of one to 10 acres/0.4-4.4 hectares.

CHAPTER 3: HUMAN-WILDLIFE CONFLICTS

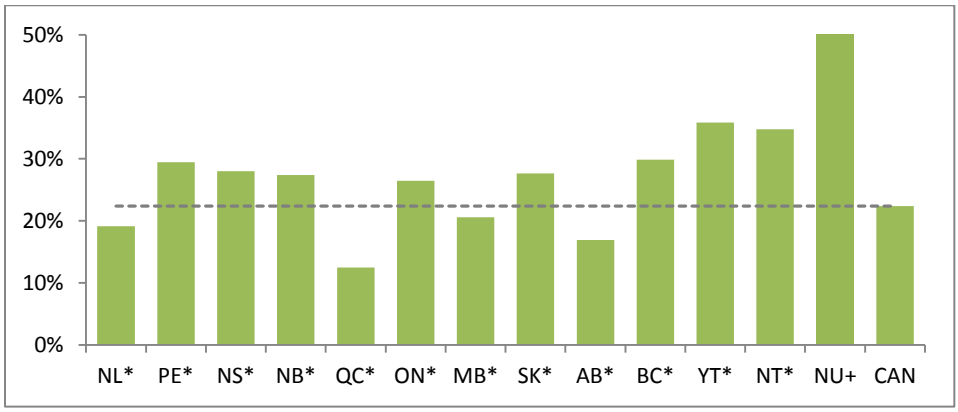
INTRODUCTION

The *2012 Canadian Nature Survey* collected data about the interactions between humans and wildlife. Many Canadians have positive experiences with wild animals, but in some cases the interaction between humans and wild animals can be negative, a situation that wildlife managers refer to as "human-wildlife conflicts." Although it is recognized that humans have profoundly impacted wildlife and the environment in many ways, the term "human-wildlife conflicts" focuses on conflicts that result from direct interaction among humans and wildlife such as through accidental collisions, confrontations, and the spread of infectious disease. These conflicts result in harm to the animal, or to the human or their property including pets, livestock, or working animals. Human-wildlife conflicts vary according to geography, land use patterns, human behaviour, and the habitat and behaviour of wildlife species or individual animals within the species.[70,71]

CONFLICT INCIDENCE & ACTIONS TAKEN

Nationally, 22% of Canadians reported that wild animals posed a threat to their safety (or the safety of people, pets, or farm animals in their care) at home or in their community within the previous 12 months.[72] As shown in *Figure 24*, this percentage was not consistent across provinces and territories. A significantly higher percentage of residents of Yukon (36%), the Northwest Territories (35%), British Columbia (30%), Prince Edward Island (29%), Saskatchewan (28%), Nova Scotia (28%), New Brunswick (27%), and Ontario (26%) reported a threat from wild animals, compared to Canadians nationally. Significantly fewer Manitoba (21%), Newfoundland and Labrador (19%), Alberta (17%), and Quebec (12%) residents, compared to all Canadian adults, reported such a threat.

Figure 24: Percent Reporting Threat to Safety From Wild Animals



* Indicates significant difference from national result.
\+ Data from Nunavut cannot be generalized to the population of the Territory, and are not calculated in national totals. See *Survey Methods*, above.

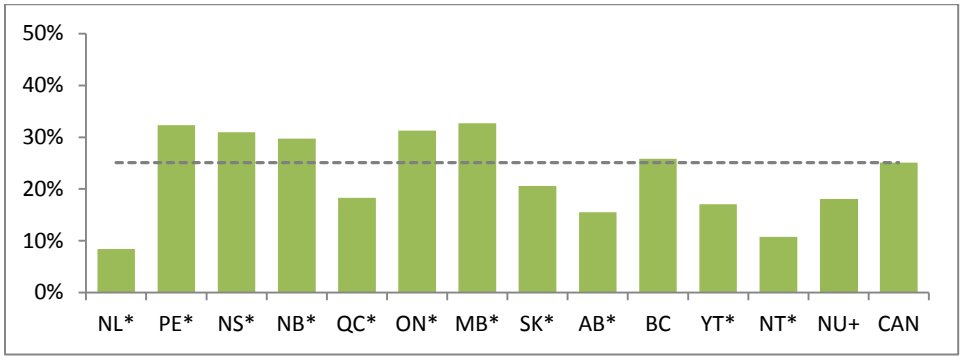
Furthermore, 25% of respondents (representing 6.5 million people) reported that wild animals caused damage to their personal property. As shown in *Figure 25*, this percentage was not consistent across provinces and territories. Residents of Manitoba (33%), Prince Edward Island (32%), Nova Scotia (31%), Ontario (31%), and New Brunswick (30%) were more likely to report damage than Canadians nationally. Residents of Quebec (18%), Yukon (17%), Alberta (16%), the Northwest Territories (11%), and Newfoundland and Labrador (8%) and were less likely than Canadians nationally to report that damage had occurred.

[70] Ontario Ministry of Natural Resources, "Strategy for Preventing and Managing Human-Wildlife Conflicts in Ontario" (2008) http://www.mnr.gov.on.ca/stdprodconsume/groups/lr/@mnr/@fw/documents/document/244546.pdf

[71] Environment Yukon, "Human-Wildlife Conflict," accessed May 10, 2013, http://www.env.gov.yk.ca/environment-you/human_wildlife_conflict.php.

[72] Note that throughout this report, references to "the previous 12 months" refer to the 12 months prior to the respondents' completion of the questionnaire. Because data collection occurred over several months (see *Survey Methods*), the previous 12 months referenced in the report spanned more than one year and can be expected to cover a period beginning October 2011 and ending May 2013.

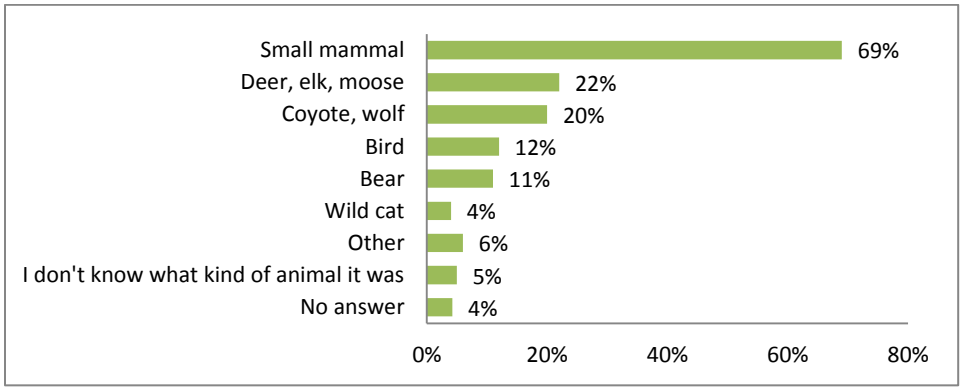
Figure 25: Percent Reporting Damage to Personal Property from Small or Large Wild Animals



* Indicates significant difference from national result.
\+ Data from Nunavut cannot be generalized to the population of the Territory, and are not calculated in national totals. See *Survey Methods*, above.

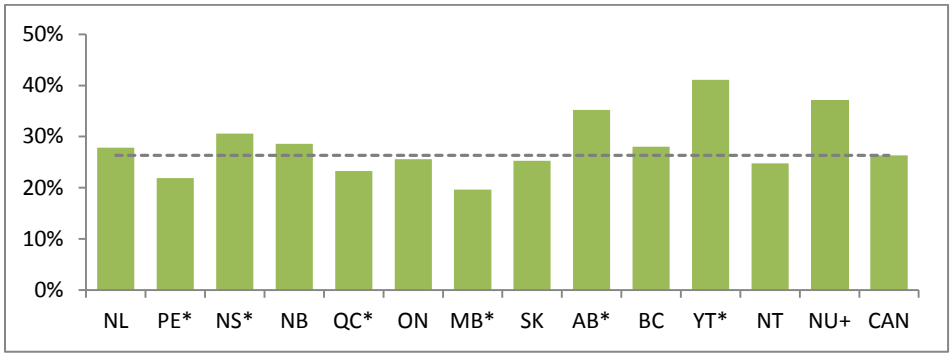
The survey asked respondents who had experienced a threat or damage from wild animals to report the kind of animal based on a list of options provided (multiple responses were allowed). Of Canadians who reported conflict, two-thirds (69%) reported that the type of animal was a small mammal, such as a groundhog, skunk, or raccoon. About one-fifth of those reporting conflict reported that the animal was a deer, elk or moose (22%) or a coyote or wolf (20%). *Figure 26* shows the types of animals reported by those who had experienced conflict.

Figure 26: Kind of Wild Animal Involved in Threat or Damage



Of Canadians who reported a threat or damage from wild animals, 26% reported that the conflict occurred in an area where nearby housing developments have recently expanded into a formerly natural area. The percentage of residents reporting conflict in this type of area was significantly higher than the national percentage in Yukon (41%), Alberta (35%), and Nova Scotia (31%), but it was significantly lower in Quebec (23%), Prince Edward Island (22%), and Manitoba (20%).

Figure 27: Conflict Occurred in Area Where Housing Developments Have Recently Expanded



* Indicates significant difference from national result.
\+ Data from Nunavut cannot be generalized to the population of the Territory, and are not calculated in national totals. See *Survey Methods*, above.

As a result of this conflict, over one-third (36%) of those who reported threat or damage from wild animals took no action (see *Table 23*). Of those who did take action, the most common actions selected from a list of options provided in the survey included removing or relocating items known to attract wildlife (reported by 27%) and fencing-off or otherwise protecting property (reported by 20%). Of those who wrote-in a response in the "other, specify" category, responses included a wide-variety of actions, including keeping pets indoors, particularly at night, and using natural deterrents (e.g. bone meal, garlic, soap around plants/in garden).

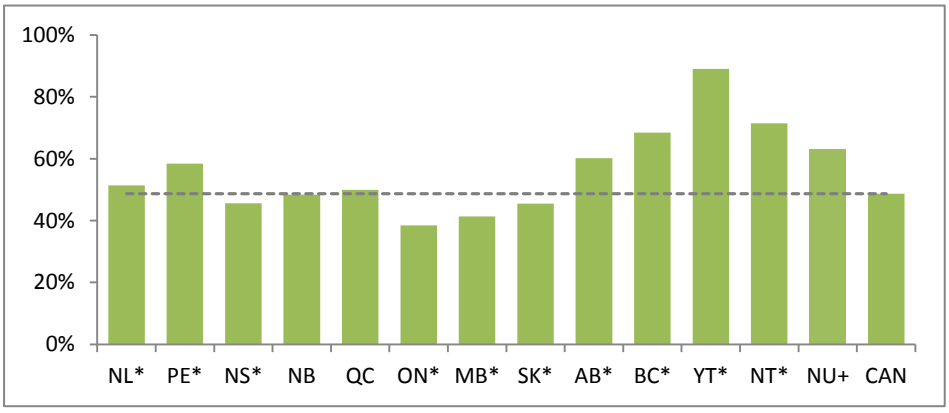
Table 23: Actions Taken As a Result of the Problem

Options Listed in Survey	Canadian Adults	
	Population Estimate	Percent
I took no action	3,709,997	36%
Removed or relocated items known to attract friendly wildlife	2,746,963	27%
Fenced-off or otherwise protected my property	2,012,105	20%
Followed authorities' recommended safety procedures	1,337,022	13%
Put out live traps / humane removal	1,264,192	12%
Spoke to local wildlife management officials	685,618	7%
Killed the animal believed to be a threat	381,355	4%
Put out poison	371,101	4%
Participated in local education and land use planning sessions on wildlife management	^	^
Other(Specify)	1,004,742	10%

^ Data point does not meet threshold for statistical reliability, see *Survey Methods* for explanation.

Awareness of laws or accepted guidelines about feeding wildlife was 49% nationally, and varied greatly by province or territory. A greater percentage of residents of Yukon (89%), the Northwest Territories (71%), British Columbia (68%), Alberta (60%), Prince Edward Island (58%), and Newfoundland and Labrador (51%) reported awareness about such laws or guidelines than Canadians nationally. Compared to all Canadian adults, a lower percentage of residents of Nova Scotia (46%), Saskatchewan (45%), Manitoba (41%), and Ontario (38%) reported awareness about such laws or guidelines.

Figure 28: Percent Aware of Laws/Accepted Guidelines about Feeding Wildlife



* Indicates significant difference from national result.
+ Data from Nunavut cannot be generalized to the population of the Territory, and are not calculated in national totals. See *Survey Methods*, above.

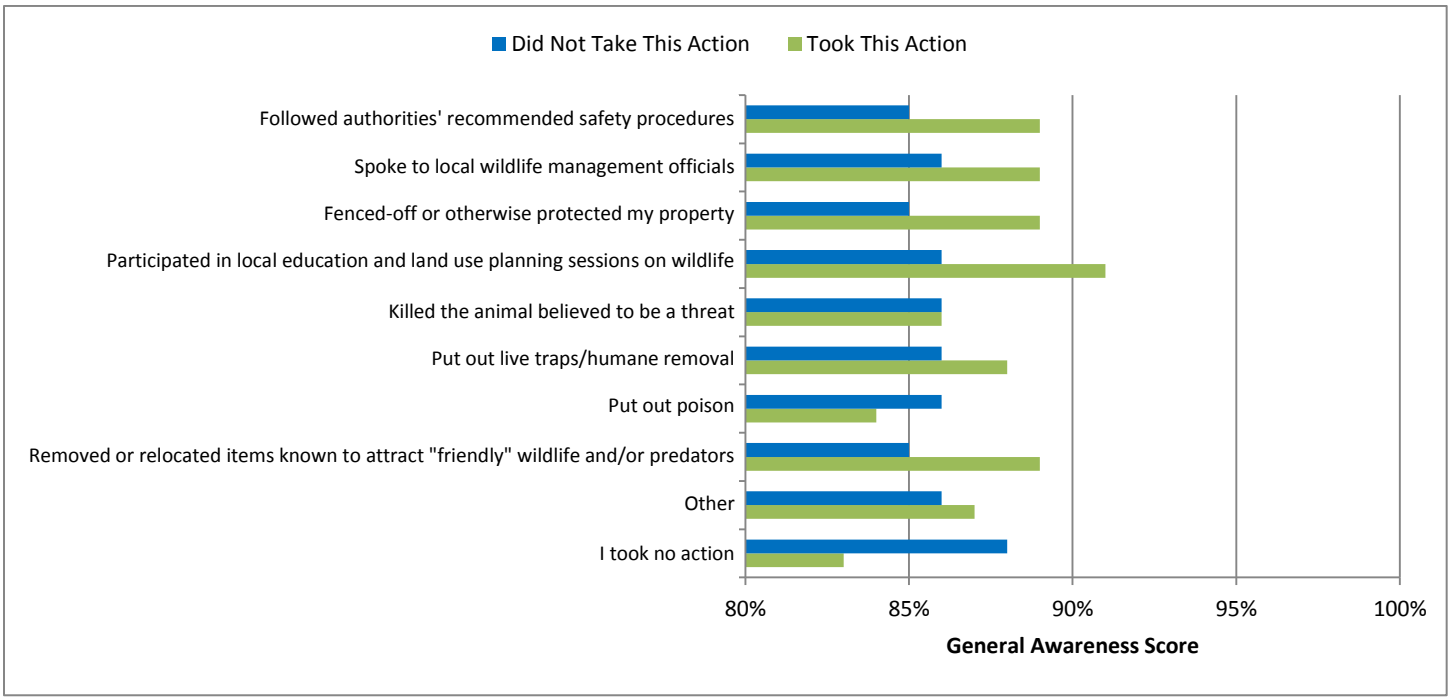
CROSS-ANALYSIS & DEMOGRAPHIC INSIGHTS

The analyses in this section of *Chapter 3* provide additional insight into Canadians' interactions with wildlife by examining the inter-relationships among responses, including demographic variables. All analyses are conducted at the national level using the address-based sample, so that estimates are representative of the Canadian population. Associations between continuous variables are tested for a linear relationship using the Pearson correlation, *r*. The *r*-value varies from -1 (strong negative correlation) to 0 (no correlation) to +1 (strong positive correlation). Comparisons of continuous variables between groups are tested using *t*-tests or ANOVAs as appropriate for the number of groups being compared. All associations and comparisons discussed are significant at the 95% confidence level unless otherwise noted. See *Appendix C: Construction of Aggregate Scores* for the formula of specific survey items used to compute each aggregate score as well as its interpretation and relevant quantitative metrics.

AWARENESS OF NATURE-RELATED ISSUES AND ACTIONS TAKEN TOWARD WILDLIFE CONFLICTS

The survey shows that the way an individual handles human-wildlife conflicts is associated with that individual's awareness of nature-related issues. *Figure 29* shows how General Awareness of nature-related issues (see *Appendix B: Survey Instrument* for information on how this aggregate awareness score was created) differs among Canadians who responded to human-wildlife conflicts. Overall, it appears that increased awareness of nature-related issues is associated with more adaptive responses to such conflicts. For example, individuals who followed authorities' recommended safety procedures for dealing with a wildlife conflict were more aware of nature-related issues in general compared to those who did not follow such procedures. Conversely, individuals who put out poison to deal with a wildlife conflict were less aware of nature-related issues in general compared to those who did not take this action. Those who chose to take no action in response to a conflict were also less aware of nature-related issues in general.

Figure 29: **General Awareness Scores Based on Responses to Human-Wildlife Conflicts**



Reports of human-wildlife conflicts were associated with higher General Awareness about nature-related issues, with Canadians who reported wild animals threatening their safety or damaging personal property scoring higher in General Awareness (87%) compared to Canadians who reported no such problems (83%). There was little difference in the reporting of such problems, however, when comparing Canadians who were aware of local laws or accepted guidelines regarding the feeding of wildlife (with 37% reporting problems) compared to Canadians who were not aware of laws or guidelines (with 36% reporting problems).

Demographic Differences

Canadians who participated in hunting/trapping activities were more likely to report human-wildlife conflicts (with 45% reporting problems) compared to those who did not participate in hunting or trapping (with 35% reporting problems). A similar pattern was found with participation in nature conservation, with 47% of Canadians who did participate in nature conservation reporting conflicts compared to 33% of Canadians who did not participate in nature conservation. In addition, 41% of Canadians with a nature-related profession reported conflicts, compared to 36% of other Canadians.

Information Sources

The survey revealed associations between the sources from which Canadians obtained nature-related information and the reporting of human-wildlife conflicts. Canadians who consumed nature-related media in the previous 12 months were also more likely to report human-wildlife conflicts compared to those who did not (40% vs. 29%, respectively). In particular, the proportion of Canadians reporting human-wildlife conflicts was highest for those who obtained information about nature through personal experience (42%) and through educational opportunities (40%) and was lowest for those who obtained information through reading publications such as magazines and newspapers (32%). In terms of the sources of nature-related information, the proportion of Canadians reporting human-wildlife conflicts was highest for those who obtained information about nature from conservation groups (42%) and was lowest for those who reported they did not obtain nature-related information (33%).

Urban vs. Rural Location

Canadians living in rural locations were more likely to report human-wildlife conflicts, although a substantial proportion of Canadians living in urban locations also reported such conflicts. Of the Canadians living in rural locations, 44% reported such a conflict in the previous year, as did 34% of Canadians living in urban locations.

Mixed-Sample Data Insights

As reported in *Report Structure and Scope* and *Weighting*, most results in this report are based on the address-based sample results ***only***, as only these data allow for tests of significance and other statistical analysis. All results presented in this chapter up to this point are therefore based only on the address-based sample. Discussion in this brief section of Chapter 3, however, presents findings from all survey data, including Web panel and opt-in responses, as well as the address-based sample data. These findings are not compared to the address-based results presented elsewhere because inferential statistical analyses are not recommended when using the "combined" analysis weight, due to its unknown variance properties. In addition, the address-based data are a subset of the data presented in the "Mixed-Sample Data Insight" sections, so comparisons would involve substantial overlap. These findings are best viewed on their own as a way to provide additional perspective on the topics measured in this survey because they comprise a larger sample (which has been weighted to the Canadian population by Province and Territory).

When looking at all *2012 Canadian Nature Survey* data together, including Web panel responses and the opt-in responses, 27% of respondents reported that wild animals posed a threat within the previous 12 months. A similar percentage (27%) reported that wild animals caused damage to their personal property. Of all respondents, slightly more (37%) reported that the conflict occurred in an area where nearby housing developments recently expanded into a formerly natural area. The most often cited kind of animal involved in the conflict was a small mammal (62%), followed by a coyote or wolf (24%), and deer, elk or moose (24%).

As a result of this conflict, 74% of all respondents reported taking some kind of action. The most commonly cited actions included removing or relocating items known to attract wildlife (reported by 26%) and fencing-off or otherwise protecting property (reported by 22%). Over half (52%) of all respondents were aware of laws or accepted guidelines about feeding wildlife.

CHAPTER 4: PROVINCE AND TERRITORY REPORTS

4.1 ALBERTA

This Provincial Report presents findings from the *2012 Canadian Nature Survey* for the Province of Alberta (AB). This section will cover Albertans' connection to nature and awareness of key concepts, their interactions with wildlife, and their involvement in nature-based activities. Except for the section entitled "Mixed-Sample Data Insights," results in this Provincial Report are based on the address-based sample results only, as only these data allow for tests of significance and other statistical analysis (see *Survey Methods*). 1,511 completed address-based surveys from Alberta were received, out of a total sample of 7,727; the survey response rate[73] for the province was 20%. This is representative of the estimated total adult population of 2,818,930 residents[74], with a statistical reliability of +/-2.5%[75], at 95% confidence. When a figure is shown with a "^" symbol it indicates that the figure does not meet ICF's analytical threshold for statistical reliability (see *Survey Methods: Statistical Reliability* for explanation.)

CONNECTION TO NATURE & AWARENESS

The *2012 Canadian Nature Survey* sought to understand the extent to which residents of Alberta are connected to nature. Survey results show that just under half of Alberta residents (49%) chose where they live partly to have access to nature. Thirteen percent of Albertans reported that their income relies on a nature-related profession, with 3% of respondents overall reported "farming" as a primary source of income.

BIODIVERSITY AND ECOSYSTEM SERVICES

Respondents were provided with definitions of the terms "biodiversity" and "ecosystem services" and then asked if, before the day that they completed the survey, they had heard of each of these concepts. In Alberta, awareness of the terms "biodiversity" and "ecosystem services," was high. Eighty-one percent of Albertans had heard of the term "biodiversity" before taking the survey, while 70% were aware of the term "ecosystem services."

While awareness of the term "ecosystem services" was high, even more Albertans were aware of examples of ecosystem services, or ways that nature can provide benefits. Ninety-eight percent of Albertans were aware that nature can be essential to:

- Produce oxygen, and clean pollutants from the air;
- Keep soil fertile and productive; and
- Provide places for recreation, fitness, and leisure.

More than two-thirds of Albertans were aware that nature can be essential to:

- Provide raw materials for most medicines (87%);
- Protect communities and property from storm impacts (82%);
- Support human psychological and cognitive development (76%); and
- Reduce or control the spread of many diseases (69%).

Additionally, 81% of Albertans were aware that biodiversity contributes to ecosystem services and provides life support and other important benefits to people.[76]

[73] See *Response Rates* for details regarding the computation of response rates.
[74] Survey respondents were individual adults, age 18 and over, see *Survey Methods, Sampling* for details.
[75] This margin of error does not account for design effects due to the complex survey design used in the 2012 Canadian Nature Survey. The design effect varies for each estimate and may in some cases increase the margin of error. The margin of error will be wider for sub-analysis of activities in which only a small number of respondents participate. All reported estimates have been screened for minimum reliability (see *Survey Methods*).
[76] Here the proportion of respondents who reported being aware that biodiversity contributes to ecosystem services is higher than the proportion of respondents who reported knowing the meaning of "ecosystem services." It is possible that some respondents may not have known the definition of the term "ecosystem services," but, after reading examples provided, they had a better understanding of what was meant by the term. Awareness of the concepts of biodiversity and ecosystem services and how they relate may therefore be understood independently of the definitions of these terms.

Seventeen percent of Alberta residents reported being directly affected, during the previous 12 months, by the loss of an ecosystem service that would normally have been provided by nature. Of those who reported a loss, the majority (57%) cited "emotional, psychological, or spiritual well-being" as the option that most closely matched how the loss affected them, followed distantly by 16% who cited "medical health."[77]

Species at Risk

The *2012 Canadian Nature Survey* also examined awareness of the term "species at risk" and actions taken to assist in the recovery of species at risk. When prompted, almost all Alberta respondents (95%) reported they had heard of the term prior to taking the survey. Fourteen percent of Albertans reported donating money on behalf of species at risk in the previous twelve months. Of those who had donated money, the largest proportion (24%) reported it was for "habitat protection for species anywhere in Canada."

Obtaining Information about Nature

Respondents were asked to report the three ways they most frequently obtain nature-related information. Albertans were most likely to read publications and "watch visual media" (both 63%), followed by obtaining information "from conversations" (43%), and "through personal experience" (38%).

When asked about their most frequent sources of information, Alberta residents reported "journalists/media writers" (58%), "friends, family or colleagues" (57%), "the government" (40%), "conservation groups" (36%), "scientists" (27%), and "teachers/educators" (17%).

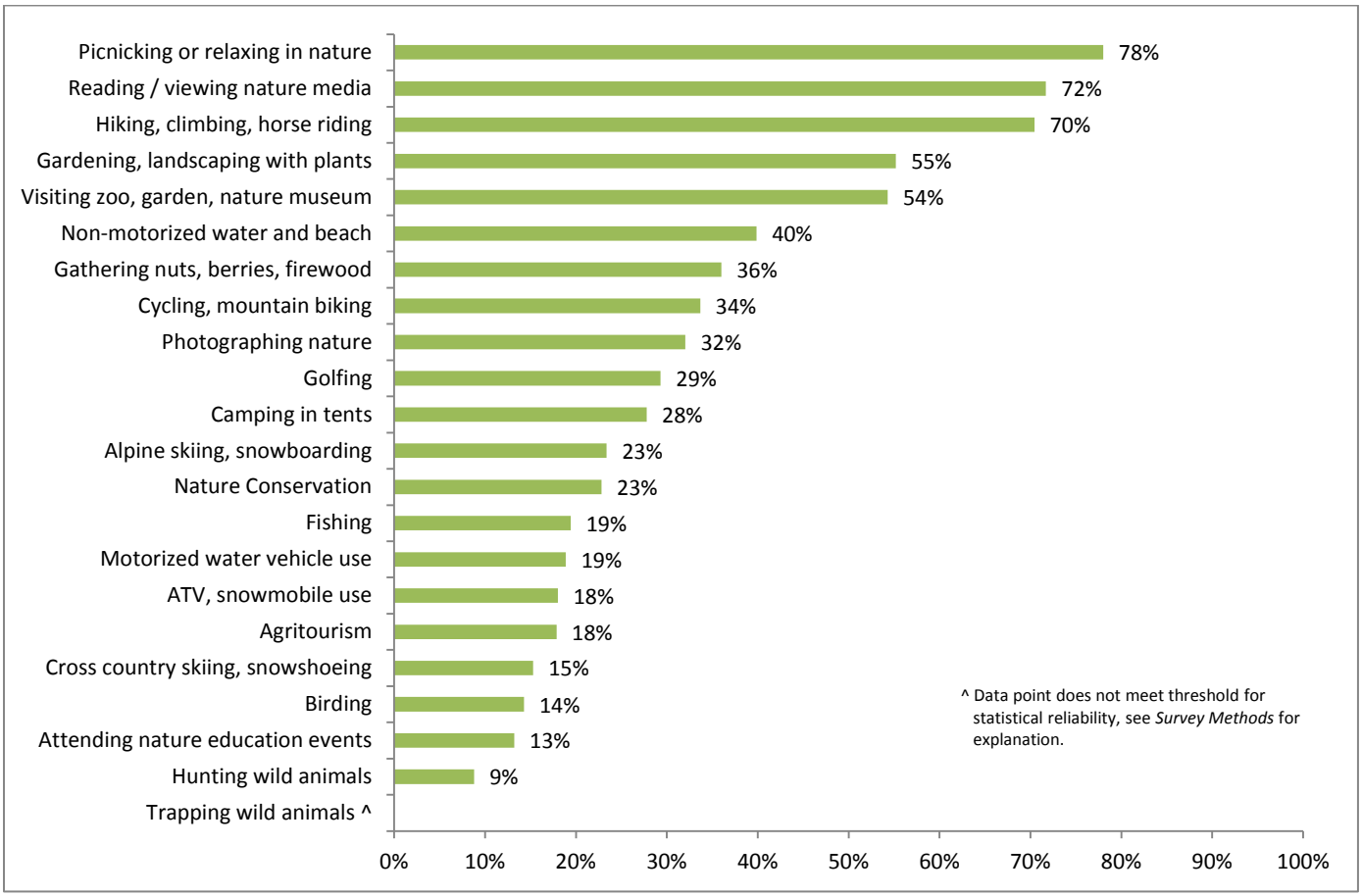
Nature-Based Activities

The largest section of the *2012 Canadian Nature Survey* questionnaire was devoted to collecting information about respondents' participation in nature-based activities in Canada during the 12 months prior to completing the survey, and collecting information about related expenses. For a complete listing of the activities that the survey addressed, and for how they are organized into groups for analysis in this report, see *Appendix A: Activities Crosswalk.* For a discussion of the methodology used to produce participation rates, see *Survey Methods: Participation Analysis*, and *Chapter 2: Nature-based Activities, Participation and Expenditures*.

As shown in *Figure 30*, over three-quarters of Albertans (78%) reported "picnicking or relaxing in nature," while more than 70% engaged in "reading or viewing nature media" (72%) and "hiking, climbing, or horse riding" (70%) in the previous 12 months. Over half reported "gardening" (55%) and "visiting a zoo, garden or museum" (54%).

[77] See *Appendix B: Survey Instrument* for how the question was worded, and for the complete list of options provided.

Figure 30: Percentage of Alberta Residents Age 18 and Over Participating in Nature-related Activities

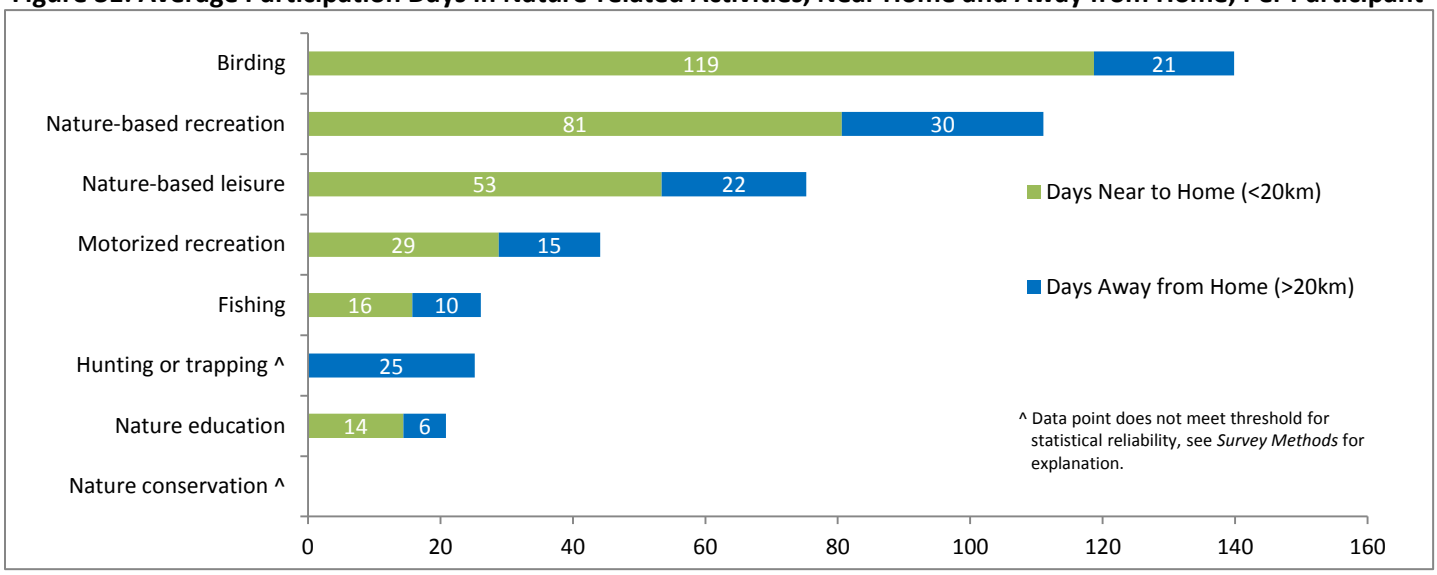


In addition to participation rates, the *2012 Canadian Nature Survey* also collected data on the amount of participation in nature-related activities. For most activities, respondents were asked to report the number of days that they spent participating in each activity in the previous 12 months in Canada, both within 20 km from their home, and more than 20 km away. Participation days are not necessarily mutually exclusive; respondents may participate in more than one nature-based activity in one calendar day. For conservation activities, the question was structured differently. Respondents were asked to report the number of days they spent engaged in a volunteer nature conservation activity away from their residence (either in their community or away from their community).

Figure 31 shows the average number of days near to home (within 20 km) and away from home (more than 20 km away) that participants in each activity spent engaged in that activity (referred to as "participant days"). In this figure, activities are organized into eight broad activity groups (see A*ppendix A: Activities Crosswalk* for examples of activities within each group).

Near home, "birding" had the highest number of participant days, at an average of 119. Away from home, "nature-based recreation" had the highest number of participant days, at an average of 30. When considering days spent near home and away, here again, birding (140 days) and nature-based recreation (111 days) were the most popular activities.

Figure 31: Average Participation Days in Nature-related Activities, Near Home and Away from Home, Per Participant



Hunting, Trapping, and Fishing

Alberta respondents who had participated in hunting, trapping, or fishing during the previous 12 months were asked if the activity had been carried out "under Aboriginal treaty rights," "licensed (not under Aboriginal rights)," "unlicensed," and if it was "primarily for sport/recreation," and/or "primarily for personal use or sharing." Respondents were asked to indicate all options that applied. The first three response categories provided (licensed, unlicensed, and Treaty rights) are *access options* which are normally mutually exclusive. However, the two *use options* response categories (primarily sport/recreation or primarily personal) can apply to any of the three access options.

The most commonly cited access option was "licensed, but not under Aboriginal treaty rights" (43%). The most commonly cited use option was "primarily for sport/recreation" (48%), followed by "primarily for personal use or sharing" (34%).

Respondents who indicated that they had not participated in hunting, trapping, or fishing activities were asked to indicate the reason for not participating. The top reasons why Alberta residents did not hunt or trap in the previous 12 months were "don't like hunting/trapping/not interested" (43%), "lack of knowledge" (20%) and "lack of time" (18%). This is similar to national results, with 41% reporting they "do not like to hunt/trap/not interested" 17% citing "lack of knowledge" and 14% reporting "lack of time." The top three reasons given for not participating in fishing were "don't like fishing/not interested" (33%), "lack of time" (23%), and "lack of knowledge" (15%). Nationally, the top three reasons are the same with 31 percent, 20% and 11%, respectively.

Nature-based Travel

Albertans residents reported the number of trips they made within Canada over the course of the previous 12 months that were farther than 20 km (one way) from their home, for which the main reason was to participate in nature-based activities for recreation, leisure, hunting, trapping, or fishing for personal use. Alberta residents who partook in these trips reported an average of 13.4 same-day trips and 7.8 overnight trips. The most often-cited trip duration was "one day, not overnight" (32%), followed closely by 31% who typically took a trip lasting between two and four days, with overnight stays. Albertans stayed an average of 23 days at the three places farther than 20 km from their homes that they were most likely to visit. If the location where residents made such trips was a national park, provincial park, or other protected area, the places where they spent the most time were Banff National Park, Jasper National Park, in Kananaskis Country, at Waterton Lakes National Park, and at Peter Lougheed Provincial Park.

About one in five (21%) Alberta residents reported owning or using a personal or family secondary property in Canada, such as a cottage, camp, or cabin. During the same time period, they reported spending an average of 22.6 days at that cottage, camp, or cabin. The most frequently mentioned activities while at the property include hiking/walking, boating (including canoeing and kayaking), and swimming.

ECONOMIC ANALYSIS

Residents of Alberta spent a total of $5.1 billion on the nature-related activities included in the *Canadian Nature Survey* in the previous 12 months[78], which accounted for 13% of all such expenditures in Canada. Alberta ranked as the fourth highest-spending province/territory on nature-related activities in Canada in the previous 12 months, and sixth-highest as the average per-person amount spent ($2,024 in the previous 12 months).

Table 24: Nature-Related Expenditures by Residents of Alberta by Activity & Expenditure Type in the Previous 12 Months ($millions)[79]

Activity	Transportation		Accommodation		Food		Equipment, Fees & Supplies		Total ($M)
	Total ($M)	%	Total ($M)	%	Total ($M)	%	Total ($M)	%	
Nature-based Recreation	$765	33%	$465	20%	$383	16%	$714	31%	**$2,327**
Nature Education	$112	37%	$54	18%	$59	20%	*$72^*	24%	**$297**
Nature-Based Leisure	$160	17%	$76	8%	$102	11%	$425	45%	**$929**
Photographing Nature	$115	29%	$66	17%	*$83^*	21%	$135	34%	$397
Gardening/Landscaping	$45	12%	*$10^*	3%	*$18^*	5%	$290	80%	$357
Nature Media	-	-	-	-	-	-	-	-	$175
Birding	*$18^*	24%	*$14^*	19%	$13	18%	*$29^*	40%	**$74**
Motorized Recreation	*$200^*	26%	*$56^*	7%	$217	28%	*$310^*	40%	**$781**
Land-based	*$121^*	23%	$20	4%	*$175^*	34%	$202	38%	*$518^*
Water-based	$79	30%	$36	14%	*$41*	16%	*$108^*	41%	$264
Hunting & Trapping	$91	34%	*$12^*	5%	$40	15%	$124	47%	**$268**
Hunting Waterfowl	*$10^*	27%	*$2^*	4%	*$4^*	12%	*$21^*	57%	$36
Hunting Other Game Birds	$18	40%	*$3^*	7%	*$7^*	16%	*$16^*	38%	$43
Hunting Small Game	*$6^*	44%	*$0^*	1%	*$2^*	16%	*$5^*	38%	$12
Hunting Large Game	$56	33%	$8	4%	$25	15%	*$82^*	48%	$169
Hunting Other Animals	*$1^*	43%	*$0^*	6%	*$1^*	44%	*$0^*	6%	$3
Trapping	*$2^*	53%	*$0^*	1%	*$1^*	28%	*$1^*	17%	$4
Fishing	$80	35%	$23	10%	$32	14%	*$93^*	41%	**$227**
Nature Conservation (on private land)	-	-	-	-	-	-	-	-	**$201**
Food/Shelter for Wildlife	-	-	-	-	-	-	-	-	$45
Conserve Natural Setting	-	-	-	-	-	-	-	-	*$152^*
Maintain Forest for non-timber use	-	-	-	-	-	-	-	-	*$4^*
Total	**$1,426**	**28%**	**$701**	**14%**	**$846**	**17%**	**$1,767**	**35%**	**$5,105**[80]

^ Data point does not meet threshold for statistical reliability due to the number of respondents who participated in a given activity or who provided responses to a given question. The screening threshold for statistical reliability applied to each data point was a minimum of 30 responses and a CV < .3. See *Survey Methods* for explanation.
- Category is not disaggregated by this expenditure type.
Percents are presented in terms of the share of expenditures for each activity.

[78] The 12-month period was unique for each respondent depending exactly on when the respondent completed the questionnaire. However, the period can be expected to cover a period beginning October 2011 and ending May 2013.

[79] The grand total includes expenditures that are not categorized by expense type, including multimedia purchases and spending on nature conservation activities. Therefore, the percentages by expense type may not sum to 100%.

[80] The grand total for expenditures is calculated as an independent figure, equal to the sum of all component totals, and was independently screened for reliability. Consequently, the grand total includes expenditure amounts for all component activities, including those that were individually below the reliability threshold, see *Survey Methods: Statistical Reliability*.

Expenditures by Activity and Expense Type

For all expenses paid by Alberta residents for nature-related expenses in the previous 12 months, 35% were spent on equipment, fees and supplies, 28% on transportation, 17% on food, and 14% on accommodations. Approximately 4% of expenses were attributable to nature conservation.[81]

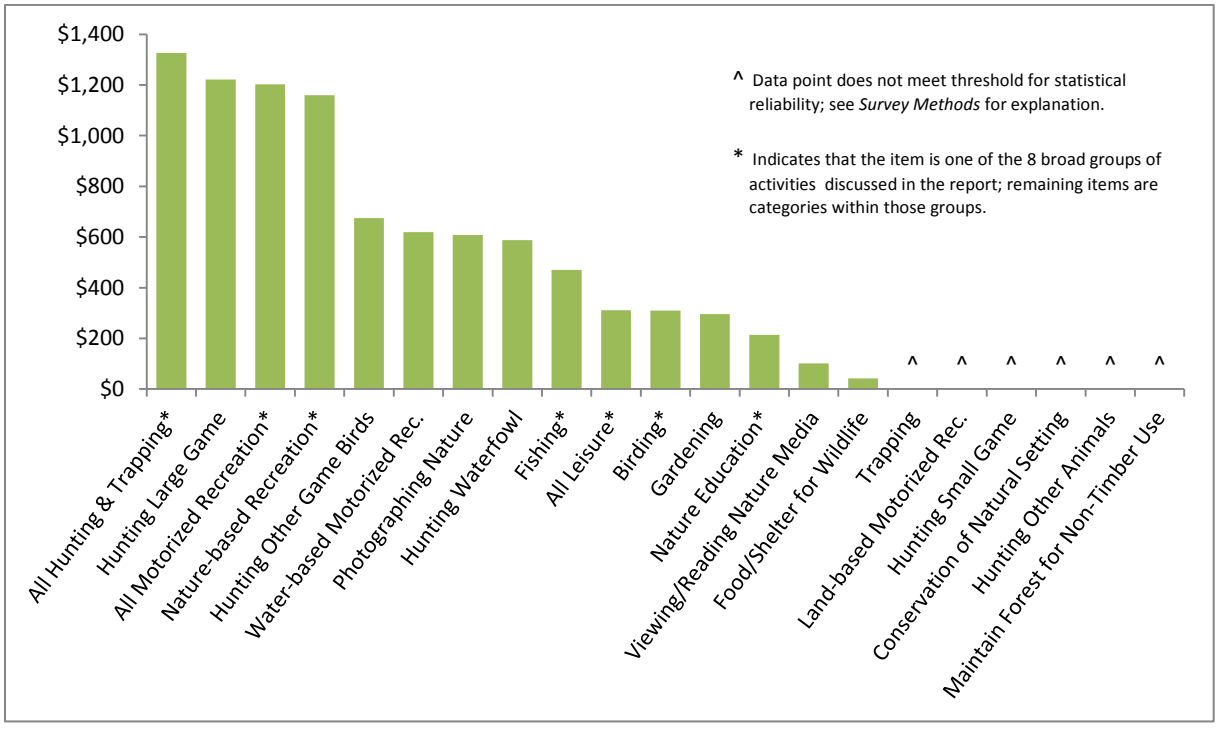
Nearly half (46%) of all nature-related expenditures by Alberta residents were for the activities included in the nature–based recreation category ($2.3 billion). Consistent with the national trend, residents spent the majority of this on transportation ($765 million, 33%) and equipment, fees and supplies ($714 million, 31%). Other significant expenditure categories included photography ($397 million), gardening ($357 million), and nature-based educational activities ($297 million).

Average Yearly and Average Daily Expenditures

Alberta was the sixth highest-spending province on nature-related activities on a per-person basis in the previous 12 months. Per-person expenditures should be understood as the average amount that a person *who participates in a given activity* spends on the activity over the course of the year. The average resident of Alberta spent $2,024 annually on nature-related activities, higher than the national average of $1,757 per person.

On an average per-participant basis, residents of Alberta spent over $1,000 on hunting large game ($1,222) and on nature-based recreation ($1,160). Consistent with national trends, birding, gardening, hunting small game, and nature conservation activities (e.g., providing food/shelter to wildlife) incurred low expenses per participant.

Figure 32: Average Yearly Expenditures by Activity Type for Residents of Alberta in the Previous 12 Months



As with the highest annual expense, the highest per-day expense is for hunting large game ($105). Alternatively, as compared to the high annual per-participant expenditures for nature-based recreation, the daily per-participant expenditures are low ($24). On a given day that a person participates in nature-based recreation, the participant will not spend a large amount, but after participating

[81] The data used to estimate this amount is based on options 1 through 3 of survey question 42, a limited scope that does not include donations or membership dues to nature organizations, or expenditures incurred in any volunteer activity away from respondents' residences. It is not based on the same categories of expenditures used for most other activities in the survey (transportation, accommodation, food, equipment, fees, and supplies) that are often associated with a 'travel cost' type of analysis.

in the activity multiple times over the course of the year (an average of roughly 48 days per year), the expenses become significant. Other low expense-per-day activities include birding ($18) and gardening ($12). High expense-per-day activities include predominantly hunting activities, such as hunting large game ($105), hunting game birds other than waterfowl ($97), and hunting waterfowl ($84).

Table 25: Average Daily Expenditures by Activity Type for Residents of Alberta in the Previous 12 Months

Activity	Daily Expenditure
Hunting Large Game	$105
Hunting Other Game Birds	$97
Hunting Waterfowl	$84
Water-based Motorized Recreation	$77
Fishing	$60
Photographing Nature	$39
Nature Education	$39
Nature-based Recreation	$24
Birding	$18
Gardening/Landscaping	$12
Trapping	^
Land-based Motorized Recreation	^
Hunting Small Game Animals	^
Hunting Other Wild Animals	^

^ Data point does not pass threshold for statistical reliability - points are shown at the low end to signal this status, and do not imply rank of results for these items. See *Survey Methods* for explanation.

Nature Conservation

The *2012 Canadian Nature Survey* collected information about different types of nature conservation in several different survey sections. This section reports results from the survey section entitled "Nature Conservation" which asked about membership and support of nature organizations, participation in volunteer nature conservation activities, and nature conservation at home. (see *Appendix B: Survey Instrument*).

Canadians were asked to provide the total number of days that they participated in several different types of voluntary nature conservation activities away from their residence in the previous 12 months. In Alberta, 23% of adults participated in at least one volunteer nature conservation activity for at least one day. Of those who participated, the average number of days of participation within the previous 12 months across all activities was 59.3 days.

The most common way that residents organize their time for volunteer nature conservation activities is to volunteer occasionally when it interests them (reported by 29% of respondents). The majority (58%) of Alberta residents who volunteer in nature-related activities indicated that their nature-related volunteer involvement has stayed the same over the past five years and 30% reported an increase; responses that reported a decrease did not generate a statistically reliable provincial estimate.

Fifteen percent of Alberta residents reported participating in citizen science activities in the previous 12 months. Citizen science encompasses activities of volunteers who perform or manage research-related tasks such as wildlife or habitat observation, measurement, or assessment.

"Lack of time" was the reason provided by over half (53%) of Alberta respondents when asked what prevented them from participating in volunteer nature conservation activities during the previous 12 months. About one-third reported they "were unaware of an opportunity" (34%) or cited "personal choice" (32%).

Human-Wildlife Conflicts

The *2012 Canadian Nature Survey* collected data about the interactions between humans and wildlife. Some of these interactions can be negative. Wildlife managers refer to "human-wildlife conflict" as any interaction between wild animals (whether small or large) and humans which causes harm, whether to the animal, human, or property (including pets or livestock). This conflict can happen in urban, rural, or wilderness settings.

Seventeen percent of Albertans reported that a wild animal posed a threat to their safety or to the safety of people, pets, or farm animals in their care at home or in the community, in the previous 12 months. About the same proportion (16%) reported that a wild animal caused damage to their personal property. Of those who experienced threat or damage, the most frequently cited type of animal involved was a small mammal (e.g., groundhog, skunk, or raccoon), reported by 41% of those who reported a conflict, followed by deer, elk or moose (39%), and a coyote or wolf (38%).

As shown in *Table 26*, over 40% of Albertans who experienced threat or damage "took no action" as a result of the incident. For those who did act, the most common actions were to "remove or relocate items known to attract 'friendly' wildlife" (17%) and to "follow authorities' recommended safety procedures" (15%).

Table 26: **Actions Taken As a Result of the Problem**

Options Listed in Survey	Alberta	
	Population Estimate	**Percent**
I took no action	354,477	42%
Removed or relocated items known to attract friendly wildlife	140,511	17%
Followed authorities' recommended safety procedures	128,829	15%
Fenced-off or otherwise protected my property	116,778	14%
Spoke to local wildlife management officials	100,090	12%
Put out live traps / humane removal	^	^
Killed the animal believed to be a threat	^	^
Put out poison	^	^
Participated in local education and land use planning sessions on wildlife management	^	^
Other(Specify)	106,896	13%

^ Data point does not meet threshold for statistical reliability; see *Survey Methods* for explanation.

Mixed-Sample Data Insights

As reported in *Report Structure and Scope* and *Weighting* most results in this report are based on the address-based sample results ***only***, as only these data allow for tests of significance and other statistical analysis. Because of the large number of web-panel surveys collected in Alberta however, the following section presents findings from all survey data, including Web panel and opt-in responses, as well as the address-based sample data. These findings are not compared to the address-based results presented elsewhere because inferential statistical analyses are not recommended when using the "combined" analysis weight, due to its unknown variance properties. In addition, the address-based data are a subset of the data presented in the "Mixed-Sample Data Insight" sections, so comparisons would involve substantial overlap. These findings are best viewed on their own as a way to provide additional perspective on the topics measured in this survey.

Participation

When looking at all survey responses from Alberta combined (i.e., address-based and Web panel responses), 72% of Alberta respondents reported participating in nature-based recreation activities in the previous 12 months, 59% reported participating in nature-based leisure activities, and 54% reported participating in nature education activities. Somewhat lower proportions of Alberta respondents reported participating in conservation activities (32%), motorized recreation activities (27%), birding (25%), fishing (20%), and hunting/trapping (15%).

The most cited access option cited for participating in hunting, trapping, or fishing was "licensed, not under Aboriginal treaty rights" (50%), and the most commonly cited use option was "primarily for sport/recreation" (36%). The most common reason for not hunting was "Don't like hunting, trapping/ not interested" (26%), followed by "lack of time" (20%). The most common reasons cited for not fishing included "lack of time" (29%) and "don't like fishing/ not interested" (19%).

With regard to the average participation days in nature-related activities, per participant, nature-based recreation had the highest average number of participant days (75 near to home and 27 away from home), followed by birding (68 near to home and 21 away

from home), nature-based leisure (48 near to home and 23 away from home), nature education (30 near to home and 12 away from home), motorized recreation (34 near to home and 14 away from home), hunting/trapping (17 near to home and 17 away from home) and fishing (7 near to home and 7 away from home).

AWARENESS

When looking at all survey responses from Alberta combined (i.e., address-based and Web panel responses), 68% of Alberta respondents had heard of "biodiversity" and 72% had heard of "ecosystem services." Additionally, 70% of all respondents were aware that biodiversity contributes to ecosystem services.[82] Respondents were presented with a list of benefits arising from nature that are also known as "ecosystem services." They reported if, prior to the survey, they were aware that nature can be essential to each one. Of the 11 examples, awareness was 95% for "produce oxygen and clean pollutants from the air," 92% for "filter water to keep it clean and safe," 92% for "keep soil fertile and productive," and 89% for "provide places for recreation, fitness and leisure." Awareness was lowest for "support human psychological and cognitive development" (61%) and "reduce or control the spread of many diseases" (64%). About one-quarter (26%) of respondents reported that they had been directly affected by the loss of an ecosystem service. Of those respondents who reported a loss, the most commonly cited impact of the loss was "physical fitness" (34%), followed by "emotional, psychological, or spiritual well-being" (23%) and "medical health" (21%). The numbers of respondents indicating other types of impact were too low to be analyzed (sample $n < 30$).

Most Alberta respondents (89%) had heard of the term "species at risk," and 30% had donated money on behalf of such species. When asked where their donation was targeted, the largest proportion of respondents (23%) reported donating to "specific species at risk in their province." This was followed by 18% that donated to "habitat protection for species anywhere in Canada," 15% to "specific species at risk internationally," 15% to "species at risk in general," and 12% to "specific species at risk nationally." Approximately 46% of Alberta respondents reported taking some action to assist in the recovery of species at risk. The most commonly selected action was "changing how I use the land or place where I live to avoid impacts on the habitat of these species" (26%).

HUMAN-WILDLIFE INTERACTIONS

When looking at all survey responses from Alberta combined (i.e., address-based and Web panel responses), 24% of Alberta respondents reported that wild animals posed a threat within the previous 12 months. A slightly smaller percentage (19%) reported that wild animals caused damage to their personal property. Of these respondents, 45% reported that the conflict occurred in an area where nearby housing developments recently expanded into a formerly natural area. The most often cited kind of animal involved in the conflict was a small mammal (42%) or a coyote or wolf (42%), followed by deer, elk or moose (37%).

As a result of this conflict, 71% of Alberta respondents reported taking some kind of action. The most commonly cited actions included following authorities' recommended safety procedures (25%) and speaking to local wildlife management officials (21%). Over half (59%) of all Alberta respondents were aware of laws or accepted guidelines about feeding wildlife.

[82] Here the proportion of respondents who reported being aware that biodiversity contributes to ecosystem services is higher than the proportion of respondents who reported knowing the meaning of "ecosystem services." It is possible that some respondents may not have known the definition of the term "ecosystem services," but, after reading examples provided, they had a better understanding of what was meant by the term. Awareness of the concepts of biodiversity and ecosystem services and how they relate may therefore be understood independently of the definitions of these terms.

4.2 BRITISH COLUMBIA

This Provincial Report presents findings from the *2012 Canadian Nature Survey* for the Province of British Columbia (BC). This section will cover British Columbians' connection to nature and awareness of key concepts, their interactions with wildlife, and their involvement in nature-based activities. Results in this section are based on an address-based sample only (see *Survey Methods*). 1,184 completed address-based surveys from British Columbia were received, out of a total sample of 5,138; the survey response rate[83] for the province was 23%. This is representative of the estimated total adult population of 3,558,680 adult residents[84], with a statistical reliability of +/-2.9%,[85] at 95% confidence. When a figure is shown with a "^" symbol it indicates that the figure does not meet ICF's analytical threshold for statistical reliability (see *Survey Methods: Statistical Reliability* for explanation.)

CONNECTION TO NATURE & AWARENESS

The *2012 Canadian Nature Survey* sought to understand the extent to which residents of British Columbia are connected to nature. Survey results show that a majority of British Columbia residents (68%) chose where they live partly to have access to nature. Fourteen percent of British Columbians reported that their income relies on a nature-related profession, with 5% earning their primary income from forestry.

BIODIVERSITY AND ECOSYSTEM SERVICES

Respondents were provided with definitions of the terms "biodiversity" and "ecosystem services" and then asked if, before the day that they completed the survey, they had heard of each of these concepts. In British Columbia, awareness of the terms "biodiversity" and "ecosystem services" was high. The majority (82%) of British Columbians had heard of the term "biodiversity" before taking the survey, while 67% were aware of the term "ecosystem services" prior to survey administration.

While awareness of the term "ecosystem services" was high, even more British Columbians were aware of examples of ecosystem services, or ways that nature can provide benefits. Between 95% and 98% of British Columbia residents were aware that nature can be essential to:

- Produce oxygen, and clean pollutants from the air;
- Pollinate plants and crops to produce food;
- Filter water to keep it clean and safe;
- Keep soil fertile and productive;
- Provide places for recreation, fitness, and leisure; and
- Provide raw materials for making and building things.

Fewer residents of British Columbia (67%) were aware that nature can be essential to "reduce or control the spread of many diseases."

Additionally, 82% of British Columbians were aware that biodiversity contributes to ecosystem services and provides life support and other important benefits to people.[86]

Eighteen percent of British Columbia residents reported being directly affected, during the previous 12 months, by the loss of an ecosystem service that would normally have been provided by nature. Of those who reported a loss, the largest proportion (45%) cited "emotional, psychological, or spiritual well-being" as the option that most closely matched how the loss affected them.[87]

[83] See *Response Rates* for details regarding the computation of response rates.
[84] Survey respondents were individual adults, age 18 and over, see *Survey Methods, Sampling* for details.
[85] This margin of error does not account for design effects due to the complex survey design used in the 2012 Canadian Nature Survey. The design effect varies for each estimate and may in some cases increase the margin of error. The margin of error will be wider for sub-analysis of activities in which only a small number of respondents participate. All reported estimates have been screened for minimum reliability (see *Survey Methods*).
[86] Here the proportion of respondents who reported being aware that biodiversity contributes to ecosystem services is higher than the proportion of respondents who reported knowing the meaning of "ecosystem services." It is possible that some respondents may not have known the definition of the term "ecosystem services," but, after reading examples provided, they had a better understanding of what was meant by the term. Awareness of the concepts of biodiversity and ecosystem services and how they relate may therefore be understood independently of the definitions of these terms.
[87] See *Appendix B: Survey Instrument*, for how the question was worded, and for the complete list of options provided.

Species at Risk

The *2012 Canadian Nature Survey* also examined awareness of the term "species at risk" and actions taken to assist in the recovery of species at risk. Almost all British Columbians (94%) reported they had heard of the term prior to taking the survey. Sixteen percent of British Columbians reported donating money on behalf of species at risk in the previous twelve months. Of those who had donated money, the largest proportion (21%) reported it was for "habitat protection for species in [their] Province." This was followed closely by 20% who donated for "habitat protection for species anywhere in Canada."

Obtaining Information about Nature

Respondents were asked to report the three ways they most frequently obtain nature-related information. British Columbia residents most often reported that they "read publications" (66%) and "watch visual media" (64%), followed by obtaining information "through personal experience" (42%), and "from conversations" (41%).

When asked about their most frequent sources of information, British Columbia residents reported "journalists/media writers" (65%), "friends, family or colleagues" (56%), "conservation groups" (39%), "the government" (31%), "scientists" (28%), and then "teachers/educators" (15%).

Nature-Based Activities

The largest section of the *2012 Canadian Nature Survey* questionnaire was devoted to collecting information about respondents' participation in nature-based activities in Canada during the 12 months prior to completing the survey, and collecting information about related expenses. For a complete listing of the activities that the survey addressed, and for how they are organized into groups for analysis in this report, see *Appendix A: Activities Crosswalk.* For a discussion of the methodology used to produce participation rates, see *Survey Methods: Participation Analysis*, and *Chapter 2: Nature-based Activities, Participation and Expenditures*.

As shown in *Figure 33*, over three-quarters of British Columbia residents (79%) reported "picnicking or relaxing in nature", "reading or viewing nature media" (78%) and "hiking, climbing, or horse riding" (76%) in the previous 12 months. Half reported "gardening" and "visiting a zoo, garden or museum" and close to half reported "gathering nuts, berries, or firewood" (48%).

In addition to participation rates, the *2012 Canadian Nature Survey* also collected data on the amount of participation in nature-related activities. For most activities, respondents were asked to report the number of days that they spent participating in each activity in the previous 12 months in Canada, both within 20 km from their home, and more than 20 km away. Participation days are not necessarily mutually exclusive; respondents may participate in more than one nature-based activity in one calendar day. For conservation activities, the question was structured differently. Respondents were asked to report the number of days they spent engaged in a volunteer nature conservation activity away from their residence (either in their community or away from their community).

Figure 34 shows the average number of days near to home (within 20 km) and away from home (more than 20 km away) that participants in each activity spent engaged in that activity (referred to as "participant days"). In this figure, activities are organized into eight broad activity groups (see *Appendix A: Activities Crosswalk* for examples of activities within each group).

Both near to home and away from home, "nature-based recreation" had the highest number of participant days, at an average of 101 and 31, respectively. When considering total participant days, here again, nature-based recreation (132 days) and birding (122 days) were the most popular activities.

Figure 33: Percentage of British Columbia Residents Age 18 and Over Participating in Nature-related Activities

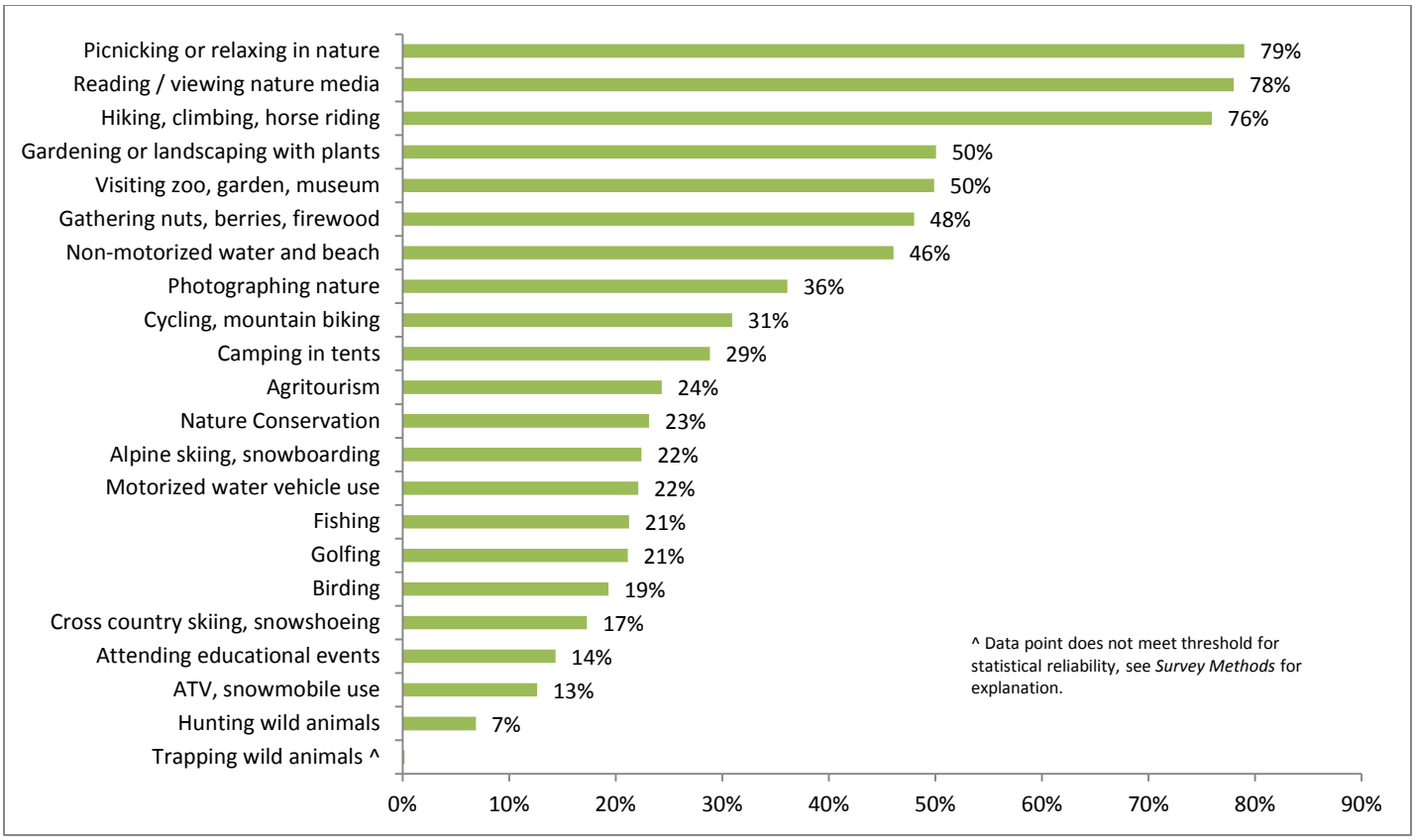
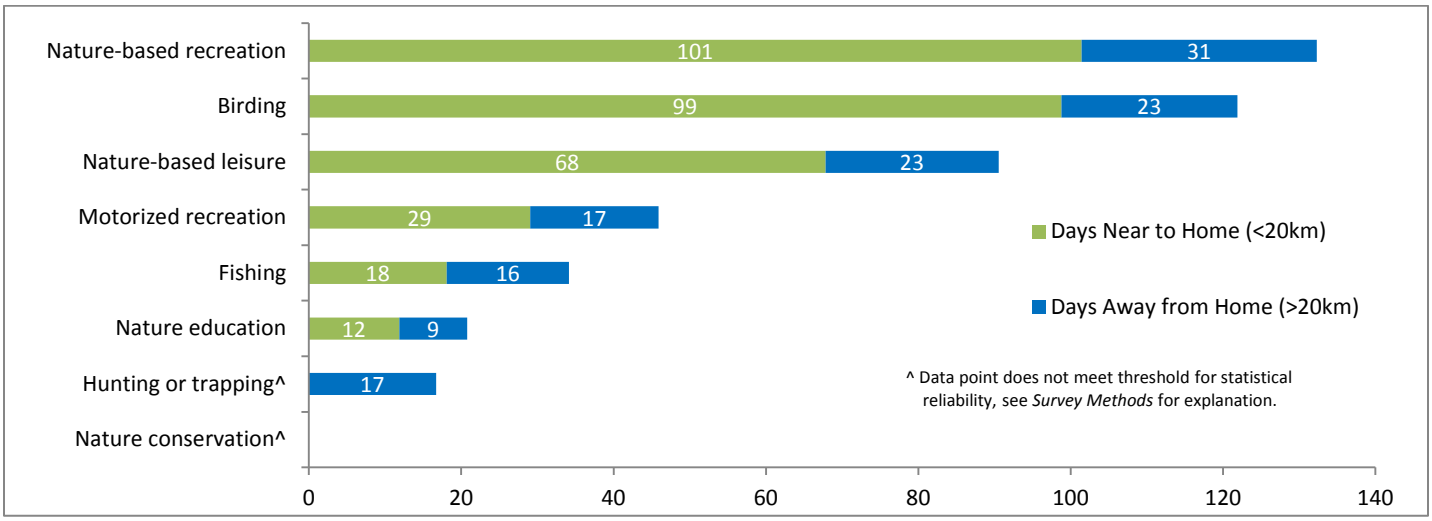


Figure 34: Average Participation Days in Nature-related Activities, Near Home and Away from Home, Per Participant



Hunting, Trapping, and Fishing

British Columbia residents who reported participating in hunting, trapping, or fishing during the previous 12 months were asked if the activity had been carried out "under Aboriginal treaty rights," "licensed (not under Aboriginal rights)," "unlicensed," and if it was "primarily for sport/recreation," and/or "primarily for personal use or sharing." Respondents were asked to indicate all options that applied. The first three response categories provided (licensed, unlicensed, and Treaty rights) are *access options* which are normally mutually exclusive. However, the two *use options* response categories (primarily sport/recreation or primarily personal) can apply to any of the three access options.

The most commonly cited access option was "licensed, but not under Aboriginal treaty rights" (42%). The most commonly cited use option was "primarily for sport/recreation" (47%), followed by "primarily for personal use or sharing" (43%).

Respondents who indicated that they had not participated in hunting, trapping, or fishing activities were asked to indicate the reason for not participating. The top reasons why British Columbia residents did not hunt or trap in the previous 12 months were "don't like hunting/trapping/not interested" (39%), "lack of knowledge" (18%) and "ethical reasons/don't want to hurt animals" (17%). This order is very close to the top three reasons nationally with 41% (do not like to/not interested), 17% (lack of knowledge) and 14% (ethical reasons).

The top three reasons given for not participating in fishing were "don't like fishing/not interested" (29%), "lack of time" (21%), "lack of equipment" (14%) and "lack of knowledge about fishing" (13%). Nationally, results are similar, with 31% reporting they "don't like fishing/are not interested," 20% citing "lack of time" and 11% saying they "lack knowledge about fishing."

Nature-based Travel

British Columbia residents reported the number of trips they made within Canada over the course of the previous 12 months that were farther than 20 km (one way) from their home, for which the main reason was to participate in nature-based activities for recreation, leisure, hunting, trapping, or fishing for personal use. British Columbians who partook in these trips reported an average of 16 same-day trips and 8.9 overnight trips. The most often-cited trip duration was "one day, not overnight" (31%), followed closely by 30% who typically took a trip lasting between two and four days, with an overnight stay. British Columbians stayed an average of 26 days at the three places farther than 20 km from their homes that they visited most. If the location where residents made such trips was a national park, provincial park, or other protected area, the places where they spent the most time were Banff National Park, E.C. Manning Provincial Park, Pacific Rim National Park Reserve, Garibaldi Provincial Park, and Golden Ears Provincial Park.

About one in six (17%) British Columbia residents reported owning or using a personal or family secondary property in Canada, such as a cottage, camp, or cabin. During the same time period, they reported spending an average of 24 days at that cottage, camp, or cabin. The most frequently mentioned activities while at the property include hiking/walking, swimming, and boating (including canoeing and kayaking).

Economic Analysis

Residents of British Columbia spent over $7.5 billion on nature-related activities and services in the previous 12 months[88], making the province the third-largest in terms of total expenditures. Nineteen percent of all nature-related expenditures in Canada in the previous 12 months were spent by residents of British Columbia. The high expenditures are a result of both a large population (third-largest in the country) and large per-person expenditures ($2,337 per person), which ranked fourth nationally.

Expenditures by Activity and Expense Type

In general, expenditures by expense type in British Columbia diverged from national trends, as nature conservation accounted for 30%[89] of expenditures.[90] Additionally, 27% of all expenditures were incurred on equipment, fees and supplies, 21% on

[88] The 12-month period was unique for each respondent depending exactly on when the respondent completed the questionnaire. However, the period can be expected to cover a period beginning October 2011 and ending May 2013.

[89] The $2.3 billion spent on conservation is statistically unreliable. The estimate appears to be influenced by potential outliers that received relatively high weights. The resulting increase in variance for this estimate caused the estimate to be suppressed during reliability screening. The magnitude of conservation expenditures in British Columbia is likely lower and accounts for a smaller share of total expenditures.

transportation, 11% on food, and the remaining 8% on accommodations. Some expenditures in British Columbia were consistent with the national trend and with trends in other provinces and territories, including expenditures on nature-based recreation ($2.5 billion), which accounted for one-third of all nature-related expenses in British Columbia. Similarly, photography ($453 million) and land-based motorized recreation ($409 million) accounted for 6% and 5%, respectively. Hunting, trapping, and fishing ($543 million) accounted for 7% of expenditures, the majority being from fishing ($357 million) and hunting large game ($126 million).

Table 27: Nature-Related Expenditures by Residents of British Columbia by Activity and Expenditure Type in the Previous 12 Months ($million)[91]

Activity	Transportation		Accommodation		Food		Equipment, Fees & Supplies		Total ($M)
	Total ($M)	%	Total ($M)	%	Total ($M)	%	Total ($M)	%	
Nature-based Recreation	$725	29%	$369	15%	$488	19%	$924	37%	**$2,506**
Nature Education	$137	37%	$84	23%	$88	24%	$62	17%	**$372**
Nature-Based Leisure	$200	19%	$74	7%	$81	8%	$497	47%	**$1,056**
Photographing Nature	$149	33%	$71	16%	$70	15%	$163	36%	$453
Gardening/Landscaping	$51	13%	*$3^*	1%	$11	3%	$334	84%	$399
Nature Media	-	-	-	-	-	-	-	-	$204
Birding	$26	25%	*$15^*	15%	$22	22%	$40	39%	**$102**
Motorized Recreation	*$307^*	44%	*$42^*	6%	$74	11%	*$280^*	40%	**$704**
Land-based	*$212^*	52%	$15	4%	$33	8%	*$150^*	37%	$409
Water-based	$96	32%	$27	9%	$42	14%	$130	44%	$295
Hunting & Trapping	$85	46%	*$7^*	4%	$31	17%	$62	33%	**$186**
Hunting Waterfowl	*$7^*	31%	*$1^*	5%	*$5^*	23%	*$9^*	40%	*$22^*
Hunting Other Game Birds	*$15^*	51%	*$1^*	5%	*$7^*	24%	*$6^*	20%	*$29^*
Hunting Small Game	*$5^*	61%	*$1^*	7%	*$1^*	14%	*$1^*	18%	*$8^*
Hunting Large Game	$58	46%	*$4^*	3%	$18	14%	$46	36%	$126
Hunting Other Animals	*$0^*	0%	*$0^*	0%	*$0^*	0%	*$0^*	0%	*$0^*
Trapping	*$0^*	0%	*$0^*	0%	*$0^*	0%	*$0^*	0%	*$0^*
Fishing	$103	29%	$36	10%	$58	16%	$160	45%	**$357**
Nature Conservation (on private land)	-	-	-	-	-	-	-	-	***$2,291^***
Food/Shelter for Wildlife	-	-	-	-	-	-	-	-	*$2,126^*[92]
Conserve Natural Setting	-	-	-	-	-	-	-	-	*$154^*
Maintain Forest for non-timber use	-	-	-	-	-	-	-	-	*$11^*
Total	**$1,583**	**21%**	**$628**	**8%**	**$844**	**11%**	**$2,025**	**27%**	**$7,575**[93]

^ Data point does not meet threshold for statistical reliability due to the number of respondents who participated in a given activity or who provided responses to a given question. The screening threshold for statistical reliability applied to each data point was a minimum of 30 responses and a CV < .3, see *Survey Methods* for explanation.

- Category is not disaggregated by this expenditure type

Percents are presented as the share of expenditures for the activity spent on each expense type.

[90] The data used to estimate this amount is based on options 1 through 3 of survey question 42, a limited scope that does not include donations or membership dues to nature organizations, or expenditures incurred in any volunteer activity away from respondents' residences. It is not based on the same categories of expenditures used for most other activities in the survey (transportation, accommodation, food, equipment, fees, and supplies) that are often associated with a 'travel cost' type of analysis.

[91] The grand total includes expenditures that are not categorized by expense type, including multimedia purchases and spending on nature conservation activities. Therefore, the percentages by expense type may not sum to 100%.

[92] This amount reflects the full range of expenditures reported by respondents (see *Survey Methods*). Two respondents reported expenditures that were considerably more than the amounts reported by other respondents. Several steps were taken to ensure statistical representativeness in sampling and analysis; however, the extent to which the two amounts impacted the representativeness of this expenditure total for the British Columbia adult population cannot readily be determined.

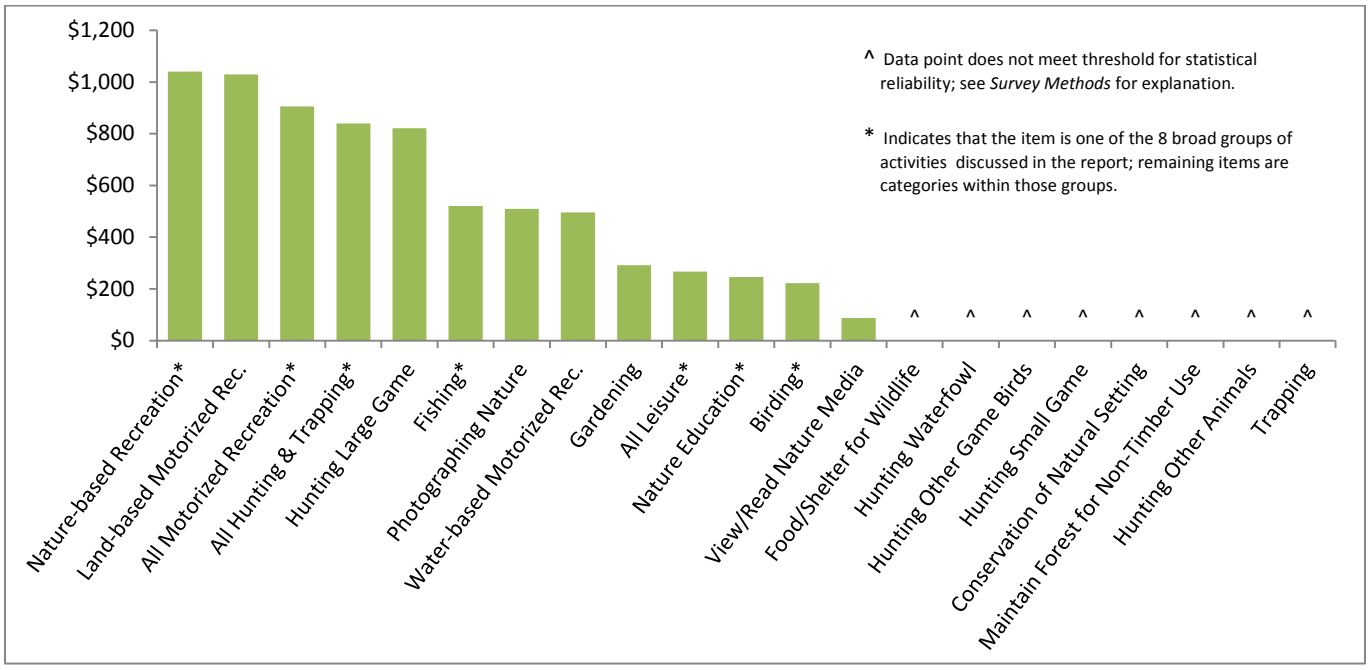
[93] The grand total for expenditures is calculated as an independent figure, equal to the sum of all component totals, and was independently screened for reliability. Consequently, the grand total includes expenditure amounts for all component activities, including those that were individually below the reliability threshold, see *Survey Methods: Statistical Reliability*.

Average Yearly and Average Daily Expenditures

Residents of British Columbia who participated in nature-related activities spent as much as $1,040 on one activity (nature-based recreation) in the previous 12 months. On all activities that a person participated in the previous 12 months, participants reported spending an annual average of $2,337, $580 higher than the national average.

In addition to nature-based recreation ($1,040), land-based motorized recreation ($1,029) cost participants more than $1,000 per year. Nature education ($246) and the three leisure activities incurred low per-person expenditures.

Figure 35: Average Expenditure by Activity Type for Residents of British Columbia in the Previous 12 Months



Daily expenditures by participants in the various activities ranged from $10 to $85 per day, but were once again consistent with national trends. Gardening ($11) and birding ($10) had the lowest daily-expense activities, whereas hunting large game ($85) and land-based motorized recreation ($82) had high daily expenditures.

Table 28: Average Daily Expenditures by Activity Type for Residents of British Columbia in the Previous 12 Months

Activities	Daily Expenditure
Hunting Large Game	$85
Land-based Motorized Recreation	$82
Fishing	$59
Water-based Motorized Recreation	$53
Photographing Nature	$41
Nature Education	$37
Nature-based Recreation	$18
Gardening/Landscaping	$11
Birding	$10
Hunting Waterfowl	^
Hunting Other Game Birds	^
Hunting Small Game	^
Hunting Other Animals	^
Trapping	^

^ Data point does not pass threshold for statistical reliability - points are shown at the low end to signal this status, and do not imply rank of results for these items. See *Survey Methods* for explanation.

NATURE CONSERVATION

The *2012 Canadian Nature Survey* collected information about different types of nature conservation in several different survey sections. This section reports results from the survey section entitled "Nature Conservation" which asked about membership and support of nature organizations, participation in volunteer nature conservation activities, and nature conservation at home. (see *Appendix B: Survey Instrument*).

Canadians were asked to indicate the total number of days that they participated in several different types of voluntary nature conservation activities away from their residence in the previous 12 months. In British Columbia, 23% of adults participated in at least one volunteer nature conservation activity for at least one day. Of those who participated, the average number of days of participation within the previous 12 months across all activities was 36.8 days.

The most common way that residents organize their time for volunteer nature conservation activities is to "volunteer occasionally when it interests them" (reported by 32% of respondents). The majority (53%) of British Columbia residents who volunteer in nature-related activities indicated that their nature-related volunteer involvement has stayed the same over the past five years, 30% reported an increase, and 17% reported a decrease.

Seventeen percent of British Columbia residents reported participating in citizen science activities in the previous 12 months. Citizen science encompasses the activities of volunteers who perform or manage research-related tasks such as wildlife or habitat observation, measurement, or assessment.

"Lack of time" was the reason provided by over half (52%) of British Columbia respondents when asked what prevented them from participating in volunteer nature conservation activities during the previous 12 months. About one-third cited "personal choice" (32%) and slightly fewer reported they "were unaware of an opportunity" (28%).

HUMAN-WILDLIFE CONFLICTS

The *2012 Canadian Nature Survey* collected data about the interactions between humans and wildlife. Some of these interactions can be negative. Wildlife managers refer to "human-wildlife conflict" as any interaction between wild animals (whether small or large) and humans which causes harm, whether to the animal, human, or property (including pets or livestock). This conflict can happen in urban, rural, or wilderness settings.

Thirty percent of British Columbians reported that a wild animal posed a threat to their safety or to the safety of people, pets, or farm animals in their care at home or in the community, in the previous 12 months. About the same proportion (26%) reported that a wild animal caused damage to their personal property. Of those who experienced threat or damage, the most frequently cited type of animal involved was a small mammal (e.g., groundhog, skunk or raccoon), reported by 53% of respondents. This was followed by deer, elk or moose (34%) and a bear (29%).

As shown in *Table 29*, nearly one-third (31%) British Columbians who experienced threat or damage chose to "remove or relocate items known to attract 'friendly' wildlife," while about the same proportion (30%) "took no action" as a result of the incident. Other common choices were to "fence off or otherwise protect their property" (24%) and to "follow authorities' recommended safety procedures" (19%).

Table 29: Actions Taken As a Result of the Problem

Options Listed in Survey	British Columbia	
	Population Estimate	Percent
Removed or relocated items known to attract friendly wildlife	485,903	31%
I took no action	468,584	30%
Fenced-off or otherwise protected my property	371,428	24%
Followed authorities' recommended safety procedures	300,374	19%
Spoke to local wildlife management officials	138,755	9%
Put out live traps / humane removal	^	^
Killed the animal believed to be a threat	^	^
Put out poison	^	^
Participated in local education and land use planning sessions on wildlife management	^	^
Other (Specify)	260,516	17%

^ Data point does not pass threshold for statistical reliability - points are shown at the low end to signal this status, and do not imply rank of results for these items. See *Survey Methods* for explanation.

4.3 MANITOBA

This Provincial Report presents findings from the *2012 Canadian Nature Survey* for the Province of Manitoba (MB). This section will cover Manitobans' connection to nature and awareness of key concepts, their interactions with wildlife, and their involvement in nature-based activities. Results in this section are based on the address-based sample results only, as only these data allow for tests of significance and other statistical analysis (see *Survey Methods*). 989 completed address-based surveys from Manitoba were received, out of a total sample of 4,478; the survey response rate[94] for the province was 22%. This is representative of the estimated total adult population of 925,035 adult residents[95], with a statistical reliability of +/-3.1%,[96] at 95% confidence. When a figure is shown with a "^" symbol it indicates that the figure does not meet ICF's analytical threshold for statistical reliability (see *Survey Methods: Statistical Reliability* for explanation.)

CONNECTION TO NATURE & AWARENESS

The *2012 Canadian Nature Survey* sought to understand the extent to which residents of Manitoba are connected to nature. Survey results show that just under half of Manitoba residents (48%) chose where they live partly to have access to nature. Eight percent of Manitoba residents reported that their income relies on a nature-related profession.

BIODIVERSITY AND ECOSYSTEM SERVICES

Respondents were provided with definitions of the terms "biodiversity" and "ecosystem services" and then asked if, before the day that they completed the survey, they had heard of each of these concepts. In Manitoba, awareness of the terms "biodiversity" and "ecosystem services" was high. Three-quarters of Manitobans (75%) had heard of the term "biodiversity" before taking the survey, while 74% were aware of the term "ecosystem services" prior to survey administration.

While awareness of the term "ecosystem services" was high, even more Manitobans were aware of examples of ecosystem services, or ways that nature can provide benefits. Between 96% and 97% of Manitoba residents were aware that nature can be essential to:

- Produce oxygen, and clean pollutants from the air;
- Keep soil fertile and productive; and
- Provide places for recreation, fitness, and leisure.

Fewer residents of Manitoba were aware that nature can be essential to "support human psychological and cognitive development" (72%) and "reduce or control the spread of many diseases" (71%).

Additionally, slightly more than three-quarters (77%) of Manitobans were aware that biodiversity contributes to ecosystem services and provides life support and other important benefits to people.[97]

Fifteen percent of Manitoba residents reported being directly affected, during the previous 12 months, by the loss of an ecosystem service that would normally have been provided by nature. Of those who reported a loss, the largest proportion (35%) cited "emotional, psychological, or spiritual well-being" as the option that most closely matched how the loss affected them.[98]

[94] See *Response Rates* for details regarding the computation of response rates.
[95] Survey respondents were individual adults, age 18 and over, see *Survey Methods, Sampling* for details.
[96] This margin of error does not account for design effects due to the complex survey design used in the 2012 Canadian Nature Survey. The design effect varies for each estimate and may in some cases increase the margin of error. The margin of error will be wider for sub-analysis of activities in which only a small number of respondents participate. All reported estimates have been screened for minimum reliability (see *Survey Methods*).
[97] Here the proportion of respondents who reported being aware that biodiversity contributes to ecosystem services is higher than the proportion of respondents who reported knowing the meaning of "biodiversity" or "ecosystem services." It is possible that some respondents may not have known the definition of either term, but, after reading examples provided, they had a better understanding of what was meant by the terms. Awareness of the concepts of biodiversity and ecosystem services and how they relate may therefore be understood independently of the definitions of these terms.
[98] See *Appendix B: Survey Instrument*, for how the question was worded, and for the complete list of options provided.

Species at Risk

The *2012 Canadian Nature Survey* also examined awareness of the term "species at risk" and actions taken to assist in the recovery of species at risk. Nine out of 10 Manitoba respondents (91%) reported they had heard of the term prior to taking the survey. Twelve percent of Manitobans reported donating money on behalf of species at risk in the previous twelve months.

Obtaining Information about Nature

Respondents were asked to report the three ways they most frequently obtain nature-related information. Manitobans were most likely to "read publications" (63%) and "watch visual media" (63%), followed by obtaining information "from conversations" (44%) and "through personal experience" (39%).

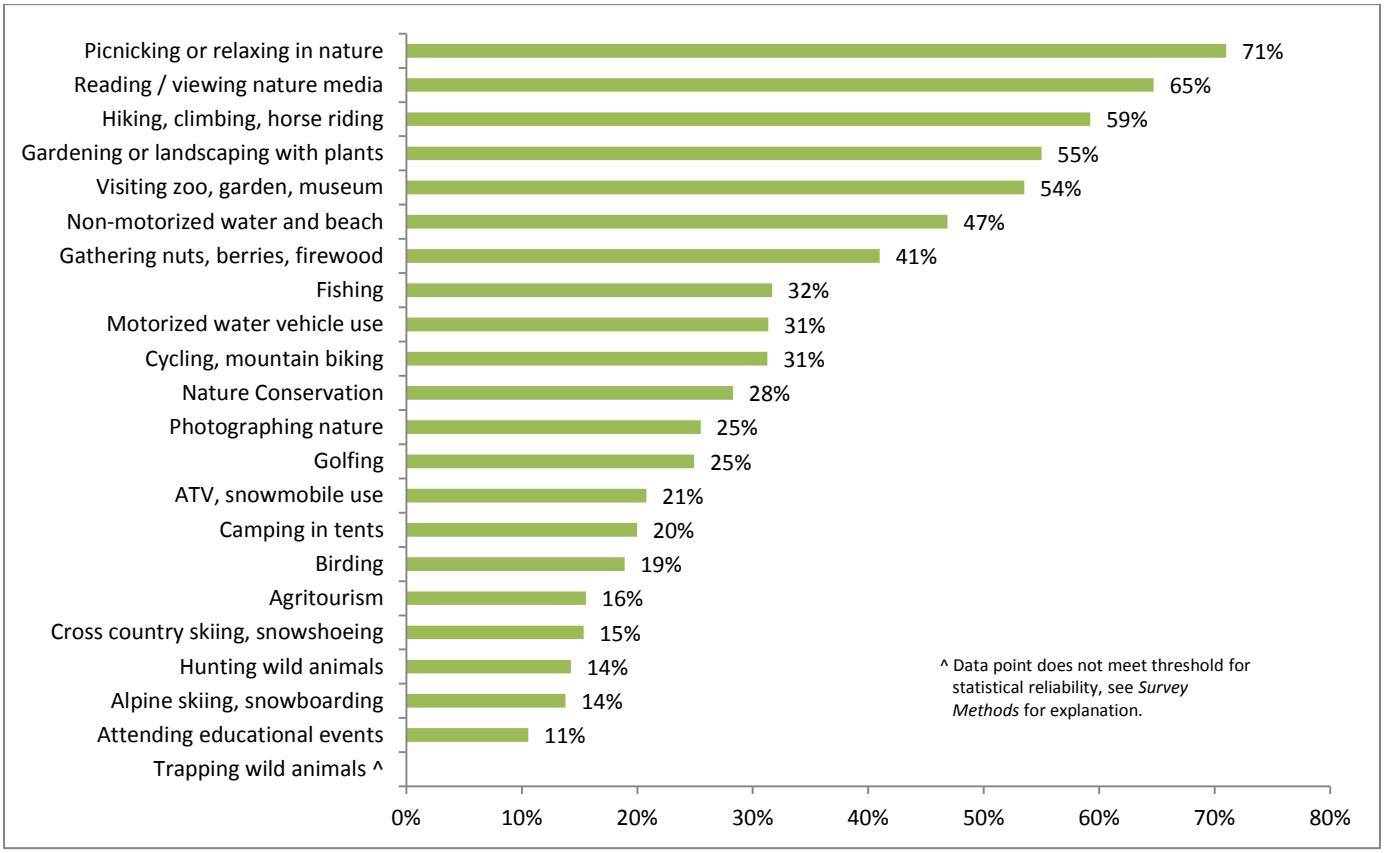
When asked about their most frequent sources of information, Manitoba residents reported "journalists/media writers" (63%), "friends, family or colleagues" (61%), "conservation groups" (40%), "the government" (38%), "scientists" (19%), and "teachers/educators" (14%).

Nature-Based Activities

The largest section of the *2012 Canadian Nature Survey* questionnaire was devoted to collecting information about respondents' participation in nature-based activities in Canada during the 12 months prior to completing the survey, and collecting information about related expenses. For a complete listing of the activities that the survey addressed, and for how they are organized into groups for analysis in this report, see *Appendix A: Activities Crosswalk.* For a discussion of the methodology used to produce participation rates, see *Participation Analysis Methods* and *Chapter 2: Nature-based Activities, Participation and Expenditures*.

As shown in *Figure 36*, 71% of Manitoba residents reported "picnicking or relaxing in nature" in the previous 12 months. Almost two-thirds (65%) reported "reading or viewing nature media" and close to 60% reported "hiking, climbing, or horse riding" in the previous 12 months. Over half reported "gardening" and "visiting a zoo, garden or museum."

Figure 36: Percentage of Manitoba Residents Age 18 and Over Participating in Nature-related Activities

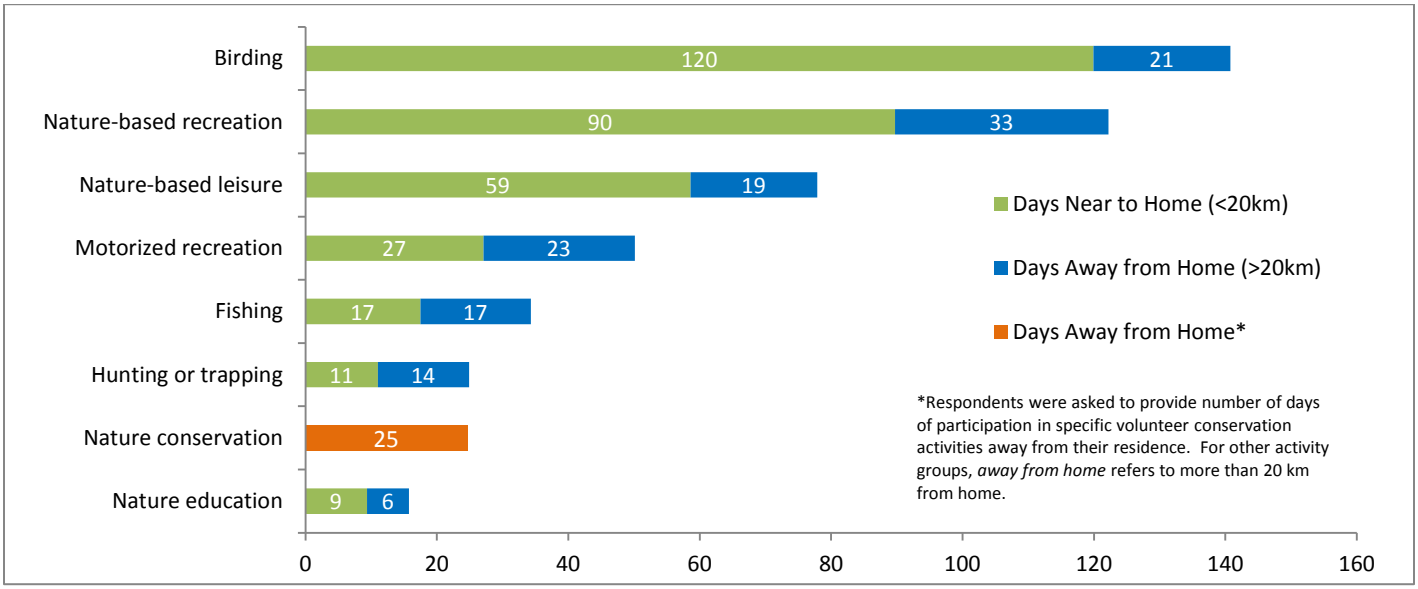


In addition to participation rates, the *2012 Canadian Nature Survey* also collected data on the amount of participation in nature-related activities. For most activities, respondents were asked to report the number of days that they spent participating in each activity in the previous 12 months in Canada, both within 20 km from their home, and more than 20 km away. Participation days are not necessarily mutually exclusive; respondents may participate in more than one nature-based activity in one calendar day. For conservation activities, the question was structured differently. Respondents were asked to report the number of days they spent engaged in a volunteer nature conservation activity away from their residence (either in their community or away from their community); these are presented in orange in *Figure 37* to highlight this difference.

Figure 37 shows the average number of days near to home (within 20 km) and away from home (more than 20 km away) that participants in each activity spent engaged in that activity (referred to as "participant days"). In this figure, activities are organized into eight broad activity groups (see *Appendix A: Activities Crosswalk* for examples of activities within each group).

Near to home, "birding" had the highest number of participant days, at an average of 120. Away from home, "nature-based recreation" had the highest number of participant days, at an average of 33. When considering total days spent near home and away, here again, birding (141 days) and nature-based recreation (123 days) were the most popular activities.

Figure 37: Average Participation Days in Nature-related Activities, Near Home and Away from Home, Per Participant



HUNTING, TRAPPING, AND FISHING

Manitoba residents who reported participating in hunting, trapping, or fishing during the previous 12 months were asked if the activity had been carried out "under Aboriginal treaty rights," "licensed (not under Aboriginal rights)," "unlicensed," "primarily for sport/recreation," and/or "primarily for personal use or sharing". Respondents were asked to indicate all options that applied. The first three response categories provided (licensed, unlicensed, and Treaty rights) are *access options* which are normally mutually exclusive. However, the two *use options* response categories (primarily sport/recreation or primarily personal) can apply to any of the three access options.

The most commonly cited access option was "licensed, but not under Aboriginal treaty rights" (57%). The most commonly cited use option was "primarily for sport/recreation" (50%), followed by "primarily for personal use or sharing" (39%).

Respondents who indicated that they had not participated in hunting, trapping, or fishing activities were asked to indicate the reason for not participating. The top reasons why Manitoba residents did not hunt or trap in the previous 12 months were "do not like hunting/trapping/not interested (42%), "lack of time" (18%) and "cost" (14%). This is similar to national results, with 41% reporting they "do not like hunting/trapping/not interested," 17% citing "lack of knowledge," and 14% citing "lack of time." Manitobans were more likely to report "cost" as barrier compared to all Canadians ("cost" was cited by 10% of respondents at the national level).

The top three reasons given for not participating in fishing were "do not like fishing/not interested" (30%), "lack of time" (20%), and "lack of equipment" (11%). Nationally, results are similar, with 31% reporting they don't like fishing or are not interested," 20% stating a "lack of time," and 11% stating a "lack of knowledge about fishing."

NATURE-BASED TRAVEL

Manitoba residents reported the number of trips they made within Canada over the course of the previous 12 months that were farther than 20 km (one way) from their home, for which the main reason was to participate in nature-based activities for recreation, leisure, hunting, trapping, or fishing for personal use. Manitobans who partook in these trips reported an average of 14.2 same-day trips and 11.7 overnight trips. The most often-cited trip duration was between two and four days, with an overnight stay (35%), followed by 29% who typically took a trip that lasted one day, with no overnight. Manitobans stayed an average of 27 days at the three places farther than 20 km from their homes that they were most likely to visit. If the location where residents made such trips was a national park, provincial park, or other protected area, the places where they spent the most time were Whiteshell Provincial Park, Birds Hill Provincial Park, Riding Mountain National Park, Nopiming Provincial Park, and Banff National Park.

A little over one-third (35%) of Manitoba residents reported owning or using a personal or family secondary property in Canada, such as a cottage, camp, or cabin. During the same time period, they reported spending an average of 35.4 days at that cottage, camp, or cabin. The most frequently mentioned activities while at the property include hiking/walking, swimming, and fishing.

ECONOMIC ANALYSIS

Participants in nature-related activities in Manitoba spent $1.3 billion on nature-related activities and services in the previous 12 months[99], making the province the sixth-largest in terms of total expenditures. Three percent of all nature-related expenditures in Canada in the previous 12 months were spent by residents of Manitoba, roughly aligning with the share of the population residing in the province. Average per-person expenditures in Manitoba were $1,601, the ninth-highest in Canada.

EXPENDITURES BY ACTIVITY AND EXPENSE TYPE

In Manitoba, 36% of all expenditures were incurred on transportation, 32% on equipment, fees and supplies, 13% on food, and 10% on accommodations. Residents spent 6% on conservation.[100] Manitoba residents spent a slightly higher share on transportation than the national average (26%) and a slightly lower share on conservation than the national average (18%).

Expenditures on nature-based recreation ($457 million) accounted for more than one-third of all nature-related expenses in Manitoba, in line with the national average of 36%. Hunting, fishing, and trapping comprised 18% of all expenditures, nearly double the national average (10%). As compared to many other provinces and territories, expenditures for gardening were relatively high ($106 million).

[99] The 12-month period was unique for each respondent depending exactly on when the respondent completed the questionnaire. However, the period can be expected to cover a period beginning October 2011 and ending May 2013.

[100] The data used to estimate this amount is based on options 1 through 3 of survey question 42, a limited scope that does not include donations or membership dues to nature organizations, or expenditures incurred in any volunteer activity away from respondents' residences. It is not based on the same categories of expenditures used for most other activities in the survey (transportation, accommodation, food, equipment, fees, and supplies) that are often associated with a 'travel cost' type of analysis.

Table 30: Nature-Related Expenditures by Residents of Manitoba by Activity and Expenditure Type in the Previous 12 Months ($million)[101]

Activity	Transportation		Accommodation		Food		Equipment, Fees & Supplies		Total ($M)
	Total ($M)	%	Total ($M)	%	Total ($M)	%	Total ($M)	%	
Nature-based Recreation	$178	39%	$74	16%	$74	16%	$132	29%	**$457**
Nature Education	$30	45%	$12	18%	$16	24%	$9	13%	**$67**
Nature-Based Leisure	$47	21%	*$9^*	4%	*$16^*	7%	$113	50%	**$225**
Photographing Nature	$31	40%	$7	9%	$13	16%	$27	35%	$78
Gardening/Landscaping	*$16^*	15%	*$2^*	2%	$3	2%	$85	81%	$106
Nature Media	-	-	-	-	-	-	-	-	$42
Birding	$6	30%	*$1^*	1%	$5	25%	*$8^*	38%	**$20**
Motorized Recreation	$106	47%	*$17^*	7%	$30	13%	$74	32%	**$227**
Land-based	$47	50%	*$1^*	1%	*$14^*	15%^	*$32^*	34%	$94
Water-based	$59	44%	*$16^*	12%	$16	12%	$42	31%	$134
Hunting & Trapping	*$49^*	46%	*$1^*	1%	$12	11%	$43	41%	**$106**
Hunting Waterfowl	*$5^*	36%	*$0^*	0%	*$1^*	10%	*$8^*	53%	$14
Hunting Other Game Birds	*$4^*	57%	*$0^*	0%	*$1^*	11%	*$2^*	31%	$8
Hunting Small Game	*$1^*	49%	*$0^*	11%	*$1^*	25%	*$0^*	15%	$2
Hunting Large Game	*$33^*	46%	*$1^*	1%	*$9^*	12%	$29	41%	$73
Hunting Other Animals	*$0^*	63%	*$0^*	0%	*$0^*	38%	*$0^*	0%	$0
Trapping	*$5^*	59%	*$0^*	0%	*$0^*	3%	*$3^*	37%	$9
Fishing	$58	43%	*$15^*	^	$21	16%	$42	31%	**$136**
Nature Conservation (on private land)	-	-	-	-	-	-	-	-	***$76^***
Food/Shelter for Wildlife	-	-	-	-	-	-	-	-	$34
Conserve Natural Setting	-	-	-	-	-	-	-	-	*$37^*
Maintain Forest for non-timber use	-	-	-	-	-	-	-	-	*$6^*
Total	**$474**	**36%**	**$130**	**10%**	**$173**	**13%**	**$420**	**32%**	**$1,315[102]**

^ Data point does not meet threshold for statistical reliability due to the number of respondents who participated in a given activity or who provided responses to a given question. The screening threshold for statistical reliability applied to each data point was a minimum of 30 responses and a CV < .3, see *Survey Methods* for explanation.
- Category is not disaggregated by this expenditure type
Percents are presented as the share of expenditures for the activity spent on each expense type.

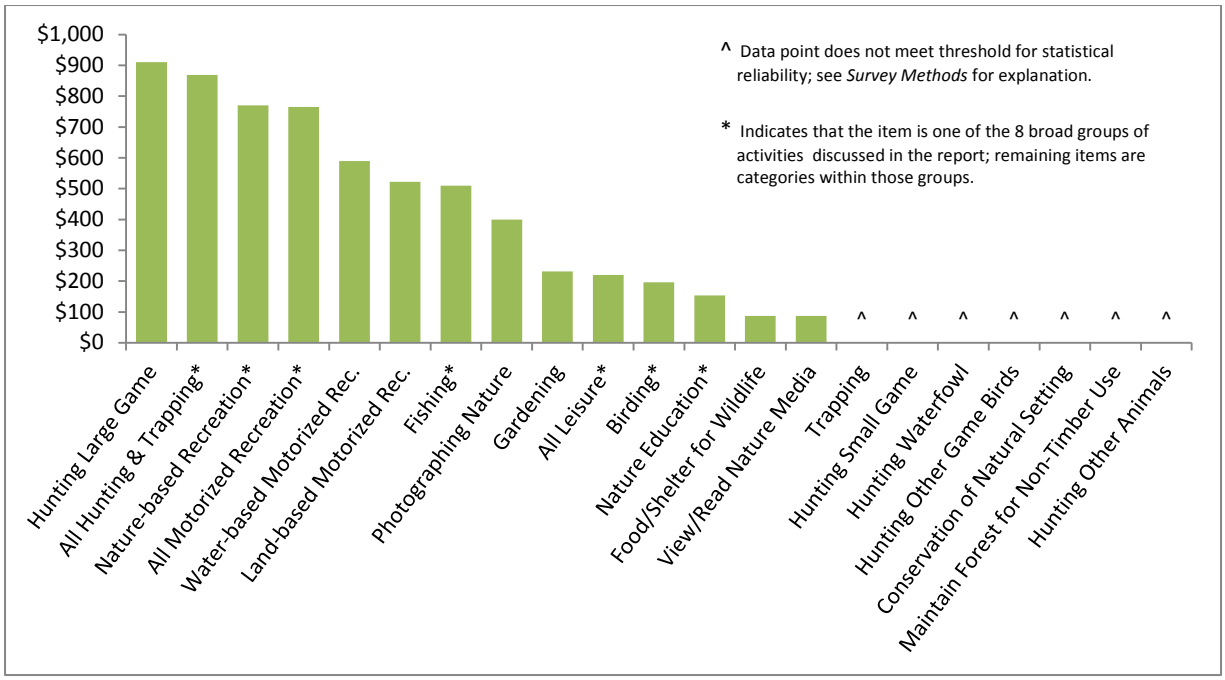
Average Yearly and Average Daily Expenditures

Residents of Manitoba who participated in nature-related activities spent, on average, no more than $1,000 on any one activity in the previous 12 months. In total (i.e., all nature-related activities), participants reported spending an average of $1,601 in the previous 12 months, $156 under the national per-person average.

Hunting large game was the highest expenditure-per-person activity, in which participants spent an average of $911 in the previous 12 months. Nature-based recreation was also a significant expense, with participants spending $771, on average, per year. In line with national trends, leisure (e.g., gardening, multimedia) and conservation (e.g., providing food/shelter to wildlife) activities were low-expense annual activities.

[101] The grand total includes expenditures that are not categorized by expense type, including multimedia purchases and spending on nature conservation activities. Therefore, the percentages by expense type may not sum to 100%.
[102] The grand total for expenditures is calculated as an independent figure, equal to the sum of all component totals, and was independently screened for reliability. Consequently, the grand total includes expenditure amounts for all component activities, including those that were individually below the reliability threshold, see *Survey Methods: Statistical Reliability*.

Figure 38: Average Yearly Expenditures by Activity Type for Residents of Manitoba in the Previous 12 Months



Daily expenditures by participants in the various activities ranged from $10 to $64 per day, and were generally consistent with national trends. Gardening ($10), nature-based recreation ($19), and birding ($19) had the lowest daily-expense activities, whereas hunting large game ($64) had high daily expenditures. Manitobans who participate in nature education spent $9 less per person per day on this activity, compared to the national average.

Table 31: Average Daily Expenditures by Activity Type for Residents of Manitoba in the Previous 12 Months

Activity	Daily Expenditure
Hunting Large Game	$64
Water-based Motorized Recreation	$42
Land-based Motorized Recreation	$37
Fishing	$35
Nature Education	$25
Photographing Nature	$23
Birding	$19
Nature-based Recreation	$19
Gardening/Landscaping	$10
Hunting Waterfowl	^
Trapping	^
Hunting Other Game Birds	^
Hunting Small Game	^
Hunting Other Animals	^

^Data point does not meet threshold for statistical reliability. See *Survey Methods* for explanation.

NATURE CONSERVATION

The *2012 Canadian Nature Survey* collected information about different types of nature conservation in several different survey sections. This section reports results from the survey section entitled "Nature Conservation" which asked about membership and support of nature organizations, participation in volunteer nature conservation activities, and nature conservation at home. (see *Appendix B: Survey Instrument*).

Canadians were asked to provide the total number of days that they participated in several different types of voluntary nature conservation activities away from their residence in the previous 12 months. In Manitoba, 28% of adults participated in at least one volunteer nature conservation activity for at least one day. Of those who participated, the average number of days of participation within the previous 12 months across all activities was 24.6 days.

The most common way that residents organize their time for volunteer nature conservation activities is to "volunteer occasionally when it interests them" (reported by 23% of respondents). The majority (68%) of Manitoba residents who volunteer in nature-related activities indicated that their nature-related volunteer involvement has stayed the same over the past five years and 21% reported an increase; responses that reported a decrease did not generate a statistically reliable provincial estimate.

Nine percent of Manitoba residents reported participating in citizen science activities in the previous 12 months. Citizen science encompasses activities of volunteers who perform or manage research-related tasks such as wildlife or habitat observation, measurement, or assessment.

"Lack of time" was the reason provided by half (50%) of Manitoba respondents when asked what prevented them from participating in volunteer nature conservation activities during the previous 12 months. About one-third (34%) cited "personal choice" and 32% reported they "were unaware of an opportunity."

Human-Wildlife Conflicts

The *2012 Canadian Nature Survey* collected data about the interactions between humans and wildlife. Some of these interactions can be negative. Wildlife managers refer to "human-wildlife conflict" as any interaction between wild animals (whether small or large) and humans which causes harm, whether to the animal, human, or property (including pets or livestock). This conflict can happen in urban, rural, or wilderness settings.

Twenty-one percent of Manitoba residents reported that a wild animal posed a threat to their safety or to the safety of people, pets, or farm animals in their care at home or in the community in the previous twelve months. One in three (33%) reported that a wild animal caused damage to their personal property. Of those who experienced threat or damage, the most frequently cited type of animal involved was a small mammal (e.g., groundhog, skunk, or raccoon), reported by 56% of respondents. This was followed by deer, elk or moose (46%), and a coyote or wolf (21%).

As shown in *Table 32*, more than one-third (39%) of Manitobans who experienced threat or damage "took no action" as a result of the incident. For those who did act, the most common actions were to "fence off or other protect their property" (24%), "remove or relocate items known to attract 'friendly' wildlife" (18%), and "follow recommended safety procedures" (12%).

Table 32: Actions Taken As a Result of the Problem

Options Listed in Survey	Manitoba	
	Population Estimate	Percent
I took no action	168,353	39%
Fenced-off or otherwise protected my property	105,136	24%
Removed or relocated items known to attract friendly wildlife	77,562	18%
Followed authorities recommended safety procedures	50,155	12%
Put out live traps / humane removal	40,825	10%
Killed the animal believed to be a threat	^	^
Spoke to local wildlife management officials	^	^
Put out poison	^	^
Participated in local education and land use planning sessions on wildlife management	^	^
Other (Specify)	^	^

^Data point does not meet threshold for statistical reliability. See *Survey Methods* for explanation.

4.4 New Brunswick

This Provincial Report presents findings from the *2012 Canadian Nature Survey* for the Province of New Brunswick (NB). This section will cover New Brunswickers' connection to nature and awareness of key concepts, their interactions with wildlife, and their involvement in nature-based activities. Results in this section are based on the address-based sample results only, as only these data allow for tests of significance and other statistical analysis (see *Survey Methods*). 1,551 completed address-based surveys from New Brunswick were received out of a total sample of 7,389; the survey response rate[103] for the province was 21%. This is representative of the estimated total adult population 610,580 adult residents[104], with a statistical reliability of +/-2.5%,[105] at 95% confidence. When a figure is shown with a "^" symbol it indicates that the figure does not meet ICF's analytical threshold for statistical reliability (see *Survey Methods: Statistical Reliability* for explanation.)

Connection to Nature & Awareness

The *2012 Canadian Nature Survey* sought to understand the extent to which residents of New Brunswick are connected to nature. Survey results show that more than half of residents (57%) chose where they live partly to have access to nature. Twelve percent of New Brunswickers reported that their income relies on a nature-related profession, with 4% reporting "forestry" as a primary source of income.

Biodiversity and Ecosystem Services

Respondents were provided with definitions of the terms "biodiversity" and "ecosystem services" and then asked if, before the day that they completed the survey, they had heard of each of these concepts. In New Brunswick, awareness of the terms "biodiversity" and "ecosystem services" was high. About seven in 10 (71%) New Brunswick residents had heard of the term "biodiversity" before taking the survey, and about the same proportion (72%) was aware of the term "ecosystem services" prior to survey administration.

While awareness of the term "ecosystem services" was high, even more New Brunswickers were aware of examples of ecosystem services, or ways that nature can provide benefits. Between 96% and 97% of residents were aware that nature can be essential to:

- Produce oxygen, and clean pollutants from the air;
- Keep soil fertile and productive;
- Filter water to keep it clean and safe; and
- Provide places for recreation, fitness and leisure.

Fewer residents of New Brunswick were aware that nature can be essential to "support human psychological and cognitive development" (72%) and "reduce or control the spread of many diseases" (69%).

Additionally, about three-quarters (74%) of New Brunswick residents were aware that biodiversity contributes to ecosystem services and provides life support and other important benefits to people.[106]

Fourteen percent of New Brunswick residents reported being directly affected, during the previous 12 months, by the loss of an ecosystem service that would normally have been provided by nature. Of those who reported a loss, the largest proportion (30%) cited "emotional, psychological, or spiritual well-being" as the option that most closely matched how the loss affected them; this was followed by 17% citing "medical health." [107]

[103] See *Response Rates* for details regarding the computation of response rates.
[104] Survey respondents were individual adults, age 18 and over, see *Survey Methods, Sampling* for details.
[105] This margin of error does not account for design effects due to the complex survey design used in the 2012 Canadian Nature Survey. The design effect varies for each estimate and may in some cases increase the margin of error. The margin of error will be wider for sub-analysis of activities in which only a small number of respondents participate. All reported estimates have been screened for minimum reliability (see *Survey Methods*).
[106] Here the proportion of respondents who reported being aware that biodiversity contributes to ecosystem services is higher than the proportion of respondents who reported knowing the meaning of "biodiversity" or "ecosystem services." It is possible that some respondents may not have known the definition of either term, but, after reading examples provided, they had a better understanding of what was meant by the terms. Awareness of the concepts of biodiversity and ecosystem services and how they relate may therefore be understood independently of the definitions of these terms.
[107] See *Appendix B: Survey Instrument*, for how the question was worded, and for the complete list of options provided.

Species at Risk

The *2012 Canadian Nature Survey* also examined awareness of the term "species at risk" and actions taken to assist in the recovery of species at risk. Nine of our 10 New Brunswick respondents (93%) reported they had heard of the term prior to taking the survey. Twelve percent of New Brunswickers reported donating money on behalf of species at risk in the previous twelve months.

Obtaining Information about Nature

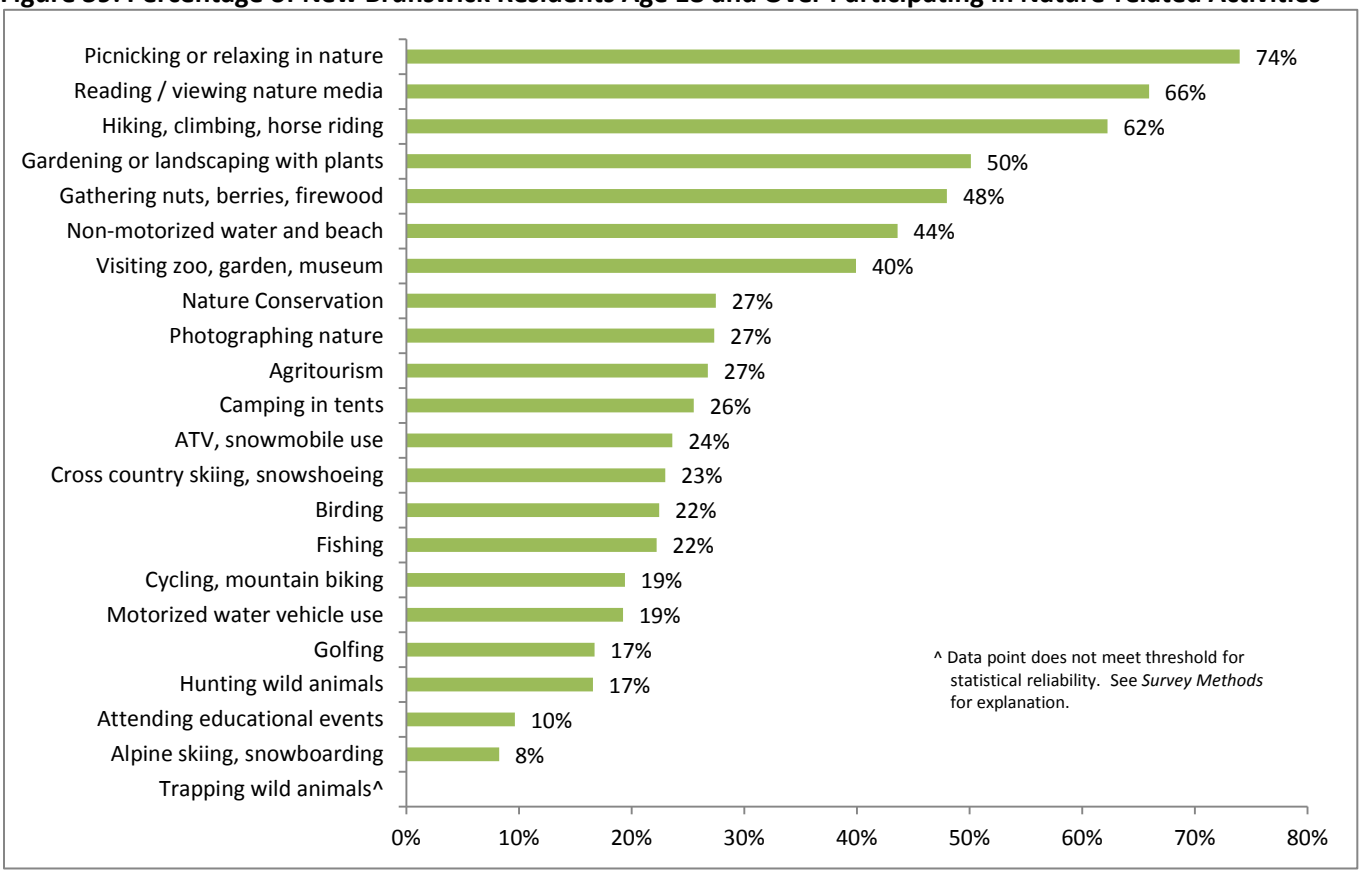
Respondents were asked to report the three ways they most frequently obtain nature-related information. New Brunswick residents were most likely to "watch visual media" (65%) and "read publications" (59%), followed by obtaining information "from conversations" (43%) and "through personal experience" (34%). When asked about their most frequent sources of information, New Brunswickers reported "friends, family or colleagues" (61%), "journalists/media writers" (54%), "conservation groups" (37%), "the government" (36%), "scientists" (23%), and "teachers/educators" (14%).

Nature-Based Activities

The largest section of the *2012 Canadian Nature Survey* questionnaire was devoted to collecting information about respondents' participation in nature-based activities in Canada during the 12 months prior to completing the survey, and collecting information about related expenses. For a complete listing of the activities that the survey addressed, and for how they are organized into groups for analysis in this report, see *Appendix A: Activities Crosswalk.* For a discussion of the methodology used to produce participation rates, see *Survey Methods: Participation Analysis* and *Chapter 2: Nature-based Activities, Participation and Expenditures*.

As shown in *Figure 39*, 74% of New Brunswick residents reported "picnicking or relaxing in nature" and about two-thirds (66%) reported "reading or viewing nature media" in the previous 12 months. Around six in ten (62%) reported "hiking, climbing or horse riding" and half (50%) reported "gardening or landscaping with plants" in the previous 12 months.

Figure 39: Percentage of New Brunswick Residents Age 18 and Over Participating in Nature-related Activities

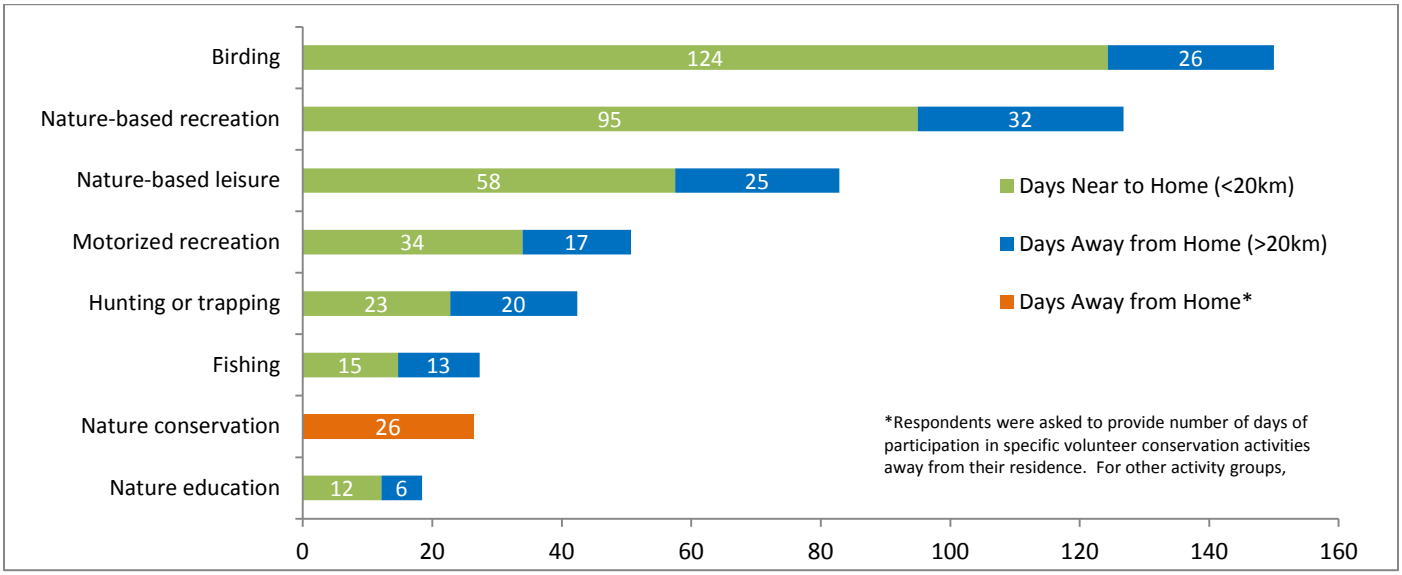


In addition to participation rates, the *2012 Canadian Nature Survey* also collected data on the amount of participation in nature-related activities. For most activities, respondents were asked to report the number of days that they spent participating in each activity in the previous 12 months in Canada, both within 20 km from their home, and more than 20 km away. Participation days are not necessarily mutually exclusive; respondents may participate in more than one nature-based activity in one calendar day. For conservation activities, the question was structured differently. Respondents were asked to report the number of days they spent engaged in a volunteer nature conservation activity away from their residence (either in their community or away from their community); these are presented in orange in *Figure 40* to highlight this difference.

Figure 40 shows the average number of days near to home (within 20 km) and away from home (more than 20 km away) that participants in each activity spent engaged in that activity (referred to as "participant days"). In this figure, activities are organized into eight broad activity groups (see *Appendix A: Activities Crosswalk* for examples of activities within each group).

Near to home, "birding" had the highest number of participant days, at an average of 124. Away from home, "nature-based recreation" had the highest number of participant days, at an average of 32. When considering total days spent near home and away, here again, birding (150 days) and nature-based recreation (127 days) were the most popular activities.

Figure 40: Average Participation Days in Nature-related Activities, Near Home and Away from Home, Per Participant



HUNTING, TRAPPING, AND FISHING

New Brunswick residents who reported participating in hunting, trapping, or fishing during the previous 12 months were asked if the activity had been carried out "under Aboriginal treaty rights," "licensed (not under Aboriginal rights)," "unlicensed," "primarily for sport/recreation," and/or "primarily for personal use or sharing." Respondents were asked to indicate all options that applied. The first three response categories provided (licensed, unlicensed, and Treaty rights) are *access options* which are normally mutually exclusive. However, the two *use options* response categories (primarily sport/recreation or primarily personal) can apply to any of the three access options.

The most commonly cited access option was "licensed, but not under Aboriginal treaty rights" (52%). The most commonly cited use option was "primarily for sport/recreation" (50%), followed by "primarily for personal use or sharing" (39%).

Respondents who indicated that they had not participated in hunting, trapping, or fishing activities were asked to indicate the reason for not participating. The top three reasons that New Brunswick residents did not hunt or trap in the previous 12 months were "do not like hunting/trapping/not interested" (37%), "lack of time" (15%), and "ethical reasons/don't want to hurt animals" (12%). These are similar to national results, with 41% reporting they "do not like hunting/trapping/not interested," 14% citing "lack of time," and 14% citing "ethical reasons/don't want to hurt animals."

The top three reasons given for not participating in fishing were "do not like fishing/not interested" (30%), "lack of time" (19%), and "lack of equipment" (11%). Nationally, results are similar with 31% of Canadians reporting they "don't like fishing/are not interested," 20% stating a "lack of time," and 10% stating they "lack equipment."

NATURE-BASED TRAVEL

New Brunswick residents reported the number of trips they made within Canada over the course of the previous 12 months that were farther than 20 km (one way) from their home, for which the main reason was to participate in nature-based activities for recreation, leisure, hunting, trapping, or fishing for personal use. New Brunswickers who partook in these trips reported an average of 16.4 same-day trips and 9.9 overnight trips. The most often-cited trip duration was a trip that lasted one day, not overnight (38%), followed by 25% who typically took "between 2 and 4 days, with an overnight stay" and 23% who stayed "parts of two days with one overnight stay." New Brunswickers stayed an average of 26 days at the three places farther than 20 km from their homes that they were most likely to visit. If the location where residents made such trips was a national park, provincial park, or other protected area, the places where they spent the most time were Fundy National Park (includes references to Fundy Bay), Kouchibouguac National Park, Irving Nature Park, Parlee Beach Provincial Park, Mount Carleton Provincial Park, and New River Beach Provincial Park.

About three in ten (29%) New Brunswick residents reported owning or using a personal or family secondary property in Canada, such as a cottage, camp, or cabin. During the same time period, they reported spending an average of 29 days at that cottage, camp, or cabin. The most frequently mentioned activities while at the property include hiking/walking, swimming, and fishing.

ECONOMIC ANALYSIS

Residents of New Brunswick spent $819 million on nature-related activities and services in the previous 12 months[108], accounting for just 2% of all such expenses nationally. New Brunswick is ranked as the eighth province in terms of total expenditures on nature-related activities, and is tenth in terms of average per-person expenditures ($1,582).

EXPENDITURES BY ACTIVITY AND EXPENSE TYPE

Participants in nature-related activities in New Brunswick spent 31% ($253 million) of all expenditures on equipment, fees and supplies, 25% ($203 million) on transportation, 13% ($104 million) on food, and 8% ($69 million) on accommodation. Approximately $166 million were incurred on conservation activities, amounting to at 20% of the province's expenditures on nature-based activities, and therefore slightly higher than most other provinces and territories.[109]

Expenditures on nature-based recreation ($242 million) accounted for 30% of all nature-related expenses in New Brunswick. Hunting, trapping, and fishing combined ($119 million) accounted for 15% of expenditures; and land-based motorized recreation ($84 million) accounted for another 10%—an amount that is generally higher than expenses reported in other Provinces and Territories. Expenditures on birding ($15 million) comprised less than 2% of nature-based expenditures in New Brunswick in the previous 12 months.

[108] The 12-month period was unique for each respondent depending exactly on when the respondent completed the questionnaire. However, the period can be expected to cover a period beginning October 2011 and ending May 2013.

[109] The data used to estimate this amount is based on options 1 through 3 of survey question 42, a limited scope that does not include donations or membership dues to nature organizations, or expenditures incurred in any volunteer activity away from respondents' residences. It is not based on the same categories of expenditures used for most other activities in the survey (transportation, accommodation, food, equipment, fees, and supplies) that are often associated with a "travel cost" type of analysis.

Table 33: Nature-Related Expenditures by Residents of New Brunswick in the Previous 12 Months, by Activity and Expenditure Type in the Previous 12 Months ($millions)[110]

Activity	Transportation		Accommodation		Food		Equipment, Fees & Supplies		Total ($M)
	Total ($M)	%	Total ($M)	%	Total ($M)	%	Total ($M)	%	
Nature-based Recreation	$83	34%	$34	14%	$42	17%	*$83^*	34%	**$242**
Nature Education	$22	43%	$6	11%	$15	30%	$7	15%	**$50**
Nature-Based Leisure	$17	16%	*$6^*	6%	$7	7%	$52	48%	**$109**
Photographing Nature	$13	39%	$5	15%	$5	16%	$10	31%	$34
Gardening/Landscaping	$4	8%	*$1^*	2%	*$2^*	4%	$42	86%	$49
Nature Media	-	-	-	-	-	-	-	-	$26
Birding	*$4^*	27%	*$1^*	7%	*$4^*	27%	$6	39%	**$15**
Motorized Recreation	$39	33%	*$5^*	4%	$16	13%	*$61^*	51%	**$120**
Land-based	$25	30%	*$3^*	4%	$10	12%	*$46^*	55%	$84
Water-based	$14	39%	*$2^*	6%	$5	15%	*$15^*	42%	$36
Hunting & Trapping	$22	30%	*$12^*	16%	$13^	18%	$27	36%	**$73**
Hunting Waterfowl	*$3^*	23%	*$4^*	29%	*$2^*	17%	*$4^*	30%	*$13^*
Hunting Other Game Birds	*$8*	31%	*$6^*	24%	*$5^*	20%	$6	26%	*$24^*
Hunting Small Game	*$1*	40%	*$0^*	6%	*$1^*	21%	*$1^*	32%	$4
Hunting Large Game	*$10*	31%	*$2^*	5%	$5	17%	$15	47%	$31
Hunting Other Animals	*$0^*	*0%*	*$0^*	0%	*$0^*	0%	*$0^*	100%	*$0^*
Trapping	*$0^*	*43%*	*$0^*	0%	*$0^*	7%	*$0^*	50%	*$1^*
Fishing	$15	33%	*$7^*	16%	$6	14%	$17	37%	**$45**
Nature Conservation (on private land)	-	-	-	-	-	-	-	-	***$166^***
Food/Shelter for Wildlife	-	-	-	-	-	-	-	-	$143
Conserve Natural Setting	-	-	-	-	-	-	-	-	$19
Maintain Forest for non-timber use	-	-	-	-	-	-	-	-	*$4^*
Total	**$203**	**25%**	**$69**	**8%**	**$104**	**13%**	**$253**	**31%**	**$819**[111]

^ Data point does not meet threshold for statistical reliability due to the number of respondents who participated in a given activity or who provided responses to a given question. The screening threshold for statistical reliability applied to each data point was a minimum of 30 responses and a CV < .3. See *Survey Methods* for explanation.
- Category is not disaggregated by this expenditure type.
Percents are presented as the share of expenditures for the activity spent on each expense type.

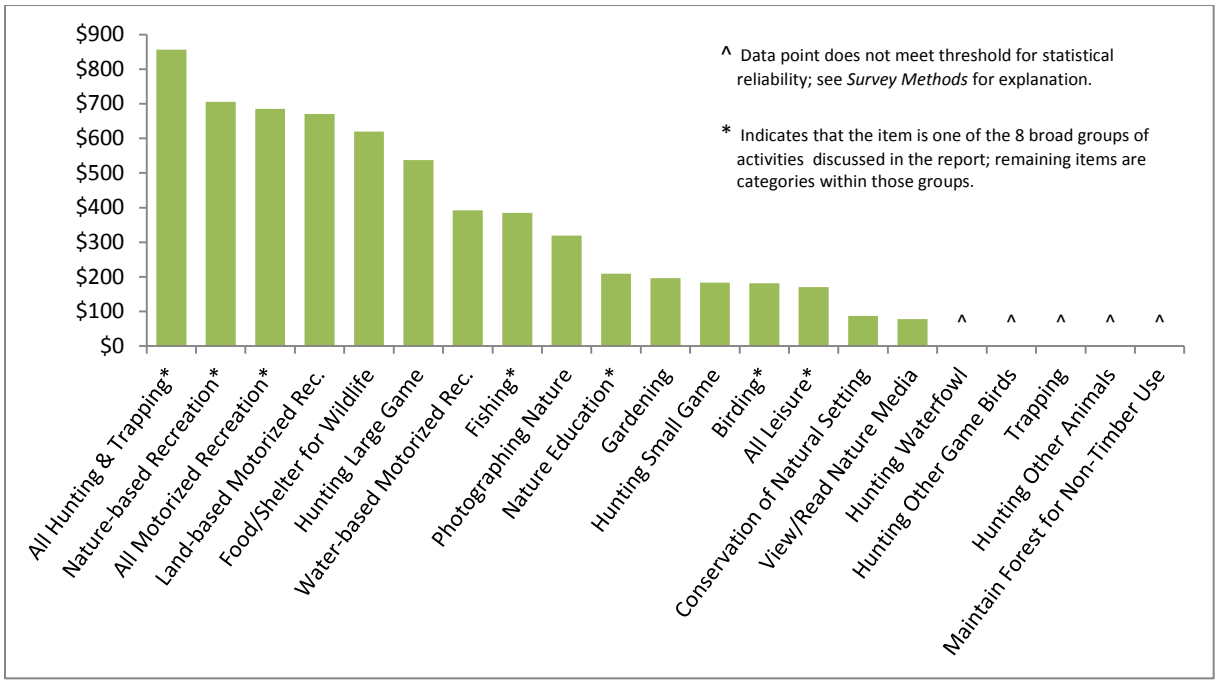
Average Yearly and Average Daily Expenditures

Average expenditures in New Brunswick were low, with residents who participated in these activities spending $1,582 per year, ranking the province tenth in per-person spending, and averaging $175 below the national average. However, for each category of expenditures, results generally followed national trends. On a single activity, residents did not spend more than $706 (nature-based recreation), though the average resident that participated in any hunting and trapping activity spent $856 on all such activities over the course of the year.

Land-based motorized recreation ($671) and providing food/shelter to wildlife ($619) were other significant total per-person expenses in the previous 12 months. The high relative expenditures on providing food/shelter to wildlife are unique because for most provinces and territories, expenditures on conservation activities are generally low.

[110] The grand total includes expenditures that are not categorized by expense type, including multimedia purchases and spending on nature conservation activities. Therefore, the percentages by expense type may not sum to 100%.
[111] The grand total for expenditures is calculated as an independent figure, equal to the sum of all component totals, and was independently screened for reliability. Consequently, the grand total includes expenditure amounts for all component activities, including those that were individually below the reliability threshold, see *Survey Methods: Statistical Reliability*.

Figure 41: Average Yearly Expenditures by Activity Type for Residents of New Brunswick in the Previous 12 Months



Daily expenditures by participants in the various activities ranged from $10 to $50 per day, but were once again consistent with national trends. Hunting small game ($14), nature-based recreation ($14), and birding ($10) were the lowest daily-expense activities, whereas hunting large game ($50) and fishing ($50) were activities with high daily expenditures.

Table 34: Average Daily Expenditures by Activity Type for Residents of New Brunswick in the Previous 12 Months

Activity	Daily Expenditure
Hunting Large Game	$50
Fishing	$50
Land-based Motorized Recreation	$49
Water-based Motorized Recreation	$43
Nature Education	$37
Photographing Nature	$18
Gardening/Landscaping	$17
Hunting Small Game	$14
Nature-based Recreation	$14
Birding	$10
Hunting Waterfowl	^
Hunting Other Game Birds	^
Trapping	^
Hunting Other Animals	^

^Data point does not meet threshold for statistical reliability. See *Survey Methods* for explanation.

NATURE CONSERVATION

The *2012 Canadian Nature Survey* collected information about different types of nature conservation in several different survey sections. This section reports results from the survey section entitled "Nature Conservation" which asked about membership and support of nature organizations, participation in volunteer nature conservation activities, and nature conservation at home. (see *Appendix B: Survey Instrument*).

Canadians were asked to provide the total number of days that they participated in several different types of voluntary nature conservation activities away from their residence in the previous 12 months. In New Brunswick, 27% of adults participated in at least one volunteer nature conservation activity for at least one day. Of those who participated, the average number of days of participation within the previous 12 months across all activities was 26.4 days.

The most common way that residents organize their time for volunteer nature conservation activities is to "volunteer occasionally when it interests them" (reported by 20% of respondents). The majority (63%) of New Brunswick residents who volunteer in nature-related activities indicated that their nature-related volunteer involvement has stayed the same over the past five years, 22% reported an increase, and 15% reported a decrease.

Thirteen percent of New Brunswick residents reported participating in citizen science activities in the previous 12 months. Citizen science encompasses activities of volunteers who perform or manage research-related tasks such as wildlife or habitat observation, measurement, or assessment.

"Lack of time" was the reason provided by the largest proportion (45%) of New Brunswick respondents when asked what prevented them from participating in volunteer nature conservation activities during the previous 12 months. One-third (33%) reported they "were unaware of an opportunity" and 31% selected "personal choice."

Human-Wildlife Conflicts

The *2012 Canadian Nature Survey* collected data about the interactions between humans and wildlife. Some of these interactions can be negative. Wildlife managers refer to "human-wildlife conflict" as any interaction between wild animals (whether small or large) and humans which causes harm, whether to the animal, human, or property (including pets or livestock). This conflict can happen in urban, rural, or wilderness settings.

Twenty-seven percent of New Brunswick residents reported that a wild animal posed a threat to their safety or to the safety of people, pets, or farm animals in their care at home or in the community in the previous twelve months. Nearly one-third (30%) of residents reported that a wild animal caused damage to their personal property. Of those who experienced threat or damage, the most frequently cited type of animal involved was a small mammal (e.g., groundhog, skunk, or raccoon), reported by 70% of respondents. This was followed by deer or moose (34%) and coyote (20%).

As shown in *Table 35*, about one-third of New Brunswick residents (35%) who experienced threat or damage "took no action" as a result of the incident. For those who did act, the most common actions were to "remove or relocate items known to attract 'friendly' wildlife" (29% of all respondents), "put out live traps/humane removal" (16%) and "fence off or otherwise the property" (14%).

Table 35: Actions Taken As a Result of the Problem

Options Listed in Survey	New Brunswick	
	Population Estimate	Percent
I took no action	96,064	35%
Removed or relocated items known to attract friendly wildlife	79,964	29%
Put out live traps / humane removal	43,333	16%
Fenced-off or otherwise protected my property	38,498	14%
Followed authorities recommended safety procedures	29,997	11%
Spoke to local wildlife management officials	23,580	9%
Killed the animal believed to be a threat	18,972	7%
Put out poison	^	^
Participated in local education and land use planning sessions on wildlife management	^	^
Other(Specify)	28,717	11%

^Data point does not meet threshold for statistical reliability. See *Survey Methods* for explanation.

4.5 Newfoundland & Labrador

This Provincial Report presents findings from the *2012 Canadian Nature Survey* for the Province of Newfoundland and Labrador (NL). This section will cover Newfoundlanders' and Labradorians' connection to nature and awareness of key concepts, their interactions with wildlife, and their involvement in nature-based activities. Results in this section are based on the address-based sample results only, as only these data allow for tests of significance and other statistical analysis (*see Survey Methods*). 1,478 completed address-based surveys from Newfoundland and Labrador were received, out of a total sample of 9,096; the survey response rate[112] for the province was 16%. This is representative of the estimated total adult population of 420,405 adult residents[113], with a statistical reliability of +/-2.6%,[114] at 95% confidence.

Connection to Nature & Awareness

The *2012 Canadian Nature Survey* sought to understand the extent to which residents of Newfoundland and Labrador are connected to nature. Survey results show that 50% of residents chose where they live partly to have access to nature. Eleven percent of residents of Newfoundland and Labrador reported that their income relies on a nature-related profession.

Biodiversity and Ecosystem Services

Respondents were provided with definitions of the terms "biodiversity" and "ecosystem services" and then asked if, before the day that they completed the survey, they had heard of each of these concepts. In Newfoundland and Labrador, awareness of the terms "biodiversity" and "ecosystem services" was high. About three-quarters (77%) of Newfoundland and Labrador residents had heard of the term "biodiversity" before taking the survey. About seven in 10 (71%) were aware of the term "ecosystem services" prior to survey administration.

While awareness of the term "ecosystem services" was high, even more residents were aware of examples of ecosystem services, or ways that nature can provide benefits. Between 96% and 98% of residents were aware that nature can be essential to:

- Keep soil fertile and productive;
- Produce oxygen and clean pollutants from the air;
- Filter water to keep it clean and safe;
- Provide places for recreation, fitness and leisure; and
- Pollinate plants and crops to produce food.

Fewer residents of Newfoundland and Labrador (71%) were aware that nature can be essential to "reduce or control the spread of many diseases."

Additionally, over three-quarters (77%) of provincial residents were aware that biodiversity contributes to ecosystem services and provides life support and other important benefits to people.[115]

Fourteen percent of Newfoundlanders and Labradorians reported being directly affected, during the previous 12 months, by the loss of an ecosystem service that would normally have been provided by nature. Of those who reported a loss, 30% cited "emotional, psychological, or spiritual well-being" as the option that most closely matched how the loss affected them.[116]

[112] See *Response Rates* for details regarding the computation of response rates.
[113] Survey respondents were individual adults, age 18 and over, see *Survey Methods, Sampling* for details.
[114] This margin of error does not account for design effects due to the complex survey design used in the 2012 Canadian Nature Survey. The design effect varies for each estimate and may in some cases increase the margin of error. The margin of error will be wider for sub-analysis of activities in which only a small number of respondents participate. All reported estimates have been screened for minimum reliability (see *Survey Methods*).
[115] Here the proportion of respondents who reported being aware that biodiversity contributes to ecosystem services is higher than the proportion of respondents who reported knowing the meaning of "ecosystem services." It is possible that some respondents may not have known the definition of the term "ecosystem services," but, after reading examples provided, they had a better understanding of what was meant by the term. Awareness of the concepts of biodiversity and ecosystem services and how they relate may therefore be understood independently of the definitions of these terms.
[116] See *Appendix B: Survey Instrument*, for how the question was worded, and for the complete list of options provided.

Species at Risk

The *2012 Canadian Nature Survey* also examined awareness of the term "species at risk" and actions taken to assist in the recovery of species at risk. Almost all Newfoundland and Labrador respondents (95%) reported they had heard of the term prior to taking the survey. Twelve percent of residents reported donating money on behalf of species at risk in the previous twelve months.

Obtaining Information about Nature

Respondents were asked to report the three ways they most frequently obtain nature-related information. Newfoundland and Labrador residents were most likely to "watch visual media" (65%) and "read publications" (60%), followed by obtain information "from conversations" (37%) and "through personal experience" (33%).

When asked about their most frequent sources of information, Newfoundlanders and Labradorians reported "journalists/media writers" (56%), "friends, family or colleagues" (54%), "the government" (46%), "conservation groups" (39%), "scientists" (26%), and "teachers/educators" (14%).

Nature-Based Activities

The largest section of the *2012 Canadian Nature Survey* questionnaire was devoted to collecting information about respondents' participation in nature-based activities in Canada during the 12 months prior to completing the survey, and collecting information about related expenses. For a complete listing of the activities that the survey addressed, and for how they are organized into groups for analysis in this report, see *Appendix A: Activities Crosswalk.* For a discussion of the methodology used to produce participation rates, see *Survey Methods: Participation Analysis* and *Chapter 2: Nature-based Activities, Participation and Expenditures*.

As shown in *Figure 42*, nearly three-quarters (74%) of Newfoundland and Labrador residents reported "picnicking or relaxing in nature," about two-thirds reported "hiking, climbing, or horse riding" (68%) or "reading or viewing nature media" (66%), and half reported "gardening or landscaping with plants" in the previous 12 months.

In addition to participation rates, the *2012 Canadian Nature Survey* also collected data on the amount of participation in nature-related activities. For most activities, respondents were asked to report the number of days that they spent participating in each activity in the previous 12 months in Canada, both within 20 km of their home, and more than 20 km away. Participation days are not necessarily mutually exclusive; respondents may participate in more than one nature-based activity in one calendar day. For conservation activities, the question was structured differently. Respondents were asked to report the number of days they spent engaged in a volunteer nature conservation activity away from their residence (either in their community or away from their community); these are presented in orange in *Figure 43* to highlight this difference.

Figure 43 shows the average number of days near to home (within 20 km) and away from home (more than 20 km away) that participants in each activity spent engaged in that activity (referred to as "participant days"). In this figure, activities are organized into eight broad activity groups (see *Appendix A: Activities Crosswalk* for examples of activities within each group).

Near to home, "birding" had the highest number of participant days, at an average of 95. Away from home, "nature-based recreation" had the highest number of participant days, at an average of 27. When considering total days, here again, birding (121 days) and nature-based recreation (110 days) were the most popular activities.

Figure 42: Percentage of Newfoundland and Labrador Residents Age 18 and Over Participating in Nature-related Activities

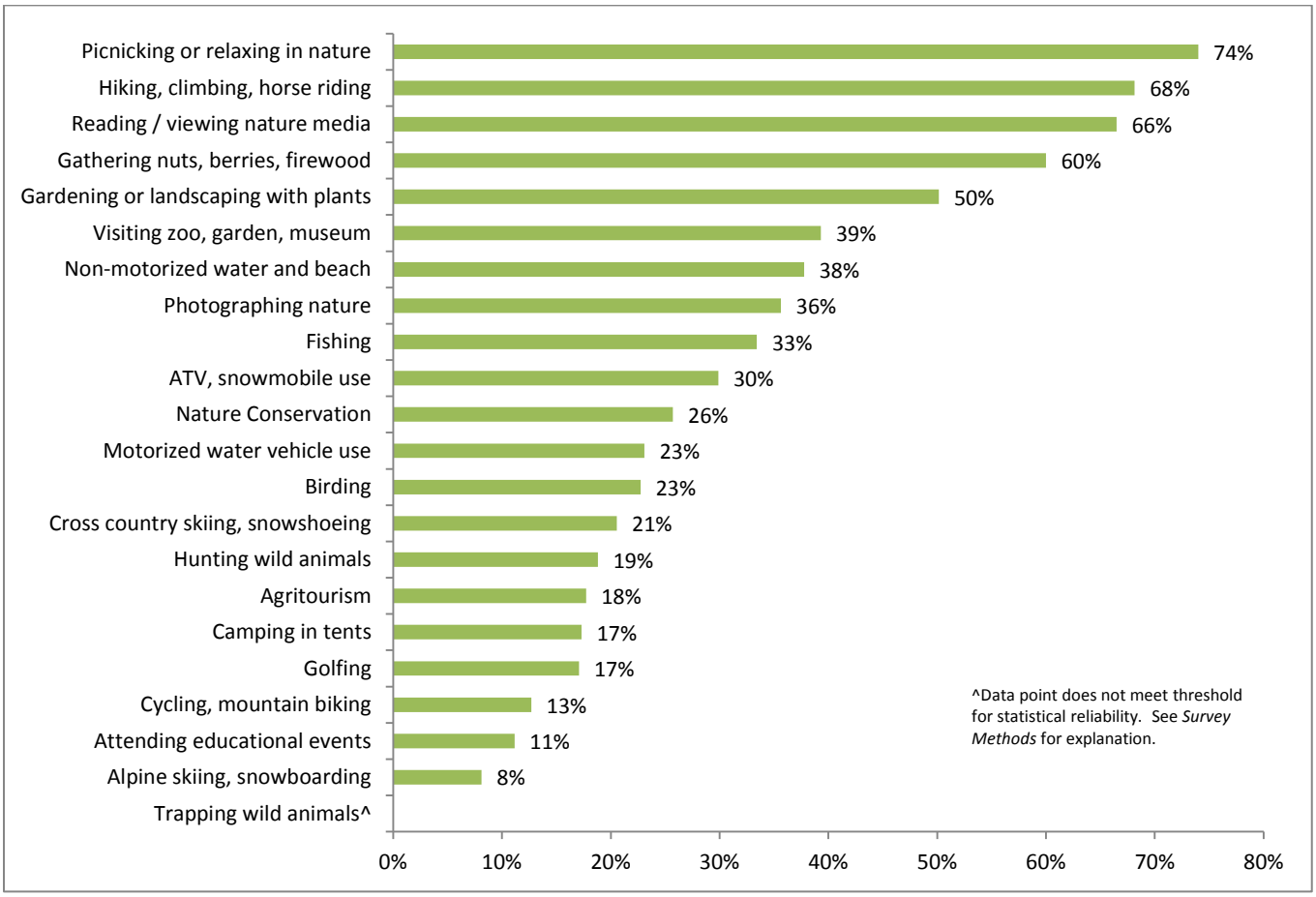
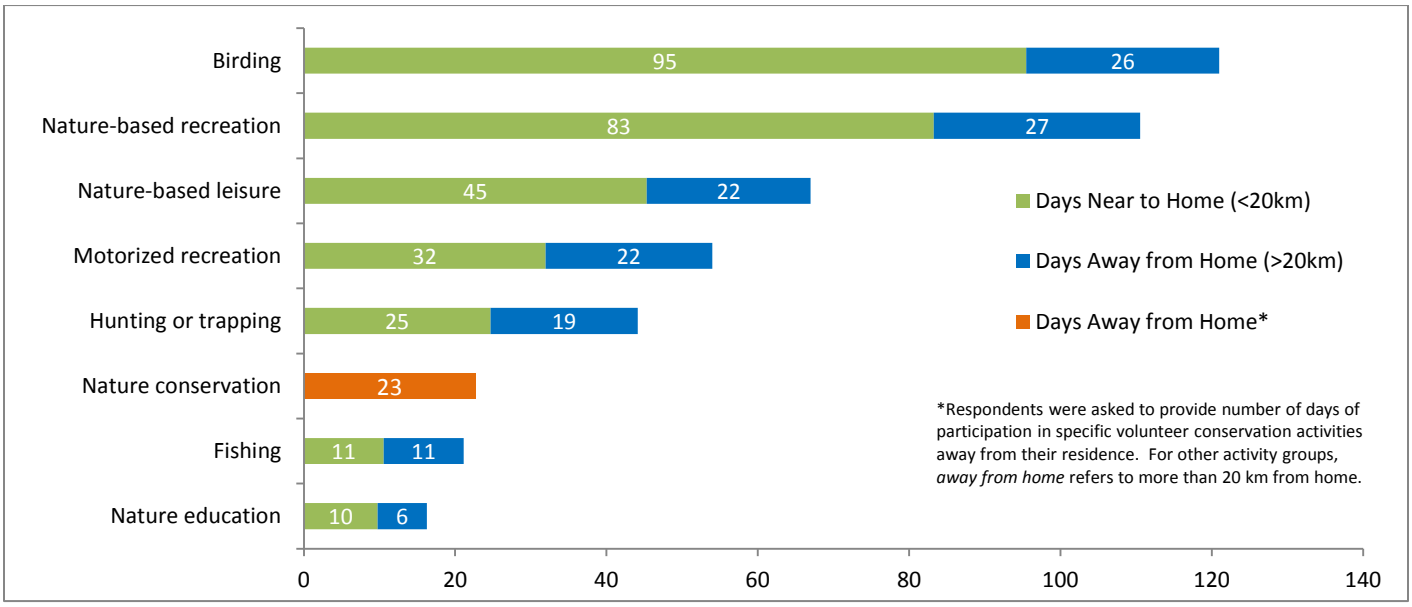


Figure 43: Average Participation Days in Nature-related Activities, Near Home and Away from Home, Per Participant



HUNTING, TRAPPING, AND FISHING

Newfoundland and Labrador residents who reported participating in hunting, trapping, or fishing during the previous 12 months were asked if the activity had been carried out "under Aboriginal treaty rights," "licensed (not under Aboriginal rights)," "unlicensed," "primarily for sport/recreation," and/or "primarily for personal use or sharing." Respondents were asked to indicate all options that applied. The first three response categories provided (licensed, unlicensed, and Treaty rights) are *access options* which are normally mutually exclusive. However, the two *use options* response categories (primarily sport/recreation or primarily personal) can apply to any of the three access options.

The most commonly cited access option was "licensed, but not under Aboriginal treaty rights" (35%). The most commonly cited use option was "primarily for personal use or sharing" (60%), followed by "primarily for sport/recreation" (50%).

Respondents who indicated that they had not participated in hunting, trapping, or fishing activities were asked to indicate the reason for not participating. The top three reasons that Newfoundland and Labrador residents did not hunt or trap in the previous 12 months were "do not like hunting/trapping/not interested" (46%), "lack of knowledge" (14%) and "lack of time" (12%). These are similar to national results, with 41% reporting they "do not like hunting/trapping/are not interested", 17% citing "lack of knowledge" and 14% citing "lack of time."

The top reasons given for not participating in fishing were "do not like fishing/are not interested" (27%) and "lack of time" (18%). Nationally, results are similar, with 31% reporting they "do not like fishing/are not interested" and 20% stating a "lack of time."

NATURE-BASED TRAVEL

Newfoundland and Labrador residents reported the number of trips they made within Canada over the course of the previous 12 months that were farther than 20 km (one way) from their home, for which the main reason was to participate in nature-based activities for recreation, leisure, hunting, trapping, or fishing for personal use. Residents who partook in these trips reported an average of 13.8 same-day trips and 10.2 overnight trips. The most-cited trip duration was a trip that lasted "one day, not overnight" (34%), followed by 27% who typically took "between 2 and 4 days, with an overnight stay" and 18% who stayed "parts of two days with one overnight stay". Newfoundlanders and Labradorians stayed an average of 29 days at the three places farther than 20 km from their homes that they were most likely to visit. If the location where residents made such trips was a national park, provincial park, or other protected area, the places where they spent the most time were Gros Morne National Park, Terra Nova National Park, Butter Pot Provincial Park, Salmonier Nature Park, and Banff National Park.

More than one-third (37%) residents of the Atlantic province reported owning or using a personal or family secondary property in Canada, such as a cottage, camp, or cabin. During the same time period, they reported spending an average of 28 days at that cottage, camp, or cabin. The most frequently mentioned activities while at the property include hiking/walking, fishing, and hunting (including big game).

ECONOMIC ANALYSIS

Residents participating in nature-related activities in Newfoundland and Labrador spent $676 million on nature-related activities and services in the previous 12 months[117], positioning the province as the ninth-largest in terms of total expenditures on nature-related activities. Two percent of all nature-related expenditures in Canada in the previous 12 months were spent by residents of Newfoundland and Labrador, aligning with the relatively small population in the province. Average expenditures in the province were $1,840 per person, which ranked as the seventh-largest nationally.

[117] The 12-month period was unique for each respondent depending exactly on when the respondent completed the questionnaire. However, the period can be expected to cover a period beginning October 2011 and ending May 2013.

Table 36: Nature-Related Expenditures by Residents of Newfoundland & Labrador by Activity and Expenditure Type in the Previous 12 Months ($million)[118]

	Transportation		Accommodation		Food		Equipment, Fees & Supplies		Total ($M)
	Total ($M)	%	Total ($M)	%	Total ($M)	%	Total ($M)	%	
Nature-based Recreation	$65	35%	$29	16%	$26	14%	$64	35%	**$185**
Nature Education	$12	45%	$6	22%	$6	20%	$4	13%	**$28**
Nature-Based Leisure	$29	23%	*$10^*	8%	$10	8%	$59	46%	**$127**
Nature Photography	$24	45%	$10	19%	$9	16%	$10	19%	$53
Gardening/Landscaping	$5	9%	$0	1%	*$2^*	^	$49	87%	$56
Nature Media	-	-	-	-	-	-	-	-	$18
Birding	$4	20%	$2	9%	*$9^*	4%	$4	23%	**$18**
Motorized Recreation	$63	50%	*$12^*	9%	$15	12%	$37	29%	**$127**
Land-based	$44	53%	$6	7%	$9	12%	$23	28%	$82
Water-based	*$19^*	42%	*$6^*	13%	$6	13%	$14	31%	$45
Hunting & Trapping	*$54^*	47%	$3	3%	*$23^*	20%	*$35^*	31%	***$114^***
Hunting Waterfowl	$5	40%	*$1^*	5%	$2	12%	*$6^*	43%	$13
Hunting Other Game Birds	$3	44%	*$0^*	3%	$1	15%	*$2^*	38%	$6
Hunting Small Game	*$7^*	59%	*$0^*	1%	*$1*	12%	*$3^*	28%	*$11^*
Hunting Large Game	*$38^*	46%	*$2^*	2%	*$19^*	24%	*$23^*	*28%*	*$82^*
Hunting Other Wild Animals	*$0^*	29%	*$0^*	11%	*$0^*	17%	*$0^*	*43%*	*$0^*
Trapping Wild Game	*$1^*	56%	*$0^*	0%	*$0^*	9%	*$1^*	35%	*$2^*
Fishing	$25	43%	*$7^*	12%	*$12^*	20%	$15	25%	**$59**
Nature Conservation (on private land)	-	-	-	-	-	-	-	-	***$19^***
Food/Shelter for Wildlife	-	-	-	-	-	-	-	-	$5
Conserve Natural Setting	-	-	-	-	-	-	-	-	$7
Maintain Forest for non-timber use	-	-	-	-	-	-	-	-	*$7^*
Total	**$252**	**37%**	**$70**	**10%**	**$101**	**15%**	**$217**	**32%**	**$676**[119]

^ Data point does not meet threshold for statistical reliability due to the number of respondents who participated in a given activity or who provided responses to a given question. The screening threshold for statistical reliability applied to each data point was a minimum of 30 responses and a CV < .3. See Survey Methods for explanation.
- Category is not disaggregated by this expenditure type
Percents are presented as the share of expenditures for the activity spent on each expense type.

Expenditures by Activity and Expense Type

Provincial residents spent 37% of all nature-related expenses on transportation ($252 million), 32% on equipment, fees and supplies ($217 million), 15% on food ($101 million), and 10% on accommodation ($70 million). Three percent of expenses were attributable to conservation.[120]

Expenditures by residents of Newfoundland and Labrador on nature-based recreation were significant ($185 million), but were generally lower in terms of percent of all expenditures (27%) than for other provinces and territories. Land-based motorized

[118] The grand total includes expenditures that are not categorized by expense type, including multimedia purchases and spending on nature conservation activities. Therefore, the percentages by expense type may not sum to 100%.
[119] The grand total for expenditures is calculated as an independent figure, equal to the sum of all component totals, and was independently screened for reliability. Consequently, the grand total includes expenditure amounts for all component activities, including those that were individually below the reliability threshold, see *Survey Methods: Statistical Reliability*.
[120] The data used to estimate this amount is based on options 1 through 3 of survey question 42, a limited scope that does not include donations or membership dues to nature organizations, or expenditures incurred in any volunteer activity away from respondents' residences. It is not based on the same categories of expenditures used for most other activities in the survey (transportation, accommodation, food, equipment, fees, and supplies) that are often associated with a 'travel cost' type of analysis.

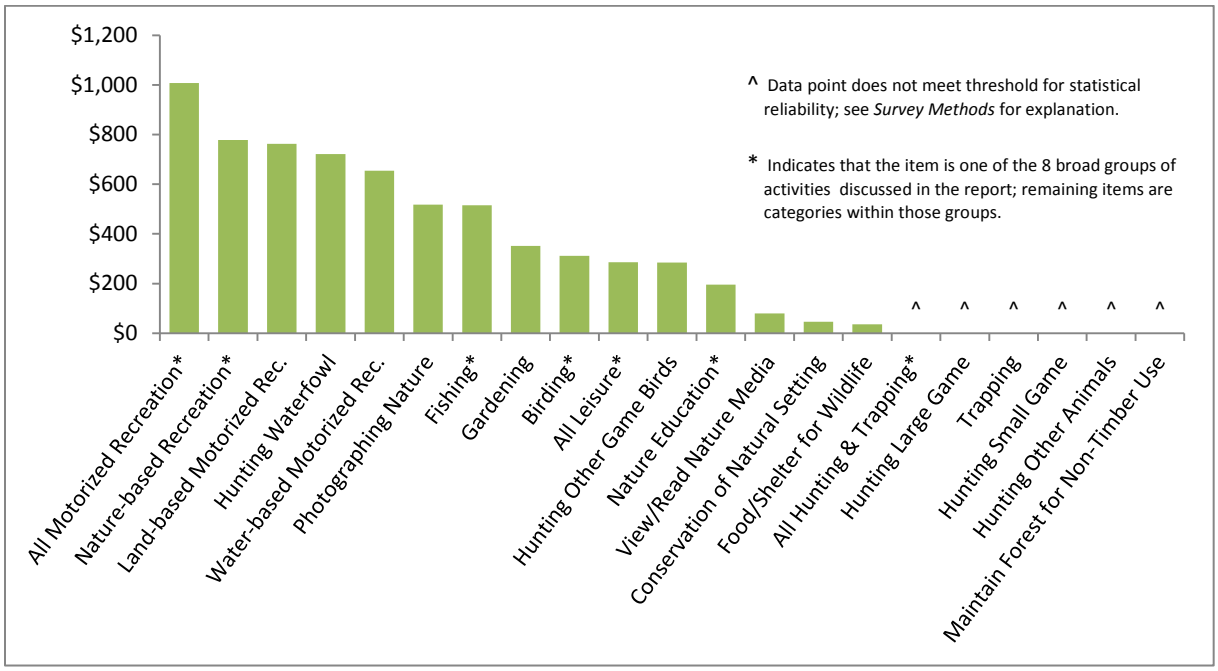
recreation was also significant, for which residents spent $82 million in the previous 12 months (12%), as were expenditures on fishing ($59 million, 9%).

Average Yearly and Average Daily Expenditures

On all activities that a person participated in during the previous 12 months, participants reported spending an annual average of $1,840, slightly above the national average of $1,757. Nature-based recreation was the single activity with the highest average annual expenditure ($778), followed by land-based motorized recreation ($762).

For Newfoundland and Labrador, conservation activities were the lowest annual expenditure per person (ranging from $36 for providing food/shelter to wildlife to $52 for conserving natural settings) in the previous 12 months.

Figure 44: Average Yearly Expenditures by Activity Type for Residents of Newfoundland & Labrador in the Previous 12 Months



Daily expenditures by participants in each activity ranged from $9 (birding) to $75 (nature education) per day. Low expenditures per day for birding are consistent with national trends, though the $75 in expenditures on nature education is higher than nearly all other provinces. Respondents also reported high spending on gardening in Newfoundland and Labrador ($22 per day), relative to the national average of $13 per day.

Table 37: Average Daily Expenditures by Activity Type for Residents of Newfoundland & Labrador in the Previous 12 Months

Activity	Daily Expenditure
Nature Education	$75
Water-based Motorized Recreation	$67
Hunting Waterfowl	$58
Fishing	$47
Land-based Motorized Recreation	$39
Hunting Other Game Birds	$31
Photographing Nature	$31
Gardening/Landscaping	$22
Nature-based Recreation	$15
Birding	$9
Hunting Large Game	^
Hunting Other Animals	^
Hunting Small Game	^
Trapping	^

^Data point does not meet threshold for statistical reliability. See *Survey Methods* for explanation.

Nature Conservation

The *2012 Canadian Nature Survey* collected information about different types of nature conservation in several different survey sections. This section reports results from the survey section entitled "Nature Conservation" which asked about membership and support of nature organizations, participation in volunteer nature conservation activities, and nature conservation at home. (see *Appendix B: Survey Instrument*).

Canadians were asked to provide the total number of days that they participated in several different types of voluntary nature conservation activities away from their residence in the previous 12 months. In Newfoundland and Labrador, 26% of adults participated in at least one volunteer nature conservation activity for at least one day. Of those who participated, the average number of days of participation within the previous 12 months across all activities was 22.7 days.

The most common way that residents organize their time for volunteer nature conservation activities is to "volunteer occasionally when it interests them" (reported by 17% of respondents). The majority (68%) of Newfoundland and Labrador residents who volunteer in nature-related activities indicated that their nature-related volunteer involvement has stayed the same over the past five years and 27% reported an increase; responses that reported a decrease did not generate a statistically reliable provincial estimate.

Thirteen percent of Newfoundlanders and Labradorians reported participating in citizen science activities in the previous 12 months. Citizen science encompasses activities of volunteers who perform or manage research-related tasks such as wildlife or habitat observation, measurement, or assessment.

"Lack of time" was the reason selected by the largest proportion (41%) of Newfoundland and Labrador respondents when asked what prevented them from participating in volunteer nature conservation activities during the previous 12 months. The next most common response was "I was not aware of an opportunity," selected by 39% of respondents, followed by "personal choice," selected by 31% of respondents.

Human-Wildlife Conflicts

The *2012 Canadian Nature Survey* collected data about the interactions between humans and wildlife. Some of these interactions can be negative. Wildlife managers refer to "human-wildlife conflict" as any interaction between wild animals (whether small or large) and humans which causes harm, whether to the animal, human, or property (including pets or livestock). This conflict can happen in urban, rural, or wilderness settings.

Nineteen percent of residents of Canada's Eastern-most province reported that a wild animal posed a threat to their safety or to the safety of people, pets, or farm animals in their care at home or in the community in the previous twelve months. Less than 10% of residents (8%) reported that a wild animal caused damage to their personal property. Of those who experienced threat or damage, the most frequently cited type of animal involved was a deer, elk or moose (47%), followed by coyote or wolf (38%), and a small mammal, reported by 23% of respondents.

As shown in *Table 38*, more than one-third (39%) of Newfoundland and Labrador residents who experienced threat or damage "took no action" as a result of the incident. For those who did act, the most common actions were to "follow recommended safety procedures from authorities" (25%), "remove or relocate items known to attract 'friendly' wildlife" (13%), and "fence off or otherwise protect my property" (11%).

Table 38: Actions Taken As a Result of the Problem

Options Listed in Survey	Newfoundland and Labrador	
	Population Estimate	Percent
I took no action	44,043	39%
Followed authorities recommended safety procedures	28,196	25%
Removed or relocated items known to attract friendly wildlife	14,736	13%
Fenced-off or otherwise protected my property	12,379	11%
Spoke to local wildlife management officials	10,464	9%
Put out poison	^	^
Killed the animal believed to be a threat	^	^
Put out live traps / humane removal	^	^
Participated in local education and land use planning sessions on wildlife management	^	^
Other(Specify)	17,189	15%

^Data point does not meet threshold for statistical reliability. See *Survey Methods* for explanation.

4.6 NORTHWEST TERRITORIES

This Territorial Report presents findings from the *2012 Canadian Nature Survey* for the Northwest Territories (NT). This section will cover residents' connection to nature and awareness of key concepts, their interactions with wildlife, and their involvement in nature-based activities. Results in this section are based on the address-based sample results only, as only these data allow for tests of significance and other statistical analysis (see *Survey Methods*). 962 completed address-based surveys from the Northwest Territories were received, out of a total sample of 7,096; the survey response rate[121] for the territory was 14%. This is representative of the estimated total adult population of 30,435 adult residents[122], with a statistical reliability of +/-3.2%,[123] at 95% confidence. When a figure is shown with a "^" symbol it indicates that the figure does not meet ICF's analytical threshold for statistical reliability (see *Survey Methods: Statistical Reliability* for explanation.)

CONNECTION TO NATURE & AWARENESS

The *2012 Canadian Nature Survey* sought to understand the extent to which residents of the Northwest Territories are connected to nature. Survey results show that 67% of residents chose where they live partly to have access to nature. Thirteen percent of residents of the Northwest Territories reported that their income relies on a nature-related profession, with 2% each reporting "wildlife management" and "environmental consultation" as primary sources of income.

BIODIVERSITY AND ECOSYSTEM SERVICES

Respondents were provided with definitions of the terms "biodiversity" and "ecosystem services" and then asked if, before the day that they completed the survey, they had heard of each of these concepts. In the Northwest Territories, awareness of the terms "biodiversity" and "ecosystem services" was very high. Eighty-nine percent of Northwest Territories residents had heard of the term "biodiversity" before taking the survey. Nearly three-quarters (73%) were aware of the term "ecosystem services" prior to survey administration.

While awareness of the term "ecosystem services" was high, even more residents were aware of examples of ecosystem services, or ways that nature can provide benefits. Ninety-nine percent were aware that nature can be essential to:

- Provide places for recreation, fitness and leisure; and
- Produce oxygen and clean pollutants from the air.

Awareness was also very high (96% or more) for:

- Provide raw materials for making and building things;
- Provide places for inspiration and spiritual renewal;
- Pollinate plants and crops to produce food;
- Filter water to keep it clean and safe; and
- Keep soil fertile and productive.

Fewer residents (73%) of the Northwest Territories were aware that nature can be essential to "reduce or control the spread of many diseases."

Additionally, 87% of Northwest Territories residents were aware that biodiversity contributes to ecosystem services and provides life support and other important benefits to people.[124]

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[121] See *Response Rates* for details regarding the computation of response rates.

[122] Survey respondents were individual adults, age 18 and over, see *Survey Methods, Sampling* for details.

[123] This margin of error does not account for design effects due to the complex survey design used in the 2012 Canadian Nature Survey. The design effect varies for each estimate and may in some cases increase the margin of error. The margin of error will be wider for sub-analysis of activities in which only a small number of respondents participate. All reported estimates have been screened for minimum reliability (see *Survey Methods*).

[124] Here the proportion of respondents who reported being aware that biodiversity contributes to ecosystem services is higher than the proportion of respondents who reported knowing the meaning of "ecosystem services." It is possible that some respondents may not have known the definition of the term "ecosystem services," but, after reading examples provided, they had a better understanding of what was meant by the term. Awareness of the concepts of biodiversity and ecosystem services and how they relate may therefore be understood independently of the definitions of these terms.

Twenty-one percent of Northwest Territories residents reported being directly affected, during the previous 12 months, by the loss of an ecosystem service that would normally have been provided by nature. Of those who reported a loss, the largest proportion (22%) cited "emotional, psychological or spiritual well-being" as the option that most closely matched how the loss affected them.[125]

Species at Risk

The *2012 Canadian Nature Survey* also examined awareness of the term "species at risk" and actions taken to assist in the recovery of species at risk. Almost all Northwest Territories respondents (94%) reported they had heard of the term prior to taking the survey. Eighteen percent of residents reported donating money on behalf of species at risk in the previous twelve months.

Obtaining Information about Nature

Respondents were asked to report the three ways they most frequently obtain nature-related information. Northwest Territories residents were mostly likely to report that they "read publications" (74%). This was followed by "watch visual media" (66%), obtain information "from conversations" (43%), and "through personal experience" (38%).

When asked about their most frequent sources of information, Northwest Territories residents reported "friends, family or colleagues" (64%), "journalists/media writers" (59%), "the government" (40%), "conservation groups" (37%), " "scientists" (26%), and then "teachers/educators" (24%).

Nature-Based Activities

The largest section of the *2012 Canadian Nature Survey* questionnaire was devoted to collecting information about respondents' participation in nature-based activities in Canada during the 12 months prior to completing the survey, and collecting information about related expenses. For a complete listing of the activities that the survey addressed, and for how they are organized into groups for analysis in this report, see *Appendix A: Activities Crosswalk.* For a discussion of the methodology used to produce participation rates, see *Survey Methods: Participation Analysis* and *Chapter 2: Nature-based Activities, Participation and Expenditures*.

As shown in *Figure 45*, about 82% of Northwest Territories residents reported "picnicking or relaxing in nature;" over 70% reported "hiking, climbing or horse riding" or "reading or viewing nature media" and in the previous 12 months. More than half reported engaging in "non-motorized water and beach activities" (59%) or "gathering nuts, berries, or firewood" (59%).

In addition to participation rates, the *2012 Canadian Nature Survey* also collected data on the amount of participation in nature-related activities. For most activities, respondents were asked to report the number of days that they spent participating in each activity in the previous 12 months in Canada, both within 20 km from their home, and more than 20 km away. Participation days are not necessarily mutually exclusive; respondents may participate in more than one nature-based activity in one calendar day. For conservation activities, the question was structured differently. Respondents were asked to report the number of days they spent engaged in a volunteer nature conservation activity away from their residence (either in their community or away from their community); these are presented in orange in *Figure 46* to highlight this difference.

Figure 46 shows the average number of days near to home (within 20 km) and away from home (more than 20 km away) that participants in each activity spent engaged in that activity (referred to as "participant days"). In this figure, activities are organized into eight broad activity groups (see *Appendix A: Activities Crosswalk* for examples of activities within each group).

Near to home and away from home (109 and 51, respectively), "nature-based recreation" had the highest number of participant days. When considering total days spent near home and away, nature-based recreation (160 days) and nature-based leisure (91 days) were the most popular activities.

[125] See *Appendix B: Survey Instrument*, for how the question was worded, and for the complete list of options provided.

Figure 45: Percentage of Northwest Territories Residents Age 18 and Over Participating in Nature-related Activities

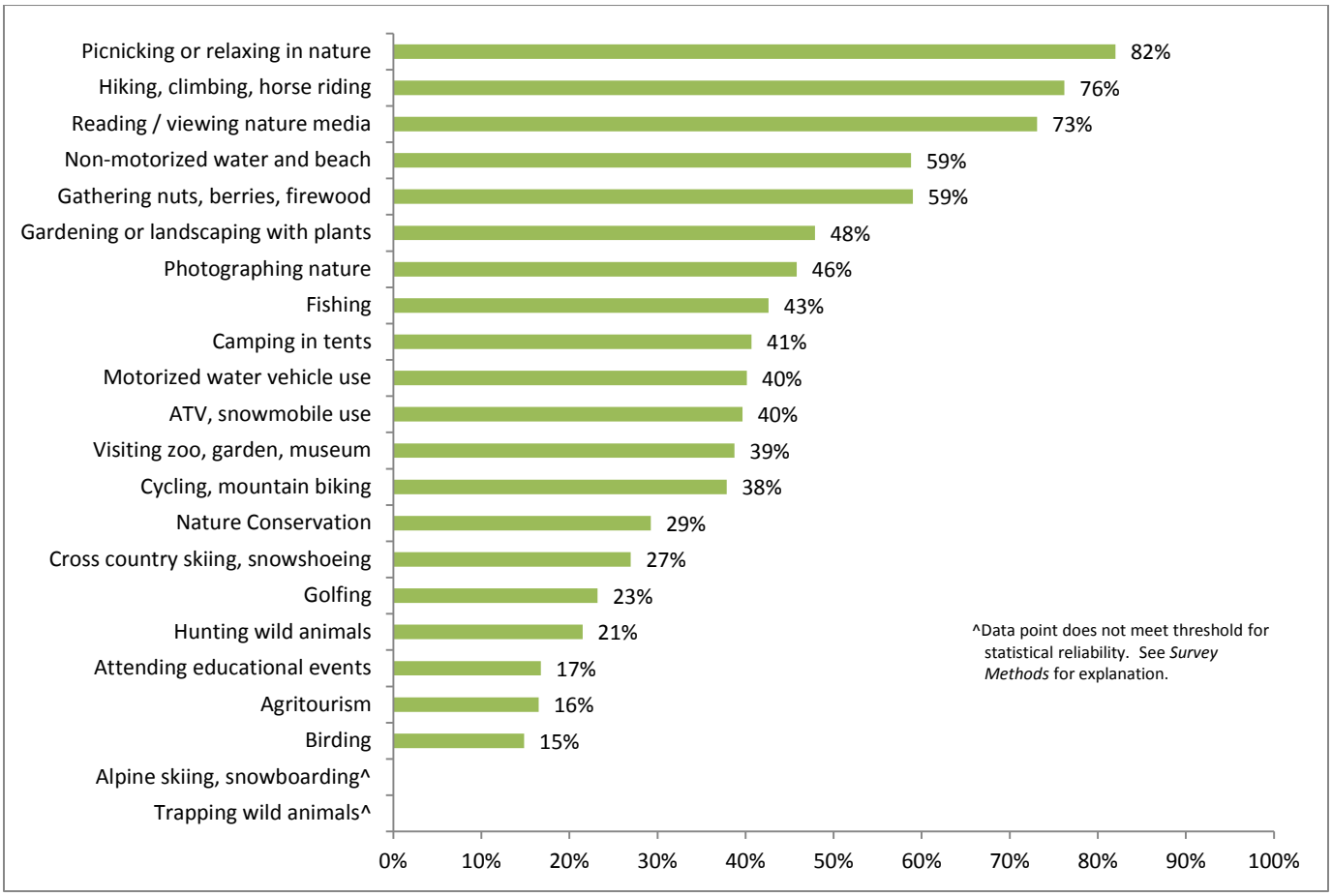
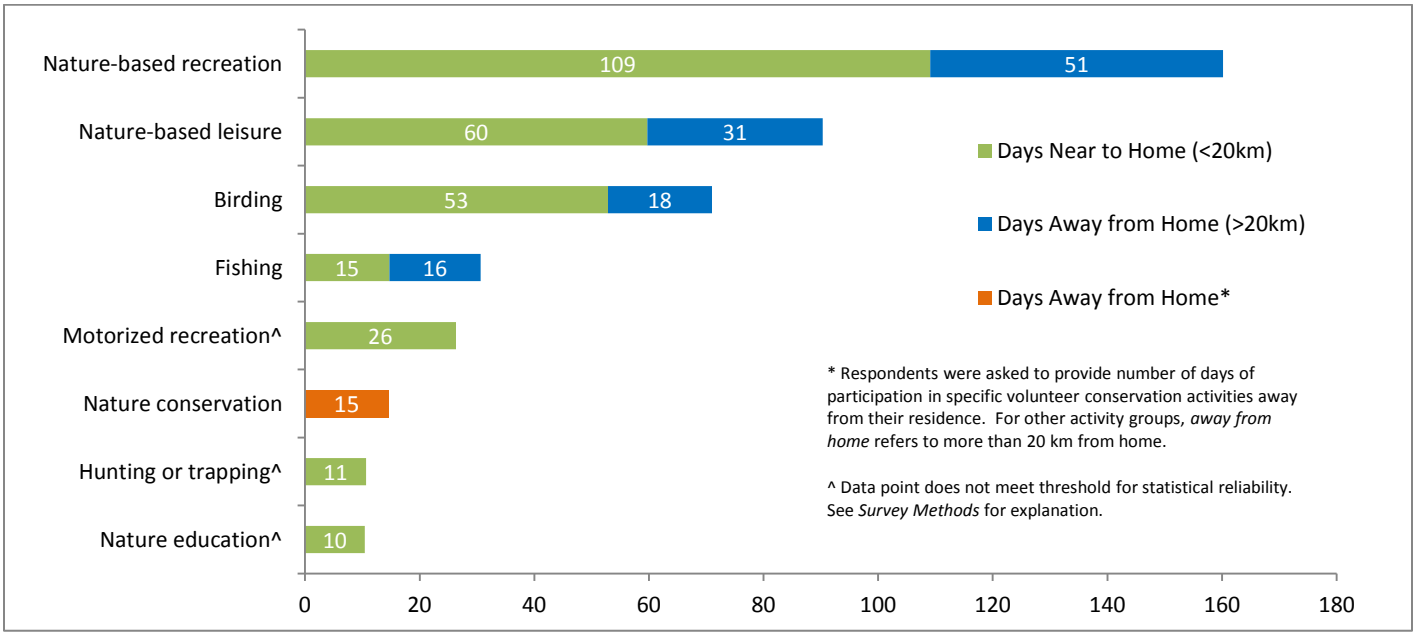


Figure 46: Average Participation Days in Nature-related Activities, Near Home and Away from Home, Per Participant



HUNTING, TRAPPING, AND FISHING

Northwest Territories residents who reported participating in hunting, trapping, or fishing during the previous 12 months were asked if the activity had been carried out "under Aboriginal treaty rights," "licensed (not under Aboriginal rights)," "unlicensed," "primarily for sport/recreation," and/or "primarily for personal use or sharing." Respondents were asked to indicate all options that applied. The first three response categories provided (licensed, unlicensed, and Treaty rights) are *access options* which are normally mutually exclusive. However, the two *use options* response categories (primarily sport/recreation or primarily personal) can apply to any of the three access options.

The most commonly cited access option was "licensed, but not under Aboriginal treaty rights" (53%). The most commonly cited use option was "primarily for personal use or sharing" (56%), followed closely by "primarily for sport/recreation" (54%).

Respondents who indicated that they had not participated in hunting, trapping, or fishing activities were asked to indicate the reason for not participating. The top reasons why Northwest Territories residents did not hunt or trap in the previous 12 months were "do not like hunting/trapping/not interested" (31%), "lack of knowledge" (24%) and "lack of time" (19%). Nationally, the same barriers were cited most often: 41% of Canadians reported they "do not like hunting/trapping/not interested," 17% cited "lack of knowledge" and 14%cited "lack of time."

The top reasons given for not participating in fishing were "lack of time" (25%) and "do not like fishing/not interested" (15%), which is different than most other provinces and the national results. "Do not like fishing/not interested" was cited less often in the Northwest Territories compared to other provinces and territories. The barriers cited at the national level follow a different order, with 31% reporting they "don't like fishing/are not interested," and 20% citing a "lack of time."

NATURE-BASED TRAVEL

Northwest Territories residents reported the number of trips they made within Canada over the course of the previous 12 months that were farther than 20 km (one way) from their home, for which the main reason was to participate in nature-based activities for recreation, leisure, hunting, trapping, or fishing for personal use. Residents who partook in these trips reported an average of 21.1 same-day trips and 12.0 overnight trips. The most-cited trip duration was "one day, not overnight" (30%), followed by 22% each who typically took a trip "parts of two days, with one overnight stay" and "between two and four days, with an overnight stay". Northwest Territories residents stayed an average of 56 days at the three places farther than 20 km from their homes that they were most likely to visit. If the location where residents made such trips was a national park, provincial park, or other protected area, the places where they spent the most time were Prelude Lake Territorial Park, Wood Buffalo National Park, Reid Lake Territorial Park, Banff National Park, and Jasper National Park.

About one-third (34%) of Northwest Territories residents reported owning or using a personal or family secondary property in Canada, such as a cottage, camp, or cabin. During the same time period, they reported spending an average of 26 days at that cottage, camp, or cabin. The most frequently mentioned activities while at the property include hiking/walking, fishing, and swimming.

ECONOMIC ANALYSIS

Residents of the Northwest Territories spent over $113 million on nature-related activities and services in the previous 12 months[126], making the territory the eleventh-largest in terms of total expenditures. Less than 1% of all nature-related expenditures in Canada in the previous 12 months were spent by residents of the Northwest Territories. While this relatively small contribution to the national picture is a result of the small population in the Northwest Territories, average expenditures were $4,022 per person—the second highest in Canada.

[126] The 12-month period was unique for each respondent depending exactly on when the respondent completed the questionnaire. However, the period can be expected to cover a period beginning October 2011 and ending May 2013.

Expenditures by Activity and Expense Type

In general, expenditures by expense type in the Northwest Territories were consistent with national trends: roughly 38% of all expenditures were incurred for transportation, 34% on equipment, fees and supplies, 14% on food, and 10% on accommodations. 2% of expenses were attributable to conservation.[127]

Consistent with the national trend and with trends in other Provinces and Territories, expenditures on nature-based recreation ($34 million) accounted for a significant amount (30%) of all nature-related expenses in the Northwest Territories. Motorized recreation ($33 million) and hunting and nature-based leisure ($19 million) accounted for 29% and 17% of total expenditures, respectively.

Table 39: Nature-Related Expenditures by Residents of the Northwest Territories by Activity and Expenditure Type in the Previous 12 Months ($million)[128]

Activity	Transportation		Accommodation		Food		Equipment, Fees & Supplies		Total ($M)
	Total ($M)	%	Total ($M)	%	Total ($M)	%	Total ($M)	%	
Nature-based Recreation	$16	47%	$6	17%	$5	16%	$7	20%	**$34**
Nature Education	$2	36%	*$2^*	33%	*$1^*	17%	*$1^*	17%	**$6**
Nature-Based Leisure	*$6^*	32%	*$2^*	11%	*$1^*	5%	$7	36%	**$19**
Photographing Nature	$5	41%	*$2^*	15%	$1	10%	*$4^*	31%	$13
Gardening/Landscaping	*$1^*	25%	*$0^*	0%	*$0^*	0%	$3	75%	$4
Nature Media	-	-	-	-	-	-	-	-	$2
Birding	*$1^*	47%	*$0^*	*25%^*	*$0^*	11%	$0	18%	***$1^***
Motorized Recreation	$9	27%	$1	2%	$4	13%	*$19^*	56%	**$33**
Land-based	$5	22%	*$0^*	3%	$2	10%	*$15^*	65%	*$23^*
Water-based	$4	40%	*$0^*	2%	$2	18%	*$4^*	40%	$10
Hunting & Trapping	*$6^*	50%	*$0^*	0%	*$2^*	17%	*$4^*	33%	***$12^***
Hunting Waterfowl	*$1^*	39%	*$0^*	1%	*$0^*	19%	*$0^*	40%	*$2^*
Hunting Other Game Birds	*$1^*	50%	*$0^*	1%	*$1^*	27%	*$1^*	21%	*$2^*
Hunting Small Game	*$0^*	36%	*$0^*	0%	*$0^*	21%	$0	43%	$0
Hunting Large Game	*$3^*	56%	*$0^*	2%	$1	16%	$2	26%	$6
Hunting Other Animals	*$0^*	51%	*$0^*	0%	*$0^*	7%	*$0^*	42%	*$0^*
Trapping	*$1^*	34%	*$0^*	0%	*$0^*	13%	*$1^*	53%	*$1^*
Fishing	*$3^*	43%	*$0^*	10%	$1	21%	$2	25%	**$7**
Nature Conservation (on private land)	-	-	-	-	-	-	-	-	***$2^***
Food/Shelter for Wildlife	-	-	-	-	-	-	-	-	$1^
Conserve Natural Setting	-	-	-	-	-	-	-	-	$1^
Maintain Forest for non-timber use	-	-	-	-	-	-	-	-	$0^
Total	**$43**	**38%**	**$11**	**10%**	**$16**	**14%**	**$39**	**34%**	**$113**[129]

^ Data point does not meet threshold for statistical reliability due to the number of respondents who participated in a given activity or who provided responses to a given question. The screening threshold for statistical reliability applied to each data point was a minimum of 30 responses and a CV < .3. See *Survey Methods* for explanation.
- Category is not disaggregated by expenditure type
Percents are presented as the share of expenditures for the activity spent on each expense type.

[127] The data used to estimate this amount is based on options 1 through 3 of survey question 42, a limited scope that does not include donations or membership dues to nature organizations, or expenditures incurred in any volunteer activity away from respondents' residences. It is not based on the same categories of expenditures used for most other activities in the survey (transportation, accommodation, food, equipment, fees, and supplies) that are often associated with a 'travel cost' type of analysis.

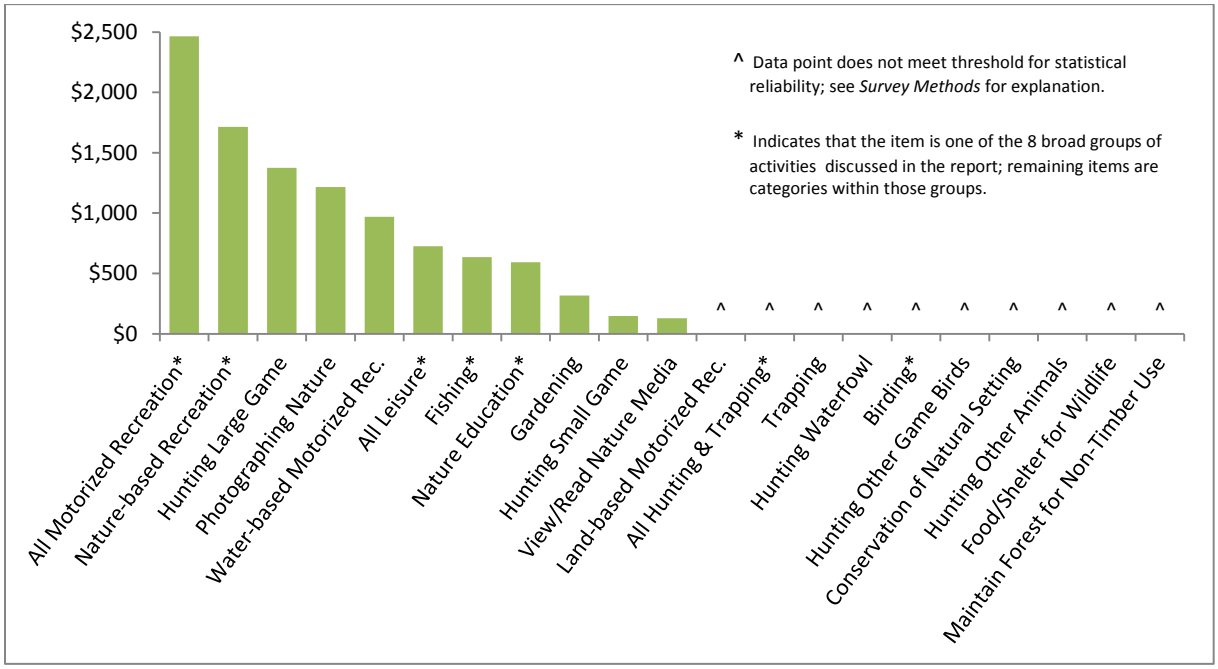
[128] The grand total includes expenditures that are not categorized by expense type, including multimedia purchases and spending on nature conservation activities. Therefore, the percentages by expense type may not sum to 100%.

[129] The grand total for expenditures is calculated as an independent figure, equal to the sum of all component totals, and was independently screened for reliability. Consequently, the grand total includes expenditure amounts for all component activities, including those that were individually below the reliability threshold, see *Survey Methods: Statistical Reliability*.

Average Yearly and Average Daily Expenditures

The average resident of the Northwest Territories who participated in nature-related activities spent over $4,000 per year in the Northwest Territories on the nature-related activities included in the scope of this survey. Residents of the Northwest Territories who participated in nature-related activities spent considerably on motorized recreation ($2,466) and nature-based recreation ($1,715).

Figure 47: Average Yearly Expenditures by Activity Type for Residents of the Northwest Territories in the Previous 12 Months



Daily expenditures by participants in the various activities ranged from $11 (gardening) to $110 (hunting large game) per day, but were once again consistent with national trends. Daily expenditures on nature education were significantly higher than the average daily expenditure for this category in most other provinces and territories.

Table 40: Average Daily Expenditures by Activity Type for Residents of the Northwest Territories in the Previous 12 Months

Activity	Daily Expenditure
Hunting Large Game	$110
Nature Education	$90
Water-based Motorized Recreation	$59
Fishing	$38
Photographing Nature	$35
Hunting Small Game	$23
Nature-based Recreation	$22
Gardening/Landscaping	$11
Trapping	^
Land-based Motorized Recreation	^
Hunting Waterfowl	^
Hunting Other Game Birds	^
Birding	^
Hunting Other Animals	^

^Data point does not meet threshold for statistical reliability. See *Survey Methods* for explanation.

NATURE CONSERVATION

The *2012 Canadian Nature Survey* collected information about different types of nature conservation in several different survey sections. This section reports results from the survey section entitled "Nature Conservation" which asked about membership and support of nature organizations, participation in volunteer nature conservation activities, and nature conservation at home. (see *Appendix B: Survey Instrument*).

Canadians were asked to provide the total number of days that they participated in several different types of voluntary nature conservation activities away from their residence in the previous 12 months. In the Northwest Territories, 29% of adults participated in at least one volunteer nature conservation activity for at least one day. Of those who participated, the average number of days of participation within the previous 12 months across all activities was 14.5 days.

The majority (69%) of Northwest Territories residents who volunteer in nature-related activities indicated that their nature-related volunteer involvement has stayed the same over the past five years and 6% reported a decrease. Responses that reported an increase were not sufficient to generate a statistically reliable provincial estimate, as were the responses to how residents organize their time for volunteer activities.

Twelve percent of residents of the Territory reported participating in citizen science activities in the previous 12 months. Citizen science encompasses activities of volunteers who perform or manage research-related tasks such as wildlife or habitat observation, measurement, or assessment.

"Lack of time" was the reason provided by 47% of Northwest Territories respondents when asked what prevented them from participating in volunteer nature conservation activities during the previous 12 months. The next most common responses were "I was not aware of an opportunity," and "personal choice," both selected by 39% of respondents.

HUMAN-WILDLIFE CONFLICTS

The *2012 Canadian Nature Survey* collected data about the interactions between humans and wildlife. Some of these interactions can be negative. Wildlife managers refer to "human-wildlife conflict" as any interaction between wild animals (whether small or large) and humans which causes harm, whether to the animal, human, or property (including pets or livestock). This conflict can happen in urban, rural, or wilderness settings.

Thirty-five percent of residents of Northwest Territories residents reported that a wild animal posed a threat to their safety or to the safety of people, pets, or farm animals in their care at home or in the community; 11% reported that a wild animal caused damage to their personal property. Of those who experienced threat or damage, the most frequently cited type of animal involved was a bear (37%), followed closely by a coyote or wolf (35%).

As shown in *Table 41*, about one-third of Northwest Territories residents (33%) who experienced threat or damage was "took no action" as a result of the incident. For those who did act, the most common action was to "followed authorities' recommended safety procedures" (14%).

Table 41: Actions Taken As a Result of the Problem

Options Listed in Survey	Northwest Territories	
	Population Estimate	Percent
I took no action	3,914	33%
Followed authorities recommended safety procedures	1,695	14%
Killed the animal believed to be a threat	^	^
Removed or relocated items known to attract friendly wildlife	^	^
Spoke to local wildlife management officials	^	^
Fenced-off or otherwise protected my property	^	^
Put out live traps / humane removal	^	^
Put out poison	^	^
Participated in local education and land use planning sessions on wildlife management	^	^
Other(Specify)	^	^

^Data point does not meet threshold for statistical reliability. See *Survey Methods* for explanation.

4.7 Nova Scotia

This Provincial Report presents findings from the *2012 Canadian Nature Survey* for Nova Scotia (NS). This section will cover residents' connection to nature and awareness of key concepts, their interactions with wildlife, and their involvement in nature-based activities. Results in this section are based on the address-based sample results only, as only these data allow for tests of significance and other statistical analysis (see *Survey Methods*). 1,629 completed address-based surveys from Nova Scotia were received, out of a total sample of 7,478; the survey response rate for the province was 22%. This is representative of the estimated total adult population of 749,935 adult residents[130], with a statistical reliability of +/-2.4%,[131] at 95% confidence. When a figure is shown with a "^" symbol it indicates that the figure does not meet ICF's analytical threshold for statistical reliability (see *Survey Methods: Statistical Reliability* for explanation.)

Connection to Nature & Awareness

The *2012 Canadian Nature Survey* sought to understand the extent to which residents of Nova Scotia are connected to nature. Survey results show that more than half of residents (57%) chose where they live partly to have access to nature. Twelve percent of Nova Scotians reported that their income relies on a nature-related profession, with 2% each reporting "farming" and "fisheries" as primary sources of income.

Biodiversity and Ecosystem Services

Respondents were provided with definitions of the terms "biodiversity" and "ecosystem services" and then asked if, before the day that they completed the survey, they had heard of each of these concepts. In Nova Scotia, awareness of the terms "biodiversity" and "ecosystem services" was high. About three-quarters (77%) of Nova Scotians had heard of the term "biodiversity," while about seven in 10 (69%) were aware of the term "ecosystem services" prior to survey administration.

While awareness of the term "ecosystem services" was high, even more residents were aware of examples of ecosystem services, or ways that nature can provide benefits. Between 96% and 98% of residents were aware that nature can be essential to:

- Provide places for recreation, fitness and leisure;
- Produce oxygen and clean pollutants from the air;
- Filter water to keep it clean and safe; and
- Keep soil fertile and productive;

Fewer residents of Nova Scotia (65%) were aware that nature can be essential to "reduce or control the spread of many diseases."

Additionally, approximately three-quarters (74%) of Nova Scotia residents were aware that biodiversity contributes to ecosystem services and provides life support and other important benefits to people.[132]

Sixteen percent of Nova Scotia residents reported being directly affected, during the previous 12 months, by the loss of an ecosystem service that would normally have been provided by nature. Of those who reported a loss, 48% cited "emotional, psychological or spiritual well-being" as the option that most closely matched how the loss affected them.[133]

[130] Survey respondents were individual adults, age 18 and over, see *Survey Methods, Sampling* for details.

[131] This margin of error does not account for design effects due to the complex survey design used in the 2012 Canadian Nature Survey. The design effect varies for each estimate and may in some cases increase the margin of error. The margin of error will be wider for sub-analysis of activities in which only a small number of respondents participate. All reported estimates have been screened for minimum reliability (see *Survey Methods*).

[132] Here the proportion of respondents who reported being aware that biodiversity contributes to ecosystem services is higher than the proportion of respondents who reported knowing the meaning of "ecosystem services." It is possible that some respondents may not have known the definition of the term "ecosystem services," but, after reading examples provided, they had a better understanding of what was meant by the term. Awareness of the concepts of biodiversity and ecosystem services and how they relate may therefore be understood independently of the definitions of these terms.

[133] See *Appendix B: Survey Instrument*, for how the question was worded, and for the complete list of options provided.

Species at Risk

The *2012 Canadian Nature Survey* also examined awareness of the term "species at risk" and actions taken to assist in the recovery of species at risk. Almost all Nova Scotia respondents (93%) reported they had heard of the term prior to taking the survey. Eleven percent of residents reported donating money on behalf of species at risk in the previous twelve months. Of those who had donated money, about one-quarter (23%) donated to "habitat protection for species in their province."

Obtaining Information about Nature

Respondents were asked to report the three ways they most frequently obtain nature-related information. Nova Scotia residents were equally likely to "watch visual media" (62%) and "read publications" (62%), followed by obtaining information "from conversations" (39%) and "through personal experience" (38%).

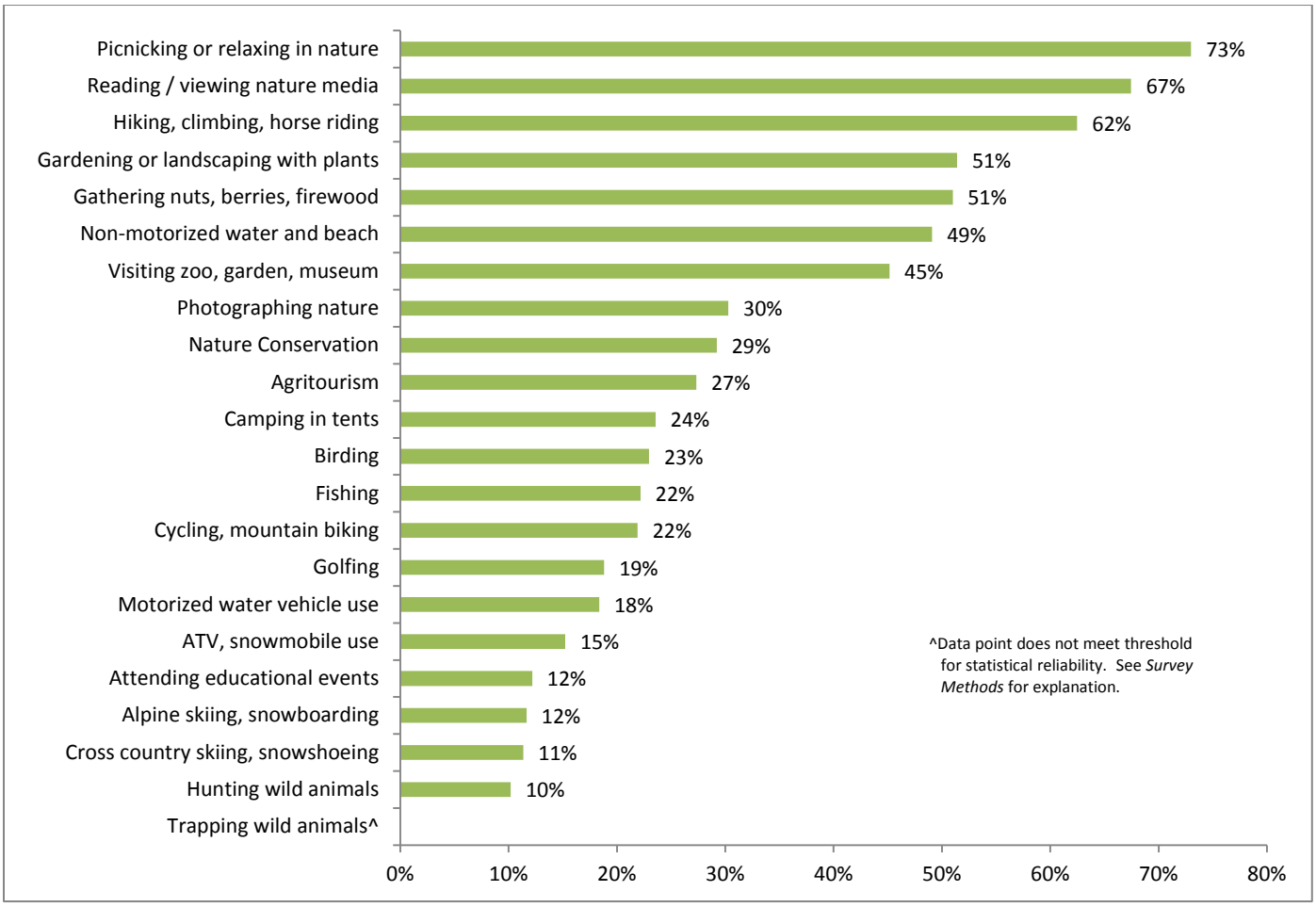
When asked about their most frequent sources of information, Nova Scotia residents reported "journalists/media writers" (59%), "friends, family or colleagues" (57%), "conservation groups" (39%), "the government" (36%), "scientists" (25%), and "teachers/educators" (12%).

Nature-Based Activities

The largest section of the *2012 Canadian Nature Survey* questionnaire was devoted to collecting information about respondents' participation in nature-based activities in Canada during the 12 months prior to completing the survey, and collecting information about related expenses. For a complete listing of the activities that the survey addressed, and for how they are organized into groups for analysis in this report, see *Appendix A: Activities Crosswalk.* For a discussion of the methodology used to produce participation rates, see *Survey Methods: Participation Analysis* and *Chapter 2: Nature-based Activities, Participation and Expenditures*.

As shown in *Figure 48*, the largest proportion of Nova Scotia residents reported "picnicking or relaxing in nature" (73%); this was followed by 67% that participated in "reading or viewing nature media" and 62% that participated in "hiking, climbing or horse riding" in the previous 12 months.

Figure 48: Percentage of Nova Scotia Residents Age 18 and Over Participating in Nature-related Activities

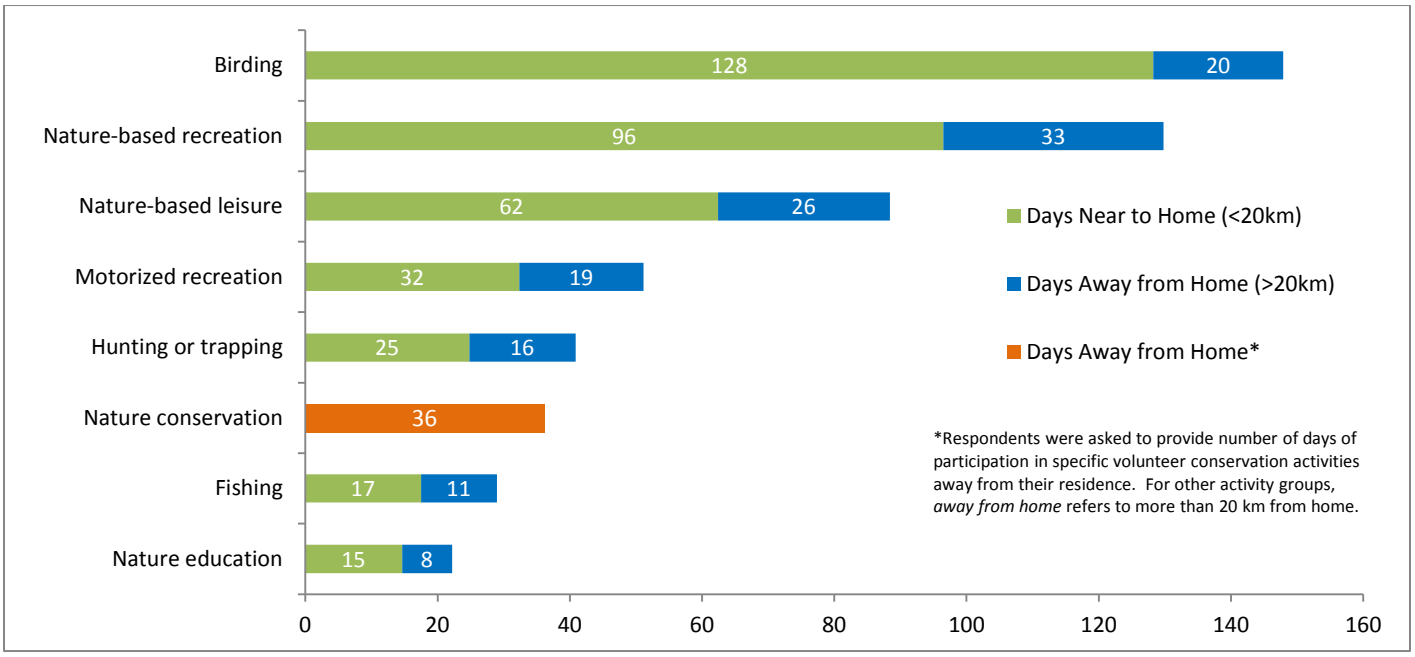


In addition to participation rates, the *2012 Canadian Nature Survey* also collected data on the amount of participation in nature-related activities. For most activities, respondents were asked to report the number of days that they spent participating in each activity in the previous 12 months in Canada, both within 20 km from their home, and more than 20 km away. Participation days are not necessarily mutually exclusive; respondents may participate in more than one nature-based activity in one calendar day. For conservation activities, the question was structured differently. Respondents were asked to report the number of days they spent engaged in a volunteer nature conservation activity away from their residence (either in their community or away from their community); these are presented in orange in *Figure 49* to highlight this difference.

Figure 49 shows the average number of days near to home (within 20 km) and away from home (more than 20 km away) that participants in each activity spent engaged in that activity (referred to as "participant days"). In this figure, activities are organized into eight broad activity groups (see *Appendix A: Activities Crosswalk* for examples of activities within each group).

Near to home, "birding" had the highest number of participant days (with an average of 128). Away from home, participants reported spending the most number of days (average of 33) on "nature-based recreation." When considering total days spent near home and away, here again, birding (148 days) and nature-based recreation (129 days) were the most popular activities.

Figure 49: Average Participation Days in Nature-related Activities, Near Home and Away from Home, Per Participant



Hunting, Trapping, and Fishing

Nova Scotia residents who reported participated in hunting, trapping, or fishing during the previous 12 months were asked if the activity had been carried out "under Aboriginal treaty rights," "licensed (not under Aboriginal rights)," "unlicensed," "primarily for sport/recreation," and/or "primarily for personal use or sharing." Respondents were asked to indicate all options that applied. The first three response categories provided (licensed, unlicensed, and Treaty rights) are *access options* which are normally mutually exclusive. However, the two *use options* response categories (primarily sport/recreation or primarily personal) can apply to any of the three access options.

The most commonly cited access option was "licensed, but not under Aboriginal treaty rights" (46%). The most commonly cited use option was "primarily for sport/recreation" (48%), followed by "primarily for personal use or sharing" (43%).

The top reasons that Nova Scotia residents did not hunt or trap in the previous 12 months were "do not like hunting/trapping/not interested" (42%), "ethical reasons/don't want to hurt animals" (14%) and "lack of knowledge" (10%). This is similar to the barriers cited at the national level, though Nova Scotians cited "lack of knowledge about hunting" less frequently than Canadians overall. The national results show that 41% of Canadians reported they "do not like hunting/trapping/are not interested,"17% cited "lack of knowledge" and 14% cited "ethical reasons."

The top reasons given for not participating in fishing were "do not like fishing/ not interested" (33%) and "lack of time" (16%). Nationally, results are similar with 31% reporting they "don't like fishing/ are not interested," and 20% stating a "lack of time."

Nature-based Travel

Nova Scotia residents reported the number of trips they made within Canada over the course of the previous 12 months that were farther than 20 km (one way) from their home, for which the main reason was to participate in nature-based activities for recreation, leisure, hunting, trapping, or fishing for personal use. Residents who partook in these trips reported an average of 16.2 same-day trips and 8.0 overnight trips. The most-cited trip duration was a trip that lasted "one day, not overnight" (42%), followed by 23% each that typically took a trip "parts of two days, with one overnight stay" and "between 2 and 4 days, with an overnight stay." Nova Scotians stayed an average of 29 days at the three places farther than 20 km from their homes that they were most likely to visit. If the location where residents made such trips was a national park, provincial park, or other protected area, the places where they spent the most time were Kejimkujik National Park and National Historic Site, Cape Breton Highlands National Park, Fundy National Park, Shubenacadie Provincial Wildlife Park, Rissers Beach Provincial Park, and Banff National Park.

Nearly one-third (31%) Nova Scotia residents reported owning or using a personal or family secondary property in Canada, such as a cottage, camp, or cabin. During the same time period, they reported spending an average of 28 days at that cottage, camp, or cabin. The most frequently mentioned activities while at the property include hiking/walking, swimming, and boating (including canoeing and kayaking).

ECONOMIC ANALYSIS

Residents of Nova Scotia spent $973 million on nature-related activities and services in the previous 12 months[134], accounting for 2% of all such expenditures nationally. Nova Scotia is ranked as the seventh-highest spending province/territory on nature-related expenses in the previous 12 months. Per-person expenditures in Nova Scotia ($1,520) ranked eleventh nationally.

EXPENDITURES BY ACTIVITY AND EXPENSE TYPE

In Nova Scotia, nature-related expenses included $329 million (34%) for equipment, fees and supplies, $318 million (33%) of transportation, $127 million (13%) on food, and $71 million (7%) on accommodation. The 7% of expenditures on accommodation is comparatively lower than almost all other provinces and territories—in most cases, residents spent at least 10% on accommodation. Residents also spent an additional 9% of expenditures on conservation activities.[135]

Thirty two percent of all expenditures for nature-related activities were spent on nature-based recreation ($311 million). Nature-based leisure ($182, 19%) and motorized recreation ($143, 15%) also contributed significantly to total expenditures.

[134] The 12-month period was unique for each respondent depending exactly on when the respondent completed the questionnaire. However, the period can be expected to cover a period beginning October 2011 and ending May 2013.

[135] The data used to estimate this amount is based on options 1 through 3 of survey question 42, a limited scope that does not include donations or membership dues to nature organizations, or expenditures incurred in any volunteer activity away from respondents' residences. It is not based on the same categories of expenditures used for most other activities in the survey (transportation, accommodation, food, equipment, fees, and supplies) that are often associated with a 'travel cost' type of analysis.

Table 42: Nature-Related Expenditures by Residents of Nova Scotia by Activity and Expenditure Type in the Previous 12 Months ($million)[136]

Activity	Transportation		Accommodation		Food		Equipment, Fees & Supplies		Total ($M)
	Total ($M)	%	Total ($M)	%	Total ($M)	%	Total ($M)	%	
Nature-based Recreation	$118	38%	$43	14%	$50	16%	$101	32%	**$311**
Nature Education	$25	46%	$8	15%	$13	24%	$8	15%	**$54**
Nature-Based Leisure	$30	16%	$6	3%	$13	7%	$95	52%	**$182**
Photographing Nature	$23	33%	$6	8%	$9	13%	*$32^*	46%	$70
Gardening/Landscaping	$7	9%	*$1^*	2%	*$3^*	4%	$63	85%	$74
Nature Media	-	-	-	-	-	-	-	-	$38
Birding	$4	29%	*$1^*	7%	$3	20%	$7	45%	**$15**
Motorized Recreation	*$60^*	42%	*$6^*	4%	$21	15%	*$56^*	39%	**$143**
Land-based	*$48^*	50%	$5	5%	*$17^*	17%	*$27^*	28%	$97
Water-based	$12	25%	*$1^*	3%	$4	9%	$29	63%	$47
Hunting & Trapping	*$40^*	44%	*$2^*	2%	*$13^*	14%	*$35^*	38%	***$91^***
Hunting Waterfowl	*$3^*	35%	*$1^*	7%	*$1^*	9%	*$4^*	49%	*$9^*
Hunting Other Game Birds	*$10^*	50%	*$0^*	1%	*$3^*	17%	*$6^*	32%	*$20^*
Hunting Small Game	*$5^*	49%	*$0^*	0%	*$1^*	9%	*$5^*	42%	*$12^*
Hunting Large Game	*$21^*	43%	*$1^*	2%	*$8^*	16%	*$19^*	39%	*$48^*
Hunting Other Animals	*$0^*	0%	*$0^*	0%	*$0^*	0%	*$0^*	100%	*$0^*
Trapping	*$1^*	49%	*$0^*	0%	*$0^*	2%	*$1^*	49%	*$2^*
Fishing	*$40^*	46%	$6	6%	*$15^*	17%	$27	31%	***$87^***
Nature Conservation (on private land)	-	-	-	-	-	-	-	-	***$90^***
Food/Shelter for Wildlife	-	-	-	-	-	-	-	-	*$50^*
Conserve Natural Setting	-	-	-	-	-	-	-	-	$37
Maintain Forest for non-timber use	-	-	-	-	-	-	-	-	*$3^*
Total	**$318**	**33%**	**$71**	**7%**	**$127**	**13%**	**$329**	**34%**	**$973**[137]

^ Data point does not meet threshold for statistical reliability due to the number of respondents who participated in a given activity or who provided responses to a given question. The screening threshold for statistical reliability applied to each data point was a minimum of 30 responses and a CV < .3. See *Survey Methods* for explanation.
- Category is not disaggregated by this expenditure type.
Percents are presented in terms of the share of expenditures for each activity.

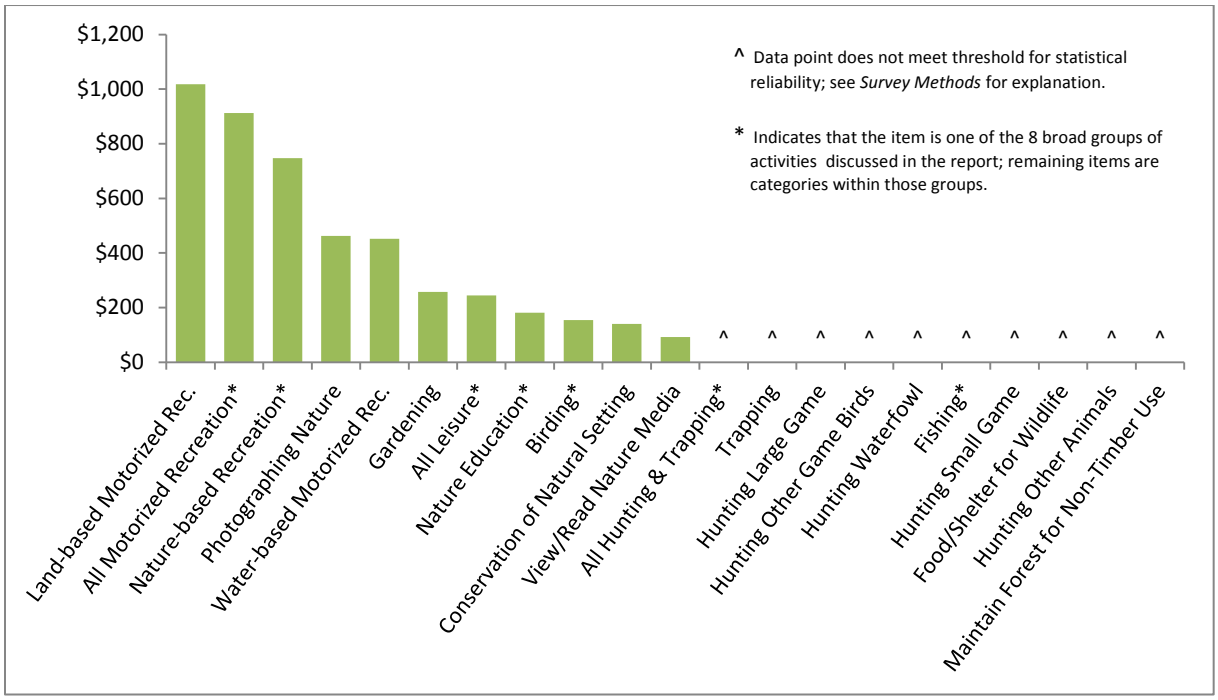
Average Yearly and Average Daily Expenditures

Residents of Nova Scotia spent an average of $1,520 per year on nature-related activities in the previous 12 months, $237 lower than the national average of $1,757.

The highest expenditure per participant in Nova Scotia for one activity was on land-based motorized recreation ($1,017). Expenditures related to leisure (e.g., multimedia) and to conservation (e.g., conservation of natural settings) were generally low in Nova Scotia, which is consistent with the national trend.

[136] The grand total includes expenditures that are not categorized by expense type, including multimedia purchases and spending on nature conservation activities. Therefore, the percentages by expense type may not sum to 100%.
[137] The grand total for expenditures is calculated as an independent figure, equal to the sum of all component totals, and was independently screened for reliability. Consequently, the grand total includes expenditure amounts for all component activities, including those that were individually below the reliability threshold, see *Survey Methods: Statistical Reliability*.

Figure 50: Average Yearly Expenditures by Activity Type for Residents of Nova Scotia in the Previous 12 Months



Unique from the national trend and trends seen in other provinces and territories, residents in Nova Scotia spent a maximum of $52 (water-based motorized recreation) on a particular activity. Daily expenditures by participants in each activity ranged from $9 to $52 per day. Birding ($9) was the cheapest daily-expense activity, and water-based motorized recreation was the highest spending activity, as mentioned.

Table 43: Average Daily Expenditures by Activity Type for Residents of Nova Scotia in the Previous 12 Months

Activity	Daily Expenditure
Water-based Motorized Recreation	$52
Land-based Motorized Recreation	$42
Nature Education	$28
Photographing Nature	$25
Nature-based Recreation	$15
Gardening/Landscaping	$13
Birding	$9
Hunting Small Game	^
Hunting Large Game	^
Hunting Other Game Birds	^
Hunting Waterfowl	^
Fishing	^
Trapping	^
Hunting Other Animals	^

^ Data point does not meet threshold for statistical reliability. See *Survey Methods* for explanation.

NATURE CONSERVATION

The *2012 Canadian Nature Survey* collected information about different types of nature conservation in several different survey sections. This section reports results from the survey section entitled “Nature Conservation” which asked about membership and

support of nature organizations, participation in volunteer nature conservation activities, and nature conservation at home. (see *Appendix B: Survey Instrument*).

Canadians were asked to provide the total number of days that they participated in several different types of voluntary nature conservation activities away from their residence in the previous 12 months (see list of activities in *Appendix A: Activities Crosswalk*). In Nova Scotia, 29% of adults participated in at least one volunteer nature conservation activity for at least one day. Of those who participated, the average number of days of participation within the previous 12 months across all activities was 36.1 days.

The most common way that residents organize their time for volunteer nature conservation activities is to "volunteer occasionally when it interests them" (reported by 30% of respondents). The majority (55%) of Nova Scotia residents who volunteer in nature-related activities indicated that their nature-related volunteer involvement has stayed the same over the past five years, 29% reported an increase, and 16% reported a decrease.

Nineteen percent of Nova Scotians reported participating in citizen science activities in the previous 12 months. Citizen science encompasses activities of volunteers who perform or manage research-related tasks such as wildlife or habitat observation, measurement, or assessment.

"Lack of time" was the reason provided by 46% of Nova Scotia respondents when asked what prevented them from participating in volunteer nature conservation activities during the previous 12 months. The next most common responses were "I was not aware of an opportunity," selected by 35% of respondents, and "personal choice," selected by 29% of respondents.

Human-Wildlife Conflicts

The *2012 Canadian Nature Survey* collected data about the interactions between humans and wildlife. Some of these interactions can be negative. Wildlife managers refer to "human-wildlife conflict" as any interaction between wild animals (whether small or large) and humans which causes harm, whether to the animal, human, or property (including pets or livestock). This conflict can happen in urban, rural, or wilderness settings.

Twenty-eight percent of Nova Scotians reported that a wild animal posed a threat to their safety or to the safety of people, pets, or farm animals in their care at home or in the community; and 3% reported that a wild animal caused damage to their personal property. Of those who experienced threat or damage, the most frequently cited type of animal involved was a small mammal (e.g., groundhog, skunk, or raccoon), reported by 71% of respondents. This was followed by 30% who reported a deer, elk or moose, and 29% who reported a coyote or wolf.

As shown in *Table 44*, one in three Nova Scotia residents (34%) who experienced threat or damage "took no action" as a result of the incident. For those who did act, the most common action was to "remove or relocate items known to attract 'friendly' wildlife" (31% of all respondents). This was followed by "fenced off or otherwise protected my property" (18%) and "put out live traps/ humane removal" (17%).

Table 44: Actions Taken As a Result of the Problem

Options Listed in Survey	Nova Scotia	
	Population Estimate	Percent
I took no action	121,197	34%
Removed or relocated items known to attract friendly wildlife	108,753	31%
Fenced-off or otherwise protected my property	62,228	18%
Put out live traps / humane removal	60,672	17%
Followed authorities recommended safety procedures	45,465	13%
Spoke to local wildlife management officials	34,189	10%
Killed the animal believed to be a threat	17,853	5%
Put out poison	^	^
Participated in local education and land use planning sessions on wildlife management	^	^
Other(Specify)	32,736	9%

^Data point does not meet threshold for statistical reliability. See *Survey Methods* for explanation.

4.8 NUNAVUT

To overcome some of the data collection challenges in Nunavut, where random sampling of residents was not a realistic option, the *Canadian Nature Survey* used a community-oriented approach to gather feedback and insight from residents, but did not attempt to generalize results to the entire population of the Territory.

In consultation with local officials from the Nunavut Department of Environment, residents were recruited to participate in an "opt-in sample." Department of Environment staff members administered the survey in person, or residents completed the survey themselves. A total of 57 completed questionnaires were returned. Surveys were offered in Inuktitut, English, or French, and most were completed in Inuktitut.

As mentioned in the *Survey Methods* section of this report, the findings from survey administration in Nunavut are best interpreted as reflecting the activities of a 57-person focus group. They can be seen as indicative rather than representative. While the results cannot be extrapolated to the territory at large, important insights can still be made about residents' relationships with nature and trends in their behavior relating to nature.

Table 45 shows a demographic breakdown of participants in the opt-in sample by age group, gender, and aboriginal status.

Table 45: Respondent Demographics - Nunavut

Gender			Aboriginal or Non-Aboriginal		
Male	**Female**	**Unchecked**	**Aboriginal**	**Non-Aboriginal**	**Unchecked**
35	18	4	36	15	6
Age					
18-24	**25-34**	**35-44**	**45-54**	**55-64**	**65+**
7	5	16	11	7	11

CONNECTION TO NATURE & AWARENESS

The *2012 Canadian Nature Survey* sought to understand the extent to which Nunavut residents are connected to nature. Unlike the other provinces and territories, a majority of the opt-in sample participants reported that their income **does** rely on a nature-related profession. Specifically, "wildlife management" and "fisheries" were commonly cited as primary sources of income.

BIODIVERSITY AND ECOSYSTEM SERVICES

Nunavut respondents were provided with definitions of the terms "biodiversity" and "ecosystem services" and then asked if, before the day that they completed the survey, they had heard of each of these concepts.

Most participants had heard of the terms "biodiversity" and "ecosystem services," and almost all respondents were aware of two specific examples of ecosystem services: that nature can be essential to "filter water to keep it clean and safe" and "provide places for recreation, fitness and leisure."

Additionally, more than half of participants reported knowing other specific benefits of nature, including that it can "provide raw materials for making and building things," "support human psychological and cognitive development," "protect communities and property from storm impacts" and "reduce or control the spread of many diseases."

SPECIES AT RISK

The *2012 Canadian Nature Survey* examined awareness of the term "species at risk" and actions taken to assist in the recovery of species at risk. Three-quarters of members of the opt-in sample had heard of the term prior to taking the survey, but few reported donating money on behalf of species at risk. When asked what actions they had taken to assist in the recovery of species at risk, a minority of respondents said they "educated other people about risks to species at risk" or "changed how they used the land or place where they live to avoid impacts" on these species.

Obtaining Information about Nature

Nunavut respondents were asked to report the three ways they most frequently obtain nature-related information. Most respondents in the sample said they obtain information about nature "through personal experience," while popular answers also included "watching visual media," and "from conversations." A large majority of respondents said they read or viewed books, magazines, articles, videos, DVDs, films, TV programs, or websites about nature.

When asked about their most frequent *sources* of information, a majority of the Nunavut sample of respondents said the information came from "friends, family and colleagues" and "the government."

Human-Wildlife Conflicts

The *2012 Canadian Nature Survey* collected data about the interactions between humans and wildlife. Some of these interactions can be negative. Wildlife managers refer to "human-wildlife conflict" as any interaction between wild animals (whether small or large) and humans which causes harm, whether to the animal, human, or property. This conflict can happen in urban, rural, or wilderness settings.

A majority of Nunavut opt-in sample participants reported experiencing a conflict with a bear over the previous 12 months. When asked how they dealt with the conflict, respondents reported taking relatively precautionary measures, such as "taking no action" and "following authorities' recommended safety procedures."

Nature-Based Activities

The largest section of the *2012 Canadian Nature Survey* questionnaire was devoted to collecting information about respondents' participation in nature-based activities in Canada during the 12 months prior to completing the survey, and collecting information about related expenses. For a complete listing of the activities that the survey addressed, and for how they are organized into groups for analysis in this report, see *Appendix A: Activities Crosswalk.* A majority of opt-in sample respondents participated in the following activities:

- Reading or viewing nature media
- Picnicking or relaxing in nature
- Using motorized recreational vehicles on land (such as ATVs, snowmobiles, etc.)
- Hunting wild animals
- Fishing
- Camping in tents
- Gathering nuts, berries and firewood

Respondents reported their participation in hunting, trapping and fishing activities in the previous 12 months. As show in *Table 46* below, a majority of participants reported fishing, hunting large mammals and hunting waterfowl. A little under half of the participants reported hunting other game birds.

Table 46: Participants in Nature-Based Activities

Activity	Number of participants
Fishing	36
Hunting large mammals	35
Hunting waterfowl	30
Hunting other game birds	26
Hunting small game animals	12
Trapping Game animals	4
Hunting other wild animals	0

Respondents who reported that they had participated in hunting, trapping, or fishing activities were asked to indicate if the activity had been carried out "under Aboriginal treaty rights," "licensed (not under Aboriginal rights)," "unlicensed," "primarily for sport/recreation," and/or "primarily for personal use or sharing." Respondents were asked to indicate all options that applied. The first three response categories provided (licensed, unlicensed, and Treaty rights) are *access options* which are normally mutually

exclusive. However, the two *use options* response categories (primarily sport/recreation or primarily personal) can apply to any of the three access options. Most respondents who participated in these activities reported that they did so "under Aboriginal treaty rights," and "primarily for personal use or sharing."

Respondents were asked to report the number of days that they spent participating in each activity in the previous 12 months in Canada, both within 20 km from their home, and more than 20 km away. In Nunavut, the two activities with the highest number of participation days per person are:

- Motorized recreation (including use of ATVs, snowmobiles, motorboats and motorized personal watercrafts);
- Hunting or trapping wild animals.

Nature-based Travel

Respondents were asked to report the number of trips they made in the previous 12 months within Canada, farther than 20 km from their home, for which the main reason was to participate in nature-based activities for recreation, leisure, hunting, trapping, or fishing for personal use.

Approximately half of participants reported taking same-day trips in 2012 (an average of 58 trips), and the same proportion said they took overnight trips (an average of 23 trips).

If the places they spent the most time away on trips included national, provincial or territorial parks, respondents were asked to name these. Only four parks were reported, all outside of Nunavut: Algonquin Provincial Park, Banff National Park, Dinosaur Provincial Park, and Silver Falls Provincial Park (each was cited once).

Additionally, about two in five opt-in sample participants reported owning or using a personal or family secondary property in Canada, such as a cottage, camp, or cabin. Those who owned such a property reported spending an average of 24 days there over the course of the previous 12 months. Frequently mentioned activities while at the cottage, cabin, or camp include hunting (including sealing and trapping), fishing and hiking/walking.

Economic Analysis

Due to the alternative survey distribution format resulting from data collection challenges in Nunavut, the results presented here only include high-level "takeaways" from survey responses.

Motorized recreation, hunting and trapping, and nature-based recreation, in that order, were the activities with the highest reported expenditures in the province. According to the respondents, their highest category of expenditures was for transportation, with only minimal amounts spent on accommodations.

Average annual expenditures for each activity were generally higher for Nunavut residents than for those in other provinces, and the total average expenditure per participant was similarly higher than the national average, as well as the averages for most other provinces and territories. Respondents reported high annual expenses on many hunting and trapping activities (including principally trapping and hunting large game), nature-based recreation, and on motorized recreation. Respondents reported low annual expenditures on activities such as leisure (e.g., birding) and conservation (e.g., conservation of natural settings) activities.

Average daily expenditures in Nunavut for each activity were similarly higher than the averages for other provinces and territories for the respective activities. Daily expenditures by Nunavut residents were highest for hunting birds, nature education, and gardening and landscaping with plants, which is relatively different than the highest categories of expenses for other provinces and territories. Nunavut residents reported low daily expenditures for activities such as photography, hunting small game, and trapping.

Nature Conservation

Approximately half of the opt-in sample reported participating in conservation activities near home and away from home in the previous 12 months, while only about one in ten said they participated in citizen science activities. Citizen science encompasses activities of volunteers who perform or manage research-related tasks such as wildlife or habitat observation, measurement, or assessment.

4.9 ONTARIO

This Provincial Report presents findings from the *2012 Canadian Nature Survey* for the Province of Ontario (ON). This section will cover residents' connection to nature and awareness of key concepts, their interactions with wildlife, and their involvement in nature-based activities. Except for the section entitled *Mixed-Sample Data Insights*, results in this Provincial Report are based on the address-based sample results only, as only these data allow for tests of significance and other statistical analysis (see *Survey Methods*). 1,011 completed address-based surveys from Ontario were received, out of a total sample of 4,368; the survey response rate[138] for the province was 23%. This is representative of the estimated total adult population of 10,157,995 adult residents[139], with a statistical reliability of +/-3.1%,[140] at 95% confidence. When a figure is shown with a "^" symbol it indicates that the figure does not meet ICF's analytical threshold for statistical reliability (see *Survey Methods: Statistical Reliability* for explanation.)

CONNECTION TO NATURE & AWARENESS

The *2012 Canadian Nature Survey* sought to understand the extent to which Ontarians are connected to nature. Survey results show that less than half of residents (46%) chose where they live partly to have access to nature. Nine percent of residents reported that their income relies on a nature-related profession.

BIODIVERSITY AND ECOSYSTEM SERVICES

Respondents were provided with definitions of the terms "biodiversity" and "ecosystem services" and then asked if, before the day that they completed the survey, they had heard of each of these concepts. In Ontario, awareness of the terms "biodiversity" and "ecosystem services" was high. About seven in 10 (71%) Ontarians had heard of the terms "biodiversity" and "ecosystem services" prior to survey administration.

While awareness of the term "ecosystem services" was high, even more residents were aware of examples of ecosystem services, or ways that nature can provide benefits. High proportions (between 94% and 97%) of Ontarians reported knowing that nature can be essential to:

- Produce oxygen and clean pollutants from the air;
- Filter water to keep it clean and safe;
- Keep soil fertile and productive;
- Provide places for recreation, fitness and leisure; and
- Pollinate plants and crops to produce food.

Fewer Ontarians (65%) were aware that nature can be essential to "reduce or control the spread of many diseases."

Additionally, three-quarters (75%) of Ontario residents were aware that biodiversity contributes to ecosystem services and provides life support and other important benefits to people.[141]

Fifteen percent of Ontarians reported being directly affected, during the previous 12 months, by the loss of an ecosystem service that would normally have been provided by nature. Of those who reported a loss, 48% cited "emotional, psychological, or spiritual well-being" as the option that most closely matched how the loss affected them.[142]

[138] See *Response Rates* for details regarding the computation of response rates.
[139] Survey respondents were individual adults, age 18 and over, see *Survey Methods, Sampling* for details.
[140] This margin of error does not account for design effects due to the complex survey design used in the 2012 Canadian Nature Survey. The design effect varies for each estimate and may in some cases increase the margin of error. The margin of error will be wider for sub-analysis of activities in which only a small number of respondents participate. All reported estimates have been screened for minimum reliability (see *Survey Methods*).
[141] Here the proportion of respondents who reported being aware that biodiversity contributes to ecosystem services is higher than the proportion of respondents who reported knowing the meaning of "biodiversity" or "ecosystem services." It is possible that some respondents may not have known the definition of either term, but, after reading examples provided, they had a better understanding of what was meant by the terms. Awareness of the concepts of biodiversity and ecosystem services and how they relate may therefore be understood independently of the definitions of these terms.
[142] See *Appendix B: Survey Instrument*, for how the question was worded, and for the complete list of options provided.

Species at Risk

The *2012 Canadian Nature Survey* also examined awareness of the term "species at risk" and actions taken to assist in the recovery of species at risk. Almost all Ontario respondents (92%) reported they had heard of the term prior to taking the survey. Sixteen percent of residents reported donating money on behalf of species at risk in the previous twelve months.

Obtaining Information about Nature

Respondents were asked to report the three ways they most frequently obtain nature-related information. Ontario residents were mostly likely (64%) to report that they "read publications." This was followed by "watch visual media" (62%), obtain information "from conversations" (42%), and "through personal experience" (36%).

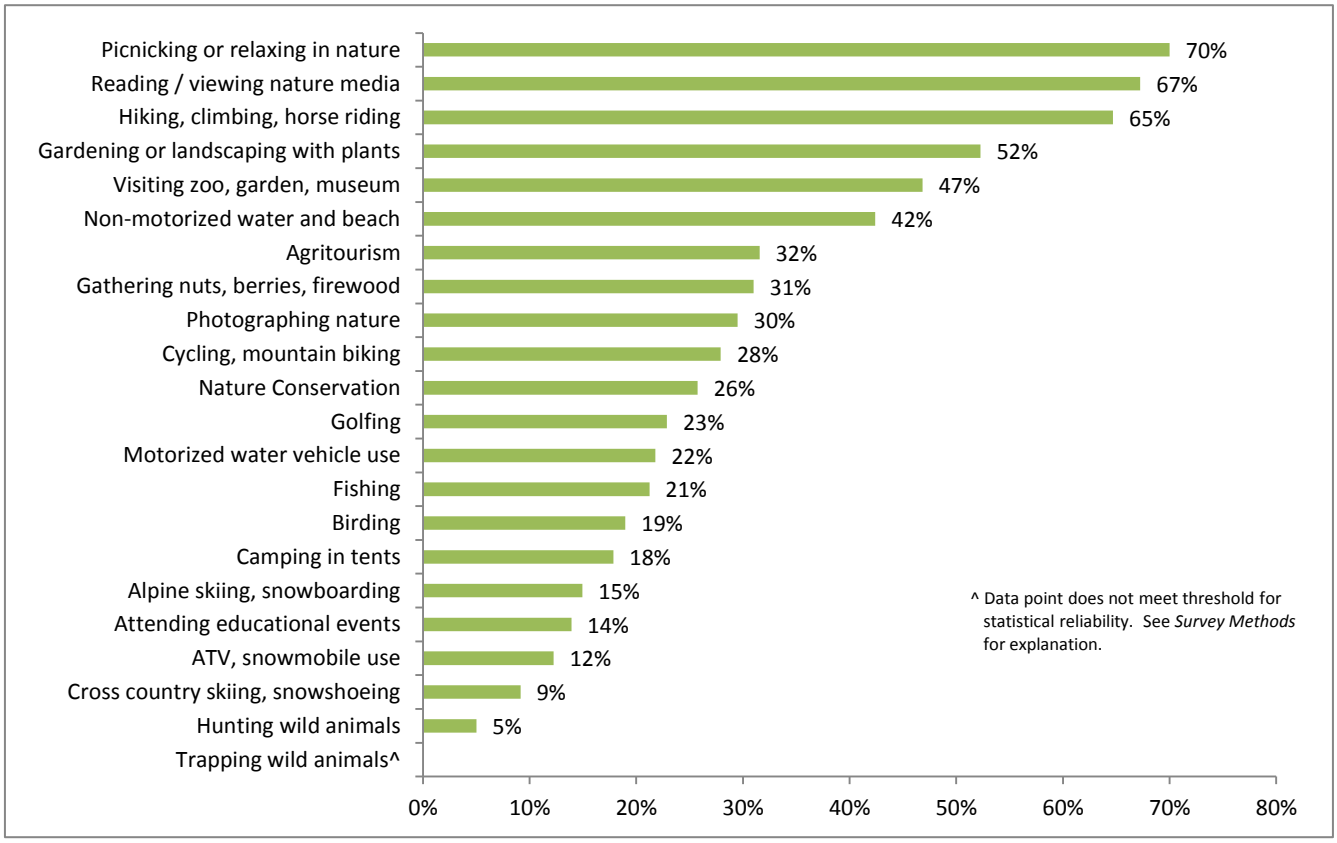
When asked about their most frequent sources of information, Ontario residents reported "journalists/media writers" (57%), "friends, family or colleagues" (55%), "conservation groups," (44%), "the government" (38%), "scientists" (24%), and "teachers/educators" (16%).

Nature-Based Activities

The largest section of the *2012 Canadian Nature Survey* questionnaire was devoted to collecting information about respondents' participation in nature-based activities in Canada during the 12 months prior to completing the survey, and collecting information about related expenses. For a complete listing of the activities that the survey addressed, and for how they are organized into groups for analysis in this report, see *Appendix A: Activities Crosswalk.* For a discussion of the methodology used to produce participation rates, see *Survey Methods: Participation Analysis* and *Chapter 2: Nature-based Activities, Participation and Expenditures*.

As shown in *Figure 51*, 70% of Ontario residents reported "picnicking or relaxing in nature", and 67 % reported "reading or viewing nature media" in the previous 12 months. These activities were followed by "hiking, climbing, or horse riding" (65%).

Figure 51: Percentage of Ontario Residents Age 18 and Over Participating in Nature-related Activities

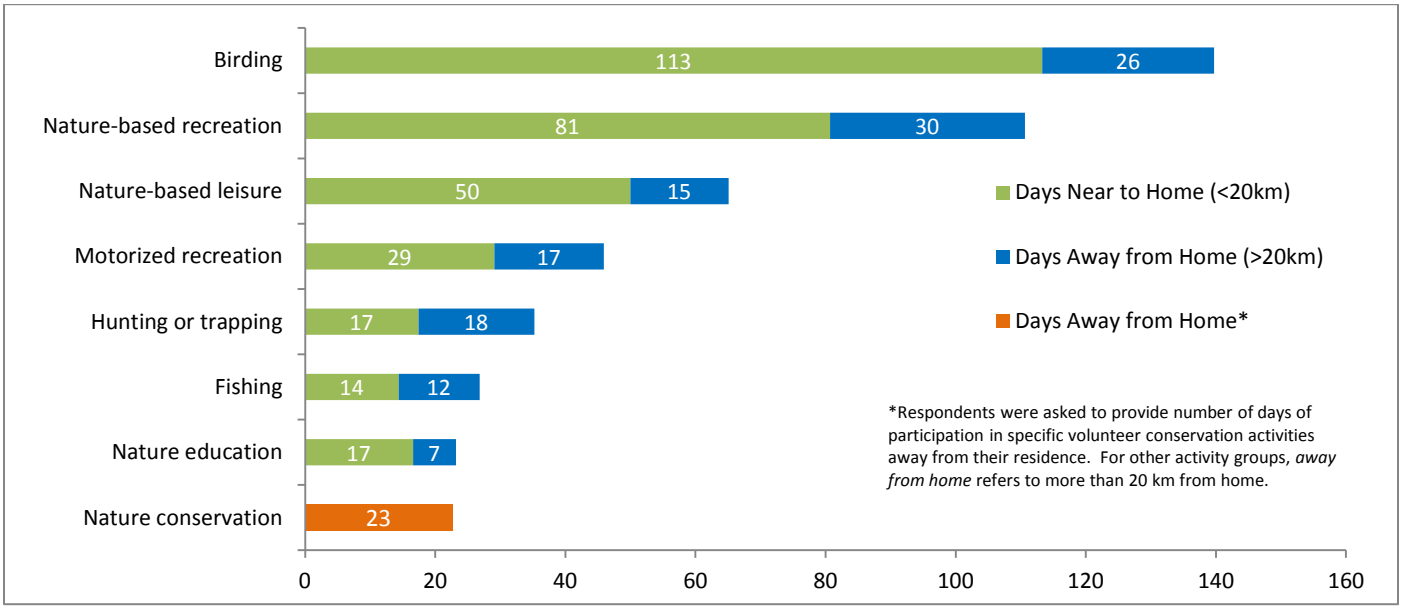


In addition to participation rates, the *2012 Canadian Nature Survey* also collected data on the amount of participation in nature-related activities. For most activities, respondents were asked to report the number of days that they spent participating in each activity in the previous 12 months in Canada, both within 20 km from their home, and more than 20 km away. Participation days are not necessarily mutually exclusive; respondents may participate in more than one nature-based activity in one calendar day. For conservation activities, the question was structured differently. Respondents were asked to report the number of days they spent engaged in a volunteer nature conservation activity away from their residence (either in their community or away from their community); these are presented in orange in *Figure 52* to highlight this difference.

Figure 52 shows the average number of days near to home (within 20 km) and away from home (more than 20 km away) that participants in each activity spent engaged in that activity (referred to as "participant days"). In this figure, activities are organized into eight broad activity groups (see *Appendix A: Activities Crosswalk* for examples of activities within each group).

Near to home, "birding" had the highest number of participant days (an average of 113. Away from home "nature-based recreation" had the highest number of participant days (an average of 30 days). When considering total days spent near home and away, here again, birding (139 days) and nature-based recreation (111 days) were the most popular activities.

Figure 52: Average Participation Days in Nature-related Activities, Near Home and Away from Home, Per Participant



HUNTING, TRAPPING, AND FISHING

Ontario respondents who reported participating in hunting, trapping, or fishing during the previous 12 months were asked if the activity had been: "under Aboriginal treaty rights," "licensed (not under Aboriginal rights)," "unlicensed," "primarily for sport/recreation," and/or "primarily for personal use or sharing." Respondents were asked to indicate all options that applied. The first three response categories provided (licensed, unlicensed, and Treaty rights) are *access options* which are normally mutually exclusive. However, the two *use options* response categories (primarily sport/recreation or primarily personal) can apply to any of the three access options.

The most commonly cited access option was "licensed, but not under Aboriginal treaty rights" (37%). The most commonly cited use option was "primarily for sport/recreation" (56%), followed by "primarily for personal use or sharing" (32%).

Respondents who indicated that they had not participated in hunting, trapping, or fishing activities were asked to indicate the reason for not participating. The top reasons that Ontario residents did not hunt or trap in the previous 12 months were: "do not like hunting/trapping/not interested" (41%), "ethical reasons/don't want to hurt animals" (16%) and "lack of knowledge" (16%). These are similar to national results, with 41% reporting they "do not like hunting/trapping/not interested," 14% citing "ethical reasons," and 17% citing "lack of knowledge."

The top reasons given for not participating in fishing were: "do not like fishing/not interested" (35%), "lack of time" (19%), and "lack of equipment" (10%). Nationally, 31% reported they "don't like fishing/are not interested," while 20% cited a "lack of time," 11% cited "lack of knowledge," and 10% cited "lack of equipment."

Nature-based Travel

Ontario residents reported the number of trips they made within Canada over the course of the previous 12 months that were farther than 20 km (one way) from their home, for which the main reason was to participate in nature-based activities for recreation, leisure, hunting, trapping, or fishing for personal use. Residents who partook in these trips reported an average of 12.9 same-day trips and 7.2 overnight trips. The most-cited trip duration was a trip lasting "one day, not overnight" (31%), followed by 26% who typically took a trip "between 2 and 4 days, with an overnight stay". Over the previous 12 months, Ontario residents stayed an average of 19 days at the three places farther than 20 km from their homes that they were most likely to visit. If the location where residents made such trips was a national park, provincial park, or other protected area, the places where they spent the most time were Algonquin Provincial Park, Niagara Falls (includes Niagara Glen, trails, parkway), Point Pelee National Park, Bruce Peninsula National Park, and Sandbanks Provincial Park.

About one in three (29%) Ontario residents reported owning or using a personal or family secondary property in Canada, such as a cottage, camp, or cabin. In the previous 12 months, they reported spending an average of 21 days at that cottage, camp, or cabin. The most frequently mentioned activities while at the property include hiking/walking, swimming, and fishing.

Economic Analysis

Residents of Ontario spent over $13.2 billion on nature-related activities and services in the previous 12 months[143], making the province the largest in terms of total expenditures. Roughly one-third of all nature-related expenditures in Canada in the previous 12 months were spent by residents of Ontario. The significant expenditures reported in Ontario are attributable to Ontario's large population—the largest in Canada—as the average per-person expenditure was the second smallest in Canada at $1,500 per person per year.

Expenditures by Activity and Expense Type

In general, expenditures by expense type in Ontario were consistent with national trends; roughly 34% of all expenditures were incurred on equipment, fees and supplies, 33% on transportation, 14% on accommodations, and 13% on food. Approximately 2% of expenses were attributable to conservation.[144]

Consistent with the national trend and with trends in other provinces and territories, expenditures on nature-based recreation ($5.3 billion) accounted for a significant amount (40%) of all nature-related expenses in Ontario. Leisure activities ($2.5 billion) accounted for 19% of expenditures, an amount generally higher than many other provinces and territories.

[143] The 12-month period was unique for each respondent depending exactly on when the respondent completed the questionnaire. However, the period can be expected to cover a period beginning October 2011 and ending May 2013.

[144] The data used to estimate this amount is based on options 1 through 3 of survey question 42, a limited scope that does not include donations or membership dues to nature organizations, or expenditures incurred in any volunteer activity away from respondents' residences. It is not based on the same categories of expenditures used for most other activities in the survey (transportation, accommodation, food, equipment, fees, and supplies) that are often associated with a 'travel cost' type of analysis.

Table 47: Nature-Related Expenditures by Residents of Ontario by Activity and Expenditure Type in the Previous 12 Months ($million)[145]

Activity	Transportation		Accommodation		Food		Equipment, Fees & Supplies		Total ($M)
	Total ($M)	%	Total ($M)	%	Total ($M)	%	Total ($M)	%	
Nature-based Recreation	$1,378	26%	$1,116	21%	$747	14%	*$2,050^*	39%	**$5,292**
Nature Education	$387	42%	$128	14%	$273	30%	$122	13%	**$908**
Nature-Based Leisure	$407	16%	*$202^*	8%	$224	9%	$1,133	45%	**$2,528**
Photographing Nature	$304	35%	$153	18%	$163	19%	$253	29%	$874
Gardening/Landscaping	$101	9%	*$49^*	5%	*$54^*	5%	$870	81%	$1,075
Nature Media	-	-	-	-	-	-	-	-	$562
Birding	$53	29%	*$25^*	13%	*$44^*	^	$54	31%	**$176**
Motorized Recreation	$1,694	59%	*$213^*	1%	*$193^*	7%	*$765^*	27%	***$2,866^***
Land-based	*$1,400^*	71%	*$58^*	3%	$65	3%	*$459^*	23%	*$1,982^*
Water-based	$294	33%	$155	17%	$128	15%	$306	34%	$883
Hunting & Trapping	$125	34%	*$54^*	15%	$66	18%	$126	34%	**$371**
Hunting Waterfowl	*$26^*	38%	*$6^*	9%	*$11^*	16%	*$25^*	36%	*$68^*
Hunting Other Game Birds	*$31^*	37%	*$16^*	19%	*$17^*	20%	*$20^*	24%	*$84^*
Hunting Small Game	*$25^*	50%	*$6^*	12%	*$8^*	16%	*$11^*	22%	*$49^*
Hunting Large Game	$43	25%	*$26^*	15%	*$30^*	18%	$70	44%	$169
Hunting Other Animals	*$0^*	100%	*$0^*	0%	*$0^*	0%	*$0^*	0%	*$0^*
Trapping	*$0^*	0%	*$0^*	0%	*$0^*	0%	*$0^*	0%	*$0^*
Fishing	$256	35%	$117	16%	$126	17%	$223	31%	**$723**
Nature Conservation (on private land)	-	-	-	-	-	-	-	-	**$332**
Food/Shelter for Wildlife	-	-	-	-	-	-	-	-	$145
Conserve Natural Setting	-	-	-	-	-	-	-	-	$123
Maintain Forest for non-timber use	-	-	-	-	-	-	-	-	*$64^*
Total	**$4,301**	**33%**	**$1,856**	**14%**	**$1,674**	**13%**	**$4,474**	**34%**	**$13,177[146]**

^ Data point does not meet threshold for statistical reliability due to the number of respondents who participated in a given activity or who provided responses to a given question. The screening threshold for statistical reliability applied to each data point was a minimum of 30 responses and a CV < .3. See *Survey Methods* for explanation.
- Category is not disaggregated by this expenditure type.
Percents are presented in terms of the share of expenditures for each activity.

Average Yearly and Average Daily Expenditures

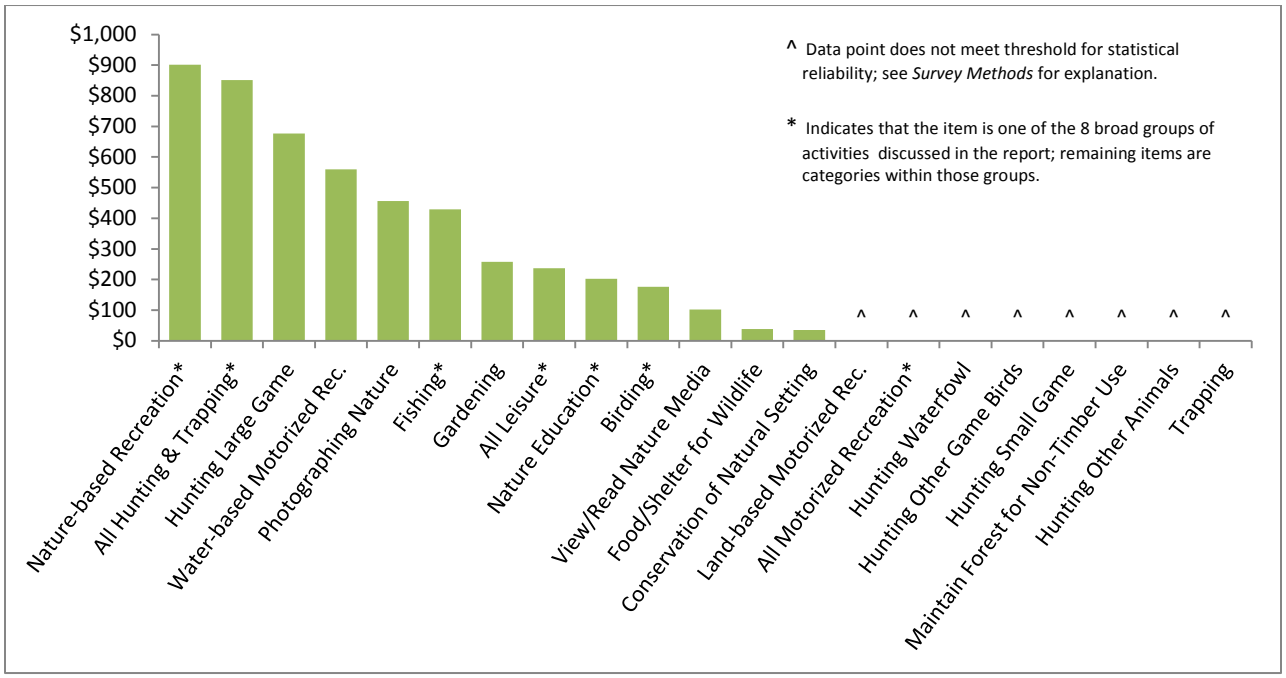
Residents of Ontario who participated in nature-related activities spent, on average, $1,500 per person in the previous 12 months, significantly lower than the $1,757 national average.

Nature-based recreation was the highest average 12-month expenditure for resident of Ontario, in which participants reported spending an average of $901 to participate. Expenditures by those participating in conservation activities (e.g., conservation of natural settings) were low, which followed the national trend.

[145] The grand total includes expenditures that are not categorized by expense type, including multimedia purchases and spending on nature conservation activities. Therefore, the percentages by expense type may not sum to 100%.

[146] The grand total for expenditures is calculated as an independent figure, equal to the sum of all component totals, and was independently screened for reliability. Consequently, the grand total includes expenditure amounts for all component activities, including those that were individually below the reliability threshold, see *Survey Methods: Statistical Reliability*.

Figure 53: Average Yearly Expenditures by Activity Type for Residents of Ontario in the Previous 12 Months



Daily expenditures by participants in the various activities ranged from $11 to $65 per day, but were once again consistent with national trends. Gardening ($15) and birding ($11) had the lowest daily-expenditure activities, whereas hunting large game ($65) had high daily expenditures.

Table 48: Average Daily Expenditures by Activity Type for Residents of Ontario in the Previous 12 Months

Activity	Daily Expenditure
Hunting Large Game	$65
Fishing	$47
Water-based Motorized Recreation	$44
Photographing Nature	$37
Nature Education	$29
Nature-based Recreation	$18
Gardening/Landscaping	$15
Birding	$11
Land-based Motorized Recreation	^
Hunting Waterfowl	^
Hunting Small Game	^
Hunting Other Game Birds	^
Hunting Other Animals	^
Trapping	^

^ Data point does not meet threshold for statistical reliability. See *Survey Methods* for explanation.

NATURE CONSERVATION

The *2012 Canadian Nature Survey* collected information about different types of nature conservation in several different survey sections. This section reports results from the survey section entitled "Nature Conservation" which asked about membership and support of nature organizations, participation in volunteer nature conservation activities, and nature conservation at home. (see *Appendix B: Survey Instrument*).

Canadians were asked to provide the total number of days that they participated in several different types of voluntary nature conservation activities away from their residence in the previous 12 months. In Ontario, 26% of adults participated in at least one volunteer nature conservation activity for at least one day. Of those who participated, the average number of days of participation within the previous 12 months across all activities was 22.7 days.

The most common way that residents organize their time for volunteer nature conservation activities is to "volunteer occasionally when it interests them" (reported by 22% of respondents). The majority (58%) of Ontario residents who volunteer in nature-related activities indicated that their nature-related volunteer involvement has stayed the same over the past five years and 23% reported an increase; responses that reported a decrease were not sufficient to generate a statistically reliable provincial estimate.

Sixteen percent of Ontarians reported participating in citizen science activities in the previous 12 months. Citizen science encompasses activities of volunteers who perform or manage research-related tasks such as wildlife or habitat observation, measurement, or assessment.

"Lack of time" was the reason provided by 49% of Ontario respondents when asked what prevented them from participating in volunteer nature conservation activities during the previous 12 months. The next most common responses were "I was not aware of an opportunity," selected by 34% of respondents, and "personal choice," selected by 26% of respondents.

Human-Wildlife Conflicts

The *2012 Canadian Nature Survey* collected data about the interactions between humans and wildlife. Some of these interactions can be negative. Wildlife managers refer to "human-wildlife conflict" as any interaction between wild animals (whether small or large) and humans which causes harm, whether to the animal, human, or property (including pets or livestock). This conflict can happen in urban, rural, or wilderness settings.

Twenty-six percent of Ontarians reported that a wild animal posed a threat to their safety or to the safety of people, pets, or farm animals in their care at home or in the community; and 31% reported that a wild animal caused damage to their personal property. Of those who experienced threat or damage, the most frequently cited (81%) type of animal involved was a small mammal (e.g., groundhog, skunk, or raccoon), followed by a coyote or wolf (18%), deer, elk, or moose (15%), and then birds (11%).

As shown in *Table 49*, more than one-third (37%) of Ontario residents who experienced threat or damage "took no action" as a result of the incident. For those who did act, the most common action was to "remove or relocate items known to attract 'friendly' wildlife" (28% of all respondents). This was followed by "fenced off or otherwise protected my property" (20%), "put out live traps/ humane removal" (14%), and "followed safety procedures recommended by authorities" (12%).

Table 49: Actions Taken As a Result of the Problem

Options Listed in Survey	Ontario	
	Population Estimate	Percent
I took no action	1,650,072	37%
Removed or relocated items known to attract friendly wildlife	1,274,493	28%
Fenced-off or otherwise protected my property	890,316	20%
Put out live traps / humane removal	636,356	14%
Followed authorities recommended safety procedures	524,744	12%
Spoke to local wildlife management officials	^	^
Put out poison	^	^
Killed the animal believed to be a threat	^	^
Participated in local education and land use planning sessions on wildlife management	^	^
Other(Specify)	301,096	7%

^ Data point does not meet threshold for statistical reliability. See *Survey Methods* for explanation.

MIXED-SAMPLE DATA INSIGHTS

As reported in *Report Structure and Scope* and *Weighting*, most results in this report are based on the address-based sample results ***only***, as only these data allow for tests of significance and other statistical analysis. Because of the large number of web-panel surveys collected in Ontario however, the following section presents findings from all survey data, including Web panel and opt-in responses, as well as the address-based sample data. These findings are not compared to the address-based results presented elsewhere because inferential statistical analyses are not recommended when using the "combined" analysis weight, due to its unknown variance properties. In addition, the address-based data are a subset of the data presented in the "Mixed-Sample Data Insight" sections, so comparisons would involve substantial overlap. These findings are best viewed on their own as a way to provide additional perspective on the topics measured in this survey.

PARTICIPATION

When looking at all survey responses from Ontario combined (i.e., address-based and Web panel responses), 71% of Ontario respondents reported participating in nature-based recreation activities in the previous 12 months, 60% reported participating in nature-based leisure activities, and 53% reported participating in nature education activities. Somewhat lower proportions of Ontario respondents reported participating in conservation activities (37%), birding (33%), motorized recreation activities (29%), fishing (21%), and hunting/trapping (12%).

The most common way cited for participating in hunting, trapping, or fishing was "primarily for sport/recreation" (48%), followed by "licensed, not under Aboriginal treaty rights" (45%). The most common reason for not hunting was "Don't like hunting, trapping/ not interested" (22%), followed by "lack of knowledge about hunting" (18%). The most common reasons cited for not fishing included "lack of time" (20%) and "no access to fishing areas" (15%).

With regard to the average participation days in nature-related activities, per participant, hunting/trapping had the highest average number of participant days (141 near to home and 134 away from home), followed by nature-based recreation (88 near to home and 50 away from home), motorized recreation (41 near to home and 33 away from home), nature-based leisure (45 near to home and 28 away from home), birding (43 near to home and 18 away from home), nature education (30 near to home and 29 away from home), nature conservation (54 days), and fishing (21 near to home and 19 away from home).

AWARENESS

When looking at all survey responses from Ontario combined (i.e., address-based and Web panel responses), 61% of Ontario respondents had heard of "biodiversity" and 71% had heard of "ecosystem services." Additionally, 60% of all respondents were aware that biodiversity contributes to ecosystem services. Respondents were presented with a list of benefits arising from nature that are also known as "ecosystem services." They reported if, prior to the survey, they were aware that nature can be essential to each one. Of the 11 examples, awareness was 90% for "filter water to keep it clean and safe," 89% for "produce oxygen and clean pollutants from the air," 88% for "keep soil fertile and productive," and 86% for "provide places for recreation, fitness and leisure." Awareness was lowest for "support human psychological and cognitive development" (59%) and "reduce or control the spread of many diseases" (60%). Twenty-seven percent of respondents reported that they had been directly affected by the loss of an ecosystem service. Of those respondents who reported a loss, the most commonly cited impact of the loss was "medical health" (26%), followed by "emotional, psychological, or spiritual well-being" (21%), "physical fitness" (20%), "cultural heritage" (17%), "economic well-being" (12%), and "other" (3%).

Most Ontario respondents (82%) had heard of the term "species at risk," and 30% had donated money on behalf of such species. When asked where their donation was targeted, the largest proportion of respondents (24%) reported donating to "specific species at risk in their province." This was followed by 19% that donated to "specific species at risk internationally," 15% to "habitat protection for species anywhere in Canada", 14% to "specific species at risk nationally," and 10% to "habitat protection for species in my province." Approximately 47% of Ontario respondents reported taking some action to assist in the recovery of species at risk. The most commonly selected action was "changing how I use the land or place where I live to avoid impacts on the habitat of these species" (24%).

HUMAN-WILDLIFE INTERACTIONS

When looking at all survey responses from Ontario combined (i.e., address-based and Web panel responses), 32% of Ontario respondents reported that wild animals posed a threat within the previous 12 months. The same percentage (32%) reported that wild animals caused damage to their personal property. Of these respondents, 40% reported that the conflict occurred in an area

where nearby housing developments recently expanded into a formerly natural area. The most often cited kind of animal involved in the conflict was a small mammal (69%), followed by a coyote or wolf (56%).

As a result of this conflict, 80% of Ontario respondents reported taking some kind of action. The most commonly cited actions included following authorities' recommended safety procedures (30%) and removing or relocating items known to attract friendly wildlife (26%). Slightly under half (45%) of all Ontario respondents were aware of laws or accepted guidelines about feeding wildlife.

4.10 Prince Edward Island

This Provincial Report presents findings from the *2012 Canadian Nature Survey* for the Province of Prince Edward Island (PE). This section will cover residents' connection to nature and awareness of key concepts, their interactions with wildlife, and their involvement in nature-based activities. Results in this section are based on an address-based sample only (see *Survey Methods*). 996 completed address-based surveys from Prince Edward Island were received, out of a total sample of 5,940; the survey response rate[147] for the province was 17%. This is representative of the estimated total adult population of 111,395 adult residents[148], with a statistical reliability of +/-3.1%,[149] at 95% confidence. When a figure is shown with a "^" symbol it indicates that the figure does not meet ICF's analytical threshold for statistical reliability (see *Survey Methods: Statistical Reliability* for explanation.)

Connection to Nature & Awareness

The *2012 Canadian Nature Survey* sought to understand the extent to which residents of Prince Edward Island are connected to nature. Survey results show that just over half of PEI residents (56%) chose where they live partly to have access to nature. Fifteen percent of Prince Edward Islanders reported that their income relies on a nature-related profession, with 8% reporting "farming" as a primary source of income and 4% reporting "fisheries".

Biodiversity and Ecosystem Services

Respondents were provided with definitions of the terms "biodiversity" and "ecosystem services" and then asked if, before the day that they completed the survey, they had heard of each of these concepts. In Prince Edward Island, awareness of the terms "biodiversity" and "ecosystem services" was high. About three-quarters of Prince Edward Island residents had heard of the term "biodiversity" (76%) and ecosystem services (73%) prior to survey administration.

While awareness of the term "ecosystem services" was high, even more Prince Edward Island residents were aware of examples of ecosystem services, or ways that nature can provide benefits. High proportions (between 95% and 98%) of Prince Edward Islanders reported knowing that nature can be essential to:

- Produce oxygen and clean pollutants from the air;
- Filter water to keep it clean and safe;
- Provide places for recreation, fitness and leisure:
- Keep soil fertile and productive; and
- Pollinate plants and crops to produce food.

Fewer Prince Edward Island residents (72%) were aware that nature can be essential to "reduce or control the spread of many diseases."

Additionally, 76% of Prince Edward Islanders were aware that biodiversity contributes to ecosystem services and provides life support and other important benefits to people.[150]

Twenty percent of Prince Edward Island residents reported being directly affected, during the previous 12 months, by the loss of an ecosystem service that would normally have been provided by nature. Of those who reported a loss, 39% cited "emotional, psychological, or spiritual well-being" as the option that most closely matched how the loss affected them.[151]

[147] See *Response Rates* for details regarding the computation of response rates.
[148] Survey respondents were individual adults, age 18 and over, see *Survey Methods, Sampling* for details.
[149] This margin of error does not account for design effects due to the complex survey design used in the 2012 Canadian Nature Survey. The design effect varies for each estimate and may in some cases increase the margin of error. The margin of error will be wider for sub-analysis of activities in which only a small number of respondents participate. All reported estimates have been screened for minimum reliability (see *Survey Methods*).
[150] Here the proportion of respondents who reported being aware that biodiversity contributes to ecosystem services is higher than the proportion of respondents who reported knowing the meaning of "ecosystem services." It is possible that some respondents may not have known the definition of the term "ecosystem services," but, after reading examples provided, they had a better understanding of what was meant by the term. Awareness of the concepts of biodiversity and ecosystem services and how they relate may therefore be understood independently of the definitions of these terms.
[151] See *Appendix B: Survey Instrument*, for how the question was worded, and for the complete list of options provided.

Species at Risk

The *2012 Canadian Nature Survey* examined awareness of the term "species at risk" and actions taken to assist in the recovery of species at risk. Almost all Prince Edward Island respondents (95%) reported they had heard of the term prior to taking the survey. Eleven percent of residents reported donating money on behalf of species at risk in the previous 12 months.

Obtaining Information about Nature

Respondents were asked to report the three ways they most frequently obtain nature-related information. Prince Edward Island residents were most likely (64%) to report that they "watch visual media." This was followed by "read publications" (59%), obtain information "from conversations" (39%) and "through personal experience" (35%).

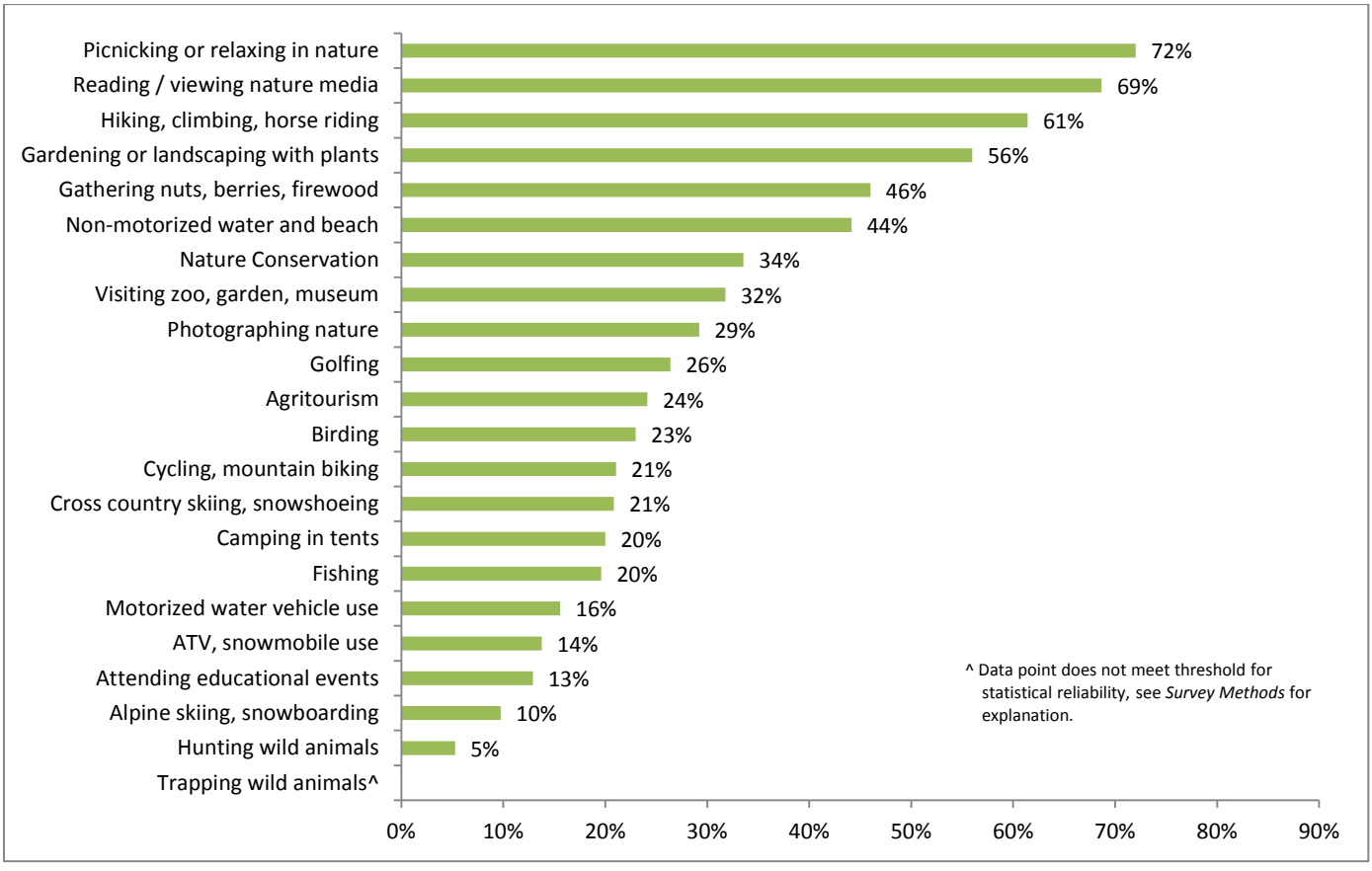
When asked about their most frequent sources of information, Prince Edward Island residents reported "journalists/media writers" (56%), "friends, family or colleagues" (51%), "conservation groups," (44%), "the government" (38%), "scientists" (24%), and "teachers/educators" (14%).

Nature-Based Activities

The largest section of the *2012 Canadian Nature Survey* questionnaire was devoted to collecting information about respondents' participation in nature-based activities in Canada during the 12 months prior to completing the survey, and collecting information about related expenses. For a complete listing of the activities that the survey addressed, and for how they are organized into groups for analysis in this report, see *Appendix A: Activities Crosswalk.* For a discussion of the methodology used to produce participation rates, see *Survey Methods: Participation Analysis* and *Chapter 2: Nature-based Activities, Participation and Expenditures*.

As shown in *Figure 54*, 72% of Prince Edward Island residents reported "picnicking or relaxing in nature" and 69% reported "reading or viewing nature media" in the previous 12 months. This was followed "hiking, climbing, or horse riding" (61%).

Figure 54: Percentage of Prince Edward Island Residents Age 18 and Over Participating in Nature-related Activities

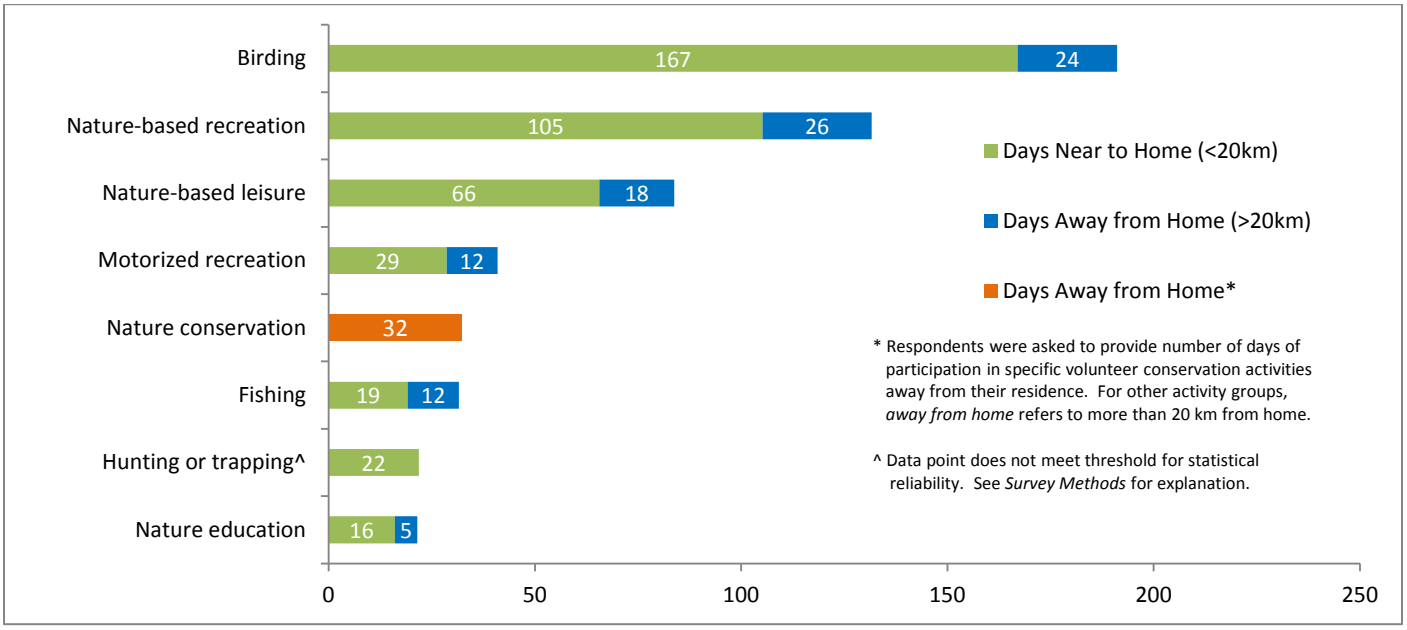


In addition to participation rates, the *2012 Canadian Nature Survey* also collected data on the amount of participation in nature-related activities. For most activities, respondents were asked to report the number of days that they spent participating in each activity in the previous 12 months in Canada, both within 20 km from their home, and more than 20 km away. Participation days are not necessarily mutually exclusive; respondents may participate in more than one nature-based activity in one calendar day. For conservation activities, the question was structured differently. Respondents were asked to report the number of days they spent engaged in a volunteer nature conservation activity away from their residence (either in their community or away from their community); these are presented in orange in *Figure 55* to highlight this difference.

Figure 55 shows the average number of days near to home (within 20 km) and away from home (more than 20 km away) that participants in each activity spent engaged in that activity (referred to as "participant days"). In this figure, activities are organized into eight broad activity groups (see *Appendix A: Activities Crosswalk* for examples of activities within each group).

Near to home, "birding" had the highest number of participant days (an average of 167). Away from home, "nature-based recreation" had the highest number of participant days (an average of 26). When considering total days spent near home and away, here again, birding (191 days) and nature-based recreation (131 days) were the most popular activities.

Figure 55: Average Participation Days in Nature-related Activities, Near Home and Away from Home, Per Participant



HUNTING, TRAPPING, AND FISHING

Prince Edward Island residents who reported participating in hunting, trapping, or fishing during the previous 12 months were asked if the activity had been: "under Aboriginal treaty rights," "licensed (not under Aboriginal rights)," "unlicensed," "primarily for sport/recreation," and/or "primarily for personal use or sharing." Respondents were asked to indicate all options that applied. The first three response categories provided (licensed, unlicensed, and Treaty rights) are *access options* which are normally mutually exclusive. However, the two *use options* response categories (primarily sport/recreation or primarily personal) can apply to any of the three access options.

The most commonly cited access option was "licensed, but not under Aboriginal treaty rights" (34%). The most commonly cited use option was "primarily for sport/recreation" (50%), followed by "primarily for personal use or sharing" (39%).

Respondents who indicated that they had not participated in hunting, trapping, or fishing activities were asked to indicate the reason for not participating. The top reasons that Prince Edward Island residents did not hunt or trap in the previous 12 months were "do not like hunting/trapping/not interested" (45%), "ethical reasons /don't want to hurt animals" (13%) and "lack of knowledge" (11%). These are similar to national results, with 41% reporting they "do not like hunting/trapping/not interested," 17% citing "lack of knowledge," and 14% citing ethical reasons. The top reasons given for not participating in fishing were "do not like

fishing/not interested" (35%) and "lack of time" (18%). Nationally, 31% reported they "don't like fishing/are not interested," while 20% cited a "lack of time."

NATURE-BASED TRAVEL

Prince Edward Island reported the number of trips they made within Canada over the course of the previous 12 months that were farther than 20 km (one way) from their home, for which the main reason was to participate in nature-based activities for recreation, leisure, hunting, trapping, or fishing for personal use. Residents who partook in these trips reported an average of 22.6 same-day trips and 5.8 overnight trips. The most-cited trip duration was a trip that lasted "one day, not overnight" (59%), followed by 18% who typically took a trip "between 2 and 4 days, with an overnight stay," and 14% who typically take a trip for "parts of two days, with one overnight stay." Over the previous 12 months, Prince Edward Islanders stayed an average of 22 days at the three places farther than 20 km from their homes that they were most likely to visit. If the location where residents made such trips was a national park, provincial park, or other protected area, the places where they spent the most time were Prince Edward Island National Park (including references to "Greenwich" and "Cavendish"), Fundy National Park, Cabot Beach Provincial Park, Cape Breton Highlands National Park and Strathgartney Provincial Park.

About one in four (24%) Prince Edward Island residents reported owning or using a personal or family secondary property in Canada, such as a cottage, camp, or cabin. During the same time period, they reported spending an average of 32 days at that cottage, camp, or cabin. The most frequently mentioned activities while at the property include hiking/walking, swimming, and boating (including canoeing and kayaking).

ECONOMIC ANALYSIS

Residents of Prince Edward Island spent over $121 million on nature-related activities and services in the previous 12 months[152], ranking the province tenth in terms of total expenditures on the nature-related activities included in the scope of this survey. Less than 1% of all nature-related expenditures in Canada in the previous 12 months were spent by residents of Prince Edward Island, aligning with the small population residing in the province. Residents participating in activities spent, on average, $1,298 per year, ranking the province last in average per-person expenditures.

EXPENDITURES BY ACTIVITY AND EXPENSE TYPE

In general, expenditures by expense type in Prince Edward Island were consistent with national trends: roughly 35% of all expenditures were incurred on equipment, fees and supplies, 20% on transportation, 8% on food, and 6% on accommodations. 21% of expenses were attributable to conservation.[153]

Expenditures on nature-based recreation ($29 million) accounted for a high percentage (24%) of all nature-related expenses in Prince Edward Island, though not as high as the national average (36%) or the averages seen throughout many of the other provinces and territories. Gardening ($15 million) and motorized recreation ($11 million) accounted for 12% and 9%, respectively.

[152] The 12-month period was unique for each respondent depending exactly on when the respondent completed the questionnaire. However, the period can be expected to cover a period beginning October 2011 and ending May 2013.

[153] The data used to estimate this amount is based on options 1 through 3 of survey question 42, a limited scope that does not include donations or membership dues to nature organizations, or expenditures incurred in any volunteer activity away from respondents' residences. It is not based on the same categories of expenditures used for most other activities in the survey (transportation, accommodation, food, equipment, fees, and supplies) that are often associated with a 'travel cost' type of analysis.

Table 50: Nature-Related Expenditures by Residents of Prince Edward Island by Activity and Expenditure Type in the Previous 12 Months ($million)[154]

Activity	Transportation		Accommodation		Food		Equipment, Fees & Supplies		Total ($M)
	Total ($M)	%	Total ($M)	%	Total ($M)	%	Total ($M)	%	
Nature-based Recreation	$10	34%	$3	12%	$5	16%	$11	39%	**$29**
Nature Education	$3	30%	*$3^*	28%	*$2^*	19%	*$2^*	23%	***$9^***
Nature-Based Leisure	$3	11%	*$0^*	2%	*$1^*	^	$16	49%	***$32^***
Photographing Nature	$2	39%	*$0^*	2%	$1	10%	$2	44%	$5
Gardening/Landscaping	*$1^*	9%	*$0^*	0%	*$0^*	2%	$13	90%	$15
Nature Media	-	-	-	-	-	-	-	-	*$12^*
Birding	$0	19%	*$0^*	2$	*$1^*	34$	$1	45%	**$2**
Motorized Recreation	*$4^*	36%	*$1^*	10%	*$1^*	10%	*$6^*	55%	**$11**
Land-based	*$2^*	31%	*$0^*	5%	$0	8%	*$4^*	56%	$7
Water-based	$2	39%	*$0^*	5%	$1	14%	$2	42%	$5
Hunting & Trapping	*$2^*	29%	*$0^*	0%	*$0^*	0%	*$5^*	71%	***$7^***
Hunting Waterfowl	*$1^*	17%	*$0^*	0%	*$0^*	3%	*$3^*	80%	*$4^*
Hunting Other Game Birds	*$0^*	25%	*$0^*	0%	*$0^*	6%	*$^*	69%	*$1^*
Hunting Small Game	*$0^*	56%	*$0^*	0%	*$0^*	0%	*$0^*	44%	*$1^*
Hunting Large Game	*$0^*	39%	*$0^*	9%	*$0^*	20%	*$0^*	32%	*$1^*
Hunting Other Animals	*$0^*	74%	*$0^*	0%	*$0^*	0%	*$0^*	26%	*$0^*
Trapping	*$0^*	0%	*$0^*	0%	*$0^*	0%	*$0^*	100%	*$0^*
Fishing	$2	44%	*$0^*	5%	$1	10%	$2	41%	**$5**
Nature Conservation (on private land)	-	-	-	-	-	-	-	-	***$25^***
Food/Shelter for Wildlife	-	-	-	-	-	-	-	-	*$13^*
Conserve Natural Setting	-	-	-	-	-	-	-	-	*$11^*
Maintain Forest for non-timber use	-	-	-	-	-	-	-	-	*$1^*
Total	**$24**	**20%**	**$7**	**6%**	**$10**	**8%**	**$43**	**35%**	**$121[155]**

^ Data point does not meet threshold for statistical reliability due to the number of respondents who participated in a given activity or who provided responses to a given question. The screening threshold for statistical reliability applied to each data point was a minimum of 30 responses and a CV < .3. See *Survey Methods* for explanation.
- Category is not disaggregated by expenditure type
Percents are presented as the share of expenditures for the activity spent on each expense type.

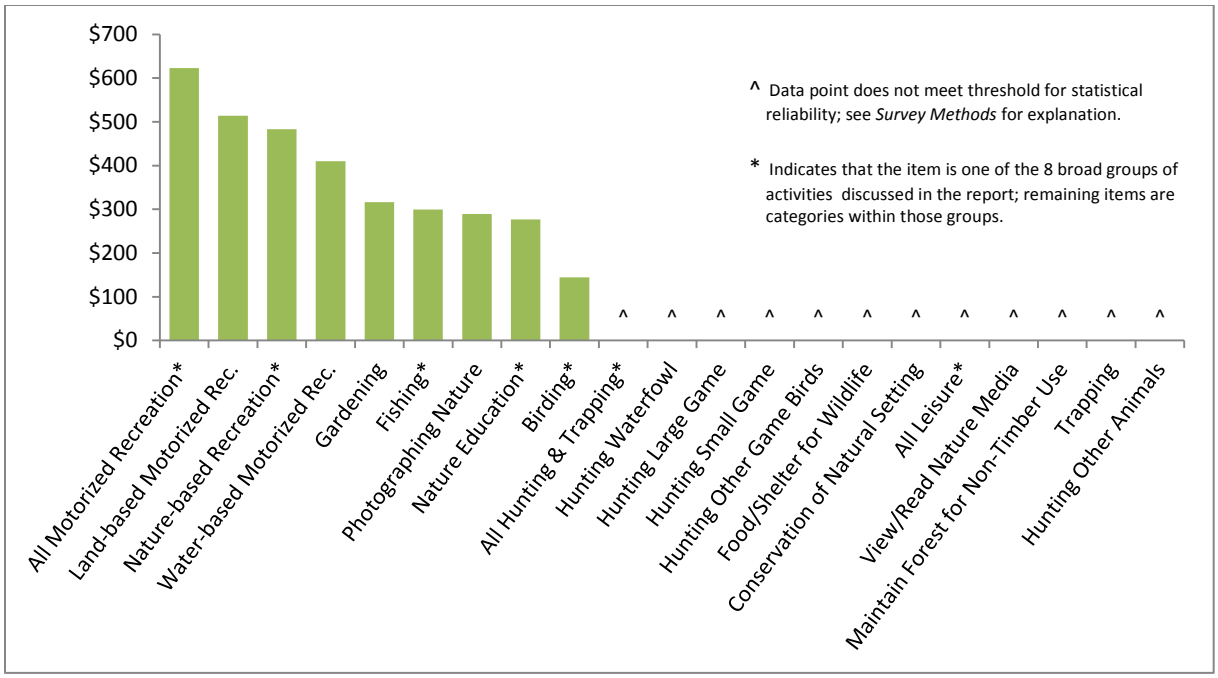
[154] The grand total includes expenditures that are not categorized by expense type, including multimedia purchases and spending on nature conservation activities. Therefore, the percentages by expense type may not sum to 100%.

[155] The grand total for expenditures is calculated as an independent figure, equal to the sum of all component totals, and was independently screened for reliability. Consequently, the grand total includes expenditure amounts for all component activities, including those that were individually below the reliability threshold, see *Survey Methods: Statistical Reliability*.

Average Yearly and Average Daily Expenditures

On average, residents of Prince Edward Island that participated in nature-related activities spent $1,298 per year—well below the national average of $1,757, and ranking the province last in per-person expenditures in Canada.

Figure 56: Average Yearly Expenditures by Activity Type for Residents of Prince Edward Island in the Previous 12 Months



Daily expenditures by participants in the various activities ranged from $3 (birding) to $31 (water-based motorized recreation) per day. Prince Edward Island had the lowest average total annual expenditure per person, a likely result of the low daily expenditures seen across the board for each of the activities where data were available.

Table 51: Average Daily Expenditures by Activity Type for Residents of Prince Edward Island in the Previous 12 Months

Activity	Daily Expenditure
Water-based Motorized Recreation	$31
Land-based Motorized Recreation	$30
Nature Education	$30
Fishing	$26
Gardening/Landscaping	$16
Photographing Nature	$14
Nature-based Recreation	$10
Birding	$3
Hunting Large Game	^
Hunting Waterfowl	^
Hunting Other Game Birds	^
Hunting Small Game	^
Hunting Other Animals	^
Trapping	^

^ Data point does not meet threshold for statistical reliability. See *Survey Methods* for explanation.

NATURE CONSERVATION

The *2012 Canadian Nature Survey* collected information about different types of nature conservation in several different survey sections. This section reports results from the survey section entitled "Nature Conservation" which asked about membership and support of nature organizations, participation in volunteer nature conservation activities, and nature conservation at home. (see *Appendix B: Survey Instrument*).

Canadians were asked to provide the total number of days that they participated in several different types of voluntary nature conservation activities away from their residence in the previous 12 months. In Prince Edward Island, 34% of adults participated in at least one volunteer nature conservation activity for at least one day. Of those who participated, the average number of days of participation within the previous 12 months across all activities was 32.3 days.

The most common way that residents organize their time for volunteer nature conservation activities is to "volunteer occasionally when it interests them" (reported by 22% of respondents). The majority (69%) of Prince Edward Island residents who volunteer in nature-related activities indicated that their nature-related volunteer involvement has stayed the same over the past five years and 23% reported an increase; responses that reported a decrease were not sufficient to generate a statistically reliable provincial estimate.

Eleven percent of Prince Edward Islanders reported participating in citizen science activities in the previous 12 months. Citizen science encompasses activities of volunteers who perform or manage research-related tasks such as wildlife or habitat observation, measurement, or assessment.

"Lack of time" was the reason provided by 48% of respondents when asked what prevented them from participating in volunteer nature conservation activities during the previous 12 months. The next most common responses were "I was not aware of an opportunity," selected by 34% of respondents, and "personal choice," selected by 27% of respondents.

HUMAN-WILDLIFE CONFLICTS

The *2012 Canadian Nature Survey* collected data about the interactions between humans and wildlife. Some of these interactions can be negative. Wildlife managers refer to "human-wildlife conflict" as any interaction between wild animals (whether small or large) and humans which causes harm, whether to the animal, human, or property (including pets or livestock). This conflict can happen in urban, rural, or wilderness settings.

Twenty-nine percent of Prince Edward Island residents reported that a wild animal posed a threat to their safety or to the safety of people, pets, or farm animals in their care at home or in the community; 32% reported that a wild animal caused damage to their personal property. Of those who experienced threat or damage, the most frequently cited (27%) type of animal involved was a small mammal (e.g., groundhog, skunk, or raccoon), followed by a coyote or wolf (33%), and birds (13%).

As shown in *Table 52*, more than 40% (45%) Prince Edward Islanders who experienced threat or damage "took no action" as a result of the incident. The most common action was to "remove or relocate items known to attract 'friendly' wildlife" (20%). This was followed by "put out live traps/ humane removal" (17%) and "followed safety procedures recommended by authorities" (12%).

Table 52: Actions Taken As a Result of the Problem

Options Listed in Survey	Prince Edward Island	
	Population Estimate	Percent
I took no action	23,460	45%
Removed or relocated items known to attract friendly wildlife	10,594	20%
Put out live traps / humane removal	8,773	17%
Followed authorities recommended safety procedures	6,084	12%
Spoke to local wildlife management officials	4,436	9%
Fenced-off or otherwise protected my property	4,291	8%
Killed the animal believed to be a threat	^	^
Put out poison	^	^
Participated in local education and land use planning sessions on wildlife management	^	^
Other(Specify)	4,896	9%

^ Data point does not meet threshold for statistical reliability. See *Survey Methods* for explanation.

4.11 QUEBEC

This Provincial Report presents findings from the *2012 Canadian Nature Survey* for the Province of Quebec (QC). This section will cover residents' connection to nature and awareness of key concepts, their interactions with wildlife, and their involvement in nature-based activities. Except for the section entitled "Mixed-Sample Data Insights," results in this Provincial Report are based on the address-based sample results only, as only these data allow for tests of significance and other statistical analysis (see *Survey Methods*). 1,029 completed address-based surveys from Quebec were received, out of a total sample of 3,333; the survey response rate[156] for the province was 31%. This is representative of the estimated total adult population of 6,356,545 adult residents[157], with a statistical reliability of +/-3.1%,[158] at 95% confidence. When a figure is shown with a "^" symbol it indicates that the figure does not meet ICF's analytical threshold for statistical reliability (see *Survey Methods: Statistical Reliability* for explanation.)

CONNECTION TO NATURE & AWARENESS

The *2012 Canadian Nature Survey* sought to understand the extent to which residents of Quebec are connected to nature. Survey results show that under half of Quebec residents (43%) chose where they live partly to have access to nature. In Quebec, 10% of residents reported that their income relies on a nature-related profession.

BIODIVERSITY AND ECOSYSTEM SERVICES

Respondents were provided with definitions of the terms "biodiversity" and "ecosystem services" and then asked if, before the day that they completed the survey, they had heard of each of these concepts. In Quebec, awareness of the terms "biodiversity" and "ecosystem services" was high. About three-quarters of Quebec residents had heard of the term "biodiversity" (76%) and two-thirds had heard of "ecosystem services" (66%) prior to survey administration.

While awareness of the term "ecosystem services" was high, even more residents were aware of examples of ecosystem services, or ways that nature can provide benefits. Between 90% and 95% of residents were aware that nature can be essential to:

- Produce oxygen and clean pollutants from the air;
- Provide places for recreation, fitness and leisure;
- Keep soil fertile and productive;
- Filter water to keep it clean and safe;
- Provide raw materials for making and building things; and
- Pollinate plants and crops to produce food.

Fewer Quebec residents (68%) were aware that nature can be essential to "reduce or control the spread of many diseases."

Finally, 78% of Quebec residents were aware that biodiversity contributes to ecosystem services and provides life support and other important benefits to people.[159]

Thirteen percent of Quebecers reported being directly affected, during the previous 12 months, by the loss of an ecosystem service that would normally have been provided by nature. Of those who reported a loss, 35% cited "emotional, psychological, or spiritual well-being" as the option that most closely matched how the loss affected them.[160]

[156] See *Response Rates* for details regarding the computation of response rates.
[157] Survey respondents were individual adults, age 18 and over, see *Survey Methods, Sampling* for details.
[158] This margin of error does not account for design effects due to the complex survey design used in the 2012 Canadian Nature Survey. The design effect varies for each estimate and may in some cases increase the margin of error. The margin of error will be wider for sub-analysis of activities in which only a small number of respondents participate, such as in the case of hunting and trapping. All reported estimates have been screened for minimum reliability (see *Survey Methods*).
[159] Here the proportion of respondents who reported being aware that biodiversity contributes to ecosystem services is higher than the proportion of respondents who reported knowing the meaning of "biodiversity" or "ecosystem services." It is possible that some respondents may not have known the definition of either term, but, after reading examples provided, they had a better understanding of what was meant by the terms. Awareness of the concepts of biodiversity and ecosystem services and how they relate may therefore be understood independently of the definitions of these terms.
[160] See *Appendix B: Survey Instrument,* for how the question was worded, and for the complete list of options provided.

Species at Risk

The *2012 Canadian Nature Survey* examined awareness of the term "species at risk" and actions taken to assist in the recovery of species at risk. Ninety percent of Quebec respondents reported they had heard of the term prior to taking the survey. Eight percent of residents reported donating money on behalf of species at risk in the previous twelve months.

Obtaining Information about Nature

Respondents were asked to report the three ways they most frequently obtain nature-related information. Quebec residents were most likely (64%) to report that they "watch visual media". This was followed by "read publications" (55%), obtain information "from conversations" (34%), "read informal communications" (19%), "listen to audio media" (19%), and "through personal experience" (17%).

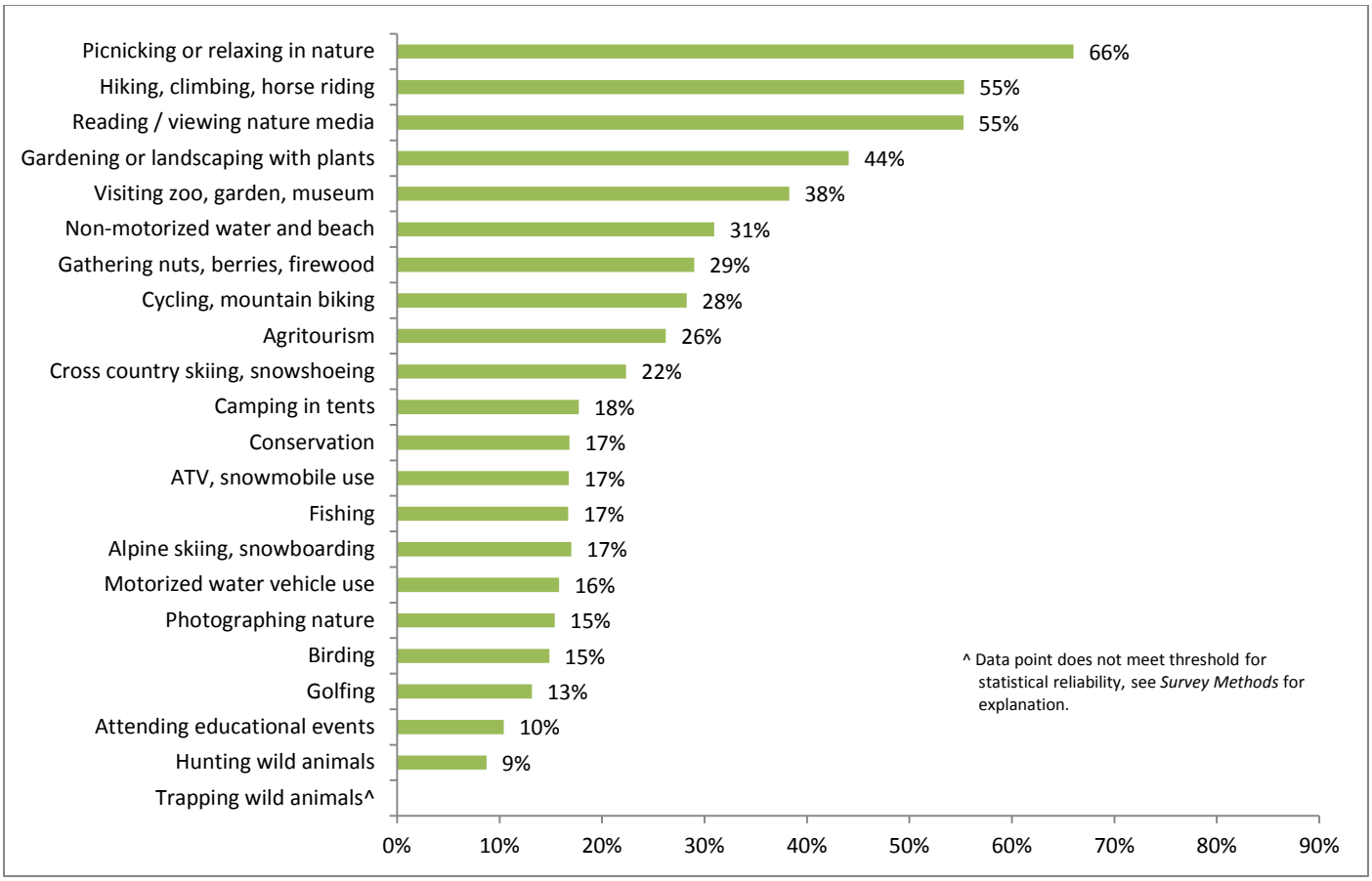
When asked about their three most frequent sources of information, Quebec residents reported "journalists/media writers" (69%), "friends, family or colleagues" (50%), "the government" (39%),"scientists" (32%), "conservation groups" (22%), and "teachers/ educators" (11%).

Nature-Based Activities

The largest section of the *2012 Canadian Nature Survey* questionnaire was devoted to collecting information about respondents' participation in nature-based activities in Canada during the 12 months prior to completing the survey, and collecting information about related expenses. For a complete listing of the activities that the survey addressed, and for how they are organized into groups for analysis in this report, see *Appendix A: Activities Crosswalk.* For a discussion of the methodology used to produce participation rates, see *Survey Methods: Participation Analysis* and C*hapter 2: Nature-based Activities, Participation and Expenditures*. Also note that, as described in *Survey Methods: Participation Analysis*, outliers in the address-based data responses were reviewed and checked against hard copy mail surveys to identify data entry errors. Confirmed values that were within the possible range (e.g., number of days between 0-365) were retained in the data. This means that aberrant results that were within the possible range were not excluded as this would impose a subjective judgement on the data without supporting evidence that such responses were faulty.

As shown in *Figure 57* , the largest proportion (66%) of Quebec residents reported "picnicking or relaxing in nature" in the previous 12 months. This was followed "hiking, climbing, or horse riding" or "reading or viewing nature media" (both were reported by 55% of Quebecers). Note that the participation rate for "trapping" did not pass reliability screening and is not displayed (see *Survey Methods: Statistical Reliability*).

Figure 57: Percentage of Quebec Residents Age 18 and Over Participating in Nature-related Activities

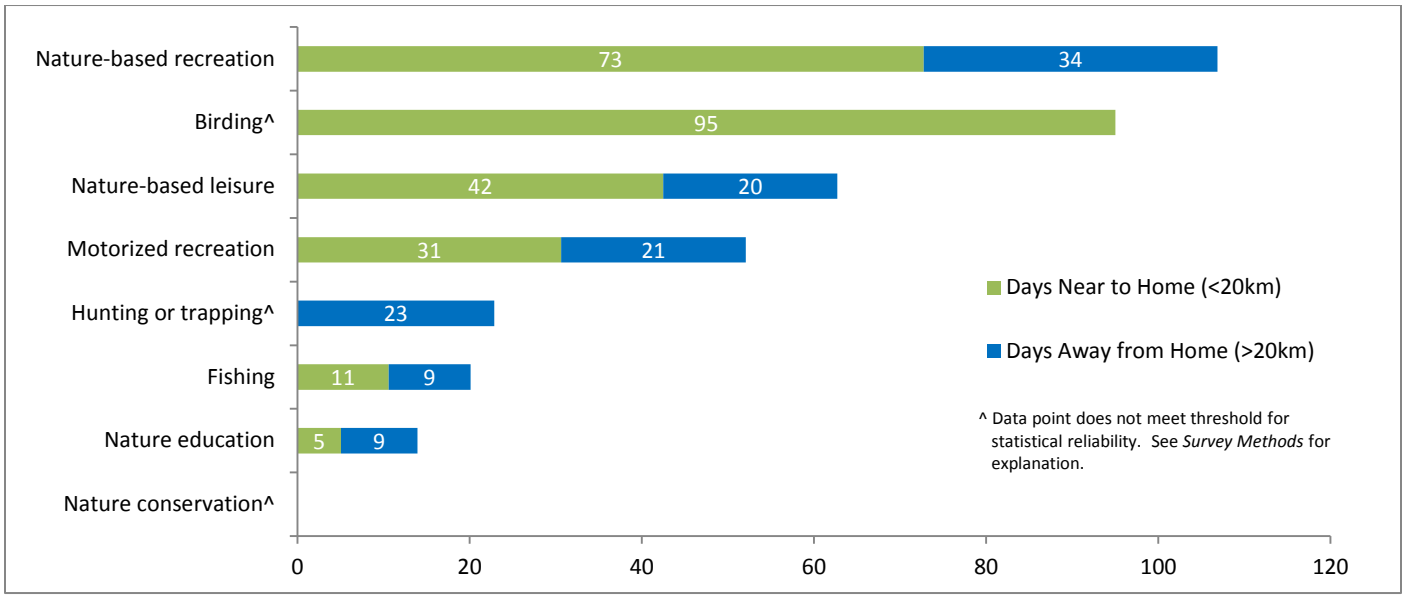


In addition to participation rates, the *2012 Canadian Nature Survey* also collected data on the amount of participation in nature-related activities. For most activities, respondents were asked to report the number of days that they spent participating in each activity in the previous 12 months in Canada, both within 20 km from their home, and more than 20 km away. Participation days are not necessarily mutually exclusive; respondents may participate in more than one nature-based activity in one calendar day. For conservation activities, the question was structured differently. Respondents were asked to report the number of days they spent engaged in a volunteer nature conservation activity away from their residence (either in their community or away from their community).

Figure 58 shows the average number of days near to home (within 20 km) and away from home (more than 20 km away) that participants in each activity spent engaged in that activity (referred to as "participant days"). In this figure, activities are organized into eight broad activity groups (see *Appendix A: Activities Crosswalk* for examples of activities within each group).

Near to home, "birding" had the highest number of participant days (an average of 95). Away from home, "nature-based recreation" had the highest number of participant days (an average of 34 days). When considering total days spent near home and away, here again, nature-based recreation (107 days) and birding (95 days) and were the most popular activities. Note that the number of days participants spent birding away from home, hunting or trapping near to home, and the number of days engaged in nature conservation did not meet the threshold for reliability, and are not included in *Figure 58*.

Figure 58: Average Participation Days in Nature-related Activities, Near Home and Away from Home, Per Participant



Hunting, Trapping, and Fishing

Quebec residents who reported participating in hunting, trapping, or fishing during the previous 12 months were asked if the activity had been: "under Aboriginal treaty rights," "licensed (not under Aboriginal rights)," "unlicensed," "primarily for sport/recreation," and/or "primarily for personal use or sharing." Respondents were asked to indicate all options that applied. The first three response categories provided (licensed, unlicensed, and Treaty rights) are *access options* which are normally mutually exclusive. However, the two *use options* response categories (primarily sport/recreation or primarily personal) can apply to any of the three access options.

The most commonly cited access option was "licensed, but not under Aboriginal treaty rights" (38%). The most commonly cited use option was "primarily for sport/recreation" (55%), followed by "primarily for personal use or sharing" (23%).

Respondents who indicated that they had not participated in hunting, trapping, or fishing activities were asked to indicate the reason for not participating. The top three reasons why Quebec residents did not hunt or trap in the previous 12 months were "do not like hunting/trapping/ not interested" (42%), "lack of knowledge" (18%), and "lack of time" (13%). These percentages are very similar to national results, with 41% reporting they do not like hunting/trapping/ not interested," 17% citing "lack of knowledge," and 14% citing "lack of time."

The top reasons given for not participating in fishing were "do not like fishing/ not interested" (25%), "lack of time" (19%), and "lack of knowledge" (13%). Nationally, 31% reported they "don't like fishing/ are not interested," 20% cited a "lack of time," and 11% cited "lack of knowledge."

Nature-based Travel

Quebec residents reported the number of trips they made within Canada over the course of the previous 12 months that were farther than 20 km (one way) from their home, for which the main reason was to participate in nature-based activities for recreation, leisure, hunting, trapping, or fishing for personal use. Residents who partook in these trips reported an average of 10.0 same-day trips and 6.2 overnight trips. The most often-cited trip duration was a trip that lasted "one day, not overnight" (32%), followed by 23% who typically took a trip "parts of two days, with one overnight stay," and 22 percent who typically took a trip "between 2 and 4 days, with an overnight stay". Over the previous 12 months, Quebecers stayed an average of 21 at the three places farther than 20 km from their homes that they were most likely to visit. If the location where residents made such trips was a national park, provincial park, or other protected area, the places where they spent the most time were Parc national du Mont-Tremblant, Parc national du Mont Orford, La Mauricie National Park, Gatineau Park, and Parc national de la Jacques-Cartier.

About one in five (21%) Quebec residents reported owning or using a personal or family secondary property in Canada, such as a cottage, camp, or cabin. During the same time period, they reported spending an average of 28 days at that cottage, camp, or cabin. Frequently mentioned activities while at the property include hiking/walking, fishing, and cycling.

ECONOMIC ANALYSIS

Nature-related expenditures by residents of Quebec were $8.9 billion in the previous 12 months[161], accounting for 22% of all such expenditures nationally. Quebec was the second highest-spending province on the nature-related activities within the scope of this survey in Canada in the previous 12 months, but eighth in terms of average expenditure per-person ($1,696).

EXPENDITURES BY ACTIVITY AND EXPENSE TYPE

33% of all expenditures on nature-related activities by residents of Quebec were for equipment, fees and supplies ($2.9 billion). Expenditures on transportation ($1.4 billion) accounted for 13% of all nature-related expenses; food ($860 million) accounted for 10% of expenditures; and accommodation ($687 million) accounted for 8% of expenditures.

Nature-based recreation activities ($2.6 billion) accounted for 30% of all expenses on nature-related activities in the previous 12 months. Residents of Quebec participating in nature-related activities also spent $794 million (9%) on motorized recreation and $748 million (8%) on nature-based leisure.

[161] The 12-month period was unique for each respondent depending exactly on when the respondent completed the questionnaire. However, the period can be expected to cover a period beginning October 2011 and ending May 2013.

Table 53: Nature-Related Expenditures by Residents of Quebec by Activity and Expenditure Type in the Previous 12 Months ($million)[162]

Activity	Transportation		Accommodation		Food		Equipment, Fees & Supplies		Total ($M)
	Total ($M)	%	Total ($M)	%	Total ($M)	%	Total ($M)	%	
Nature-based Recreation	$748	28%	$417	16%	$492	19%	$973	37%	**$2,629**
Nature Education	$111	9%	$54	5%	$83	7%	*$942^*	80%	***$1,190^***
Nature-Based Leisure	*$68^*	9%	*$35^*	5%	*$43^*	6%	$402	53%	**$748**
Photographing Nature	$36	24%	$29	18%	$33	22%	*$54^*	35%	$151
Gardening/Landscaping	$32	8%	*$6^*	2%	*$10^*	3%	$344	88%	$393
Nature Media	-	-	-	-	-	-	-	-	$204
Birding	*$21^*	27%	*$11^*	14%	$18	24%	*$27^*	35%	**$78**
Motorized Recreation	$307	39%	*$69^*	9%	$118	15%	*$302^*	48%	**$794**
Land-based	*$239^*	41%	$45	8%	$82	14%	$210	36%	$575
Water-based	$68	31%	*$24^*	11%	$36	16%	*$92^*	41%	$219
Hunting & Trapping	$93	28%	*$32^*	10%	$48	14%	$160	49%	**$332**
Hunting Waterfowl	*$22^*	21%	*$14^*	13%	*$8^*	8%	*$61^*	58%	*$105^*
Hunting Other Game Birds	$24	51%	*$4^*	8%	*$10^*	20%	*$10^*	20%	$48
Hunting Small Game	*$5^*	56%	*$1^*	11%	*$1^*	11%	*$2^*	22%	*$9^*
Hunting Large Game	$35	22%	*$12^*	8%	$26	16%	*$86^*	54%	$158
Hunting Other Animals	*$1^*	*50%^*	*$0^*	0%	*$0^*	0%	*$1^*	50%	*$1^*
Trapping	*$6^*	51%	*$1^*	9%	*$3^*	27%	*$1^*	13%	*$11^*
Fishing	$90	27%	$68	20%	$57	17%	$116	35%	**$331**
Nature Conservation (on private land)	-	-	-	-	-	-	-	-	***$2,791^***
Food/Shelter for Wildlife	-	-	-	-	-	-	-	-	*$2,598^*
Conserve Natural Setting	-	-	-	-	-	-	-	-	*$158^*
Maintain Forest for non-timber use	-	-	-	-	-	-	-	-	*$35^*
Total	**$1,440**	**13%**	**$687**	**8%**	**$860**	**10%**	**$2,922**	**33%**	**$8,893**[163]

^ Data point does not meet threshold for statistical reliability due to the number of respondents who participated in a given activity or who provided responses to a given question. The screening threshold for statistical reliability applied to each data point was a minimum of 30 responses and a CV < .3. See Survey Methods for explanation.

- Category is not disaggregated by this expenditure type.

Percents are presented in terms of the share of expenditures for each activity.

Average Yearly and Average Daily Expenditures

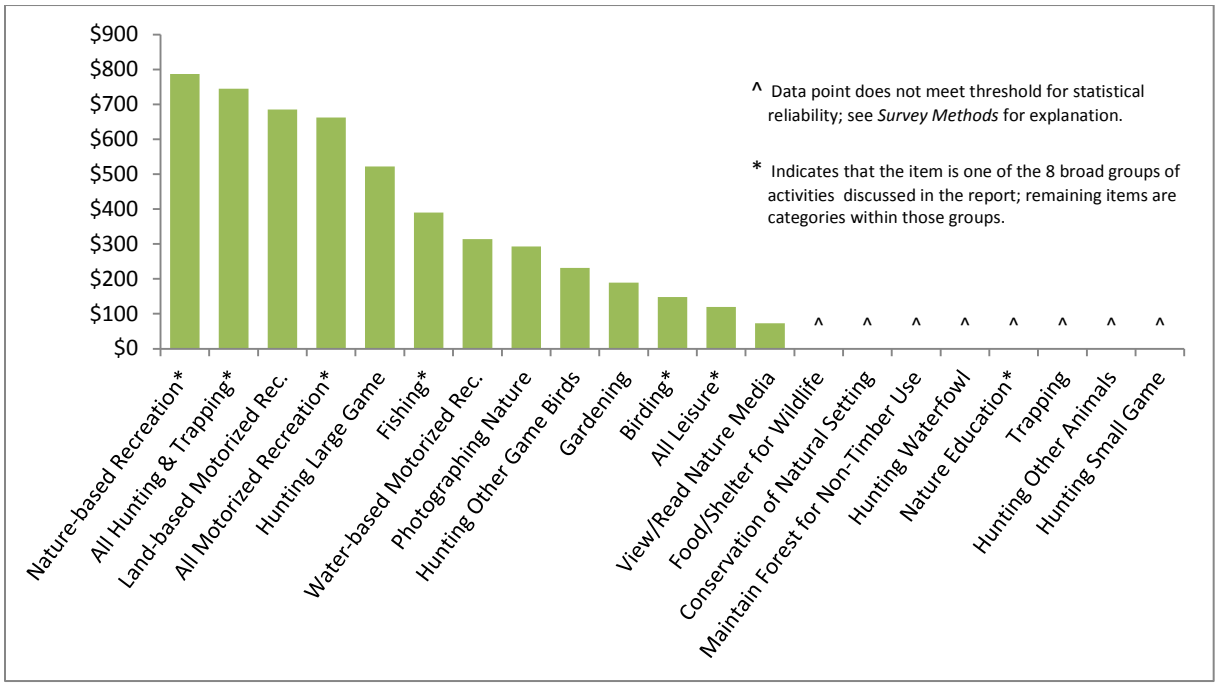
Total expenditures ($8.9 billion) were significant in Quebec in the previous 12 months as a result of the large population; per-person expenditures were generally consistent with national averages, averaging $1,696 per person compared the national average of $1,757.

Nature-based recreation activities ($787) and land-based motorized recreation ($685) were the highest spending activities. Alternatively, participants spent minimally on most leisure (e.g., multimedia activities).

[162] The grand total includes expenditures that are not categorized by expense type, including multimedia purchases and spending on nature conservation activities. Therefore, the percentages by expense type may not sum to 100%.

[163] The grand total for expenditures is calculated as an independent figure, equal to the sum of all component totals, and was independently screened for reliability. Consequently, the grand total includes expenditure amounts for all component activities, including those that were individually below the reliability threshold, see *Survey Methods: Statistical Reliability*.

Figure 59: Average Yearly Expenditures by Activity Type for Residents of Quebec in the Previous 12 Months



Daily expenditures by participants in the various activities ranged from $12 (gardening) to $61 (hunting large game) per day. Birding ($12) and gardening ($12) were the lowest daily-expenditure activities, which is consistent with national trends for each. In addition to hunting large game ($61), fishing ($60) was also a significant per-day expenditure.

Table 54: Average Daily Expenditures by Activity Type for Residents of Quebec in the Previous 12 Months

Activity	Daily Expenditure
Hunting Large Game	$61
Fishing	$60
Hunting Other Game Birds	$47
Land-based Motorized Recreation	$47
Water-based Motorized Recreation	$39
Photographing Nature	$36
Nature-based Recreation	$17
Birding	$12
Gardening/Landscaping	$12
Hunting Waterfowl	^
Trapping	^
Nature Education	^
Hunting Small Game	^
Hunting Other Animals	^

^ Data point does not meet threshold for statistical reliability. See *Survey Methods* for explanation.

NATURE CONSERVATION

The *2012 Canadian Nature Survey* collected information about different types of nature conservation in several different survey sections. This section reports results from the survey section entitled "Nature Conservation" which asked about membership and support of nature organizations, participation in volunteer nature conservation activities, and nature conservation at home. (see *Appendix B: Survey Instrument*).

Canadians were asked to provide the total number of days that they participated in several different types of voluntary nature conservation activities away from their residence in the previous 12 months. In Quebec, 17 percent of adults participated in at least one volunteer nature conservation activity for at least one day. Of those who participated, the average number of days of participation within the previous 12 months across all activities was 35.6 days.

Nearly two-thirds (65%) of Quebec residents who volunteer in nature-related activities indicated that their nature-related volunteer involvement has stayed the same over the past five years. Responses that reported increased and decreased involvement were not sufficient to generate a statistically reliable provincial estimate, as were the responses to how residents organize their time for volunteer activities.

Ten percent of Quebecers reported participating in citizen science activities in the previous 12 months. Citizen science encompasses activities of volunteers who perform or manage research-related tasks such as wildlife or habitat observation, measurement, or assessment.

"Lack of time" was the reason provided by 40% of Quebec respondents when asked what prevented them from participating in volunteer nature conservation activities during the previous 12 months. The next most common responses were "personal choice" (39%), "I was not aware of an opportunity" (28%), and "personal health" (14%).

Human-Wildlife Conflicts

The *2012 Canadian Nature Survey* collected data about the interactions between humans and wildlife. Some of these interactions can be negative. Wildlife managers refer to "human-wildlife conflict" as any interaction between wild animals (whether small or large) and humans which causes harm, whether to the animal, human, or property (including pets or livestock). This conflict can happen in urban, rural, or wilderness settings.

Twelve percent of Quebec residents reported that a wild animal posed a threat to their safety or to the safety of people, pets, or farm animals in their care at home or in the community; and 18% reported that a wild animal caused damage to their personal property. Of those who experienced threat or damage, the most frequently cited (75%) type of animal involved was a small mammal (e.g., groundhog, skunk or raccoon), followed by a bird (14%).

As shown in *Table 55*, about one in three (35%) Quebec residents who experienced threat or damage "took no action" as a result of the incident. For those who did act, the most common action was to "remove or relocate items known to attract 'friendly' wildlife" (28%). This was followed by "fenced off or otherwise protected my property" (19%) and "put out live traps/ humane removal" (15%).

Table 55: Actions Taken As a Result of the Problem

Options Listed in Survey	Quebec	
	Population Estimate	Percent
I took no action	647,437	35%
Removed or relocated items known to attract friendly wildlife	516,519	28%
Fenced-off or otherwise protected my property	354,978	19%
Put out live traps / humane removal	267,491	15%
Followed authorities recommended safety procedures	178,124	10%
Put out poison	^	^
Spoke to local wildlife management officials	^	^
Killed the animal believed to be a threat	^	^
Participated in local education and land use planning sessions on wildlife management	^	^
Other(Specify)	179,404	10%

^ Data point does not meet threshold for statistical reliability. See *Survey Methods* for explanation.

MIXED-SAMPLE DATA INSIGHTS

As reported in *Report Structure and Scope* and *Weighting*, most results in this report are based on the address-based sample results ***only***, as only these data allow for tests of significance and other statistical analysis. Because of the large number of web-panel surveys collected in Quebec however, the following section presents findings from all survey data, including Web panel and opt-in responses, as well as the address-based sample data. These findings are not compared to the address-based results presented elsewhere because inferential statistical analyses are not recommended when using the "combined" analysis weight, due to its unknown variance properties. In addition, the address-based data are a subset of the data presented in the "Mixed-Sample Data Insight" sections, so comparisons would involve substantial overlap. These findings are best viewed on their own as a way to provide additional perspective on the topics measured in this survey.

PARTICIPATION

When looking at all survey responses from Quebec combined (i.e., address-based and Web panel responses), 68% of Quebec respondents reported participating in nature-based recreation activities in the previous 12 months, 47% reported participating in nature-based leisure activities, and 47% reported participating in nature education activities. Somewhat lower proportions of Quebec respondents reported participating in motorized recreation activities (24%), conservation activities (22%), birding (22%), fishing (16%), and hunting/trapping (8%).

The most common way cited for participating in hunting, trapping, or fishing was "primarily for sport/recreation" (52%), followed by "licensed, not under Aboriginal treaty rights" (46%). The most common reason for not hunting was "don't like hunting, trapping/ not interested" (26%), followed by "lack of knowledge about hunting" (19%). The most common reasons cited for not fishing included "lack of time" (20%) and "lack of equipment" (17%).

With regard to the average participation days in nature-related activities, per participant, nature-based recreation had the highest number of participation days (74 near to home and 32 away from home), followed by birding (42 near to home and 29 away from home), nature-based leisure (34 near to home and 29 away from home), motorized recreation (39 near to home and 21 away from home), nature education (13 near to home and 13 away from home), and fishing (13 near to home and 12 away from home).

AWARENESS

When looking at all survey responses from Quebec combined (i.e., address-based and Web panel responses), 67% of Quebec respondents had heard of "biodiversity" and 61% had heard of "ecosystem services." Additionally, 65% of all respondents were aware that biodiversity contributes to ecosystem services.[164] Respondents were presented with a list of benefits arising from nature that are also known as "ecosystem services." They reported if, prior to the survey, they were aware that nature can be essential to each one. Of the 11 examples, awareness was 90% for "provide places for recreation, fitness and leisure," 89% for "filter water to keep it clean and safe," 89% for "produce oxygen and clean pollutants from the air," 88% for "keep soil fertile and productive," and 84% for "pollinate plants and crops to produce food." Awareness was lowest for "support human psychological and cognitive development" (58%) and "reduce or control the spread of many diseases" (59%). Eighteen percent of respondents reported that they had been directly affected by the loss of an ecosystem service. Of those respondents who reported a loss, the most commonly cited impact of the loss was "medical health" (29%), followed by "physical fitness" (25%), "economic well-being" (17%), "cultural heritage" (14%), "emotional, psychological, or spiritual well-being" (11%), and "other" (4%).

Most Quebec respondents (86%) had heard of the term "species at risk," and 20% had donated money on behalf of such species. When asked where their donation was targeted, the largest proportion of respondents (33%) reported donating to "specific species at risk nationally." This was followed by 14% that donated to "specific species at risk in my province," 14% to "species at risk in general", 12% to "habitat protection for species in my province," and 12% to "habitat protection for species anywhere in Canada." Approximately 40% of Quebec respondents reported taking some action to assist in the recovery of species at risk. The most

[164] Here the proportion of respondents who reported being aware that biodiversity contributes to ecosystem services is higher than the proportion of respondents who reported knowing the meaning of "ecosystem services." It is possible that some respondents may not have known the definition of the term "ecosystem services," but, after reading examples provided, they had a better understanding of what was meant by the term. Awareness of the concepts of biodiversity and ecosystem services and how they relate may therefore be understood independently of the definitions of these terms.

commonly selected action was “changing how I use the land or place where I live to avoid impacts on the habitat of these species” (21%).

HUMAN-WILDLIFE INTERACTIONS

When looking at all survey responses from Quebec combined (i.e., address-based and Web panel responses), 20% of Quebec respondents reported that wild animals posed a threat within the previous 12 months. About the same percentage (22%) reported that wild animals caused damage to their personal property. Of these respondents, 38% reported that the conflict occurred in an area where nearby housing developments recently expanded into a formerly natural area. The most often cited kind of animal involved in the conflict was a small mammal (68%), followed by a bird (23%).

As a result of this conflict, 71% of Quebec respondents reported taking some kind of action. The most commonly cited actions included removing or relocating items known to attract friendly wildlife (28%) and following authorities’ recommended safety procedures (20%). Slightly more than half (54%) of all Quebec respondents were aware of laws or accepted guidelines about feeding wildlife.

4.12 SASKATCHEWAN

This Provincial Report presents findings from the *2012 Canadian Nature Survey* for the Province of Saskatchewan (SK). This section will cover residents' connection to nature and awareness of key concepts, their interactions with wildlife, and their involvement in nature-based activities. Results in this section are based on the address-based sample results only, as only these data allow for tests of significance and other statistical analysis (see *Survey Methods*). 1,329 completed address-based surveys from Saskatchewan were received, out of a total sample of 7,161; the survey response rate[165] for the province was 19 percent. This is representative of the estimated total adult population of 792,710 adult residents[166], with a statistical reliability of +/-2.7%,[167] at 95% confidence. When a figure is shown with a "^" symbol it indicates that the figure does not meet ICF's analytical threshold for statistical reliability (see *Survey Methods: Statistical Reliability* for explanation.)

CONNECTION TO NATURE & AWARENESS

The *2012 Canadian Nature Survey* sought to understand the extent to which residents of Saskatchewan are connected to nature. Survey results show that under half of Saskatchewanians (44%) chose where they live partly to have access to nature. Twenty-two percent of residents reported that their income relies on a nature-related profession, with 12% reporting "farming" as a primary source of income.

BIODIVERSITY AND ECOSYSTEM SERVICES

Respondents were provided with definitions of the terms "biodiversity" and "ecosystem services" and then asked if, before the day that they completed the survey, they had heard of each of these concepts. In Saskatchewan, awareness of the terms "biodiversity" and "ecosystem services" was high. Over three-quarters (79%) Saskatchewan residents had heard of the term "biodiversity" while two-thirds (69%) were aware of the term "ecosystem services" prior to survey administration.

While awareness of the term "ecosystem services" was high, even more residents were aware of examples of ecosystem services, or ways that nature can provide benefits. Between 95% and 98% of residents were aware that nature can be essential to:

- Produce oxygen and clean pollutants from the air;
- Keep soil fertile and productive;
- Provide places for recreation, fitness and leisure;
- Filter water to keep it clean and safe; and
- Pollinate plants and crops to produce food.

Fewer residents (69%) were aware that nature can be essential to "reduce or control the spread of many diseases."

Additionally, 79% of Saskatchewanians were aware that biodiversity contributes to ecosystem services and provides life support and other important benefits to people.[168]

Eighteen percent of Saskatchewan residents reported being directly affected, during the previous 12 months, by the loss of an ecosystem service that would normally have been provided by nature. Responses to the question about how the loss affected residents (of who experienced a loss) were not sufficient to generate a provincially reliable estimate.

[165] See *Response Rates* for details regarding the computation of response rates.
[166] Survey respondents were individual adults, age 18 and over, see *Survey Methods, Sampling* for details.
[167] This margin of error does not account for design effects due to the complex survey design used in the 2012 Canadian Nature Survey. The design effect varies for each estimate and may in some cases increase the margin of error. The margin of error will be wider for sub-analysis of activities in which only a small number of respondents participate. All reported estimates have been screened for minimum reliability (see *Survey Methods*).
[168] Here the proportion of respondents who reported being aware that biodiversity contributes to ecosystem services is higher than the proportion of respondents who reported knowing the meaning of "biodiversity" or "ecosystem services." It is possible that some respondents may not have known the definition of either term, but, after reading examples provided, they had a better understanding of what was meant by the terms. Awareness of the concepts of biodiversity and ecosystem services and how they relate may therefore be understood independently of the definitions of these terms.

Species at Risk

The *2012 Canadian Nature Survey* examined awareness of the term "species at risk" and actions taken to assist in the recovery of species at risk. Almost all Saskatchewan respondents (95%) reported they had heard of the term prior to taking the survey. Fifteen percent of residents reported donating money on behalf of species at risk in the previous twelve months. Of those who had donated money, about one in three (31%) donated if for "habitat protection for species anywhere in Canada."

Obtaining Information about Nature

Respondents were asked to report the three ways they most frequently obtain nature-related information. Saskatchewan residents were most likely (64%) to report that they "watch visual media." This was followed by "read publications" (61%), obtain information "from conversations" (45%), "through personal experience" (39%), and "read informal communications" (20%).

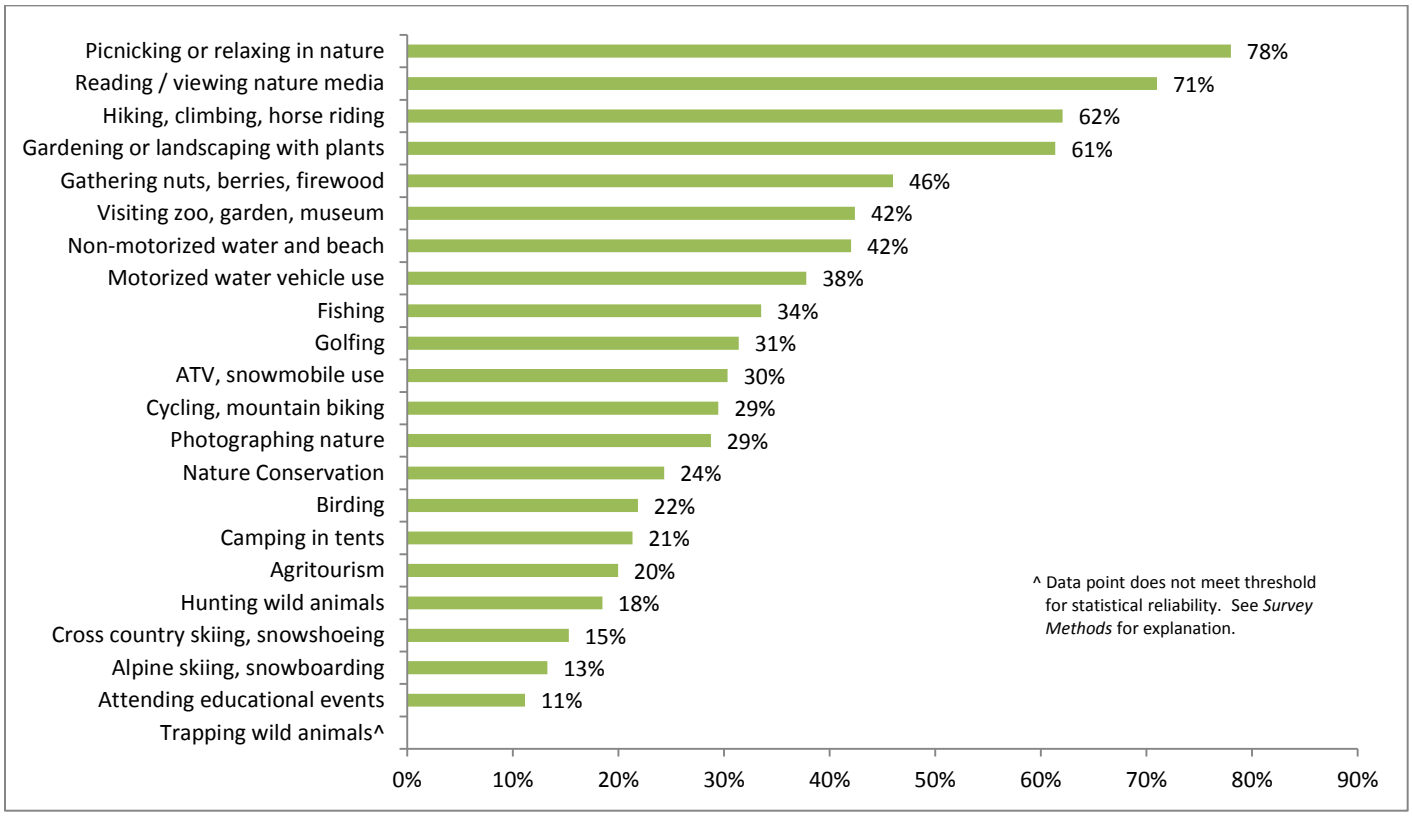
When asked about their most frequent sources of information, Saskatchewan residents reported "friends, family or colleagues" (61%), "journalists/media writers" (52%), "the government" (39%), "conservation groups" (36%), "scientists" (25%), and "teachers/ educators" (16%).

Nature-Based Activities

The largest section of the *2012 Canadian Nature Survey* questionnaire was devoted to collecting information about respondents' participation in nature-based activities in Canada during the 12 months prior to completing the survey, and collecting information about related expenses. For a complete listing of the activities that the survey addressed, and for how they are organized into groups for analysis in this report, see *Appendix A: Activities Crosswalk.* For a discussion of the methodology used to produce participation rates, see *Survey Methods: Participation Analysis* and *Chapter 2: Nature-based Activities, Participation and Expenditures*.

As shown in *Figure 60*, the largest proportion (78%) of Saskatchewan residents reported "picnicking or relaxing in nature" in the previous 12 months. This was followed by "reading or viewing nature media" (71%).

Figure 60: Percentage of Saskatchewan Residents Age 18 and Over Participating in Nature-related Activities

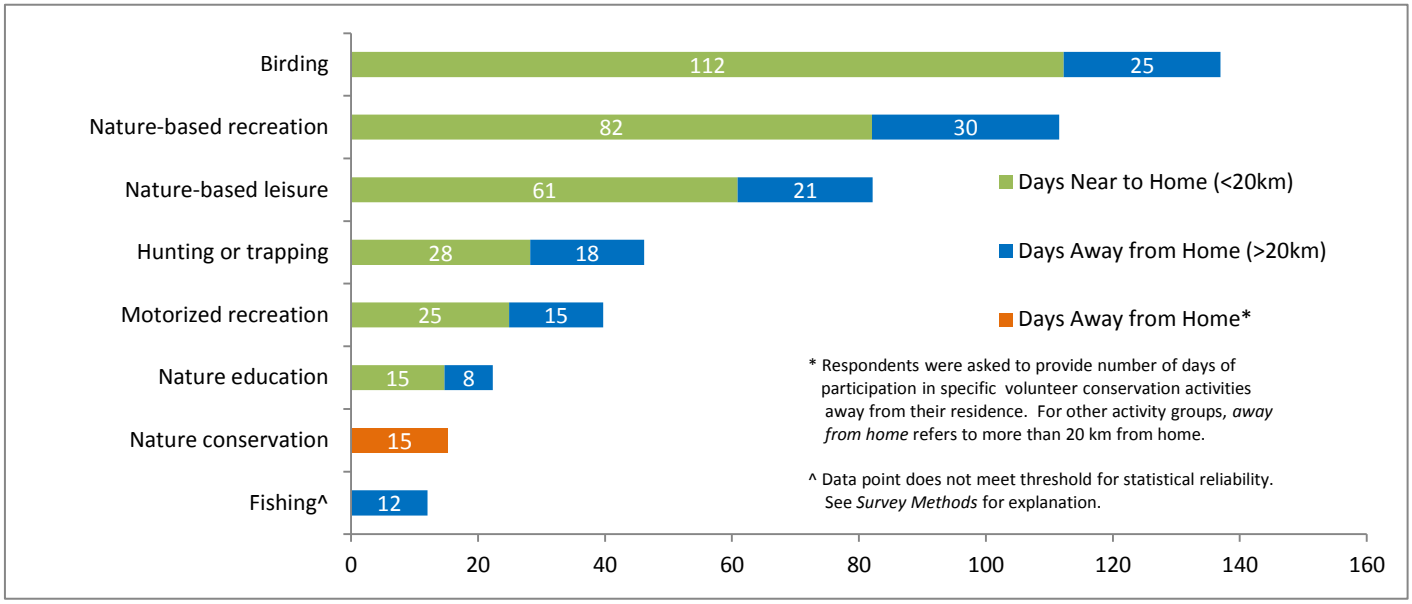


In addition to participation rates, the *2012 Canadian Nature Survey* also collected data on the amount of participation in nature-related activities. For most activities, respondents were asked to report the number of days that they spent participating in each activity in the previous 12 months in Canada, both within 20 km from their home, and more than 20 km away. Participation days are not necessarily mutually exclusive; respondents may participate in more than one nature-based activity in one calendar day. For conservation activities, the question was structured differently. Respondents were asked to report the number of days they spent engaged in a volunteer nature conservation activity away from their residence (either in their community or away from their community); these are presented in orange in *Figure 61* to highlight this difference.

Figure 61 shows the average number of days near to home (within 20 km) and away from home (more than 20 km away) that participants in each activity spent engaged in that activity (referred to as "participant days"). In this figure, activities are organized into eight broad activity groups (see *Appendix A: Activities Crosswalk* for examples of activities within each group).

Near to home, "birding" had the highest number of participant days (an average of 112). Away from home "nature-based recreation" had the highest number of participant days (an average of 30 days). When considering total days spent near home and away, here again, birding (137 days) and nature-based recreation (112 days) were the most popular activities.

Figure 61: Average Participation Days in Nature-related Activities, Near Home and Away from Home, Per Participant



HUNTING, TRAPPING, AND FISHING

Saskatchewan residents who reported participating in hunting, trapping, or fishing during the previous 12 months were asked if the activity had been: "under Aboriginal treaty rights," "licensed (not under Aboriginal rights)," "unlicensed," "primarily for sport/recreation," and/or "primarily for personal use or sharing." Respondents were asked to indicate all options that applied. The first three response categories provided (licensed, unlicensed, and Treaty rights) are *access options* which are normally mutually exclusive. However, the two *use options* response categories (primarily sport/recreation or primarily personal) can apply to any of the three access options.

The most commonly cited access option was "licensed, but not under Aboriginal treaty rights" (67%). The most commonly cited use option was "primarily for sport/recreation" (66%), followed by "primarily for personal use or sharing" (51%).

Respondents who indicated that they had not participated in hunting, trapping, or fishing activities were asked to indicate the reason for not participating. The top three reasons why Saskatchewan residents did not hunt or trap in the previous 12 months were "do not like hunting/trapping/not interested" (46%), "lack of time" (15%), and "lack of knowledge" (12%). These percentages are quite close to national results, with 41% reporting they "do not like hunting/trapping/not interested," 17% citing "lack of knowledge," and 14% citing "lack of time."

The top reasons given for not participating in fishing were "do not like fishing/not interested" (25%), and "lack of time" (25%). Nationally, 31% reported they "don't like fishing/ are not interested" and 20% cited a "lack of time."

NATURE-BASED TRAVEL

Saskatchewan residents reported the number of trips they made within Canada over the course of the previous 12 months that were farther than 20 km (one way) from their home, for which the main reason was to participate in nature-based activities for recreation, leisure, hunting, trapping, or fishing for personal use. Residents who partook in these trips reported an average of 19.4 same-day trips and 9.3 overnight trips. The most often-cited trip duration was a trip that lasted "between 2 and 4 days, with an overnight stay" (33%), followed by 27 percent who most often stayed "during one day, no overnight". Over the previous 12 months, Saskatchewan residents stayed an average of 24 at the three places farther than 20 km from their homes that they were most likely to visit. If the location where residents made such trips was a national park, provincial park, or other protected area, the places where they spent the most time were Prince Albert National Park, Banff National Park, Cypress Hills Interprovincial Park, Jasper National Park, and Meadow Lake Provincial Park.

Almost three in 10 (28%) Saskatchewan residents reported owning or using a personal or family secondary property in Canada, such as a cottage, camp, or cabin. During the same time period, they reported spending an average of 24.3 days at that cottage, camp, or cabin. Frequently mentioned activities while at the property include hiking/walking, fishing, and boating (including canoeing and kayaking).

ECONOMIC ANALYSIS

Residents of Saskatchewan spent over $1.5 billion on nature-related activities and services in the previous 12 months[169], making Saskatchewan the fifth-highest spending province on nature-related activities. Saskatchewan is also the fifth-highest spending province by average expenditure per-person ($2,212). Four percent of all the nature-related expenditures covered within the scope of this survey in Canada in the previous 12 months were spent by residents of Saskatchewan.

EXPENDITURES BY ACTIVITY AND EXPENSE TYPE

Nature-related expenditures by expense type followed national averages: equipment, fees and supplies comprised 36%, transportation comprised 31%, and food and accommodation comprised 13% each. 3% of expenses were attributable to conservation.[170]

Nature-based recreation activities were large in the previous 12 months, totaling $411 million, or 27% of expenditures, though still below the national average of 36%. Nature-based leisure and motorized recreation each accounted for $274 million in expenditures, or 18% each.

[169] The 12-month period was unique for each respondent depending exactly on when the respondent completed the questionnaire. However, the period can be expected to cover a period beginning October 2011 and ending May 2013.

[170] The data used to estimate this amount is based on options 1 through 3 of survey question 42, a limited scope that does not include donations or membership dues to nature organizations, or expenditures incurred in any volunteer activity away from respondents' residences. It is not based on the same categories of expenditures used for most other activities in the survey (transportation, accommodation, food, equipment, fees, and supplies) that are often associated with a 'travel cost' type of analysis.

Table 56: Nature-Related Expenditures by Residents of Saskatchewan by Activity and Expenditure Type in the Previous 12 Months ($million)[171]

Activity	Transportation		Accommodation		Food		Equipment, Fees & Supplies		Total ($M)
	Total ($M)	%	Total ($M)	%	Total ($M)	%	Total ($M)	%	
Nature-based Recreation	$135	33%	$89	22%	$72	18%	$115	28%	**$411**
Nature Education	$39	43%	$19	21%	$19	21%	*$15^*	16%	**$92**
Nature-Based Leisure	$43	16%	$14	5%	$16	6%	$135	49%	**$274**
Photographing Nature	$34	32%	$14	13%	$13	12%	*$47^*	44%	$108
Gardening/Landscaping	$9	9%	*$1^*	1%	$2	2%	$88	88%	$101
Nature Media	-	-	-	-	-	-	-	-	$65
Birding	*$13^*	38%	*$1^*	3%	*$5^*	15%	*$15^*	44%	***$34^***
Motorized Recreation	$91	33%	*$23^*	8%	$27	10%	*$134^*	49%	**$274**
Land-based	$45	31%	$9	6%	$12	8%	*$78^*	54%	$144
Water-based	$46	35%	$14	10%	$15	12%	*$56^*	43%	$130
Hunting & Trapping	*$86^*	37%	*$19^*	8%	*$28^*	12%	$99	43%	***$232^***
Hunting Waterfowl	*$14^*	34%	*$1^*	1%	*$4^*	11%	*$21^*	54%	*$40^*
Hunting Other Game Birds	*$15^*	35%	*$7^*	15%	*$7^*	16%	*$15^*	33%	*$44^*
Hunting Small Game	$3	49%	*$0^*	0%	$1	18%	*$2^*	33%	$6
Hunting Large Game	$49	37%	*$11^*	9%	*$15^*	12%	*$56^*	43%	$132
Hunting Other Animals	*$1^*	68%	*$0^*	0%	*$0^*	6%	*$0^*	26%	*$1^*
Trapping	*$4^*	44%	*$0^*	0%	*$1^*	8%	*$5^*	48%	*$10^*
Fishing	*$76^*	41%	*$39^*	21%	*$28^*	15%	$43	23%	***$187^***
Nature Conservation (on private land)	-	-	-	-	-	-	-	-	***$43^***
Food/Shelter for Wildlife	-	-	-	-	-	-	-	-	*$32^*
Conserve Natural Setting	-	-	-	-	-	-	-	-	*$10^*
Maintain Forest for non-timber use	-	-	-	-	-	-	-	-	*$1^*
Total	**$484**	**31%**	**$203**	**13%**	**$195**	**13%**	**$556**	**36%**	**$1,547**[172]

^ Data point does not meet threshold for statistical reliability due to the number of respondents who participated in a given activity or who provided responses to a given question. The screening threshold for statistical reliability applied to each data point was a minimum of 30 responses and a CV < .3. See *Survey Methods* for explanation.
- Category is not disaggregated by this expenditure type.
Percents are presented in terms of the share of expenditures for each activity.

Average Yearly and Average Daily Expenditures

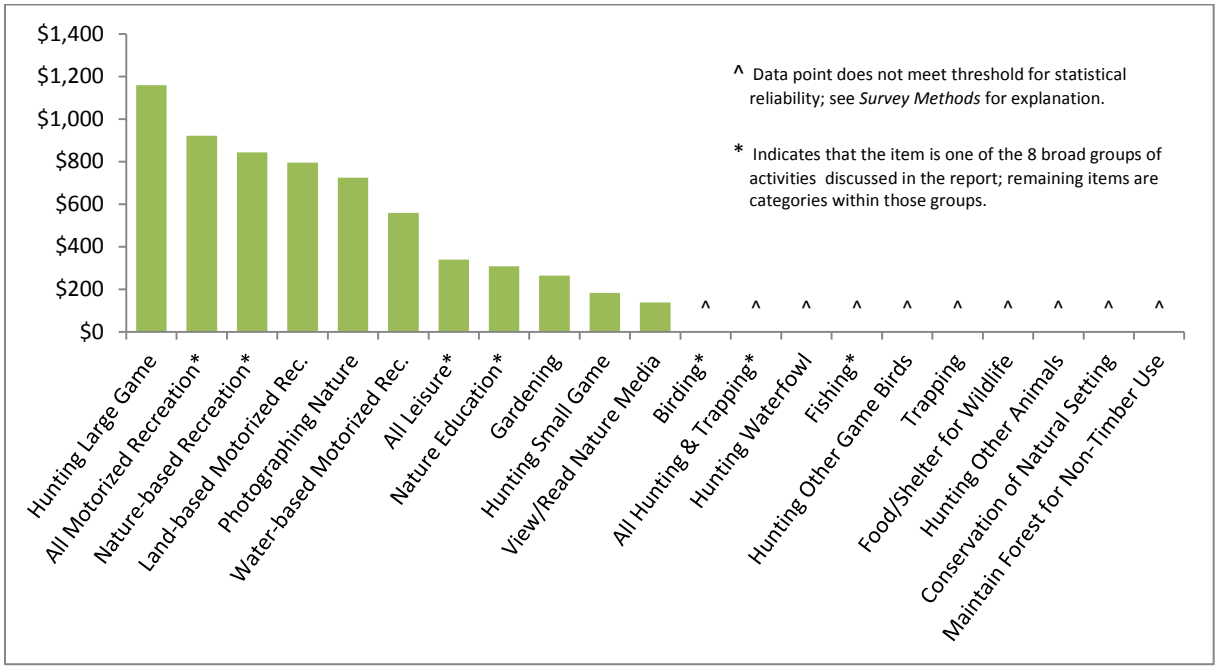
Residents of Saskatchewan who participated in nature-related activities spent, on average, $2,212 on all activities in the previous 12 months—$455 more than the national average.

Expenditures on hunting large game were substantial by participants—in which the average participant spent $1,158 each to participate. Participants in nature-based recreation ($843) and land-based motorized recreation ($795) spent significantly over the course of the year. Average expenditures on the leisure activities (e.g., multimedia) were low.

[171] The grand total includes expenditures that are not categorized by expense type, including multimedia purchases and spending on nature conservation activities. Therefore, the percentages by expense type may not sum to 100%.

[172] The grand total for expenditures is calculated as an independent figure, equal to the sum of all component totals, and was independently screened for reliability. Consequently, the grand total includes expenditure amounts for all component activities, including those that were individually below the reliability threshold, see *Survey Methods: Statistical Reliability*.

Figure 62: Average Yearly Expenditures by Activity Type for Residents of Saskatchewan in the Previous 12 Months



Daily expenditures by participants ranged from $11 (gardening) to $72 (hunting large game). The high daily expenditures for the hunting activities are consistent with trends seen nationally and in most other provinces and territories.

Table 57: Average Daily Expenditures by Activity Type for Residents of Saskatchewan in the Previous 12 Months

Activity	Daily Expenditure
Hunting Large Game	$72
Hunting Small Game	$59
Photographing Nature	$56
Water-based Motorized Recreation	$51
Land-based Motorized Recreation	$42
Nature Education	$41
Nature-based Recreation	$20
Gardening/Landscaping	$11
Trapping	^
Hunting Waterfowl	^
Hunting Other Game Birds	^
Fishing	^
Birding	^
Hunting Other Animals	^

^ Data point does not meet threshold for statistical reliability. See *Survey Methods* for explanation.

NATURE CONSERVATION

The *2012 Canadian Nature Survey* collected information about different types of nature conservation in several different survey sections. This section reports results from the survey section entitled "Nature Conservation" which asked about membership and support of nature organizations, participation in volunteer nature conservation activities, and nature conservation at home. (see *Appendix B: Survey Instrument*).

Canadians were asked to provide the total number of days that they participated in several different types of voluntary nature conservation activities away from their residence in the previous 12 months. In Saskatchewan, 24 percent of adults participated in

at least one volunteer nature conservation activity for at least one day. Of those who participated, the average number of days of participation within the previous 12 months across all activities was 15.3 days.

The most common way that residents organize their time for volunteer nature conservation activities is to "volunteer occasionally when it interests them" (reported by 24% of respondents who volunteer). The majority (66%) of Saskatchewanians who volunteer in nature-related activities indicated that their nature-related volunteer involvement has stayed the same over the past five years and 15% reported an increase; responses that reported a decrease were not sufficient to generate a statistically reliable provincial estimate.

Twelve percent of residents reported participating in citizen science activities in the previous 12 months. Citizen science encompasses activities of volunteers who perform or manage research-related tasks such as wildlife or habitat observation, measurement, or assessment.

"Lack of time" was the reason provided by 46% of Saskatchewan respondents when asked what prevented them from participating in volunteer nature conservation activities during the previous 12 months. The next most common responses were "I was not aware of an opportunity" (36%), "personal choice" (27%), "personal health" (13%).

HUMAN-WILDLIFE CONFLICTS

The *2012 Canadian Nature Survey* collected data about the interactions between humans and wildlife. Some of these interactions can be negative. Wildlife managers refer to "human-wildlife conflict" as any interaction between wild animals (whether small or large) and humans which causes harm, whether to the animal, human, or property (including pets or livestock). This conflict can happen in urban, rural, or wilderness settings.

Twenty-eight percent of Saskatchewan residents reported that a wild animal posed a threat to their safety or to the safety of people, pets, or farm animals in their care at home or in the community; 21 percent reported that a wild animal caused damage to their personal property. Of those who experienced threat or damage, the most frequently cited type of animal involved was a small mammal (47%) (e.g., groundhog, skunk or raccoon), followed by deer, elk or moose; (45%), and coyote or wolf (38%).

As shown in *Table 58*, 44% of Saskatchewan residents who experienced threat or damage "took no action" as a result of the incident. For those who did act, the most common actions were to "follow authorities' recommended safety procedures" (13% of all respondents), "remove or relocate items known to attract friendly wildlife" (11%) and "kill the animal believed to be a threat" (9%).

Table 58: Actions Taken As a Result of the Problem

Options Listed in Survey	Saskatchewan	
	Population Estimate	Percent
I took no action	130,189	44%
Followed authorities recommended safety procedures	38,823	13%
Removed or relocated items known to attract friendly wildlife	31,032	11%
Killed the animal believed to be a threat	26,777	9%
Spoke to local wildlife management officials	^	^
Put out poison	^	^
Participated in local education and land use planning sessions on wildlife management	^	^
Fenced-off or otherwise protected my property	^	^
Put out live traps / humane removal	^	^
Other(Specify)	32,304	11%

^ Data point does not meet threshold for statistical reliability. See *Survey Methods* for explanation.

4.13 YUKON

This Territorial Report presents findings from the *2012 Canadian Nature Survey* for Yukon Territory (YT). This section will cover residents' connection to nature and awareness of key concepts, their interactions with wildlife, and their involvement in nature-based activities. Results in this section are based on an address-based sample results only (see *Survey Methods*). 1,538 completed address-based surveys from Yukon were received, out of a total sample of 7,159; the survey response rate[173] for the territory was 21 percent. This is representative of the estimated total adult population of 26,730 adult residents[174], with a statistical reliability of +/- 2.5%,[175] at 95% confidence. When a figure is shown with a "^" symbol it indicates that the figure does not meet ICF's analytical threshold for statistical reliability (see *Survey Methods: Statistical Reliability* for explanation.)

CONNECTION TO NATURE & AWARENESS

The *2012 Canadian Nature Survey* sought to understand the extent to which residents of Yukon are connected to nature. Survey results show that 84% of Yukoners chose where they live partly to have access to nature, a higher proportion than any other province or territory. Twenty-one percent of residents reported that their income relies on a nature-related profession with 5% of all respondents reporting earning their livelihood from "environmental science," 4% from "wildlife management;" and 3% from "nature-based recreation or tourism," "environmental consultation" or "forestry."

BIODIVERSITY AND ECOSYSTEM SERVICES

Respondents were provided with definitions of the terms "biodiversity" and "ecosystem services" and then asked if, before the day that they completed the survey, they had heard of each of these concepts. In Yukon, awareness of the terms "biodiversity" and "ecosystem services" was high. Ninety-four percent of Yukon residents had heard of the term "biodiversity," while about two-thirds (65%) were aware of the term "ecosystem services" prior to survey administration.

While awareness of the term "ecosystem services" was high, even more Yukon residents were aware of examples of ecosystem services, or ways that nature can provide benefits. Almost all (99%) of the respondents were aware that nature is essential to "provide places for recreation, fitness and leisure" and "produce oxygen and clean pollutants from the air." Ninety-eight percent of Yukoners reported knowing that nature can be essential to "filter water to keep it clean and safe" and "keep soil fertile and productive." Fewer Yukon residents were aware that nature can be essential to:

- Protect communities and property from storm impacts (85%);
- Support human psychological and cognitive development (85%); and
- Reduce or control the spread of many diseases (73%).

Additionally, 90% of Yukon residents were aware that biodiversity contributes to ecosystem services and provides life support and other important benefits to people.[176]

Twenty-five percent of Yukoners reported being directly affected, during the previous 12 months, by the loss of an ecosystem service that would normally have been provided by nature. Of those who reported a loss, the majority (59%) cited "emotional, psychological, or spiritual well-being" as the option that most closely matched how the loss affected them; this was followed by "physical fitness" (10%).[177]

[173] See *Response Rates* for details regarding the computation of response rates.
[174] Survey respondents were individual adults, age 18 and over, see *Survey Methods, Sampling* for details.
[175] This margin of error does not account for design effects due to the complex survey design used in the 2012 Canadian Nature Survey. The design effect varies for each estimate and may in some cases increase the margin of error. The margin of error will be wider for sub-analysis of activities in which only a small number of respondents participate. All reported estimates have been screened for minimum reliability (see *Survey Methods*).
[176] Here the proportion of respondents who reported being aware that biodiversity contributes to ecosystem services is higher than the proportion of respondents who reported knowing the meaning of "ecosystem services." It is possible that some respondents may not have known the definition of the term "ecosystem services," but, after reading examples provided, they had a better understanding of what was meant by the term. Awareness of the concepts of biodiversity and ecosystem services and how they relate may therefore be understood independently of the definitions of these terms.
[177] See *Appendix B: Survey Instrument*, for how the question was worded, and for the complete list of options provided.

Species at Risk

The *2012 Canadian Nature Survey* examined awareness of the term "species at risk" and actions taken to assist in the recovery of species at risk. Almost all Yukon respondents (97%) reported they had heard of the term prior to taking the survey. Fifteen percent of residents reported donating money on behalf of species at risk in the previous twelve months.

Obtaining Information about Nature

Respondents were asked to report the three ways they most frequently obtain nature-related information. Seventy-one percent of Yukon residents reported that they "read publications," 57% obtained information through "personal experience," 53% watched "visual media", 50% "from conversations" and 29% by reading "informal communications."

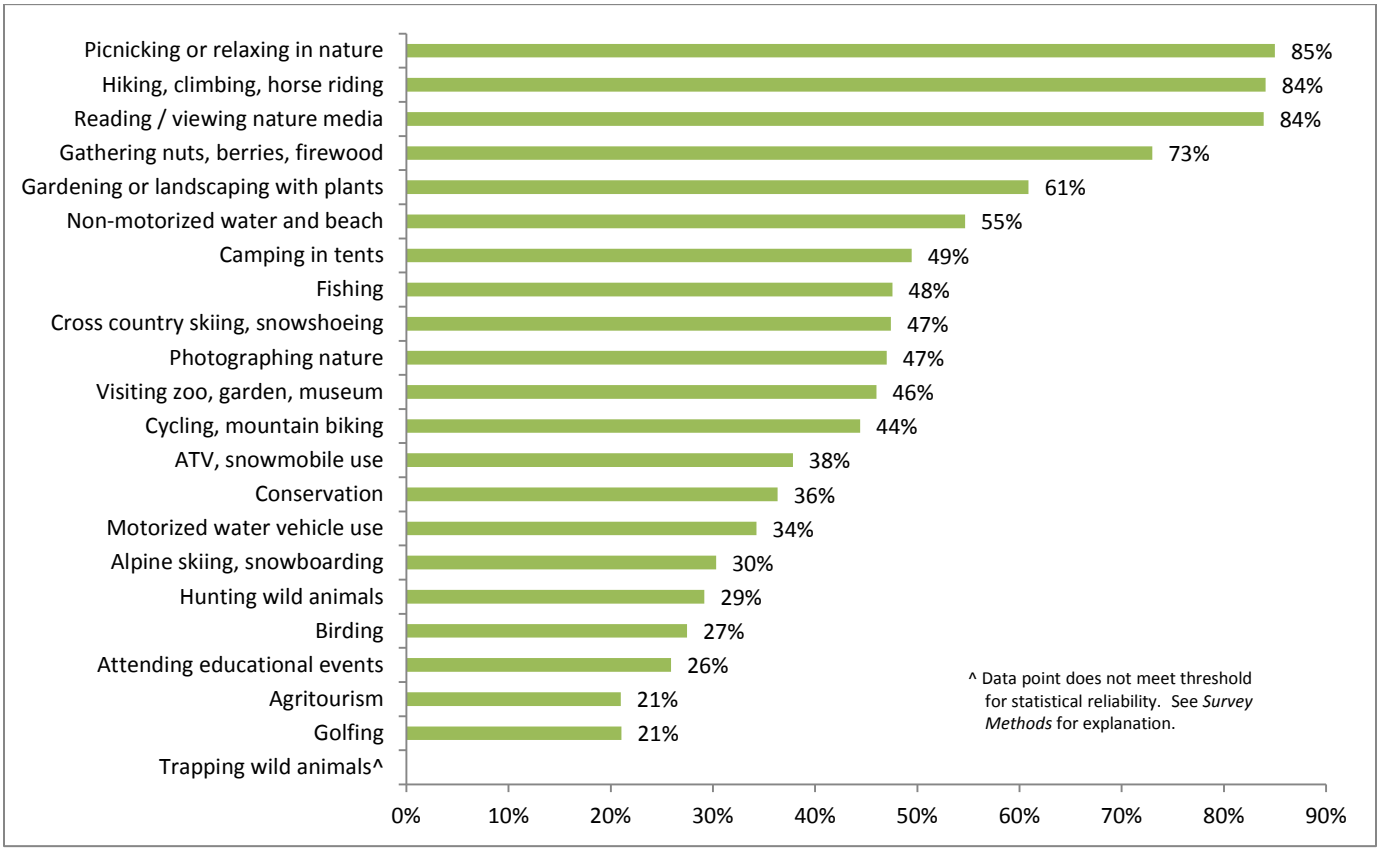
Asked about their most frequent sources of information, Yukon residents reported "friends, family, or colleagues" (63%), "journalists/media writers" (58%), "conservation groups" (47%), "the government" (46%), "scientists" (32%), and "teachers/ educators" (15%).

Nature-Based Activities

The largest section of the *2012 Canadian Nature Survey* questionnaire was devoted to collecting information about respondents' participation in nature-based activities in Canada during the 12 months prior to completing the survey, and collecting information about related expenses. For a complete listing of the activities that the survey addressed, and for how they are organized into groups for analysis in this report, see *Appendix A: Activities Crosswalk.* For a discussion of the methodology used to produce participation rates, see *Survey Methods: Participation Analysis* and C*hapter 2: Nature-based Activities, Participation and Expenditures*.

As shown in *Figure 63*, 85% of Yukon residents reported "picnicking or relaxing in nature" while (83%) reported both "hiking, climbing, or horse riding" and "reading or viewing nature media" in the previous 12 months.

Figure 63: Percentage of Yukon Residents Age 18 and Over Participating in Nature-related Activities

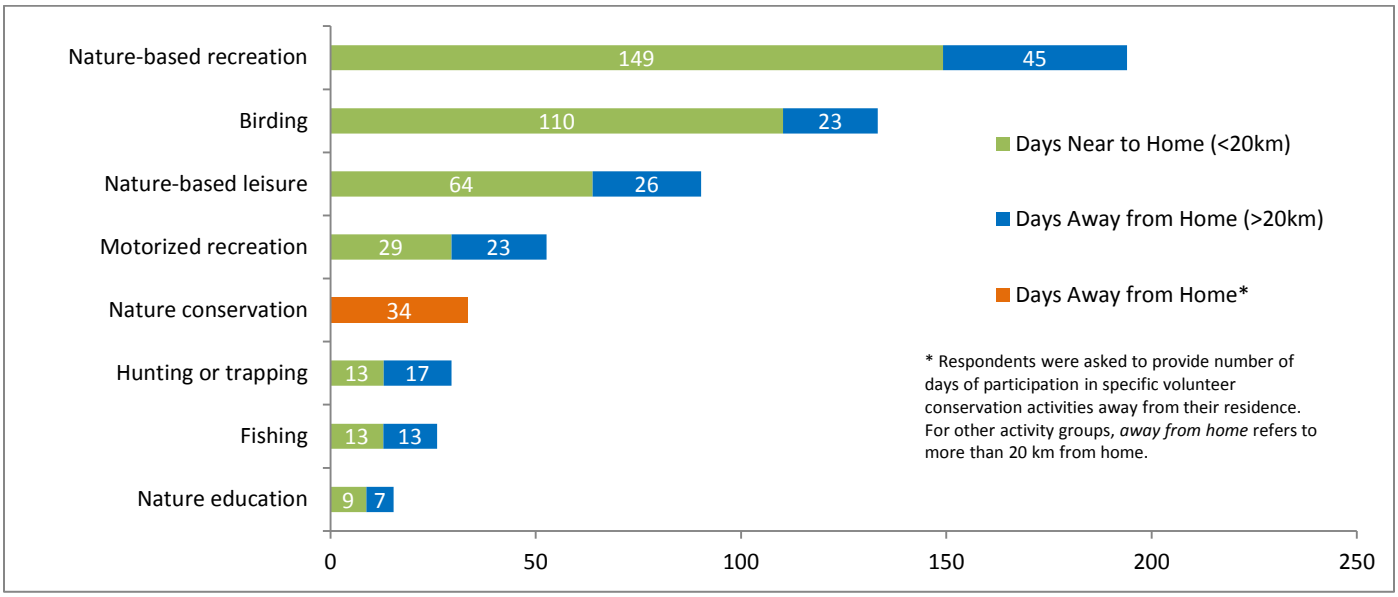


In addition to participation rates, the *2012 Canadian Nature Survey* also collected data on the amount of participation in nature-related activities. For most activities, respondents were asked to report the number of days that they spent participating in each activity in the previous 12 months in Canada, both within 20 km from their home, and more than 20 km away. Participation days are not necessarily mutually exclusive; respondents may participate in more than one nature-based activity in one calendar day. For conservation activities, the question was structured differently. Respondents were asked to report the number of days they spent engaged in a volunteer nature conservation activity away from their residence (either in their community or away from their community); these are presented in orange in *Figure 64* to highlight this difference.

Figure 64 shows the average number of days near to home (within 20 km) and away from home (more than 20 km away) that participants in each activity spent engaged in that activity (referred to as "participant days"). In this figure, activities are organized into eight broad activity groups (see *Appendix A: Activities Crosswalk* for examples of activities within each group).

Participants of "nature-based recreation" engaged in this activity more days per participant in the previous 12 months than any other activity group, both near to home (with an average of 149 days), and away from home (with an average of 45 days). When considering total days spent near home and away, nature-based recreation (194 days) and birding (133 days) and were the most popular activities.

Figure 64: Average Participation Days in Nature-related Activities, Near Home and Away from Home, Per Participant



Hunting, Trapping, and Fishing

Yukon residents who reported participating in hunting, trapping, or fishing during the previous 12 months were asked if the activity had been: "under Aboriginal treaty rights," "licensed (not under Aboriginal rights)," "unlicensed," "primarily for sport/recreation," and/or "primarily for personal use or sharing." Respondents were asked to indicate all options that applied. The first three response categories provided (licensed, unlicensed, and Treaty rights) are *access options* which are normally mutually exclusive. However, the two *use options* response categories (primarily sport/recreation or primarily personal) can apply to any of the three access options.

The most commonly cited access option was "licensed, but not under Aboriginal treaty rights" (65%). The most commonly cited use option was "primarily for personal use or sharing" (66%), followed by "primarily for sport/recreation" (35%).

Respondents who indicated that they had not participated in hunting, trapping, or fishing activities were asked to indicate the reason for not participating. The top three reasons that Yukon residents did not hunt or trap were "do not like hunting/trapping; not interested" (31%), "lack of time" (20%) and "lack of knowledge" (19%). These percentages are similar to national results, with 41% reporting that they "do not like hunting/trapping/not interested," 17% citing "lack of knowledge" and 14 % reporting "lack of time."

The top reasons given for not participating in fishing were "lack of time" (21%) and "do not like fishing/are not interested" (20%). This order differs from national results, in which 31% reported they "don't like fishing/are not interested" and 20% cited a "lack of time."

NATURE-BASED TRAVEL

Yukon residents reported the number of trips they made within Canada over the course of the previous 12 months that were farther than 20 km (one way) from their home, for which the main reason was to participate in nature-based activities for recreation, leisure, hunting, trapping, or fishing for personal use. Yukoners reported an average of 20.1 same-day trips and 9.6 overnight trips. The most-cited trip duration was a trip that lasted "between 2 and 4 days, with an overnight stay" (32%), followed by 23% who most often stayed "during one day, no overnight" and 21% who stayed "parts of two days with one overnight stay." Over the previous 12 months, Yukon residents stayed an average of 47 days at the three places farther than 20 km from their homes that they were most likely to visit. If the location where residents made such trips was a national park, provincial park, or other protected area, the places where they spent the most time were Kluane National Park, Tombstone Territorial Park, Kusawa Territorial Park, Chilkoot Trail National Historic Site, and Banff National Park.

Nearly one-third (29%) Yukon residents reported owning or using a personal or family secondary property in Canada, such as a cottage, camp, or cabin. During the same time period, they reported spending an average of 24 days at that cottage, camp, or cabin. Frequently mentioned activities while at the property include hiking/walking, fishing, and boating (including canoeing and kayaking).

ECONOMIC ANALYSIS

Residents of Yukon spent $96 million on nature-related activities in the previous 12 months[178], ranking the territory last of all provinces and territories in terms of total such expenditures. Average annual per-person expenditures in the Yukon were high ($3,888), however, which ranked third for all provinces and territories. However, comparing the per-capita expenditures on nature-related activities in the previous 12 months in provinces and territories, Yukon ranked third in the country. Less than 1% of all nature-related expenditures in Canada in the previous 12 months were spent by residents of Yukon.

EXPENDITURES BY ACTIVITY AND EXPENSE TYPE

Expenditures in Yukon included $37 million on equipment, fees and supplies (39%), $31 million on transportation (32%), $12 million on food (13%), and $7 million on accommodation (7%). Comparatively, expenditures on transportation in terms of percent of total expenditures on nature-related activities were generally lower than in other provinces and territories. Additionally, 7% of expenses were attributable to conservation.[179]

Nature-based recreation ($35 million) accounted for 37% of all nature-related expenditures in Yukon. Motorized recreation expenditures ($18 million) were also substantial, the majority being from land-based motorized recreation ($11 million).

[178] The 12-month period was unique for each respondent depending exactly on when the respondent completed the questionnaire. However, the period can be expected to cover a period beginning October 2011 and ending May 2013.

[179] The data used to estimate this amount is based on options 1 through 3 of survey question 42, a limited scope that does not include donations or membership dues to nature organizations, or expenditures incurred in any volunteer activity away from respondents' residences. It is not based on the same categories of expenditures used for most other activities in the survey (transportation, accommodation, food, equipment, fees, and supplies) that are often associated with a 'travel cost' type of analysis.

Table 59: Nature-Related Expenditures by Residents of Yukon by Activity and Expenditure Type in the Previous 12 Months ($million)[180]

Activity	Transportation		Accommodation		Food		Equipment, Fees & Supplies		Total ($M)
	Total ($M)	%	Total ($M)	%	Total ($M)	%	Total ($M)	%	
Nature-based Recreation	$14	39%	$4	11%	$6	16%	$12	34%	**$35**
Nature Education	$2	53%	$1	18%	$1	18%	$1	11%	**$5**
Nature-Based Leisure	$4	26%	$1	5%	$1	10%	$6	43%	**$13**
Photographing Nature	$3	41%	$1	8%	$1	14%	$3	37%	$8
Gardening/Landscaping	$0	10%	*$0^*	1%	*$0^*	8%	$3	82%	$4
Nature Media	-	-	-	-	-	-	-	-	$2
Birding	$0	33%	*$0^*	10%	$0	25%	$0	32%	**$1**
Motorized Recreation	$5	30%	$1	3%	$2	10%	$10	57%	**$18**
Land-based	$4	32%	*$0^*	3%	$1	8%	$6	57%	$11
Water-based	$2	27%	$0	2%	$1	13%	*$4^*	58%	$7
Hunting & Trapping	$3	31%	*$0^*	0%	$1	12%	*$6^*	^	***$10^***
Hunting Waterfowl	$0	53%	*$0^*	0%	$0	17%	$0	28%	$0
Hunting Other Game Birds	$0	42%	*$0^*	0%	$0	16%	*$0^*	41%	$1
Hunting Small Game	*$0^*	48%	*$0^*	0%	*$0^*	11%	*$0^*	41%	*$0^*
Hunting Large Game	$2	30%	*$0^*	0%	$1	12%	*$4^*	55%	*$8^*
Hunting Other Animals	*$0^*	45%	*$0^*	0%	*$0^*	0%	*$0^*	55%	*$0^*
Trapping	*$0^*	16%	*$0^*	1%	*$0^*	5%	*$1^*	78%	*$1^*
Fishing	$2	37%	$0	6%	$1	18%	$2	39%	**$6**
Nature Conservation (on private land)	-	-	-	-	-	-	-	-	***$6^***
Food/Shelter for Wildlife	-	-	-	-	-	-	-	-	*$6^*
Conserve Natural Setting	-	-	-	-	-	-	-	-	$1
Maintain Forest for non-timber use	-	-	-	-	-	-	-	-	*$0^*
Total	**$31**	**32%**	**$7**	**7%**	**$12**	**13%**	**$37**	**39%**	**$96**[181]

^ Data point does not meet threshold for statistical reliability due to the number of respondents who participated in a given activity or who provided responses to a given question. The screening threshold for statistical reliability applied to each data point was a minimum of 30 responses and a CV < .3. See *Survey Methods* for explanation.

\- Category is not disaggregated by this expenditure type.

Percents are presented in terms of the share of expenditures for each activity.

Average Yearly and Average Daily Expenditures

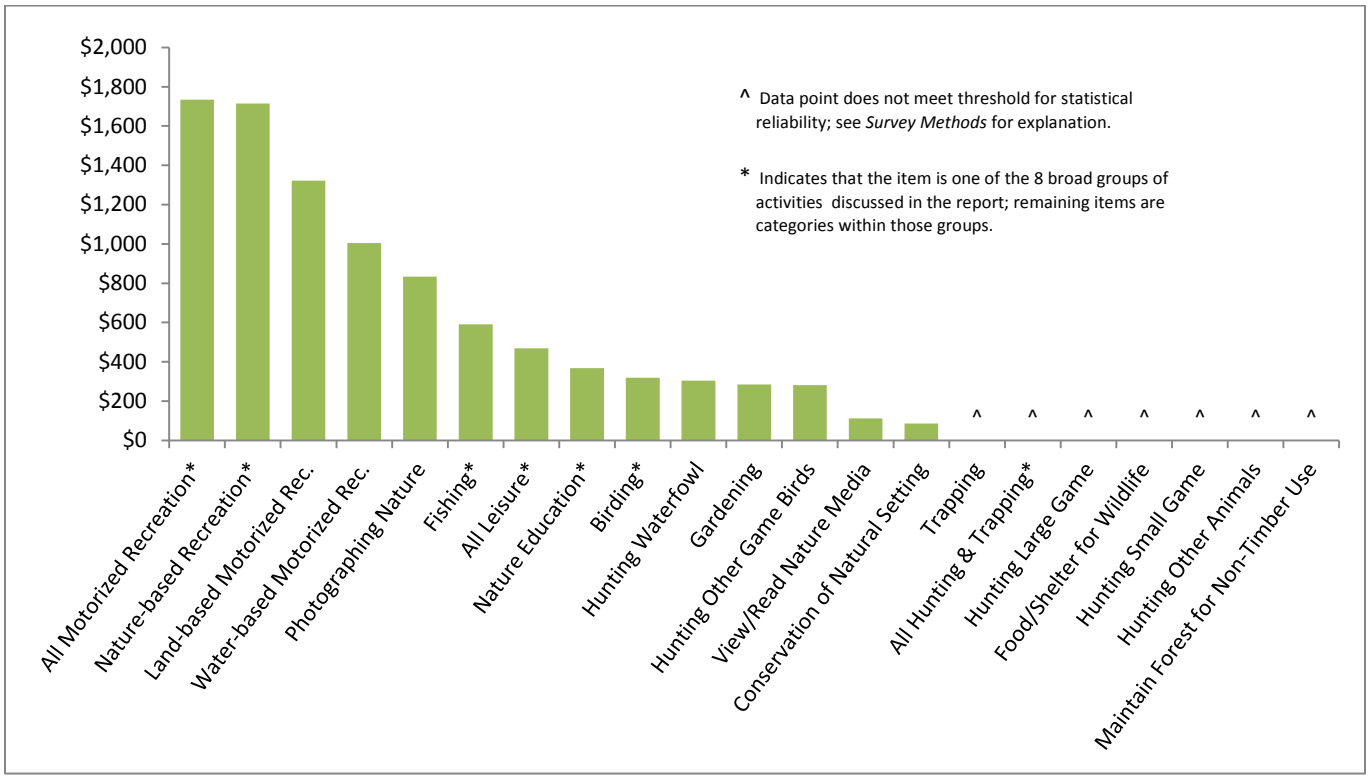
Residents of Yukon who participated in nature-related activities spent, on average, $3,888 per year—the third-highest in absolute terms in Canada, and approximately 2.2 times the national average ($1,757).

Average nature-based recreation ($1,714) and land-based motorized recreation ($1,322) expenses were significant. Alternatively, leisure (e.g., multimedia) and conservation (.e.g., conservation of natural settings) activities incurred low annual expenditures.

[180] The grand total includes expenditures that are not categorized by expense type, including multimedia purchases and spending on nature conservation activities. Therefore, the percentages by expense type may not sum to 100%.

[181] The grand total for expenditures is calculated as an independent figure, equal to the sum of all component totals, and was independently screened for reliability. Consequently, the grand total includes expenditure amounts for all component activities, including those that were individually below the reliability threshold, see *Survey Methods: Statistical Reliability*.

Figure 65: Average Yearly Expenditures by Activity Type for Residents of Yukon in the Previous 12 Months



Daily expenditures by participants in the various activities ranged from $13 (birding) to $128 (hunting waterfowl) per day. The $128 per person per day average for hunting waterfowl is generally above the daily expenditures reported in other provinces and territories. Residents of Yukon also reported higher daily nature education expenses ($74) than other provinces—$40 above the national average of $34 per day.

Table 60: Average Daily Expenditures by Activity Type for Residents of Yukon in the Previous 12 Months

	Daily Expenditure
Hunting Waterfowl	$128
Land-based Motorized Recreation	$102
Water-based Motorized Recreation	$89
Nature Education	$74
Fishing	$58
Hunting Other Game Birds	$44
Photographing Nature	$29
Nature-based Recreation	$18
Gardening/Landscaping	$15
Birding	$13
Trapping	^
Hunting Large Game	^
Hunting Other Animals	^
Hunting Small Game	^

^ Data point does not pass threshold for statistical reliability – points are shown at the low end to signal this status, and do not imply rank of results for these items. See *Survey Methods* for explanation.

NATURE CONSERVATION

The *2012 Canadian Nature Survey* collected information about different types of nature conservation in several different survey sections. This section reports results from the survey section entitled "Nature Conservation" which asked about membership and support of nature organizations, participation in volunteer nature conservation activities, and nature conservation at home. (see *Appendix B: Survey Instrument*).

Canadians were asked to provide the total number of days that they participated in several different types of voluntary nature conservation activities away from their residence in the previous 12 months. In Yukon, 36 percent of adults participated in at least one volunteer nature conservation activity for at least one day. Of those who participated, the average number of days of participation within the previous 12 months across all activities was 33.5 days.

The most common way that residents organize their time for volunteer nature conservation activities is to "volunteer occasionally when it interests them" (reported by 31 percent of respondents who volunteer). The majority (60%) of Yukoners who volunteer in nature-related activities indicated that their nature-related volunteer involvement has stayed the same over the past five years, 26 percent reported an increase, and 14 percent reported a decrease.

Twenty-four percent of residents reported participating in citizen science activities in the previous 12 months. Citizen science encompasses activities of volunteers who perform or manage research-related tasks such as wildlife or habitat observation, measurement, or assessment.

"Lack of time" was the reason provided by 56% of Yukon respondents when asked what prevented them from participating in volunteer nature conservation activities during the previous 12 months. The next most common responses were "personal choice" (37%) and "I was not aware of an opportunity" (24%).

HUMAN-WILDLIFE CONFLICTS

The *2012 Canadian Nature Survey* collected data about the interactions between humans and wildlife. Some of these interactions can be negative. Wildlife managers refer to "human-wildlife conflict" as any interaction between wild animals (whether small or large) and humans which causes harm, whether to the animal, human, or property (including pets or livestock). This conflict can happen in urban, rural, or wilderness settings.

Thirty-six percent of Yukon residents reported that a wild animal posed a threat to their safety or to the safety of people, pets, or farm animals in their care at home or in the community; 17 percent reported that a wild animal caused damage to their personal property. Of those who experienced threat or damage, the most frequently cited type of animal involved was a bear (59%), followed by a coyote or wolf (38%) and small mammals (28%).

As shown in *Table 61,* the most common action taken by Yukoners who experienced threat or damage was "follow authorities' recommended safety procedures" (39%). Thirty-three percent "removed or relocated items known to attract 'friendly' wildlife" and 25% "spoke to local wildlife management officials." About 19% of Yukon residents took no action as a result of the incident.

Table 61: Actions Taken As a Result of the Problem

Options Listed in Survey	Yukon	
	Population Estimate	Percent
Followed authorities recommended safety procedures	4,535	39%
Removed or relocated items known to attract friendly wildlife	3,839	33%
Spoke to local wildlife management officials	2,889	25%
I took no action	2,208	19%
Fenced-off or otherwise protected my property	1,690	15%
Killed the animal believed to be a threat	872	8%
Put out live traps / humane removal	834	7%
Participated in local education and land use planning sessions on wildlife management	^	^
Put out poison	^	^
Other(Specify)	1,937	15%

^ Data point does not meet threshold for statistical reliability. See *Survey Methods* for explanation.

APPENDIX A: ACTIVITIES CROSSWALK

8 Activity Groups	22 Activity Categories	Questionnaire Item Description, includes Activity Examples	Questionnaire Item
Nature-based Recreation	Hiking, climbing, horse riding	Hiking, walking in natural areas, backpacking, climbing, caving, geo-caching, horseback riding	19.1
	Cycling, mountain biking	Cycling, mountain-biking	19.2
	Camping in tents	Camping in tents	19.3
	Non-motorized water and beach	Non-motorized water and beach activities (e.g. canoeing, kayaking, sailing, swimming, whitewater rafting, surfing)	19.4
	Alpine skiing, snowboarding	Alpine (downhill) skiing, snowboarding	19.5
	Cross country skiing, snowshoeing	Cross-country skiing, snowshoeing	19.6
	Golfing	Golfing	19.7
Nature Education	Attending educational events	Attending nature festivals, retreats, workshops, lectures about nature	20.1
	Visiting zoo, garden, nature museum	Visiting a nature exhibit such as a zoo, public garden, arboretum, aquarium, wildlife garden, museum of natural history	20.2
	Agritourism	Visiting a farm, ranch, or maple sugarbush for agritourism experience	20.3
Nature-based Leisure	Nature Photography	Photographing or filming nature in general	21.1
	Gardening/Landscaping	Gardening or landscaping with plants	21.3
	Reading/viewing nature media[182]	*Read or view books, magazines, articles, videos, DVDs, films, TV programs, or websites about nature?*	*22*
Birding	Birding	Birding (watching, monitoring, photographing, filming, and/or feeding wild birds)	21.2
Not included	Gathering nuts, berries, firewood	Gathering firewood, nuts, berries, mushrooms, or other plants or natural materials	23
Not included	Picnicking/relaxing in nature	Picnicking or relaxing in an outdoor setting to enjoy nature	24
Motorized Recreation	ATV, snowmobile use	Motorized recreational vehicle use on land (ATV, snowmobile, etc.)	25.1
	Motorized water vehicle use	Motorized recreational vehicle use on water (motorboat, motorized personal watercraft, etc.)	25.2

Table continued on next page

[182] "Reading/viewing nature media" is included in the "Nature-based Leisure" group for expenditure data only; it is not included in the "Nature-based Leisure" group for participation rates or number of days of participation.

8 Activity Groups	22 Activity Categories	Questionnaire Item Description, includes Activity Examples	Questionnaire Item
Hunting or Trapping	Hunting wild animals	Hunting waterfowl (ducks, geese, etc.)	26.1
		Hunting game birds other than waterfowl (grouse, partridge, ptarmigan, pheasant, woodcock, snipe, etc.)	26.2
		Hunting small game mammals (rabbit, squirrel, raccoon, fox, groundhog, etc.)	26.3
		Hunting large game mammals (deer, bear, cougar, moose, mountain sheep, caribou, seal, whale, etc.)	26.4
		Hunting other wild animals (frog, snake, lizard, etc.)	26.5
	Trapping wild animals	Trapping game animals (beaver, etc.)	26.6
Fishing	Fishing	Fishing, including catch and release (freshwater or saltwater – includes all types of fish and shellfish)	26.7
Nature Conservation	Nature Conservation	Restoring natural habitat or urban green spaces* (e.g., removing invasive species or planting native vegetation)	36.1
		Cleaning up shorelines, rivers, lakes or roadsides	36.2
		Monitoring or assessing species or habitats	36.3
		Teaching about nature; giving guided nature walks	36.4
		Managing conservation organizations	36.5
		Other (specify)	36.6
		Providing food and shelter for wildlife	42.a.1
		Conserving, enhancing a natural setting	42.a.2
		Maintaining forest for non-timber use[183]	*42.a.3*

[183]"Managing non-timber forest" is included in the "Nature Conservation" category and group for expenditure data only; it is not included in the "Nature Conservation" category or group for participation rates or number of days of participation.

APPENDIX B: SURVEY INSTRUMENT

SECTION A. YOUR CONNECTION TO NATURE

1. **Please indicate which of the following choices you have made in the last 12 months:**
   (Check all that apply)
   - ☐[1] I traveled to experience more nature
   - ☐[2] I purchased products and services that are more environmentally friendly than their competitors
   - ☐[3] I spent time outdoors in order to experience nature
   - ☐[4] I volunteered to help protect/recover/understand nature
   - ☐[5] I adjusted my lifestyle to reduce my "ecological footprint"
   - ☐[6] None of the above

2. **Did you choose where you live partly to have access to nature?**
   ☐[1] Yes ☐[2] No

3. **The term *biodiversity* (or biological diversity) is commonly used to describe the variety of life on earth. This variety occurs at the levels of genes, species, and ecosystems. Before today, had you ever heard of the term *biodiversity*?**
   ☐[1] Yes ☐[2] No

4. **Healthy, biologically diverse natural habitats such as forests, urban green spaces*, wetlands (marshes, swamps, and bogs), grasslands, and rivers provide many natural benefits to humans that are commonly called *ecosystem services*. Before today, had you heard of the term *ecosystem services*?** *(* Urban green spaces refers to areas of land within a town or city that are not built up and that contain plants, trees, grass or other natural or human-made features such as wetlands or gardens.)*
   ☐[1] Yes ☐[2] No

5. **The following list shows some examples of benefits arising from nature that are also known as *ecosystem services.* Before today, were you aware that *nature can be essential to*…**

…filter water to keep it clean and safe	☐[1]Yes / ☐[2]No
…produce oxygen, and clean pollutants from the air	☐[1]Yes / ☐[2]No
…keep soil fertile and productive	☐[1]Yes / ☐[2]No
…protect communities and property from storm impacts	☐[1]Yes / ☐[2]No
…provide raw materials for making and building things	☐[1]Yes / ☐[2]No
…pollinate plants and crops to produce food	☐[1]Yes / ☐[2]No
…reduce or control the spread of many diseases	☐[1]Yes / ☐[2]No
…provide raw materials for most medicines	☐[1]Yes / ☐[2]No
…support human psychological and cognitive development	☐[1]Yes / ☐[2]No
…provide places for inspiration and spiritual renewal	☐[1]Yes / ☐[2]No
…provide places for recreation, fitness, and leisure	☐[1]Yes / ☐[2]No

6. **Before today, did you know that biodiversity contributes to ecosystem services and provides life support and other important benefits to people?**
   ☐[1] Yes ☐[2] No

7. **In the last 12 months, have you been directly affected by the loss of an ecosystem service that would normally be provided by nature?**
   (Please refer to examples of some ecosystem services as shown in Question 5.)
   ☐[1] Yes ☐[2] No ⟶ SKIP TO Question 9

8. **Which ONE of the options below MOST closely matches the way that this loss affected you?**
   - ☐[1] Medical health
   - ☐[2] Cultural heritage
   - ☐[3] Physical fitness
   - ☐[4] Economic well-being
   - ☐[5] Emotional, psychological, or spiritual well-being
   - ☐[6] Other *(Specify)*: _____

9. ***Species at risk*** **means species that are at risk of becoming extinct, and includes the categories of: *Extirpated, Endangered, Threatened, or Species of Special Concern*. Almost 500 species of plants and animals have officially been added to Canada's national list of species at risk since 1999. Before today, had you heard of the term *species at risk*?**
   ☐[1] Yes ☐[2] No

10. **In the past 12 months, have you donated money on behalf of species at risk?**
   ☐[1] Yes ☐[2] No ⟶ SKIP TO Question 12

11. **If you donated money for species at risk, was this primarily to:** *(Select only one)*
   ☐[1] Specific species at risk in my Province or Territory
   ☐[2] Specific species at risk nationally
   ☐[3] Specific species at risk internationally
   ☐[4] Habitat protection for one or more species in my Province or Territory
   ☐[5] Habitat protection for one or more species anywhere in Canada
   ☐[6] Habitat protection for one or more species anywhere in the world
   ☐[7] Public education on species protection
   ☐[8] Species at risk in general/I don't know where they are located

12. **What actions, if any, have you taken to assist in the recovery of species at risk?** *(Check all that apply)*
   ☐[1] Changed how I use the land or place where I live to avoid impacts on the habitat of those species
   ☐[2] Actively restored areas on my own land or elsewhere to provide habitat for those species
   ☐[3] Educated other people about risks to those species and how they can help
   ☐[4] Supported conservation agencies and organizations to educate people and to protect habitat
   ☐[5] Other *(Specify):*
   ☐[6] I have taken no actions about species at risk

SECTION B. HUMAN—WILDLIFE INTERACTIONS

Many Canadians have positive experiences viewing wild animals, but in some cases the interaction between humans and wild animals can be negative. The next group of questions are about a subject that wildlife managers call "human-wildlife conflict." This refers to any interaction between wild animals (whether small or large) and humans which causes harm, whether it's to the wild animal, the human, or property including pets or livestock. This can happen in urban, rural, or wilderness settings.

13. **In the last 12 months, did wild animals (small e.g. raccoon, coyote—or large e.g. deer) pose a threat to your safety or to the safety of people, pets, or farm animals *in your care* at home or in your community?**
   ☐[1] Yes ☐[2] No

14. **Did wild animals (small or large) cause damage to your personal property?**
   ☐[1] Yes ☐[2] No (if No to both Questions 13 and 14, SKIP TO Question 18)

15. **Did the conflict occur in an area where nearby housing developments and other human activities have recently expanded into a formerly natural area?**
   ☐[1] Yes ☐[2] No ☐[3] Not sure

16. **What kind of wild animal was it?** *(Check all that apply)*
   ☐[1] Small mammal (groundhog, skunk, raccoon, etc.)
   ☐[2] Bird
   ☐[3] Coyote, wolf
   ☐[4] Wild cat (cougar, lynx, mountain lion, etc.)
   ☐[5] Deer, elk, moose
   ☐[6] Bear

17. **What action did you take (if any) as a result of the problem?** *(Check all that apply)*
   ☐[1] Followed authorities' recommended safety procedures
   ☐[2] Spoke to local wildlife management officials
   ☐[3] Fenced-off or otherwise protected my property

- ☐[4] Participated in local education and land use planning sessions on wildlife
- ☐[5] Killed the animal believed to be a threat
- ☐[6] Put out live traps/humane removal
- ☐[7] Put out poison
- ☐[8] Removed or relocated items known to attract "friendly" wildlife and/or predators, such as bird feeders; garbage; compost, etc.
- ☐[9] Other *(Specify)*: _____
- ☐[10] I took no action

18. Are you aware of any laws or accepted guidelines about feeding wildlife in your area?

☐[1] Yes ☐[2] No

SECTION C. YOUR NATURE—BASED ACTIVITIES

Questions in this section ask about some activities in Canada that rely directly on nature and outdoor spaces. You will be asked to report your expenses for transportation, accommodations, food, equipment, and fees and supplies. If you paid for other members of your household to participate in the activity, please include these costs in the amount you report. If you don't make the financial decisions in the household, please have the person who does help you complete this section of the survey.

Expenses to be reported:

TRANSPORTATION—for travel to participate in nature-based activities, includes costs to operate private vehicles (gas and repairs for autos, private boats, planes, RVs…), vehicle rental (rental and insurance costs for autos, boats, trucks, RVs…), local and public transportation (taxi, bus, subway, airplanes, boats, trains…)

ACCOMMODATION—includes costs of campgrounds, cabins, lodges, hotels, motels, resorts…

FOOD—includes food and beverages bought at stores, restaurants, farm markets…

EQUIPMENT, FEES, AND SUPPLIES

- Outdoor equipment: camping gear, footwear or clothing, luggage or backpacks, GPS equipment…
- Wildlife viewing, acoustic, or monitoring equipment: cameras, binoculars, recording equipment…
- Sporting equipment and accessories: bicycles, skis, snowshoes, climbing gear…
- Non-motorized water recreation vehicles: canoes, kayaks…
- Hunting, trapping or fishing gear: guns, decoys, traps, rods, reels…
- Licences, entry fees, guide fees, package fees…
- Retail purchases: souvenirs, books, magazines…
- Rental or download of DVDs or videos about nature and nature-based activities…
- Subscription to a nature-based television channel…
- Equipment rental and repairs…
- Expendable supplies for hunting, trapping or fishing: ammunition, bait, tackle…
- Expendable supplies for photography and other nature activities: batteries, memory cards, other data storage…

RECREATION AND LEISURE

19. Please indicate how many days you participated in each of the following outdoor recreation activities, in the last 12 months, at home or away from home but still in Canada, and how much money you spent to participate in these activities. If you did not spend any time or money on an item, please enter "0" in the box.
(One day is defined as all or any part of a calendar day–24 hours or less.)

Activity	Days per year in Canada, at home or within 20 km of my home	Days per year in Canada, farther than 20 km from my home	Total money I spent to participate in these activities in natural areas in Canada ($CDN)
Hiking, walking in natural areas, backpacking, climbing, caving, geo-caching, horseback riding	⌊⌊⌊⌋	⌊⌊⌊⌋	Transportation ⌊⌊⌊⌊⌋ Accommodation ⌊⌊⌊⌊⌋ Food ⌊⌊⌊⌊⌋
Cycling, mountain-biking	⌊⌊⌊⌋	⌊⌊⌊⌋	
Camping in tents	⌊⌊⌊⌋	⌊⌊⌊⌋	

Non-motorized water and beach activities (e.g. canoeing, kayaking, sailing, swimming, whitewater rafting, surfing)	⌊⌊⌊⌋	⌊⌊⌊⌋	Equipment, Fees, & Supplies ⌊⌊⌊⌊⌋ On average, how many household members (including yourself) are included in these expenses? ⌊⌊⌋
Alpine (downhill) skiing, snowboarding	⌊⌊⌊⌋	⌊⌊⌊⌋	
Cross-country/backcountry skiing, snowshoeing	⌊⌊⌊⌋	⌊⌊⌊⌋	
Golfing	⌊⌊⌊⌋	⌊⌊⌊⌋	

20. Please indicate how many days you participated in each of the following nature education activities, in the last 12 months, at home or away from home but still in Canada, and how much money you spent to participate in these activities.

Activity	Days per year in Canada, at home or within 20 km of my home	Days per year in Canada, farther than 20 km from my home	Total money I spent to participate in these activities in Canada, combined ($CDN)
Attending nature festivals, retreats, workshops, lectures about nature	⌊⌊⌊⌋	⌊⌊⌊⌋	Transportation ⌊⌊⌊⌊⌋ Accommodation ⌊⌊⌊⌊⌋ Food ⌊⌊⌊⌊⌋ Equipment, Fees, & Supplies ⌊⌊⌊⌊⌋ On average, how many household members (including yourself) are included in these expenses? ⌊⌊⌋
Visiting a nature exhibit such as a zoo, public garden, arboretum, aquarium, wildlife garden, museum of natural history	⌊⌊⌊⌋	⌊⌊⌊⌋	
Visiting a farm, ranch, or maple sugarbush for agritourism experience	⌊⌊⌊⌋	⌊⌊⌊⌋	

21. Please indicate how many days you participated in each of the following leisure activities, in the last 12 months, at home or away from home *but still in Canada*, and how much money you spent to participate in these activities.

Activity	Days per year in Canada, at home or within 20 km of my home	Days per year in Canada, farther than 20 km from my home	Total money I spent to participate in these activities in Canada ($CDN)	On average, how many household members (including yourself) are included in these expenses?
Photographing or filming nature in general (*If you participated in this activity just for birding, please record your answers in the next row*)	⌊⌊⌊⌋	⌊⌊⌊⌋	Transportation ⌊⌊⌊⌊⌋ Accommodation ⌊⌊⌊⌊⌋ Food ⌊⌊⌊⌊⌋ Equipment, Fees, & Supplies ⌊⌊⌊⌊⌋	⌊⌊⌋
Birding (watching, monitoring, photographing, filming, and/or feeding wild birds)	⌊⌊⌊⌋	⌊⌊⌊⌋	Transportation ⌊⌊⌊⌊⌋ Accommodation ⌊⌊⌊⌊⌋ Food ⌊⌊⌊⌊⌋ Equipment, Fees, & Supplies ⌊⌊⌊⌊⌋	⌊⌊⌋
Gardening or landscaping with plants	⌊⌊⌊⌋	⌊⌊⌊⌋	Transportation ⌊⌊⌊⌊⌋ Accommodation ⌊⌊⌊⌊⌋ Food ⌊⌊⌊⌊⌋ Equipment, Fees, & Supplies ⌊⌊⌊⌊⌋	⌊⌊⌋

22. In the last 12 months, did you read or view books, magazines, articles, videos, DVDs, films, TV programs, or websites *about nature*?

☐[1] Yes ☐[2] No ⟶ SKIP TO Question 23

a. In the last 12 months, how much money did you spend to purchase, read, or view books, magazines, articles, videos, DVDs, films, TV programs, or websites *about nature*?

(Please consider all electronic and print sources.) ⌊⌊⌊⌊⌋

23. In the last 12 months did you participate in any of the following activities for personal use: gathering firewood, nuts, berries, mushrooms, or other plants or natural materials?

☐[1] Yes ☐[2] No ⟶ SKIP TO Question 24

a. How many days did you spend on these activities *less than* 20 km from home? ⌊_⌋⌊_⌋⌊_⌋

(One day is defined as all or any part of a calendar day–24 hours or less.)

b. How many days did you spend on these activities *more than* 20 km from home? ⌊_⌋⌊_⌋⌊_⌋

24. In the last 12 months did you participate in picnicking or relaxing in an outdoor setting to enjoy nature?

☐[1] Yes ☐[2] No ⟶ SKIP TO Question 25

a. How many days did you spend on these activities *less than* 20 km from home? ⌊_⌋⌊_⌋⌊_⌋

(One day is defined as all or any part of a calendar day–24 hours or less.)

b. How many days did you spend on these activities *more than* 20 km from home? ⌊_⌋⌊_⌋⌊_⌋

25. Please indicate how many days you participated in each of the following motorized recreational vehicle activities, in the last 12 months, at home or away from home *but still in Canada*, and how much money you spent to participate in these activities. If you did not spend any time or money on an item, please enter "0" in the box. *(One day is defined as all or any part of a calendar day–24 hours or less.)*

Activity	Days per year in Canada, at home or within 20 km of my home	Days per year in Canada, farther than 20 km from my home	Total money I spent to participate in these activities in Canada ($CDN)	On average, how many household members (including yourself) are included in these expenses?
Motorized recreational vehicle use on land (ATV, snowmobile, etc.)	⌊_⌋⌊_⌋⌊_⌋	⌊_⌋⌊_⌋⌊_⌋	Transportation ⌊_⌋⌊_⌋⌊_⌋⌊_⌋ Accommodation ⌊_⌋⌊_⌋⌊_⌋⌊_⌋ Food ⌊_⌋⌊_⌋⌊_⌋⌊_⌋ Equipment, Fees, & Supplies ⌊_⌋⌊_⌋⌊_⌋⌊_⌋	⌊_⌋⌊_⌋
Motorized recreational vehicle use on water (motorboat, motorized personal watercraft, etc.)	⌊_⌋⌊_⌋⌊_⌋	⌊_⌋⌊_⌋⌊_⌋	Transportation ⌊_⌋⌊_⌋⌊_⌋⌊_⌋ Accommodation ⌊_⌋⌊_⌋⌊_⌋⌊_⌋ Food ⌊_⌋⌊_⌋⌊_⌋⌊_⌋ Equipment, Fees, & Supplies ⌊_⌋⌊_⌋⌊_⌋⌊_⌋	⌊_⌋⌊_⌋

HUNTING, TRAPPING, AND FISHING

The following questions ask about your participation in hunting, trapping, and fishing. When answering these questions, please only think about your participation in these activities for personal (non-monetary) use or for recreation. Do not include work that you were paid for.

26. Please indicate how many days you participated in each of the following wildlife activities, at home or away from home *but still in Canada*, and how much money you spent to participate in these activities during the last 12 months. If you did not spend any time or money on an item, please put a "0" in the box. *(One day is defined as all or any part of a calendar day–24 hours or less.)* **If you did not participate in any hunting, trapping, or fishing activities for recreation or for personal use in the last 12 months, skip to Question 28.**

Activity	Days per year in Canada, at home or within 20 km of my home	Days per year in Canada, farther than 20 km from my home	Total money I spent to participate in these activities in Canada ($CDN)	On average, how many household members (including yourself) are included in these expenses?
Hunting waterfowl (ducks, geese, etc.)	⌊_⌋⌊_⌋⌊_⌋	⌊_⌋⌊_⌋⌊_⌋	Transportation ⌊_⌋⌊_⌋⌊_⌋⌊_⌋ Accommodation ⌊_⌋⌊_⌋⌊_⌋⌊_⌋ Food ⌊_⌋⌊_⌋⌊_⌋⌊_⌋ Equipment, Fees, & Supplies ⌊_⌋⌊_⌋⌊_⌋⌊_⌋	⌊_⌋⌊_⌋
Hunting game birds other than waterfowl (grouse, partridge, ptarmigan,	⌊_⌋⌊_⌋⌊_⌋	⌊_⌋⌊_⌋⌊_⌋	Transportation ⌊_⌋⌊_⌋⌊_⌋⌊_⌋ Accommodation ⌊_⌋⌊_⌋⌊_⌋⌊_⌋ Food ⌊_⌋⌊_⌋⌊_⌋⌊_⌋	⌊_⌋⌊_⌋

pheasant, woodcock, snipe, etc.)			Equipment, Fees, & Supplies ⌊_⌋⌊_⌋⌊_⌋	
Hunting small game mammals (rabbit, squirrel, raccoon, fox, groundhog, etc.)	⌊_⌋⌊_⌋⌊_⌋	⌊_⌋⌊_⌋⌊_⌋	Transportation ⌊_⌋⌊_⌋⌊_⌋ Accommodation ⌊_⌋⌊_⌋⌊_⌋ Food ⌊_⌋⌊_⌋⌊_⌋ Equipment, Fees, & Supplies ⌊_⌋⌊_⌋⌊_⌋	⌊_⌋⌊_⌋
Hunting large game mammals (deer, bear, cougar, moose, mountain sheep, caribou, seal, whale, etc.)	⌊_⌋⌊_⌋⌊_⌋	⌊_⌋⌊_⌋⌊_⌋	Transportation ⌊_⌋⌊_⌋⌊_⌋ Accommodation ⌊_⌋⌊_⌋⌊_⌋ Food ⌊_⌋⌊_⌋⌊_⌋ Equipment, Fees, & Supplies ⌊_⌋⌊_⌋⌊_⌋	⌊_⌋⌊_⌋
Hunting other wild animals (frog, snake, lizard, etc.)	⌊_⌋⌊_⌋⌊_⌋	⌊_⌋⌊_⌋⌊_⌋	Transportation ⌊_⌋⌊_⌋⌊_⌋ Accommodation ⌊_⌋⌊_⌋⌊_⌋ Food ⌊_⌋⌊_⌋⌊_⌋ Equipment, Fees, & Supplies ⌊_⌋⌊_⌋⌊_⌋	⌊_⌋⌊_⌋
Trapping game animals (beaver, etc.)	⌊_⌋⌊_⌋⌊_⌋	⌊_⌋⌊_⌋⌊_⌋	Transportation ⌊_⌋⌊_⌋⌊_⌋ Accommodation ⌊_⌋⌊_⌋⌊_⌋ Food ⌊_⌋⌊_⌋⌊_⌋ Equipment, Fees, & Supplies ⌊_⌋⌊_⌋⌊_⌋	⌊_⌋⌊_⌋
Fishing, including catch and release (freshwater or saltwater–includes all types of fish and shellfish)	⌊_⌋⌊_⌋⌊_⌋	⌊_⌋⌊_⌋⌊_⌋	Transportation ⌊_⌋⌊_⌋⌊_⌋ Accommodation ⌊_⌋⌊_⌋⌊_⌋ Food ⌊_⌋⌊_⌋⌊_⌋ Equipment, Fees, & Supplies ⌊_⌋⌊_⌋⌊_⌋	⌊_⌋⌊_⌋

27. If you participated in fishing, hunting or trapping for wild animals in Canada during the last 12 months,was this: *(Check all that apply)*

- ☐[1] Under Aboriginal treaty rights
- ☐[2] Licensed, not under Aboriginal treaty rights
- ☐[3] Unlicensed
- ☐[4] Primarily for sport/recreation
- ☐[5] Primarily for personal use, or sharing

28. If you did *not* <u>hunt or trap</u> wild animals for personal use or for recreation during the past 12 months, which of the following prevented you from doing so? *(Check all that apply)*

- ☐[1] I hunted or trapped, does not apply
- ☐[2] Unable to get to places where I can hunt
- ☐[3] Not enough wildlife left to hunt
- ☐[4] Lack of time
- ☐[5] Safety
- ☐[6] Lack of knowledge about hunting
- ☐[1] Cost
- ☐[8] Lack of equipment
- ☐[9] Personal health
- ☐[10] Laws
- ☐[11] No access to a hunting territory
- ☐[12] Other reasons *(Specify):* _____

29. If you did *not* <u>fish</u> for personal use or for recreation during the last 12 months, which of the following prevented you from doing so? *(Check all that apply)*

- ☐[1] I fished, does not apply
- ☐[2] Unable to get to places where I can fish
- ☐[3] Not enough fish
- ☐[4] Lack of time
- ☐[5] Safety
- ☐[6] Lack of knowledge about fishing
- ☐[7] Cost
- ☐[8] Lack of equipment
- ☐[9] Personal health
- ☐[10] Laws
- ☐[11] No access to fishing areas
- ☐[12] Other reasons *(Specify):* _____

YOUR NATURE-BASED TRAVEL

30. During the last 12 months, how *many trips* in Canada, greater than 20 km (one way) from your home did you take for which a main reason was to participate in nature-based activities for recreation, leisure, hunting, trapping, or fishing for personal, non-commercial use?

Total number of same-day trips _____
Total number of overnight trips _____

☐ I did not take any trips more than 20 km away from my home. ⟶ SKIP TO Question 33

31. What was the *typical duration* of your individual trips in Canada, greater than 20 km (one way) from your home, for which a main reason was to participate in nature-based activities for recreation, leisure, or hunting, trapping, or fishing for personal, non-commercial use? *(Please check one)*

- ☐[1] During one day, not overnight
- ☐[2] Parts of 2 days with one overnight stay
- ☐[3] Between 3 and 4 days, with overnight
- ☐[4] Between 5 and 7 days, with overnight
- ☐[5] Between 8 and 14 days, with overnight
- ☐[6] More than 2 weeks, with overnight

32. For the 1 to 3 locations *in Canada* where you spent the MOST time on trips greater than 20 km (one way) from your home, for which a main reason was to participate in nature-based activities for recreation, leisure, or hunting, trapping, or fishing for personal, non-commercial use (including multiple trips to the same location with or without overnight stays), please provide the following information:

Information about your nature-based trips	Location 1	Location 2	Location 3
Name of Province or Territory where you went:			
Name of nearest city, town, or village to that location:			
In the last 12 months, how many days did you spend at this location?			
If location was a national park, provincial park, or other protected area, provide its name:			

33. In the last 12 months, did you own or use a personal or family secondary property in Canada, such as a cottage, camp, or cabin?

☐[1] Yes ☐[2] No ⟶ SKIP TO Question 34

a. In the last 12 months, how many days did you spend at that cottage, camp, or cabin?
(One day is defined as all or any part of a calendar day–24 hours or less.) ☐☐

b. During the last 12 months, what are the 3 main nature-based activities that you participated in at that cottage, camp, or cabin? *(You may refer to Questions 19 through 26 for examples.)*

1. _____
2. _____
3. _____

NATURE CONSERVATION

This group of questions asks about your volunteer nature conservation activities in Canada during the last 12 months.

34. During the last 12 months, how many nature or conservation organizations were you a member of?
(This includes groups at the local, regional, national, or international level. If you were not a member of any, enter "0".) ⌊_⌊_⌊_

35. During the last 12 months, how much money in total did you spend on donations or membership fees to nature or conservation organizations? *(This includes groups at the local, regional, national, or international level. If you did not spend any money, enter "0".)*
$ CDN ⌊_⌊_⌊_⌊_⌊_

36. If you participated in any of the following nature conservation activities in Canada during the last 12 months, please indicate approximately how many days you participated. *(Please only think of volunteer conservation activities away from your residence. These could be in your community or away from your community. If you did not participate in any nature conservation activities away from your residence during the last 12 months,* SKIP TO Question 41*)*

Activity	Number of Days
Restoring natural habitat or urban green spaces (e.g., removing invasive species or planting native vegetation)	⌊_⌊_⌊_
Cleaning up shorelines, rivers, lakes or roadsides	⌊_⌊_⌊_
Monitoring or assessing species or habitats	⌊_⌊_⌊_
Teaching about nature; giving guided nature walks	⌊_⌊_⌊_
Managing conservation organizations	⌊_⌊_⌊_
Other (*Specify*):	⌊_⌊_⌊_

37. Which of the following best describes the way you currently organize your time for volunteer nature conservation activities?
- ☐[1] I am not currently participating in volunteer nature conservation activities
- ☐[2] I have a regular schedule of volunteer nature conservation activities
- ☐[3] I volunteer an hour here and there when I have time
- ☐[4] I volunteer a day here and there when I have time
- ☐[5] I participate in volunteer events occasionally if I hear about one that interests me

38. How has your nature-related volunteer involvement changed over the last five years?
(Please check only one option)
- ☐[1] It has increased
- ☐[2] It has decreased
- ☐[3] It has stayed about the same

39. *Citizen science* is a term used to describe the science activities of volunteers who perform or manage research-related tasks such as wildlife or habitat observation, measurement, or assessment.

In the last 12 months, have you participated in *citizen science* by producing information that could be used by museums, nature organizations, watershed organizations, other science-based organizations, or governments?

☐[1] Yes ☐[2] No → SKIP TO Question 41

40. What skills or expertise did you bring to your *citizen science* activity in the last 12 months? This expertise may have been learned informally or through formal training. *(Check all that apply)*
- ☐[1] Biology/environmental expertise
- ☐[2] Management skills

- ☐[3] Teaching and communications skills
- ☐[4] No previous knowledge or experience
- ☐[5] Traditional or local ecological knowledge
- ☐[6] Engineering expertise
- ☐[7] Fundraising or recruitment skills
- ☐[8] Other knowledge or skills *(Specify):* _____

41. Which of the following prevented you from participating in volunteer nature conservation activities during the last 12 months? *(Check all that apply)*

- ☐[1] I was not aware of an opportunity
- ☐[2] Unable to get to places where I could volunteer
- ☐[3] Lack of time
- ☐[4] Cost
- ☐[5] Personal health
- ☐[6] Personal choice
- ☐[7] Other *(Specify)*:

CONSERVATION AT HOME

The following questions ask about your activities and expenses for any nature conservation on land where you lived, and/or at a cottage, camp, cabin, farm, or other lands that you rented, leased or owned in the last 12 months. These lands may be of any size, and in any location in Canada.

42. a. In the last 12 months, did you maintain, restore, or purchase private land at least partly so you could *(Check any of the following options that apply)*		**b. In the last 12 months, how much did you spend to maintain, restore, or purchase this land?** *If you did not spend anything, enter "0"*
…provide food or shelter for wildlife?	☐[1]Yes / ☐[2]No	_____($CDN)
…conserve, enhance, or restore a natural setting?	☐[1]Yes / ☐[2]No	_____($CDN)
…manage for non-timber forest products (such as maple syrup, nuts, seeds, berries, vines, mushrooms, etc.)?	☐[1]Yes / ☐[2]No	_____($CDN)
…have a personal or family recreational property?	☐[1]Yes / ☐[2]No	_____($CDN)
Or, for another nature-related reason?*(Specify):*_____	☐[1]Yes / ☐[2]No	_____($CDN)

43. Have you ever personally donated your owned land or signed an agreement for conservation through an easement, land trust, or other protective measure?

- ☐[1] Yes, in the last 12 months
- ☐[2] Yes, more than 1 year ago but less than 5 years ago
- ☐[3] Yes, more than 5 years ago
- ☐[4] No ⟶ SKIP TO Question 45

44. If you personally donated your owned land or signed an agreement for conservation through an easement, land trust, or other protective measure, how many acres(or hectares) of land were covered by the arrangements?

- ☐[1] Less than 1 acre (less than 0.4 hectares)
- ☐[2] 1–10 acres (0.4-4.4 hectares)
- ☐[3] 10.1–50 acres (4.5-20.2 hectares)
- ☐[4] 50.1–100 acres (20.3-40.5 hectares)
- ☐[5] More than 100 acres (40.5 hectares)

SECTION D. ABOUT YOU

To finish, we have some questions about you for statistical purposes only. Please be assured that all of your answers will remain completely confidential.

45. In what year were you born? 19_____

46. Are you *(Please check one)* ☐[1] Male ☐[1] Female

47. Please indicate which, if any, of the nature-related professions in the following list are the primary source of your income *(Check any that apply)*

- ☐[1] Farming
- ☐[2] Fisheries
- ☐[3] Forestry
- ☐[4] Wildlife-activity outfitting
- ☐[5] Landscaping
- ☐[6] Nature-based recreation or tourism
- ☐[7] Non-timber forest products
- ☐[8] Non-fish marine products
- ☐[9] Nature-based therapeutic/health care
- ☐[10] Environmental Science
- ☐[11] Environmental consultation
- ☐[12] Nature-oriented arts and crafts
- ☐[13] Wildlife management
- ☐[14] Non-Government Conservation
- ☐[15] Other *(Specify):* _____
- ☐[16] My income does not rely on a nature-related profession

48. In the list below, please indicate the three ways you *most* frequently obtain information about nature. *(If you do not obtain information about nature, SKIP TO Question 50.)*

- ☐[1] Read publications (magazines, newspapers, books, reports—printed, electronic, online)
- ☐[2] Read informal communications (email, social network, newsletters and updates)
- ☐[3] Watch visual media (television, videos, etc.)
- ☐[4] Listen to audio media (audio books, radio, etc.)
- ☐[5] In conversation (with friends, family, or colleagues)
- ☐[6] Through personal experience
- ☐[7] Educational opportunities (courses, seminars, conferences, etc.)
- ☐[8] Other *(Specify):* _____

49. Please indicate the three sources from whom you *most* frequently obtain information about nature.

- ☐[1] Government
- ☐[2] Conservation groups
- ☐[3] Teachers or other educators
- ☐[4] Journalists/media writers
- ☐[5] Friends, family, or colleagues
- ☐[6] Scientists
- ☐[7] No one
- ☐[8] Other *(Specify):* _____

50. To help us better understand how results vary by region, please provide the 6-character postal code for your permanent address: |_|_|_|_|_|_|

51. Are you a member of a First Nations, Métis, or Inuit culture? ☐[1] Yes ☐[2] No

52. Did you or your parents immigrate to Canada from another country? ☐[1] Yes ☐[2] No

53. What is the highest level of education you have completed? *(Check only one)*

- ☐[1] Elementary
- ☐[2] Some high school
- ☐[3] High school graduation
- ☐[4] College/Vocational/Commercial diploma
- ☐[5] University Bachelor's degree
- ☐[6] University Master's degree
- ☐[7] University PhD or Doctoral degree
- ☐[8] Other *(Specify)*: _____

54. Finally, for statistical purposes only, please indicate which of the following categories applies to your total household income for the last 12 months *(in $CDN)*?

- ☐[1] Less than $24,999
- ☐[2] $25,000–$49,999
- ☐[3] $50,000–$74,999
- ☐[4] $75,000–$99,999
- ☐[5] $100,000 or more

APPENDIX C: CONSTRUCTION OF AGGREGATE SCORES

CONSTRUCTION OF AGGREGATE SCORES USED IN REPORTED ANALYSES

In several of the "Cross-analysis & Demographic Insights" sections, aggregate scores are computed across a number of survey items to provide a single quantitative summary of a survey topic. *Table 1.B* provides the formula used to compute each aggregate score as well as its interpretation and relevant quantitative metrics. Specifically, the possible range indicates the minimum and maximum possible values the scores can take on. The actual range indicates the minimum and maximum values observed in the survey data, and the population mean is the weighted average value of the score across all survey respondents (i.e., the population estimate). Cronbach's alpha is a measure of the internal reliability of each score, which indicates how consistent responses were to the individual items that make up an aggregate score. Cronbach's alpha of .70 or higher is generally considered acceptable reliability for inferential purposes. In the case of the "Conservation Behaviours – Away from Home" score, Cronbach's alpha does not achieve this criterion; however, because this score is simply a sum of days spent on various nature conservation activities during the year, it is still interpretable in terms of its association with other variables.

Table 1.B: Summary of Aggregate Scores

Aggregate Score	Interpretation	N Items	Formula	Possible Range	Actual Range	Population Mean	Cronbach's Alpha (Standardized)
General Awareness	Proportion of nature-related issues measured in survey of which respondent was aware	15	Mean of (Q3-Q6, Q9)	0% - 100%	0% - 100%	85%	.84
Conservation Behaviours - Away from Home	Total activity-days spent participating in conservation away from home (annual)	6	Sum of Q36	0 - 2,190	0 - 1,215	7.89	.58
Conservation Behaviours - At Home	Total conservation-at-home activities participated in during last year (from 5 measured activities)	5	Sum of Q42	0 - 5	0 - 5	0.46	.70
General Participation	Total activity-days spent participating in nature-based activities (annual) [Includes Conservation Behaviours - Away from Home and HTF Participation]	50	Sum of (Q19-Q21, Q25, Q26, Q36)	0 - 18,250	0 - 2,990	163.47	.81
Hunting, Trapping, or Fishing Participation	Total activity-days spent participating in hunting, trapping, or fishing activities (annual)	14	Sum of Q26	0 - 5,110	0 - 1,184	21.42	.70

APPENDIX D: REFERENCES

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