

report

Climate Change Adaptation Research
for Forest and Rangeland Ecosystems

Resiliency Implications at the Landscape Level

SOUTH SELKIRKS FOREST MANAGEMENT & CLIMATE CHANGE

PUBLIC OPINION SURVEY

2012

FINAL TECHNICAL REPORT

H.W. Harshaw

Faculty of Forestry

University of British Columbia

Vancouver, British Columbia

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For information contact:

South Selkirks Climate Change Research Team
Forest Resources Management—University of British Columbia
2nd Floor—Forest Sciences Center #2045–2424 Main Mall
Vancouver, British Columbia V6T 1Z4
Phone: 604.822.6761 | Fax: 604.822.9106
Email: john.innes@ubc.ca | natasha@turtleislandconsulting.ca

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EXECUTIVE SUMMARY

The purpose of the *South Selkirks Forest Management & Climate Change Public Opinion Survey* was to inform the *Future Forest Ecosystems Scientific Council* and local residents about opinions and beliefs about forest management and planning, and climate change in the South Selkirks region.

The survey instrument was a twelve-page booklet that contained questions that comprehensively measured people's attitudes and beliefs about a wide range of issues and challenges regarding the management of forest resources in British Columbia, and respondents' attitudes towards potential climate change outcomes. The eleven questions that made up the survey were:

Question 1: *Opinions and beliefs about how people relate to the environment;*

Question 2: *Opinions and beliefs about forest management issues in BC;*

Question 3: *Opinions about the relative priorities of resiliency factors for communities in transition;*

Question 4: *Attitudes and opinions about climate change;*

Question 5: *Opinions about possible local consequences of climate change;*

Question 6: *Opinions about the trustworthiness of different sources of information about climate change;*

Question 7: *Monitoring the management of forest values;*

Question 8: *Connection to Nature – Recreation Specialization;*

Question 9: *Social networks;*

Question 10: *The Adult Hope Scale; and*

Question 11: *Demographics.*

There was also space for respondents to provide general comments. Analysis of these comments is not provided here.

The delivery of the survey employed a four-contact approach in order to maximize the rate of return. The survey was administered between July 19th and September 30th 2011. Respondents represented a range of ages, educational backgrounds, occupations, and household income levels. 57.3% of respondents were male and 42.7% were female; a total of 520 people participated in the survey (401 non-Aboriginal participants, 59 Aboriginal participants, and 60 community and landscape planners and managers. Generally, respondents were longstanding residents of their communities. Respondents tended to be biocentric in their overall attitudes and worldviews. However, respondents did not necessarily feel that limits to growth were absolute and that human ingenuity could serve to provide solutions to environmental problems.

What is striking in the analysis of the responses of the three sample groups are the relatively few number of absolute differences in opinions and attitudes about forest management and climate change in the South Selkirk region. Although there were several statistically significant differences between the mean responses of the sample groups, the differences appear to be differences of degree, not absolute differences.

Respondents' attitudes about forest management in BC were mixed. While critical of traditional forest management, respondents appeared to be familiar with local forests and local forest management. This familiarity is supported by the significant role that outdoor recreation plays among respondents. Respondents were divided in their agreement about whether local forest managers are responsive to public concerns. There was also a strong sentiment that forest companies have not earned the trust to manage forests for the long-term, which may be a result of the perception among almost half of respondents disagreed that there will not be sufficient wood in British Columbia to meet our future needs. However, most respondents agreed that overall, sustainable forest management practices produce positive results for the local community.

Almost half of respondents indicated that they believed that climate change was caused by both human activities and non-human changes in the environment, while fewer than one-quarter of respondents indicated that climate change was caused mostly by human activities; few respondents indicated that climate change was caused mostly by non-human changes in the environment. However, there is a critical difference in terms of how Aboriginal respondents approached the issue of climate change. There was a strong sentiment that it was more important to start acting now on climate change with what we know, instead of continuing to monitor for climate change so we can learn more. This pragmatic approach to addressing climate change may be a result of the majority of respondents indicating that they thought that their lives were being affected by climate change – climate change is not an abstract notion, it is something that has been experienced by many of the respondents in a variety of ways.

The prioritization of the six resiliency factors for communities in transition that were presented to respondents suggested that while all were important, the ranking of these factors demonstrated recognition of relative importance of having engaged citizens:

1. Development and maintenance of skills, knowledge, and creativity for community members;
2. Community planning involves local citizens;
3. Strong relationships between community members that foster trust and productivity;
4. Diverse sources of local income;
5. Local access to natural resources; and
6. Local control of natural resource-based businesses.

1. INTRODUCTION.

Climate change poses significant challenges to the management of British Columbia's forests. In addition to the mountain pine beetle infestation that has affected the Province's interior forests, potential climate change impacts include a decrease in productivity of forests due to insects and disease, extreme weather events, and a spatial shift of ecosystems. Associated with these ecological impacts are social and economic impacts that will affect communities throughout the Province. In an effort to address these challenges, the Government of British Columbia established the *Future Forests Ecosystems Initiative*. This Initiative sought to develop an adaptive management framework to address changing ecological conditions, maintain and enhance the resilience of provincial forests, and investigate ways that the Province's forested ecosystems might continue to provide services and benefits that are valued by society (British Columbia Ministry of Forests and Range, 2008). The *Future Forest Ecosystems Scientific Council* (FFESC) was established to support the *Future Forests Ecosystems Initiative* by funding research that investigated ecological, economic, and social adaptation and resiliency in British Columbia's forests and the communities that depend on them.

One research project supported by the FFESC, *Climate Change Adaptation Research for Forest and Rangeland Ecosystems: Resiliency implications at the landscape level*, sought to conduct landscape level, forest management research in order to produce recommendations regarding operational practices that will foster resiliency in adapting to climate change. This project explicitly examined the ecological, economic, and social dimensions of climate change in order to increase our understanding of adaptation and resiliency in the South Selkirks region of British Columbia.

The concepts of vulnerability (*i.e.*, the degree to which a system is susceptible to and unable to cope with the adverse effects of climate change, including climate variability and extremes) and resilience (*i.e.*, the ability of social or ecological systems to absorb disturbances while retaining the same basic structure and ways of functioning, the capacity for self-organization and the capacity to adapt to stress and change (IPCC 2007)) are central to the approach of this project. In partial contrast to the IPCC, this research assumes that social and ecological systems are inextricably linked, and start from the premise that if adaptation is to occur at a landscape scale, a holistic approach must be adopted. Fostering resiliency on the land base requires healthy ecosystems, thriving economies, vibrant communities and meaningful connections amongst these dimensions. Fostering adaptation requires that we do not place undue burdens on vulnerable elements of the system (Adger *et al.* 2009).

The study is focused in the South Selkirks region of British Columbia located in the Kootenays, including the Darkwoods Property, West Arm Provincial Park, Midge Creek Wildlife Management Area, Creston Valley Wildlife Management Area and the West Arm Demonstration Forest. This provides the opportunity

to investigate climate change scenarios to a protected area, wildlife management areas and a working forest, all of which are expected to be of interest to the local communities of Nelson and Creston and Aboriginal communities of the Lower Kootenay Indian Band, Métis Nation of BC, St. Mary's Indian Band and the Ktunaxa Nation.

This report focuses on the human dimension (*i.e.*, social aspects) of the project. The issue of climate change is important to both Aboriginal and non-Aboriginal people. There has been a growing recognition that examinations of climate change adaptation in ought to explicitly address the interconnections between ecological/environmental, economic/financial, socio-cultural/human dimensions of the land and resources); and incorporate both Western and Indigenous sciences to inform evidence-based policy and planning decision-making for local communities and the Government of British Columbia.

As noted above, the concept of adaptation is closely related to resiliency. From a social perspective, resiliency is "... the capacity for humans to change their behaviours, economic relationships, and social institutions such that economic vitality is maintained and social stresses are minimized" (Joseph & Krishaswamy, 2010, p. 129). Two questions framed the research the investigation of social adaptation and resiliency:

1. What climate change adaptation practices would be required to maintain or enhance socio-cultural values within the study area?; and
2. Which of these practices would be acceptable to local residents (and if divergent, how can these be reconciled)?

To address the first question, the socio-cultural values of residents of the South Selkirks region were examined through the use of a survey. This survey examined local attitudes and beliefs about the effects of climate change, and sought to identify the range of opinions about forest management and planning outcomes in the South Selkirks region. The second question was addressed by presenting possible consequences of climate change to respondents to identify local concerns and priorities that could be used to help direct the management forest resources. In particular, the social survey component of this project solicited and assessed people's attitudes, beliefs, and perceptions of climate change, and the adaptation practices required to maintain or enhance socio-cultural values in the study area. The social survey established a baseline of residents' socio-cultural values, examined residents' current and potential adaptation and mitigation behaviours, and explored trade-offs between different socio-cultural, economic, and ecological values to uncover what residents are willing to forego or change in order to adapt to landscape modifications due to climate change. The social survey was delivered to a random sample of residents of the study area.

2. METHODS.

Potential respondents were provided with the option of completing a paper-based questionnaire (to be mailed back) or an Internet-based questionnaire. The questionnaire was identical for both delivery options, and was delivered and administered to residents of the South Selkirks region in order to solicit opinions and beliefs about climate change and forest management. The methods employed for questionnaire design, sample selection, survey delivery, and analyses follow.

2.1. Questionnaire Design.

The questionnaire employed in this study was developed using the principles of the Tailored Design Method (Salant & Dillman, 1994; Dillman, 2000), which identifies procedures to maximize survey return rates and minimize survey error, including questionnaire layout considerations. The identification of clear, concise research questions is important to focus the development of survey questions. The resultant questionnaire was designed so that there was a logical flow of the questions, and that the wording of the questions and instructions to the respondents was clear, as brief as possible, and uncomplicated. However, some compromises among these elements are necessary to have a questionnaire that is both accessible to respondents and able to provide unbiased results.

A key requirement of the questionnaire was that it be suitable for delivery to different sample groups (*i.e.*, Aboriginal and non-Aboriginal members of the public, and community and landscape planners and managers) to foster a better understanding of local opinions and beliefs about climate change and forest management. Working drafts of the questionnaire were reviewed by members of the Ktunaxa Nation, St. Mary's Band and members of the Métis Nation British Columbia, research team members, and faculty members in the Faculty of Forestry at the University of British Columbia. The final questionnaire was a twelve-page booklet (three folded 11-inch by 17-inch sheets printed on both sides), nine of which were printed with questions, that comprehensively measured people's opinions and beliefs about a wide range of climate change and forest management issues (Appendix A). The final questionnaire was approved by the Behavioural Research Ethics Board, a Division of the Office of Research Services at the University of British Columbia; this review seeks to protect the rights of potential survey respondents. The eleven questions that made up the survey are described below.

2.1.1. Question 1: *Opinions and beliefs about how people relate to the environment.*

This question examined the structure and coherence of respondents' ecological worldviews to permit an assessment of their attitudes toward the environment. This question employs the *New Ecological Paradigm Scale*, which taps people's "primitive beliefs about humanity's relationship with the Earth" (Dunlap *et al.*, 2000, p. 439). The *New Ecological Paradigm Scale* is a robust and widely used tool that has been in use (previously as the *New Environmental Paradigm Scale*) since 1978; this scale has

predictive validity, known-group validity, criterion validity, and content validity. The *New Ecological Paradigm (NEP) Scale* measures five facets of an ecological view: reality of limits to growth; anti-anthropocentrism; fragility of nature's balance; rejection of exemptionalism¹; and the possibility of an eco-crisis. Respondents were presented with fifteen statements that expressed different views about the environment. For each statement, respondents were asked to indicate their degree of agreement on a five-point scale. Respondents had the option of indicating that they did not know enough about a particular statement or did not have an opinion about a particular statement.

2.1.2. Question 2: Opinions and beliefs about forest management issues in BC.

This question asked respondents about their opinions about forestry and forest management activities. The statements were informed by a review of the scientific literature and focus on local and provincial level forestry activities. Seven broad categories of values identified:

1. Social values (McFarlane & Boxall, 1996; McFarlane & Stedman, 2003);
2. Quality of life (ecological aspects) (CCFM, 2000, 2003; McFarlane & Boxall, 1999);
3. Community cohesion (Beckley *et al.*, 2002; CCFM, 2000, 2003; FSC, 2004; McFarlane & Boxall, 1996, 1999; McFarlane & Stedman, 2003; Tindall & Lavallee);
4. Participation in decision-making (CCFM, 2000, 2003; FSC, 2004; McFarlane & Boxall, 1999; Wondolleck Yaffee, 2000);
5. Outdoor recreation (Clark & Stankey, 1979, 1989; FSC, 2004; McFarlane & Boxall, 1999);
6. Ecological processes (CCFM, 2003); and
7. Aesthetics and landscape (Sheppard, Harshaw & McBride, 2001; Sheppard, Achiam & D'Eon, 2004).

This question listed nineteen statements expressing different views about forest land management and the environment in BC generally. The order of the statements in this question was randomized to avoid bias. For each statement, respondents were asked to indicate their level of agreement on a five-point scale. Respondents had the option of indicating that they did not know enough about a particular statement or did not have an opinion about a particular statement.

2.1.3. Question 3: Opinions about the relative priorities of resiliency factors for communities in transition.

This question asked respondents to consider a series of paired trade-offs among six resiliency factors for communities in transition. The six resiliency factors used in this section were derived from a set of fifteen resiliency factors for communities in transition that were identified by Joseph & Krishnaswamy (2010):

¹ "Exemptionalism is the belief that, because of its intelligence, creativity, and technology, the human species is not bound nor constrained by the biophysical laws of nature that restrict other species" (Cairns, 1998).

1. Economic Diversity: Diverse sources of local income.
2. Natural Resources: Local access to natural resources.
3. Local Control Over Enterprise: Local control of natural resource-based businesses.
4. Stakeholder-Driven Planning: Community planning involves local citizens.
5. Human Capital: Development and maintenance of skills, knowledge, and creativity for community members.
6. Social Capital: Strong relationships between community members that foster trust and productivity.

The six resiliency factors were arranged in pairs, such that each resource value was compared against the other six resource values. A total of fifteen-paired statements were prepared. The order of the paired statements was randomized to avoid bias. This method of inquiry is based on the standard approach developed by Thurstone (1959) in which respondents make repeated comparative judgments about preferences for outcomes (Green & Tull, 1978). This approach permits the construction of a univariate interval scale (that is conducive to statistical analysis) to identify the priority rankings of (in this case) factors for the protection of species at risk, as well as the relative importance of each natural resource value.

For each of the fifteen paired statements, respondents indicated which resiliency factor they thought was a higher priority for communities in transition. Specifically, priorities were elicited by asking the following: *“There are things that communities can do to adapt to changing economic, ecological and social conditions. A community that can adapt to changing conditions is able to continue to support the people and businesses that are part of that community. Below, some of the factors that are important for communities to successfully adapt to changing conditions have been arranged in pairs. For each pair, check the box beside the factor that you think should have a higher priority for managing our natural resources sustainably”*. To improve the clarity of the question, an example was provided.

2.1.4. Question 4: Attitudes and opinions about climate change.

Mitigating anthropogenic impacts to the climate, and adapting to uncertain conditions are among the actions that are available to address climate change. The questions posed in this set of questions ask respondents about their opinions on climate change and whether respondents had changed their behaviour in response to perceived climate change.

Respondents were asked about their degree of concern and knowledge of climate change, whether they have noticed any effects of climate change in their communities, whether they have any plans to change their behaviour in response to climate change, and whether they thought that forest managers should be

doing anything in response to climate change. Respondents were also asked whether forest management should prioritize responses to climate change. This question will provide evidence of people's beliefs, ideas, and suggestions for addressing climate change, and local opinions about how oil and gas managers should be prioritizing their responses to climate change.

2.1.5. Question 5: Opinions about possible local consequences of climate change.

The *Ecological Resiliency Dimension* component of this project employed the down-scaling of global climate models to identify possible climate change effects in the South Selkirks region. Based on initial results from these models, eight possible consequences of climate change in forested areas like those found in the South Selkirks region were identified and presented to respondents, who were asked to indicate their level of concern with each possible consequence on a five-point scale (from *very concerned* to *not concerned at all*); the order of the possible consequences was randomized to avoid order bias. The question included an explanation that uncertainties existed with regard to the identification of potential climate change impacts in the area. The eight potential local consequences of climate change that made up this question were:

1. Extended periods of visible smoke from forest fires (*e.g.*, April - October).
2. A high number of severe wind storms.
3. More frequent, and longer lasting droughts.
4. More frequent and more severe insect outbreaks.
5. More frequent extreme weather events (*e.g.*, heavy rain storms, less snowfall).
6. More frequent and longer-lasting camp fire bans due to increased fire risk.
7. Reduction in the amount of timber that can be harvested.
8. Changes in the distribution of plant and animal species and their habitats.

2.1.6 Question 6: Opinions about the trustworthiness of different sources of information about climate change.

There are many different sources of information about climate change that are available to people. Respondents were asked to indicate the trustworthiness of each potential source of information using a five-point scale. Respondents had the option of indicating that they did not know enough about a particular statement or did not have an opinion about a particular source of information. The ten sources on information about climate change that respondents indicated trustworthiness for were:

1. Internet;
2. Local leaders;
3. Local media;
4. National media;
5. Politicians;

6. Friends;
7. Scientists;
8. Government;
9. Religious or spiritual leaders; and
10. Experts.

Respondents had the option of indicating another source of information about climate change that they were familiar with. The order of the sources of information was randomized to avoid bias.

2.1.7. Question 7: Monitoring the management of forest values.

This question asked respondents who they thought should be responsible for monitoring of nine broad forest values that are components of a sustainable forest management approach:

1. Sustaining biological richness.
2. Sustaining the productive capacity of forests.
3. Managing the forest to reduce global warming.
4. Sustaining economic benefits from forestry and wood products.
5. Sustaining non-timber economic benefits.
6. Representing a wide range of social & cultural values in forest management decisions.
7. Sustaining the benefits that First Nations and Métis people receive from forests.
8. Sustaining opportunities for a wide range of quality of life benefits.
9. Species at risk should be recovered.

Five organizations were offered as potential partners for monitoring: industry, government, Aboriginal people, local communities, and environmental organizations. Respondents could identify multiple organizations for the monitoring of each criterion.

2.1.8. Question 8: Connection to Nature – Recreation Specialization.

Personal connections to nature can influence how people acquire their knowledge about land-use management strategies and approaches. Knowing about what the public's connection to nature is could yield information about the general relevancy of nature to respondents; this information may assist in interpreting general attitudes and perceptions for priorities for land-use management and could address how "qualified" people are to address land-use issues and priorities. This set of questions measures the degree is a person's involvement in outdoor recreation. Participation in outdoor recreation activities provides opportunities to experience nature and the environment first-hand; these experiences can shape people's attitudes and beliefs about the management of natural resources.

The recreation specialization framework examines “cognitive, behavioral, and psychological components in an effort to distinguish among types of recreationists” (Manning, 1999, p. 233). Measures of recreation specialization are related to attitudes about, and preferences for, management practices (Manning, 1999). The recreation specialization framework provides a basis for the differentiation of recreationists holding various goals, preferences, and behaviors (McFarlane, 2001). Recreation specialization was first conceptualized by Bryan (1977) to describe “a continuum of behavior from the general to the particular” (p. 175); recreation specialization is a dynamic process wherein a person progresses through different stages of maturity, beginning at the novice stage, moving through the establishment stage to reach the specialization stage (Scott & Shafer, 2001). This progression includes “a tendency to become committed to the activity such that it becomes a central life interest” (Scott & Shafer, 2001, p. 326), such that there is a focusing of behaviour in which participation in one activity is at the expense of other recreation activities (McIntyre & Pigram, 1992), although this does not exclude participation in other activities – only that one activity is dominant. Recreation specialization increases over time; as specialization increases, there was a shift in attitude from consumption to preservation (Bryan, 1977). Scott & Shafer (2001) note that recreation specialization can account for individual variation in recreation orientation and can be employed to recognize heterogeneity among recreation participants within an activity. Recreation specialization dimensions will be examined in this study using the sixteen-item index developed by Needham *et al.* (2009).

2.1.9: Question 9: Social networks.

The relationships that people have with other people can exert influences in a number of ways, including the flow and type of information and their familiarity with different social identifies (*i.e.*, a scientist, a logger, a politician). This question uses a position generator (Lin, 2001) to measure the characteristics (*i.e.*, range, tie strength) of people’s social networks. This question is based on a position generator developed by (Tindall & Harshaw, 2005) that has been revised to include different scientific positions/fields. It is anticipated, for example, that people who have relationships to, or are, scientists or land-use managers will have different perceptions about the development and adoption biofuel than people who have, for example, relationships to (or are) members of environmental organizations or people with a regular connection to the land (*e.g.*, hunters, anglers). The position generator is a means of eliciting information about the characteristics of people’s social networks. Tindall & Lavalley (n.d.) developed a position generator (Lin *et al.*, 2001) for forest values to examine social networks. This approach asks people about their connections to nature through the relationships that they have with other people. The advantage of this approach is that it provides richer information about their connection to nature (*i.e.* what the connection are), as well as where they get their information from.

2.1.10. Question 10: The Adult Hope Scale.

The adult hope scale measures a cognitive model of hope (Snyder, 2002). In this approach, hope is defined as “a positive motivational state that is based on an interactively derived sense of successful (a) agency (goal-directed energy), and (b) pathways (planning to meet goals)” (Snyder *et al.* 1991, p. 287). The adult hope scale contains twelve items: four items measure pathways thinking; four items measure agency thinking; and four items are included to provide context. Respondents answer each item using a 8-point scale ranging from definitely false to definitely true and the scale.

2.1.11. Question 11: Demographics.

This final question asked respondents to provide information about themselves. Socioeconomic characteristics, such as urban and rural residency (Manfredo *et al.*, 2003; Clendenning *et al.*, 2005), gender, age, length of residency in community (Koval & Mertig, 2004; White *et al.*, 2005), income and education (Manfredo *et al.*, 2003) help to explain people’s attitudes, beliefs and perceptions toward environmental issues and land-use management. This information is useful as it allows the demographic characteristics of the final survey responses to be compared with Census data to determine the representativeness of the sample, and allow for weighting of data (if necessary) to Census data. Information about socioeconomic characteristics also permits for a segmentation of responses to other questions by particular socioeconomic characteristics. Information was collected about respondents’ age, gender, length of residence in their community, education, occupation, and household size and income.

2.2. Sample Selection.

As noted above, the issue of climate change is important to both Aboriginal and non-Aboriginal people; a third group that is concerned about potential climate impacts and fostering social resiliency and adaptation are community and landscape managers and planners. In an effort to characterize the attitudes, beliefs, and perspectives of residents of the South Selkirks region to forest management and climate change, all three groups were included in the survey as separate samples.

2.2.1. Non-Aboriginal Sample.

Initial sample recruitment was made by telephone in order to obtain valid mailing addresses (valid mailing addresses are difficult to obtain for rural areas and it was important to be able to include both rural and urban respondents in the sample); people that were not listed in the telephone directory were not included in the sample. Potential respondents were randomly selected from provincial telephone records for 36 communities in the South Selkirks region (Table 1), and were asked if they wish to participate in the survey (see Appendix B). Sample recruitment was done between Tuesday July 5th and Friday July 15th 2011. People that were willing to participate in the survey were given the option of completing the survey

using a paper-based questionnaire or an Internet-based questionnaire; potential respondents were asked to provide their email and postal address.

Table 1. Communities included in the non-Aboriginal sample.

| | | |
|--------------------|--------------------|---------------------|
| • Beasley | • Granite | • Rose Spur |
| • Blewett | • Hall | • Salmo |
| • Blueberry Creek | • Meadows | • Shavers Bench |
| • Bonnington Falls | • Montrose | • South Slocan |
| • Brilliant | • Mountain Station | • Sunningdale |
| • Castlegar | • Muray Heights | • Taghum |
| • Columbia Gardens | • Nelson | • Tarrys |
| • Crescent Valley | • Ootischenia | • Thrums |
| • Erie | • Park Siding | • Trail |
| • Fruitvale | • Porto Rico | • Upper China Creek |
| • Glade | • Raspberry | • Warfield |
| • Glenekle | • Riverdale | • Ymir |

2.2.2. Aboriginal Sample.

Initial sample recruitment was made by senior members of the Ktunaxa Nation St. Mary's Band and the Métis Nation British Columbia. One individual from each Aboriginal group was trained to administer the questionnaire to respondents. These survey administrators randomly selected members of their communities to complete the paper version of the questionnaire.

2.2.3. Community and Landscape Planners and Managers Sample.

In collaboration with another FFESC research project led by Rachel Holt, a sample of community and landscape managers and planners was enlisted to participate in the survey. A total of 159 people were asked to participate in the survey through an email invitation sent September 26, 2011; potential respondents were provided with information about the research project and asked to complete an on-line questionnaire.

2.3. Survey Delivery.

The survey design closely followed the Tailored Design Method (Dillman, 2000) and incorporated a multiple contact approach suitable for mail surveys. This multiple contact approach sought to maximize response rates, which is important in capturing the broad range of opinions and beliefs typically found in at the provincial scale and in drawing inferences to the provincial population. Four contact letters were developed to accompany this questionnaire; these are described below. All survey materials and the design of the survey's delivery conformed to the ethical guidelines set out by the University of British

Columbia's Office of Research Services, and received approval from the University of British Columbia's Research Ethics.

The first letter/email was an initial contact message (Appendix C) that was prepared to remind potential respondents that they had provided their name and mailing address for participation in a research project examining their opinions about climate change and forest management in the South Selkirks region. The mailing/email dates of the contact letters sent to potential respondents in the non-Aboriginal and forest and community planner/manager samples are listed in Tables 2 and 3². The second contact was a package that contained a questionnaire (Appendix A) and a stamped and addressed return envelope for potential respondents that indicated a preference for a paper-based questionnaire; a link to the Internet survey and a copy of the cover letter was emailed to those potential respondents that preferred an Internet-based questionnaire. A cover letter (Appendix D) accompanied the questionnaire and detailed the purpose and procedures of the survey, assured the potential respondents that their responses would be kept confidential, provided contact information should they have had any questions about the research project arise, and informed potential respondents of their rights as research subjects. The third contact was a reminder postcard (Appendix E) that was sent to everyone in the sample to remind people that had not completed or sent in their questionnaires to do so, and to thank those respondents that had completed and returned their questionnaires. The fourth contact was a replacement questionnaire package that was sent to all non-respondents. This package contained a cover letter asking respondents to complete the questionnaire (Appendix F), a questionnaire, and a stamped addressed return envelope.

Table 2. South Selkirks Forest Management & Climate Change Public Opinion Survey mailing dates: non-Aboriginal sample.

| Contact | Date Sent |
|------------|-----------------|
| Mailing #1 | July 21, 2011 |
| Email #1 | July 19, 2011 |
| Mailing #2 | July 26, 2011 |
| Email #2 | July 21, 2011 |
| Mailing #3 | July 28, 2011 |
| Email #3 | July 26, 2011 |
| Mailing #4 | August 16, 2011 |
| Email #4 | August 1, 2011 |

² The questionnaire was administered to the Aboriginal sample by senior members of the Ktunaxa St. Mary's Band and the Métis Nation British Columbia. The administration of these questionnaires took place between May 7 - September 26, 2011.

Table 3. South Selkirks Forest Management & Climate Change Public Opinion Survey Emailing Dates: Forest and community planner/manager sample.

| Contact | Date Sent |
|----------|--------------------|
| Email #1 | September 26, 2011 |
| Email #2 | September 28, 2011 |
| Email #3 | October 6, 2011 |
| Email #4 | October 13, 2011 |

2.4. Analysis.

The data from all completed questionnaires was entered twice in to a database to facilitate the verification of data for keying errors, and accuracy and consistency in data coding (Salant & Dillman, 1994). For each completed case (*i.e.* respondent's completed questionnaire), the data from the two datasets was compared, such that each cell (*i.e.* each answer to a question) was verified. When discrepancies were identified, the questionnaire was consulted and the necessary correction was made. The resultant dataset can be considered to be free of errors due to data entry mistakes. The data was also checked for outliers or obvious patterns; when these were identified they were checked against the corresponding questionnaire.

Tests for non-response bias were conducted by comparing early and late respondents on a number of demographic characteristics and key variables about attitudes towards oil and gas management. Three equal sized groups (*i.e.*, early respondents, late respondents, and respondents whose completed questionnaires were received after the first third of questionnaires, but before the last third of questionnaires) were created for the non-Aboriginal and Managers/Planners sample groups based on the date of questionnaire returns for each sample; this approach assumes that late respondents are similar to non-respondents (Armstrong and Overton 1977). T-tests were used to identify any differences between early and late respondents for age, environmental outlook (*i.e.*, new ecological paradigm score), and attitudes about climate change (*i.e.*, concern about climate change, and awareness of climate change effects); chi-square tests and nominal post hoc tests were calculated for gender, education, and household income, and how forest managers should prioritize their response to climate change.

Descriptive statistics were calculated for each question (except Question 3 – see below). For those questions that asked respondents to indicate their level of agreement or assessment of trust or importance, the percentage of responses was calculated for each interval. The mean response, 95% confidence interval, and standard deviation were also calculated for each question (or question item for those questions that had multiple items). In order to identify any differences between the three sample groups for each question, several statistical tests were employed. For each question, analysis of variance

(AVOVA) was used to test for differences between the mean scores for each sample group ($\alpha = 0.05$). *Levene's test* for homogeneity of variance (an assumption of ANOVA) was calculated; if results indicate that variance among the community means are not equal, then the *Welch F test* was employed to test for differences among mean scores (Field, 2005). *Post hoc* tests were used to identify where differences lay. As the sample sizes of the sample regions are not equal, the *Scheffe* test was employed for questions where there was homoscedasticity (*i.e.* homogeneity of variance) (Bluman, 2004). For questions where responses between constituencies were heteroscedastic, the *Games-Howell* test was used (Field, 2005). However, caution should be applied when interpreting differences between the three sample groups due to the size differences between the three groups.

For Question 11 (demographics) ANOVA and *post hoc* tests ($\alpha = 0.05$) were used to assess any differences in mean responses of the four sample regions for three items: age, years of residency in community, and number of people residing in each household. Chi-square tests of independence were employed to test for differences between the four sample regions ($\alpha = 0.05$) for three items: gender, highest level of education attained, and household income. No assessments were made for differences between the sample regions for employment sector and main connections to the natural environment. Open-ended responses to occupation and sector questions were assigned to the North American Industry Classification System (NAICS) standard³.

Detailed descriptions for more complex question analysis are presented below for questions one and three.

2.4.1. Question 1: Opinions and beliefs about how people relate to the environment.

In addition to the descriptive statistics calculated for responses to this question, an examination of the *New Ecological Paradigm Scale* was made to determine if the Scale was an appropriate metric for measuring environmental attitude for the four sample regions examined here. Responses to the items in the NEP Scale were recoded so that the items reflected a consistent scale (*i.e.* 1 = dominant social paradigm, reflective of anthropocentric attitudes; 5 = new ecological paradigm, reflective of biocentric attitudes). Cronbach's Alpha was calculated to test for unidimensionality (*i.e.* internal consistency) of the Scale. Tests were performed to gauge whether there were any gains in the internal consistency of the Scale if any of the 15 items are removed. A Principal Components Analysis was then employed to further examine the internal consistency of the scale and its applicability to study area. Cronbach's Alpha was then calculated again for each of the five facets of the NEP scale to examine whether the facets could be used alone or were better used together. Finally, a summative scale was constructed to provide an indicator of environmental attitude.

³ The NAICS is the standard used by Statistics Canada and BC Stats.

2.4.3. Question 3: Opinions about the relative priorities of resiliency factors for communities in transition.

The Thurstone Scale technique was used to analyze respondents' preference for six resiliency factors for communities in transition. Specifically, Thurstone's *Case V* was selected. This technique consists of presenting respondents with a table containing paired resiliency factors and asking which factor (in each pair) is their priority (Thurstone 1974). The observations consist of the proportions of times one factor is judged to be a greater or lower priority than the other factors. Four Thurstone scales were constructed in this analysis, including one for each of the three groups (*i.e.* non-Aboriginal, Aboriginal, Managers/Planners) and one for all groups in aggregate, to illustrate the relative priority of values that are considered in the sustainable management of natural resources. In total, 15 pairs of resource values that inform natural resource management (*i.e.* combinations of seven values taken two at a time) were presented to the respondents (*Eq. 1*).

$${}^6C_2 = \frac{6!}{(6-2)!2!} = 15 \text{ pairs of indicators} \quad (\text{Eq. 1})$$

Separate Thurstone Scales were constructed for each area of interest. In order to do this, the proportion of times that each natural resource value was selected over the others was computed for each area of interest. Next, z-scores corresponding to the proportions were assigned to each attribute based on the assumption that the proportions are normally distributed. Finally, a ranking scale was created to demonstrate the differences from each of the attributes' standardized means scores. The resultant Thurstone Scales illustrates the rank and the cumulative distances between the factors. Thus, it serves as an effective and straightforward visual tool for conveying how respondents within each area of interest prioritize the resource values that can be considered in the sustainable management of natural resources and how the distances between these values varies⁴.

Prior to constructing the Thurstone Scales for each sample region, the internal consistency (*i.e.* the degree to which the data fit the Thurstone *Case V* model) was assessed (Torgerson, 1958; Thurstone, 1959). The average absolute differences between derived and observed proportions was computed for each factor, summed, and divided by the number of factors to obtain a grand average known as the overall discrepancy of the analyses⁵. Average discrepancy values of up to 7% to 8% are generally considered acceptable (Thurstone 1959).

⁴ For a more detailed description and formulation of the technique and its applications, see Green and Tull (1978), and Malhotra (1986).

⁵ See Torgerson (1958) and Thurstone (1959) for a complete description of this methodology.

Thurstone's *Case V* procedure also allows for confidence intervals to be constructed around the scaled factors, and thus, inferential statistical techniques can readily be applied to the values observed on the scales that were constructed for each sample region. This is based on the premise that the unit of the intervals in each of the constructed scales is equal to $\sqrt{2}\sigma$, and the standard deviation of any scale value (s.v.) can be obtained by rearranging the terms to become $\sigma = \frac{1}{\sqrt{2}}$ (Thurstone 1974). Confidence intervals from Thurstone scales were computed (Agahian & Amirshahi, 2006; *Eq.2*).

$$95\% \text{ C.I.} = \text{s.v.} \pm \frac{1.96s}{\sqrt{n}} = \frac{1.39}{\sqrt{n}} \quad (\text{Eq. 2})$$

Where n is the sample size (*i.e.* the number of observations for each pair of responses), and s is the standard deviation, which is equal to $\frac{1}{\sqrt{2}}$. Confidence intervals were constructed for the observed scale values for all areas. Finally, comparisons of the sample regions were conducted to determine whether they differed with respect to the prioritization of the values considered in the sustainable management of natural resources. Instead of comparing scale values⁶, a modified Z-test for proportions was used as recommended by Sloan *et al.* (1994). Specifically, the average proportions of times that each factor was preferred over the others were compared between all areas of interest.

2.4.4. General Comments.

The open-ended comments that were provided by respondents are listed in Appendix G.

3. RESULTS.

A total of 4,117 sample recruitment telephone calls were completed for the non-Aboriginal sample; of these completed calls, 2,635 people (64.0%) declined to participate in the survey, 700 people were not eligible as the quotas for the survey stratifications were filled, and 771 people (22.5%) agreed to participate in the *South Selkirks Forest Management & Climate Change Public Opinion Survey* (Table 4). A total of 401 completed responses were received from non-Aboriginal respondents received between July 21 and September 30, 2011 (this represents a 52.0% response rate); 59 Aboriginal completed responses were received between May 7 and September 26, 2011; and 60 completed responses were received from the managers/planners sample between September 29 and October 28, 2011. The number of completed questionnaires from the non-Aboriginal sample is sufficient to estimate a sample error of

⁶ The scale value of a given resource value is dependent on the inter-relationships of all resource values in a group. Therefore, a resource value that has the same scale value in different sample groups may not be perceived as having the same priority given the rankings and distances of the other resource values on the scales.

$\pm 4.87\%$ at the 95% confidence interval (*i.e.* 19 times out of 20)⁷. The pattern of response by sample group is illustrated in Table 4.

Table 4. Completed questionnaire returns by sample group.

| Sample Group | Mail Returns | | Internet Returns | | Total Returns | | Return Rate |
|-------------------|--------------|-------------|------------------|--------------|---------------|---------------|-------------|
| | n | % | n | % | n | % | % |
| Non-Aboriginal | 244 | 50.3% | 157 | 49.6% | 401 | 77.1% | 52% |
| Aboriginal | 59 | 100.0% | – | – | 59 | 11.4% | – |
| Managers/Planners | – | – | 60 | 100.0% | 60 | 11.5% | 38% |
| TOTAL | 303 | 58.3 | 217 | 41.7% | 520 | 100.0% | |

A comparison of early and late respondents for selected demographic characteristics (*i.e.*, age, gender, education, and household income), environmental outlook (*i.e.*, new ecological paradigm score), and attitudes about climate change (*i.e.*, concern about climate change, and awareness of climate change effects, and how forest managers should prioritize their response to climate change) indicated a few significant differences; however, the differences were small⁸. Thus, we can assume that there is little, if any, non-response bias in this analysis and inferences can be made to the local population.

3.1. Question 1: Opinions and beliefs about how people relate to the environment.

In general, respondents expressed agreement with the biocentric statements presented to them in this question (Table 5), with the exception of *the earth has plenty of natural resources if we just learn how to develop them*; more than twice as many respondents (53.8%) strongly/mildly agreed with this statement than did respondents that strongly/mildly disagreed (22.2%). Almost two-thirds of respondents (64.0%) strongly/mildly agreed that *we are approaching the limit of the number of people the earth can support*, while fewer than one in five respondents (19.2%) strongly/mildly disagreed with this statement. Fewer than half of all respondents (48.3%) strongly/mildly disagreed that *humans have the right to modify the*

⁷ Compared to regional demographic information (Statistics Canada, 2012a, 2012b, 2012c, 2012d, 2012e, 2012f, 2012g).

⁸ The mean age of early Non-Aboriginal respondents ($\bar{x} = 50.26$) was significantly lower than the mean age of late Non-Aboriginal respondents ($\bar{x} = 56.45$): $t(259) = -3.512$, $p < 0.05$.

A higher proportion of early Non-Aboriginal respondents indicated secondary and post-secondary education than did late Non-Aboriginal respondents ($\chi^2 = 24.734$, $df = 5$, $p < 0.05$; Cramer's $V = 0.311$).

Table 5. Question 1: Opinions and beliefs about how people relate to the environment (most frequently identified response in **bold**).

| Item | n | Strongly Agree (1) | Mildly Agree (2) | Partly Agree/ Disagree (3) | Mildly Disagree (4) | Strongly Disagree (5) | Mean | 95% CI | SD |
|---|-----|-----------------------|---------------------|----------------------------------|------------------------|--------------------------|-------------------|--------|-------|
| We are approaching the limit of the number of people the earth can support. | 494 | 40.9% | 23.1% | 16.8% | 11.5% | 7.7% | 2.22 | ± 0.11 | 1.298 |
| Humans have the right to modify the natural environment to suit their needs. | 512 | 4.3% | 13.1% | 34.4% | 18.6% | 29.7% | 3.56 ^a | ± 0.10 | 1.167 |
| When humans interfere with nature it often produces disastrous consequences. | 516 | 46.7% | 20.5% | 19.4% | 7.6% | 5.8% | 2.05 ^b | ± 0.11 | 1.219 |
| Human ingenuity will insure that we do NOT make the earth unlivable. | 499 | 9.0% | 16.6% | 24.0% | 23.8% | 26.5% | 3.42 ^c | ± 0.11 | 1.284 |
| Humans are severely abusing the environment. | 512 | 54.3% | 22.7% | 12.9% | 4.9% | 5.3% | 1.84 ^d | ± 0.10 | 1.149 |
| The earth has plenty of natural resources if we just learn how to develop them. | 509 | 27.9% | 25.9% | 24.0% | 12.4% | 9.8% | 2.50 ^e | ± 0.11 | 1.284 |
| Plants and animals have as much right as humans to exist. | 515 | 64.5% | 15.5% | 11.3% | 4.7% | 4.1% | 1.68 | ± 0.10 | 1.101 |
| The balance of nature is strong enough to cope with the impacts of modern industrial nations. | 505 | 4.0% | 5.9% | 16.2% | 20.2% | 53.7% | 4.14 ^f | ± 0.10 | 1.130 |
| Despite our special abilities humans are still subject to the laws of nature. | 511 | 71.8% | 18.8% | 7.2% | 0.6% | 1.6% | 1.41 | ± 0.07 | 0.782 |
| The so-called 'ecological crisis' facing humankind has been greatly exaggerated. | 511 | 7.2% | 13.3% | 15.9% | 20.2% | 43.4% | 3.79 ^g | ± 0.11 | 1.318 |

Table 5 (cont'd). Question 1: Opinions and beliefs about how people relate to the environment (most frequently identified response in **bold**).

| Item | n | Strongly Agree (1) | Mildly Agree (2) | Partly Agree/ Disagree (3) | Mildly Disagree (4) | Strongly Disagree (5) | Mean | 95% CI | SD |
|---|-----|-----------------------|---------------------|----------------------------------|------------------------|--------------------------|-------------------|--------|-------|
| The earth is a closed system with very limited room and resources. | 499 | 30.5% | 26.7% | 19.0% | 13.4% | 10.4% | 2.47 | ± 0.12 | 1.325 |
| Humans were meant to rule over the rest of nature. | 505 | 8.3% | 7.1% | 14.9% | 17.4% | 52.3% | 3.98 ^h | ± 0.11 | 1.307 |
| The balance of nature is very delicate and easily upset. | 516 | 46.1% | 23.8% | 17.1% | 9.7% | 3.3% | 2.00 | ± 0.10 | 1.148 |
| Humans will eventually learn enough about how nature works to be able to control it. | 495 | 4.4% | 10.3% | 16.6% | 29.7% | 39.0% | 3.88 | ± 0.10 | 1.165 |
| If things continue on their present course, we will soon experience a major ecological catastrophe. | 504 | 46.0% | 24.0% | 17.3% | 7.7% | 5.0% | 2.02 | ± 0.10 | 1.180 |

^a The mean response of Manager/Planner sample group was significantly lower than the mean responses of the Aboriginal and Non-Aboriginal sample groups.

^b The mean response of the Manager/Planner sample group was significantly higher than the mean response of the Non-Aboriginal sample group.

^c The mean response of the Aboriginal sample group was significantly lower than the mean response of the Non-Aboriginal sample group.

^d The mean response of the Manager/Planner sample group was significantly higher than the mean response of the Non-Aboriginal sample group.

^e The mean response of the Manager/Planner sample group was significantly higher than the mean responses of the Non-Aboriginal and Aboriginal sample groups.

^f The mean response of the Aboriginal sample group was significantly lower than the mean response of the Non-Aboriginal and Manager/Planner sample groups.

^g The mean response of the Manager/Planner sample group was significantly higher than the mean response of the Non-Aboriginal and Aboriginal sample groups.

^h The mean response of the Manager/Planner sample group was significantly higher than the mean response of the Non-Aboriginal and Aboriginal sample groups.

natural environment to suit their needs, while fewer than one in five respondents (17.4%) strongly/mildly agreed with this statement. More than two-thirds of respondents (67.2%) strongly/mildly agreed that *when humans interfere with nature it often produces disastrous consequences*, while more than one in ten respondents (13.4%) strongly/mildly disagreed. Just more than twice as many respondents strongly/mildly disagreed (50.3%) that *human ingenuity will insure that we do NOT make the earth unlivable* than did respondents that strongly/mildly agreed (25.6%). More than three-quarters (77.0%) of respondents strongly/mildly agreed that *humans are severely abusing the environment*, while one in ten (10.2%) strongly/mildly disagreed. Four in five respondents in five (80.0%) strongly/mildly agreed that *plants and animals have as much right as humans to exist*, while fewer than one in ten respondents (8.8%) strongly/mildly disagreed. More than seven times as many respondents strongly/mildly disagreed (73.9%) that *the balance of nature is strong enough to cope with the impacts of modern industrial nations* than did respondents that strongly/mildly agreed (9.9%). Nine respondents in ten (90.6%) strongly/mildly agreed that *despite our special abilities humans are still subject to the laws of nature*, while fewer than five respondents in twenty (2.2%) strongly/mildly disagreed. Three-times as many respondents strongly/mildly disagreed (63.6%) that *the so-called 'ecological crisis' facing humankind has been greatly exaggerated* than did respondents that strongly/mildly agreed (20.5%). More than half of respondents (57.2%) strongly/mildly agreed that *the earth is a closed system with very limited room and resources*, while fewer than one-quarter of respondents strongly/mildly disagreed. Four times as many respondents strongly/mildly disagreed (69.7%) that *humans were meant to rule over the rest of nature* than did respondents that strongly/mildly agreed (15.4%). Seven out of ten respondents (69.9%) strongly/mildly agreed that *the balance of nature is very delicate and easily upset*, while just more than one in ten respondents (13.0%) strongly/mildly disagreed. Four times as many respondents strongly/mildly disagreed (68.7%) that *humans will eventually learn enough about how nature works to be able to control it* than did respondents that strongly mildly agreed (14.7%). Seven respondents out of ten (70.0%) strongly/mildly agreed that *if things continue on their present course, we will soon experience a major ecological catastrophe*, while just more than one respondent in ten (12.7%) strongly/mildly disagreed.

ANOVA results indicated that that there were statistically significant differences between the mean responses of the three sample groups for nine of the fifteen items in Question 1 (Table 6). There were significant differences between the mean responses of the three sample groups for the second item, *humans have the right to modify the natural environment to suit their needs*. Although the Levene statistic (15.629, $p < 0.05$) indicated that the variances of the mean responses between sample groups were not equal, the Welch F Test (14.961, $p < 0.05$) confirmed the presence of these differences. The Games-Howell *post hoc* test revealed that the mean response of the Manager/Planner sample group ($\bar{x} = 2.93$) was significantly lower (*i.e.*, more agreeable) than the mean responses of the Aboriginal ($\bar{x} = 6.63$) and Non-Aboriginal ($\bar{x} = 3.65$) sample groups.

Table 6. Question 1: Opinions and beliefs about how people relate to the environment (significant differences between sample groups in **bold**).

| Item | n | df | F | p |
|--|------------|----------|---------------|--------------|
| We are approaching the limit of the number of people the earth can support. | 493 | 2 | 0.423 | 0.656 |
| Humans have the right to modify the natural environment to suit their needs. | 511 | 2 | 9.915 | 0.000 |
| When humans interfere with nature it often produces disastrous consequences. | 515 | 2 | 12.775 | 0.000 |
| Human ingenuity will insure that we do NOT make the earth unlivable. | 498 | 2 | 3.106 | 0.046 |
| Humans are severely abusing the environment. | 511 | 2 | 6.336 | 0.002 |
| The earth has plenty of natural resources if we just learn how to develop them. | 508 | 2 | 7.897 | 0.000 |
| Plants and animals have as much right as humans to exist. | 514 | 2 | 0.255 | 0.775 |
| The balance of nature is strong enough to cope with the impacts of modern industrial nations. | 504 | 2 | 9.631 | 0.000 |
| Despite our special abilities humans are still subject to the laws of nature. | 510 | 2 | 0.024 | 0.976 |
| The so-called 'ecological crisis' facing humankind has been greatly exaggerated. | 510 | 2 | 6.065 | 0.002 |
| The earth is a closed system with very limited room and resources. | 498 | 2 | 1.411 | 0.245 |
| Humans were meant to rule over the rest of nature. | 504 | 2 | 6.352 | 0.002 |
| The balance of nature is very delicate and easily upset. | 515 | 2 | 21.118 | 0.000 |
| Humans will eventually learn enough about how nature works to be able to control it. | 494 | 2 | 2.102 | 0.123 |
| If things continue on their present course, we will soon experience a major ecological catastrophe. | 503 | 2 | 1.874 | 0.155 |

There were significant differences between the mean responses of the three sample groups for the third item, *when humans interfere with nature it often produces disastrous consequences*. Although the Levene statistic (3.895, $p < 0.05$) indicated that the variances of the mean responses between sample groups were not equal, the Welch F Test (11.518, $p < 0.05$) confirmed the presence of these differences. The Games-Howell *post hoc* test revealed that the mean response of the Manager/Planner sample group ($\bar{x} = 2.72$) was significantly higher (*i.e.*, less agreeable) than the mean response of the Non-Aboriginal sample group ($\bar{x} = 1.92$).

There were significant differences between the mean responses of the three sample groups for the fourth item, *human ingenuity will insure that we do NOT make the earth unlivable*. As the Levene statistic (0.093, $p > 0.05$) indicated that the mean responses of the sample groups were equal, a Scheffe *post hoc* test was used to identify where the differences lay: the mean response of the Aboriginal sample group ($\bar{x} = 3.04$) was significantly lower (*i.e.*, more agreeable) than the mean response of the Non-Aboriginal sample group ($\bar{x} = 3.48$).

There were significant differences between the mean responses of the three sample groups for the fifth item, *humans are severely abusing the environment*. Although the Levene statistic (3.998, $p < 0.05$) indicated that the variances of the mean responses between sample groups were not equal, the Welch F Test (5.073, $p < 0.05$) confirmed the presence of these differences. The Games-Howell *post hoc* test revealed that the mean response of the Manager/Planner sample group ($\bar{x} = 2.28$) was significantly higher (*i.e.*, less agreeable) than the mean response of the Non-Aboriginal sample group ($\bar{x} = 1.75$).

There were significant differences between the mean responses of the three sample groups for the sixth item, *the earth has plenty of natural resources if we just learn how to develop them*. As the Levene statistic (2.454, $p > 0.05$) indicated that the mean responses of the sample groups were equal, a Scheffe *post hoc* test was used to identify where the differences lay: the mean response of the Manager/Planner sample group ($\bar{x} = 3.12$) was significantly higher (*i.e.*, less agreeable) than the mean responses of the Non-Aboriginal ($\bar{x} = 2.43$) and Aboriginal ($\bar{x} = 2.40$) sample groups.

There were significant differences between the mean responses of the three sample groups for the eighth item, *the balance of nature is strong enough to cope with the impacts of modern industrial nations*. Although the Levene statistic (11.925, $p < 0.05$) indicated that the variances of the mean responses between sample groups were not equal, the Welch F Test (5.855, $p < 0.05$) confirmed the presence of these differences. The Games-Howell *post hoc* test revealed that the mean response of the Aboriginal sample group ($\bar{x} = 3.54$) was significantly lower (*i.e.*, more agreeable) than the mean response of the Non-Aboriginal ($\bar{x} = 4.22$) and Manager/Planner ($\bar{x} = 4.16$) sample groups.

There were significant differences between the mean responses of the three sample groups for the tenth item, *the so-called 'ecological' crisis' facing humankind has been greatly exaggerated*. Although the Levene statistic (6.264, $p < 0.05$) indicated that the variances of the mean responses between sample groups were not equal, the Welch F Test (7.184, $p < 0.05$) confirmed the presence of these differences. The Games-Howell *post hoc* test revealed that the mean response of the Manager/Planner sample group ($\bar{x} = 4.25$) was significantly higher (*i.e.*, less agreeable) than the mean response of the Non-Aboriginal ($\bar{x} = 3.78$) and Aboriginal ($\bar{x} = 3.42$) sample groups.

There were significant differences between the mean responses of the three sample groups for the thirteenth item, *the balance of nature is very delicate and easily upset*. Although the Levene statistic (5.359, $p < 0.05$) indicated that the variances of the mean responses between sample groups were not equal, the Welch F Test (16.098, $p < 0.05$) confirmed the presence of these differences. The Games-Howell *post hoc* test revealed that the mean response of the Manager/Planner sample group ($\bar{x} = 2.88$)

was significantly higher (*i.e.*, less agreeable) than the mean response of the Non-Aboriginal ($\bar{x} = 1.88$) and Aboriginal ($\bar{x} = 1.93$) sample groups.

Cronbach's Alpha was calculated to be 0.846, which suggests the unidimensionality of the NEP Scale. This suggestion is supported as there are not any gains in Cronbach's Alpha if any of the 15 items were removed from the Scale. Cronbach's Alpha for the five facets were not as strong individually as for all items together (Reality of Limits to Growth $\alpha = 0.603$; Anti-Anthropocentrism $\alpha = 0.541$; Fragility of Nature's Balance $\alpha = 0.562$; Rejection of Exemptionalism $\alpha = 0.433$; Possibility of an Eco-Crisis $\alpha = 0.736$), which provides further evidence that the application of the NEP Scale to the sample groups in aggregate is suitable as it is a unidimensional scale.

Three components were identified in the Principal Components Analysis (PCA) (Component #1 Eigen Value = 4.925; Component #2 Eigen Value = 1.445; Component #3 Eigen Value = 1.200). The two components explain a total of 50.5% of the variance: Component #1 = 32.8%; Component #2 = 9.6%; Component #3 = 7.9%. Due to the number of differences between the three sample groups for the individual Scale items, the unrotated PCA solution did not present a clear loading of Scale items for all components (although there were no items that were cross-loaded). The Anti-anthropocentrism, Fragility of Nature's Balance, and the Possibility of an Eco Crisis sub-scales loaded consistently on the first component; the Reality of Limits to Growth sub-scale loaded on the second and third components; and the Rejection of Exemptionalism sub-scale loaded on the first and second components. Despite these discrepancies, there is evidence of the unidimensionality of the NEP Scale.

Applying the NEP as a summative scale indicated that respondents were generally accepting of the new ecological paradigm and tended to be biocentric in their attitudes. The minimum score was 1.47 and the maximum score was 5 (*i.e.* the top bound). The mean score was 3.75 ± 0.06 ($n = 519$) and the standard deviation was 0.695. There were not any statistically significant difference of the mean NEP Scale scores between the three sample groups $F(2, 516) = 2.542$, $p = 0.08$.

3.2. Question 2: Opinions and beliefs about forest management in BC.

Respondents' attitudes about forest management in BC were mixed (Table 7). An almost equal proportion of respondents strongly/mildly agreed (38.6%) and strongly/mildly disagreed (38.1%) that *local forest managers are responsive to Public concerns*. Almost three-quarters of respondents (71.6%) strongly/mildly agreed that *overall, sustainable forest management practices produce positive results for*

Table 7. Question 2: Opinions and beliefs about forest management in BC (most frequently identified response in **bold).**

| Item | n | Strongly Agree (1) | Mildly Agree (2) | Partly Agree/ Disagree (3) | Mildly Disagree (4) | Strongly Disagree (5) | Mean | 95% CI | SD |
|---|-----|-----------------------|---------------------|----------------------------------|------------------------|--------------------------|-------------------|--------|-------|
| Local forest managers are responsive to public concerns. | 407 | 10.3% | 28.3% | 23.3% | 29.0% | 9.1% | 2.98 | ± 0.11 | 1.163 |
| Overall, sustainable forest management practices produce positive results for the local community. | 471 | 21.9% | 49.5% | 16.1% | 8.5% | 4.0% | 2.23 ^a | ± 0.09 | 1.015 |
| It is a priority to manage insect outbreaks even if there is a negative impact on other resource values in the short-term. | 455 | 14.1% | 36.3% | 18.5% | 23.3% | 7.9% | 2.75 | ± 0.11 | 1.189 |
| Local communities should receive a fair share of locally generated government income. | 488 | 46.1% | 46.5% | 5.7% | 0.8% | 0.8% | 1.64 | ± 0.06 | 0.703 |
| In general, the forest industry is more environmentally sensitive than other industries in my area. | 456 | 15.4% | 39.5% | 18.6% | 19.7% | 6.8% | 2.63 | ± 0.11 | 1.160 |
| You would be prepared to accept some visual change in your views from your community if it reduced ecological impacts in the backcountry. | 454 | 20.7% | 48.9% | 18.5% | 9.0% | 2.9% | 2.24 ^b | ± 0.09 | 0.976 |
| Forest roads that are no longer in use by forestry companies should be deactivated, even if that means less access to remote areas. | 503 | 19.7% | 18.9% | 12.2% | 29.2% | 19.9% | 3.11 ^c | ± 0.13 | 1.434 |
| There are enough checks and balances in place (e.g., legislation, professional ethics, forest certification) to ensure responsible forest management. | 447 | 8.7% | 16.3% | 13.9% | 36.2% | 24.8% | 3.52 | ± 0.12 | 1.265 |
| The forest industry controls too much of British Columbia's forests. | 411 | 21.7% | 32.1% | 18.5% | 20.4% | 7.3% | 2.60 | ± 0.12 | 1.235 |
| I know enough about forests and forestry to provide meaningful input into forestry planning decisions. | 422 | 16.6% | 21.1% | 22.0% | 28.4% | 11.8% | 2.98 ^d | ± 0.12 | 1.279 |
| British Columbia has enough protected areas such as provincial and national parks. | 472 | 10.6% | 17.2% | 12.3% | 37.7% | 22.2% | 3.44 ^e | ± 0.12 | 1.294 |
| The citizens of British Columbia need to have more opportunities for input into forest management. | 475 | 25.7% | 45.5% | 19.2% | 8.0% | 1.7% | 2.15 | ± 0.09 | 0.949 |

Table 7 (cont'd). Question 2: Opinions and beliefs about forest management in BC (most frequently identified response in **bold**).

| Item | n | Strongly Agree (1) | Mildly Agree (2) | Partly Agree/ Disagree (3) | Mildly Disagree (4) | Strongly Disagree (5) | Mean | 95% CI | SD |
|--|-----|-----------------------|---------------------|----------------------------------|---------------------------|--------------------------|-------------------|--------|-------|
| If forests are well managed to protect aesthetic values, the ecosystem is being managed well also. | 453 | 7.9% | 17.2% | 19.2% | 34.4% ^f | 21.2% | 3.44 ^f | ± 0.11 | 1.222 |
| Providing long-term security of forest lands to forestry companies will promote sustainable forest management. | 448 | 9.6% | 23.4% | 19.4% | 27.9% | 19.6% | 3.25 | ± 0.12 | 1.275 |
| Forest management currently focuses too much attention on timber resources and not enough attention on non-timber resources (<i>e.g.</i> , recreation, visual quality). | 437 | 20.6% | 39.4% | 20.1% | 16.5% | 3.4% | 2.45 | ± 0.10 | 1.093 |
| There will be sufficient wood in British Columbia to meet our future needs. | 446 | 9.4% | 25.6% | 18.8% | 29.8% | 16.4% | 3.18 | ± 0.12 | 1.247 |
| Forest companies have earned the trust to manage forests for the long-term. | 459 | 2.0% | 10.9% | 15.3% | 39.4% | 32.5% | 3.90 | ± 0.09 | 1.040 |
| Current forest management practices conserve cultural/heritage resources in this area. | 391 | 5.1% | 21.5% | 23.0% | 37.9% | 12.5% | 3.31 ^g | ± 0.11 | 1.098 |
| More investment is needed to determine what the effects of climate change are/will be on British Columbia's forests. | 464 | 34.7% | 39.4% | 10.1% | 9.9% | 5.8% | 2.13 ^h | ± 0.11 | 1.164 |

^a The mean response of the Manager/Planner sample group was significantly lower than the mean response of the Non-Aboriginal and Aboriginal sample groups.

^b The mean response of the Manager/Planner sample group was significantly lower than the mean response of the Non-Aboriginal and Aboriginal sample groups

^c The mean response of the Manager/Planner sample group was significantly lower than the mean response of the Non-Aboriginal and Aboriginal sample groups.

^d The mean responses of all three sample groups were significantly different: the mean response of the Aboriginal sample group was significantly lower than the mean responses of the Manager/Planner and Non-Aboriginal sample groups; the mean response of the Manager/Planner sample group was significantly higher than the mean response of the Aboriginal sample group, and was significantly lower than the mean response of the Non-Aboriginal sample group; and the mean response of the Non-Aboriginal sample group was significantly higher than the mean responses of both the Manager/Planner and Aboriginal sample groups.

^e The mean response of the Aboriginal sample group was significantly lower than the mean response of the Non-Aboriginal sample group.

^f The mean response of the Manager/Planner sample group was significantly higher than the mean responses of the Non-Aboriginal and Aboriginal sample groups.

^g The mean response of the Manager/Planner sample group was significantly higher than the mean response of the Aboriginal sample group.

^h The mean response of...

the local community, while just more than one respondent in ten (12.5%) strongly/mildly disagreed. Half of respondents (50.4%) strongly/mildly agreed that *it is a priority to manage insect outbreaks even if there is a negative impact on other resource values in the short-term*, while fewer than one-third of respondents (31.2%) strongly/mildly disagreed. Almost all respondents (92.6%) strongly/mildly agreed that *local communities should receive a fair share of locally generated government income*; just 1.6% of respondents strongly/mildly disagreed with this statement. Just more than half of respondents (54.9%) strongly/mildly agreed that *in general, the forest industry is more environmentally sensitive than other industries in my area*; one quarter of respondents (26.5%) strongly/mildly disagreed with this statement. More than two-thirds of respondents (69.6%) strongly/mildly agreed that *they would be prepared to accept some visual change in your views from your community if it reduced ecological impacts in the backcountry*, while just more than one respondent in ten (11.9%) strongly/mildly disagreed. More than one-third of respondents (38.6%) strongly/mildly agreed that *forest roads that are no longer in use by forestry companies should be deactivated, even if that means less access to remote areas*, while almost half of respondents (49.1%) strongly/mildly disagreed. One-quarter of respondents (25.0%) strongly/mildly agreed that *there are enough checks and balances in place (e.g., legislation, professional ethics, forest certification) to ensure responsible forest management*; almost two-thirds of respondents (61.0%) strongly/mildly disagreed with this statement. More than half of respondents (53.8%) strongly/mildly agreed that *the forest industry controls too much of British Columbia's forests*, while more than one-quarter of respondents (27.7%) strongly/mildly disagreed. More than one-third of respondents (37.7%) strongly/mildly agreed with the statement that *I know enough about forests and forestry to provide meaningful input into forestry planning decisions*, while two in five respondents (40.2%) strongly/mildly disagreed. More than one-quarter of respondents (27.8%) strongly/mildly agreed that *British Columbia has enough protected areas such as provincial and national parks*, while three respondents out of five (59.9%) strongly/mildly disagreed. Seven respondents out of ten (71.2%) strongly/mildly agreed that *the citizens of British Columbia need to have more opportunities for input into forest management*, while fewer than one on ten (9.7%) strongly/mildly disagreed. One-quarter of respondents (25.1%) strongly/mildly agreed with the statement that *if forests are well managed to protect aesthetic values, the ecosystem is being managed well also*; more than half of respondents (55.6%) strongly/mildly disagreed. One-third of respondents (33.0%) strongly/mildly agreed that *providing long-term security of forest lands to forestry companies will promote sustainable forest management*, while almost half (47.5%) strongly/mildly disagreed. Three respondents in five (60.0%) strongly/mildly agreed that *forest management currently focuses too much attention on timber resources and not enough attention on non-timber resources (e.g., recreation, visual quality)*, while one respondent in five (19.9%) strongly/mildly disagreed. More than one-third of respondents (35.0%) strongly/mildly agreed with the statement that *there will be sufficient wood in British Columbia to meet our future needs*, while more than two respondents in five (46.2%) strongly/mildly disagreed. Just more than one respondent in ten (12.9%)

strongly/mildly agreed with the statement that *forest companies have earned the trust to manage forests for the long-term*, while more than seven respondents in ten (71.9%) strongly/mildly disagreed. Half as many respondents strongly/mildly agreed (26.6%) that *current forest management practices conserve cultural/heritage resources in this area* than did respondents that strongly/mildly disagreed (50.4%). Five times as many respondents strongly/mildly agreed (74.1%) that *more investment is needed to determine what the effects of climate change are/will be on British Columbia's forests* than did respondents that strongly/mildly disagreed (15.7%).

ANOVA results indicated that there were statistically significant differences between the mean responses of the three samples for eight of the nineteen items in Question 2 (Table 8). There were significant differences between the mean responses of the three sample groups for the second item, *overall, sustainable forest management practices produce positive results for the local community*. As the Levene statistic (1.157, $p > 0.05$) indicated that the mean responses of the sample groups were equal, a Scheffe *post hoc* test was used to identify where the differences lay: the mean response of the Manager/Planner sample group ($\bar{x} = 1.86$) was significantly lower (*i.e.*, more agreeable) than the mean response of the Non-Aboriginal ($\bar{x} = 2.27$) and Aboriginal ($\bar{x} = 2.40$) sample groups.

Significant differences were found between the mean responses of the three sample groups for the sixth item, *you would be prepared to accept some visual change in your views from your community if it reduced ecological impacts in the backcountry*. As the Levene statistic (0.559, $p > 0.05$) indicated that the mean responses of the sample groups were equal, a Scheffe *post hoc* test was used to identify where the differences lay: the mean response of the Manager/Planner sample group ($\bar{x} = 1.91$) was significantly lower (*i.e.*, more agreeable) than the mean response of the Non-Aboriginal ($\bar{x} = 2.27$) and Aboriginal ($\bar{x} = 2.47$) sample groups.

There were significant differences between the mean responses of the three sample groups for the seventh item, *forest roads that are no longer in use by forestry companies should be deactivated, even if that means less access to remote areas*. As the Levene statistic (0.067, $p > 0.05$) indicated that the mean responses of the sample groups were equal, a Scheffe *post hoc* test was used to identify where the differences lay: the mean response of the Manager/Planner sample group ($\bar{x} = 2.32$) was significantly lower (*i.e.*, more agreeable) than the mean response of the Non-Aboriginal ($\bar{x} = 3.18$) and Aboriginal ($\bar{x} = 3.40$) sample groups.

Table 8. Question 2: Opinions and beliefs about forest management in BC (significant differences between sample groups in **bold**).

| Item | n | df | F | p |
|--|------------|----------|---------------|--------------|
| Local forest managers are responsive to public concerns. | 406 | 2 | 0.687 | 0.504 |
| Overall, sustainable forest management practices produce positive results for the local community. | 470 | 2 | 4.815 | 0.009 |
| It is a priority to manage insect outbreaks even if there is a negative impact on other resource values in the short-term. | 454 | 2 | 2.851 | 0.059 |
| Local communities should receive a fair share of locally generated government income. | 487 | 2 | 0.609 | 0.544 |
| In general, the forest industry is more environmentally sensitive than other industries in my area. | 455 | 2 | 1.703 | 0.183 |
| You would be prepared to accept some visual change in your views from your community if it reduced ecological impacts in the backcountry. | 453 | 2 | 4.772 | 0.009 |
| Forest roads that are no longer in use by forestry companies should be deactivated, even if that means less access to remote areas. | 502 | 2 | 11.033 | 0.000 |
| There are enough checks and balances in place (<i>e.g.</i> , legislation, professional ethics, forest certification) to ensure responsible forest management. | 446 | 2 | 1.508 | 0.222 |
| The forest industry controls too much of British Columbia's forests. | 410 | 2 | 1.821 | 0.163 |
| I know enough about forests and forestry to provide meaningful input into forestry planning decisions. | 421 | 2 | 32.671 | 0.000 |
| British Columbia has enough protected areas such as provincial and national parks. | 471 | 2 | 3.609 | 0.028 |
| The citizens of British Columbia need to have more opportunities for input into forest management. | 474 | 2 | 0.304 | 0.967 |
| If forests are well managed to protect aesthetic values, the ecosystem is being managed well also. | 452 | 2 | 12.550 | 0.000 |
| Providing long-term security of forest lands to forestry companies will promote sustainable forest management. | 447 | 2 | 1.101 | 0.334 |
| Forest management currently focuses too much attention on timber resources and not enough attention on non-timber resources (<i>e.g.</i> , recreation, visual quality). | 436 | 2 | 0.362 | 0.697 |
| There will be sufficient wood in British Columbia to meet our future needs. | 445 | 2 | 1.980 | 0.139 |
| Forest companies have earned the trust to manage forests for the long-term. | 458 | 2 | 2.856 | 0.059 |
| Current forest management practices conserve cultural/heritage resources in this area. | 390 | 2 | 3.509 | 0.031 |
| More investment is needed to determine what the effects of climate change are/will be on British Columbia's forests. | 463 | 2 | 7.335 | 0.001 |

There were significant differences between the mean responses of the three sample groups for the tenth item, *I know enough about forests and forestry to provide meaningful input into forestry planning decisions*. Although the Levene statistic (3.631, $p < 0.05$) indicated that the variances of the mean responses between sample groups were not equal, the Welch F Test (26.394, $p < 0.05$) confirmed the presence of these differences. The Games-Howell *post hoc* test revealed that the mean responses of all three sample groups were significantly different: the mean response of the Aboriginal sample group ($\bar{x} = 2.28$) was significantly lower (*i.e.*, more agreeable) than the mean responses of the Manager/Planner (\bar{x}

= 2.68) and Non-Aboriginal ($\bar{x} = 3.22$) sample groups; the mean response of the Manager/Planner sample group was significantly higher (*i.e.*, less agreeable) than the mean response of the Aboriginal sample group, and was significantly lower (*i.e.*, more agreeable) than the mean response of the Non-Aboriginal sample group; and the mean response of the Non-Aboriginal sample group was significantly higher (*i.e.*, less agreeable) than the mean responses of both the Manager/Planner and Aboriginal sample groups.

There were significant differences between the mean responses of the three sample groups for the eleventh item, *British Columbia has enough protected areas such as provincial and national parks*. Although the Levene statistic (6.377, $p < 0.05$) indicated that the variances of the mean responses between sample groups were not equal, the Welch F Test (3.168, $p < 0.05$) confirmed the presence of these differences. The Games-Howell *post hoc* test revealed that the mean response of the Aboriginal sample group ($\bar{x} = 3.04$) was significantly lower (*i.e.*, more agreeable) than the mean response of the Non-Aboriginal ($\bar{x} = 3.52$) sample group.

Significant differences were identified between the mean responses of the three sample groups for the thirteenth item, *if forests are well managed to protect aesthetic values, the ecosystem is being managed well also*. Although the Levene statistic (3.237, $p < 0.05$) indicated that the variances of the mean responses between sample groups were not equal, the Welch F Test (15.242, $p < 0.05$) confirmed the presence of these differences. The Games-Howell *post hoc* test revealed that the mean response of the Manager/Planner sample group ($\bar{x} = 4.14$) was significantly higher (*i.e.*, less agreeable) than the mean responses of the Non-Aboriginal ($\bar{x} = 3.37$) and Aboriginal ($\bar{x} = 3.10$) sample groups.

There were significant differences between the mean responses of the three sample groups for the eighteenth item, *current forest management practices conserve cultural/heritage resources in this area*. As the Levene statistic (0.319, $p > 0.05$) indicated that the mean responses of the sample groups were equal, a Scheffe *post hoc* test was used to identify where the differences lay: the mean response of the Manager/Planner sample group ($\bar{x} = 2.94$) was significantly lower (*i.e.*, more agreeable) than the mean response of the Aboriginal ($\bar{x} = 3.47$) sample group.

Lastly, significant differences were identified between the mean responses of the three sample groups for the nineteenth item, *more investment is needed to determine what the effects of climate change are/will be on British Columbia's forests*. As the Levene statistic (1.813, $p > 0.05$) indicated that the mean responses of the sample groups were equal, a Scheffe *post hoc* test was used to identify where the differences lay: the mean response of the Manager/Planner sample group ($\bar{x} = 1.66$) was significantly

lower (*i.e.*, more agreeable) than the mean response of the Non-Aboriginal ($\bar{x} = 2.14$) and Aboriginal ($\bar{x} = 2.48$) sample groups.

3.3. Question 3: Opinions about the relative priorities of community resiliency factors.

In total, four Thurstone scales were constructed in this analysis, including one for each of the three groups (*i.e.*, Public, Aboriginal, Managers/Planners) and one for all groups in aggregate. First, 15 pairs of resiliency indicators were presented to respondents (a combination of six indicators taken two at a time; Eq. 1).

$${}^6C_2 = \frac{6!}{(6-2)!2!} = 15 \text{ pairs of indicators} \quad (\text{Eq. 1})$$

Then, the proportions of times that each indicator was selected over the others were computed and displayed in a two-way table (Table 9). Next, corresponding z-scores (unit normal deviates) were assigned to these observed proportions based on the assumption that the proportions are normally distributed (see Figure 1). Finally, mean z-scores were used to rank the six indicators and to obtain scale values.

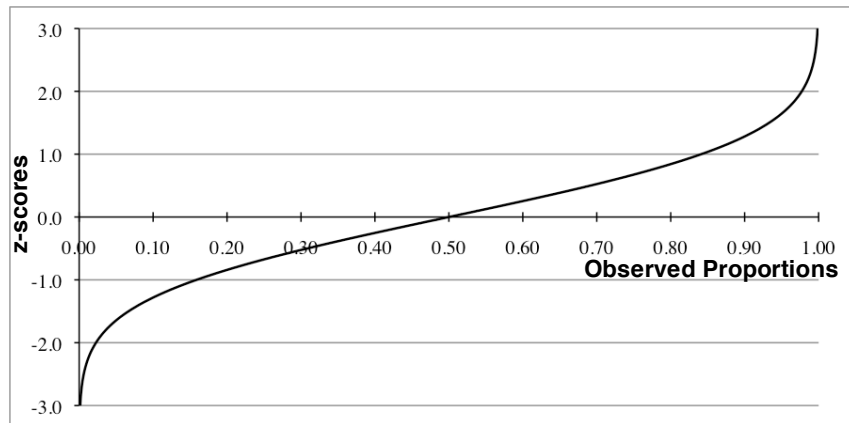


Figure 1. Observed proportions and corresponding z-scores based on the inverse normal cumulative distribution.

Tables 9-12 show the six indicators and the proportions of times that they were chosen over each other by each group. Figure 2 shows the Thurstone scales with the rank of the preferred indicators and the relative distances between them. The origin of the scale was assigned to the top-ranked indicator and arbitrarily set to one. The scale distance of each indicator is found by their cumulative distances from the origin.

Table 9. Proportions of times in which the indicators listed in the top row were chosen over the indicators listed in the first column for the Non-Aboriginal sample group.

| | Community planning involves local citizens | Development and maintenance of skills, knowledge, & creativity for community members | Diverse sources of local income | Local access to natural resources | Local control of natural resource-based businesses | Strong relationships between community members that foster trust and productivity |
|--|--|--|---------------------------------|-----------------------------------|--|---|
| Community planning involves local citizens | 0.000 | | | | | |
| Development and maintenance of skills, knowledge, and creativity for community members | 0.558 | 0.000 | | | | |
| Diverse sources of local income | 0.573 | 0.606 | 0.000 | | | |
| Local access to natural resources | 0.539 | 0.636 | 0.542 | 0.000 | | |
| Local control of natural resource-based businesses | 0.640 | 0.644 | 0.581 | 0.514 | 0.000 | |
| Strong relationships between community members that foster trust and productivity | 0.512 | 0.579 | 0.424 | 0.456 | 0.363 | 0.000 |

Table 10. Proportions of times in which the indicators listed in the top row were chosen over the indicators listed in the first column for the Aboriginal sample group.

| | Community planning involves local citizens | Development and maintenance of skills, knowledge, & creativity for community members | Diverse sources of local income | Local access to natural resources | Local control of natural resource-based businesses | Strong relationships between community members that foster trust and productivity |
|--|--|--|---------------------------------|-----------------------------------|--|---|
| Community planning involves local citizens | 0.000 | | | | | |
| Development and maintenance of skills, knowledge, and creativity for community members | 0.600 | 0.000 | | | | |
| Diverse sources of local income | 0.735 | 0.717 | 0.000 | | | |
| Local access to natural resources | 0.627 | 0.556 | 0.509 | 0.000 | | |
| Local control of natural resource-based businesses | 0.685 | 0.630 | 0.380 | 0.560 | 0.000 | |
| Strong relationships between community members that foster trust and productivity | 0.660 | 0.489 | 0.370 | 0.481 | 0.426 | 0.000 |

Table 11. Proportions of times in which the indicators listed in the top row were chosen over the indicators listed in the first column for the Manager/Planner sample group.

| | Community planning involves local citizens | Development and maintenance of skills, knowledge, & creativity for community members | Diverse sources of local income | Local access to natural resources | Local control of natural resource-based businesses | Strong relationships between community members that foster trust and productivity |
|--|--|--|---------------------------------|-----------------------------------|--|---|
| Community planning involves local citizens | 0.000 | | | | | |
| Development and maintenance of skills, knowledge, and creativity for community members | 0.483 | 0.000 | | | | |
| Diverse sources of local income | 0.467 | 0.550 | 0.000 | | | |
| Local access to natural resources | 0.633 | 0.567 | 0.617 | 0.000 | | |
| Local control of natural resource-based businesses | 0.633 | 0.783 | 0.683 | 0.600 | 0.000 | |
| Strong relationships between community members that foster trust and productivity | 0.433 | 0.483 | 0.417 | 0.367 | 0.367 | 0.000 |

Table 12. Proportions of times in which the indicators listed in the top row were chosen over the indicators listed in the first column for the all three sample groups combined.

| | Community planning involves local citizens | Development and maintenance of skills, knowledge, & creativity for community members | Diverse sources of local income | Local access to natural resources | Local control of natural resource-based businesses | Strong relationships between community members that foster trust and productivity |
|--|--|--|---------------------------------|-----------------------------------|--|---|
| Community planning involves local citizens | 0.000 | | | | | |
| Development and maintenance of skills, knowledge, and creativity for community members | 0.553 | 0.000 | | | | |
| Diverse sources of local income | 0.576 | 0.610 | 0.000 | | | |
| Local access to natural resources | 0.560 | 0.619 | 0.548 | 0.000 | | |
| Local control of natural resource-based businesses | 0.644 | 0.660 | 0.573 | 0.529 | 0.000 | |
| Strong relationships between community members that foster trust and productivity | 0.518 | 0.558 | 0.417 | 0.447 | 0.370 | 0.000 |

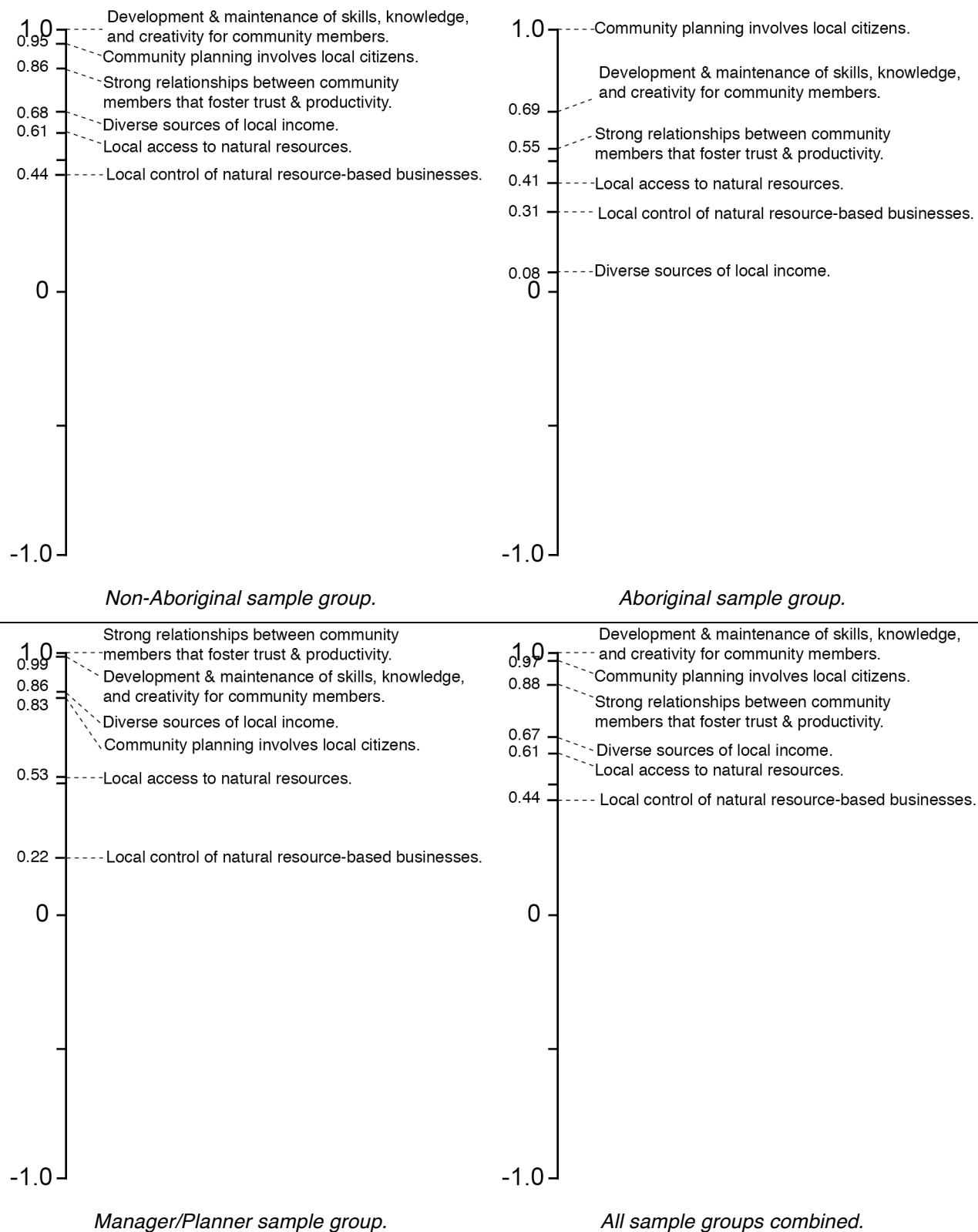


Figure 2. Thurstone scales: ranking and relative distances of the six indicators in each group.

Table 13 shows the 95% confidence intervals for each scale and average discrepancies between observed and expected proportions for the four analyses.

Table 13. Confidence intervals and average discrepancies.

| | n | 95% C.I. for scale values | Average Discrepancy |
|-------------------|-----|------------------------------|------------------------|
| Public | 374 | ± 0.07 | 2.5% |
| Aboriginal | 51 | ± 0.20 | 3.0% |
| Managers/Planners | 60 | ± 0.18 | 3.3% |
| All Groups | 485 | ± 0.06 | 2.0% |

The confidence interval for each scale is computed as:

$$95\% \text{ C.I.} = s.v. \pm \frac{1.96s}{\sqrt{n}} = \frac{1.39}{\sqrt{n}} \quad (\text{Eq. 2})$$

where n is the sample size (*i.e.* the number of observations for each pair of responses), and s is the standard deviation, which is equal to $\frac{1}{\sqrt{2}}$.

The internal consistencies or the average discrepancies of the four analyses were also examined by taking the grand average of the differences between expected and observed proportions of each indicator. Average discrepancies values of up to 7 - 8% are generally considered acceptable.

A modified z-test for proportions was used to compare potential differences between groups. Specifically, the average preferred proportions of the six indicators were used for the comparisons between groups (see Table 14).

Table 14. Average preferred proportions.

| | | Community planning involves local citizens | Development and maintenance of skills, knowledge, and creativity for community members | Diverse sources of local income | Local access to natural resources | Local control of natural resource- based businesses | Strong relationships between community members that foster trust and productivity |
|---|-----|---|---|---------------------------------------|---|---|---|
| | n | | | | | | |
| Average preferred proportions (\bar{p}) | | | | | | | |
| Public | 374 | 0.470 | 0.485 | 0.394 | 0.375 | 0.331 | 0.444 |
| Aboriginal | 51 | 0.551 | 0.465 | 0.301 | 0.392 | 0.362 | 0.429 |
| Managers/Planners | 60 | 0.442 | 0.483 | 0.450 | 0.358 | 0.278 | 0.489 |

Z-values for the comparisons were computed using *Equation 3*:

$$z = \frac{\bar{p}_1 - \bar{p}_2}{\sqrt{\frac{1}{k-1} p_c q_c \left(\frac{1}{n_1} + \frac{1}{n_2} \right)}} \quad (\text{Eq. 3})$$

where: \bar{p}_1 = the average proportion of indicator i in group 1;

\bar{p}_2 = the average proportion of indicator i in group 2;

k = total number of indicators;

p_c = the combined proportion of indicators i in group 1 and group 2 ($p_c = \frac{\bar{p}_1 n_1 + \bar{p}_2 n_2}{n_1 + n_2}$);

$q_c = 1 - p_c$;

n_1 = sample size of group 1;

n_2 = sample size of group 2.

Table 14 shows the results of the three comparisons between groups for the six indicators. As three comparisons were made, a Bonferroni correction was used resulting in an alpha level of 0.033 ($\alpha=0.1/3$) and a two-tail z-critical of 2.128. Therefore, in Table 15, groups that are statistically different from each other on a given indicator are the ones with z-values greater than 2.128 or smaller than -2.128.

Table 15. z-values resulted from the comparisons between groups.

| Critical value = ± 2.128 | | Community planning involves local citizens | Development and maintenance of skills, knowledge, and creativity for community members | Diverse sources of local income | Local access to natural resources | Local control of natural resource-based businesses | Strong relationships between community members that foster trust and productivity |
|------------------------------|------------------------------|--|--|---------------------------------|-----------------------------------|--|---|
| z-values | | | | | | | |
| Non-Aboriginal | Aboriginal Managers/Planners | -2.418* | 0.572 | 2.867* | -0.500 | -0.983 | 0.472 |
| | | 0.927 | 0.040 | -1.821 | 0.565 | 1.819 | -1.435 |
| Aboriginal | Managers/Planners | 2.570* | -0.420 | -3.590* | 0.804 | 2.117 | -1.413 |

* Statistically different at $\alpha = 0.033$.

3.4. Question 4: Attitudes and Beliefs About Climate Change.

The majority of respondents reported (67.3%) that they were somewhat or very concerned about the effects of climate change (Table 16); only 11.8% of respondents reported being somewhat unconcerned or not concerned at all.

Table 16. Question 4: On a scale of 1 to 5, with 1 being NOT CONCERNED AT ALL and 5 being VERY CONCERNED, how concerned are you about the effects of climate change? (most frequently identified response in **bold**)

| | |
|---------------------------------------|--------------|
| n | 492 |
| Not concerned at all (1) | 5.7% |
| Somewhat unconcerned (2) | 6.1% |
| Neither concerned nor unconcerned (3) | 20.9% |
| Somewhat concerned (4) | 24.0% |
| Very concerned (5) | 43.3% |
| Mean | 3.93 |
| 95% CI | ± 0.10 |
| SD | 1.182 |

Significant differences were identified between the mean responses of the three sample groups for this question ($F(2, 489) = 3.788$, $p = 0.023$). Although the Levene statistic (3.609, $p < 0.05$) indicated that the variances of the mean responses between sample groups were not equal, the Welch F Test (3.805, $p <$

0.05) confirmed the presence of these differences. The Games-Howell post hoc test revealed that the mean response of the Manager/Planner sample group ($\bar{x} = 4.17$) was significantly higher (*i.e.*, more concerned) than the mean responses of the Aboriginal sample group ($\bar{x} = 3.57$). The mean response of the Non-Aboriginal sample group was 3.94.

Most respondents reported (48.6%) that they either had a pretty good idea, or a very clear idea of the effects climate change may have on their community or its surrounding environment (Table 17); only 14.4% of respondents reported that they really didn't know, or had absolutely no idea of the effects climate change may have on their community or its surrounding environment.

Table 17. Question 10: On a scale of 1 to 5 with 1 being I HAVE ABSOLUTELY NO IDEA and 5 being I HAVE A VERY CLEAR IDEA, do you know what effects climate change may have on your community or its surrounding environment? (most frequently identified response in **bold**)

| | |
|-------------------------------|--------------|
| n | 486 |
| I have absolutely no idea (1) | 6.0% |
| I don't really know (2) | 8.4% |
| I have some idea (3) | 37.0% |
| I have a pretty good idea (4) | 35.4% |
| I have a very clear idea (5) | 13.2% |
| Mean | 3.41 |
| 95% CI | ± 0.09 |
| SD | 1.017 |

There were significant differences between the mean responses of the three sample groups for this question ($F(2, 483) = 4.316$, $p = 0.014$). As the Levene statistic ($0.2.291$, $p > 0.05$) indicated that the mean responses of the sample groups were equal, a Scheffe post hoc test was used to identify where the differences lay: the mean response of the Non-Aboriginal sample group ($\bar{x} = 3.34$) was significantly lower (*i.e.*, less knowledgeable) than the mean response of the Aboriginal ($\bar{x} = 3.72$) sample group. The mean response of the Manager/Planner sample group was 3.58.

The majority of respondents indicated that they had noticed some effects of climate change in their communities (Figure 3). A chi-square test of independence indicated that there were no statistically significant differences in response patterns between the three sample groups for this question ($\chi^2 = 4.346$, $df = 4$, $p > 0.05$; Cramer's $V = 0.065$).

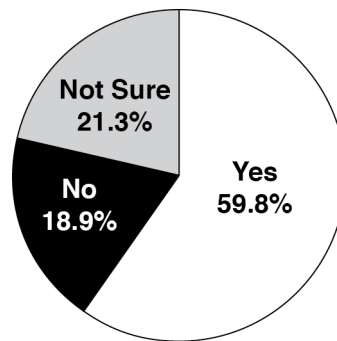


Figure 3 Have you noticed any effects of climate change in your community?

The majority of respondents indicated that they had personal plans to do something in response to climate change (Figure 4). A chi-square test of independence indicated that there were statistically significant differences in response patterns between the three sample groups for this question ($\chi^2 = 25.740$, $df = 4$, $p > 0.001$; Cramer's $V = 0.159$). A higher percentage of the Manager/Planner sample group (85.0%) had personal plans to do something in response to climate change than did the Aboriginal (48.3%) and the Non-Aboriginal (56.6%) sample groups; a higher percentage of the Aboriginal sample group had no plans to do something in response to climate change than did the Non-Aboriginal (17.3%) and the Manager/Planner (5.0%) sample groups; and a higher percentage of the Non-Aboriginal sample group (26.0%) were not sure whether they had personal plans to do something in response to climate change than did the Aboriginal (20.7%) and the Manager/Planner (10.0%) sample groups.

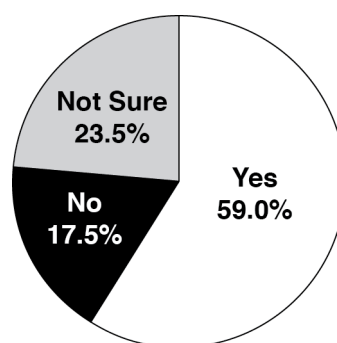


Figure 4. Do you personally plan to do anything in response to climate change?

The majority of respondents indicated that they thought that forest managers should be doing something in response to climate change (Figure 5). A chi-square test of independence indicated that there were statistically significant differences in response patterns between the three sample groups for this question ($\chi^2 = 12.865$, $df = 4$, $p > 0.05$; Cramer's $V = 0.159$). A higher percentage of the Manager/Planner sample group (86.7%) thought that forest managers should be doing something in response to climate change than did the Non-Aboriginal (67.0%) and Aboriginal (57.6%) sample groups; a higher percentage of the Aboriginal sample group (13.6%) did not think that forest managers should be doing something in response to climate change than did the Non-Aboriginal (9.7%) and the Manager/Planner (3.3%) sample groups; and a higher percentage of the Aboriginal sample group (28.8%) were unsure whether forest managers should be doing something in response to climate change than the Non-Aboriginal (23.3%) and the manager/Planner (10.0%) sample groups.

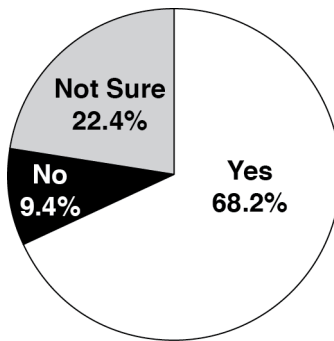


Figure 5. Do you think forest managers should be doing something in response to climate change?

More than three-quarters of respondents ($77.8\% \pm 0.16$) indicated that they thought it was more important to start acting now on climate change with what we know, instead of continuing to monitor for climate change so we can learn more. A chi-square test of independence indicated that there were no statistically significant differences in response patterns between the three sample groups for this question ($\chi^2 = 2.280$, $df = 2$, $p > 0.05$).

The majority of respondents indicated that they thought that their lives were being affected by climate change (Figure 6). A chi-square test of independence indicated that there were statistically significant differences in response patterns between the three sample groups for this question ($\chi^2 = 11.258$, $df = 4$, $p > 0.05$; Cramer's $V = 0.106$). A higher percentage of the Manager/Planner sample group (61.7%)

indicated that their lives were being affected by climate change than did the Non-Aboriginal (41.7%) and Aboriginal (48.3%) sample groups; a higher percentage of the Aboriginal sample group (36.2%) indicated that their lives were not being affected by climate change than did the Non-Aboriginal (32.6%) and the Manager/Planner (18.3%) sample groups; and a higher percentage of the Non-Aboriginal sample group (25.6%) were unsure about whether their lives were being affected by climate change than the Aboriginal (15.5%) and the manager/Planner (20.0%) sample groups.

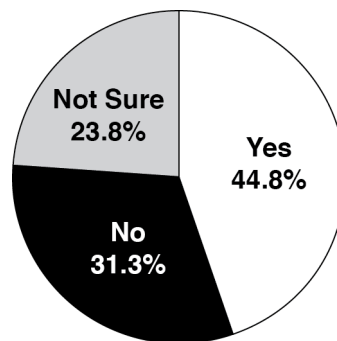


Figure 6. Is your life being affected by climate change?

Almost half of respondents indicated that they thought that climate change was caused by both human activities and non-human changes in the environment (Figure 7). Almost two respondents in five indicated that they thought that climate change was caused mostly by human activities; fewer than one respondent in ten indicated that they thought climate change was caused mostly by non-human changes in the environment. There were no statistically significant differences between the patterns of response between the three sample groups ($\chi^2 = 12.837$, $df = 10$, $p > 0.05$).

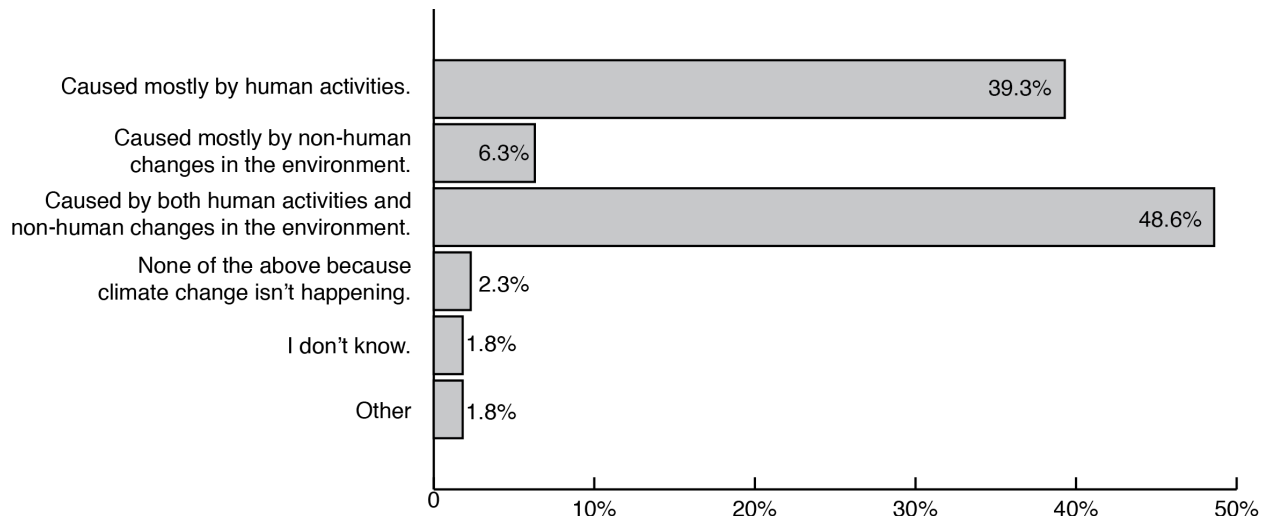


Figure 7. Assuming that climate change is happening, do you think it is...

3.5. Degree of Concern about Possible Local Consequences of Climate Change.

More than three-times as many respondents were very/mildly concerned (71.3%) about *extended periods of visible smoke from forest fires (e.g., April – October)* than did respondents that were mildly unconcerned/not concerned at all (17.5%; Table 18). Almost three-quarters of respondents (73.8%) were very/mildly concerned about *a higher number of severe wind storms*; more than one in ten respondents (13.4%) were mildly unconcerned/not concerned at all about this possible local consequence of climate change. Eight of ten respondents (79.5%) were very/mildly concerned about *more frequent and longer lasting droughts*, while more than one in ten respondents (12.2%) were mildly unconcerned/not concerned at all. More than four respondents in five (85.3%) were very/mildly concerned about *more frequent and more severe insect outbreaks*, while fewer than one respondent in ten (7.9%) were mildly unconcerned/not concerned at all about this possible local consequence of climate change. Roughly ten times as many respondents were very/mildly concerned about *more frequent extreme weather events (e.g., heavy rain storms, less snowfall)* (82.5%) than were respondents that mildly unconcerned/not concerned at all (8.4%). More than two respondents in five (46.6%) were very/mildly concerned about *more frequent and longer lasting campfire bans due to increased fire risk*; just less than one-third of respondents (32.0%) were mildly unconcerned/not concerned at all about this possible local consequence of climate change. More than half of respondents (57.0%) were very/mildly concerned about a *reduction in the amount of timber that can be harvested*, while one-quarter of respondents (25.9%) were mildly unconcerned/not concerned at all. More than nine times as many respondents were very/mildly concerned (82.5%) about *changes in the distribution of plant and animal species and their habitats* than were respondents that were mildly unconcerned/not concerned at all (9.0%) about this possible local consequence of climate change.

Table 18. Question 5: Degree of concern about possible local consequences of climate change (most frequently identified response in **bold**).

| Item | n | Very Concerned (1) | Mildly Concerned (2) | Neither (3) | Mildly Unconcerned (4) | Not Concerned At All (5) | Mean | 95% CI | SD |
|---|-----|--------------------------|----------------------------|----------------|------------------------------|-----------------------------------|-------------------|--------|-------|
| Extended periods of visible smoke from forest fires (<i>e.g.</i> , April – October). | 503 | 28.0% | 43.3% | 11.1% | 10.5% | 7.0% | 2.25 ^a | ± 0.10 | 1.174 |
| A higher number of severe wind storms. | 497 | 24.3% | 49.5% | 12.7% | 7.4% | 6.0% | 2.21 | ± 0.09 | 1.081 |
| More frequent, and longer lasting droughts. | 494 | 44.7% | 34.8% | 8.3% | 7.1% | 5.1% | 1.93 ^b | ± 0.10 | 1.126 |
| More frequent and more severe insect outbreaks. | 491 | 46.6% | 38.7% | 6.7% | 5.3% | 2.6% | 1.79 ^c | ± 0.09 | 0.969 |
| More frequent extreme weather events (<i>e.g.</i> , heavy rain storms, less snowfall). | 508 | 42.5% | 40.0% | 9.1% | 4.1% | 4.3% | 1.88 ^d | ± 0.09 | 1.029 |
| More frequent and longer-lasting campfire bans due to increased fire risk. | 500 | 16.4% | 30.2% | 21.4% | 16.0% | 16.0% | 2.85 ^e | ± 0.12 | 1.319 |
| Reduction in the amount of timber that can be harvested. | 484 | 19.6% | 37.4% | 17.1% | 14.7% | 11.2% | 2.60 | ± 0.11 | 1.264 |
| Changes in the distribution of plant and animal species and their habitats. | 492 | 49.0% | 33.5% | 8.5% | 5.3% | 3.7% | 1.81 | ± 0.09 | 1.040 |

^a The mean response of the Manager/Planner sample group was significantly higher than the mean responses of the Non-Aboriginal sample group.

^b The mean response of the Manager/Planner sample group was significantly lower than the mean responses of the Non-Aboriginal and Aboriginal sample groups.

^c The mean response of the Manager/Planner sample group was significantly lower than the mean response of the Aboriginal sample group.

^d The mean responses of the Manager/Planner sample group was significantly lower than the mean response of the Aboriginal sample group.

^e The mean response the Aboriginal sample group was significantly lower than the mean responses of the Non-Aboriginal and Manager/Planner sample group; the mean response of the Non-Aboriginal sample group was also significantly lower than the mean response of the Manager/Planner sample group.

ANOVA results indicated that there were statistically significant differences between the mean responses of the three sample areas for five of the eight items in Question 5 (Table 19).

Table 19. Question 5: Degree of concern about possible local consequences of climate change (significant differences between sample groups in **bold**).

| Item | n | df | F | p |
|---|------------|----------|---------------|--------------|
| Extended periods of visible smoke from forest fires (e.g., April – October). | 502 | 2 | 5.737 | 0.003 |
| A higher number of severe wind storms. | 496 | 2 | 1.572 | 0.209 |
| More frequent, and longer lasting droughts. | 493 | 2 | 5.353 | 0.005 |
| More frequent and more severe insect outbreaks, | 490 | 2 | 3.898 | 0.021 |
| More frequent extreme weather events (e.g., heavy rain storms, less snowfall). | 507 | 2 | 5.687 | 0.004 |
| More frequent and longer-lasting campfire bans due to increased fire risk. | 499 | 2 | 11.101 | 0.000 |
| Reduction in the amount of timber that can be harvested. | 483 | 2 | 0.019 | 0.982 |
| Changes in the distribution of plant and animal species and their habitats. | 491 | 2 | 0.767 | 0.465 |

There were significant differences between the mean responses of the three sample groups for the first item, *extended periods of visible smoke from forest (e.g., April – October)*. Although the Levene statistic (7.548, $p < 0.05$) indicated that the variances of the mean responses between sample groups were not equal, the Welch F Test (4.817, $p < 0.05$) confirmed the presence of these differences. The Games-Howell *post hoc* test revealed that the mean responses of two of the three sample groups were significantly different: the mean response of the Manager/Planner sample group ($\bar{x} = 2.74$) was significantly higher (*i.e.*, less concerned) than the mean response of the Non-Aboriginal sample group ($\bar{x} = 2.18$).

There were significant differences between the mean responses of the three sample groups for the third item, *more frequent and longer lasting droughts*. Although the Levene statistic (7.543, $p < 0.05$) indicated that the variances of the mean responses between sample groups were not equal, the Welch F Test (10.999, $p < 0.05$) confirmed the presence of these differences. The Games-Howell *post hoc* test revealed that the mean responses of the three sample groups were significantly different: the mean response of the Manager/Planner sample group ($\bar{x} = 1.53$) was significantly lower (*i.e.*, more concerned) than the mean responses of the Non-Aboriginal ($\bar{x} = 1.96$) and Aboriginal ($\bar{x} = 2.18$) sample groups.

There were significant differences between the mean responses of the three sample groups for the fourth item, *more frequent and severe insect outbreaks*. Although the Levene statistic (6.847, $p < 0.05$) indicated

that the variances of the mean responses between sample groups were not equal, the Welch F Test (3.964, $p < 0.05$) confirmed the presence of these differences. The Games-Howell *post hoc* test revealed that the mean responses of two of the three sample groups were significantly different: the mean response of the Manager/Planner sample group ($\bar{x} = 1.55$) was significantly lower (*i.e.*, more concerned) than the mean response of the Aboriginal sample group ($\bar{x} = 2.05$).

There were significant differences between the mean responses of the three sample groups for the fifth item, *more frequent extreme weather events (e.g., heavy rain storms, less snowfall)*. Although the Levene statistic (5.951, $p < 0.05$) indicated that the variances of the mean responses between sample groups were not equal, the Welch F Test (4.255, $p < 0.05$) confirmed the presence of these differences. The Games-Howell *post hoc* test revealed that the mean responses of two of the three sample groups were significantly different: the mean response of the Manager/Planner sample group ($\bar{x} = 1.68$) was significantly lower (*i.e.*, more concerned) than the mean response of the Aboriginal sample group ($\bar{x} = 2.27$).

There were significant differences between the mean responses of the three sample groups for the sixth item, *more frequent and longer-lasting campfire bans due to increased fire risk*. As the Levene statistic (0.034, $p > 0.05$) indicated that the mean responses of the sample groups were equal, a Scheffe *post hoc* test was used to identify where the differences lay: the mean response of the Aboriginal sample group ($\bar{x} = 2.33$) was significantly lower (*i.e.*, more concerned) than the mean responses of the Non-Aboriginal ($\bar{x} = 2.83$) and Manager/Planner ($\bar{x} = 6.46$) sample group; the mean response of the Non-Aboriginal sample group was also significantly lower than the mean response of the Manager/Planner sample group.

3.6. Perceived Trustworthiness of Different Sources of Information about Climate Change.

Twice as many respondents trusted the *Internet* as a source of information about climate change (55.7%) than did respondents that distrusted the *Internet* (24.4%; Table 20). Just more than two respondents in five (41.3%) trusted *local leaders* as sources of information about climate change, while more than one-third of respondents (38.6%) distrusted *local leaders*. Almost as many respondents trusted *local media* as a source of climate change information (43.8%) as did those that distrusted this source (39.1%). More than one-third of respondents (36.5%) distrusted the *national media* as a source of information about climate change, while more than two in five respondents (4.6%) distrusted this source if climate change information. Three-quarters of respondents (75.6%) distrusted *politicians* as sources of information about climate change, while one in ten respondents (10%) trusted this source. More than half of respondents (56.0%) trusted *friends* as a source of information about climate change, while fewer than one in ten respondents (9.1%) distrusted this source of climate change information. More than eight times as many respondents trusted *scientists* as sources of information about climate change (84.9%) than did

Table 20. Question 6: Trust of different sources of information about climate change (most frequently identified response in **bold**).

| Item | n | Strongly Distrust (1) | Somewhat Distrust (2) | Neither (3) | Somewhat Trust (4) | Strongly Trust (5) | Mean | 95% CI | SD |
|--------------------------------|-----|-----------------------|-----------------------|--------------|--------------------|--------------------|-------------------|--------|-------|
| Internet | 451 | 7.8% | 16.6% | 20.0% | 49.9% | 5.8% | 3.29 | ± 0.10 | 1.060 |
| Local leaders | 485 | 9.3% | 32.0% | 20.2% | 36.5% | 2.1% | 2.90 | ± 0.09 | 1.063 |
| Local media | 491 | 9.6% | 29.5% | 17.1% | 40.1% | 3.7% | 2.99 | ± 0.10 | 1.108 |
| National media | 495 | 11.9% | 24.6% | 16.6% | 40.6% | 6.3% | 3.05 | ± 0.10 | 1.175 |
| Politicians | 488 | 38.5% | 37.1% | 14.3% | 9.4% | 0.6% | 1.97 | ± 0.09 | 0.981 |
| Friends | 484 | 1.7% | 7.4% | 34.9% | 44.2% | 11.8% | 3.57 ^a | ± 0.08 | 0.854 |
| Scientists | 497 | 2.2% | 7.8% | 5.0% | 44.1% | 40.8% | 4.13 | ± 0.09 | 0.978 |
| Government | 489 | 27.2% | 33.3% | 15.7% | 21.7% | 2.0% | 2.38 ^b | ± 0.10 | 1.157 |
| Religious or spiritual leaders | 456 | 32.7% | 17.1% | 35.1% | 11.4% | 3.7% | 2.36 ^c | ± 0.11 | 1.157 |
| Experts | 482 | 3.9% | 7.3% | 11.6% | 49.0% | 28.2% | 3.90 ^d | ± 0.09 | 1.018 |

^a The mean response of the Non-Aboriginal sample group was significantly lower than the mean response of the Aboriginal sample group.

^b The mean response of the Manager/Planner sample group was significantly higher than the mean response of the Aboriginal and Non-Aboriginal sample groups.

^c The mean response of the Aboriginal sample group was significantly higher than the mean response of the Manager/Planner sample group.

^d The mean response of the Manager/Planner sample group was significantly higher than the mean response of the Aboriginal and Non-Aboriginal sample groups.

respondents that distrusted scientists (10.0%). Three in five respondents (60.5%) distrusted *government* as a source of information about climate change, while just less than one-quarter of respondents (23.7%) trusted *government*. Almost half of respondents (49.8%) distrusted *religious or spiritual leaders* as sources of information about climate change, while fewer than one respondent in five (15.1%) trusted this source of information about climate change. More than three-quarters of respondents (77.2%) trusted *experts* as sources of information about climate change, and more than one respondent in ten (11.2%) distrusted this source.

ANOVA results indicated that there were statistically significant differences between the mean responses of the three sample groups for five of the ten items in Question 6 (Table 21).

Table 21. Question 6: Trust of different sources of information about oil and gas development (significant differences between sample groups in **bold**).

| Item | n | df | F | p |
|---------------------------------------|------------|----------|---------------|--------------|
| Internet | 450 | 2 | 1.969 | 0.141 |
| Local leaders | 484 | 2 | 0.299 | 0.742 |
| Local media | 490 | 2 | 1.399 | 0.248 |
| National media | 494 | 2 | 2.7333 | 0.066 |
| Politicians | 487 | 2 | 1.537 | 0.216 |
| Friends | 483 | 2 | 3.203 | 0.042 |
| Scientists | 496 | 2 | 3.608 | 0.028 |
| Government | 488 | 2 | 10.615 | 0.000 |
| Religious or spiritual leaders | 455 | 2 | 3.316 | 0.037 |
| Experts | 481 | 2 | 3.976 | 0.019 |

There were significant differences between the mean responses of the three sample groups for the sixth source of information about climate change, *friends*. As the Levene statistic (1.094, $p > 0.05$) indicated that the mean responses of the sample groups were equal, a Scheffe *post hoc* test was used to identify where the differences lay: the mean response of the Non-Aboriginal sample group ($\bar{x} = 3.54$) was significantly lower (*i.e.*, less trusting) than the mean response of the Aboriginal sample group ($\bar{x} = 3.85$).

There were significant differences between the mean responses of the three sample groups for the seventh source of information about climate change, *scientists*. Although the Levene statistic (0.305, $p > 0.05$) indicated that the mean responses of the sample groups were equal, a Scheffe *post hoc* test was unable to identify where the differences lay.

There were significant differences between the mean responses of the three sample groups for the eighth source of information about climate change, *government*. As the Levene statistic (0.415, $p > 0.05$) indicated that the mean responses of the sample groups were equal, a Scheffe *post hoc* test was used to identify where the differences lay: the mean response of the Manager/Planner sample group ($\bar{x} = 3.00$) was significantly higher (*i.e.*, more trusting) than the mean response of the Aboriginal ($\bar{x} = 2.31$) and Non-Aboriginal ($\bar{x} = 2.16$) sample groups.

There were significant differences between the mean responses of the three sample groups for the ninth source of information about climate change, *religious or spiritual leaders*. As the Levene statistic (1.356, $p > 0.05$) indicated that the mean responses of the sample groups were equal, a Scheffe *post hoc* test was used to identify where the differences lay: the mean response of the Aboriginal sample group ($\bar{x} = 2.67$) was significantly higher (*i.e.*, more trusting) than the mean response of the Manager/Planner sample group ($\bar{x} = 2.09$).

Lastly, there were significant differences between the mean responses of the three sample groups for the tenth source of information about climate change, *experts*. As the Levene statistic (0.388, $p > 0.05$) indicated that the mean responses of the sample groups were equal, a Scheffe *post hoc* test was used to identify where the differences lay: the mean response of the Manager/Planner sample group ($\bar{x} = 4.25$) was significantly higher (*i.e.*, more trusting) than the mean response of the Aboriginal ($\bar{x} = 3.76$) and Non-Aboriginal ($\bar{x} = 3.87$) sample groups.

3.7. Potential Involvement of Different Groups in the Monitoring of forest management outcomes.

Although the three sample groups ranked the five groups (industry, Government, Aboriginal people, local communities, and environmental organizations) differently in terms of their potential involvement in the monitoring of forest management outcomes (Tables 22 - 30), there would appear to be support for Government taking a lead role in the monitoring of most forest management outcomes.

There was agreement among all three sample groups in terms of the identification of a lead monitoring group for seven of the nine forest management outcomes: *sustaining the productive capacity of forests* (Government), *managing the forest to reduce climate change* (Government), *sustaining economic benefits for forestry and wood products* (Industry), *sustaining non-timber economic benefits* (Government), *sustaining the benefits that First Nations and Métis people receive from forests* (Aboriginal people), *sustaining opportunities for a wide range of quality of life benefits* (Government), and *species at risk should be recovered* (Government).

Table 22. Please rank the following groups in terms of their potential involvement in monitoring:
Sustaining biological richness (most frequently identified response for each sample group in **bold**).

| Potential Monitor | Sample Group [†] | n | Rank | | | | |
|-----------------------------|---------------------------|-----|--------------|--------------|--------------|--------------|--------------|
| | | | 1 | 2 | 3 | 4 | 5 |
| Industry | NA | 328 | 16.2% | 20.4% | 16.8% | 17.7% | 29.0% |
| | A | 45 | 17.8% | 22.2% | 13.3% | 15.6% | 31.1% |
| | M/P | 56 | 14.3% | 26.8% | 19.6% | 10.7% | 28.6% |
| Government | NA | 340 | 42.1% | 16.2% | 16.8% | 14.7% | 10.3% |
| | A | 45 | 22.2% | 20.0% | 11.1% | 20.0% | 26.7% |
| | M/P | 59 | 89.8% | 1.7% | 1.7% | 3.4% | 3.4% |
| Aboriginal People | NA | 310 | 8.4% | 12.6% | 24.8% | 22.9% | 31.3% |
| | A | 49 | 42.9% | 8.2% | 20.4% | 24.5% | 4.1% |
| | M/P | 52 | 5.8% | 11.5% | 32.7% | 32.7% | 17.3% |
| Local Communities | NA | 339 | 20.4% | 30.7% | 25.1% | 14.7% | 9.1% |
| | A | 45 | 13.3% | 26.7% | 42.2% | 8.9% | 8.9% |
| | M/P | 55 | 7.3% | 25.5% | 29.1% | 30.9% | 7.3% |
| Environmental Organizations | NA | 343 | 35.6% | 18.7% | 17.5% | 15.5% | 12.8% |
| | A | 44 | 27.3% | 29.5% | 18.2% | 13.6% | 11.4% |
| | M/P | 53 | 5.7% | 45.3% | 15.1% | 9.4% | 24.5% |

[†] Sample groups: Non-Aboriginal (NA); Aboriginal (A); and Managers/Planners (M/P).

Table 23. Please rank the following groups in terms of their potential involvement in monitoring:
Sustaining the productive capacity of forests (most frequently identified response for each sample group in **bold**).

| Potential Monitor | Sample Group [†] | n | Rank | | | | |
|-----------------------------|---------------------------|-----|--------------|--------------|--------------|--------------|--------------|
| | | | 1 | 2 | 3 | 4 | 5 |
| Industry | NA | 336 | 34.2% | 21.7% | 16.1% | 10.4% | 17.6% |
| | A | 45 | 37.8% | 31.1% | 2.2% | 4.4% | 24.4% |
| | M/P | 57 | 29.8% | 43.9% | 7.0% | 3.5% | 15.8% |
| Government | NA | 346 | 42.5% | 23.4% | 12.4% | 10.7% | 11.0% |
| | A | 45 | 26.7% | 26.7% | 6.7% | 20.0% | 20.0% |
| | M/P | 58 | 75.9% | 12.1% | 3.4% | 1.7% | 6.9% |
| Aboriginal People | NA | 295 | 6.4% | 8.5% | 19.0% | 25.4% | 40.7% |
| | A | 49 | 18.4% | 24.5% | 22.4% | 24.5% | 10.2% |
| | M/P | 50 | 4.0% | 14.0% | 26.0% | 30.0% | 26.0% |
| Local Communities | NA | 328 | 17.7% | 23.5% | 32.3% | 18.6% | 7.9% |
| | A | 45 | 11.1% | 22.2% | 48.9% | 11.1% | 6.7% |
| | M/P | 51 | 5.9% | 29.4% | 35.3% | 23.5% | 5.9% |
| Environmental Organizations | NA | 328 | 21.0% | 18.9% | 21.6% | 21.3% | 17.1% |
| | A | 42 | 19.0% | 14.3% | 31.0% | 19.0% | 16.7% |
| | M/P | 51 | 7.8% | 19.6% | 17.6% | 19.6% | 35.3% |

[†] Sample groups: Non-Aboriginal (NA); Aboriginal (A); and Managers/Planners (M/P).

Table 24. Please rank the following groups in terms of their potential involvement in monitoring:
Managing the forest to reduce climate change (most frequently identified response for each sample group in **bold**).

| Potential Monitor | Sample Group [†] | n | Rank | | | | |
|-----------------------------|---------------------------|-----|--------------|--------------|--------------|--------------|--------------|
| | | | 1 | 2 | 3 | 4 | 5 |
| Industry | NA | 328 | 23.2% | 29.6% | 12.8% | 13.1% | 21.3% |
| | A | 44 | 34.1% | 25.0% | 13.6% | 11.4% | 15.9% |
| | M/P | 53 | 22.6% | 47.2% | 11.3% | 5.7% | 13.2% |
| Government | NA | 340 | 50.6% | 20.9% | 10.9% | 9.7% | 7.9% |
| | A | 44 | 27.3% | 22.7% | 20.5% | 9.1% | 20.5% |
| | M/P | 59 | 83.1% | 8.5% | 6.8% | – | 1.7% |
| Aboriginal People | NA | 293 | 7.2% | 9.2% | 16.7% | 24.6% | 42.3% |
| | A | 48 | 25.0% | 14.6% | 29.2% | 18.8% | 12.5% |
| | M/P | 48 | 6.3% | 12.5% | 18.8% | 35.4% | 27.1% |
| Local Communities | NA | 321 | 14.3% | 21.5% | 33.0% | 21.5% | 9.7% |
| | A | 44 | 6.8% | 20.5% | 29.5% | 31.8% | 11.4% |
| | M/P | 50 | 10.0% | 20.0% | 28.0% | 30.0% | 12.0% |
| Environmental Organizations | NA | 335 | 31.9% | 18.5% | 19.7% | 16.4% | 13.4% |
| | A | 40 | 32.5% | 32.5% | 10.0% | 10.0% | 15.0% |
| | M/P | 49 | 10.2% | 28.6% | 22.4% | 14.3% | 24.5% |

[†] Sample groups: Non-Aboriginal (NA); Aboriginal (A); and Managers/Planners (M/P).

Table 25. Please rank the following groups in terms of their potential involvement in monitoring:
Sustaining economic benefits for forestry and wood products (most frequently identified response for each sample group in **bold**).

| Potential Monitor | Sample Group [†] | n | Rank | | | | |
|-----------------------------|---------------------------|-----|--------------|--------------|--------------|--------------|--------------|
| | | | 1 | 2 | 3 | 4 | 5 |
| Industry | NA | 336 | 36.3% | 29.8% | 14.0% | 6.8% | 13.1% |
| | A | 46 | 32.6% | 23.9% | 23.9% | 6.5% | 13.0% |
| | M/P | 56 | 51.8% | 26.8% | 10.7% | 5.4% | 5.4% |
| Government | NA | 345 | 42.0% | 26.4% | 14.5% | 9.0% | 8.1% |
| | A | 45 | 20.0% | 24.4% | 20.0% | 13.3% | 22.2% |
| | M/P | 57 | 52.6% | 29.8% | 8.8% | 7.0% | 1.8% |
| Aboriginal People | NA | 292 | 7.2% | 8.6% | 15.8% | 30.1% | 38.4% |
| | A | 49 | 28.6% | 14.3% | 24.5% | 18.4% | 14.3% |
| | M/P | 50 | 4.0% | 20.0% | 16.0% | 44.0% | 16.0% |
| Local Communities | NA | 334 | 23.1% | 24.0% | 34.4% | 11.7% | 6.9% |
| | A | 45 | 24.4% | 22.2% | 15.6% | 26.7% | 11.1% |
| | M/P | 54 | 24.1% | 25.9% | 38.9% | 9.3% | 1.9% |
| Environmental Organizations | NA | 304 | 12.5% | 11.8% | 19.7% | 30.9% | 25.0% |
| | A | 39 | 23.1% | 17.9% | 20.5% | 12.8% | 25.6% |
| | M/P | 48 | 2.1% | 14.6% | 12.5% | 14.6% | 56.3% |

[†] Sample groups: Non-Aboriginal (NA); Aboriginal (A); and Managers/Planners (M/P).

Table 26. Please rank the following groups in terms of their potential involvement in monitoring:
Sustaining non-timber economic benefits (most frequently identified response for each sample group in **bold**).

| Potential Monitor | Sample Group [†] | n | Rank | | | | |
|-----------------------------|---------------------------|-----|--------------|--------------|--------------|--------------|--------------|
| | | | 1 | 2 | 3 | 4 | 5 |
| Industry | NA | 304 | 11.8% | 19.1% | 22.0% | 20.4% | 26.6% |
| | A | 42 | 19.0% | 26.2% | 28.6% | 7.1% | 19.0% |
| | M/P | 51 | 9.8% | 25.5% | 19.6% | 11.8% | 33.3% |
| Government | NA | 332 | 44.3% | 23.8% | 11.4% | 10.2% | 10.2% |
| | A | 45 | 28.9% | 15.6% | 13.3% | 26.7% | 15.6% |
| | M/P | 56 | 62.5% | 17.9% | 7.1% | 8.9% | 3.6% |
| Aboriginal People | NA | 286 | 8.0% | 16.8% | 21.0% | 19.6% | 34.6% |
| | A | 48 | 41.7% | 8.3% | 14.6% | 29.2% | 6.3% |
| | M/P | 52 | 17.3% | 26.9% | 25.0% | 21.2% | 9.6% |
| Local Communities | NA | 332 | 38.6% | 29.2% | 19.3% | 7.5% | 5.4% |
| | A | 44 | 20.5% | 36.4% | 31.8% | 6.8% | 4.5% |
| | M/P | 57 | 40.4% | 33.3% | 10.5% | 10.5% | 5.3% |
| Environmental Organizations | NA | 306 | 17.0% | 17.6% | 20.6% | 27.1% | 17.6% |
| | A | 41 | 14.6% | 17.1% | 19.5% | 14.6% | 34.1% |
| | M/P | 50 | 10.0% | 18.0% | 24.0% | 22.0% | 26.0% |

[†] Sample groups: Non-Aboriginal (NA); Aboriginal (A); and Managers/Planners (M/P).

Table 27. Please rank the following groups in terms of their potential involvement in monitoring:
Representing a wide range of social and cultural values in forest management decisions (most frequently identified response for each sample group in **bold**).

| Potential Monitor | Sample Group [†] | n | Rank | | | | |
|-----------------------------|---------------------------|-----|--------------|--------------|--------------|--------------|--------------|
| | | | 1 | 2 | 3 | 4 | 5 |
| Industry | NA | 313 | 9.9% | 18.2% | 15.7% | 13.7% | 42.5% |
| | A | 42 | 28.6% | 7.1% | 14.3% | 16.7% | 33.3% |
| | M/P | 49 | 14.3% | 20.4% | 12.2% | 12.2% | 40.8% |
| Government | NA | 337 | 38.0% | 15.7% | 16.3% | 21.7% | 8.3% |
| | A | 45 | 20.0% | 20.0% | 11.1% | 26.7% | 22.2% |
| | M/P | 57 | 57.9% | 21.1% | 8.8% | 10.5% | 1.8% |
| Aboriginal People | NA | 313 | 16.6% | 24.9% | 22.4% | 16.3% | 19.8% |
| | A | 50 | 52.0% | 20.0% | 16.0% | 10.0% | 2.0% |
| | M/P | 50 | 20.0% | 24.0% | 32.0% | 18.0% | 6.0% |
| Local Communities | NA | 343 | 39.9% | 26.8% | 16.9% | 9.6% | 6.7% |
| | A | 45 | 13.3% | 35.6% | 28.9% | 15.6% | 6.7% |
| | M/P | 57 | 38.6% | 35.1% | 14.0% | 10.5% | 1.8% |
| Environmental Organizations | NA | 322 | 18.9% | 21.7% | 25.2% | 20.5% | 13.7% |
| | A | 41 | 17.1% | 29.3% | 31.7% | 12.2% | 9.8% |
| | M/P | 46 | 15.2% | 15.2% | 26.1% | 21.7% | 21.7% |

[†] Sample groups: Non-Aboriginal (NA); Aboriginal (A); and Managers/Planners (M/P).

Table 28. Please rank the following groups in terms of their potential involvement in monitoring: Sustaining the benefits that First Nations and Métis people receive from forests (most frequently identified response for each sample group in **bold**).

| Potential Monitor | Sample Group [†] | n | Rank | | | | |
|-----------------------------|---------------------------|-----|--------------|--------------|--------------|--------------|--------------|
| | | | 1 | 2 | 3 | 4 | 5 |
| Industry | NA | 300 | 8.0% | 12.3% | 20.3% | 21.0% | 38.3% |
| | A | 44 | 15.9% | 4.5% | 18.2% | 25.0% | 36.4% |
| | M/P | 47 | 8.5% | 17.0% | 17.0% | 31.9% | 25.5% |
| Government | NA | 332 | 41.6% | 25.6% | 14.8% | 11.1% | 6.9% |
| | A | 45 | 33.3% | 15.6% | 11.1% | 26.7% | 13.3% |
| | M/P | 55 | 41.8% | 43.6% | 10.9% | 1.8% | 1.8% |
| Aboriginal People | NA | 336 | 49.4% | 23.5% | 11.3% | 5.4% | 10.4% |
| | A | 50 | 62.0% | 18.0% | 10.0% | 2.0% | 8.0% |
| | M/P | 57 | 77.2% | 17.5% | 3.5% | 1.8% | – |
| Local Communities | NA | 318 | 15.7% | 28.0% | 29.9% | 17.3% | 9.1% |
| | A | 45 | 11.1% | 42.2% | 26.7% | 15.6% | 4.4% |
| | M/P | 50 | 6.0% | 24.0% | 42.0% | 26.0% | 2.0% |
| Environmental Organizations | NA | 296 | 8.4% | 10.8% | 21.6% | 29.1% | 30.1% |
| | A | 40 | 12.5% | 12.5% | 45.0% | 15.0% | 15.0% |
| | M/P | 45 | 2.2% | 13.3% | 11.1% | 22.2% | 51.1% |

[†] Sample groups: Non-Aboriginal (NA); Aboriginal (A); and Managers/Planners (M/P).

Table 29. Please rank the following groups in terms of their potential involvement in monitoring: Sustaining opportunities for a wide range of quality of life benefits (most frequently identified response for each sample group in **bold**).

| Potential Monitor | Sample Group [†] | n | Rank | | | | |
|-----------------------------|---------------------------|-----|--------------|--------------|--------------|--------------|--------------|
| | | | 1 | 2 | 3 | 4 | 5 |
| Industry | NA | 306 | 13.1% | 15.7% | 21.9% | 16.3% | 33.0% |
| | A | 43 | 18.6% | 16.3% | 11.6% | 16.3% | 37.2% |
| | M/P | 49 | 12.2% | 16.3% | 18.4% | 10.2% | 42.9% |
| Government | NA | 338 | 50.3% | 18.9% | 11.8% | 12.7% | 6.2% |
| | A | 44 | 27.3% | 27.3% | 11.4% | 18.2% | 15.9% |
| | M/P | 55 | 65.5% | 21.8% | 7.3% | 3.6% | 1.8% |
| Aboriginal People | NA | 301 | 10.0% | 12.6% | 23.9% | 21.6% | 31.9% |
| | A | 49 | 24.5% | 28.6% | 24.5% | 16.3% | 6.1% |
| | M/P | 49 | 8.2% | 24.5% | 24.5% | 36.7% | 6.1% |
| Local Communities | NA | 337 | 41.2% | 31.8% | 14.5% | 8.3% | 4.2% |
| | A | 39 | 23.1% | 12.8% | 28.2% | 17.9% | 17.9% |
| | M/P | 57 | 28.6% | 35.1% | 21.1% | 3.5% | 1.8% |
| Environmental Organizations | NA | 313 | 16.9% | 20.1% | 25.6% | 22.7% | 14.7% |
| | A | 39 | 23.1% | 12.8% | 28.2% | 17.9% | 17.9% |
| | M/P | 50 | 12.0% | 18.0% | 18.0% | 24.0% | 28.0% |

[†] Sample groups: Non-Aboriginal (NA); Aboriginal (A); and Managers/Planners (M/P).

Table 30. Please rank the following groups in terms of their potential involvement in monitoring: Species at risk should be recovered (most frequently identified response for each sample group in **bold**).

| Potential Monitor | Sample Group [†] | n | Rank | | | | |
|-----------------------------|---------------------------|-----|--------------|--------------|--------------|--------------|--------------|
| | | | 1 | 2 | 3 | 4 | 5 |
| Industry | NA | 318 | 19.2% | 23.0% | 18.2% | 12.9% | 26.7% |
| | A | 44 | 18.2% | 31.8% | 11.4% | 6.8% | 31.8% |
| | M/P | 53 | 17.0% | 32.1% | 24.5% | 3.8% | 22.6% |
| Government | NA | 340 | 50.0% | 21.2% | 10.6% | 10.3% | 7.9% |
| | A | 45 | 42.2% | 20.0% | 15.6% | 13.3% | 8.9% |
| | M/P | 60 | 90.0% | 3.3% | 3.3% | 1.7% | 1.7% |
| Aboriginal People | NA | 302 | 13.9% | 8.9% | 17.2% | 28.8% | 31.1% |
| | A | 49 | 26.5% | 18.4% | 24.5% | 24.5% | 6.1% |
| | M/P | 49 | 6.1% | 16.3% | 36.7% | 20.4% | 20.4% |
| Local Communities | NA | 321 | 13.7% | 22.7% | 29.0% | 20.2% | 14.3% |
| | A | 44 | 22.7% | 11.4% | 31.8% | 13.6% | 20.5% |
| | M/P | 48 | 6.3% | 16.7% | 22.9% | 33.3% | 20.8% |
| Environmental Organizations | NA | 339 | 44.2% | 18.9% | 16.8% | 9.4% | 10.6% |
| | A | 41 | 36.6% | 22.0% | 17.1% | 12.2% | 12.2% |
| | M/P | 51 | 17.6% | 35.3% | 21.6% | 13.7% | 11.8% |

[†] Sample groups: Non-Aboriginal (NA); Aboriginal (A); and Managers/Planners (M/P).

The Manager/Planner sample group identified Government as the group that should take the lead role in the monitoring of all forest management outcomes with the exception of *sustaining the benefits that First Nations and Métis people receive from forests*. The other two sample groups were more varied in terms of identifying the lead group for the monitoring of forest management outcomes.

The weighted standardized rank scores of potential monitoring groups for forest management outcomes (Figures 8 - 12) generally suggest that the differences in support for the five different potential monitoring groups. However, the Non-Aboriginal sample group were not as supportive of Aboriginal People taking monitoring roles as they were for other potential monitoring groups, with the exception of two forest management outcomes (*representing a wide range of social and cultural values in forest management*, and *sustaining the benefits that First Nations and Metis people receive from forests*). The Aboriginal sample group supported roles for most potential monitoring groups in each forest management outcome.

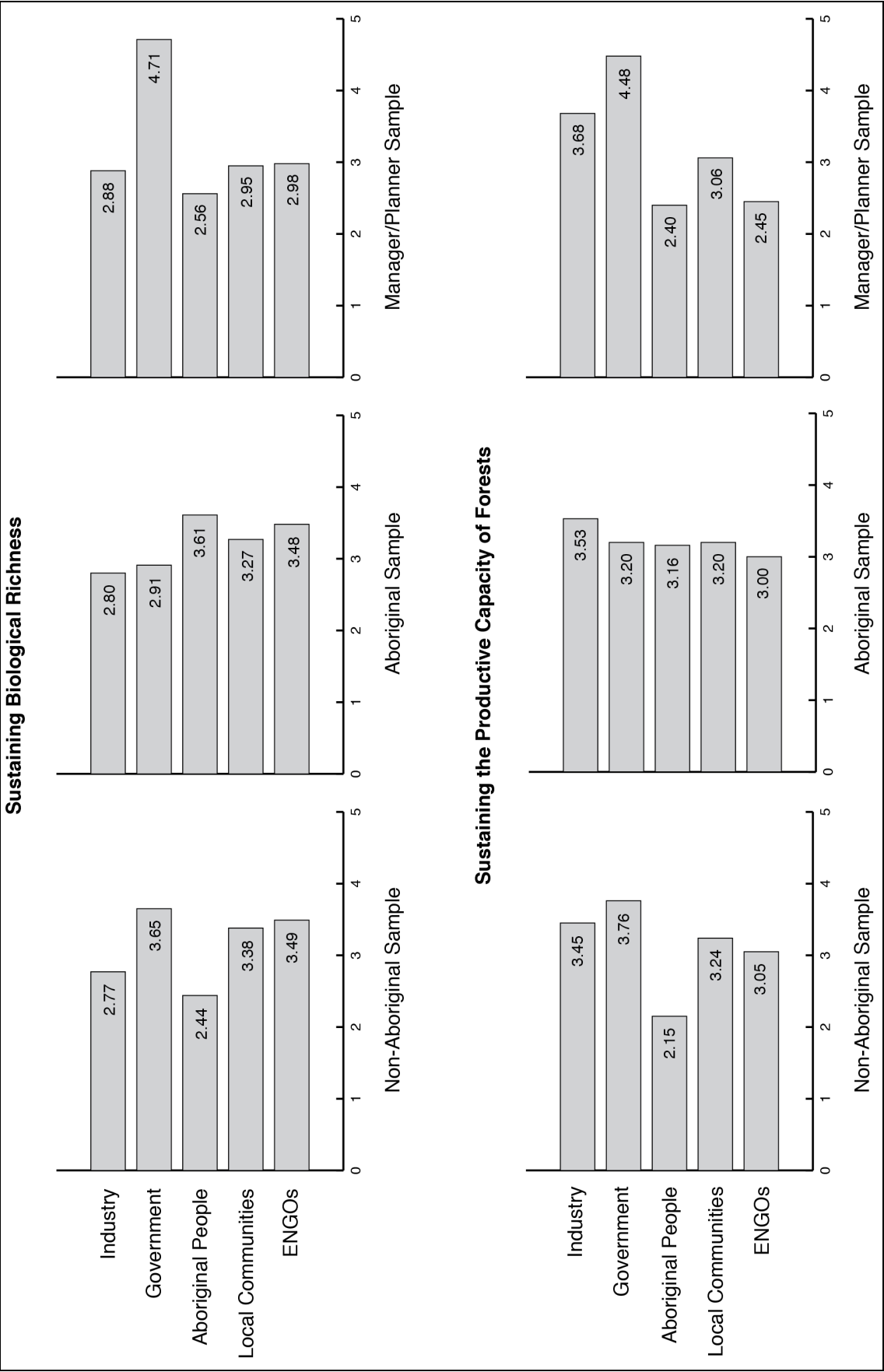


Figure 8. Standardized rank scores of potential monitoring groups for forest management outcomes: Sustaining biological richness and sustaining the productive capacity of forests.

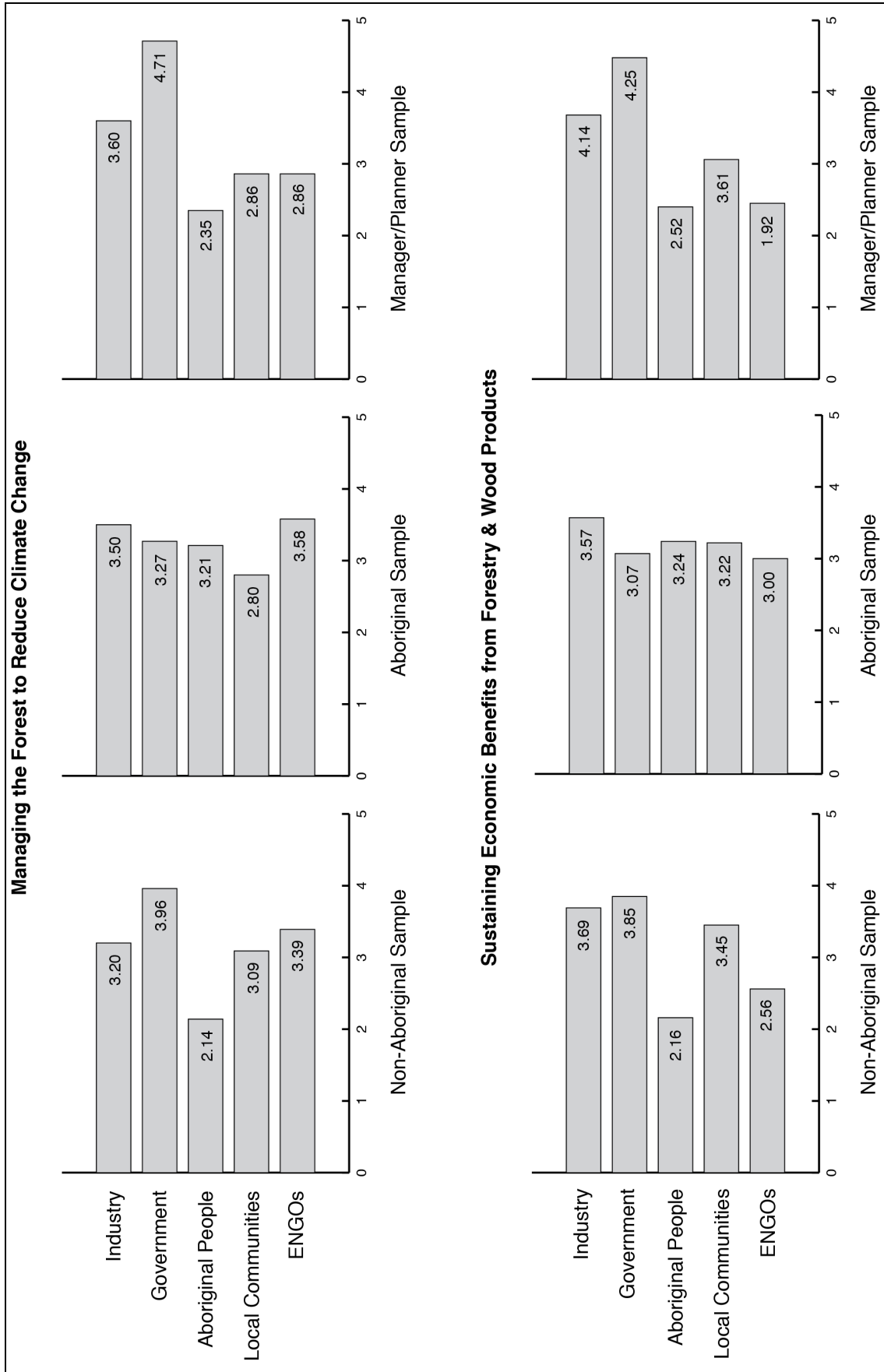


Figure 9. Standardized rank scores of potential monitoring groups for forest management outcomes: Managing the forest to reduce climate change and sustaining economic benefits from forestry and wood products.

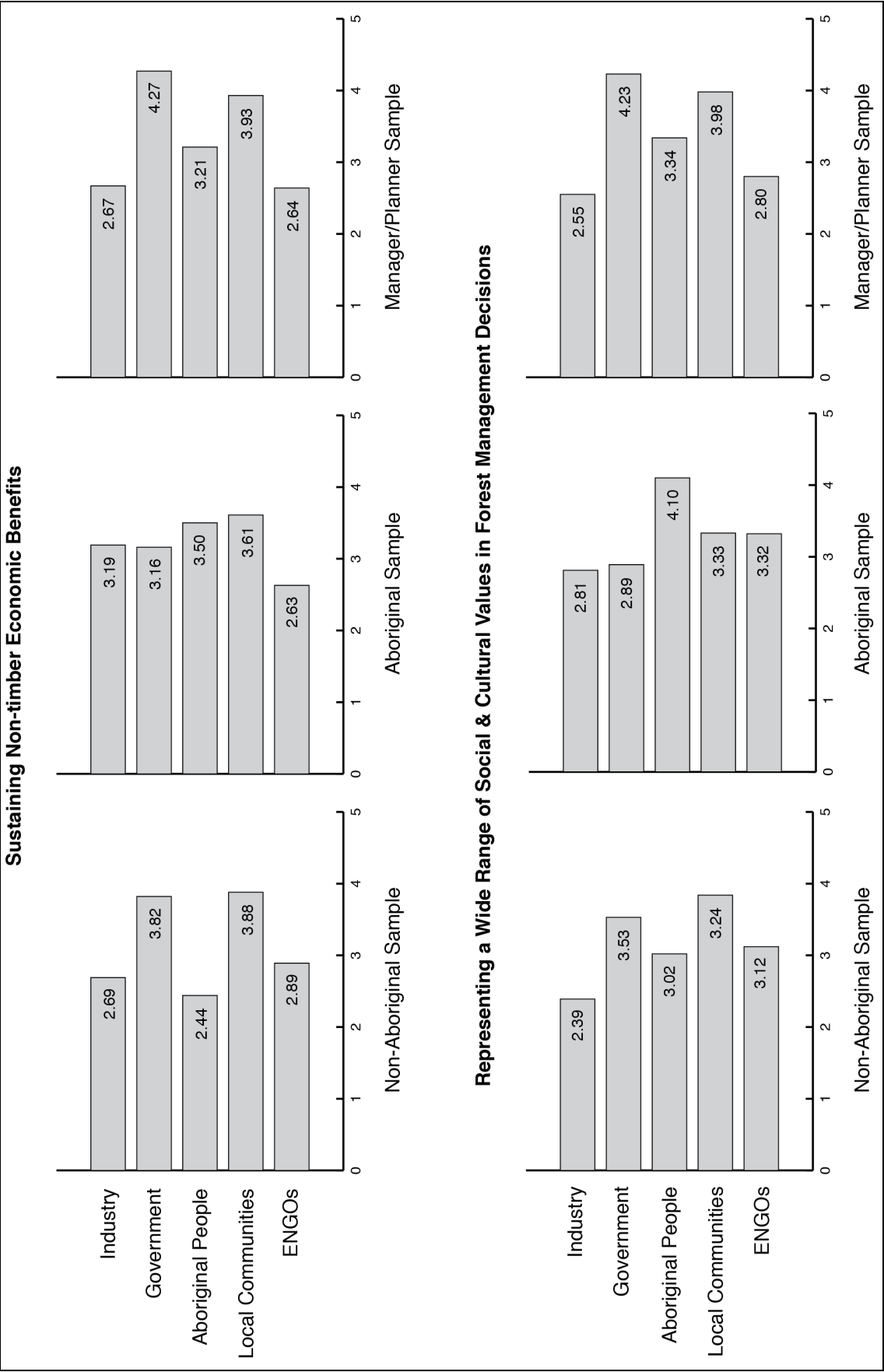


Figure 10. Standardized rank scores of potential monitoring groups for forest management outcomes: Sustaining non-timber economic benefits and representing a wide range of social and cultural values in forest management decisions.

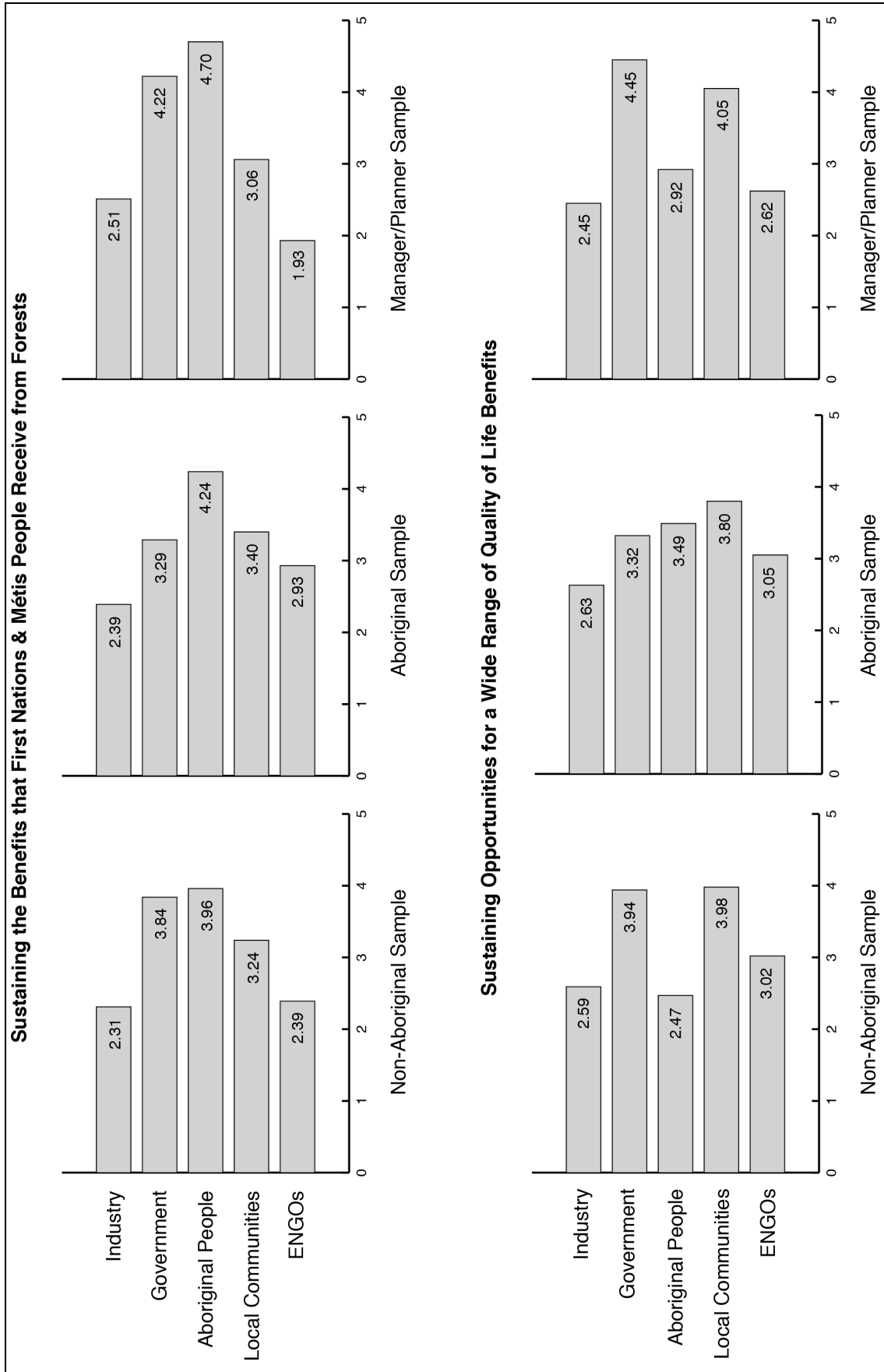


Figure 11. Standardized rank scores of potential monitoring groups for forest management outcomes: Sustaining the benefits that First Nations and Métis people receive from forests and sustaining opportunities for a wide range of quality of life benefits.

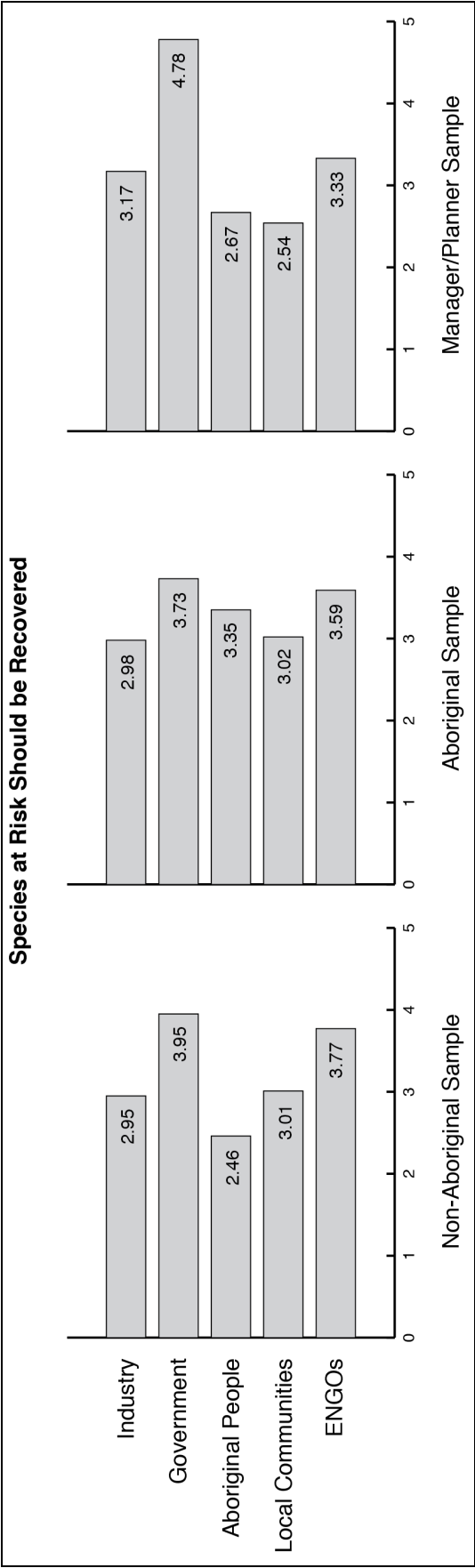


Figure 12. Standardized rank scores of potential monitoring groups for forest management outcomes: Species at risk should be recovered.

3.8. Participation in Outdoor Recreation Activities.

Respondents reported involvement in 27 outdoor recreation activities (Table 31). The three most popular outdoor recreation activities were hiking, camping, and fishing.

Table 31. Most recent outdoor recreation activities (n = 485).

| Activity | Frequency | % |
|------------------------|-----------|-------|
| Hiking | 118 | 24.3% |
| Camping | 69 | 14.2% |
| Fishing | 48 | 9.9% |
| Walking | 41 | 8.5% |
| Other leisure activity | 33 | 6.8% |
| Hunting | 29 | 6.0% |
| Multiple activities | 28 | 5.8% |
| Biking (general) | 15 | 3.1% |
| ATV | 13 | 2.7% |
| Mountain biking | 13 | 2.7% |
| Boating | 10 | 2.1% |
| Gathering | 10 | 2.1% |
| Skiing (general) | 9 | 1.9% |
| Horseback riding | 6 | 1.2% |
| Backcountry activities | 6 | 1.2% |
| Kayaking | 6 | 1.2% |
| Cross-country skiing | 5 | 1.0% |
| Bird watching | 4 | 0.8% |
| Canoeing | 4 | 0.8% |
| Swimming | 4 | 0.8% |
| 4-Wheeling | 3 | 0.6% |
| Snowmobiling | 3 | 0.6% |
| Scenic driving | 2 | 0.4% |
| Mountaineering | 2 | 0.4% |
| Back packing | 1 | 0.2% |
| Downhill skiing | 1 | 0.2% |
| Wildlife photography | 1 | 0.2% |

Respondents had participated in the activity that they had done most recently for an average of 33.0 \pm 1.5 years (SD = 16.586). The amount of time spent on an outdoor recreation activity varied with activity (Table 32).

Table 32. How many years of your life have you done this activity? (n = 486).

| Activity | n | Mean | 95% CI | SD |
|------------------------|-----|------|--------|--------|
| 4-Wheeling | 3 | 17.7 | ± 12.7 | 11.240 |
| ATV | 13 | 12.2 | ± 5.9 | 10.862 |
| Back packing | 1 | 35.0 | – | – |
| Backcountry activities | 6 | 26.8 | ± 9.1 | 11.409 |
| Biking (general) | 15 | 29.6 | ± 7.2 | 14.176 |
| Bird watching | 4 | 41.3 | ± 8.4 | 8.539 |
| Boating | 10 | 33.0 | ± 8.4 | 13.581 |
| Camping | 69 | 34.5 | ± 3.2 | 13.713 |
| Canoeing | 4 | 29.0 | ± 8.2 | 8.406 |
| Cross-country skiing | 5 | 21.6 | ± 8.9 | 10.114 |
| Downhill skiing | 1 | 16.0 | – | – |
| Fishing | 48 | 38.4 | ± 3.8 | 13.451 |
| Gathering | 10 | 36.3 | ± 11.3 | 18.203 |
| Hiking | 115 | 32.4 | ± 2.8 | 15.121 |
| Horseback riding | 6 | 26.8 | ± 11.9 | 14.838 |
| Hunting | 29 | 43.8 | ± 5.6 | 15.364 |
| Kayaking | 6 | 12.2 | ± 11.5 | 14.359 |
| Mountain biking | 13 | 18.0 | ± 6.4 | 11.712 |
| Mountaineering | 2 | 32.5 | ± 14.7 | 10.607 |
| Other leisure activity | 32 | 29.2 | ± 6.2 | 17.822 |
| Scenic driving | 2 | 22.5 | ± 34.3 | 24.749 |
| Skiing (general) | 9 | 37.0 | ± 8.7 | 13.304 |
| Snowmobiling | 3 | 26.7 | ± 11.8 | 10.408 |
| Swimming | 4 | 38.5 | ± 19.5 | 19.891 |
| Walking | 40 | 41.8 | ± 6.4 | 20.809 |
| Wildlife photography | 1 | 10.0 | – | – |
| Multiple activities | 26 | 32.4 | ± 7.3 | 19.010 |

Respondents represented a range of skill levels with regard to the outdoor recreation activity that they had participated in most recently; most respondents indicated that they had an intermediate skill level (Table 33).

Table 33. Skill levels of respondents for outdoor recreation activity that they had participated in most recently. (n = 494; most frequently identified response in **bold**).

| Skill Level | Frequency | % |
|---------------------|------------|--------------|
| Beginner | 9 | 1.8% |
| Novice | 37 | 7.5% |
| Intermediate | 222 | 44.9% |
| Advanced | 164 | 33.2% |
| Expert | 62 | 12.6% |

Respondents reported preferences for a range of outdoor recreation settings for the outdoor recreation activity that they had participated in most recently; most respondents preferred easily accessed natural areas with some facilities (Table 34).

Table 34. Skill levels of respondents for outdoor recreation activity that they had participated in most recently (n = 520; respondents could select more than one preferred setting; most frequently identified response in **bold**).

| Setting | Frequency | % |
|--|------------|--------------|
| Large, undisturbed wilderness areas. | 185 | 35.6% |
| Large wilderness areas with limited access and camp-sites. | 272 | 52.3% |
| Semi-wilderness areas with limited motorized. | 243 | 46.7% |
| Easily accessed natural areas with some facilities. | 300 | 57.7% |
| Rural areas | 197 | 37.9% |
| Urban areas | 66 | 12.7% |

Respondents provided details about different aspects of the outdoor recreation activity that they had participated in most recently (Table 35). Fewer than one respondent in twenty (4.7%) disagreed that *if they stopped the activity that they had participated in most recently, an important part of their lives would be missing*, while more than four respondents in five (84.4%) agreed. More than twice as many respondents agreed (49.5%) that *they would rather do the activity that they had participated in most recently than most anything else* than did respondents that disagreed (22.5%). More than six times as many respondents agreed (66.1%) that *participation in the activity that they had participated in most recently was a large part of their lives* than did respondents that disagreed (10.1%). Two respondents in five (41.7%) agreed that *most other recreation activities do not interest them as much as the activity that they had participated in most recently*, while one-third of respondents (34.8%) disagreed. More than one-

Table 35. Question 8: Outdoor recreation activity characteristics (most frequently identified response in **bold**).

| | n | Strongly Disagree (1) | Disagree (2) | Neither (3) | Agree (4) | Strongly Agree (5) | Mean | 95% CI | SD |
|--|----------|------------------------------|---------------------|--------------------|------------------|---------------------------|-------------------|---------------|-----------|
| If I stopped this activity, an important part of my life would be missing. | 493 | 0.6% | 4.1% | 11.0% | 35.3% | 49.1% | 4.28 ^a | ± 0.08 | 0.860 |
| I would rather do this activity than do most anything else. | 493 | 1.8% | 20.7% | 28.0% | 33.1% | 16.4% | 3.42 ^b | ± 0.09 | 1.047 |
| Participation in this activity is a large part of my life. | 493 | 0.6% | 9.5% | 23.7% | 43.4% | 22.7% | 3.78 ^c | ± 0.08 | 0.924 |
| Most other recreation activities do not interest me as much as this activity does. | 492 | 4.1% | 30.7% | 23.6% | 29.5% | 12.2% | 3.15 ^d | ± 0.10 | 1.110 |
| This activity is becoming a more central part of my life each year. | 494 | 1.0% | 24.7% | 36.8% | 27.3% | 10.1% | 3.21 ^e | ± 0.08 | 0.961 |
| Given the skills I have developed in this activity, it is more important that I continue to participate in it. | 493 | 1.2% | 10.3% | 27.4% | 46.2% | 14.8% | 3.63 ^f | ± 0.08 | 0.900 |
| I feel that I am more skilled in this activity than any other people in general. | 493 | 11.6% | 27.0% | 32.3% | 20.5% | 8.7% | 2.88 ^g | ± 0.10 | 1.129 |
| Testing my skills in this activity is very important to me. | 493 | 7.7% | 21.5% | 37.1% | 23.5% | 10.1% | 3.07 ^h | ± 0.10 | 1.078 |
| In general, I am becoming more skilled in this activity each year. | 493 | 3.4% | 15.0% | 33.9% | 37.9% | 9.7% | 3.35 ⁱ | ± 0.08 | 0.966 |
| I have accumulated a lot of equipment for this activity. | 491 | 7.7% | 20.8% | 19.1% | 37.7% | 14.7% | 3.31 ^j | ± 0.10 | 1.179 |

Table 35 (cont'd). Question 8: Outdoor recreation activity characteristics (most frequently identified response in **bold**).

| | n | Strongly Disagree (1) | Disagree (2) | Neither (3) | Agree (4) | Strongly Agree (5) | Mean | 95% CI | SD |
|---|----------|--------------------------------------|-------------------------|------------------------|----------------------|-----------------------------------|-------------------|---------------|-----------|
| I have invested a lot of money in equipment for this activity. | 490 | 10.6% | 22.4% | 22.7% | 29.6% | 14.7% | 3.15 | ± 0.11 | 1.230 |
| I feel that I have more equipment for this activity than other people that do this activity in general. | 493 | 15.4% | 35.5% | 29.4% | 12.8% | 6.9% | 2.6 ^k | ± 0.10 | 1.104 |
| I often spend time learning about the newest equipment available for this activity. | 493 | 19.9% | 31.4% | 26.4% | 16.6% | 5.7% | 2.57 ^l | ± 0.10 | 1.148 |
| In general, I am obtaining more equipment for this activity each year. | 493 | 16.8% | 28.2% | 21.7% | 27.6% | 5.7% | 2.77 ^m | ± 0.10 | 1.187 |

^a The mean response of the Non-Aboriginal sample group was significantly lower than the mean responses of the Manager/Planner sample group.

^b The mean response of the Aboriginal sample group was significantly higher than the mean responses of the Non-Aboriginal and Manager/Planner sample groups.

^c The mean response of the Non-Aboriginal sample group was significantly lower than the mean response of the Aboriginal sample group.

^d The mean response of the Aboriginal sample group was significantly higher than the mean responses of the Non-Aboriginal and Manager/Planner sample groups.

^e The mean response of the Aboriginal sample group was significantly higher than the mean responses of the Non-Aboriginal & Manager/Planner sample groups.

^f The mean response of the Aboriginal sample group was significantly higher than the mean responses of the Non-Aboriginal & Manager/Planner sample groups.

^g The mean response of the Aboriginal sample group was significantly higher than the mean response of the Non-Aboriginal sample group.

^h The mean response of the Non-Aboriginal sample group was significantly lower than the mean response of the Aboriginal sample group.

ⁱ The mean response of the Non-Aboriginal sample group was significantly lower than the mean response of the Aboriginal sample group.

^j The mean response of the Non-Aboriginal sample group was significantly lower than the mean response of the Aboriginal sample group.

^k The mean response of the Non-Aboriginal sample group was significantly lower than the mean response of the Aboriginal & Manager/Planner sample groups.

^l The mean response of the Non-Aboriginal sample group was significantly higher than the mean response of the Aboriginal & Manager/Planner sample groups.

^m The mean response of the Non-Aboriginal sample group was significantly lower than the mean response of the Aboriginal sample group.

third of respondents (37.4%) agreed that *the activity that they had participated in most recently is becoming a more central part of their lives each year*, while one-quarter of respondents (25.7%) disagreed. More than five times as many respondents agreed (61.0%) that *given the skills they had developed in the activity that they had participated in most recently, it is more important that they continue to participate in it* than did respondents that disagreed (11.5%). More than one-quarter of respondents (29.2%) agreed that *they were more skilled in the activity that they had participated in most recently than any other people in general*, while almost two respondents in five (38.6%) disagreed. One-third of respondents (33.6%) agreed that *testing their skills in the activity that they had participated in most recently*, while more than one-quarter of respondents disagreed. More than two respondents in five (47.6%) agreed that *in general they were becoming more skilled in the activity that they had participated in most recently each year*, while just fewer than one respondent in five (18.4%) disagreed. Half of respondents (52.4%) agreed that *they had accumulated a lot of equipment for the activity that they had participated in most recently*, while more than one-quarter of respondents (28.5%) disagreed. More than two respondents in five (44.3%) agreed that *they had invested a lot of money in equipment for the activity that they had participated in most recently*, while one-third (33.0%) disagreed. Half of all respondents (50.9%) disagreed that *they had more equipment for the activity that they had participated in most recently than other people that do the same activity in general*, while one respondent in five (19.7%) agreed. More than twice as many respondents disagreed (51.3%) that *they often spend time learning about the newest equipment available for the activity that they had participated in most recently* than did respondents that agreed (22.3%). More than two respondents in five (45.0%) disagreed that *in general, they had obtained more equipment for the activity that they had participated in most recently each year*, while one-third of respondents (33.3%) agreed.

One-quarter of respondents (24.9%) indicated that *the activity that they had participated in most recently was an enjoyable, but infrequent activity that was incidental to other travel and outdoor interests*; these respondents were not highly skilled at the activity that they had participated in most recently, rarely read magazine articles about it, and did not own much equipment beyond the basic necessities. More than half of respondents (56.3%) indicated that *the activity that they had participated in most recently was an important, but not exclusive outdoor activity*; they occasionally read magazine articles about it and purchased additional equipment to aid in it, but their participation in the activity was inconsistent, and they were moderately skilled at it. Almost one in five respondents (18.8%) indicated that *the activity that they had participated in most recently was their primary activity*; they had purchased ever-increasing amounts of equipment to aid in the activity, participated in this activity every chance that they had, considered themselves to be highly skilled, and frequently read magazine articles about the activity.

ANOVA results indicated that there were statistically significant differences between the mean responses of the three sample groups for thirteen of the fourteen items in the second part of Question 8 (Table 36).

Table 36. Question 8: Outdoor recreation activity characteristics (significant differences between sample groups in **bold**).

| Item | n | df | F | p |
|---|-----|----|--------|-------|
| If I stopped this activity, an important part of my life would be missing. | 492 | 2 | 4.102 | 0.017 |
| I would rather do this activity than do most anything else. | 492 | 2 | 5.553 | 0.004 |
| Participation in this activity is a large part of my life. | 492 | 2 | 7.536 | 0.001 |
| Most other recreation activities do not interest me as much as this activity does. | 491 | 2 | 4.901 | 0.008 |
| This activity is becoming a more central part of my life each year. | 493 | 2 | 4.490 | 0.012 |
| Given the skills I have developed in this activity, it is more important that I continue to participate in it. | 492 | 2 | 10.902 | 0.000 |
| I feel that I am more skilled in this activity than any other people in general. | 492 | 2 | 5.874 | 0.003 |
| Testing my skills in this activity is very important to me. | 492 | 2 | 5.007 | 0.007 |
| In general, I am becoming more skilled in this activity each year. | 492 | 2 | 3.999 | 0.019 |
| I have accumulated a lot of equipment for this activity. | 490 | 2 | 4.024 | 0.018 |
| I have invested a lot of money in equipment for this activity. | 489 | 2 | 2.649 | 0.072 |
| I feel that I have more equipment for this activity than other people that do this activity in general. | 492 | 2 | 7.871 | 0.000 |
| I often spend time learning about the newest equipment available for this activity. | 492 | 2 | 10.258 | 0.000 |
| In general, I am obtaining more equipment for this activity each year. | 492 | 2 | 5.965 | 0.003 |

There were significant differences between the mean responses of two of the three sample groups for the first item, *if I stopped this activity, an important part of my life would be missing*. As the Levene statistic (1.966, $p > 0.05$) indicated that the mean responses of the sample groups were equal, a Scheffe *post hoc* test was used to identify where the differences lay: the mean response of the Non-Aboriginal sample group ($\bar{x} = 4.22$) was significantly lower (*i.e.*, less agreeable) than the mean response of the Manager/Planner sample group ($\bar{x} = 4.50$).

There were significant differences between the mean responses of the three sample groups for the second item, *I would rather do this activity than do most anything else*. As the Levene statistic (0.834, $p > 0.05$) indicated that the mean responses of the sample groups were equal, a Scheffe *post hoc* test was used to identify where the differences lay: the mean response of the Aboriginal sample group ($\bar{x} = 3.84$)

was significantly higher (*i.e.*, more agreeable) than the mean responses of the Non-Aboriginal ($\bar{x} = 3.37$) and Manager/Planner ($\bar{x} = 3.30$) sample groups.

There were significant differences between the mean responses of two of the three sample groups for the third item, *participation in this activity is a large part of my life*. As the Levene statistic (0.494, $p > 0.05$) indicated that the mean responses of the sample groups were equal, a Scheffe *post hoc* test was used to identify where the differences lay: the mean response of the Non-Aboriginal sample group ($\bar{x} = 3.70$) was significantly lower (*i.e.*, less agreeable) than the mean response of the Aboriginal sample group ($\bar{x} = 4.16$).

There were significant differences between the mean responses of the three sample groups for the fourth item, *most other recreation activities do not interest me as much as this activity does*. As the Levene statistic (2.790, $p > 0.05$) indicated that the mean responses of the sample groups were equal, a Scheffe *post hoc* test was used to identify where the differences lay: the mean response of the Aboriginal sample group ($\bar{x} = 3.54$) was significantly higher (*i.e.*, more agreeable) than the mean responses of the Non-Aboriginal ($\bar{x} = 3.13$) and Manager/Planner ($\bar{x} = 2.93$) sample groups.

There were significant differences between the mean responses of the three sample groups for the fifth item, *this activity is becoming a more central part of my life each year*. Although the Levene statistic (4.783, $p < 0.05$) indicated that the variances of the mean responses between sample groups were not equal, the Welch F Test (4.777, $p < 0.05$) confirmed the presence of these differences. The Games-Howell *post hoc* test revealed that the mean responses of the three sample groups were significantly different: the mean response of the Aboriginal sample group ($\bar{x} = 3.55$) was significantly higher (*i.e.*, more agreeable) than the mean responses of the Non-Aboriginal ($\bar{x} = 3.18$) and Manager/Planner ($\bar{x} = 3.08$) sample groups.

There were significant differences between the mean responses of the three sample groups for the sixth item, *given the skills I have developed in this activity, it is more important that I continue to participate in it*. As the Levene statistic (2.063, $p > 0.05$) indicated that the mean responses of the sample groups were equal, a Scheffe *post hoc* test was used to identify where the differences lay: the mean response of the Aboriginal sample group ($\bar{x} = 4.12$) was significantly higher (*i.e.*, more agreeable) than the mean responses of the Non-Aboriginal ($\bar{x} = 3.59$) and Manager/Planner ($\bar{x} = 3.43$) sample groups.

There were significant differences between the mean responses of two of the three sample groups for the seventh item, *I feel that I am more skilled in this activity than any other people in general*. As the Levene statistic (0.286, $p > 0.05$) indicated that the mean responses of the sample groups were equal, a Scheffe

post hoc test was used to identify where the differences lay: the mean response of the Aboriginal sample group ($\bar{x} = 3.26$) was significantly higher (*i.e.*, more agreeable) than the mean response of the Non-Aboriginal sample group ($\bar{x} = 2.78$).

There were significant differences between the mean responses of two of the three sample groups for the eighth item, *testing my skills in this activity is very important to me*. As the Levene statistic (2.040, $p > 0.05$) indicated that the mean responses of the sample groups were equal, a Scheffe *post hoc* test was used to identify where the differences lay: the mean response of the Non-Aboriginal sample group ($\bar{x} = 3.01$) was significantly lower (*i.e.*, less agreeable) than the mean response of the Aboriginal sample group ($\bar{x} = 3.48$).

There were significant differences between the mean responses of two of the three sample groups for the ninth item, *in general, I am becoming more skilled in this activity each year*. As the Levene statistic (0.501, $p > 0.05$) indicated that the mean responses of the sample groups were equal, a Scheffe *post hoc* test was used to identify where the differences lay: the mean response of the Non-Aboriginal sample group ($\bar{x} = 3.31$) was significantly lower (*i.e.*, less agreeable) than the mean response of the Aboriginal sample group ($\bar{x} = 3.69$).

There were significant differences between the mean responses of two of the three sample groups for the tenth item, *I have accumulated a lot of equipment for this activity*. As the Levene statistic (0.785, $p > 0.05$) indicated that the mean responses of the sample groups were equal, a Scheffe *post hoc* test was used to identify where the differences lay: the mean response of the Non-Aboriginal sample group ($\bar{x} = 3.23$) was significantly lower (*i.e.*, less agreeable) than the mean response of the Aboriginal sample group ($\bar{x} = 3.69$).

There were significant differences between the mean responses of the three sample groups for the twelfth item, *I feel that I have more equipment for this activity than other people that do this activity in general*. As the Levene statistic (0.138, $p > 0.05$) indicated that the mean responses of the sample groups were equal, a Scheffe *post hoc* test was used to identify where the differences lay: the mean response of the Non-Aboriginal sample group ($\bar{x} = 2.49$) was significantly lower (*i.e.*, less agreeable) than the mean responses of the Aboriginal ($\bar{x} = 2.97$) and Manager/Planner ($\bar{x} = 2.93$) sample groups.

There were significant differences between the mean responses of the three sample groups for the thirteenth item, *I often spend time learning about the newest equipment available for this activity*. As the Levene statistic (1.199, $p > 0.05$) indicated that the mean responses of the sample groups were equal, a Scheffe *post hoc* test was used to identify where the differences lay: the mean response of the Non-

Aboriginal sample group ($\bar{x} = 3.19$) was significantly higher (*i.e.*, more agreeable) than the mean responses of the Aboriginal ($\bar{x} = 2.47$) and Manager/Planner ($\bar{x} = 2.58$) sample groups.

There were significant differences between the mean responses of two of the three sample groups for the fourteenth item, *in general, I am obtaining more equipment for this activity each year*. As the Levene statistic (0.831, $p > 0.05$) indicated that the mean responses of the sample groups were equal, a Scheffe *post hoc* test was used to identify where the differences lay: the mean response of the Non-Aboriginal sample group ($\bar{x} = 2.68$) was significantly lower (*i.e.*, less agreeable) than the mean response of the Aboriginal ($\bar{x} = 3.22$) sample group.

One-quarter of respondents (24.9%) indicated that the activity that they had participated in most recently was an enjoyable, but infrequent activity that was incidental to other travel and outdoor interests; these respondents were not highly skilled at the activity that they had participated in most recently, rarely read magazine articles about it, and did not own much equipment beyond the basic necessities. More than half of respondents (56.3%) indicated that the activity that they had participated in most recently was an important, but not exclusive outdoor activity; they occasionally read magazine articles about it and purchased additional equipment to aid in it, but their participation in the activity was inconsistent, and they were moderately skilled at it. One in five respondents (18.8%) indicated that the activity that they had participated in most recently was their primary activity; they had purchased ever-increasing amounts of equipment to aid in the activity, participated in this activity every chance that they had, considered themselves to be highly skilled, and frequently read magazine articles about the activity. Although the majority of respondents from each sample group indicated that the activity that they had participated in most recently was an important, but not exclusive outdoor activity, there was a significant difference in the pattern of response between the three sample groups ($\chi^2 = 15.606$, $df = 4$, $p < 0.05$; Cramer's $V = 0.126$; $n = 490$): a higher proportion of Non-Aboriginal respondents indicated that the activity that they had participated in most recently was an enjoyable, but infrequent activity that was incidental to other travel and outdoor interests than the other two sample groups; the Non-Aboriginal sample also had a lower proportion of respondents that indicated that the activity that they had participated in most recently was their primary activity than the other two sample groups.

3.9. Personal connections to Forests and Forestry.

Non-Aboriginal and Aboriginal mail respondents indicated that they had relationships with people with each of the 46 structural positions that were presented to them; respondents identified 43 structural

positions that described themselves (Table 37)⁹. The three most frequently identified structural positions of respondents' acquaintances were physician (52.1%), local politician (43.9%), and school teacher (40.9%). The three most frequently identified structural positions of respondents' close friends were hunter (34.0%), school teacher (29.7%), and union member (27.4%). The three most frequently identified structural positions of respondents' relatives were hunter (32.0%), union member (23.8%), and member of a hunting organization. The three most frequently identified structural positions of respondents were union member (26.1%), hunter (22.1%), and member of an outdoor recreation club (16.8%).

Table 37. Among all of your relatives, close friends, or acquaintances, are there people who you have the following jobs or belong to the following organizations? If so, what is their relationship to you?

| Structural Position | Acquaintance | Close Friend | Relative | Me |
|---|--------------|--------------|----------|-------|
| Aboriginal Elder | 26.7% | 13.9% | 11.9% | 4.6% |
| Aboriginal Leader | 27.7% | 10.6% | 6.9% | 5.0% |
| Administrative/business representative of an Aboriginal community | 22.1% | 6.3% | 6.6% | 4.0% |
| BC Ministry of Environment or BC Parks manager or employee | 26.1% | 5.0% | 2.3% | 0.7% |
| BC Ministry of Forests & Range manager or employee | 28.4% | 6.6% | 3.0% | 0.3% |
| College or university teacher | 31.0% | 17.8% | 6.3% | 1.0% |
| Forestry manager/employee involved in harvesting (<i>e.g.</i> logger) | 33.0% | 22.1% | 17.8% | 1.3% |
| Hunter | 34.0% | 40.9% | 32.0% | 22.1% |
| Local politician | 43.9% | 9.2% | 4.6% | 2.0% |
| Manager or employee in non-traditional forestry (<i>e.g.</i> horse logger) | 20.1% | 5.3% | 1.7% | 1.3% |
| Manager or employee in value added/remanufacturing wood products (<i>e.g.</i> building wooden furniture) | 30.4% | 13.5% | 12.5% | 3.6% |
| Manager or employee of a bioenergy/biofuel company | 7.3% | 1.7% | 1.7% | 1.0% |
| Manager or employee of a local park | 22.8% | 6.3% | 3.6% | 1.0% |
| Manager or employee of a national park/Parks Canada | 16.8% | 3.3% | 2.0% | 0.3% |
| Member of a birding or naturalist organization | 27.1% | 8.9% | 3.3% | 4.3% |
| Member of a community forest organization | 22.4% | 8.6% | 2.6% | 2.0% |
| Member of a fishing organization | 24.8% | 12.5% | 13.2% | 5.6% |
| Member of a forest industry organization | 22.4% | 11.2% | 5.9% | 3.0% |
| Member of a hunting organization | 29.0% | 21.5% | 18.5% | 9.9% |
| Member of a local environmental group | 30.4% | 13.2% | 5.9% | 5.9% |
| Member of a regional, national, or international environmental group | 15.8% | 6.3% | 4.0% | 4.0% |
| Member of an Aboriginal community or group | 28.7% | 18.2% | 12.9% | 14.9% |

⁹ Due to a programming error, Internet survey respondents were not able to complete this question. As a result, only non-Aboriginal and Aboriginal mail responses were analyzed.

Table 37 (cont'd). Among all of your relatives, close friends, or acquaintances, are there people who you have the following jobs or belong to the following organizations? If so, what is their relationship to you?

| Structural Position | Acquaintance | Close Friend | Relative | Me |
|---|--------------|--------------|----------|-------|
| Member of an outdoor recreation club | 32.0% | 26.7% | 14.2% | 16.8% |
| Member of the chamber of commerce | 27.7% | 9.6% | 3.0% | 3.6% |
| Outdoor educator | 20.8% | 9.9% | 4.3% | 4.6% |
| Physician (e.g. family doctor) | 52.1% | 12.9% | 4.0% | 0.3% |
| Private sector forestry consultant | 24.1% | 4.3% | 2.0% | 0.7% |
| Professional artist (e.g. painting or photography) | 27.4% | 22.1% | 10.2% | 6.3% |
| Professional writer | 19.1% | 10.2% | 3.0% | 2.0% |
| Provincial or national politician | 26.4% | 4.6% | 2.0% | – |
| Rancher | 22.4% | 13.5% | 5.3% | 1.3% |
| Pulp mill manager or employee | 29.4% | 13.5% | 10.2% | 2.0% |
| Recreation operator | 23.4% | 10.2% | 3.3% | 0.7% |
| Reforestation/silviculture manager or employee | 26.4% | 8.6% | 5.6% | 1.3% |
| Saw mill manager or employee | 35.3% | 17.5% | 13.2% | 2.3% |
| School teacher (primary or secondary) | 40.9% | 29.7% | 16.5% | 3.0% |
| Scientist/researcher specializing in climate change | 9.9% | 3.3% | 1.0% | – |
| Scientist/researcher specializing in genetics | 9.6% | 1.0% | 1.3% | – |
| Scientist/researcher specializing in nature/the environment | 14.9% | 5.3% | 4.0% | 1.3% |
| Sculptor or weaver | 22.8% | 9.2% | 4.6% | 1.7% |
| Tourism worker | 27.7% | 8.6% | 4.6% | 0.7% |
| Tourism/recreation guide | 19.1% | 7.9% | 5.3% | 1.0% |
| Trapper | 20.1% | 12.2% | 4.6% | 0.7% |
| Traditional knowledge keeper | 12.9% | 6.9% | 5.9% | 4.6% |
| Union member | 36.6% | 27.4% | 23.8% | 26.1% |
| Union representative | 30.0% | 15.8% | 5.0% | 4.0% |

3.10. The Adult Hope Scale.

Almost all respondents (94.9%) indicated that they felt it was true that *they could think of many ways to get out of a jam*, while one respondent in twenty (5.2%) felt that this statement was false (Table 38). More than nine respondents in ten (95.6%) indicated that they felt it was true that *they energetically pursue their goals*, while fewer than one respondent in twenty (4.4%) indicated that this statement was false. Almost three respondents in five (59.5%) reported that they believe it was false that *they felt tired most of the time*, while two in five respondents (40.5%) indicated that this statement was true. Almost all respondents (64.1%) indicated that it was true that *there are lots of ways around any problem*, while just more than one respondent in twenty believed this statement was false. Four out of five respondents (80.4%) reported that it was false that *they are easily downed in an argument*, while almost one respondents in five (19.6%) believed this statement was true. More than nine respondents in ten (91.1%) indicated that it

Table 38. Please select the response that best describes you.

| Item | n | Definitely False (1) | Mostly False (2) | Somewhat False (3) | Slightly False (4) | Slightly True (5) | Somewhat True (6) | Mostly True (7) | Definitely True (8) | Mean | 95% CI | SD |
|---|-----|----------------------------|------------------------|--------------------------|--------------------------|-------------------------|-------------------------|-----------------------|---------------------------|-------------------|--------|-------|
| I can think of many ways to get out of a jam. | 509 | 0.6% | 0.8% | 1.6% | 2.2% | 16.1% | 23.2% | 35.2% | 20.4% | 6.45 | 0.11 | 1.278 |
| I energetically pursue my goals. | 507 | 0.8% | 0.6% | 1.2% | 1.8% | 14.2% | 25.2% | 36.5% | 19.7% | 6.48 ^a | 0.11 | 1.239 |
| I feel tired most of the time. | 504 | 13.3% | 25.2% | 7.9% | 13.1% | 21.2% | 9.3% | 5.2% | 4.8% | 3.76 | 0.18 | 2.012 |
| There are lots of ways around any problem. | 507 | 0.6% | 1.6% | 0.8% | 3.0% | 11.2% | 24.7% | 34.9% | 23.3% | 6.53 | 0.11 | 1.307 |
| I am easily downed in an argument. | 509 | 17.7% | 32.0% | 17.7% | 13.0% | 9.6% | 6.3% | 2.9% | 0.8% | 2.99 ^b | 0.15 | 1.668 |
| I can think of many ways to get the things in life that are important to me. | 508 | 0.8% | 1.2% | 2.2% | 4.7% | 16.5% | 25.0% | 33.5% | 16.1% | 6.25 | 0.12 | 1.363 |
| I worry about my health. | 506 | 7.5% | 13.8% | 7.7% | 8.1% | 27.3% | 17.2% | 9.7% | 8.7% | 4.68 ^c | 0.18 | 2.02 |
| Even when others get discouraged, I know I can find a way to solve the problem. | 509 | 0.4% | 0.6% | 0.8% | 4.1% | 22.4% | 25.9% | 34.8% | 11.0% | 6.19 | 0.10 | 1.185 |
| My past experiences have prepared me well for my future. | 508 | 0.4% | 1.2% | 0.4% | 2.0% | 12.4% | 21.5% | 38.8% | 23.4% | 6.61 | 0.11 | 1.215 |
| I've been pretty successful in life. | 511 | 0.6% | 1.0% | 1.0% | 2.3% | 11.0% | 21.1% | 44.0% | 19.0% | 6.57 ^d | 0.11 | 1.216 |
| I usually find myself worrying about something. | 511 | 8.2% | 17.4% | 10.0% | 11.0% | 23.7% | 16.6% | 7.6% | 5.5% | 4.32 | 0.17 | 1.976 |
| I meet the goals that I set for myself. | 510 | 0.8% | 0.6% | 1.8% | 4.3% | 16.7% | 26.1% | 39.6% | 10.2% | 6.23 | 0.11 | 1.242 |

^a The mean response of the Non-Aboriginal sample group was significantly lower than the mean response of the Manager/Planner sample group.^b The mean response of the Non-Aboriginal sample group was significantly higher than the mean response of the Manager/Planner sample group.^c The mean response of the Manager/Planner sample group was significantly lower than the mean responses of the Non-Aboriginal and Aboriginal sample groups.^d The mean response of the Manager/Planner sample group was significantly higher than the mean responses of the Non-Aboriginal and Aboriginal sample groups.

was true that *they can think of many ways to get the things in life that are important to them*, while fewer than one respondent in ten believed this statement to be false. Almost two-thirds of respondents (62.9%) believed it was true that *they worry about their health*, while almost two respondents in five (37.1%) indicated that this statement was false. More than nine respondents in ten (94.1%) indicated that it was true that *even when others get discouraged, they know they can find a way to solve the problem*, while just more than one respondent in twenty (5.9%) believe this to be false. Almost all respondents (96.1%) reported that it was true that *their past experiences have prepared them well for their future*, while fewer than one respondent in twenty (4.0%) indicated that this was false. The majority of respondents (95.1%) believed that it true that *they had been pretty successful in life*, while fewer than one respondent in twenty (4.9%) believed this to be false. More than half of respondents (53.4%) indicated that they felt it was true that *they usually find themselves worrying about something*, while more than two respondents in five (46.6%) indicated that this was false. More than nine respondents in ten (92.6%) believed that it was true that *they can meet the goals that they set for themselves*, while fewer than one respondent in ten (7.5%) believed this statement to be false.

ANOVA results indicated that that there were statistically significant differences between the mean responses of the three sample groups for four of the twelve items in Question 10 (Table 39).

Table 39. Question 8: Outdoor recreation activity characteristics (significant differences between sample groups in **bold**).

| Item | n | df | F | p |
|---|------------|----------|--------------|--------------|
| I can think of many ways to get out of a jam. | 508 | 2 | 2.924 | 0.055 |
| I energetically pursue my goals. | 506 | 2 | 4.560 | 0.011 |
| I feel tired most of the time. | 503 | 2 | 0.440 | 0.644 |
| There are lots of ways around any problem. | 506 | 2 | 0.255 | 0.775 |
| I am easily downed in an argument. | 508 | 2 | 3.080 | 0.047 |
| I can think of many ways to get the things in life that are important to me. | 507 | 2 | 0.953 | 0.386 |
| I worry about my health. | 505 | 2 | 4.389 | 0.013 |
| Even when others get discouraged, I know I can find a way to solve the problem. | 508 | 2 | 1.674 | 0.189 |
| My past experiences have prepared me well for my future. | 507 | 2 | 1.357 | 0.258 |
| I've been pretty successful in life. | 510 | 2 | 5.559 | 0.004 |
| I usually find myself worrying about something. | 510 | 2 | 0.127 | 0.881 |
| I meet the goals that I set for myself. | 509 | 2 | 1.041 | 0.354 |

There were significant differences between the mean responses of two of the three sample groups for the second item, *I energetically pursue my goals*. As the Levene statistic (2.576, $p > 0.05$) indicated that the

mean responses of the sample groups were equal, a Scheffe *post hoc* test was used to identify where the differences lay: the mean response of the Non-Aboriginal sample group ($\bar{x} = 6.43$) was significantly lower (*i.e.*, less truthful) than the mean response of the Manager/Planner sample group ($\bar{x} = 6.93$).

There were significant differences between the mean responses of two of the three sample groups for the fifth item, *I am easily downed in an argument*. Although the Levene statistic (4.851, $p < 0.05$) indicated that the variances of the mean responses between sample groups were not equal, the Welch F Test (4.702, $p < 0.05$) confirmed the presence of these differences. The Games-Howell *post hoc* test revealed that the mean responses of two of the three sample groups were significantly different: the mean response of the Non-Aboriginal sample group ($\bar{x} = 3.05$) was significantly higher (*i.e.*, more truthful) than the mean response of the Manager/Planner sample group ($\bar{x} = 2.50$).

There were significant differences between the mean responses of the three sample groups for the seventh item, *I worry about my health*. As the Levene statistic (0.292, $p > 0.05$) indicated that the mean responses of the sample groups were equal, a Scheffe *post hoc* test was used to identify where the differences lay: the mean response of the Manager/Planner sample group ($\bar{x} = 4.00$) was significantly lower (*i.e.*, less truthful) than the mean responses of the Non-Aboriginal ($\bar{x} = 4.73$), and Aboriginal ($\bar{x} = 5.02$) sample groups.

There were significant differences between the mean responses of the three sample groups for the tenth item, *I've been pretty successful in life*. Although the Levene statistic (8.162, $p < 0.05$) indicated that the variances of the mean responses between sample groups were not equal, the Welch F Test (11.737, $p < 0.05$) confirmed the presence of these differences. The Games-Howell *post hoc* test revealed that the mean responses of the three sample groups were significantly different: the mean response of the Manager/Planner sample group ($\bar{x} = 7.05$) was significantly higher (*i.e.*, more truthful) than the mean responses of the Non-Aboriginal ($\bar{x} = 6.51$) and Aboriginal ($\bar{x} = 6.45$) sample groups.

3.11. Demographic Characteristics

Respondents' average age was 54.23 ± 1.27 years (SD = 14.677). The youngest respondent was 15 years of age; the oldest respondent was 94 years of age. There were significant statistical differences between the mean age of the three sample groups, $F(2, 509) = 6.245$, $p < 0.05$. Although the Levene statistic (4.990, $p < 0.05$) indicated that the variances of the mean responses of some sample regions were not equal, the Welch F Test (8.574, $p < 0.05$) confirmed the presence of these differences. The Games-Howell *post hoc* test indicated that the mean age of the Non-Aboriginal sample group ($\bar{x} = 55.46$) was significantly higher than the mean age of the Manager/Planner sample group ($\bar{x} = 49.72$).

Of the 506 respondents reporting their gender, 57.3% were male and 42.7% were female (SD = 0.495). There was a significant difference between the three sample groups for the proportions of men and women that responded to the survey ($\chi^2 = 18.640$, $df = 2$, $p < 0.05$; Cramer's $V = 0.192$); 80.0% of the Manager/Planner sample group were male, 69.0% of the Aboriginal sample group were male, and 52.4% of the Non-Aboriginal sample group were male. A distribution of age by gender is presented in Figures 13 - 15.

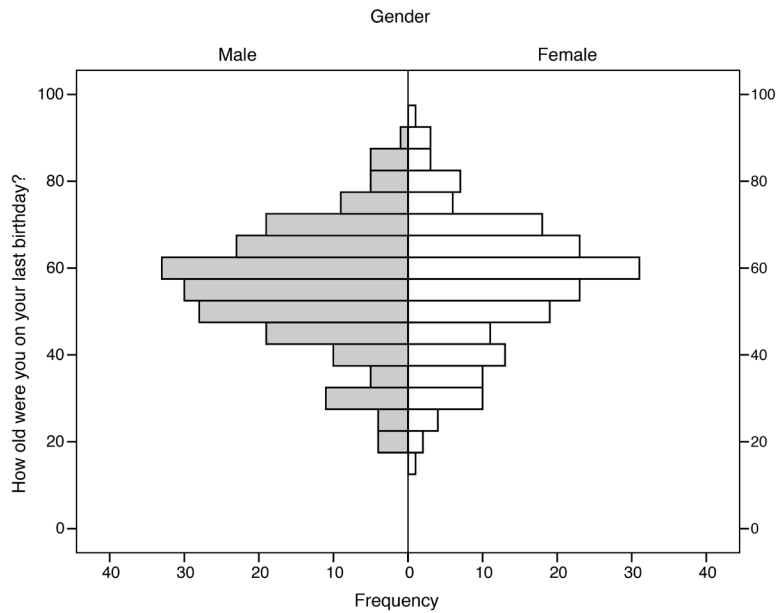


Figure 13. Distribution of Non-Aboriginal respondents' age by gender (n = 393).

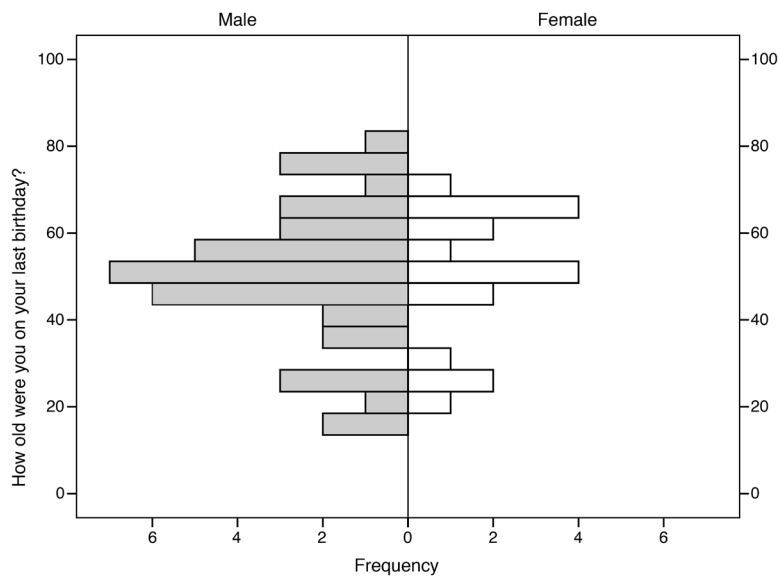


Figure 14. Distribution of Aboriginal respondents' age by gender (n = 58).

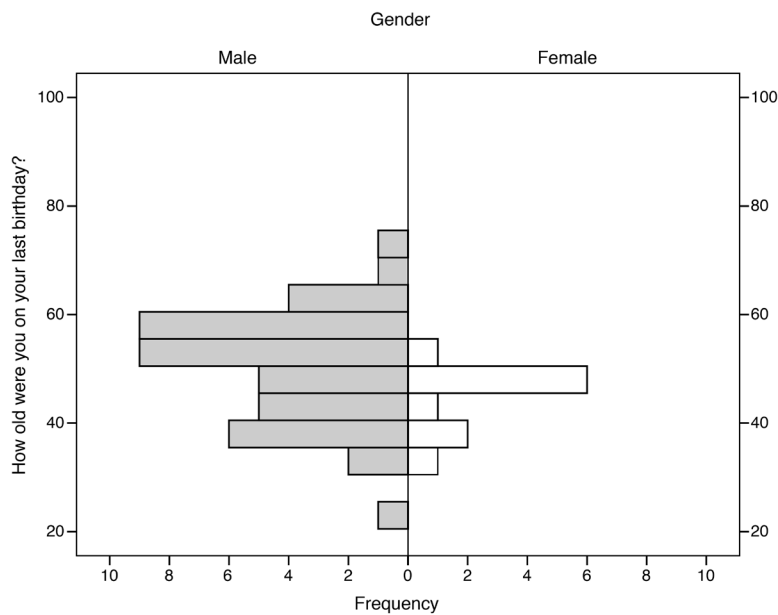


Figure 15. Distribution of Manager/Planner respondents' age by gender (n = 55).

On average, respondents were residents of their communities for 26.25 ± 1.65 years ($n = 491$; $SD = 18.666$). The number of years of community residence ranged from one year to 87 years. There were significant statistical differences between the three sample groups for the length of time respondents had lived in their communities, $F(2, 490) = 10.259$, $p > 0.05$. Although the Levene statistic (9.351 , $p < 0.05$) indicated that the variances of the mean responses of some sample regions were not equal, the Welch F Test (17.171 , $p < 0.05$) confirmed the presence of these differences. The Games-Howell post hoc test indicated that the mean length of residence of the Aboriginal sample group ($\bar{x} = 33.18$) was significantly higher than the mean length of residence of the Non-Aboriginal ($\bar{x} = 26.55$) and Manager/Planner ($\bar{x} = 17.92$) sample groups; the mean length of residence of the Manager/Planner sample group was significantly lower than the mean length of residence of the Non-Aboriginal and Aboriginal sample groups.

Respondents reported living in a total of 55 different communities (Table 40). The most frequently identified community was Nelson.

Table 40. Question 11: What community do you live in? ($n = 485$).

| Community | Frequency | % |
|-----------------|-----------|-------|
| Adam | 1 | 0.2% |
| Akisqnell | 1 | 0.2% |
| Beaver Falls | 1 | 0.2% |
| Blewett | 3 | 0.6% |
| Canyon | 3 | 0.6% |
| Castlegar | 64 | 13.2% |
| Cranbrook | 13 | 2.7% |
| Crescent Valley | 1 | 0.2% |
| Creston | 69 | 14.2% |
| East Kootenay | 2 | 0.4% |
| Elkford | 2 | 0.4% |
| Erickson | 2 | 0.4% |
| Fernie | 3 | 0.6% |
| Fruitvale | 38 | 7.8% |
| Genelle | 4 | 0.8% |
| Glade | 2 | 0.4% |
| Golden | 2 | 0.4% |
| Grand Forks | 1 | 0.2% |
| Grasmere | 1 | 0.2% |
| Hall Sliding | 1 | 0.2% |
| Kamloops | 1 | 0.2% |

Table 40 (cont'd). Question 11: What community do you live in? (n = 485).

| Community | Frequency | % |
|---------------------|------------------|----------|
| Kaslo | 1 | 0.2% |
| Kimberley | 1 | 0.2% |
| Kootenays | 14 | 2.9% |
| Kuskonook | 1 | 0.2% |
| Lajan | 1 | 0.2% |
| Lienelle | 1 | 0.2% |
| Marysville | 1 | 0.2% |
| Metchosin | 1 | 0.2% |
| Metis | 1 | 0.2% |
| Montrose | 2 | 0.4% |
| Nelson | 130 | 26.8% |
| North Kootenay Lake | 1 | 0.2% |
| North Vancouver | 1 | 0.2% |
| Oregon, USA | 1 | 0.2% |
| Robson | 1 | 0.2% |
| Rossland | 3 | 0.6% |
| Salmo | 13 | 2.7% |
| Saskatoon SK | 1 | 0.2% |
| Shoreacres | 3 | 0.6% |
| Skookumchuck | 1 | 0.2% |
| Slocan Park | 1 | 0.2% |
| South Slocan | 3 | 0.6% |
| Sparwood | 2 | 0.4% |
| Spokane Wash. | 1 | 0.2% |
| St Mary's | 1 | 0.2% |
| Taghum | 1 | 0.2% |
| Thrums | 2 | 0.4% |
| Tobacco Plains | 2 | 0.4% |
| Trail | 70 | 14.4% |
| Vancouver | 1 | 0.2% |
| Victoria | 3 | 0.6% |
| Warfield | 2 | 0.4% |
| Washington State | 1 | 0.2% |
| West Kootenay | 1 | 0.2% |

Respondents represented a range of educational levels (Table 41). The majority of respondents

Table 41. Question 14: What is the highest level of education that you have completed? (n = 508; SD = 1.303; most frequently identified response in **bold**).

| Level of Education | Frequency | % |
|---------------------------|------------|--------------|
| Some high school | 33 | 6.5% |
| High school | 93 | 18.3% |
| Some university/college | 139 | 27.4% |
| University/college | 141 | 27.8% |
| Graduate degree | 65 | 12.8% |
| Other | 37 | 7.3% |

There were significant differences between the three sample groups for the proportions of respondents reporting different levels of education ($\chi^2 = 106.566$, $df = 10$, $p < 0.05$; Cramer's $V = 0.324$). A higher percentage of the Manager/Planner sample group had obtained a university/college degree (51.7%) and graduate degree (40.0%) than did respondents from the Non-Aboriginal (27.2%, 10.5%) and Aboriginal (6.9%, 0%) sample groups; a higher percentage of respondents from the Aboriginal sample group had completed some university/college (44.8%) than had respondents from the Non-Aboriginal (28.2%) and manager/Planner (5.0%) sample groups.

Respondents reported being employed in a total of 64 different occupations (Table 42). The most frequently identified occupation was retired/semi-retired.

Table 42. Question 14: What is your occupation? (n= 500; SD = 30.271).

| Occupation | Frequency | % |
|----------------------|-----------|-------|
| Retired/Semi-retired | 146 | 29.2% |
| Other | 46 | 9.2% |
| Health Care | 25 | 5.0% |
| Multiple jobs | 24 | 4.8% |
| Manager | 22 | 4.4% |
| Biologist | 14 | 2.8% |
| Homemaker | 13 | 2.6% |
| Forester | 11 | 2.2% |
| Student | 11 | 2.2% |
| Teacher | 10 | 2.0% |

Table 42 (cont'd). Question 14: What is your occupation?
(n= 500; SD = 30.271.

| Occupation | Frequency | % |
|----------------------------------|-----------|------|
| Government employee | 9 | 1.8% |
| Consultant | 9 | 1.8% |
| Unemployed | 8 | 1.6% |
| Accountant | 7 | 1.4% |
| Registered Professional Forester | 7 | 1.4% |
| Administration | 6 | 1.2% |
| Self-employed | 6 | 1.2% |
| Heavy equipment operator | 5 | 1.0% |
| Supervisor | 5 | 1.0% |
| Engineer | 5 | 1.0% |
| University/College Instructor | 5 | 1.0% |
| Dentistry | 5 | 1.0% |
| Electrician | 5 | 1.0% |
| Scientist | 5 | 1.0% |
| Carpenter | 4 | 0.8% |
| Clerical | 4 | 0.8% |
| Labourer | 4 | 0.8% |
| Hospitality | 4 | 0.8% |
| Custodian | 4 | 0.8% |
| Geologist | 4 | 0.8% |
| Business person | 3 | 0.6% |
| Chef | 3 | 0.6% |
| Mechanic | 3 | 0.6% |
| Plumber | 3 | 0.6% |
| Welder | 3 | 0.6% |
| Disability: not working | 3 | 0.6% |
| Construction | 3 | 0.6% |
| Information Technologist | 3 | 0.6% |
| Municipal employee | 3 | 0.6% |
| Bank employee | 3 | 0.6% |
| Legal services | 3 | 0.6% |
| Executive | 3 | 0.6% |
| Archaeologist | 3 | 0.6% |
| Truck driver | 2 | 0.4% |
| Business owner | 2 | 0.4% |
| Farmer/Rancher | 2 | 0.4% |
| Millwright | 2 | 0.4% |
| Silviculture | 2 | 0.4% |

Table 42 (cont'd). Question 14: What is your occupation? (n= 500; SD = 30.271.

| Occupation | Frequency | % |
|----------------------|-----------|------|
| Insurance agent | 2 | 0.4% |
| Journalist | 2 | 0.4% |
| Pulp mill worker | 1 | 0.2% |
| Mill employee | 1 | 0.2% |
| Sales | 1 | 0.2% |
| Retail | 1 | 0.2% |
| Security | 1 | 0.2% |
| Recreation therapist | 1 | 0.2% |
| Medical doctor | 1 | 0.2% |
| Guide outfitter | 1 | 0.2% |
| Lab technician | 1 | 0.2% |
| Partsman | 1 | 0.2% |
| Railroad employee | 1 | 0.2% |
| Machine operator | 1 | 0.2% |
| Graphic design | 1 | 0.2% |
| Child Care | 1 | 0.2% |

Respondents reported being employed in a total of 32 different employment sectors (Table 43). The most frequently identified employment sector was educational services.

Table 43. Question 14: What industry or sector do you work in? (n= 405; SD = 299.759).

| Sector | Frequency | % |
|--|-----------|-------|
| Public Administration | 70 | 17.3% |
| Professional/Scientific/Technical Services | 43 | 10.6% |
| Forestry & Logging | 41 | 10.1% |
| Mining | 37 | 9.1% |
| Multiple | 35 | 8.6% |
| Educational Services | 24 | 5.9% |
| Health Care: Hospitals | 24 | 5.9% |
| Ambulatory Health Care Services | 21 | 5.2% |
| Other | 20 | 4.9% |
| General Merchandise Stores | 14 | 3.5% |
| Construction | 11 | 2.7% |
| Arts, Entertainment & Recreation | 7 | 1.7% |
| Finance: Monetary Authorities | 6 | 1.5% |
| Miscellaneous Manufacturing | 5 | 1.2% |
| Administrative & Support and Waste Management & Remediation Services | 5 | 1.2% |
| Food Services & Drinking Places | 5 | 1.2% |
| Utilities | 4 | 1.0% |
| Transit and Ground Passenger Transportation | 4 | 1.0% |
| Religious, Grantmaking, Civic, Professional, and Similar Organizations | 4 | 1.0% |
| Retired | 4 | 1.0% |
| Truck Transportation | 3 | 0.7% |
| Social Assistance | 3 | 0.7% |
| Repair & Maintenance | 3 | 0.7% |
| Paper Manufacturing | 2 | 0.5% |
| Telecommunications | 2 | 0.5% |
| Unemployed | 2 | 0.5% |
| Agriculture: Crop Production | 1 | 0.2% |
| Fishing, Hunting and Trapping | 1 | 0.2% |
| Wood Product Manufacturing | 1 | 0.2% |
| Publishing Industries | 1 | 0.2% |
| Insurance Carriers & Related Activities | 1 | 0.2% |
| Management of Companies & Enterprises | 1 | 0.2% |

Respondents reported a range of household income levels (Table 44). The most frequently identified household income was \$100,000 - \$149,999.

Table 44. Question 14: Please check the category that best describes your household income before taxes. (n = 475; SD = 3.159; most frequently identified response in **bold**).

| Household Income | Frequency | % |
|------------------------------|-----------|--------------|
| < \$10,000 | 12 | 2.5% |
| \$10,000 - \$19,999 | 39 | 8.2% |
| \$20,000 - \$29,999 | 36 | 7.6% |
| \$30,000 - \$39,999 | 53 | 11.2% |
| \$40,000 - \$49,999 | 53 | 11.2% |
| \$50,000 - \$59,999 | 36 | 7.6% |
| \$60,000 - \$69,999 | 43 | 9.1% |
| \$70,000 - \$79,999 | 50 | 10.5% |
| \$80,000 - \$89,999 | 42 | 8.8% |
| \$90,000 - \$99,999 | 24 | 5.1% |
| \$100,000 - \$149,999 | 61 | 12.8% |
| > \$149,999 | 26 | 5.5% |

There was a significant difference between the three sample groups in terms of the percentage respondents indicating different levels of household income ($\chi^2 = 57.018$, df = 22, $p < 0.05$; Cramer's V = 0.245). A higher percentage of the Aboriginal sample reported household incomes in the \$40,000 - \$49,999 and \$80,000 - \$89,999 categories than did respondents from other two sample groups; and a higher percentage of the Manager/Planner sample group reported household incomes in the \$70,000 - \$79,999 and \$100,000 - \$149,999 categories than did respondents from the other two sample groups.

On average, respondents' household size was 2.26 ± 0.12 people (n = 480; SD = 1.183). Household size ranged from one to eight people. There were statistically significant differences identified between the mean responses of the three sample areas identified for household size ($F(2, 479) = 8.917$, $p < 0.05$). Although the Levene statistic (4.635, $p < 0.05$) indicated that the variances of the mean responses among sample regions were not equal; and the Welch F Test (6.337, $p < 0.05$) confirmed the presence of the differences. The Games-Howell post hoc test indicated that the mean household size of the Aboriginal sample group ($\bar{x} = 2.94$) was significantly higher than the mean household size of the Non-Aboriginal sample group ($\bar{x} = 2.25$).

4. DISCUSSION.

A comparison of respondents' age and gender with regional census data indicated that respondents tended to be older than regional residents, and that the proportion of male respondents was higher than the regional proportion of men in the population (Statistics Canada, 2007a, 2007b, 2007c, 2007d, 2007e, 2007f, 2007g)¹⁰. Respondents were generally well educated, as more than three-quarters had completed high school. Respondents represented a range of occupational sectors and income levels; less than one-third of respondents were retired.

Respondents tended to be biocentric in their overall attitudes and worldviews. However, respondents did not necessarily feel that limits to growth were absolute and that human ingenuity could serve to provide solutions to environmental problems. In particular, there was general agreement amongst respondents that the earth has plenty of natural resources if we just learn how to develop them; this suggests that non-Aboriginal and Aboriginal residents and local community and landscape managers and planners may be supportive of innovative management practices that help to extend current levels of consumption. However, given the overall biocentric leanings of respondents, another course of action could to highlight the practices that forest management already employ to help maintain current levels of consumption; this could serve to demonstrate some of the successes of forest management.

What is striking in the analysis of the responses of the three sample groups are the relatively few number of absolute differences in opinions and attitudes about forest management and climate change in the South Selkirks region. Although there were several statistically significant differences between the mean responses of the sample groups, the differences appear to be differences of degree, not absolute differences. Many of the differences in responses between the three sample groups seem to be influenced by economic conditions. Thus, at the strategic level, there appears to be common themes for the sustainable management of oil and gas resources; this discussion will focus on these commonalities and make note of key differences of opinion or attitude between sample regions when present. The remainder of this section is organized around the two areas of focus of the survey: forest management, and climate change.

4.1. Forest Management.

Respondents' attitudes about forest management in BC were mixed. While critical of traditional forest management, respondents appeared to be familiar with local forests and local forest management. This familiarity is supported by the significant role that outdoor recreation plays among respondents. Respondents from all three sample groups indicated that participation in outdoor recreation activities was important to them. People participate in a range of outdoor recreation activities (both motorized and non-

¹⁰ Comparisons of respondents' demographic characteristics was limited to the Non-Aboriginal sample.

motorized, and consumptive and non-consumptive activities), and have generally done so for relatively long periods of time. Respondents reported being fairly skilled at the activity that they had participated in most recently. Although respondents indicated that they pursue their activities in a range of recreation opportunity settings, from large, undisturbed wilderness areas to easily accessed natural areas with some facilities and rural and urban areas, wilderness and semi-wilderness areas were preferred among most respondents. It is in these settings that people become familiar with natural settings and through which the natural environment become relevant; as Bryan (2000) noted, recreation activities act like windows to the environment. Almost half of respondents disagreed that forest roads that are no longer in use by forestry companies should be deactivated, even if that means less access to remote areas, which suggests that access to forests remains important.

Respondents were divided in their agreement about whether local forest managers are responsive to Public concerns. This can be seen in respondents' general attitudes towards forestry (i.e., half of respondents agreed that the forest industry controls too much of British Columbia's forests, more than half of respondents agreed that forest management currently focuses too much attention on timber resources and not enough attention on non-timber resources (*e.g.*, recreation, visual quality), and half of respondents disagreed that current forest management practices conserve cultural/heritage resources in this area). Although respondents were divided in their agreement about whether they know enough about forests and forestry to provide meaningful input into forestry planning decisions, most agreed that the citizens of British Columbia need to have more opportunities for input into forest management. It is not just local input that is important to respondents, local retention of forestry revenues (*e.g.*, stumpage) is important too as almost all respondents agreed that local communities should receive a fair share of locally generated government income.

Most respondents agreed that overall, sustainable forest management practices produce positive results for the local community. However, there was not a lot of support for providing long-term security of forestlands to forestry companies as a means of promoting sustainable forest management. Although half of respondents agreed that in general, the forest industry is more environmentally sensitive than other industries in their area, most respondents disagreed that there are enough checks and balances in place (*e.g.*, legislation, professional ethics, forest certification) to ensure responsible forest management. There was also a strong sentiment among respondents that forest companies have not earned the trust to manage forests for the long-term. This may be a result of the perception among almost half of respondents disagreed that there will not be sufficient wood in British Columbia to meet our future needs. Despite this perception of wood scarcity, most respondents disagreed that British Columbia has enough protected areas such as provincial and national parks.

More than half of respondents agreed that if forests are well managed to protect aesthetic values, the ecosystem is being managed well also, which suggests that visual quality may be a proxy for appropriate management among the public. However, most respondents agreed that they would be prepared to accept some visual change in views from their community if it reduced ecological impacts in the backcountry; for example, half of respondents agreed that it is a priority to manage insect outbreaks even if there is a negative impact on other resource values, such as visual quality, in the short-term.

Most respondents agreed that more investment is needed to determine what the effects of climate change are/will be on British Columbia's forests. Respondents seemed to be willing to consider alternative arrangements for the monitoring of forest management outcomes, as there was support for the involvement of a variety of groups to be involved in the monitoring. All groups that were presented to respondents (*i.e.*, industry, government, Aboriginal people, local communities, and environmental organizations) had varying degrees of support; no group appeared to have proportionally less support to be involved in monitoring. This is further evidence of a local desire to broaden the involvement of stockholders in forest management.

4.2. Climate Change.

Almost half of respondents indicated that they believed that climate change was caused by both human activities and non-human changes in the environment, while fewer than one-quarter of respondents indicated that climate change was caused mostly by human activities; few respondents indicated that climate change was caused mostly by non-human changes in the environment. This fairly broad recognition about human impacts on climate, in association with respondents' environmental awareness (as measured through the New Ecological Paradigm), indicates an awareness of the inter-relationships between human and ecological systems. However, there is a critical difference in terms of how Aboriginal respondents approached the issue of climate change that has also been noted in Caverley (2011): Aboriginal people in the South Selkirks region view climate change as part of a natural cycle. Although the climate cycle is natural from the perspective of Aboriginal people, there was recognition that it had been affected (*i.e.*, accelerated) by human activities.

Most respondents indicated that they thought it was more important to start acting now on climate change with what we know, instead of continuing to monitor for climate change so we can learn more. This pragmatic approach to addressing climate change may be a result of the majority of respondents indicating that they thought that their lives were being affected by climate change – climate change is not an abstract notion, it is something that has been experienced by many of the respondents in a variety of ways. Respondents appeared to recognize that this action on climate change needed support from multiple actors, including themselves: the majority of respondents indicated that they had personal plans

to do something in response to climate change, and believed that forest managers should also be doing something to respond to climate change.

The majority of respondents indicated that they had noticed some effects of climate change in their communities. Many of these anecdotal reports touched on several themes: summer droughts, warmer winters, bird migrations changing, mountain pine beetle, and melting glaciers. Perhaps based on these (and other) observations, most respondents indicated that they knew what to expect in terms of what the effects climate change may have on their community or its surrounding environment.

The majority of respondents reported that they were concerned about the effects of climate change. Respondents from all three sample groups expressed concern about the eight potential local consequences of climate change that were presented to them. It is notable that severe insect outbreaks ranked highest in terms of concern and that a reduction in the amount of timber that can be harvested ranked much lower:

1. More frequent and more severe insect outbreaks;
2. More frequent extreme weather events (*e.g.*, heavy rain storms, less snowfall);
3. Changes in the distribution of plant and animal species and their habitats;
4. More frequent, and longer lasting droughts;
5. A higher number of severe wind storms;
6. Extended periods of visible smoke from forest fires (*e.g.*, April – October);
7. Reduction in the amount of timber that can be harvested; and
8. More frequent and longer-lasting campfire bans due to increased fire risk.

One interpretation of this pattern of responses is that respondents recognize that climate change resiliency (or the ability to adapt to climate change outcomes) is more than an economic outcome. This would be consistent with the definition of resiliency provided by Joseph & Krishaswamy (2010): "... the capacity for humans to change their behaviours, economic relationships, and social institutions such that economic vitality is maintained and social stresses are minimized" (p. 129). This interpretation is also reflected in the pattern of response for the prioritization of the six resiliency factors for communities in transition (Joseph & Krishaswamy, 2010) that were presented to respondents. Although all six factors were seen to be important, the ranking of these factors demonstrated recognition of relative importance of having engaged citizens:

1. Development and maintenance of skills, knowledge, and creativity for community members;
2. Community planning involves local citizens;
3. Strong relationships between community members that foster trust and productivity;
4. Diverse sources of local income;

5. Local access to natural resources; and
6. Local control of natural resource-based businesses.

However, it is important to note that responses from Aboriginal respondents did differ significantly different from the other two sample groups. In particular, Aboriginal respondents placed a higher priority on community planning that involves local citizens; Aboriginal respondents also places less priority on diverse sources of local income.

Despite a fairly clear belief among respondents that they knew what to expect in terms of climate change outcomes in the South Selkirks, there was also an acknowledgement among respondents that they might not know enough about forests and forestry to provide meaningful input into forest management planning decisions. However, dissemination of information (and knowledge) about climate change to local citizens might be difficult as several traditional sources of information about climate change are not trusted: politicians, government, religious/spiritual and local leaders, as well as local media (and to a lesser extent, the national media) are not seen to be as trustworthy as scientists, experts, the Internet, and friends. The difficulty arises in the dissemination of this information: scientists and experts typically make information available through local media and leaders. Although the Internet is seen as a trustworthy source, it is also a source of questionable information that might introduce confusion about what is occurring and what might be expected to occur in the South Selkirks. Scientists and experts might have to bolster efforts at extending their research findings to non-technical audiences through different mechanisms, possible directly through local presentations and meetings.

5. CONCLUSIONS.

The issues of forest management and climate change in the South Selkirks region are relevant and important to local citizens. Forests are seen not just as sources of timber, but also as places that provide a variety of services and benefits (*e.g.*, visual quality, outdoor recreation, environmental services). For most, there is a clear connection between forest management and climate change: forest management must adapt and address climate change impacts. The human resiliency dimension component of this project was framed by two questions; the answers to these two questions suggest that residents of the South Selkirks region of British Columbia are resilient and have the capacity to adapt their own behaviours to mitigate climate change impacts. There also seems to be broad support and inclination for local citizens to become involved to greater degrees in forest management decision-making and planning. This willingness to become involved (or in some cases, remain involved) in local decision-making is a key component of many of the resiliency factors for communities in transition (Joseph & Krishaswamy, 2010).

5.1. What Climate Change Adaptation Practices Would be Required to Maintain or Enhance Socio-Cultural Values Within the Study Area?

Local citizens are aware of, and concerned about, the local environment. Local forests are relevant to their lives for employment and non-employment perspectives. Local residents' awareness of climate change and possible consequences is relatively high, and there is a willingness among residents to be involved in forestry decision-making and monitoring of forest management outcomes. Many in the area are willing to change their behaviours to help to mitigate climate change impacts; however, more information about how substantive changes could be made should be more widely available. One issue that may pose difficulties in addressing climate change in the area is the trustworthiness of traditional sources of information about climate change: while scientists and experts are trusted, the vehicles that are typically used to disseminate this information (*e.g.*, local leaders and media) are not highly regarded; new information extension vehicles may be needed, or existing vehicles renewed to engage the public. The relatively long-standing engagement of local residents in outdoor recreation activities has had the effect of helping to make the natural environment relevant to people. It is because the local natural environment is relevant to residents that changes in this environment have been noticed, which some attribute to climate change.

5.2. Which of these Practices Would be Acceptable to Local Residents (and if Divergent, How Can These be Reconciled)?

There is evidence in the survey results that residents are aware of, and willing to consider, many of the changes that may need to be made to adapt to climate change impacts in the South Selkirks region. For example, local concern about severe insect outbreaks is matched with a willingness to entertain impacts to other resource values to prioritize this issue – the notion of “trade-offs”, or doing with less of something in order to maximize something else, seems to be acceptable to residents. In terms of which climate change adaptation practices would be acceptable to local residents, the following factors should be prioritized:

1. Development and maintenance of skills, knowledge, and creativity for community members;
2. Community planning involves local citizens;
3. Strong relationships between community members that foster trust and productivity;
4. Diverse sources of local income;
5. Local access to natural resources; and
6. Local control of natural resource-based businesses.

6. REFERENCES

- Adger W.N., Eakin H., and Winkels A. (2009). Nested and networked vulnerabilities to environmental change. *Frontiers in Ecology and the Environment* 7(3), 150-157.
- Agahian F. and Amirshahi, S.H. (2006). Appearance variations of textile materials due to different near grey backgrounds. *Color Research & Application*. 31(2): 133-141.
- Armstrong, J., & Overton, T. (1977). Estimating nonresponse bias in mail surveys. *Journal of Marketing Research*, 14(3), 396–402.
- Beckley, T., Parkins, J. and Stedman, R. (2002). Indicators of forest-dependent community sustainability: The evolution of research. *Forestry Chronicle*, 78(5), 626-636.
- Bluman, A.G. (2004). *Elementary Statistics: A step by step approach* (5th ed.). Toronto: McGraw Hill.
- British Columbia Ministry of Forests and Range. (2008). *Future Forest Ecosystems Initiative: 2007/08 - 2009/10 Strategic Plan*.
- Bryan, H. (2000). Recreation specialization revisited. *Journal of Leisure Research*, 32(1), 18–21.
- Bryan, H. (1977). Leisure value systems and recreational specialization: The case of trout fishermen. *Journal of Leisure Research*, 9(3), 174-187.
- Cairns, J. (1998). Hydrobiologia, Malthus, exemptionalism and the risk/uncertainty paradox. *Hydrobiologia*, 384(1-3), 1–5.
- Canadian Council of Forest Ministers. (2000). *Criteria and Indicators of Sustainable Forest Management in Canada: National status criteria and indicators 2000*. Ottawa ON: Natural Resources Canada, Canadian Forest Service.
- Canadian Council of Forest Ministers. (2003). *CCFM C&I review: Technical Working Group recommendations for improved CCFM indicators for sustainable forest management*. Ottawa, Canada: Canadian Council of Forest Ministers C&I Secretariat.
- Canadian Council of Forest Ministers. (2003). *CCFM C&I review: Technical Working Group recommendations for improved CCFM indicators for sustainable forest management*. Ottawa, Canada: Canadian Council of Forest Ministers C&I Secretariat.
- Caverley, N. (2011). *Honouring the Voices of Aboriginal Knowledge Keepers in the South Selkirks Region: Perspectives on climate change*. Vancouver, BC: University of British Columbia Faculty of Forestry.

- Clark, R.N., and G.H. Stankey. (1989, February 14-17). *The Recreation Opportunity Spectrum: A framework for planning, management, and research*. Paper presented at the Towards Serving Visitors and Managing our Resources: Proceedings of a North American Workshop on Visitor Management in Parks and Protected Areas, University of Waterloo, Waterloo, Ontario.
- Clendenning, G., Field, D.R. and Kapp, K.J. (2005). A comparison of seasonal homeowners and permanent residents on their attitudes toward wildlife management on public lands. *Human Dimensions of Wildlife*, 10(1), 3-17.
- Dillman, D.A. (2000). *Mail and Internet Surveys: The Tailored Design Method* (2nd ed.). Toronto: John Wiley & Sons, Inc.
- Dunlap, R.E., Van Liere, K., Mertig, A. and Jones, R.E. (2000). Measuring endorsement of the New Ecological Paradigm: A revised NEP scale. *Journal of Social Issues*, 56(3), 425-442.
- Field, A. (2005). *Discovering Statistics Using SPSS* (2nd ed.). London: SAGE Publications.
- Forest Stewardship Council General Assembly. (2004). *FSC International Standard: FSC principles and criteria for forest stewardship*. Bonn, Germany: Forest Stewardship Council A.C.
- Green, P.E. and Tull, D.S. (1978). *Research for Marketing Decisions*. Englewood Cliffs, N.J: Prentice-Hall.
- Harshaw, H.W. and Tindall, D.B. (2005). Social structure, identities, and values: A network approach to understanding people's relationships to forests. *Journal of Leisure Research*, 37(4), 426-449.
- Intergovernmental Panel on Climate Change. (2007). *Contribution of Working Groups I, II and III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*. Core Writing Team, Pachauri, R.K. and Reisinger, A. (Eds.) IPCC, Geneva, Switzerland. pp. 104
- Joseph, C., and Krishnaswamy, A. (2010). Factors of resiliency for forest communities in transition in British Columbia. *BC Journal of Ecosystems and Management*, 10(3), 127–144.
- Koval, M.H. and Mertig, A.G. (2004). Attitudes of the Michigan public and wildlife agency personnel toward lethal wildlife management. *Wildlife Society Bulletin*, 32(1), 232-243.
- Lin, N., Fu, Y. and Hsung, R. (2001). The position generator: Measurement techniques for investigations of social capital. In N. Lin, K. Cook & R.R. Burt (Eds.), *Social Capital: Theory and research* (pp. 57-81). New York: Aldine de Gruyter.
- Lin, N. (2001). *Social Capital: A theory of social structure and action*. New York: Cambridge University Press.
- Malhotra, N. (1986). Marketing linen services to hospitals: A conceptual framework and empirical investigation. *Journal of Health Care Marketing*, 6(1):43-51.

- Manfredo, M.J., Teel, T.L. and Bright, A.D. (2003). Why are public values toward wildlife changing? *Human Dimensions of Wildlife*, 8(4), 287-306.
- Manning, R.E. (1999). *Studies in Outdoor Recreation: Search and research for satisfaction* (2 ed.). Corvallis OR: Oregon State University Press.
- McFarlane, B., and Boxall, P. (1996). Exploring forest and recreation management preferences of forest recreationists in Alberta. *Forestry Chronicle*, 72(6), 623–629.
- McFarlane, B.L. and Boxall, P.C. (1999). *Forest values and management preferences of two stakeholder groups in the Foothills Model Forest* (Inf. Rep. No. NOR-X-364). Edmonton, AB: Natural Resources Canada Canadian Forest Service Northern Forestry Centre.
- McFarlane, B.L. and Stedman, R.C. (2003). *Influencing public attitudes toward forest management in Alberta: an example from tours of the Sunpine Forest Products mills and woodlands* (Information Report No. NOR-X-387). Edmonton, Alberta: Natural Resources Canada, Canadian Forest Service, Northern Forestry Centre.
- McFarlane, B.L. (2001). Comments on recreational specialization: A critical look at the construct. *Journal of Leisure Research*, 33(3), 348-350.
- McIntyre, N. and Pigram, J.J. (1992). Recreation specialization reexamined: The case of vehicle-based campers. *Leisure Sciences*, 14, 3-15.
- Needham, M.D., Sprouse, L.J., and Grimm, K.E. (2009). Testing a self-classification measure of recreation specialization among anglers. *Human Dimensions of Wildlife*, 14(6), 448-455.
- Salant, P. and Dillman, D.A. (1994). *How to Conduct Your Own Survey*. New York: John Wiley & Sons Inc.
- Scott, D. and Shafer, C.S. (2001). Recreational specialization: A critical look at the construct. *Journal of Leisure Research*, 33(3), 319-345.
- Sheppard, S.R.J., Achiam, C., and D'Eon, R.G. (2004). Aesthetics: Are we neglecting a critical issue in certification for sustainable forest management? *Journal of Forestry*, 102(5), 6-11.
- Sheppard, S.R.J., Harshaw, H.W., and McBride, J.R. (2001). Priorities for reconciling sustainability and aesthetics in forest landscape management. In S.R.J. Sheppard and H.W. Harshaw (Eds.), *Forests and Landscapes: Linking ecology, sustainability and aesthetics* (pp. 289-288). New York: CABI Publishing.
- Sloan, J.A., Doig, W., and Yeung, A. (1994). *A Manual to Carry out Thurstone Scaling and Related Analytic Procedures*. Manitoba Nursing Research Institute Technical Report #11. University of Manitoba, 1994. Retrieved from <http://www.umanitoba.ca/centres/mchp/concept/thurstone/index.shtml>.

Snyder, C. R. (1994). *The Psychology of Hope: You can get there from here*. New York: Free Press.

Snyder, C. R. (2002). Hope theory: Rainbows in the mind. *Psychological Inquiry*, 13, 249-275.

Snyder, C. R., Harris, C., Anderson, J. R., Holleran, S. A., Irving, L. M., Sigmon, S. T., et al. (1991). The will and the ways: Development and validation of an individual-differences measure of hope. *Journal of Personality and Social Psychology*, 60, 570-585.

Statistics Canada. (2012a). *Central Kootenay E, British Columbia (Code 5903041) and Central Kootenay, British Columbia (Code 5903) (table)*. Census Profile. 2011 Census. Statistics Canada Catalogue no. 98-316-XWE. Ottawa. Released February 8, 2012. <http://www12.statcan.ca/census-recensement/2011/dp-pd/prof/index.cfm?Lang=E> (accessed April 9, 2012).

Statistics Canada. (2012b). *Central Kootenay F, British Columbia (Code 5903043) and Central Kootenay, British Columbia (Code 5903) (table)*. Census Profile. 2011 Census. Statistics Canada Catalogue no. 98-316-XWE. Ottawa. Released February 8, 2012. <http://www12.statcan.ca/census-recensement/2011/dp-pd/prof/index.cfm?Lang=E> (accessed April 9, 2012).

Statistics Canada. (2012c). *Central Kootenay G, British Columbia (Code 5903047) and Central Kootenay, British Columbia (Code 5903) (table)*. Census Profile. 2011 Census. Statistics Canada Catalogue no. 98-316-XWE. Ottawa. Released February 8, 2012. <http://www12.statcan.ca/census-recensement/2011/dp-pd/prof/index.cfm?Lang=E> (accessed April 9, 2012).

Statistics Canada. (2012d). *Salmo, British Columbia (Code 5903011) and Central Kootenay, British Columbia (Code 5903) (table)*. Census Profile. 2011 Census. Statistics Canada Catalogue no. 98-316-XWE. Ottawa. Released February 8, 2012. <http://www12.statcan.ca/census-recensement/2011/dp-pd/prof/index.cfm?Lang=E> (accessed April 9, 2012).

Statistics Canada. (2012e). *Nelson, British Columbia (Code 5903015) and Central Kootenay, British Columbia (Code 5903) (table)*. Census Profile. 2011 Census. Statistics Canada Catalogue no. 98-316-XWE. Ottawa. Released February 8, 2012. <http://www12.statcan.ca/census-recensement/2011/dp-pd/prof/index.cfm?Lang=E> (accessed April 9, 2012).

Statistics Canada. (2012f). *Castlegar, British Columbia (Code 5903045) and Central Kootenay, British Columbia (Code 5903) (table)*. Census Profile. 2011 Census. Statistics Canada Catalogue no. 98-316-XWE. Ottawa. Released February 8, 2012. <http://www12.statcan.ca/census-recensement/2011/dp-pd/prof/index.cfm?Lang=E> (accessed April 9, 2012).

Statistics Canada. (2012g). *Trail, British Columbia (Code 5905014) and Kootenay Boundary, British Columbia (Code 5905) (table)*. Census Profile. 2011 Census. Statistics Canada Catalogue no. 98-316-XWE. Ottawa. Released February 8, 2012. <http://www12.statcan.ca/census-recensement/2011/dp-pd/prof/index.cfm?Lang=E> (accessed April 9, 2012).

- Statistics Canada. (2007a). *Central Kootenay E, British Columbia (Code5903041) (table)*. 2006 Community Profiles. 2006 Census. Statistics Canada Catalogue no. 92-591-XWE. Ottawa. Released March 13, 2007. <http://www12.statcan.ca/census-recensement/2006/dp-pd/prof/92-591/index.cfm?Lang=E> (accessed April 9, 2012).
- Statistics Canada. (2007b). *Central Kootenay F, British Columbia (Code5903043) (table)*. 2006 Community Profiles. 2006 Census. Statistics Canada Catalogue no. 92-591-XWE. Ottawa. Released March 13, 2007. <http://www12.statcan.ca/census-recensement/2006/dp-pd/prof/92-591/index.cfm?Lang=E> (accessed April 9, 2012).
- Statistics Canada. (2007c). *Central Kootenay G, British Columbia (Code5903047) (table)*. 2006 Community Profiles. 2006 Census. Statistics Canada Catalogue no. 92-591-XWE. Ottawa. Released March 13, 2007. <http://www12.statcan.ca/census-recensement/2006/dp-pd/prof/92-591/index.cfm?Lang=E> (accessed April 9, 2012).
- Statistics Canada. (2007d). *Salmo, British Columbia (Code5903011) (table)*. 2006 Community Profiles. 2006 Census. Statistics Canada Catalogue no. 92-591-XWE. Ottawa. Released March 13, 2007. <http://www12.statcan.ca/census-recensement/2006/dp-pd/prof/92-591/index.cfm?Lang=E> (accessed April 9, 2012).
- Statistics Canada. (2007e). *Nelson, British Columbia (Code5903015) (table)*. 2006 Community Profiles. 2006 Census. Statistics Canada Catalogue no. 92-591-XWE. Ottawa. Released March 13, 2007. <http://www12.statcan.ca/census-recensement/2006/dp-pd/prof/92-591/index.cfm?Lang=E> (accessed April 9, 2012).
- Statistics Canada. (2007f). *Castlegar, British Columbia (Code5903045) (table)*. 2006 Community Profiles. 2006 Census. Statistics Canada Catalogue no. 92-591-XWE. Ottawa. Released March 13, 2007. <http://www12.statcan.ca/census-recensement/2006/dp-pd/prof/92-591/index.cfm?Lang=E> (accessed April 9, 2012).
- Statistics Canada. (2007g). *Trail, British Columbia (Code5905014) (table)*. 2006 Community Profiles. 2006 Census. Statistics Canada Catalogue no. 92-591-XWE. Ottawa. Released March 13, 2007. <http://www12.statcan.ca/census-recensement/2006/dp-pd/prof/92-591/index.cfm?Lang=E> (accessed April 9, 2012).
- Thurstone, L.L. (1959). *The Measurement of Values*. Chicago: University of Chicago Press.
- Thurstone, L.L. (1974). A law of comparative judgment. In G.M. Maranell (Ed.), *Scaling: A sourcebook for behavioral sciences* (pp. 81-92). Chicago: Aldine Publishing Company.

Tindall, D.B. and Lavallee, L. (n.d.). *A Report on the Forest Values Questionnaire: Development, administration, and evaluation*. Vancouver, BC: Department of Forest Resources Management, University of British Columbia.

Torgerson, W. (1958). *Theory and Methods of Scaling*. John Wiley and Sons Inc. New York, NY.

White, B., Ord, P. and Hawkes, S. (2005, November 20-26). *South Okanagan-Similkameen Conservation Program - Community-based Social Marketing Project – 2004*. Paper presented at the Ecological Monitoring and Assessment Network (EMAN) National Science Meeting 2005 - Sustainability at the Landscape Scale: Supporting the process through multi-party stakeholder participation, Penticton BC.

Wondolleck, J.M. and Yaffee, S.L. (2000). *Making Collaboration Work: Lessons from innovation in natural resource management*. Washington DC: Island Press.

APPENDIX A

South Selkirks Forest Management & Climate Change Public Opinion Survey Questionnaire



South Selkirks Forest Management & Climate Change Public Opinion Survey

I would like to thank you for participating in this study. Please remember that your identity will remain completely confidential, and the answers you provide will remain anonymous. If you feel uncomfortable with any question(s) you need not answer it (them). Your participation is purely voluntary.

Do Not Write Your Name on this Questionnaire

Instructions

1. You consent to participate in this research by completing and returning this questionnaire.
2. This questionnaire is not a test of your knowledge – there are no right or wrong answers. To ensure the quality of the results, I urge you to answer the questions as completely as possible. If you want to add more information about any question please feel free to do so.
3. The questionnaire is printed on BOTH sides of the paper - please be careful not to skip any pages.
4. When you have completed the questionnaire, please return it in the self-addressed pre-stamped envelope. You do not need to attach postage.

Q1

This question asks about your opinions and beliefs about sustainability issues in BC.

Listed below are statements expressing different views about the environment. For each one, please indicate whether you **STRONGLY AGREE**, **MILDLY AGREE**, **PARTLY AGREE/DISAGREE**, **MILDLY DISAGREE** or **STRONGLY DISAGREE** with it. If you feel that you don't know enough about a particular statement or don't have an opinion about a statement, select the **DON'T KNOW/NO OPINION** box.

| | Strongly Agree | Mildly Agree | Partly Agree/Disagree | Mildly Disagree | Strongly Disagree | Don't Know/ No Opinion |
|---|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|---------------------------|
| We are approaching the limit of the number of people the earth can support. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Humans have the right to modify the natural environment to suit their needs. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| When humans interfere with nature it often produces disastrous consequences. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Human ingenuity will insure that we do NOT make the earth unlivable. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Humans are severely abusing the environment. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| The earth has plenty of natural resources if we just learn how to develop them. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Plants and animals have as much right as humans to exist. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| The balance of nature is strong enough to cope with the impacts of modern industrial nations. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Despite our special abilities humans are still subject to the laws of nature. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| The so-called "ecological crisis" facing humankind has been greatly exaggerated. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| The earth is a closed system with very limited room and resources. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Humans were meant to rule over the rest of nature. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| The balance of nature is very delicate and easily upset. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Humans will eventually learn enough about how nature works to be able to control it. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| If things continue on their present course, we will soon experience a major ecological catastrophe. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Q2**This question asks about your opinions and beliefs about forest management issues in BC.**

Below are seventeen statements about local-level forest management. Please indicate your level of agreement with each statement. If you feel that you don't know enough about a particular statement or don't have an opinion about a statement, select the **DON'T KNOW/NO OPINION** box.

| | Strongly Agree | Agree | Neither | Disagree | Strongly Disagree | Don't Know/ No Opinion |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|---------------------------|
| Local forest managers are responsive to public concerns. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Overall, sustainable forest management practices produce positive results for the local community. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| It is a priority to manage insect outbreaks even if there is a negative impact on other resource values in the short-term. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Local communities should receive a fair share of locally generated government income. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| In general, the forest industry is more environmentally sensitive than other industries in my area. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| You would be prepared to accept some visual change in views from your community if it reduced ecological impacts in the backcountry. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Forest roads that are no longer in use by forestry companies should be deactivated, even if that means less access to remote areas. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| There are enough checks and balances in place (e.g. legislation, professional ethics, forest certification) to ensure responsible forest management. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| The forest industry controls too much of British Columbia's forests. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I know enough about forests and forestry to provide meaningful input into forestry planning decisions. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| British Columbia has enough protected areas such as provincial and national parks. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| The citizens of British Columbia need to have more opportunities for input into forest management. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| If forests are well managed to protect aesthetic values, the ecosystem is being managed well also. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Providing long-term security of forest lands to forestry companies will promote sustainable forest management. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Forest management currently focuses too much attention on timber resources and not enough attention on non-timber resources (e.g. recreation, visual quality). | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| There will be sufficient wood in British Columbia to meet our future needs. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Forest companies have earned the trust to manage forests for the long-term. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Current forest management practices conserve cultural/heritage resources in this area. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| More investment is needed to determine what the effects of climate change are/will be on British Columbia's forests. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q3 This question asks about what is important for communities to consider to respond to changes.

There are things that communities can do to adapt to changing economic, ecological and social conditions. A community that can adapt to changing conditions is able to continue to support the people and businesses that are a part of that community. Below, some of the factors that are important for communities to successfully adapt to changing conditions have been arranged in pairs. For each pair, check the box beside the value that you think is a higher priority for your community to be able to adapt. In the example below, if you think that maintaining social conditions are a higher priority than maintaining ecological conditions, you would check the box on the left:

Maintaining social conditions. ☒ ☐ Maintaining ecological conditions.

- | | | |
|---|---|---|
| Community planning involves local citizens. | <input type="checkbox"/> <input type="checkbox"/> | Development and maintenance of skills, knowledge, and creativity for community members. |
| Local control of natural resource-based businesses. | <input type="checkbox"/> <input type="checkbox"/> | Strong relationships between community members that foster trust and productivity. |
| Local access to natural resources. | <input type="checkbox"/> <input type="checkbox"/> | Diverse sources of local income. |
| Development and maintenance of skills, knowledge, and creativity for community members. | <input type="checkbox"/> <input type="checkbox"/> | Local access to natural resources. |
| Local control of natural resource-based businesses. | <input type="checkbox"/> <input type="checkbox"/> | Community planning involves local citizens. |
| Strong relationships between community members that foster trust and productivity. | <input type="checkbox"/> <input type="checkbox"/> | Diverse sources of local income. |
| Local access to natural resources. | <input type="checkbox"/> <input type="checkbox"/> | Strong relationships between community members that foster trust and productivity. |
| Strong relationships between community members that foster trust and productivity. | <input type="checkbox"/> <input type="checkbox"/> | Community planning involves local citizens. |
| Diverse sources of local income. | <input type="checkbox"/> <input type="checkbox"/> | Local control of natural resource-based businesses. |
| Local access to natural resources. | <input type="checkbox"/> <input type="checkbox"/> | Community planning involves local citizens. |
| Community planning involves local citizens. | <input type="checkbox"/> <input type="checkbox"/> | Diverse sources of local income. |
| Diverse sources of local income. | <input type="checkbox"/> <input type="checkbox"/> | Development and maintenance of skills, knowledge, and creativity for community members. |
| Development and maintenance of skills, knowledge, and creativity for community members. | <input type="checkbox"/> <input type="checkbox"/> | Strong relationships between community members that foster trust and productivity. |
| Local control of natural resource-based businesses. | <input type="checkbox"/> <input type="checkbox"/> | Local access to natural resources. |
| Development and maintenance of skills, knowledge, and creativity for community members. | <input type="checkbox"/> <input type="checkbox"/> | Local control of natural resource-based businesses. |

PLEASE TURN TO THE NEXT PAGE 

Q4**The following questions ask about climate change.**

Climate change refers to the change in average weather conditions affecting different areas as a result of global greenhouse gas emissions. Canada has committed to decreasing the effects of global warming – and forests play a role in the cycling of greenhouse gases.

On a scale of 1 to 5 with **1 being NOT CONCERNED AT ALL** and **5 being VERY CONCERNED**, how concerned are you about the effects of climate change?

Not concerned at all ① ② ③ ④ ⑤ Very concerned

Please explain your answer.

On a scale of 1 to 5 with **1 being I HAVE ABSOLUTELY NO IDEA** and **5 being I HAVE A VERY CLEAR IDEA**, do you know what effects climate change may have on your community or its surrounding environment?

I have absolutely no idea ① ② ③ ④ ⑤ I have a very clear idea

Have you noticed any effects of climate change in your community? Please explain below. ☐ Yes ☐ No ☐ Not sure

Do you personally plan to do anything in response to climate change?
Please explain your answer.

☐ Yes ☐ No ☐ Not sure

Do you think forest managers should be doing something in response to climate change? ☐ Yes ☐ No ☐ Not sure
Please explain your answer.

Of the two statements below, which one best describes your opinion about how forest management should prioritize their response to climate change? **Select one only.**

- ☐ It is more important to start acting now on climate change with what we know.
- ☐ It is more important to continue monitoring for climate change so we can learn more.

Is your life being affected by climate change? Please explain below.

☐ Yes ☐ No ☐ Not sure

Assuming that climate change is happening, do you think it is... **(select one only)**

- ☐ Caused mostly by human activities.
- ☐ Caused mostly by non-human changes in the environment.
- ☐ Caused by both human activities and non-human changes in the environment.
- ☐ None of the above because climate change isn't happening.
- ☐ I don't know.
- ☐ Other: _____

Q5

This question asks about some of the possible local consequences of climate change.

One of the difficulties about climate change is that we are not clear about what all of the impacts will be. Although scientists are certain of the global effects of climate change, they are less certain about the effects that climate change may have at the regional level. This uncertainty about regional-level effects makes the planning and management of forests tricky because we cannot be sure how local forests will respond to climate change. Below are seven different possible consequences of climate change in forested areas like the South Selkirks – please indicate how concerned you are for each possible consequence. If you feel that you don't know enough about a particular consequence, or don't have an opinion about a consequence, select the **DON'T KNOW/NO OPINION** box.

| | Very concerned | Mildly concerned | Neither | Mildly unconcerned | Not concerned at all | Don't Know/ No Opinion |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|---------------------------|
| Extended periods of visible smoke from forest fires (e.g. April – October). | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| A higher number of severe wind storms. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| More frequent, and longer lasting droughts. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| More frequent and more severe insect outbreaks. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| More frequent extreme weather events (e.g. heavy rain storms, less snowfall). | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| More frequent and longer-lasting camp fire bans due to increased fire risk. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Reduction in the amount of timber that can be harvested. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Changes in the distribution of plant and animal species and their habitats | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q6

This question asks your opinions about different sources of information about climate change.

We can get our information about climate change from many different sources. How much do you trust the following sources of information about climate change? If you feel that you don't know enough about a particular information source, or don't have an opinion about a source of information, select the **DON'T KNOW/NO OPINION** box.

| | Strongly distrust | Somewhat distrust | Neither | Somewhat trust | Strongly trust | Don't Know/ No Opinion |
|--------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|---------------------------|
| Internet | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Local leaders | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Local media | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| National media | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Politicians | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Friends | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Scientists | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Government | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Religious or spiritual leaders | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Experts | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Other: _____ | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q7**This question asks about monitoring forest management outcomes.**

The management of forests must balance many different objectives. An important element of forest management is the monitoring of management outcomes – this helps to determine whether objectives are being met. Monitoring can be done by different groups. Please rank the following groups in terms of their potential involvement in monitoring the different forest management outcomes listed below. Place your rankings of the different groups in the boxes beside each forest management outcome from **1 (should take the lead role in monitoring)** to **5 (should be involved in monitoring, but to a lesser degree)**. If you feel that a group shouldn't be involved with monitoring a particular forest management outcomes, leave the box underneath the group name blank.

| | Industry | Government | Aboriginal People | Local Communities | Environmental Organizations |
|--|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|
| Sustaining biological richness (<i>i.e.</i> well distributed productive populations of native species). | <input type="text"/> Rank | <input type="text"/> Rank | <input type="text"/> Rank | <input type="text"/> Rank | <input type="text"/> Rank |
| Sustaining the productive capacity of forests. | <input type="text"/> Rank | <input type="text"/> Rank | <input type="text"/> Rank | <input type="text"/> Rank | <input type="text"/> Rank |
| Managing the forest to reduce climate change. | <input type="text"/> Rank | <input type="text"/> Rank | <input type="text"/> Rank | <input type="text"/> Rank | <input type="text"/> Rank |
| Sustaining economic benefits from forestry and wood products. | <input type="text"/> Rank | <input type="text"/> Rank | <input type="text"/> Rank | <input type="text"/> Rank | <input type="text"/> Rank |
| Sustaining non-timber economic benefits. | <input type="text"/> Rank | <input type="text"/> Rank | <input type="text"/> Rank | <input type="text"/> Rank | <input type="text"/> Rank |
| Representing a wide range of social & cultural values in forest management decisions. | <input type="text"/> Rank | <input type="text"/> Rank | <input type="text"/> Rank | <input type="text"/> Rank | <input type="text"/> Rank |
| Sustaining the benefits that First Nations and Métis people receive from forests. | <input type="text"/> Rank | <input type="text"/> Rank | <input type="text"/> Rank | <input type="text"/> Rank | <input type="text"/> Rank |
| Sustaining opportunities for a wide range of quality of life benefits. | <input type="text"/> Rank | <input type="text"/> Rank | <input type="text"/> Rank | <input type="text"/> Rank | <input type="text"/> Rank |
| Species at risk should be recovered. | <input type="text"/> Rank | <input type="text"/> Rank | <input type="text"/> Rank | <input type="text"/> Rank | <input type="text"/> Rank |

Q8

The following questions ask about your participation in an outdoor recreation activity.

Outdoor recreation is the pursuit of a pleasurable activity during your spare time that takes place outside in the natural environment. Each question on this page asks about your experiences with **ONE** outdoor recreation activity. Of all the outdoor recreation activities that you do, identify the one that you have done most recently and refer to it when answering all of the questions on this page.

What outdoor recreation activity have you done most recently? **Identify only one activity.** _____

How many years of your life have you done this activity? _____ years.

I would rate my skill level in this activity as... ☐ Beginner ☐ Novice ☐ Intermediate ☐ Advanced ☐ Expert

What setting(s) do you prefer for this activity? **Check all that apply.**

- ☐ Large, undisturbed wilderness areas ☐ Easily accessed natural areas with some facilities
☐ Large wilderness areas with limited trails and camp-sites ☐ Rural areas
☐ Semi-wilderness areas with limited motorized access ☐ Urban areas

Listed below are statements about different aspects of your participation in the outdoor recreation activity that you have identified above. Please indicate your level of agreement with each statement.

| | Strongly Disagree | Disagree | Neither | Agree | Strongly Agree |
|--|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| If I stopped this activity, an important part of my life would be missing. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| I would rather do this activity than do most anything else. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Participation in this activity is a large part of my life. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Most other recreation activities do not interest me as much as this activity does. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| This activity is becoming a more central part of my life each year. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Given the skills I have developed in this activity, it is more important that I continue to participate in it. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| I feel that I am more skilled in this activity than any other people in general. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Testing my skills in this activity is very important to me. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| In general, I am becoming more skilled in this activity each year. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| I have accumulated a lot of equipment for this activity. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| I have invested a lot of money in equipment for this activity. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| I feel that I have more equipment for this activity than other people that do this activity in general. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| I often spend time learning about the newest equipment available for this activity. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| In general, I am obtaining more equipment for this activity each year. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Which statement best describes your experiences and involvement with the activity that you have identified? **Select only one.**

- ☐ This is an enjoyable, but infrequent activity that is incidental to other travel and outdoor interests. I am not highly skilled at this activity, rarely read magazine articles about it, and do not own much equipment beyond the basic necessities.
- ☐ This is an important, but not exclusive outdoor activity. I occasionally read magazine articles about it and purchase additional equipment to aid in it, my participation in this activity is inconsistent, and I am moderately skilled at it.
- ☐ This is my primary outdoor activity. I purchase ever-increasing amounts of equipment to aid in this activity, do this activity every chance I get, consider myself to be highly skilled in it, and frequently read magazine articles about it.

Q9**This question asks about your personal connections to forests and forestry.**

This question asks about the characteristics of your “personal community” and whether you know people in certain kinds of occupations and industries, and people with affiliation in certain types of organizations. Among all of your relatives, close friends, or acquaintances, are there people who have the following jobs or who belong to the following organizations? If so, what is their relationship to you? For each item, please **CHECK ALL OF THE COLUMNS THAT ARE APPLICABLE**.

| | Acquaintance | Close Friend | Relative | Me |
|---|--------------------------|--------------------------|--------------------------|--------------------------|
| Aboriginal Elder | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Aboriginal leader | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Administrative/business representative of an Aboriginal community | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| BC Ministry of Environment or BC Parks manager or employee | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| BC Ministry of Forests & Range manager or employee | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| College or university teacher | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Forestry manager/employee involved in harvesting (e.g. logger) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Hunter | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Local politician | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Manager or employee in non-traditional forestry (e.g. horse logger) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Manager or employee in value added/remanufacturing wood products (e.g. building wooden furniture) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Manager or employee of a bioenergy/biofuel company | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Manager or employee of a local park | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Manager or employee of a national park/Parks Canada | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Member of a birding or naturalist organization | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Member of a community forest organization | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Member of a fishing organization | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Member of a forest industry organization | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Member of a hunting organization | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Member of a local environmental group | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Member of a regional, national, or international environmental group | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

| | Acquaintance | Close Friend | Relative | Me |
|---|--------------------------|--------------------------|--------------------------|--------------------------|
| Member of an Aboriginal community or group | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Member of an outdoor recreation club | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Member of the chamber of commerce | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Outdoor educator | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Physician (e.g. family doctor) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Private sector forestry consultant | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Professional artist (e.g. painting or photography) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Professional writer | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Provincial or national politician | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Rancher | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Pulp mill manager or employee | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Recreation operator | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Reforestation/silviculture manager or employee | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Saw mill manager or employee | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| School teacher (primary or secondary) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Scientist/researcher specializing in climate change | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Scientist/researcher specializing in genetics | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Scientist/researcher specializing in nature/the environment | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sculptor or weaver | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Tourism worker | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Tourism/recreation guide | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Trapper | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Traditional knowledge keeper | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Union member | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Union representative | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Q10 This question asks about your opinions about different situations that you have encountered.

Read each item carefully. Using the scale shown below, please select the response that best describes YOU.

| | Definitely False | Mostly False | Somewhat False | Slightly False | Slightly True | Somewhat True | Mostly True | Definitely True |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| I can think of many ways to get out of a jam. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I energetically pursue my goals. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I feel tired most of the time. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| There are lots of ways around any problem. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I am easily downed in an argument. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I can think of many ways to get the things in life that are important to me. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I worry about my health. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Even when others get discouraged, I know I can find a way to solve the problem. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| My past experiences have prepared me well for my future. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I've been pretty successful in life. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I usually find myself worrying about something. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I meet the goals that I set for myself. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q11 The following questions ask about you. Your answers to these questions will not identify you in any way. Please remember, your answers will be kept confidential.

How old were you on your last birthday? _____ years old. Gender: ☐ Male ☐ Female

What community do you live in? _____ How many years have you lived here? _____

What is the highest level of education that you have completed? **Please check one.**

- ☐ Some High School ☐ Some University/College ☐ Graduate degree
☐ High School ☐ University/College Degree ☐ Other (specify): _____

What is your occupation? If you are a homemaker or a student, please state this. If you are retired or unemployed, please state this and list your former occupation.

What industry or sector do you work in (e.g. forest industry, mining, government, education, services, tourism, etc.)?

Please check the category that best describes your household income **before taxes** last year.

- ☐ < \$10,000 ☐ \$30,000 - \$39,999 ☐ \$60,000 - \$69,999 ☐ \$90,000 - \$99,999
☐ \$10,000 - \$19,999 ☐ \$40,000 - \$49,999 ☐ \$70,000 - \$79,999 ☐ \$100,000 - \$149,999
☐ \$20,000 - \$29,999 ☐ \$50,000 - \$59,999 ☐ \$80,000 - \$89,999 ☐ >\$149,999

How many people live in your household? _____ people.

Please use this space for any comments that you have.

APPENDIX B

Telephone Recruitment Script

South Selkirks Forest Management & Climate Change Public Opinion Survey Initial Phone Contact Script (random digit dialing)

Initial Introductory Script

Hello, my name is _____ from Mustel Group Market Research, a professional research firm in Vancouver. I am calling on behalf of Dr. Howie Harshaw at the University of British Columbia, in the Department of Forest Resources Management. We are calling you about a research project that is investigating attitudes, beliefs, and perceptions about forestry, forest management, and climate change in British Columbia. Could I please speak to an adult in the house who is 19 years of age or older and who had the most recent birthday. Is that you? If not, could I speak to that person?

[If person on phone is at least 19 years of age and had the most recent birthday, proceed with the Instructions and Consent section below; otherwise repeat introductory script with appropriate adult OR ask when is a good time to call back the appropriate person.]

May I ask you a few quick questions?

[If yes:] Thank you. Continue.

[If no:] Thank you. Goodbye.

Instructions and Consent

First, I will provide some more details about the study. This research is funded by the Provincial Governments' *Future Forest Ecosystems Scientific Council of British Columbia*, a program that assists the government to maintain and enhance the resilience and productivity of BC's ecosystems as our climate changes, and by *BC Hydro*. Your phone number was randomly selected. We have no information about your identity.

We are looking for people to complete a mail-in or Internet-based questionnaire that will take approximately 20-30 minutes of your time. The responses you provide will be anonymous, and

your identity will remain confidential. When you receive the questionnaire, you are under no obligation to answer any question that you do not want to. Would you be interested in taking part in this research?

[If yes:] Thank you. Continue.

[If no:] Thank you. Goodbye.

In order to send you the questionnaire we need to know your current mailing or email address. Providing your address only allows us to send you the survey materials; it does not commit you to participating in the research study. We do not expect you to decide whether you will consent to participate in the study until you have reviewed the questionnaire and the consent information that will accompany it – you provide your consent to participate in the study by completing and returning a questionnaire; there is no penalty if you decide not to return your questionnaire or indicate that you do not wish to receive other study materials. How would you like to receive the survey?

- Mail-based survey (paper-based)
- Internet-based survey

If mail-based...

Name: _____

Address: _____

Postal Code: _____

Phone #: _____

If Internet-based...

Name: _____

Email address: _____

Phone #: _____

Thank you for your time. The questionnaire should be sent to you in the first week of April 2011.

If you have any questions about the study you can call Dr. Howie Harshaw at (604) 822-3970, or contact him by e-mail at: howie.harshaw@ubc.ca.

Scripted Replies to Potential Respondent Questions

How was I selected?

We used random digit dialing to select residential phone numbers from across British Columbia.

We do not have information about either your name or address.

How long will it take?

The questionnaire takes about 30 minutes. In some cases it may be several minutes longer, in some cases it may take less time. It depends on how much you have to say.

Will it be confidential and anonymous?

When we write reports and other publications results will be presented using summary statistics (*i.e.* percentages and averages, *etc.*) which prevents the identification of individuals.

How do I know you are who you say you are?

I can give you the telephone number of Dr. Howard Harshaw and you can call him directly to confirm who he is at (604) 822-3970. You can also contact Dr. Harshaw by e-mail at:

howie.harshaw@ubc.ca.

Who can I contact if I have questions about my participation as a research subject?

If you have any concerns about your treatment or rights as a research subject, you may telephone the Research Subject Information Line in the UBC Office of Research Services at the University of British Columbia, at 604-822-8598.

How will the information be used?

The information will be analyzed and results will be used to inform the development of provincial and regional forest management policy. Results will also be used in writing academic journal articles, and for reports that will be available to the general public in summary format on the Internet (www.south-selkirks-survey.ca).

APPENDIX C

Initial Contact Letter

THE UNIVERSITY OF BRITISH COLUMBIA



Department of Forest Resources Management
2nd Floor, Forest Sciences Centre
2045 - 2424 Main Mall
Vancouver, B.C. Canada V6T 1Z4
Tel: (604) 822-3482 Fax: (604) 822-9106
(604) 822-4935

Dr. Howard Harshaw
Research Associate
Room 2214
Forest Sciences Centre
(604) 822-3970
Email: howie.harshaw@ubc.ca

Day, Month, Year

Greetings,

You recently provided your name and address to receive more information about a research study about forestry, forest management, and climate change in the South Selkirks. A few days from now, you will receive in the mail a request to fill out a questionnaire for an important research project being conducted by the *Faculty of Forestry* at the *University of British Columbia*. I am writing in advance because I have found many people like to know ahead of time that they will be sent a survey.

The study seeks your opinions on forest management in British Columbia. This study is important because it will help provincial and local governments, forest managers, and other resource managers better understand people's perceptions of forestry, forest management, and climate change in the South Selkirks.

Thank you for your time and consideration. It is only with the generous help of people like you that our research can succeed.

Sincerely,

Howard Harshaw

APPENDIX D

Survey Cover Letter



The University of British Columbia
Faculty of Forestry
Department of Forest Resources Management
Room 2045 – 2424 Main Mall
Vancouver, BC V6T 1Z4

SOUTH SELKIRKS FOREST MANAGEMENT & CLIMATE CHANGE PUBLIC OPINION SURVEY CONSENT INFORMATION

Dr. Howard Harshaw
Research Associate
Forest Resources Management
University of British Columbia
☎ (604) 822-3970

Greetings,

I am writing to ask your help in an important study about forestry, forest management, and climate change in the South Selkirk region of BC. You recently provided your name and address to receive more information about this research study.

PURPOSE

The purpose of the attached survey is to obtain general information on public opinions and preferences for forest management and related land-use planning issues from British Columbia residents. This research project is being conducted by a team of UBC researchers and is funded by the Provincial Governments' *Future Forest Ecosystems Scientific Council of British Columbia* (a program that assists the government to maintain and enhance the resilience and productivity of BC's ecosystems as our climate changes) and by BC Hydro. The intent of this survey is to:

- Identify the range of opinions about forest management and planning outcomes in the South Selkirk region of British Columbia;
- Provide objective information about local concerns and people's understanding of particular forestry issues; and
- Examine local attitudes and beliefs about the effects of climate change in the South Selkirk region.

Based on the input received, results will be shared with your community and may be used to guide the decisions of some forest and environmental managers in their deliberations about forest management and climate change. It is anticipated that the survey results will contribute to a better understanding of the resource management priorities of communities in the South Selkirk region. The results and analysis of this study will be publicly available in the Spring of 2011 on the Internet at:

www.south-selkirks-survey.ca

STUDY PROCEDURES

The survey will take about 20 to 30 minutes to complete. Please take your time as you consider your answers to the questions. Remember, there are no right or wrong answers. If not enough space is provided for your answer, feel free to use the extra pages at the end of the questionnaire. Please return the completed survey and other material used for your answers in the stamped return envelope provided.

CONFIDENTIALITY

Your identity will be kept strictly confidential. You will not be identified by name in any reports of the completed study. All documents will be identified only by a code number and kept in a locked filing cabinet and a password protected computer file. The data that is collected in this research project will be kept for future use regarding public opinions and beliefs about sustainable forest management. **Please do not write your name anywhere on the questionnaire. Individual responses will not be made available to anyone outside the UBC research team.**

CONTACT INFORMATION

If you have any questions about the research, or would like further information, please do not hesitate to contact me (Dr. Harshaw) at the phone number listed at the top of the first page. If you have any concerns about your rights or treatment as a research subject, you may contact the Research Subject Information Line in the UBC Office of Research Services at (604) 822-8598.

CONSENT

Participation in this study is completely voluntary, and you may refuse to participate at any time without penalty. You may skip any question if you do not feel comfortable answering it, though we encourage you to complete all questions if possible. By completing and returning this survey, you grant your consent to participate in this study. Please keep a copy of this consent form for your records.

Thank you very much for helping with this important study.

Sincerely,

Howard Harshaw

APPENDIX E

Postcard Reminder

POSTCARD REMINDER

Front

[Name]
[Street Address]
[Community], British Columbia
[Postal Code]

Back

Month, Day, Year

Last week a questionnaire seeking your opinions about forestry, forest management, and climate change in the South Selkirk region of BC was mailed to you. Your name was randomly selected, and you provided your name and mailing address to us.

If you have already completed and mailed the questionnaire, please accept my sincere thanks. If not, please do so today. I am especially grateful for your help because it is only when people like you share your opinions that we can understand how people think BC's forests should be managed.

If you did not receive a questionnaire, or if it was misplaced, please call me collect at (604) 822-3970 and I will get another one in the mail to you today.

Dr. Howard Harshaw
Department of Forest Resources Management
University of British Columbia
Vancouver, BC

APPENDIX F

Replacement Questionnaire Cover Letter

THE UNIVERSITY OF BRITISH COLUMBIA



Department of Forest Resources Management
2nd Floor, Forest Sciences Centre
2045 - 2424 Main Mall
Vancouver, B.C. Canada V6T 1Z4
Tel: (604) 822-3482 Fax: (604) 822-9106
(604) 822-4935

Dr. Howard Harshaw
Research Associate
Room 2312
Forest Sciences Centre
(604) 822-3970
Email: howie.harshaw@ubc.ca

[Date] 2011

Greetings,

About two weeks ago, I sent a questionnaire to you that asked about your opinions of forestry, forest management, and climate change in the South Selkirk region of BC. The feedback from people that have already responded have included a range of comments and ideas about the planning and management of forests in your area. I think that the results are going to be helpful to land-use managers and planners.

The study is drawing to a close. I am writing again because of the importance that your questionnaire has in helping us to get accurate results. I need to hear from more people in your community so I can be sure that the results fairly represent your community.

I would like to reiterate the confidential nature of your response. Your identity will be kept strictly confidential. You will not be identified by name in any reports of the completed study. All documents will be identified only by a code number and kept in a locked filing cabinet and a password protected computer file. Ensuring your confidentiality is very important to me.

I hope that you will complete and return the questionnaire soon. If you have any questions, please don't hesitate to contact me collect at: (604) 822-3970.

Sincerely,

Howard Harshaw

Version: February 3, 2011

Page 1 of 1

APPENDIX G

General Comments to Questionnaire

I believe that climate change is real and affecting our lives. It may not be showing with full impact but it is on our doorstep. More fires and storms are affecting our forests and the eco-systems that live within them. It's a domino affect all the way to us humans. We are the ones that have to change it, however, the hard part is getting everyone on board to do this. Hope this survey helps *(Respondent draw a smiling face)*

1. John Q. Public does not have enough knowledge or information to give more than a tertiary response to forestry, climate change, *etc.*? People working in government, NGOs, industry, have enough knowledge for a secondary opinion. So-called experts who have an overview can form a primary or well-informed decision or choice. However, we all need to ask questions and check the *bona fides* *(these two worlds are very difficult to read)* of so-called experts, and their methodology. Case in point the UN climate *phased* *(very difficult word to read)* with “fudged” data. This calls into question the ethics and reliability of any expert. If one lies or “cooks his books”, why should we trust anyone.
2. Cost benefit analysis needs to be done for choices. Are we spending enormous amounts of money for negligible results. See Bjorn Bougs books.
3. Re methodology – What statistical method is being used in data; is it a widely accepted method; can different groups replicate the tests and achieve the same results independently?
4. Can climate change methodology doing a regression achieve results that match testimonial information. No therefore why should we accept future projections as accurate.
5. Road building cause the most damage to forest areas, and that should be minimized.
6. Clearcutting also promotes mudslides with little *[illegible]* dirt in place.

(from Q3) ALL of the forests, that surround our town. Consequently, the figurehead of that company purchases lands close to the entrances into the forests and GATES there, preventing access to everyone, including hikers, bikers and horse riders. We have completely LOST our ability to have outdoor recreation in our town.

This “logger” (privately owned logging company) also practices forestry in ways that cannot possibly be supported by government standards. He either leaves his piles of “waste” wood for years at a time, or burns them indiscriminately. He logs very close to watercourses (one of which is the town’s only water source).

His logged areas look suspiciously like clear cuts, and there is no one here to do anything about it. Enough said?

See throughout. Thank you for this tremendous opportunity!

I sincerely hope that the information attained will encourage more funding, thoughts, feelings and actions towards forest practice management of a thriving and sustainable manner.

So many questions I understand but cannot explain. So many government don’t give a damn about anything.

1. Is interesting to note that the US is too concerned about Muslim terrorists, while no act of Muslim terrorism has happened on US soil in quite a few years. Yet Mother Nature terrorizes the hell out of them on a daily basis. Yet they lead the world not in finding a solution to this; they instead concentrate on fucking around in Iraq and Afghanistan.
2. The rocks of Oak Bay in Victoria are rounded off by glacial action. So there were ice sheets there at one time. They have also found evidence of cattle farming on Greenland and further north. So the ice retreated that far at some time. We were not around to cause that; what brought that on? Does global tilt with a periodicity of 50-100 thousand years possibly play a role?
3. I grew up on a farm and know the lesson about killing all the chickens and then having no eggs. Too many people today waste too much and have no idea of what it takes to produce what they need, eat, or even wipe their butts with. Education is the key; not funding new and safer ways to exploit resources.
4. The Bible makes a lot more sense one you substitute the word "Nature" for the word "God".
All powerful,
Made you and break you,
Provide all,
Cares for you,
Loves you, etc, etc, etc.

We may very shortly run out of food "as farmers are not protected" as well as timber due to forestry mismanagement in the past and very little hope for improvement in the future. *(Respondent added signature)*

Page 3 was pretty tricky. Took a couple of days of thinking for that one.

I found Q3 challenging to respond to. The "development of skills" and "relationships that foster trust" seemed vague to me, like the well-meant but essentially meaningless phrases which make up, for example, a corporation's "mission statement."

I didn't realize I know so little about our forests in this area. I seem to hear more about other areas in the province so am hoping no controversy means fairly good practice. Hope I have been of some use to you.

During last 60 years I have seen a change in the species in the Creston Valley *i.e.* movement of elk, turkeys, swans, eagles, racoons, *etc.* into valley. We have put a lot of money into studies of no meaning *i.e.* mountain caribou. The population in the *endmo* (*very difficult word to read*) Creston pass a hundred years ago was about 25 recording to my father who was a pioneer in this area.

The way we transport logs is a major waste. Travel our highway's you will see logs trucked for miles both ways. With computers could we not set up a trade system between companies to trade logs and reduce these trucking costs.

I am really opposed to the export out of BC of raw logs *i.e.* to the USA and Asia.

I am so concerned about the lack of foresight in our government and industry leaders. It is such a "grab-all" mentality and there seems to be an "I'll deal with it when it gets serious" point of view. I feel that even if a person with a conscience enters politics, they are soon beaten down by the power of the greedy in the world of business in general. I am so concerned with the avalanche of unnecessary studies and the amount of funds flushed away by these studies. For example, "studies prove that homelessness is an issue in our cities." Give me a break! As long as we continue to close our eyes to reality, no amount of studies anywhere will change anything.

I am distressed by the disillusionment that I feel, or that the youth of the world feels.

I am disappointed at the lack of support and movement on the solar, wind and geo-thermal energy resource development that our governments keep promising us and never follow through on.

Thanks for the form.

Decided not to do this as we think our household income last year or any year has nothing to do with climate change or forest management.

As we cut down large blocks of trees, we expose the soil underneath to the sun rays. Black soil, black pavement, anything dark attracts the heat of the sun. If large tracts of land are exposed we generate more heat. Less trees more lack of moisture. When Israel reforested their land, they had their 1st natural rainfall in about 1972 as a result. I have watched southern Sask., mow down their poplar, aspen and wild brush in thousands of acres, eventually this will lead to dryer drought conditions, this year being the exception as was last year as well. The great desert in China was thriving forest at one time. World Vision is encouraging the people in Africa to plant trees for food and reforestation.

The environmental movement has been side tracked from its real purpose and is being used as smoke screen for the New World Leader. Russia is using Teslas' energy out of vacuum to raise havoc with the *would [illegible]* as is the United States "HARRP" program. They steer clouds like you steer a car, erratic weather. The only lumber Co. in our area that logged with conscience was Kalesnikoff Lumber. The land was fit for deer, elk and wildlife to walk over. I have planted trees that looked like a war zone had hit it. Greed driven industry will destroy this God given land.

God Bless!

Redo Page 3 and simplify.

I would like to see less big clear cuts. Not just a buffer zone by highways or streams – Smaller cut blocks – quicker and better reforestation – *e.g.* ground cover first trees second. – Keep out of environmentally sensitive areas (logging/mining) – Less raw logs being shipped out – We should be making it – not other countries.

Selling tree farm license #23 to American based Co was a mistake in the government's part.

Past forest practices were not good.

Waste was terrible –

My late husband and I worked, built houses of the so called "cull" lumber. Three out of them are still doing well and in good condition to date 2011. One is now 60 years old plus. #2 house enlarged, and in good condition. House #3, a leading home in that area.

My late husband worked in logging in the Silver Skagitt Creek area near Hope B.C. following ww2. Later J. FyFE Smith Hardwood lumber Van, B.C. Following that: MacMillan Plywood, also Van, B.C. Later: HG Gardner Mill Quesnel BC also Wellwood Industries, Quesnel BC.

One son has been driving logging trucks since he was 20 years of age and still is driving B-train. Youngest son is a welder @ Tec Industries in the Elk Valley – coal mining. They bust equipment – He welds it back together.

That Co. takes down mountains, removes the coal – then re-plants the new mountain with material indicative to that region. Moose, bear, elk a small creatures return, following brush growth a tree planting.

Our own "North Fork" of Iron mountain – some fire destruction, then serious logging, is now 18 years later a beautiful forest again, following very good tree planting. Row uproar now, of beautiful forest I visited 2 years ago.

Nature is wonderful with a helping had and God is Good.

I think there can be changes made, to improve our forests. If, I had a chance to speak at meetings, I'm sure I could give some good advice, to help the forestry people some, good thinking and help out for all around community forests.

I've seen many things in my 55 years on this planet; some good, some bad, but there's always room for improvement. People need to work together to find the answers to our problems! We all have to live together on this planet. We need more campsites here in the Kootenays, more out houses, as we area doing much harm to our forests!

* Thanks for the time you spent doing this survey, it is very important to us all.

We moved from Edmonton to Creston in "06". B.C. is a beautiful place to live. We really enjoy Creston very much. The winters are mild and it is so nice to sit in the yards and look at the mountains and all the beauty this province has to offer.

My wife and I have traveled many forestry service roads around Creston and Yak. We enjoy seeing nature and the wildlife. If we see any glass along the roads we stop and pick it up. We would hate to see a forest fire started by that. My wife is in a lodge now but I still take her for drives on the roads. She enjoys it so much.

We both love living in B.C.

Complex issues require an educated community to participate. Reliance on "experts" requires trust of those experts. Too much interference from "head office" (Victoria) erodes trust in local experts (M of F, M of E).

Local forest companies often involve the community. Large forestry companies lobby Victoria and Ottawa to override local control/input.

Some sort of local veto process, on meaningful dispute resolution process is required. The number of votes in urban areas does not fairly represent the stewards (local residents) of forested regions in the province.

A well staffed, dedicated and knowledgeable Ministry of Forests is essential to protect and get good value from the public's asset, the forests of B.C.

Successive Liberal and Conservative governments have laid off ministry staff, closed research facilities, reduced the number of local forestry offices and transferred more control of the resource to multinational companies.

The change to the Forest Net allowing logs to be transported for processing in centralized mills or exported as raw logs has resulted in the closing of many mills in small towns and the buying up of small operations by large corporations. These large corporations are more concerned with dividends for investors rather than the long term sustainability of the resource.

If the forest industry is to survive the change coming with climate change, we need ministry staff supported by politicians and executives, making knowledgeable decisions for the long term (50+ years) supported by good science, ecology and sound forestry practices.

Q2 – Line 6 – There are ecological concerns within my vision where I live as well as in the back country.

Q2 – Line 2 – Is sustainable forest management practices attainable?

Q2 – Line 8 – Government won't hire enough conservation officers to check on offenders.

Q2 – Line 8 – Do we have enough protected areas to produce good quality air for our world population.

We cannot as a species continue to take every tree in the whole forest. Some sort of selective logging must be done to keep areas that are shaded and cool. The clearing of our forests is nothing more than a crime against Nature. Logging can be done selectively in all areas but must be done with cooling areas kept intact. Clear cuts are not the answer to any logging practices. We destroy more than we take. Sure it will grow back to what it was but in my lifetime, NOT a chance.

Do Not Ruin it For My children or grandchildren. I hope you really get this. I am not alone in this way of thinking. The true Beauty of B.C. is in our Forests. So How you going to keep it that way. I would really like to know. This mentality has got to change.

I enjoyed your survey. I hope my answers help you in your completion. I care deeply about all aspects of Climate change, and our forests, and how they're kept.

Thank you for choosing my name in your survey.

In British Columbia it should be a priority to add value to our forestry resources for example

1. No raw log exports
2. Incentives for local wood products such as separate standards for wood windows, doors, siding, roofing, *etc.* (BC energy efficiency act).

Many countries and cities have banned the use of PVC building products. This is good for the health of the planet and for the health of the people.

3. Development of a 100 mile strategy for shelter – local lumber, local craftsmen, local shelter, *etc.* (similar to 100 mile food strategy). Would be good for the planet and its people!

As a timber framer I realize that cutting down wood is part of life. I build homes out of wood, locally sourced and milled. It is impractical for me to say “stop logging our forests!” or I would be out of job. On the other hand, I believe logging can be done sustainably. We, in B.C., have lots of land and if used properly and wisely, along with silviculture and other industries should be around for a long time. We are all responsible (but mostly the government). Quit selling our water, I digress. Thanks.

I do not understand your questions.

This was hard for a mentally and physically disabled person to do (*message written in the front page*).

Re: Q8 – My outdoor activity would be safer if the shoulders of our highways were swept “better.”

Please send me a copy of study when complete.

This survey was way too wordy!

It would have been nice for each [*illegible*] to have a space for why you answered as you did! Would have been nice online, as not to waste paper. Your card reminder came before the survey.

We are strongly opposed to the BC government’s strategy of selling off our natural resources in this province, such as: water, timber and land. Natural resources should always belong to the people of this province and not some private company or foreign investor!

BC Hydro should belong to BC completely – how can a province expect to sustain itself if it places itself at the mercy of a private company?

I also feel that our timber should be fully manufactured in the province before it is sold. For example, why can we not make furniture here? Why sell the log and buy it back later as furniture?

In addition, why are we devoting more pristine wilderness areas to ski hill development (*i.e.* Jumbo) when we are experiencing global warming, lower snow falls, and existing ski hills can barely sustain themselves? This is not a viable option for economic development.

This was fun

Too much!

k.i.s.s.
