



Model Forest
OF NEWFOUNDLAND & LABRADOR

Geo-Referencing Tourism Values in the Deer Lake to Gros Morne Corridor

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Model Forest of Newfoundland and Labrador (January – June 2007)

Project Sponsor & Partner:

Hospitality Newfoundland and Labrador (HNL)

Contributor: Center for Environmental Excellence (CEE)
College of the North Atlantic, Geospatial Research Facility

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Executive Summary

The 'Geo-Referencing of Tourism Values in the Deer Lake to Gros Morne Corridor' project took place in the western region of Newfoundland in Forest Management Districts 15 and 16 from January 2007 to June 2007. The long-term goal of this project is to build a capacity within the tourism industry sector to manage spatial conflicts on an equitable level with other resource dependant sectors such as forestry, mines and energy, agriculture and municipalities. For this individual project, the main goal is to complete a pilot geo-referenced tourism values map for the Deer Lake to Gros Morne Corridor.

In total, 27 tourism businesses were identified in the Deer Lake to Gros Morne Corridor. These operators offer a wide range of tourism opportunities including many wilderness adventures, accommodations and amenities. In total, there are 24 different wilderness activities currently being provided by 21 operators, 13 businesses offering accommodations (ranging from lodging, bed & breakfast, and camping), and 2 restaurants in the corridor.

Twenty-two tourism operators within the corridor were administered a Tourism Values Survey, aimed at obtaining information about the tourism opportunities that they provide. In addition to this, spatial hardcopy map data was acquired from all of the tourism operators who are actively providing tourism opportunities within the corridor, showing the area of the landscape where each tourism opportunity takes place. Using this information, map layers were created that represent tourism opportunities in the Deer Lake to Gros Morne Corridor. Further to this, a geo-database was created to store the information for the tourism values in the area. The geo-database stores spatial and attribute data, and links important information that defines each line, point or polygon in the geo-database.

Introduction

Project Description

The *'Geo-Referencing Tourism Values along the Deer Lake to Gros Morne Corridor'* pilot project began in order to examine an approach for tourism operators to identify their properties, resources and values in a spatial format which may be used during forest management planning processes. Both the forest industry and tourism sector representatives support the approach that Hospitality Newfoundland and Labrador (HNL) and the Western Newfoundland Model Forest (WNMF) are taking to identify a process by which individual tourism operators can delineate and geo-reference their interests and values.

This report identifies, examines and evaluates the objectives, processes and methodology used to gather data from individual operators. The data collected from the sample participant group represents 22 tourism operators within the Deer Lake to Gros Morne Corridor (hereafter occasionally referred to as "the corridor") to gauge an understanding of tourism usage of these operators in order to test the methodology employed to gather the data. The results do not reflect the tourism industry as a whole in the Deer Lake to Gros Morne corridor or the western region of Newfoundland.

Since there is little spatial representation of tourism values and related business interests in this area, this pilot project represented an opportunity to engage tourism operators in a proposed methodology to identify the regions, resources and values that they utilize to generate revenue for their business. It is hoped that the spatial representation of their resources will help individual operators better identify specific locations where land use conflicts may exist and, hence, improve their ability to identify those values when conflicts arise.

Objectives and Perceived Outcomes of the Project

The long-term goal for the methodology used in this project is to build a capacity within the tourism sector that would allow individual operators to manage spatial conflicts on an equitable level with other resource dependant sectors such as forestry, mines and energy, agriculture and municipalities.

For this phase, Phase I, the goal was to test the methodology (i.e. Surveys) employed to identify tourism values and resources in the region and once completed, evaluate the methodology in its ability to acquire the data and meet the needs of individual tourism operators in the future. At the end of this phase, the tourism operators that participated in the pilot project will have their values entered into a geo-database and geo-referenced on a map for future competing uses issues or other land development conflicts. The pilot phase participants identified the use and extent of critical forest landscapes and their associated forest elements that are considered essential for their tourism business to be sustainable. Another goal was to create a database of individual operators, which will link information and define relationships between tourism map features for future projects of this nature. This will be created in, and can be accessed via ArcGIS computer software.

The most important part of this pilot project was to evaluate the methodology used to obtain the necessary information and to create tourism map layers for those individual operators. The pilot project allowed the surveyor to identify both the best practices for obtaining data from tourism operators and the limitations associated with the survey method. By choosing a specific geographic location such as the one used in this project, the researchers and committee members were able to focus on the design of data collection, and how to use this data to create a final product. This pilot project provided a method which can be used in other geographic locations within the province to achieve the same goals. It created an awareness of the level of input necessary to geo-reference tourism values in the Province. In future phases of this project, the surveys used for the pilot will be adapted to better suit the purpose and objectives of geo-referencing of tourism business interests and values.

Why Geo-Reference?

Geo-referencing is the process of defining an objects existence in physical space. For example, when collecting the latitude and longitude coordinates for a tree, one would be geo-referencing that tree. The latitude and longitude coordinates combined, create a numerical system that allows us to define exactly 'where' an object or location exists in physical space. Once something has been geo-referenced, one can then view where it exists in space, along with other geo-referenced objects surrounding it. This in turn creates a map. A map is a way to view many geo-

referenced objects at one time. For example, one can view a forest, a hiking trail, a river, and a lake all on one map, because each of these things has been individually geo-referenced.

Geo-referencing is a strategic management step in planning and monitoring spatially relevant activities. Many industries rely heavily on geo-referenced information to enable them to conduct daily resource management activities. By using this information, industries can clearly view where their resource exists on the landscape, and where they are currently working and will be working in the future. Forest resource planning is largely dependent on geo-referenced data that pertains to the forest resource, and the information that defines that data. It allows the industry to plan current and future operating areas, map road locations to reach operating areas, and define boundaries for operating areas, in addition to many other things.

This information is just as important to the tourism industry and any other industry that relies on the natural environment for its existence. By possessing spatial information about tourism activities, resources and business interests, the industry can plan for the future (i.e. expansion, modification, etc.) based upon their goals and objectives, and based on the actions of other industries.

Since there may be various individuals utilizing the landscape in any given location, there may be many different interests in the natural resources of that location. Based on the different interests in a given location, there may be a conflict between two or more different parties who require the same resource to generate revenue. If each of these parties possess spatially geo-referenced information that pertains to their resource needs, then it becomes much easier to resolve the conflict. Therefore, geo-referencing tourism values provides the first step towards a negotiated resolution with other resource-dependant sectors. In addition to this, possessing geo-referenced information can create a conflict avoidance process. If each potential conflicting party is aware of where the other is operating on the landscape, they may be able to use proper planning techniques to avoid conflicts all together. By working together in the planning process, two conflicting parties may be able to continue to conduct business in harmony.

Advisory Group and Partners

The Geo-Tourism Values Advisory Group (GTVAG) was created to oversee the pilot project. This working group consists of various parties who are interested or involved in the tourism industry

and in resource planning in Newfoundland Labrador. The Advisory Group consists of 14 individuals who created the plan for the pilot project and provided direction and guidance for the implementation of the project. The individuals who make up the advisory group are listed below:

Andy Hennebury	Department of Tourism, Culture and Recreation
Anne Marceau	Parks Canada (Gros Morne National Park)
Carol-Ann Gilliard	Hospitality Newfoundland and Labrador (HNL)
Craig Foley	Hospitality Newfoundland and Labrador (HNL)
Derek Stewart	Department of Tourism, Culture and Recreation
Doreen Churchill	Center for Environmental Excellence (CEE)
Douglas Piercy	Natural Resources Canada (NRCan)
Glenn Payne	Geospatial Research Facility (CNA)
Peter Deering	Parks Canada (Gros Morne National Park)
Rick Wheeler	Geospatial Research Facility (CNA)
Scott Taylor	Parks Canada (Gros Morne National Park)
Sean Dolter	Western Newfoundland Model Forest (WNMF)
Sue Rendell, Chair	Gros Morne Institute for Sustainable Tourism (GMIST)
Todd Wight	Newfoundland and Labrador Outfitters Association

The Partners involved in the planning of the pilot project include the following:

- Hospitality Newfoundland and Labrador
- Geospatial Research Facility (CNA)
- Natural Resources Canada
- Center for Environmental Excellence (CEE)
- Gros Morne Institute for Sustainable Tourism (GMIST)
- Sir Wilfred Grenfell College
- Western Newfoundland Model Forest Inc.
- Department of Tourism, Culture and Recreation
- Gros Morne National Park
- Newfoundland and Labrador Outfitters Association

Pilot Study Location

The Deer Lake to Gros Morne Corridor is located on the west coast of Newfoundland, north of Deer Lake. The southern boundary of the study area is the Municipality of Deer Lake and the northern boundary is Gros Morne National Park. The location encompasses two major access highways for Gros Morne National Park. The area consists of Route 430 (Deer Lake to Wiltondale), Route 431 (Wiltondale to Lomond) and the surrounding landscape adjacent to these highway locations. The east – west boundaries extend to both sides of the highways where any tourism activities are taking place. During the survey process, there were no east-west boundaries set, and data was collected based on where tourism operators are conducting activities. At the completion of the survey phase, the extent of these boundaries was defined and can be viewed in Figure 1.

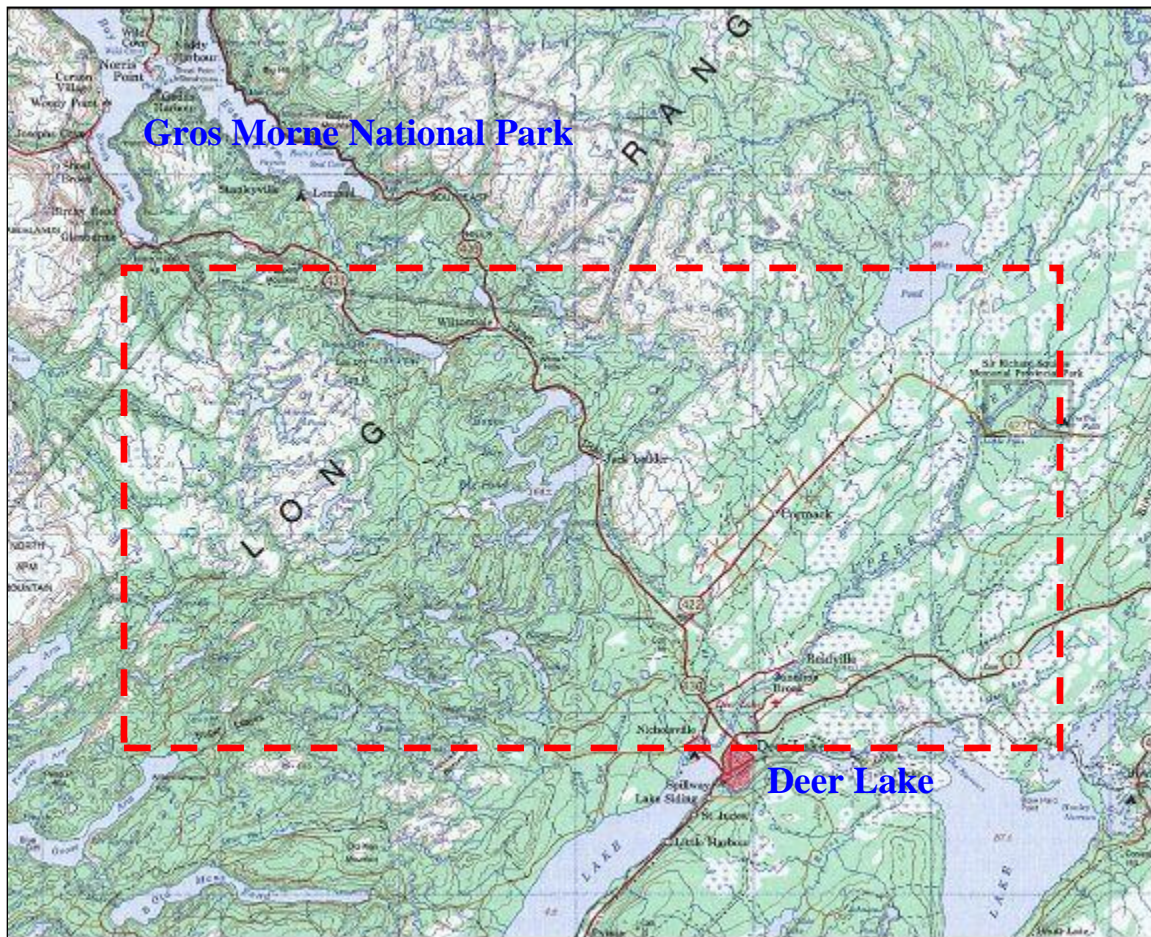


Figure 1. Map showing the study location for the Geo-referencing of Tourism Values in the Deer Lake to Gros Morne Corridor pilot project.

The site for this project was chosen for a number of reasons. These highways (Routes 430 and 431) are major access corridors for Gros Morne National Park. Based on the results of the Vehicular Traffic and Visitor Surveys, it is estimated that Gros Morne National Park received a total of 158,115 person visits in 60,349 visitor parties from June to October 2004 (D.W Knight Associates, 2005). The estimate for this measurement period is that 230,693 vehicles visited and/or traveled through the park. Also from these surveys, it is estimated that 79,803 visitors (50% of total park visitors) traveled north of the park to visit the communities and attractions of the Northern Peninsula and the Labrador Straits (D.W Knight Associates, 2005). In order for these visitors to reach the park from the south, they must travel through the study area. Therefore, this study location is subject to a large number of residents and tourists views throughout the summer and the rest of the year. These people see many of the activities that exist within the viewshed of the highways and therefore formulate opinions and views based upon what they see.

First, there is active forest management taking place within the corridor, south of Gros Morne National Park. This area has been managed for its forest resources for a number of years. Corner Brook Pulp & Paper Ltd. (CBPPL) has timber rights on most of the landscape within the study area. This means that many of the areas within the viewshed of the highways, and those areas that are beyond the viewshed are included in long-term management strategies and annual operating plans. The forest consists predominantly of Balsam Fir (*Abies balsamea*), Black Spruce (*Picea mariana*), White Spruce (*Picea glauca*), and White Birch (*Betula papyrifera*). The first 3 of these species are valued for their pulp quality and are therefore utilized for paper production at the CBPPL mill in Corner Brook.

Secondly, there are a large number of tourism operators that are active within the study area. These operators utilize the landscape to provide tourism opportunities for tourists who are interested in exploring Newfoundland Labrador's landscape. They provide activities such as hiking, snowmobiling, mountain biking, scenic tours, snowshoeing, skiing, camping, fishing, hunting and many more. For the purpose of this pilot project the following operations were identified: approximately 18 operators who provide tourism activities within the study area, and 10 who provide accommodations. Of these, 7 operators provide both accommodations and tourism activities. These operators provide approximately 62 full-time and 95 part-time jobs for people in the area. There are in fact many more operators who operate in this area. Tourism

operators feel that this is an excellent place to conduct tourism activities because the landscape is rich with tourism potential and the characteristics of the landscape are very appealing to tourists.

The fact that there are at least two industries on the landscape, each with their own set of values that they require to maintain a sustainable industry, validates the reasoning for this project. There exists a conflict of interest between the various industries, and for the purpose of this study we examined tourism and forestry industries, and therefore there exists an opportunity to give each an equal position for negotiating when conflicting landscape issues arise.

Conflicting Management Uses in Western Newfoundland

Growth of the Tourism Industry

Newfoundland and Labrador has experienced a significant increase in visitations from non-resident tourists over the past years – a 55% increase in numbers from 1996 to 2006. In 2006, there were 496,400 non-resident visits recorded, an increase of 6% over 2005. The tourism industry is now contribution over \$840 million to the provincial economy.

In 2006 in Western Newfoundland, the Deer Lake Airport reported 63,300 passenger movements, up 5% over 2005. In the first seven months of 2007 these numbers were up 17% over same period in 2006. There has been an increase in international tourists investing in properties in Newfoundland and Labrador.

Scenery, landscape, whales, icebergs and outdoor activities, (such as hiking, sea kayaking, and skiing) are among the main reasons visitors cite as their decision to visit Newfoundland and Labrador. The adventure product that Newfoundland and Labrador has to offer has become increasingly popular. There is an increased offering of wilderness adventure tours. The wilderness adventure companies rely on the landscape in the province (i.e. the mountains, wildlife, vegetation, rivers, lakes, ocean, etc.) to provide the “wow” factor for their customers.

Other Management Uses in Western Newfoundland

In addition to an increasing number of tourists and tourism operators in the Deer Lake to Gros Morne Corridor, there are other resource-dependant parties. Corner Brook Pulp and Paper Ltd. (CBPPL) have been operating within the corridor since the late 1930's. Cutting for the original mill started in the 1920's and Bowater (and now CBPPL) have had the timber rights to the area since 1938 as a part of the Bowater Act (Churchill, 2007). CBPPL has developed five-year plans for the districts encompassing the Deer Lake to Gros Morne Corridor, and have developed Sustainable Forest Management Plans for the areas in which they operate. The five year operating plans show the proposed harvesting areas in the corridor for the next 10 years. CBPPL Woodlands employs 600 employees in their harvest and silviculture operations in almost 50 Newfoundland and Labrador communities. The Company employs another 700 people at the mill in Corner Brook and the Deer Lake Power Company (Corner Brook Pulp and Paper Ltd., 2007). This equates to a large number of jobs and revenue produced on the west coast of the island. CBPPL has faced a lot of issues in the past. Some of the major issues include the high Canadian dollar, high fiber costs, the oversupply of newsprint in the North American marketplace, falling newsprint prices, and extreme pressure being placed on the productive land base from sources such as viewshed issues, recreational cabins, wildlife reserves, municipal issues and agriculture (Churchill, 2007).

Another major resource-dependant group that exists in the corridor is the residents. Historically, Newfoundlander's have lived off the land, and have used its resources to sustain life. Although personal sustenance off the land in Newfoundland is not as important as it once was, many people do still rely on the land and its resources. In the corridor, domestic harvesting provides wood for fire (heat), and logs for building supplies for many residents.

Mining is another major industry in Newfoundland. The Mining and Oil Extraction industry contributed 2,633.8 million dollars to the GDP in 2006 (Newfoundland and Labrador Statistics Agency, 2007). Although mining is not a predominant industry in this particular study area, it deserves mention because of the possibility of the industry being developed in the area in the future.

Conflict between Industries

Since there are multiple industries on the land that rely on the natural resources in different ways, conflicts arise. In many areas of Canada, outdoor tourism is often in conflict with other resource users such as forestry, mines, urban development and Native Land Claims (Canadian Tourism Commission, 2001). For example, Corner Brook Pulp and Paper, its employees, and shareholders rely on the forest to provide fiber for paper production. In an area where the company is extracting the timber resource for paper production, tourism operators may rely on the forest to provide revenue for their businesses. For example, an operator may lead hiking trails or scenic tours in an area where the timber is being extracted. In an area like this, there is a conflict of interest. One industry requires the removal of trees to provide a product that supports many jobs in the area, and another industry requires the trees to remain on-site so they can continually provide the wilderness experience. In this example, the action or inaction of one industry directly affects the actions of the other. If harvesting takes place, the tourism operator will likely feel the effects, and if the harvesting does not take place, the forest industry will lose revenue, which may in turn result in the loss of jobs. This creates an area of conflict.

Another example is evident within the viewshed of the highway corridor from Deer Lake leading into Gros Morne National Park. Some of the forested areas that can be viewed from the highway, when traveling to and from the park are included in Corner Brook Pulp and Paper's long term and annual operating plans. That is, the areas are part of a long term management plan that has been developed to sustainably manage the forest resource. Some of these areas have been harvested and therefore can be seen from the highway. The visual quality of the landscape is part of the wilderness experience and is also part of our everyday life (Paquet, 2001). Many tourism operators in this particular area suggest that these harvested areas directly affect the tourist's perception, as they suggest tourists don't like to see clearcuts, and this reduces the visitor's tourism experience.

These conflicts can arise on two scales, each of which can be identified individually using the map layers produced during this project. The first is on a landscape scale. These conflicts arise over large geographic areas. An example is the study location for this project. The Deer Lake to Gros Morne Corridor encompasses a large track of land where multiple parties exist. The pulp and paper industry manages the forest throughout most of the area, and the tourism industry

includes many businesses and individuals who use the same land. Therefore, there is a landscape conflict. The second conflict could arise in a specific area within the landscape. An example is when a pulp and paper company wants to extract the timber from an area where a hunting guide has been bringing clients hunting for many years. The actions of the pulp and paper company and the tourism operator thus conflict one another.

In theory, the effects of these types of conflicts may be potentially minimized using this project's output (i.e. the GIS data that allows individual operators to map their specific business interests). If properly utilized, the map layers can be overlaid with planned harvest blocks so that these conflict areas can be identified prior to the actual conflict arising. Large areas that will be negatively impacted by the others utilization of the natural resources can be identified and a negotiated resolution can potentially be reached. It does not, however, provide all of the tools that an operator will need in order to negotiate with the competing industry.

Geo-referencing tourism values projects have taken place in the past in Western Newfoundland. A report by (Nicol & Nicol, 1999) was completed to locate and note non-timber values in Forest Management District 15. The report identified 29 different non-timber values to help Corner Brook Pulp and Paper Limited to develop a five-year operating plan which addresses a broad range of forest values (Nicol & Nicol, 1999).

The following is an example of how geo-referenced information can be used for planning purposes to accommodate multiple industries on landscapes in Newfoundland. Figures 3 - 5 show an example of how this pilot project and its outputs can potentially be used to resolve a landscape conflict. Figure 3 shows a simulated planned harvest block, where the timber will be extracted to provide fiber for paper production.



Figure 2. Simulated planned harvest block. The timber within the red hatched area is planned to be harvested to produce fiber for paper production.

Figure 4 shows a geo-referenced hiking trail used by a large number of tourism operators for tours. Notice that the hiking trail is within the area that is planned for harvest. Figure 5 shows a possible resolution. The pulp and paper company has agreed to re-shape the planned harvest block, and may have to suffer a small loss of fiber in this particular harvest block, and the tourism industry has agreed to re-route a small proportion of the hiking trail to minimize the impacts on the tourism operators. The portion of landscape removed from this particular harvest block will be negotiated and will have to be added to another operating area, to ensure fiber is still extracted for the mill. The tourism industry will have to live with indirectly viewing the harvest block for a couple of years, until the harvested area has greened-up, but the harvest block is not directly in or on the hiking trail, and therefore the trail will not be damaged as a result of harvesting. (*This example does not take into consideration roads that will be built to access the timber resource).



Figure 3. Hiking trail in the area that has been planned for harvest. Since the landscape is being used by two industries, there is a conflict of interest.

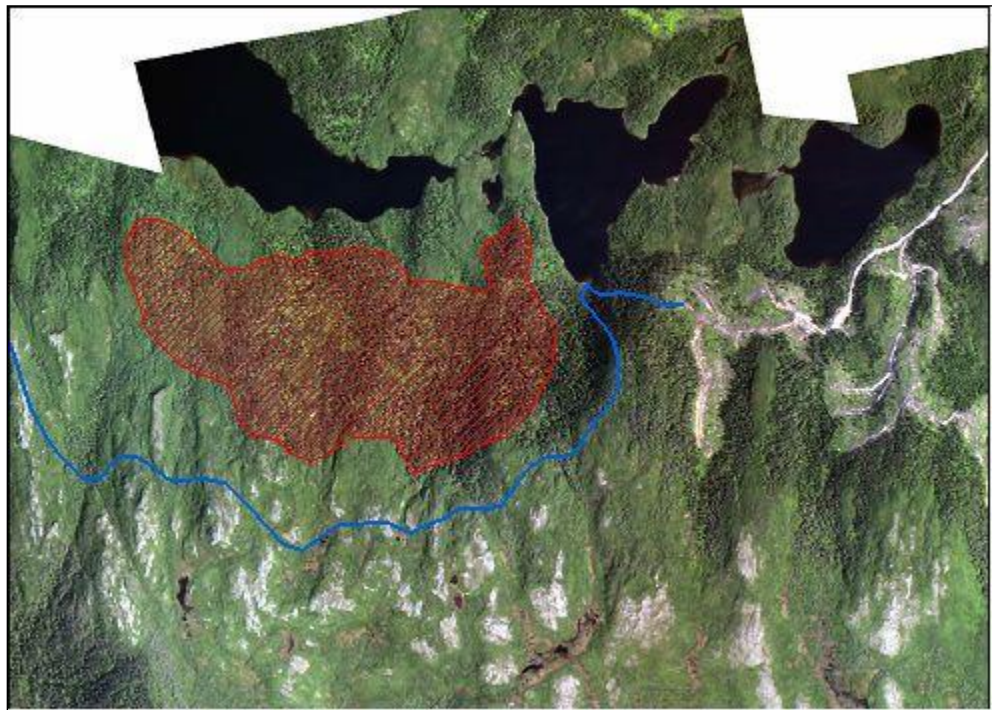


Figure 4. A potential conflict resolution for both parties. The forest industry has to accept less fiber from this particular harvest block, and the tourism industry must re-route the trail and live with viewing the harvest block for a couple of years, until the block has greened-up.

In the previous example, by simply using these tourism values maps produced in this project, the tourism industry was able take a proactive approach to minimize the impact of a conflicting land issue before the impacts were irreversible.

Another way that has been used to accommodate multiple industries on a single landscape is through the use of visual design and landscape architecture. Because of the increasing trend towards managing our forest landscapes for aesthetic or social purposes (Pedersen, 2001) there has been a lot of interest in using integrated visual design to minimize and resolve conflicts between industries. Visual design allows for the 'digital' design of landscapes prior to management activities. For example, before a forest company harvests a forest stand, they are able to visually model the harvest block. That is, they can see what the harvest block will look like on a computer, and how it will affect the visual quality from various viewpoints in the area. Using this technique, two parties can work together to design a management activity that accommodates and meets the expectations of each party. Therefore, visual impacts can be minimized upon individual tourism activities, highway corridors, and on any other areas that are visually sensitive. (Pedersen, 2001) stated that civil societies have become more concerned with the condition of the environment. They are not only sensitive to what our forest practices mean from a biological conservation viewpoint, but are also concerned with how they look, and what this means from a socio-economic standpoint with respect to non-consumptive opportunities and users of the forest. Since people are more interested and concerned about 'how the forest looks', visual resource management is an excellent way to minimize the impacts of 'visually undesirable landscapes'.

The BC Forest Service found that "one of our many challenges is to meet the ever-present demand for fiber while maintaining visual quality and meeting the needs of the growing recreation and tourism sectors" (Pedersen, 2001). During the early to mid 1980's, the BC Forest Service concentrated its efforts on carrying out visual landscape inventories to identify those areas in the province that are visually sensitive, and by 1996, 12.9 million hectares of sensitive area had been inventoried (Pedersen, 2001)). (Rennie, 2001) found that the key considerations in forest management have changed from historically concentrating on efficiency and utility, to become more ecosystem based, with more concentration on social values such as aesthetics and conservation. There is a much greater public participation in management planning than there was historically, and the number of forest users are becoming greater in numbers and

more diverse and concentrated. (Rennie, 2001) found that there are many benefits of integrated visual design. They include: the ability to accommodate a wide range of resource values (not just visual), the visual component is present throughout the process, the final design is based upon the long-term and permanent features, and the flexibility (i.e. the design is flexible to changing conditions and information).

The following figures (Figure 6 – 7) show examples of 3D visualization software, and its ability to simulate harvested areas prior to actual harvesting.

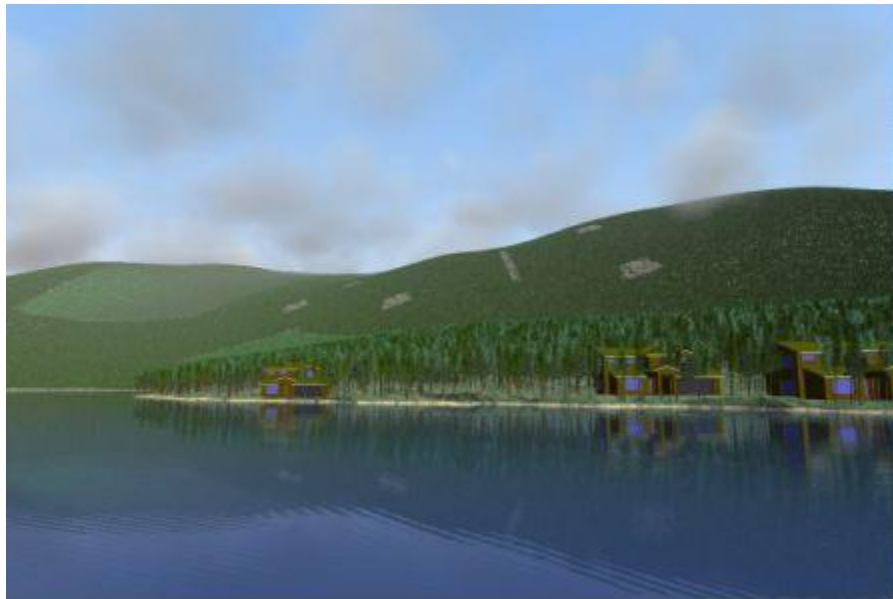


Figure 5. 3D Visualization software used to evaluate harvest areas prior to harvesting (3D Nature, LLC, 2006).



Figure 6. 3D Visualization software used to evaluate harvest areas viewed from a highway prior to harvesting (3D Nature, LLC, 2006).

Another way that conflicting land and visual issues have been dealt with in other areas of Canada is through the use of partial harvesting. Partial harvesting involves only removing a portion of a forest stand when harvesting, minimizing the visual impact of the management. (Marc, 2001) stated that partial cutting doesn't affect the scenic values because you are only taking out a portion of the stand each time. Partial cutting can result in less visual impact, more volume over the short-term, elimination of adjacency constraints, and the ability to address multiple objectives more readily than when using clearcutting (Marc, 2001).

Partial harvesting has not been widely used in Newfoundland for a number of reasons. The cost of partial harvesting is much higher than clearcutting, because there is less volume being removed in each pass. Newfoundland already has some of the highest wood costs (the cost of getting wood fiber from the stump to the mill) in the world because of the terrain characteristics, tree size, trucking distances, etc. There is also a lack of equipment and expertise for conducting partial harvesting. Also, partial harvesting does not suit the tree species existing in Newfoundland. One of the forests major tree species for example, Balsam Fir, is a short-lived species and after approximately 60-80 years of age it becomes highly susceptible to wind damage. Therefore, the remaining stems in a partially harvested block would be very susceptible to wind damage because there would be less protection compared to higher density stands. Also, a major problem in Newfoundland has been insect damage to tree species. Studies have shown that low-density stands are more susceptible to insects such as the balsam fir sawfly. Because of this, partial harvesting may create a situation where stands become more susceptible to damage.

When comparing clearcutting with shelterwood (partial) harvesting, (Mierau, 2001) found that partial harvesting caused increased moisture competition, poor leader growth, and low densities for regenerating tree species and also found that it took a long time for visual green-up of harvested blocks.

Methodology

Research

In order to obtain the data necessary to create a geo-database that accurately represented the tourism operator's specific business interests within the study area, a number of steps were

taken. Research was completed to obtain a list of operators that are actively providing tourism activities within the area. This was completed with the help of the advisory committee, and through local resources that have information pertaining to tourism within the pilot corridor and on the west coast of Newfoundland. The operators who were surveyed consisted of any tourism operators and/or outfitters who were actively providing a tourism product to generate revenue for their business within the corridor. Information was not collected pertaining to recreational tourism opportunities (i.e. those that are for leisure and not-for-profit). This project's primary focus was to test the methodology for obtaining information about tourism business interests and values in the pilot corridor, and the resulting database of survey responses does not accurately represent all of the tourism values in the Deer Lake to Gros Morne corridor.

Surveying

Once the list of operators was compiled, each operator was contacted and given some information about the pilot project (i.e. why the project is taking place and what benefit it would provide them in the future). During the first conversation with each operator, a meeting time was set up when the surveys could be completed to collect the information necessary for the project. The surveyor then traveled to meet each operator at their location to complete each survey. When the surveyor arrived at each destination, one or two surveys were conducted. Each of these surveys is explained below.

Survey #1

Survey #1 was designed to obtain information from operators and outfitters who are located within the corridor, and/or who conduct activities within the corridor to generate revenue for their company. A copy of this survey can be viewed in Appendix A. The survey was designed to extract data from individual operators and outfitters that pertained to their company and the activities that they offer to their clients. The survey had 4 main goals. They include:

- 1). *To obtain information that pertains specifically to the tourism activities that each operator offers.* The data which was collected included: which activity each operator offers to clients (i.e. hiking, fishing, snowmobile tours, etc.), the time of the year that each is offered, the number of weeks that each is offered, and if the operator uses forest access roads and/or highways for each of the activities.

2). *To obtain information about the impact that various land uses has had on their individual activities.* The data that was collected included: the effect that 8 land uses have had on each activity, major concerns that the operators have pertaining to competing uses in the forest, and the effect of various harvesting techniques on the activities.

3). *To obtain information about the landscape characteristics and aesthetic values that are important for each of the activities.* The data that was collected included: which characteristics of the landscape are important for each of the activities, and what characteristics are important for assigning a landscape an associated visual quality.

4). *To obtain information specific to each company.* The data which was collected included: how long the company has been in operation, what percent of the gross revenue is generated by each activity, what percent of clients are residents of Newfoundland and Labrador and which are not residents of Newfoundland and Labrador, how long each activity has been offered, how many full and part time staff are employed, the number of clients annually for each activity, the percent of clients that are walk-in clients and/or pre-booked clients, the percent of clients that are day customers (i.e. they provide business for less than 24 hours) and those that stay overnight, and the annual gross revenue generated by each company.

Survey #2

Survey #2 was designed to obtain information from operators and outfitters who use, or have clients that use the highways within the corridor (i.e. Routes 430, 431, and/or 422) to reach their destination. This group consisted of the operators located within the corridor (i.e. those who are actively conducting tourism operations within the corridor) and operators who are located outside of the corridor, but whose clients use the highways within the corridor to access their destination. Many other operators have clients who use this corridor. A copy of this survey can be viewed in Appendix B.

Obtaining Map Data

In addition to completing the survey(s), each operator who completed Survey #1 was asked to draw on a map, the specific locations where each activity is offered. This was done to obtain hardcopy map data pertaining to the geographic location for each of the activities. Operators were asked to show where on the landscape they provide the activities. This involved identifying

on a map (i.e. drawing) exactly where each activity took place. Operators showed each road, river, highway, forest area, trail, etc. where each activity took place.

To obtain this data, a series of four (4) 1:50,000 scale topographic maps were used, which covered the study area. The topographic maps that were used included map sheets 12H/3, 12H/4, 12H/5, and 12H/6. Each topographic map was overlaid by a clear, see-through Mylar sheet, which represented each respective map sheet. On each Mylar sheet, the corners of the topographic maps were marked with an “x” so that each time the Mylar was placed upon the topographic map the area that was represented was exactly the same.

For each operator, the location of each of their activities was drawn on the Mylar sheet. With the aid of the surveyor, the area representing each activity was drawn with a coloured marker or crayon. On each Mylar sheet, each operator was differentiated by a colour and/or line design (example: dashed green, solid red, dotted black, etc.). By doing this, many different operators could be represented on a single Mylar sheet, eliminating the need to purchase additional materials. After all operators were surveyed, the Mylar sheets contained the data that was needed to create the visual geo-database (i.e. the lines, points and polygons that can be viewed on a map).

Digitizing Map Data

The hardcopy map data was digitized to produce digital spatial data that could be viewed using computer software. Digitizing is the process of turning hardcopy mapping data (i.e. the lines, points and polygons represented on the Mylar sheets) into digital data that can be viewed on a computer (i.e. in computer mapping programs).

Various methods can be used to digitize hardcopy map data. For this project, the map data was digitized on-screen using ArcGIS™. ArcGIS™ is full-featured GIS software program for visualizing, analyzing, creating, and managing data with a geographic component (ESRI Canada). Using this software, previously geo-referenced topographic maps were loaded on-screen. The data that was drawn on the Mylar sheets was then “digitized” onto the same locations on the digital topographic maps as a point (ex: cabin location), line (ex: hiking trail), or polygon (ex: hunting area). After each activity was digitized, it was then saved as a shapefile (i.e. the digitized data that represents each tourism activity). A series of shapefiles then represented the geographic

spatial location for the specific operator's surveys regarding their tourism activities in the corridor.

Creating the Geo-Database

Creating a geo-database that accurately reflected the tourism activities of each of the operators surveyed involved linking the digitized map data to the information pertaining to that data, which was collected in the tourism operator surveys. A geo-database supports a model of topologically integrated feature classes, and allows the user to store various features (i.e. geo-referenced tourism activities). The geo-database was created using mapping software, more specifically ArcGIS 9.1.

To begin creating the geo-database, all shapefiles (i.e. geo-referenced tourism activities) representing the tourism activities of each of the operators surveyed were moved into the geo-database. Next, the attributes (i.e. information about the shapefiles, from the surveys) were linked to each tourism activity. To achieve this, various relationship tables were set up to link various sources of information to each tourism activity. Objects in the real-world system often have particular relationships with other objects in the database (Booth, Crosier, Clark, & MacDonald, 2002). These kinds of associations between objects in the geo-database are called relationships (Booth, Crosier, Clark, & MacDonald, 2002). For example, 1 snowmobile trail on the tourism activities map may be used by various operators. These various operators may offer different tours, at different times of the winter. The 'relationship' between a snowmobile trail, and the various operators that use it can be defined within the geo-database, so that when someone looks for information about a specific snowmobile trail, they can view all of the various operators that use that trail, and the information that is associated with each individual operator.

During the creation of the geo-database various types of information were linked to each tourism operator's activities in the map layer. For an individual tourism activity on the map layer, the following attributes can be viewed and mapped:

- Tourism operator offering each activity;
- Location and contact information for the operator;
- The survey number for each activity;

- The season in which each activity is offered;
- The number of weeks each activity is offered;
- The number of years that each activity has been offered;
- The number of staff employed on each activity (this may overlap with other tourism activities offered by a particular operator).

This information is important when dealing with conflicting land uses for individual operators. In a conflict area, with this type of geo-referencing tool available to them, individual operators can better identify their business interests.

Materials

There were various materials necessary for the implementation of the pilot project. All materials that were used during the project are listed below:

1). Data Collection:

- 4 x 1:50,000 topographic maps
- Clear Mylar overlay sheets (enough to cover the 4 topographic maps)
- Various colored markers
- Various colored map pencils
- Operator surveys
- Vehicle (to travel to meetings)

2). Creation of the Geo-database:

- ArcGIS™ computer software
- Computer
- Digital topographic maps

Results and Discussion

Businesses Surveyed

In total, 30 businesses were surveyed, and 47 surveys were administered. Table 1 shows the businesses that were surveyed in the area, and others that were not surveyed for reasons

beyond the surveyor’s control. Four businesses that were contacted were unable to conduct the survey due to lack of time.

Table 1 identifies the tourism establishments within or near the Deer Lake to Gros Morne corridor that were surveyed. It is not a complete list of tourism activities or values in the project area but rather a list of participants for the pilot project.

Table 1. Operators within or near the Deer Lake to Gros Morne Corridor that were asked to complete either Survey 1, 2 or both.

Operator	Survey #1	Survey #2
White Hills Lodge	Yes	Yes
Big Falls Lodge		
Lomond River Lodge	Yes	Yes
Newfoundland Insectarium	Yes	Yes
Humber Valley Resort	Yes	Yes
Funland Resort	Yes	Yes
Nature Trails	Yes	No
My Newfoundland Adventures	No	Yes
Lush’s Cottages	Yes	Yes
International Appalachian Trail Association	No	Yes
Cycle Solutions	Yes	Yes
Jack Ladder Snowmobiling Ltd.	Yes	Yes
Middle Brook Cabins	No	Yes
Tuckamore Expeditions	Yes	Yes
Explore Newfoundland	Yes	No
Gros Morne Adventures	No	Yes
Vision: The Atlantic Canada Co.	No	Yes
Long Range Adventures	No	Yes
A Perfect Getaway	No	Yes
Atlantic Canada Adventure	Yes	No
Cache Rapids Stable	Yes	Yes
Wilderness Horizons	Yes	Yes
Victorian Manor	No	Yes
Rocky Brook Cabins	Yes	Yes
Wildland Tours	Yes	Yes
Fisherman’s Landing Inn	Yes	Yes
Oceanview Motel	No	Yes
Old Lincon Cabins	Yes	Yes
Humberview Bed & Breakfast	Yes	No
Tujummiuvik Bed & Breakfast	Yes	Yes
Frontier Cottages	Yes	No
Gateway to the North RV Park	No	No
Mountain Tours & Photography	No	No
Edge Tours and Rentals	No	No
Deer Lake RV and Campground	No	No

Tourism Activities and Accommodations in the Corridor

Table 2 summarizes the various activities that are available to tourists, within the corridor as identified by the pilot project participants. This does not represent all of the activities, resources, values and business interests within the corridor.

Table 2. Summary of tourism activities and accommodations identified by survey participants in the pilot region.

Tourism Activity	# of Operators Offering Tourism Activity	Season Tourism Activity is Offered
ATV Tours	3	Spring / Summer / Fall
Bear Hunting	1	Spring / Summer
Bed & Breakfast	2	All Year
Berry Picking	1	Summer / Fall
Bird Watching	2	All Year
Camping	6	Spring / Summer / Fall
Canoeing	3	Spring / Summer / Fall
Caribou Hunting	1	Fall
Dog Sledding	1	Winter
Hiking	4	All Year
Horseback Riding	1	All Year
Kayaking	2	Spring / Summer / Fall
Lodging	10	All Year
Mini Golf	1	Summer
Moose Hunting	1	Fall
Motor Coach Tours	1	Summer / Fall
Mountain Biking	1	Summer / Fall
Insectarium	1	Summer
Photography Tours	1	Spring / Summer / Fall
Plant Viewing	2	Spring / Summer / Fall
Restaurant	2	All Year
Salmon Fishing	4	Summer
Ski Touring	1	Winter
Snowmobiling	7	Winter
Snowshoeing	2	Winter
Trout Fishing	4	Spring / Summer
Walking	1	Summer / Fall
Water Slides / Swimming	1	Summer

As can be seen in Table 2, there are a large number of activities being provided within the corridor. Some of these are offered in all seasons while others are only offered at specific times of the year (i.e. moose hunting, snow shoeing) due to seasonal restrictions. Many of these activities have been offered for a long period of time (i.e. salmon fishing), and others have only

just began, likely because the demand for such tourism activities has increased. As tourism businesses grow and develop, it is likely that the number and diversity of tourism activities will also grow and develop.

Surveys

In total, 47 surveys were conducted during the duration of the project. Of these, 22 of the surveys were Survey #1 (discussed in previous sections), and 25 were Survey #2. The approximate time to complete Survey #1 was quite variable and relied heavily on the number of tourism activities that the operator offered. The length of time to complete the surveys ranged from 20 minutes to 3.0 hours, with an average time for Survey #1 being approximately 45 minutes and Survey #2 at around 15 minutes.

Survey #1 included various questions that were not used to create the geo-database. Since each project subsequent to the pilot project will be unique and may require the acquisition of different data due to the goals and objectives of the specific project, a revised survey has been created and can be seen in Appendix C. This survey shows the questions that are necessary to get the information to create a mapping layer or geo-database representing tourism operators business interests in an area.

Survey #1 allowed the surveyor to highlight information about the operators who operate within the corridor, the tourism industry, in general, and the way in which the operators use the landscape.

Limitations

Throughout the duration of the pilot project, the surveyor/author has seen many drawbacks and opportunities that could affect the success of future projects. The following are observations of this pilot project. They also highlight a number of information gaps identified with this process that could help to enhance future projects and provide the results that are deemed optimal by the interested parties.

1. This pilot project tested a potential mechanism (i.e. Surveys) to assist individual operators identify their business interests and have them represented in a spatial

format. In doing so, it may assist individual operators resolve and avoid conflicts with other industries in the corridor. The methodology employed for identifying tourism values to be geo-referenced in this project (i.e. conducting surveys), however, is quite time-consuming, sometimes taking up to three hours to complete. This doesn't include the time it took for the surveyor to make contact, set up appointments and travel to the destination.

In addition, the methodology required the hiring of a surveyor and travel to the region in order to collect the data, which required significant financial resources.

As competing use conflicts must be resolved in negotiation with the individual operators as they arise, it is important to provide a user-friendly methodology for collecting the data and geo-referencing the information. Having to wait for a project to be initiated, funding partners established and a surveyor hired is not a practical approach to future projects of this nature.

2. Survey #1 asked operators to rate the various methods of forest harvesting and other competing uses. As these questions are subjective in nature and do not serve any purpose in the outcome of the project (i.e. to identify tourism business interest on a map), they should be removed from the list of questions. Survey # 2 asked participants to rate photographs on their aesthetic quality. This is subjective and does not serve a purpose for the objectives of the project.
3. The methodology also does not identify all of the tourism values in the region or other "potential tourism expansion areas" that are important for the sustainability of the industry.
4. The pilot project cannot be used as a report of the wider general tourism values, as we cannot draw conclusions based on this sample size of the impacts of forestry on tourism visitation.
5. The objective of the project was to merely provide a spatial representation of the individual tourism business interests. It does not, however, provide all of the tools that an operator will need in order to negotiate with the competing industry. As tourism

operators have varying degrees of knowledge and competencies, they may not know what is necessary for the sustainability of the industry. There is a need for more education of tourism operators regarding the *sustainability requirements* for their industry relative to other land and water users.

6. For large-scale tourism values mapping projects elsewhere in Newfoundland and Labrador, a revised list of questions should be developed in order to best capture all the information that is necessary to create tourism mapping layers.

Conclusion

While the proposed methodology obtained some of the necessary information for individual tourism interests to be geo-referenced, the process does not address the needs of the tourism operators who would use the spatial representation in a conflict. Conflicts are arising throughout Newfoundland and Labrador that are affecting individual tourism operators and not necessarily tourism regions. In this way, it is difficult to identify how the proposed methodology would work for those operators. It is impractical from a financial and human resource perspective to apply the piloted methodology on an individual case by case basis. The tourism industry would be better served by developing the technology that will collect data from those individual operators who are experiencing a conflict as they arise so that they may employ the use of spatial representation to aid in a resolution.

The second phase of this pilot project is designed to address this very limitation. Phase II will be primarily focused on designing and developing a web-based interface so that individual operators could render a map of their business interests and values for use in competing uses resolution. In addition, in reference to the shortcomings of the survey methodology, access to the information in this web-based system should be limited.

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APPENDIX A

Operators/Outfitters Conducting Activities within the Deer Lake to Gros Morne Corridor

Survey #1

Western Newfoundland Model Forest & Hospitality Newfoundland and Labrador
Project: Geo-referencing Tourism Values along the Deer Lake to Gros Morne Corridor

Disclaimer

Thank you very much for recently agreeing to participate in this study. This is a pilot project being conducted by Hospitality Newfoundland and Labrador in partnership with Western Newfoundland Model Forest (WNMF) to delineate and geo-reference tourism values along the corridor reaching from the Humber Valley to the borders of Gros Morne National Park. The project aims to increase knowledge and awareness of the tourism industry through the mapping of tourism values. This is a first step towards a negotiated resolution between various conflicting land uses in the area. Mapping these tourism values can help to create a conflict avoidance process or mechanism for tourism that is transferable to the rest of the province and its national network. None of the information collected in this survey will be released to the public on a basis that is specific to the operator or outfitter. Any financial information about the company will be kept strictly with those conducting the study for research purposes.

Company Name: _____
Name: _____

Survey #: _____
Date: _____

Section 1. Activity Information

This section of the survey is aimed at identifying the various ways in which you interact with the landscape. You will be asked to identify the specific activities in which your company participates. Please refer to Table 1 in conjunction with the questions below to complete this section.

1. In Table 1, indicate which of the activities listed in column 2, that your company participates in (please identify any that your company has participated in within the last 3 years). Please check all that apply in column 2. If there are any activities that are not listed in Table 1, please specify in column 2 next to 'other'.

2. For each activity identified in Question #1, indicate in which season(s) you perform the activity based on the following:

- SP Spring
- S Summer
- F Fall
- W Winter
- A All Year

Place the appropriate code in column 3 of Table 1. Please indicate all that apply.

3. For each activity identified in Question #1, indicate how many weeks you perform the activity annually based on the following:

- A. 0 - 2 wks
- B. 2 - 4 wks
- C. 4 - 8 wks
- D. 8 - 16 wks
- E. 16 - 32 wks
- F. 32 +

Place the appropriate letter in column 4 of Table 1.

4. In Table 1, indicate if you or your clients use forest access roads for each of your activities by placing yes or no in column 5.

5. In Table 1, indicate if you or your clients use local highways (i.e. Trans Canada Highway) for each of your activities by placing yes or no in column 6. If so, which highways are most heavily used in this corridor?

Section 2. Impact of Various Land Uses

This section of the survey is aimed at identifying how various land uses and management techniques affect your activities within the forest. Please use Table 2 in conjunction with the questions below to complete this section.

6. Table 2 identifies various land uses present in Western Newfoundland. For each of those listed in columns 3 – 10, indicate the effect that each has had upon your various activities *in the past* (i.e. up to this point in time). Use the effect rating below. If there are any other land uses that affect each particular activity, please identify it below and provide the effect rating.

- 1 Land use has a **large positive effect** on this particular activity.
- 2 Land use has a **positive effect** on this particular activity.
- 3 Land use has **no effect** on this particular activity.
- 4 Land use has a **negative effect** on this particular activity.
- 5 Land use has a **large negative effect** on this particular activity.

Others: _____

7. What are your major concerns pertaining to competing uses in this area? Please check **3 of your major concerns** below, and place an “x” next to the one that you are least concerned about.

- Wildlife issues
- Scenery / Aesthetics
- Reforestation
- Chemicals Application
- Erosion
- Destruction of Snowmobile Trails
- Noise Pollution
- Harvesting Causing Increased Wind
- Economic Impacts
- Insufficient Buffer Zones
- Pollution
- Destruction of the forest
- Clearcutting
- Land Degradation
- Increased Access to private logging
- Impact on Tourism Industry
- Crowding (i.e. on fishing rivers)
- Other, please specify below

8. Appendix A shows 6 examples of harvesting, labeled A through F. An explanation for each type is given on the next page. Please indicate which of these harvesting types you feel would minimize the impacts of the concerns you outlined in Question #7 (i.e. which of these would be ok in your area and allow your activity(s) to continue after harvest) by circling each letter below.

<u>Harvesting Type</u>	<u>Description</u>
A. Strip Harvesting	- The area is clearcut in strips
B. Clearcut with Leave Patches	- The area is clearcut, however, patches are left behind
C. Selective Harvesting	- Selected trees are removed, however, the majority of the forest is left standing

- D. Clearcut with Scattered Residuals - The area is clearcut, however, scattered single trees are retained
- E. Strip Harvesting with Scattered Residuals - Same as A, however, scattered single trees are retained in cut strips
- F. Patch Clearcut - The area is clearcut harvested in small patches

Section 3. Landscape Characteristics and Aesthetic Values

This section of the survey is aimed at identifying the surrounding environmental characteristics that provide the location for your company to exist, as well as those characteristics that make your specific activities unique. Please refer to Table 3 in conjunction with the questions below to complete this section.

9. In Table 3, indicate which characteristics about the forest or surrounding landscape make this area suitable for your activities by placing a check in columns 3 – 14 for each activity listed in Question #1. If there are any other landscape characteristics that are important to your activities, please list below, and indicate which activities these characteristics enhance.

10. What is it about the landscape that makes it aesthetically pleasing in your area?

11. The following is a list of aesthetic values for forest landscapes. Please identify three of these values which are the most important to your company by placing a check in the space provided to the right. Also, identify one of the values that is the least important to your company by placing an “x” in the space provided to the right.

- Aesthetic Value
- Type of Water Present (i.e. lake, pond, river, ocean) _____
 - Percent of Water Present in the Landscape _____
 - Relative Relief (steepness) of surrounding landscape _____
 - Variety of Landforms Present _____
 - Variety of Vegetation Present _____
 - Type of Alteration (i.e. harvesting, farming, etc.) _____
 - Level or Amount of Alteration Present _____

Section 4. Company Information

This section of the survey is aimed at obtaining specific information that pertains to your company. The goal is to enable the researchers to understand the value of the tourism industry in the area in terms of job creation, revenue generated, etc. Please refer to Table 4 in conjunction with the questions below to complete this section.

12. How long has your company been in operation? _____

13. Does your company reside in Newfoundland?

Yes _____

No _____

14. Approximately what percent of your gross revenue is generated from each of your activities? Place your answer in column 3 of Table 4.

15. For each activity indicated in Question #1, approximately what percent of your business is generated from residents of Newfoundland, and what percent is generated from non-residents? Place your answer in column 4 of Table 4.

16. Have you been participating in the same activities since the company started? If no, please state the amount of time, in years, that you have been participating in each interaction. Place your answer in column 5 of Table 4. _____

17. How many full-time staff do you employ? _____

18. How many part-time staff do you employ, and generally what months are they employed?

Number of part-time staff: _____

Months of employment: _____

19. Do you have different staff employed on each of your activities? If so, please indicate approximately how many staff work with each of the activities identified in Question #1. Place your answer in column 6 of Table 4. _____

20. How many clients do you have annually for each of the activities listed in Question #1? Place your answer in column 7 of Table 4.

21. Approximately what percent of your business is walk-in business, and what percent is pre-booked business for each of the activities listed in Question #1? Place your answer in column 8 of Table 4.

22. Approximately what percent of your business is day business, and what percent is overnight (package) for each of the activities listed in Question #1? Place your answer in column 9 of Table 4.

23. What is the total gross revenue produced by you company annually? Circle the correct answer.

A. \$0 – \$50,000 /year

- B. \$50,000 - \$100,000 / year
- C. \$100,000 - \$200,000 / year
- D. \$200,000 - \$400,000 /year
- E. \$400,000 + / year

I would like to thank you for your time and cooperation during the completion of this survey. If you have any additional comments or questions, please feel free to express them below. We welcome any additional interests or opinions that you may have.

Table 1. Identification of various forest activities and their intensity and seasonal timing, as well as the type of road usage associated with each activity.

1	2	3	4	5	6
Map ID	Activity	Season	# of Weeks	Road Usage	
				Forest Access	Highway
	ATV Use				
	Snowmobiling				
	Snowshoeing				
	Hiking				
	Walking Trails				
	Berry Picking				
	Plant Viewing				
	Sight Seeing				
	Cross Country Skiing				
	Ski Touring				
	Downhill Skiing				
	Mountain Biking				
	GPS Adventures				
	Bird Watching				
	Dog Sledding				
	Rock Climbing				
	Caving				
	Camping				
	Lodging				
	Canoeing				
	Rafting				
	Moose Hunting				
	Bear Hunting				
	Small Game Hunting				
	Trapping				
	Duck Hunting				
	Bird Hunting				
	Salmon Fishing				
	Trout Fishing				
	Motorcycling				
	Motor Coaching				
	Horseback Riding				
	Geology				
	Photography Tours				
	Other: Specify _____				
	Other: Specify _____				
	Other: Specify _____				

Table 2. Current and potential impact of various forest land uses on your activities.

1	2	3	4	5	6	7	8	9	10
		Current Effect Of Land Use							
Map ID	Activity	Forest Harvesting	Aggregate Pits	Hydro Lines	Protected Areas	Domestic Harvesting	Developme	Road Building	Agriculture
	ATV Use								
	Snowmobiling								
	Snowshoeing								
	Hiking								
	Walking Trails								
	Berry Picking								
	Plant Viewing								
	Sight Seeing								
	Cross Country Skiing								
	Ski Touring								
	Downhill Skiing								
	Mountain Biking								
	GPS Adventures								
	Bird Watching								
	Dog Sledding								
	Rock Climbing								
	Caving								
	Camping								
	Lodging								
	Canoeing								
	Rafting								
	Moose Hunting								
	Bear Hunting								
	Small Game Hunting								
	Trapping								
	Duck Hunting								
	Bird Hunting								
	Salmon Fishing								
	Trout Fishing								
	Motorcycling								
	Motor Coaching								
	Horseback Riding								
	Geology								
	Photography Tours								
	Other: Specify _____								

Table 3. Important landscape characteristics for various forest activities.

1	2	3	4	5	6	7	8	9	10	11	12	13	14
Map ID	Activity	Forest Age	Forest Vegetation Topography	Aesthetic Value	Access to Wildlife	Access to Fish Roads	Access to Forest	Access to Water	Convenience (price, proximity)	Soil Type	Geographic Features	Unique Features	Unique Features
	ATV Use												
	Snowmobiling												
	Snowshoeing												
	Hiking												
	Walking Trails												
	Berry Picking												
	Plant Viewing												
	Sight Seeing												
	Cross Country Skiing												
	Ski Touring												
	Downhill Skiing												
	Mountain Biking												
	GPS Adventures												
	Bird Watching												
	Dog Sledding												
	Rock Climbing												
	Caving												
	Camping												
	Lodging												
	Canoeing												
	Rafting												
	Moose Hunting												
	Bear Hunting												
	Small Game Hunting												
	Trapping												
	Duck Hunting												
	Bird Hunting												
	Salmon Fishing												
	Trout Fishing												
	Motorcycling												
	Motor Coaching												
	Horseback Riding												
	Geology												
	Photography Tours												
	Other: Specify _____												
	Other: Specify _____												

Table 4. Information pertaining to the company and clientele.

1	2	3	4		5	6	7	8		9	
Map ID	Activity	% Revenue	Resident	Non-Resident	Years for Each Activity	# Start for Each Interaction	Approx # of Clients Annually	Walk-in	Pre-book	Day	Over-night
	ATV Use										
	Snowmobiling										
	Snowshoeing										
	Hiking										
	Walking Trails										
	Berry Picking										
	Plant Viewing										
	Sight Seeing										
	Cross Country Skiing										
	Ski Touring										
	Downhill Skiing										
	Mountain Biking										
	GPS Adventures										
	Bird Watching										
	Dog Sledding										
	Rock Climbing										
	Caving										
	Camping										
	Lodging										
	Canoeing										
	Rafting										
	Moose Hunting										
	Bear Hunting										
	Small Game Hunting										
	Trapping										
	Duck Hunting										
	Bird Hunting										
	Salmon Fishing										
	Trout Fishing										
	Motorcycling										
	Motor Coaching										
	Horseback Riding										
	Geology										
	Photography Tours										
	Other: Specify _____										
	Other: Specify _____										

APPENDIX B

**Operators/Outfitters Traveling Through the Deer Lake to Gros Morne Corridor to Access
Tourism Destinations beyond the Corridor**

Survey #2

Western Newfoundland Model Forest & Hospitality Newfoundland and Labrador
Project: Geo-referencing Tourism Values along the Deer Lake to Gros Morne Corridor

Disclaimer

Thank you very much for recently agreeing to participate in this study. This is a pilot project being conducted by Hospitality Newfoundland and Labrador in partnership with Western Newfoundland Model Forest (WNMF) to delineate and geo-reference tourism values along the corridor reaching from the Humber Valley to the borders of Gros Morne National Park. The project aims to increase knowledge and awareness of the tourism industry through the mapping of tourism values. This is a first step towards a negotiated resolution between various conflicting land uses in the area. Mapping these tourism values can help to create a conflict avoidance process or mechanism for tourism that is transferable to the rest of the province and its national network. The goal of this particular survey is to identify key areas along the Deer Lake to Gros Morne Corridor which are aesthetically important to the tourism industry. None of the information collected in this survey will be released to the public on a basis that is specific to the operator or outfitter.

Company Name: _____
Name: _____

Survey #: _____
Date: _____

Section 1. Corridor Usage

1. Do you or your clients use Route 430, 431 and/or 422 (hereafter referred to as the *Deer Lake to Gros Morne Corridor*) to access your business and/or Gros Morne National Park?

Yes _____ No _____

2. Which of the highway routes listed below do you and your clients use when traveling through the Deer Lake to Gros Morne Corridor?

Route 430 (Deer Lake to Rocky Harbor) _____
Route 431 (Wiltondale to Woody Point) _____
Route 422 (Cormack) _____

3. ***This question is for tour and motor coach operators.*** Approximately how many times do you and your clients travel through the Deer Lake to Gros Morne Corridor each year? If you operate motor coach tours, how many of your buses pass through the corridor each year?

4. ***This question is for tour and motor coach operators.*** What is the average number of individuals present in your vehicle when you drive through the Deer Lake to Gros Morne Corridor?

5. What seasons do your clients travel via these routes? Circle all that apply.

Spring Summer Fall Winter

6. How many weeks of the year do your clients travel through the Deer Lake to Gros Morne Corridor via these routes?

A. 0 - 2 wks B. 2 - 4 wks C. 4 - 8 wks D. 8 - 16 wks E. 16 - 32 wks F. 32 +

Section 2. Scenic Importance

7. What are the main characteristics of the landscape that your clients value when traveling in the Deer Lake to Gros Morne Corridor?

8. What are some things that your clients dislike about the Deer Lake to Gros Morne Corridor?

9. What are some of the most scenic areas or notable features in the Deer Lake to Gros Morne Corridor (Use topographic map to identify them if it will help)?

10. Appendix A shows four groupings of photographs, all of which can be viewed when traveling on Routes 430 and 431 in the Deer Lake to Gros Morne Corridor. Please identify which of these groups of photographs are most significant to your clients when traveling in the corridor by ranking them 1 – 4 (1 being the most important to your clients aesthetically, and 4 being the least important to your clients aesthetically).

Group #1 _____
Group #2 _____
Group #3 _____
Group #4 _____

11. Appendix B shows ten individual photographs. Please *rate each photograph* from 1 – 15 (15 having a very high aesthetic value, and 1 having a very low aesthetic value).

Photo #1	_____	Photo #6	_____
Photo #2	_____	Photo #7	_____
Photo #3	_____	Photo #8	_____
Photo #4	_____	Photo #9	_____
Photo #5	_____	Photo #10	_____

12. Appendix C shows four groups of photographs. Within each group, *rate each photograph* from 1 – 15 (15 having a very high aesthetic value, and 1 having a very low aesthetic value).

Group #1

Picture #1	_____	Picture #3	_____
Picture #2	_____	Picture #4	_____

Group #2

Picture #1	_____	Picture #2	_____
------------	-------	------------	-------

Group #3

Picture #1	_____	Picture #2	_____
------------	-------	------------	-------

APPENDIX C

Survey for Geo-Referencing Tourism Values in Newfoundland

Company Name: _____
Name: _____

Survey #: _____
Date: _____

Section 1. Activity Information

This section of the survey is aimed at identifying the various ways in which you interact with the landscape. You will be asked to identify the specific activities in which your company participates. Please refer to Table 1 on page 3 in conjunction with the questions below to complete this section.

1. In Table 1, indicate which of the activities listed in column 2, that your company participates in (please identify any that your company has participated in within the last 3 years). Please check all that apply in column 2. If there are any activities that are not listed in Table 1, please specify in column 2 next to 'other'.
2. For each activity identified in Question #1, indicate in which season(s) you perform the activity based on the following:

SP	Spring
S	Summer
F	Fall
W	Winter
A	All Year

Place the appropriate code in column 3 of Table 1. Please indicate all that apply.

3. For each activity identified in Question #1, indicate how many weeks you perform the activity annually based on the following:

A. 0 - 2 wks B. 2 - 4 wks C. 4 - 8 wks D. 8 - 16 wks E. 16 - 32 wks F. 32 +

Place the appropriate letter in column 4 of Table 1.

Section 2. Impact of Various Land Uses

This section of the survey is aimed at identifying how various land uses and management techniques affect your activities within the forest. Please use Table 2 in conjunction with the questions below to complete this section.

4. Table 2 (page 4) identifies various land uses present in Western Newfoundland. For each of those listed in columns 3 – 10, indicate the effect that each has had upon your various activities

in the past (i.e. up to this point in time). Use the effect rating below. If there are any other land uses that affect each particular activity, please identify it below and provide the effect rating.

- 1 Land use has a **large positive effect** on this particular activity.
- 2 Land use has a **positive effect** on this particular activity.
- 3 Land use has **no effect** on this particular activity.
- 4 Land use has a **negative effect** on this particular activity.
- 5 Land use has a **large negative effect** on this particular activity.

Others: _____

Section 3. Landscape Characteristics and Aesthetic Values

This section of the survey is aimed at identifying the surrounding environmental characteristics that provide the location for your company to exist, as well as those characteristics that make your specific activities unique. Please refer to Table 3 in conjunction with the questions below to complete this section.

5. In Table 3 (page 5), indicate which characteristics about the forest or surrounding landscape make this area suitable for your activities by placing a check in columns 3 – 14 for each activity listed in Question #1. If there are any other landscape characteristics that are important to your activities, please list below, and indicate which activities these characteristics enhance.

Section 4. Mapping of Tourism Values

6. For all of the activities identified in Question #1, could you please identify on the topographic map the locations where these tourism activities take place on the landscape.

Table 1. Identification of various forest activities and their intensity and seasonal timing, as well as the type of road usage associated with each activity.

1	2	3	4
Map ID	Activity	Season	# of Weeks
	ATV Use		
	Snowmobiling		
	Snowshoeing		
	Hiking		
	Walking Trails		
	Berry Picking		
	Plant Viewing		
	Sight Seeing		
	Cross Country Skiing		
	Ski Touring		
	Downhill Skiing		
	Mountain Biking		
	GPS Adventures		
	Bird Watching		
	Dog Sledding		
	Rock Climbing		
	Caving		
	Camping		
	Lodging		
	Canoeing		
	Rafting		
	Moose Hunting		
	Bear Hunting		
	Small Game Hunting		
	Trapping		
	Duck Hunting		
	Bird Hunting		
	Salmon Fishing		
	Trout Fishing		
	Motorcycling		
	Motor Coaching		
	Horseback Riding		
	Geology		
	Photography Tours		
	Other: Specify _____		

Table 2. Current and potential impact of various forest land uses on your activities.

1	2	3	4	5	6	7	8	9	10
		Current Effect Of Land Use							
Map ID	Activity	Forest Harvesting	Aggregate Pits	Hydro Lines	Protected Areas	Domestic Harvesting	Developme	Road Building	Agriculture
	ATV Use								
	Snowmobiling								
	Snowshoeing								
	Hiking								
	Walking Trails								
	Berry Picking								
	Plant Viewing								
	Sight Seeing								
	Cross Country Skiing								
	Ski Touring								
	Downhill Skiing								
	Mountain Biking								
	GPS Adventures								
	Bird Watching								
	Dog Sledding								
	Rock Climbing								
	Caving								
	Camping								
	Lodging								
	Canoeing								
	Rafting								
	Moose Hunting								
	Bear Hunting								
	Small Game Hunting								
	Trapping								
	Duck Hunting								
	Bird Hunting								
	Salmon Fishing								
	Trout Fishing								
	Motorcycling								
	Motor Coaching								
	Horseback Riding								
	Geology								
	Photography Tours								
	Other:								
	Specify Values in the Deer								

Table 3. Important landscape characteristics for various forest activities.

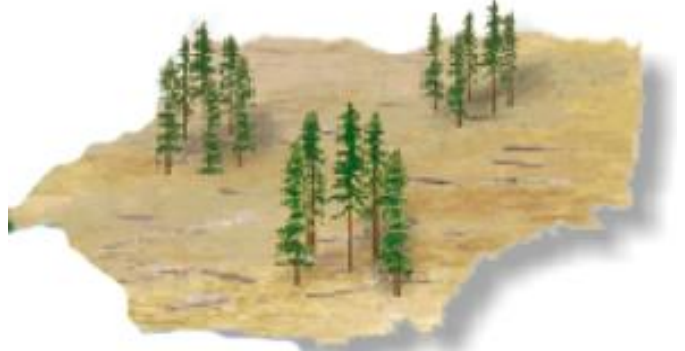
1	2	3	4	5	6	7	8	9	10	11	12	13	14
Map ID	Activity	Forest Age	Forest Vegetation Topography	Aesthetic Value	Access to Wildlife	Access to Fish Habitat	Access to Forest Water	Convenience (price, proximity)	Soil Type	Geographic Features	Unique Features		
	ATV Use												
	Snowmobiling												
	Snowshoeing												
	Hiking												
	Walking Trails												
	Berry Picking												
	Plant Viewing												
	Sight Seeing												
	Cross Country Skiing												
	Ski Touring												
	Downhill Skiing												
	Mountain Biking												
	GPS Adventures												
	Bird Watching												
	Dog Sledding												
	Rock Climbing												
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	Trapping												
	Duck Hunting												
	Bird Hunting												
	Salmon Fishing												
	Trout Fishing												
	Motorcycling												
	Motor Coaching												
	Horseback Riding												
	Geology												
	Photography Tours												
	Other: Specify_____												
	Other: Specify_____												

APPENDIX D

A



B



C



D



E



F

