PROJECTED AREAS SELECTION AND THE LRMP PROCESS

by

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ABSTRACT

In 1992, a planning process was begun in British Columbia to develop regional land use plans. One component of the Land and Resource Management Planning (LRMP) process was the BC Protected Area Strategy (PAS). Its purpose was to recommend areas for protected area status. Within the LRMP process, both environmental and socio-economic criteria were considered in determining protected area recommendations. Specific research questions investigated in this project were: W*hat criteria were important in LRMP protected area selections; and, How did protected area decisions contribute to land use planning?* These research questions were investigated using a literature review of protected area selection methods and criteria, and with a mail-out survey to participants of four LRMP processes: Mackenzie, Okanagan-Shuswap, Cassiar-Iskut-Stikine and Kalum South. The research findings indicated the prominence of environmental criteria over social and economic criteria, and that the LRMP protected area selection process contributed positively to land use planning.

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My hope is that this study contributes toward empowering local communities, and strengthening people's relationship to the land.

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CHAPTER 1: INTRODUCTION

Protected areas can play important conservation, social and economic roles in regions and communities. While the conservation of ecological resources within protected areas is essential, the failure to integrate the concerns and needs of local populations living in proximity to such resources has led to adverse impacts on parks and economic hardship on communities. Taking into account the local social and cultural contexts of neighbouring communities in park creation is considered increasingly essential to the successful implementation of conservation measures and the long-term success of the park management initiatives (Fortin and Gagnon 1999; Rao and Geisler 1990; Wells 1996; Wells and Brandon 1992). Park management agencies are beginning to recognize the importance of integrating the needs of local communities into park development and management programs. Instead of a narrow, inwardly focussed mandate, park agencies are beginning to integrate their planning within the landscapes or regions in which such protected areas are located (Summers and Field 2000; Tacconi 2000; Stevens 1997).

While the importance of protected areas for community development is recognized, little research has been done on the development of relevant social and economic criteria for the selection of protected areas. There is also a lack of research on the impacts of protected area decisions on broader land use decisions (Fortin and Gagnon 1999). According to many authors, there is a need for research on the social and economic roles of protected areas and their function in broader land use planning (Stoll-Kleemann 2001; Achana and O'Leary 2000; Fortin and Gagnon 1999; Solecki 1994; Rao and Geisler 1990). This research project looks at decision-making criteria for designating

protected areas within the land use decision making processes in the province of British Columbia.

1.1 Research Context: Protected Area Selection in BC

The first protected areas in British Columbia's were Glacier and Yoho National Parks. They were designated by the federal government to attract tourism, settlement and business investment such as railroads (Dearden and Rollins 1993). Strathcona Provincial Park was the first provincial park in BC. It was dedicated in 1911. By the late 1930s and 1940s, provincial objectives for park designation changed from aiming to attract tourists to view panoramic vistas, to also accommodating commercial interests such as mining and hydro dam development (Paquet 1990).

Greater mobility of people in private automobiles during the 1950s spurred a demand for roadside parks and destination campgrounds. By 1969 the number of B.C. provincial parks increased to about 340. Park expansion reflected both the greater interest in outdoor recreation destinations and the improved highway access to more remote areas in the province (Dearden and Rollins 1993).

In the 1970s greater environmental awareness and the belief that threatened wilderness areas needed to be preserved, brought about the creation of larger provincial parks in more remote areas. Spurred on by Brundtland Commission (The World Commission on Environment and Development 1987), park agencies began to realize that some park uses, such as mining, and all-terrain vehicle use, were unsuitable activities in natural areas. At the same time concern was growing to protect intact natural systems, using the ecosystem management approach (Dearden 1991).

In British Columbia, *Parks Plan 90* became the new blueprint for protected area designation in the early 1990s. The BC Government document, *Special Features for BC Parks* (Ministry of Parks 1990), identified special geophysical, biological and cultural features in BC, many of which were not already designated as parks or protected areas. Landscapes for BC Parks (Ministry of Parks 1990) described the 59 landscapes of BC, 27 with partial representation and 15 with no representation in the BC Park system (Ministry of Parks 1990). The intent of these documents was to recommend sensitive environments that should be considered priorities in the province's protected area designation program. In recognition of this situation, the BC government began designating protected areas as part of a larger land allocation process called the Land and Resource Management Process (LRMP).

In the 1970s and 1980s land use planning in BC was characterized by resource sector conflicts and growing concerns about economic diversification, environmental protection and sustainable development (Pierce Lefebvre Consulting 2001). Commencing in 1992, the LRMP process, more recently known as Strategic Land Use Planning (SLUP), integrated many aspects of land use planning including protected area designations to help reduce conflict and uncertainty in future land use allocations. It did this in order to develop more comprehensive and enduring solutions for the well-being of B.C.'s economy, environment and communities (Brown 1996).

One component of the strategic Land and Resource Management Planning (LRMP) process was the planning and implementation of a protected areas strategy. In 1992, through its Protected Areas Strategy (PAS), the BC Government made a commitment to increase the total land allocation for protected areas from 6% to 12% by

the year 2000. By 2003, 73% of BC regions had completed LRMPs and 12.95% (~12.2 million hectares) of provincial lands were placed in protected area status (Government of British Columbia 2004).

The purpose of protected area designation was to protect unique ecosystems and cultural heritage, provide recreation and to contribute toward the long-term growth of BC's tourism industry and thus, the diversification of the BC economy. The designation of these areas was based on their ability to achieve specific goals or criteria associated with the PAS. These included:

- Goal 1 – how representativeness of the province these areas were, and,
- Goal 2 – whether they included special natural, cultural and recreation features of the province (Province of British Columbia 1993a).

These goals also incorporated some ecological and socio-economic criteria. Those areas not immediately designated via the PAS Strategy were subsequently identified as candidate areas for protected area consideration under LRMP processes. Within each regional LRMP process, further assessment was done to determine protected area candidates that were then recommended for Cabinet approval.

This research paper investigated what criteria were used for protected area selection in BC's LRMP process. Particular focus was placed on examining the role of social and economic criteria in relation to environmental criteria.

1.2 Purpose and Objectives of the Research

The overriding research questions of this project were, W*hat criteria were important in the selection of protected areas in LRMP processes; and, How did protected area decisions contribute to LRMP land use planning?*

1.3 Methods

More specific research questions were developed to investigate this theme. A summary of these questions and their associated research methods follows.

1) What criteria are important in the selection of protected areas?

This study investigated protected area definitions and roles. The history of park designation in North America and British Columbia provided a context for the research. Case studies of recognized methods and criteria for identifying protected areas were presented. The literature review also established the relevance of socio-economic factors in protected area selection. This review was used to help develop a list of generic environmental, social and economic criteria for protected area selection, which were tested with LRMP participants using a mail-out survey.

2) What criteria were important in determining protected areas within the LRMP process?

A content analysis of criteria for park selection expressed in BC's completed LRMPs was conducted and compared with the criteria developed from the literature. A self-administered mail-out survey of selected LRMP participant groups was conducted to determine what generic criteria were considered to be important in protected area

selection, and what criteria were actually used in selecting protected areas within the LRMPs.

3) *How important were LRMP management objectives in the selection of protected areas?*

At the beginning of each LRMP planning process, management objectives were developed to guide LRMP participants in the process of building and assessing land use and resource management scenarios. A content analysis of LRMP management plans was conducted to determine and summarize overriding management objectives from all 17 completed LRMPs. Survey respondents were asked how important they thought a series of 11 management objectives were in the selection of protected areas within the LRMP processes in which they participated.

4) *How important were protected areas in the fulfillment of LRMP land use objectives?*

Protected area designations can also influence decisions about other land uses within LRMPs. The study asked respondents how important protected areas were in fulfilling the same 11 management objectives listed in the previous section.

1.4 Research Paper Organization

The research paper is organized into six chapters. Chapter Two summarizes the knowledge from the literature on criteria for protected area selection and protected areas in land use planning. Chapter Three outlines the research design and methods. A description of findings from the self-administered survey is presented in Chapter Four and Chapter Five focuses on a discussion of management implications of the findings.

Chapter Six presents concluding answers to the initial research questions as well as recommendations for potential future research in this field of study.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

This chapter provides a literature review related to park and protected area selection methods. The specific objectives are to discuss:

- The history of park and protected area selection;
- Various jurisdictional approaches to protected area selection;
- Protected areas and their impacts on adjacent land uses; and,
- How socio-economic criteria can be used to aid in the selection of protected areas.

The results of this literature review were used to provide a framework for assessing how protected areas were selected and what environmental, social and economic selection criteria influenced the outcomes of LRMP development in BC.

2.2 History of Protected Area Selection

The practice of designating national parks and protected areas (PAs) has existed in North America for at least 130 years. During that period the principles and motivations behind protected area and park creation have evolved from providing protection for watersheds and scenic beauty to creating venues for recreation and tourism. The International Union for the Conservation of Nature (IUCN) defines a protected area as "an area of land and/or sea especially dedicated to the protection and maintenance of biological diversity, and of natural and associated cultural resources, and managed through legal or other effective means" (IUCN 1994 as in IUCN 1998 1).

The word "park" is derived from the Latin word *parricus,* meaning enclosure. Similarly, the term "reserve" emanates from the Latin *reservare,* meaning to save

(Ghimire and Pimbert 1997). Therefore, to protect an area from suffering environmental impacts from human use, it is necessary to save and enclose diverse and rare ecosystems. In this paper, the words "park" and "protected area" are used interchangeably. The IUCN definition of protected areas reveals not only the modern concerns and motivations to conserve biodiversity and resources, but also a history with roots in land use planning.

The historical motivations for selecting areas for protection reveal society's ever-shifting priorities. In the past, unique land areas were set apart for reasons of conservation and the social need for recreation. More than 2000 years ago the first protected forest areas were established, along with the first recorded game laws protecting certain species of mammals, birds and fish (Wright and Mattson 1996). Since at least the Norman times in England, leisure grounds, such as Sherwood Forest, were designated first for hunting by nobles and later for the recreation and enjoyment of all classes (Nelson 1993). During this period, the notion of parks as enclosures began to take the form we are familiar with today.

The idea of using park designations for conservation purposes, for example game reserves, was transferred to North America with the settlement of European aristocracy. Immigrant effort in this period was often directed at carving farms and settlements out of the wilderness (Nelson 1993). The attitude toward nature centred on the notion of nature as a savage wilderness that needed to be controlled. During this period in North America, parks were designated by governments to keep significant landscape features and resources from private ownership and exploitation (Nash 1967).

Parks were set aside for tourism as well as to protect such geologic and scenic wonders such as Yellowstone, Yosemite and Glacier. MacEwen and MacEwen (1982)

indicate that the driving force behind these designations was 'monumentalism not environmentalism'. Henneberger (1997) speculates that parks of that era grew out of nationalistic desire to have monuments established which were on par with European cathedrals and palaces. Canadian national park icons such as Banff, Jasper and Waterton were created for similar reasons. Here, recognition of the need to provide recreation and tourism destinations was perhaps a greater motivator than in the United States (Nelson 1993).

As settlement and development moved westward in North America, people in established societies of the eastern United States and European cities were changing their ideas about wilderness. The privileged classes began to admire romantic and untamed nature. Writers such as Henry David Thoreau and John Muir extolled the mystery and the romance of nature and the virtues of wilderness. This influence helped to shape attitudes of elite Americans toward valuing nature in its own right and instilled idealized concepts of wilderness (Nash 1967). The reasons for park creation gradually evolved from nationalism to conservation to environmentalism - protecting wilderness for its own sake.

Nelson and Sportza (2000) note that historically, the choice of PA sites was ad hoc and often based on utilitarian motivations of recreation or tourism potential, or because such areas often could not accommodate other land uses. More recently, biodiversity conservation has become an increasingly important goal in the establishment of PAs (Tacconi 2000). This involves a shift toward strategic environmental planning for entire regions, instead of traditional site-specific conservation (Owens and Cowell 2002). Zube (1989) notes two related changes taking place in the second century of park

designation. These are a broadened range of values associated with parks and an increased awareness of the relationships of parks with the surrounding landscape.

The following section identifies the motivations and processes for protected area selection used by three protected area agencies. The International Union for the Conservation of Nature (IUCN) assists jurisdictions around the globe in establishing protected areas with varying levels of conservation and human involvement. The second case study looks at how parks have been selected in the American National Parks Service, and the third case study explores park selection in the Canadian National Parks Service.

2.3 Protected Area Selection Case Studies

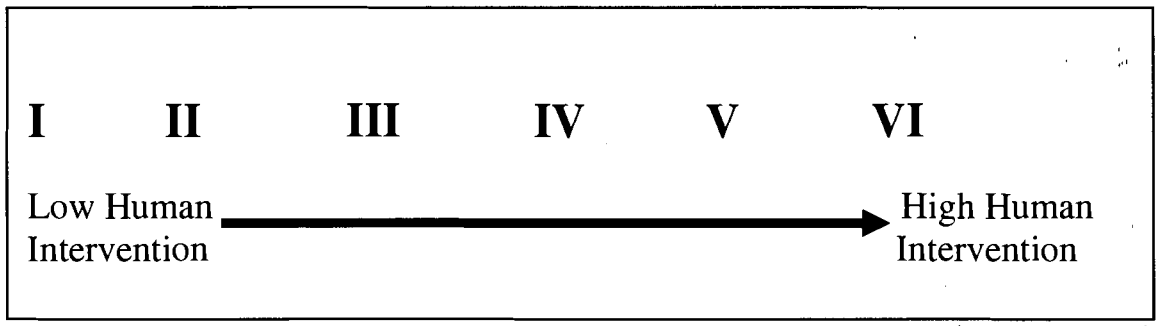
2.3.1 International Union for the Conservation of Nature (IUCN)

The International Union for the Conservation of Nature (IUCN) is a partnership of governments, agencies and non-government organizations (NGOs) that works together to conserve natural areas and to promote the sustainable use of natural resources (IUCN 1998). The IUCN developed a protected area categorization scheme that recognizes the need to involve local people in planning and management. The agency believes that local communities living in or adjoining protected areas should be considered as a special group in the establishment and management of protected areas. Protected areas cannot be separated from the need for local peoples to meet their goals for economic development and a better life (McNeely 1993).

The acknowledgement of human involvement in protected areas has led the IUCN to develop a spectrum of protected area designations. Strict protection of biological and

natural features are established under Categories I to III (Figure 2.1). Categories IV through VI allow some degree of human use and controlled exploitation (IUCN 1998). Many countries and agencies have adapted versions of the IUCN protected areas scheme.

Figure 2.1: Human Intervention by IUCN Category



(IUCN 1998 9)

While this IUCN scheme can be used to evaluate the status of existing parks, the organization has also provided guidance criteria for creating protected areas under these categories (Phillips and Harrison 1999). While ecological criteria are the most prominent, socio-economic criteria are also included. Below is a summary of the IUCN protected area categories with socio-economic criteria highlighted in italics (Figure 2.2).

Figure 2.2: IUCN Protected Area Categories

Category IA – Protected areas mainly for science

- The area should be significantly free of direct human intervention and capable of remaining so.

Category 1B – Protected areas managed mainly for wilderness protection

- Human disturbance substantially absent.
- *The area should offer outstanding opportunities for solitude, to be enjoyed, once the area has been reached, by simple, quiet, non-polluting and non-intrusive means of travel.*

Category II – Protected areas managed mainly for ecosystem protection and recreation

- *The area should contain a representative sample of major natural regions, features or scenery, where plant and animal species, habitats and geomorphological sites are of special spiritual, scientific, educational, recreation and tourist significance.*
- The area should contain one or more ecosystems not materially altered by current human occupation or exploitation.

Category III – Protected areas managed mainly for conservation of specific natural features

- *The area should contain natural sites which have heritage significance to indigenous peoples.*

Category IV– Protected areas managed mainly for conservation through management intervention

- *The area should provide maintenance of traditional practices such as mowing of reeds, hedgerow plantings.*

Category V – Protected areas managed mainly for landscape-seascape conservation and recreation

- *The area should provide manifestations of unique or traditional land-use patterns and social organizations, as evidenced by human settlements and local customs, livelihoods and beliefs.*
- *The area should provide opportunities for public enjoyment through recreation and tourism within its normal lifestyle and economic activities.*

Category VI – Protected areas managed mainly for sustainable use of natural ecosystems

- *The area should be large enough to absorb sustainable resource uses without detriment to its overall long term natural values.*

(Phillips and Harrison 1999)

2.3.2 National Park Service (NPS), USA

Although the National Park Service became an entity in 1919, the first U.S. park, Yosemite, was designated in 1864. This and other parks at the time were designated as spectacles of natural beauty. Their main role was to be a leisure ground for the benefit and enjoyment of the people. Altruism was combined with the desire for tourism profit. Railroads lobbied for the creation of many of the early parks and built grand hotels within their boundaries to lure travellers. In the late nineteenth century, entrepreneurs began emphasizing the economic value of parks as tourist destinations. By the 1930s the NPS also became involved with areas intended primarily for mass recreation (Mackintosh 1999).

Since 1864 the U.S. NPS has grown to include 384 protected areas under a range of categories such as: national monument, historic site and recreation areas (National Park Service 2002). Protected areas can be assigned to one of more than 20 separate designations. The NPS Management Policies outline the study process for considering new park proposals. According to the NPS, a new national park area must meet the following criteria:

1) Possess nationally significant natural, cultural, or recreational resources;
2) Be a feasible addition to the system; and,
3) Require direct NPS management instead of protection by some other government agency or by the private sector (National Park Service 2002).

A proposed protected area is considered nationally significant if it meets all four of the following requirements:

1) It is an outstanding example of a particular type of resource;

2) It possesses exceptional value or quality in illustrating or interpreting the natural or cultural themes of American heritage;
3) It offers unique opportunities for recreation, for public use and enjoyment, or for scientific study; and,
4) It retains a high degree of integrity as a relatively unspoiled example of the resource (National Park Service 2002).

Feasibility of the potential area refers to its ability to be of sufficient size and appropriate configuration to ensure the long-term protection of the resources and to accommodate public use. It must have potential for efficient administration at a reasonable cost. Major feasibility factors include land ownership, acquisition costs, access, threats to the resource, and staff or development requirements. Since the 1970s there has been additional priority placed on the economic potential of park designation (Rothman 2000).

Apart from the criteria for providing recreational resources, socio-economic criteria are not utilized explicitly in the NPS system. They appear to be covered implicitly in the feasibility phase through communication with other interested federal, state, and local agencies, aboriginal groups, and the public (National Park Service 2002).

2.3.3 Parks Canada

The rationale for creating Canadian national parks has evolved over time. Initially, parks were created in a non-systematic way by adding such areas when a feature or species needed protection. In other cases, they were designated to provide regional recreation sites, to create sanctuaries for wildlife, or to stimulate failing economies. Sometimes politicians arbitrarily chose the location of a new park. Jean Chrétien once

"circled a place on a map", after flying over the area with his wife. The area became designated Auyuittuq National Park, Baffin Island in the 1960s (Barrett 2003 47). Through the 1960s many communities protested park designations because they had little chance to provide input or were not fairly compensated for having their homes and lifestyles disrupted (Barrett 2003). Parks Canada realized it had to revise the way it planned its parks.

A systematic approach to park selection was developed in the early 1970s when Parks Canada divided the country into 39 natural regions, with the goal of establishing national parks in each of the regions (Natural Resources Canada 1998). While Canada's classification system of 39 natural regions is based on scientific analysis, the IUCN points out that it relies on the arbitrary or subjective choice of criteria. This arbitrary method of organizing parks may become redundant, if science in the future places greater emphasis on different aspects of the environment (IUCN 1998).

More extensive criteria have been considered over the last decade with the creation of the National Parks System Plan (NPSP). The NPSP uses a multi-criteria evaluation model for selecting among protected area candidates (Willison *et al.* 1992). New science-based objectives, such as the maintenance of ecological integrity, have evolved and are used as the basis for creating more protected areas, and for re-examining existing protected areas. At the present time, there are three main objectives in the creation and management of protected areas in Canada:

1) Representation of each of Canada's natural regions;
2) Preservation of biodiversity and, the more recent emphasis on the maintenance of ecological integrity; and,

3) Recognition that there are economic benefits associated with the presence of protected areas, including generation of income, jobs, growth and regional development; opportunities for ecotourism; and, the development of local infrastructure (Natural Resources Canada 1998).

Parks Canada uses a five-step process for designating parks (Figure 2.3). Steps 1 and 2 rely on science to identify areas, which are highly representative of the region's biophysical features and processes, where human impact is minimal, and where conflict with competing resource values, such as mining and forestry, is low. Parks Canada typically avoids (where feasible) areas with mineral or forestry development potential (Barrett 2003).

Figure 2.3: Stages in National Park Selection

1) Identifying representative natural areas;
2) Selecting a potential national park;
3) Assessing park feasibility;
4) Negotiating a park agreement and obtaining clear title; and,
5) Establishing a new national park in legislation.

(Willison *et al.* 1992)

Step 3 involves considering socio-economic factors through consultations with local stakeholders to resolve competing land and resource uses and to address long-term disruption of social and economic life. Adverse impacts on local peoples are often dealt with on an ad-hoc basis. Where there are potential park sites with competing uses, Parks Canada incorporates the views of interested parties in the decision-making process. Barrett (2003) says this is where the process tends to bog down. Some of the delays

between step 3 and 4 in negotiating park agreements can be attributed to the complex and time consuming negotiations with community groups, mining and forestry interests, different levels of government, non-government organizations and First Nations land claims (Barrett 2003). The final step is the establishment of the new park under legislation (Parks Canada 2002).

In October 2002 the federal government indicated that it planned to create ten new national parks and five new marine conservation areas over the next five years (Barrett 2003). With overlapping interests of resource companies, First Nations and communities in many of the park candidate areas, negotiations have become very complicated and time consuming. Barrett asserts that new approaches to park negotiations need to be found in order to create these areas in five years versus decades under the existing system.

The previous case studies from the IUCN, the U.S. Government and the Canadian government, indicate a similar pattern of park designation, initially for human interests such as tourism, then evolving into greater concern for conservation. This evolutionary pattern is largely brought on by increased human encroachment on such areas. All agencies indicate that there is a challenge in meeting both human and environmental needs within protected areas. Some agencies try to compensate by integrating more public input into the park selection process and associated management programs. The following section identifies some of the commonly identified protected area socio-economic roles.

2.4 Roles of Protected Areas

The most commonly cited social, ecological and economic values and functions of protected areas are summarized in Figure 2.4.

Figure 2.4: Values and Functions of Protected Areas

- *Life-Support Value* – Protecting oxygen/carbon cycle, watershed, erosion control
- *Scientific Value* – Understanding ecosystems, evolution, research
- *Genetic Diversity* – Preserving gene pools and natural selection
- *Aesthetic Value* – Protecting natural patterns, pristine landscapes
- *Cultural Symbolization* – Providing references for freedom, purity and strength
- *Historical Value* – Conserving past human activity and landscapes
- *Character-building Value* – Setting for challenge, adventure, self-reliance
- *Therapeutic Value* – Setting for recovery and psychological needs
- *Spiritual Value* – Recognizing the inspiration and relationship with the natural world
- *Intrinsic Value* – Ensuring the value of wild nature in and of itself, apart from humans
- *Recreational Value* – Providing opportunities for sports, skill development, fitness, challenge
- *Subsistence Value* – Recognizing indigenous reliance on native plants and animals
- *Market Value* – Generating income from commercial ventures associated with wilderness recreation, water, wildlife and mineral interests

(Adapted from Wallace *et al.* 1990; Lucas 1992; Nelson 1993; McTaggart-Cowan 1989; Tacconi 2000)

An emerging theme in the literature is the recognition that protected areas have economic values. Many authors (Rothman 2000; Ghimire and Pimbert 1997; Dearden 1995; Wells and Brandon 1992) have described positive impacts of protected areas at the local, regional and national levels. Rothman (2000) contends that historically, park creation has served as an important catalyst for regional and local economic development. It is also credited with transforming rural areas and small towns into 'gateways' for tourism and recreation. Parks have boosted local economies especially when traditional or historical economic endeavours cease to sustain communities (Ghimire and Pimbert 1997). Park designations have also brought such economic

improvements as employment opportunities, enhanced infrastructure and service industries (Parks Canada Agency 2000). The role of parks for gateway communities is discussed in more detail in the following section.

2.5 Protected Areas and Community Development: The Case of Gateway Communities

In many jurisdictions, parks and protected areas are becoming backyards for human settlement and recreation in the form of gateway communities. Machlis and Field (2000) define park gateway communities as the towns and cities that border public lands. Howe *et al.* (1997) describe gateway communities as the "portals to our most cherished landscapes". Communities adjacent to parks and wilderness areas are growing at rates two to three times faster than other non-metropolitan areas in North America (Wallace *et al.* 1990). Parks provide the venues for local development and rural revitalization and employment (Field 2000). They also maintain the environmental and resource capital that is essential to sustaining natural systems and healthy gateway communities.

For a gateway community, a park can be the economic engine that plays a dominant role in all aspects of community life (Machlis and Field 2000). Parks create transportation routes, energy grids, water and waste systems, housing needs, and business opportunities, all of which provide varying contributions to regional and local community development. Parks also provide local opportunities for environmental education, recreation and inspiration for local communities. According to Culbertson (1997), gateway communities can be considered the "relief valve" for protected areas because

they can take on more of the accommodation and service requirements of visitors to the area, as well as offer recreation opportunities that are not appropriate in the park.

In British Columbia the Parks and Backcountry Gateways Program was launched in October 1999, as a collaboration between the provincial government and rural communities. The program was aimed at coordinating development of the ecotourism sector through communities that were "gateways" to recreation opportunities (Ministry of Small Business, Tourism & Culture 1999). With the doubling of the protected area land base over the last decade, there was the potential for increased business and employment opportunities in communities near these parks. Some regional Land and Resource Management (LRMP) plans incorporated aspects of the Gateway Program into their strategies (Landfall Consultants 2001). The role of protected areas in land use planning is explored in the next section.

2.6 Protected Areas and Land Use Planning

Park planners are beginning to consider the importance of involving local stakeholders in protected area planning. This could be based on the recognition that neighbouring parkland has the potential to complement and contribute to the values and priorities of the community.

In the case of gateway communities, protected areas can offer higher value and longer lasting alternative land uses than conventional mining and forestry (Howe *et al.*1997). On the other hand, the creation of a protected area typically restricts or precludes a wide range of activities such as mining and mineral exploration, logging,

hunting and ranching because these activities can erode or compromise the ecological integrity of the park boundary (Natural Resources Canada 1998).

In some cases, the implementation of biologically-focused approaches to park designation have contributed to the cultural and socio-economic marginalization of people living within or close to protected areas (Achana and O'Leary 2000; Agrawal and Gibson 1999; Zube 1989; Stankey 1989). Protected area policies may be in conflict with communal land holdings, traditional practices or individual property rights (Brandon *et al.* 1998). The lack of integration of park planning and management with the economic and cultural lives of people living in local communities has resulted in financial hardships on some residential populations and even opposition to park creation (Bidol and Crowfoot 1991; Hough 1991). Negative reactions to protected area designations include organized opposition (Stoll-Kleemann 2001;Wells and Brandon 1992), poaching (Collin 1990), encroachment and environmental degradation by disaffected locals (Tacconi 2000; Wells 1996; Solecki 1994).

Agencies have attempted to address this issue through methods such as, a "fences and fines approach" (West 1991; Machlis and Tichnell 1985); the exclusion of resident peoples (Fletcher 1990; Stankey 1989; Zube 1989); and, the creation of strict regulations on local land use (Stoll-Kleemann 2001; Rao and Geisler 1990; Dudley *et al.* 1999). Machlis and Tichnell (1985) claim that this regulatory approach only heightens conflict between local communities and parks at both the park creation stage and with ongoing management.

Antagonistic relationships can occur between resource sectors and those wanting to establish protected areas (Barrett 2003). For instance, in efforts to create a national

park on Nunavut's northern Bathurst Island, conflict arose between mining interests, First Nations' and conservationists' concerns about caribou herd calving grounds. The parties determined after intense discussions to take a small area out of the park for mining interests, in exchange for a larger park area that would protect caribou lands. The problem was, as Barrett (2003) describes, that everyone was, "in their own little box trying to get their piece of the pie without talking to anyone else". What was needed was for all those interested parties to be included early in the park designation and planning process. Out of an atmosphere of commitment to the process, and empowerment of parties, creative solutions can be found. This spirit of collaboration helps to make parks work for communities.

2.7 The Role of Socio-Economic Criteria in Protected Area Planning

A solution to conflicting uses of the land base is for protected areas to play a greater socio-economic role in community development. Machlis and Field (2000) claim that the role of parks in community development has yet to be systematically defined or fully examined, and the impact of community development on parks has yet to be comprehensively explored. While there is a great deal of literature on community development, it largely ignores parks and other protected areas as engines of change in local economies or as elements of community development strategy (Rothman 2000). Also, existing research tends to concentrate on issues related to on-site recreation uses such as the analysis of activity preferences, participation levels, carrying capacity and user conflicts rather than on local community impacts (Achana and O'Leary, 2000). Machlis and Field (2000) assert that, while some research has gone into the threats to

park environments, little research has been linked to the socio-economic causes of park degradation, nor to the impacts of park designation on local people and community development strategies.

Stankey (1989) supports the view that, parks which are separate from the broader social fabric, are destined for failure. The recognition of a broader range of protected area values and functions has resulted in the examination of methods for incorporating more factors into park selection processes (Taconni 2000). This has led to the inclusion by some park agencies of social and economic criteria, in addition to environmental criteria for park site selection, by such agencies as the IUCN.

2.7.1 Definition of Criteria

Worboys defines criteria as, "attributes or standards that provide a basis for a value judgement of a resource's worth" (Worboys *et al.* 2001). Worboys goes on to state that a useful criterion will reflect a significant aspect of reserve selection, and will be measurable either in absolute terms or against some qualitative index.

Bos and Lockwood (1995 as in Lockwood *et al.* 1997), in a review of the literature, identified approximately 50 individual selection criteria used in protected area selection. Goldsmith (1991) found that some criteria were easily measured and precise (e.g., size, diversity), others were vague (e.g., naturalness), many were ecologically based (e.g., rarity, diversity), some were socially based (e.g., intrinsic appeal, recorded history), and others were difficult to define (e.g., naturalness, representativeness). However, it is largely agreed in the literature that the natural sciences contribute the most input into the

designation and planning stages of park creation (Achana and O'Leary 2000; La Pierre 1997; Lockwood *et al.* 1997; Gotmark and Nilsson 1992; Smith and Theberge 1986).

Smith and Theberge (1986), when reviewing 22 protected area evaluation methods, found that eight of the most regularly used criteria were constructed from biological principles. Similarly, Margules and Usher (1981) summarized nine studies and found that the four most widely used selection criteria had a biological basis. Social criteria, including human-influenced threats, landscape quality and aesthetics, recreation opportunities, educational value, research value and historical, cultural, archaeological value have received comparatively little attention in selection processes. According to Tacconi (2000), conservation initiatives have been criticized for their narrow focus on ecological values and a disregard for interactions between human populations and the natural environment.

The disregard for utilizing social criteria in protected area selection, according to Lockwood *et al.* (1997), is a response to the belief that only "objective" scientific criteria should be used to assess areas of potential conservation value. However, while a specific value of a candidate area may be determined objectively, inherently all value judgements are subjective in their final assessment (Lockwood *et al.* 1997). In other words, all assessments take place in a cultural, social, political, and intellectual context. Also, where two or more criteria are combined, the weighting and evaluation are subjectively judged, since there are no inherent evaluation methods embedded in the criteria (Lockwood *et al.* 1997).

Overall, the literature makes clear the importance of integrating social and economic criteria in selection processes. Linking local people with the successful

implementation of conservation initiatives shifts the focus from ecological criteria, as the sole basis of protected area creation, to the larger context beyond the park boundary. Integrative criteria place more emphasis on those who share a disproportionate cost of ecosystem conservation – local communities. As a result, many more jurisdictions and agencies are now integrating social and economic criteria into park selection processes. For instance, the IUCN has established clear park selection categories where human involvement is understood (IUCN 1994). However, the integration of social and economic criteria should be connected to the intended function of protected areas since some are managed to restrict use, while others are intended for more intensive use by local people and tourists.

2.8 A Framework of Socio-Economic Criteria for Protected Area Selection

A content analysis of the literature was compiled of social and economic criteria, as well as indicators and impacts associated with protected areas and park selection (Appendix A). The review was not limited to protected areas and parks in the developed world, since it was important that all relevant criteria be considered. Criteria were tabulated and assessed for relevance to protected area selection in British Columbia. Criteria were also modified to reflect desired outcomes as revealed in the literature. For example, many citations regarding maximum employment potential were worded as impacts and indicators (e.g., impact on employment or numbers of employed). The literature revealed that the desired outcome for these impacts and indicators was to maximize employment opportunities for local populations. Thus, the criterion was

worded to reflect this perspective. The frequency of each criterion in the literature was tabulated to indicate its prominence. A brief description of each criterion was included for clarification.

2.8.1 Social Criteria

A total of 28 independent social criteria were identified in the literature. The most frequently cited criterion was the impact that PA status would have on resource availability. The literature associated with both developing and developed world PAs discussed this impact. The desired outcome of PA selection is to minimise decreases in resource availability, particularly for local people.

While the purpose of PAs is to protect biodiversity, it is recognised in the literature, that PAs have significant social and economic value as tourist destinations (Tisdale and Roy 1998; McShane 1990). The literature frequently specifies the importance of regulated, or sustainably managed, tourism for the benefit of local peoples and protected habitats. To maximize tourism and recreation opportunities, a balance must be struck between visitor impacts, ecological sustainability and the priorities of local people (Boyd 2002).

The criterion, "maximize land availability and tenure", was frequently cited in relation to PAs in developing countries. While this criterion was frequently cited, it may have limited applicability to the context of British Columbia because most land is publicly owned. PA designations have frequently been the focus of conflict within communities in both the developed and developing worlds. While this situation was cited frequently in the literature, the elimination of conflict was not thought to be realistic.

However, by integrating local peoples in the park planning and selection process, conflicts between local peoples and park planning agencies may be reduced (Agrawal and Gibson 1999).

Protected area development often impacts the provision of adequate private/public local services and infrastructure. Protected area designations often result in increased use of local services and infrastructure. Therefore, because of increased demands, adequate local services and infrastructure should be provided (Branch and Ross 2000).

The literature reveals that PA designations often impact local peoples' values and attitudes. While the measure for this criterion remains unclear, it is, nevertheless, a major concern in the literature (Tisdale and Roy 1998). Overall, a large number of social criteria (28 in total) were identified. This is likely due to a complex array of social conditions in developing and developed countries.

2.8.2 Economic Criteria

Economic criteria were cited frequently but covered a more limited range of conditions than was the case for social criteria. For example, the criterion, "maximize employment potential", was commonly emphasized as a desired end for PA designation. This criterion can be easily evaluated utilizing census data (Marriott 1997). Maximizing the level and distribution of income, is also a common theme in the literature. The concern is not only to raise the level of income, but also to increase the equity within local communities (Boyd 2002; Schelhas 1992). Protected area designation and increased tourism activity have been cited as the causes of increased local property values

(Schelhas 1992; Woo 1991). This can take property ownership out of reach for local populations. Therefore, PA designation should recognize and seek to reduce this impact.

Coupled with this criterion, is the realization that increased tourism can also cause price inflation in local markets. This can result in goods and services becoming unaffordable to local people (Barrow 2000; Marriott 1997; Woo 1991). Protected area managers and planners should be aware of this potential when selecting PAs. Overall, economic criteria were focussed on the need for employment potential and lifestyle affordability as a result of protected area designation.

A final listing of the most often-mentioned social and economic criteria was developed for testing in a survey. In the next section, a review of the Protected Area Strategy (PAS) documents was conducted to determine if any of the social and economic criteria from the literature were emphasized in the pre-planning of protected area selection within the LRMP process.

2.9 A Review of Criteria for Protected Area Selection in BC

2.9.1 Protected Area Strategy (PAS)

2.9.1.1 Gap Analysis

In BC, prior to initiating an LRMP process, candidate protected areas or "study areas" were identified by a Regional Protected Area Team (RPAT), a team of government employees, mostly from the Parks Branch. The study areas were identified based on a "gap analysis" of land and resource inventory information (Province of British Columbia 1993b). The gap analysis measured potential areas against the two major protected area goals, representativeness and special features (Figure 2.5). Potential study

areas were those unique natural, cultural and recreation areas and features that filled the gaps in the existing protected area network. The gap analysis phase limited itself to conducting a broad inventory and description of other resource values, land uses and commitments in potential study areas. Socio-economic analysis was assumed to be carried out during the LRMP, before final recommendations went on to Cabinet.

Figure 2.5: Protected Area Strategy Goals

Goal 1 (Representativeness) Criteria

- Representativeness
- Degree of naturalness
- Viability
- Diversity
- Vulnerability
- Opportunity for public use and appreciation
- Opportunity for scientific research

Goal 2 (Special Features) Criteria

- Rarity, scarcity and uniqueness
- Diversity
- Vulnerability
- Opportunity for public use and appreciation
- Opportunity for scientific research
- Cultural heritage significance
- Ability to address public perceptions and demands

(Government of British Columbia 1993a)

2.9.1.2 PAS Protected Area Criteria

Goal 1 criteria cover the concept of representativeness, where representation of all the province's distinct geographical areas (i.e., ecoregion classification and biogeoclimatic ecosystem classification) is desired. Biophysical criteria are mainly used to identify Goal 1 candidates: *representativeness; degree of naturalness; viability;*

diversity; vulnerability. Socio-economic criteria for Goal 1 areas include: *opportunities for public use and appreciation; and, opportunities for scientific research* (Province of British Columbia 1993a).

The second PAS goal is to protect the special natural, cultural and recreation features of the province. Examples of natural features are unique landforms or biologically exceptional sites such as migratory breeding areas. Cultural features can include traditional use sites such as ritual bathing pools or other archaeological sites. Recreation features can include unique recreation features such as safe anchorages, and areas that meet outdoor recreation demands such as travel corridors and beaches. Criteria under this goal are both biophysical and socio-economic. The biophysical criteria include the rarity or uniqueness of the feature; viability; diversity; and vulnerability characteristics.

The socio-economic criteria covered under PAS are identified as: opportunity for public use and appreciation; opportunity for scientific research; cultural heritage significance; and, ability to address public perceptions and demands (Province of British Columbia 1993a). While socio-economic criteria are indicated for protected area selection, it appears that the criteria are very broad, and it is not clear how they are measured.

Areas identified by the RPAT teams went on to the Provincial Cabinet for approval under the status of "study area". After Cabinet approval, the study area would become subject to interim conservation management and relevant land use restrictions. These study areas became the basis of protected area selection within the larger LRMP process.

2.9.1.3 Multiple Accounts Analysis (MAA)

After verifying the validity of RPAT candidate protected areas, LRMP participants examined the protected area candidates within different land use scenarios (Table 2.1). With the assistance of technical analysis and government policy direction, LRMP participants used the Multiple Accounts Analysis (MAA) method to evaluate the potential social, economic and environmental impacts of the different land use scenarios.

MAA is a method of systematically organizing the range of implications in a way that helps participants assess and discuss the advantages and disadvantages of one scenario or arrangement of land uses, relative to another (Gunton 1991). The MAA organizes the implications of each scenario into a number of accounts, which typically include environmental, economic, and community/social accounts. In each account, the implications are described or assessed in quantitative terms (e.g., dollars, cubic meters, populations, jobs, size of habitat, etc.) or qualitative terms (e.g., descriptive test, ranking, significance ratings, etc.) (Brown 1996).

Table 2.1: Environmental and Socio-Economic Criteria Used in the MAA

Evaluation Account		Land Use Scenario A, B, C, etc.
Regional	*Economic Development*	• income/employment effects ($, person-years)
	Environmental Values	• resource use impacts (e.g., recreation days) • environmental values/attributes impacts
	Community Characteristics	• population impacts -service impacts -community goal impacts
	Specific Aboriginal Community Concerns	• commercial, traditional activity impacts (e.g., income, food harvest levels)
Provincial	*Economic Development*	• income/employment effects ($, person-years)
	Environmental Values	• resource use impacts (e.g., recreation days) • environmental values/attributes impacts
	Provincial Government Finances	• net revenue impacts (present value $)
	Economic Efficiency of Resource Use	• net benefits of resource use (present value $) • non-quantified effects

(Modified from Province of British Columbia 1993c)

After consideration of the study areas within the context of different land use scenarios and with public input, the LRMP participants forward their recommendations for protected area designations and other land uses to Cabinet for final approval (Province of British Columbia 1993c). Table 2.2 outlines the five steps of protected area selection.

Table 2.2: Socio-economic Assessment in the LRMP Process

Planning Steps	Socio-Economic Input to Planning
(pre-LRMP) RPAT identify study areas	Socio-economic indicators used to select PAs; Implications of PA designation studied
(within LRMP process) Preliminary Organization and Plan Initiation	Identify social and economic components of base case scenario
Information Assembly	Identify social and economic values and relevant issues in planning area
Scenario Development	Assess socio-economic implications of each management scenario under specific evaluation accounts (MAA)
(LRMP wrap up) Building an Agreement	Assess socio-economic implications of consensus management direction, final report

(Adapted from Province of British Columbia 1995)

The inclusion of a socio-economic evaluation phase in the LRMP process is a relatively recent development according to M. Coon, head of the provincial LRMP program (personal interview, June 18, 2002). Table 2.2 shows where socio-economic assessment fits into LRMP processes. The gap analysis includes some socio-economic criteria assessment in PA study area selection, in addition to investigating the social and economic implications of the study area designations. Within the LRMP, further socio-economic assessment is done with the use of a "base case scenario". This model identifies social and economic conditions in the area before any land use variables are applied, such as taking area out of resource extraction or park designation. The participants work through the social and economic implications of each land use scenario, as well as weighing management scenarios against the base case, to reach a consensus on

the best land use scenario for the local area. Once a consensus has been reached for a land use plan, further socio-economic assessment helps to identify potential impacts and implications for the planning area and the province. While socio-economic assessment is conducted at different stages in the LRMP process, it appears that social and economic criteria are not clearly utilized in the early phases of protected area selection (e.g., the PAS process).

2.9.2 Park Selection and Other Land Uses

A recent report, the *Socio-Economic Impact Assessment of the Provincial Government's Strategic Land Use Plans on Key Sectors in British Columbia* (Pierce Lefebvre Consulting 2001), examined the socio-economic affects of the final land use scenarios as a result of the LRMP processes. Socio-economic criteria were developed and used to assess impacts on the main industries in British Columbia: forestry, oil and gas, tourism and agriculture. The socio-economic impacts were not specific to parks, but were applied to all sectors.

The report findings indicated what effect protected areas had on other sectors. New PAs cover 7% of the B.C. land base, but only 4.9% of these areas were within high capability forest lands. For oil and gas, there was no impact on proven reserves, and limited impact on proven gas reserves. The main impact of PA designation was on potential gas reserves. From a mining perspective, Strategic Land Use Plans (SLUPs)[1] protected slightly fewer areas of high mineral potential and slightly more areas of

[1] In 2001, the BC government changed the name for land use management planning from LRMP to Strategic Land Use Planning or SLUP. Therefore the plans are now called SLUPs.

moderate potential metals. The SLUPs targeted regions with high existing tourism use. New PAs included 10.5% of existing use areas.

While these report results are useful for understanding impacts of the SLUPs for resource sectors, it appears that they do not explicitly deal with socio-economic impacts of parks as a land use.

2.10 Summary of Literature Review

This literature review began with the objective of discussing the history of protected area selection. This investigation revealed that protected areas have been designated for a variety of reasons throughout history. These range from the intentions of conservation and recreation, to protecting ecological diversity and most recently, the recognition of broader social and economic values. The review highlighted the general lack of integration of local people's needs in park designations. The second objective of the literature review was to determine what criteria were popularly used in park designation processes. It was found that PA selection was, and still is, dominated by biophysically-based criteria such as representativeness, rarity and diversity. However, many authors advocate the inclusion of socio-economic criteria into selection processes, especially where PAs have a social and economic role (e.g., tourism).

A survey of selected jurisdictions and their protected area selection processes revealed that socio-economic criteria are not fully integrated into the protected area selection processes of United States, Canada and British Columbia. Also, there is no apparent mechanism for weighting and combining the criteria for effective decision-making.

A content analysis of the existing literature revealed many social and economic criteria that might be applicable for protected area selection in British Columbia. However, no weighting and combining mechanisms were associated with these methods. The criteria identified can serve as a starting point in an investigation to determine their relative importance and to develop a weighting system. Through this investigation, land use planners can assess which socio-economic criteria appear to be relevant in protected area selection processes.

CHAPTER 3: RESEARCH METHODS

3.1 Rationale for Research Approach

This chapter describes the methods used to answer the research questions proposed in this study. The main research questions answered in this study were:

1) *What criteria are important in the selection of protected areas?*
2) *What criteria were important in determining protected areas within the LRMP process?*
3) *How important were LRMP management objectives in the selection of protected areas?*
4) *How important were protected areas in the fulfillment of LRMP land use objectives?*

The first research question was addressed in the preceding literature review. Case studies of protected area selections were examined to give context to protected area designation procedures and rationales in British Columbia. A literature review indicated generic ecological, social and economic criteria relevant to protected area selection processes. An analysis of selected LRMP documents revealed the process for selecting protected areas in British Columbia, and identified the main criteria used in these processes.

The remaining research questions examined the experiences of LRMP participant groups in protected area selection. This investigation involved the use of a self-administered survey comprised of closed and open-ended questions (Appendix B). The first section of the survey was structured to gather background information on the respondents. This helped to provide context for the responses and to uncover potential

bias patterns in their remarks. The next section asked respondents to rate the importance of several generic factors as potential criteria for protected area selection. These generic factors were derived from the literature review. Since respondents were involved in protected area selection through the LRMP process, it was valuable to assess the applied use of protected area criteria. Respondents were next asked to consider if any criteria, out of a list of 24 criteria identified from the literature, were important within their LRMP processes. Differences between criteria identified in the literature versus the criteria actually used in the LRMP process were examined.

The final section of the survey examined what overriding LRMP management objectives were important in the selection of protected areas. The intent was to determine how protected areas were valued within the larger land use goals of the LRMP process. The final component of this section of the survey explored how important protected area selections were in fulfilling the overall land use planning objectives of the LRMP.

3.2 Response Rates

In March and April of 2003, 170 surveys were sent out to participants in four out of the 22 LRMP groups: Cassiar-Iskut-Stikine, Kalum South, Mackenzie and the Okanagan-Shuswap. Five out of 46 respondents had involvement with other LRMP processes, specifically Kamloops, Kispiox, Lillooet and the North Coast (Table 3.1). Their individual scores were included in the results, based on the reasoning that they had been involved in similar protected area selection processes, and, therefore, their experiences would be relevant to this study.

Of 173 surveys initially mailed out, 39 were completed and returned resulting in a 23% response rate. A second mailing of the survey to two LRMP groups[2] yielded another 7 returns or 46 total returns, increasing the response rate to 27%. The sampling frame of 46 respondents was not large enough to be representative of all the LRMP groups or the larger British Columbia population as a whole. However, the sampling frame still provided pertinent feedback on protected area selection processes in the jurisdictions where they participated in the planning processes.

Table 3.1: Survey Response Rates

LRMP	1st Round Mailout	1st Round Returns	2nd Round Mailout	2nd Round Returns	Overall Returns	% of Total Returns
Cassiar-Iskut Stikine	69	9	60	3	12	26%
Kalum	27	13	14	3	16	34%
Mackenzie	5*	2			2	4%
Okanagan-Shuswap	72**	11			11	24%
Kamloops		2			2	4%
Lillooet		1			1	2%
North Coast		1		1	1	2%
TOTAL	**173*** **	**39**	**74**	**7**	**46**	**100%**

* Initial letter inviting participation was sent by Mackenzie representative to 53 participants. Five people asked to be sent the survey. Out of the five surveys sent out, two were returned.

** A representative sent the survey out to participants.

*** Three of the 173 were 'return to sender' resulting in the overall mailout total of 170

The highest response rate was from participants in the Kalum LRMP process (34% of the sample). There had been a direct mailing to this group and a reminder mailing to those who had not responded in the first round. The lowest overall response rate was from representatives of the Mackenzie LRMP group. The initial group of 53

[2] The researcher was allowed to contact only two of the four LRMP participant groups directly, therefore, a reminder mailing was sent out to the two groups for which the researcher had addresses (Kalum and Cassiar-Iskut-Stikine).

participants were sent a letter inviting them to participate. Five from this group indicated a desire to complete a survey, but only two individuals returned completed surveys.

3.3 Method for Literature Review

A literature review was conducted to identify the theory of park selection and the criteria for protected area selection in land use planning. The literature review revealed the prominence use of environmental criteria in protected area selection processes and the relative minor role that social and economic criteria played in these processes. The literature emphasized the need to include specific social and economic criteria into protected area selection processes. A list of relevant social and economic criteria for protected area selection was derived from the literature, and was compared with criteria developed in the Protected Area Strategy (Province of British Columbia 1993a). The final list of protected area criteria was derived from the literature and PAS, which would be tested in a survey of LRMP participants.

An overview of the LRMP protected area planning process was conducted. This helped in understanding how protected area selection criteria were determined. The overview also provided an understanding of what involvement LRMP participants had in protected area selection and the relevance of selection criteria.

In order to explore how protected areas affected other land use selections in the LRMP process, a list of the major land use management objectives for the LRMP process was developed from a content analysis of published final LRMP reports. This provided the background framework used to ask LRMP participants how they perceived protected area selections were fulfilling LRMP management objectives, and what effects they thought protected area designations had on other land use decisions.

3.4 Survey Design

A listing of 24 environmental, social and environmental protected area selection criteria formed the basis of a survey that was self-completed by a selection of LRMP participant groups from Cassiar-Iskut-Stikine, Kalum South, Mackenzie and the Okanagan-Shuswap LRMP processes.

A mail-back survey was the preferred research tool for the following reasons:

- Longer lists of questions such as those posed in this study are best handled in a survey instead of other research methods such as interviews;
- Surveys are time and cost effective in reaching a large number of respondents, especially if they are mailed out instead of conducted in-person;
- Surveys minimize interviewer bias and establish uniformity by asking a standard set of questions of all participants; and,
- Surveys can assure the anonymity of respondents if the survey is designed properly (Gliner & Morgan 2000; Palys 1992; Pizam 1987).

The mail-out survey package was comprised of:

Cover letter. A non-personalized cover letter was addressed to all LRMP participants indicating the purpose of the survey and the research project. The cover letter was signed by Dr. Peter Williams (supervisor) and Margaret Paridaen (the researcher). Simon Fraser University letterhead and the supervisor's signature were meant to lend credibility and formal university endorsement of the research project.

Participant profile sheet. Information on each participant was recorded on a participant profile sheet. This information verified their involvement in a particular LRMP region and provided their general perceptions of protected areas.

Survey. The five-page survey was comprised of four importance rating sections and six open-ended questions (Appendix B). A Likert scale of measurement was used by respondents to indicate their level of agreement with various statement lists. In this case, the scale required respondents to indicate their assessment of importance for each statement. The scale used five ordinal levels of importance categories, plus a check box to indicate NOT APPLICABLE or DON'T KNOW (Figure 3.1) for recording responses. Ratings were based on an ordinal measurement scale, i.e., from '1' - NOT AT ALL IMPORTANT, to '5' - VERY IMPORTANT (Palys 1992). A higher mean score was associated with a higher level of importance attributed to the statements.

The use of this extended scale allowed for a measure of the strength of opinion rather than just a simple binary "agree" versus "disagree" scale (Parfitt 1997). This scale was also useful in helping respondents deal with the lengthy list of statements examined.

Figure 3.1: Importance Rating Scale Used in the Survey

How important is each criterion in the selection of protected areas?	Not at all important	Not very important	Neutral	Important	Very important	N/A Don't know
1. Improve the standard of living for local people.	1	2	3	4	5	☐

At the end of each list section were one or two open-ended questions designed to further investigate the topics. Comments helped to characterize the answers recorded in the more structured and scaled questions.

The last step before distributing the survey was to secure ethics approval from the Simon Fraser University Office of Research Ethics. Approval to conduct the survey was granted on February 17, 2003.

3.5 Selection of Case Studies

3.5.1 Recent Experience

Several factors were considered in the selection of LRMP groups for this study. Contacting participants from LRMP processes that were long-finished posed problems, such as participants potentially having difficulty in recollecting detailed information from LRMP processes. In addition, participant lists from more dated LRMP processes were not necessarily current. To answer these challenges, only the most recently completed LRMPs were targeted for potential respondents.

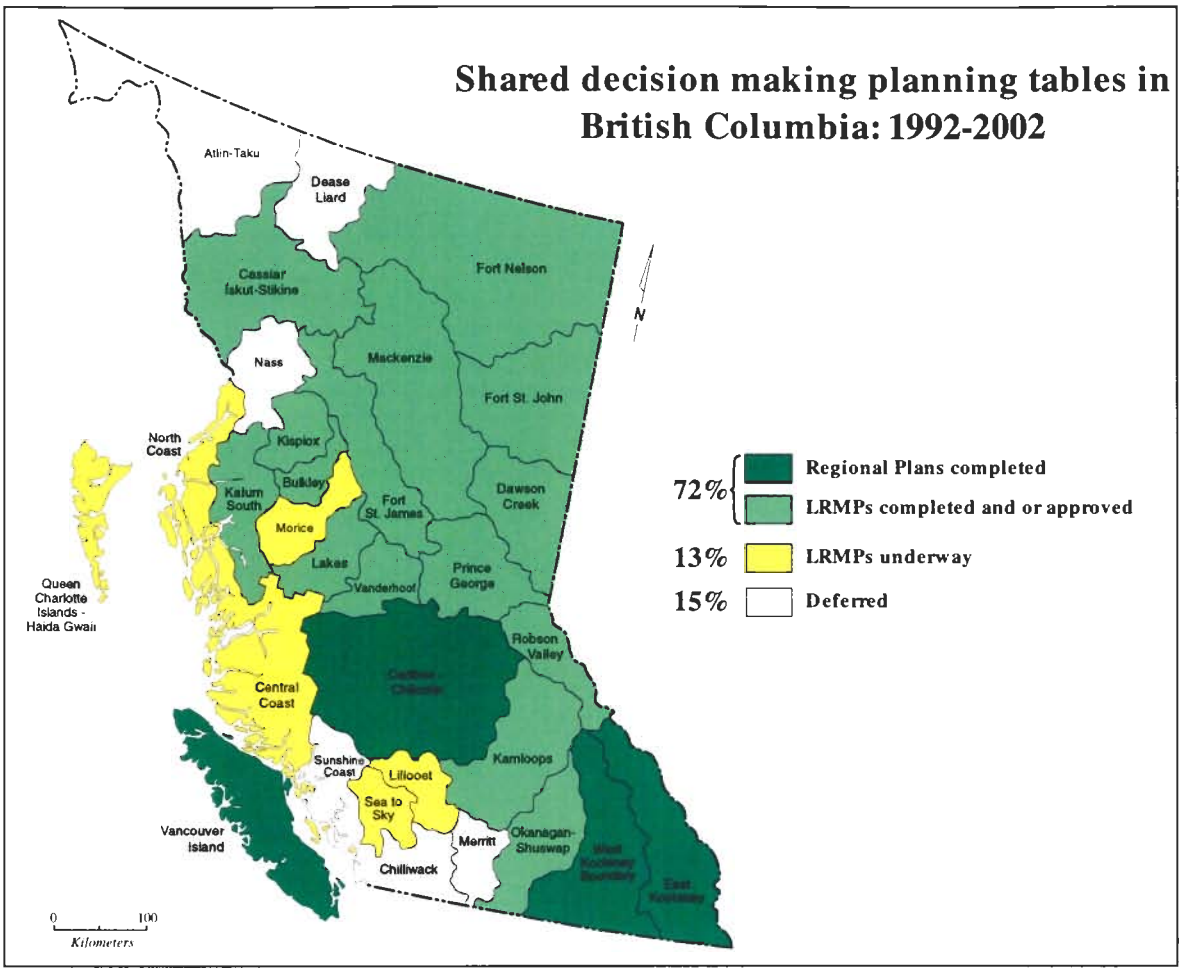
3.5.2 Respondent Fatigue

Another factor in contacting LRMP groups was the possibility of respondent fatigue. Most LRMP participant groups had been involved in at least three surveys in the recent past. Therefore, selection was limited to four LRMP groups that had been completed in 1999 and had not taken part in all of the preceding research surveys. The LRMP tables selected were Mackenzie, Cassiar-Iskut-Stikine, Okanagan-Shuswap and Kalum South (Figure 3.2).

3.5.3 Gateway Communities

These four LRMP areas shared the characteristic of being rural regions, with an interest in diversifying their economies. They were all in the vicinity of parks and had the potential to become gateway communities to such protected areas.

Figure 3.2: Location of LRMP Planning Areas (1992-2002)



(Adapted from Day 2004. Used by permission.)

3.6 Contacting Respondents

The coordinator for each LRMP group was first contacted in order to determine the willingness of their participants to be involved in the survey. The next task was to obtain current contact information and the appropriate protocol for contacting their participants. The researcher contacted Michael Coon, head of the provincial LRMP program, to find out if there existed policy on how participants were to be contacted. He informed the researcher that there was no set policy, but that each LRMP group determined its own protocol (M. Coon, personal interview, June 18, 2002).

Of the four LRMP groups, two coordinators provided their participant mailing lists directly to the researcher (Figure 3.3). The third group wanted the researcher to distribute an official letter from Simon Fraser University to participants to initially announce the survey, and subsequently, the coordinator would distribute the surveys to participants. The coordinator of the fourth LRMP group requested that a letter be drafted by the researcher (under the coordinator's letterhead), inviting participation in the survey. The coordinator would collect the names of those interested, and then would inform the researcher what individuals wished to receive a survey package.

Figure 3.3: Method of Contact

Kalum South – Direct mailing to participant list
Cassiar-Iskut-Stikine – Direct mailing to participant list
Okanagan-Shuswap – LRMP coordinator mailed out surveys to LRMP participant list
Mackenzie – LRMP coordinator invited participants to partake in survey. Direct mailout to interested individuals.

3.7 Respondent Backgrounds

The respondent profiles suggested a large representation from the tourism/conservation sector and a strong recreational use of parks and protected areas by these informants.

3.8 Confidentiality

Participant names were not entered on the surveys, nor were they reported in any documentation. Because of the small sample size and limited return rate, the responses of survey participants were presented collectively in the report to ensure that participant identities remained confidential (Gliner & Morgan 2000). This practice did not allow for

any analysis of responses by sector. After the study was completed, individual survey information and participant lists were destroyed. Participants were informed of the confidentiality provisions in the cover letter of the survey package. These confidentiality parameters were approved by the Simon Fraser University Office of Research Ethics, and permission was granted to conduct the survey.

3.9 Verification of the Research Project

Morse (2002) asserts that a researcher should move back and forth between research design and implementation in order to verify consistency among question development, theory development, sampling selection, data collection and analysis. By identifying and correcting errors before they undermine the analysis or the design, the researcher contributes to the rigor of the study. According to Yin (1994), two tests commonly used to establish the quality of a qualitative research project are validity and reliability.

3.9.1 Validity

Validity is looked at in three ways: construct validity, external validity and internal validity. The two aspects of validity that are relevant to this research project are construct validity and external validity. Internal validity is not relevant because this is not a causal study. Construct validity determines if the measurement tool, for example, an importance scale, is actually measuring what it is intending to measure (Palys 1992). The importance ranking of the protected area criteria section was asked in two slightly different ways. Each section was compared to the other to determine the consistency of

the importance rankings, (e.g. Did respondents consistently rank certain protected area criteria as more important than others?). As well, a full range of importance categories was provided, including the opportunity of a neutral response. This allowed participants to more accurately indicate their opinion on individual statements.

External validity relates to whether the findings can be generalized to other measures, populations or settings (Gliner and Morgan 2000). The results of this qualitative research project cannot be generalized to a greater population because of the small sample size. However, patterns and frequencies from the findings could be compared to trends indicated in the academic literature.

3.9.2 Reliability

Reliability of a research instrument addresses the issue of whether the research can be repeated with consistent results, provided that the object or attribute being measured has not changed considerably since the first measurement (Palys 1992). The sampling frame for this group was not large enough to be representative of the entire population of LRMP participants. Therefore, the repetition of the survey may not produce consistent results if repeated on the same LRMP groups or from one LRMP group to another. For example, the survey results from Mackenzie, a northern B.C. community, may differ from an LRMP group located near a larger urban centre.

3.10 Analysis of Survey Data

3.10.1 Importance Ratings

Findings from the survey were presented using descriptive statistics (i.e., response rates, frequencies and measures of mean response). Since the respondent group did not constitute a representative sample of a population, inferential statistics were not used. The analysis stage of the research involved examining response patterns and frequencies within the data set. The analysis also looked for areas of strong agreement on protected area criteria and LRMP management objectives that strongly impacted protected area establishment.

3.10.2 Consensus and Support

In addition to analyzing the results by importance rating and mean scores, the statements probed the strength of agreement between respondents for each question. A reporting of the mean scores reveals the potential problem of interpreting the cut-offs between importance categories, (i.e., What is the difference in score from important to very important, or, what is the importance rating when there are high responses in two categories?) There is also a problem understanding how to interpret the neutral scores, especially when there may also be high responses in a category adjacent to the neutral category, (e.g., Interpreting 12 responses in the NEUTRAL category and 14 responses in the IMPORTANT category).

A consensus framework developed by de Loë (1995), was used to address these concerns. The framework helped to determine the level and nature of consensus or

"group think". The system organized the ratings according to the level of consensus and support or opposition to statements. Consensus, according to the framework, was a measure of the degree to which the group agreed on the importance of statements. Table 3.1 illustrates the system used to summarize the ratings. The consensus framework was useful because it:

- Eliminated the arbitrary cut-offs between importance categories, thus reducing bias in evaluating the data;
- Provided an objective framework to consistently analyze the data;
- Dealt with consensus of the group, instead of only reporting high importance ratings;
- Provided another level of analysis which the ratings and mean scores fail to illustrate;
- Allowed a more meaningful examination of the importance scores, in order to compile a list of criteria that the group felt most strongly about. Mean scores, however, indicate the criteria only from highest to lowest average score, and do not indicate how the majority of the group felt about each statement.

The rule for consensus was that the more respondents that thought a particular way for a statement, the stronger the consensus. In other words, the degree of group unity of opinion or attitude was measured. The *Level of Overall Importance* or consensus categories were *High*, *Medium*, *Low* and *None* (Table 3.2). High consensus was achieved with at least 70% of respondents choosing one importance rating (e.g., IMPORTANT) or at least 80% of respondents choosing between two adjacent importance categories.

Table 3.2: Consensus Framework

High =	70% of ratings in 1 category or 80% in 2 related categories *
Medium =	60% of ratings in 1 category or 70% in 2 related categories
Low =	50% of ratings in 1 category or 60% in 2 related categories
None =	Less than 60% of ratings in 2 related categories

* Related categories are closest in attitude classification (e.g., IMPORTANT and VERY IMPORTANT; NOT AT ALL IMPORTANT and NOT VERY IMPORTANT)

(de Loë 1995)

Table 3.3 illustrates how the consensus framework determined the interpretation of consensus and support. The protected area selection criterion, *Represent unique ecosystems across the province,* had a mean importance score of 3.64, with over 40 respondents indicating this criterion was Important to Very Important. The high consensus rating (87%) indicated that over 80% of the respondents agreed that this criterion was Important to Very Important for protected area selection.

The *Support* category indicates the direction or character of the support. In this case, high consensus supported the criterion as IMPORTANT to VERY IMPORTANT. There can also be consensus for a lower importance rating, as seen with the criterion, *Provide a full range of backcountry recreation opportunities.* There was low consensus that the criterion was NEUTRAL to IMPORTANT.

Table 3.3: Sample of Data Analysis and Consensus Framework

Criteria for Protected Area Selection	*Importance Ratings By Respondent N=44-46, (excluding N/A, Don't Know)*					Mean Score (1-5)	Group Consensus	Support
	Not at All Important 1	Not Very Important 2	Neutral 3	Important 4	Very Important 5			
Increase employment opportunities for local people.	4	4	12	15	11	3.54	None	None
Provide a full range of backcountry recreation opportunities.	2	6	11	17	10	3.59	Low	Neutr.-Import.
Represent unique ecosystems across the province.	0	3	3	11	29	4.43	High	Import.-V. Import.

The consensus framework was also a useful instrument for dealing with neutral scores. By determining the direction of support, neutral scores could be shown to be leaning either toward greater or lesser importance. For example, the criterion, *Provide a full range of backcountry recreation opportunities,* had low consensus, with over 60% of respondents selecting between Neutral or Important ratings. When the categories selected are NEUTRAL to IMPORTANT, the majority of respondents were leaning toward the right of NEUTRAL.

The criterion, *Increase employment opportunities for local people*, illustrates the case of no consensus. The consensus rating of None indicated fewer than 60% of respondents chose across two adjacent importance categories. In this case, the respondent group had widespread opinion or was polarized on the importance of this criterion for protected area selection.

Overall, collated importance ratings, along with the direction of support, allowed for analysis of the group's assessment of the importance of criteria and statements. Using

the consensus framework, if a statement received a high importance rating and high group consensus, that item was considered important by the majority of the respondents.

The results to the open-ended questions and voluntary comments were reviewed to determine common themes. The themes were compared with the findings of the listed questions in order to observe similar or alternate views. Anonymous participant comments were extracted to illustrate the themes identified in the findings.

3.10.3 Discussion and Recommendations

As an outcome of the survey findings, management implications for future protected area selection processes were discussed. The conclusion section answered the initial research questions posed, and identified suggested areas for further research.

3.11 Strengths and Weaknesses of the Research Approach

3.11.1 Strengths

This research approach allowed for an investigation of social and economic criteria for park selection, using the LRMP protected area selection process as a case study. It did this through a literature review of generic protected area criteria, a content analysis of the literature for applicable social and economic criteria, as well as a comparison with the criteria used in the Protected area Strategy.

The use of a self-administered mail-out survey was both time and resource efficient, and allowed for the efficient testing of a smaller sample of LRMP participants. The return rate of 27% provided a large enough sample size for qualitative analysis of protected area selection criteria.

The use of a Likert scale was efficient for asking about the importance of listed questions. The consensus framework allowed for more meaningful and consistent interpretation of the importance ratings. It was also useful for dealing with the neutral category. The open-ended questions were useful in providing respondent clarification to the listed questions, and provided further insight into the LRMP process.

3.11.2 Weaknesses

3.11.2.1 Use of Survey as the Research Tool

Although the survey was a convenient inquiry tool, it was typical of similar studies, in that there was a lack of control over the research setting in which the questions were administered, versus the use of the interviewer to ask survey questions and document the responses (Gliner and Morgan 2000; Gliner 1987). Because the interview method places the interviewer present with the participant, it allows for clarification of questions and answers if necessary. The interview method would likely have given a higher and more controlled response rate. The response rate was low with the mail-out survey, especially when there was a multiple level process for participation in the survey. For instance, for the Mackenzie LRMP group, 70 participants were mailed letters of invitation to participate, and only five participants asked for surveys to be mailed directly to them. However, of those five interested in participating, only two sent completed surveys.

3.11.2.2 Survey Layout

The layout of the survey may have caused confusion with some respondents. The first two sections used the same protected area criteria lists but asked slightly different questions. The second half of the survey asked two different questions using the same list of management objectives. Respondents may have had difficulty distinguishing the question meanings in each section. As well, respondents may have experienced fatigue in working through four list sections.

Another issue involved the double-sided format of the survey. The four-page survey was sent out double-sided in order to save paper. This proved to be a problem when two faxed survey returns were missing pages. In order to get as complete as possible returns, it may be worth sending the survey out on single-sided paper in future studies of this type.

3.11.2.3 Use of Neutral Category

The neutral category proved not to be very useful, especially when there was the additional category of N/A; DON'T KNOW. It was difficult to determine any conclusions from neutral ratings, especially when a great percentage of responses were on either side of neutral. This difficulty was handled using the de Loë (1995) framework. It may have been more useful to require respondents to choose whether they agreed or disagreed with the importance statements, and only provide the N/A; DON'T KNOW as the neutral option (McNeice-Stallard 2003).

3.11.2.4 Spectrum of Importance

A review of criteria ratings and respondent comments revealed that the importance of criteria may have meant either, importance for promoting or restricting the designation of protected areas. By saying that an objective was ranked as important in protected area selection, may have meant that, in order to fulfill the economic objective, it was important not to designate certain protected areas. For example, the high ranking of *Long term supply of timber*, may have meant that, in order to ensure the long term supply of timber, it was important *not* to designate certain areas as protected.

On the other hand, it may be important to designate protected areas to ensure the viability of certain economies such as commercial guiding and trapping. What was not clear in the rankings is how participants saw protected areas accomplishing the different criteria. It may be implied that, where some participants considered certain criteria as important in designating protected areas, they meant that activities, such as logging and commercial guiding and hunting, could take place in protected areas in coordination with conservation and recreation. A future study of criteria for protected area selection could make clearer distinctions of respondent intentions.

CHAPTER 4: FINDINGS

4.1 Introduction

This chapter summarizes the results derived from a mail-out survey to participants in four Land and Resource Management Planning (LRMP) processes: Mackenzie, Okanagan-Shuswap, Cassiar-Iskut-Stikine (one group) and Kalum South.

4.2 Profile of Respondents

The participant profile section of the survey asked respondents to indicate what sector they represented at the regional LRMP process, their level of activity (recreation or otherwise) in provincial parks or protected areas, and the major land uses in their region.

4.2.1 LRMP Groups

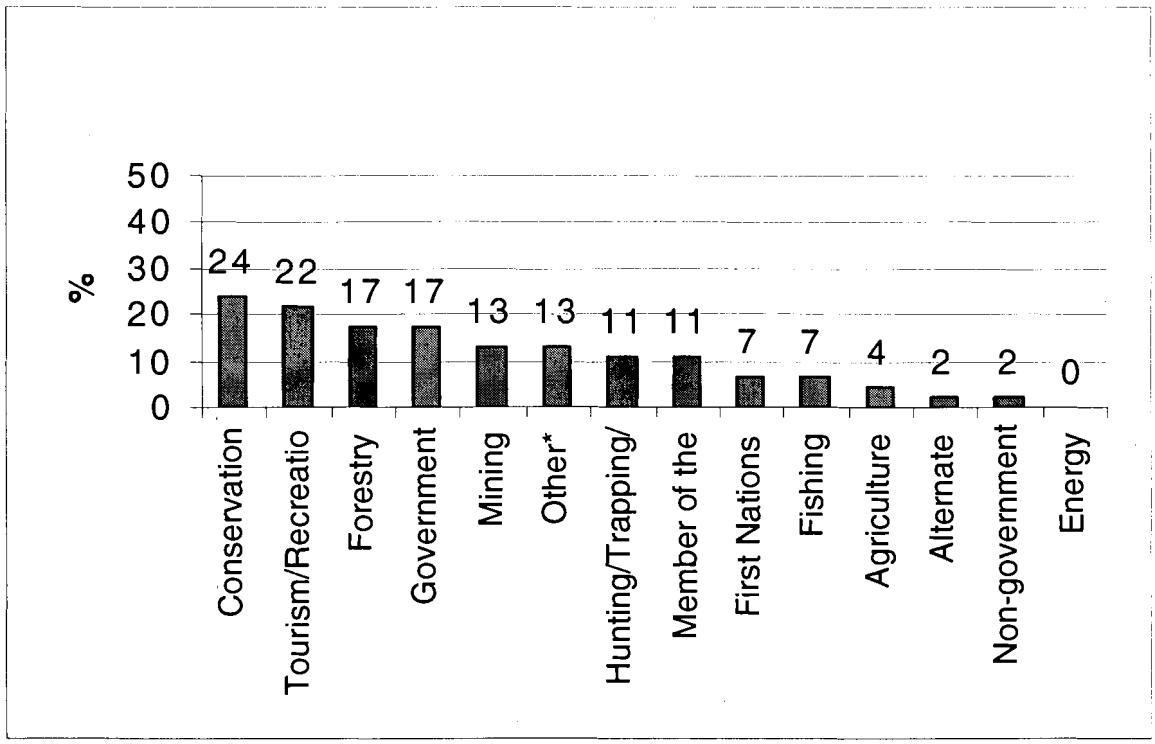
The largest response group was comprised of Kalum informants (16), followed by cohorts from the Cassiar-Iskut-Stikine and Okanagan-Shuswap LRMPs. Responses were also received from participants who were involved in other LRMP processes, i.e. Kamloops, Kispiox, Lillooet, Mackenzie and the North Coast.

4.2.2 Sector of Representation

Respondents were associated with a broad range of stakeholder groups. Overall, the largest representation was from conservation (24%), tourism/recreation (22%), government (17%) and forestry sector (17%) cohorts (Figure 4.1). Other respondents reported affiliations with specific interest groups such as Friends of the Stikine,

landowners, as well as municipal and regional district governments and the transportation sector.

Figure 4.1: Distribution of Respondents by Sector of Representation



4.2.3 Length of time in the Region

Over half of the respondents (63%) had lived in their LRMP region for over eleven years. Of this group, 17 (37%) had lived in the region for over 21years. Five of the respondents (11%) did not live in the region in which the planning process had occurred. However, they were included because, while they did not live in the region, they formally represented the interests of certain sectors within the area.

4.2.4 Meeting Attendance

The percentage of LRMP planning meetings attended was generally very high amongst the respondents. Almost two-thirds (64%) of the respondents attended between 90 to 100% of the LRMP meetings in their region. The overall average attendance rate was about 82%.

4.2.5 Use of Parks

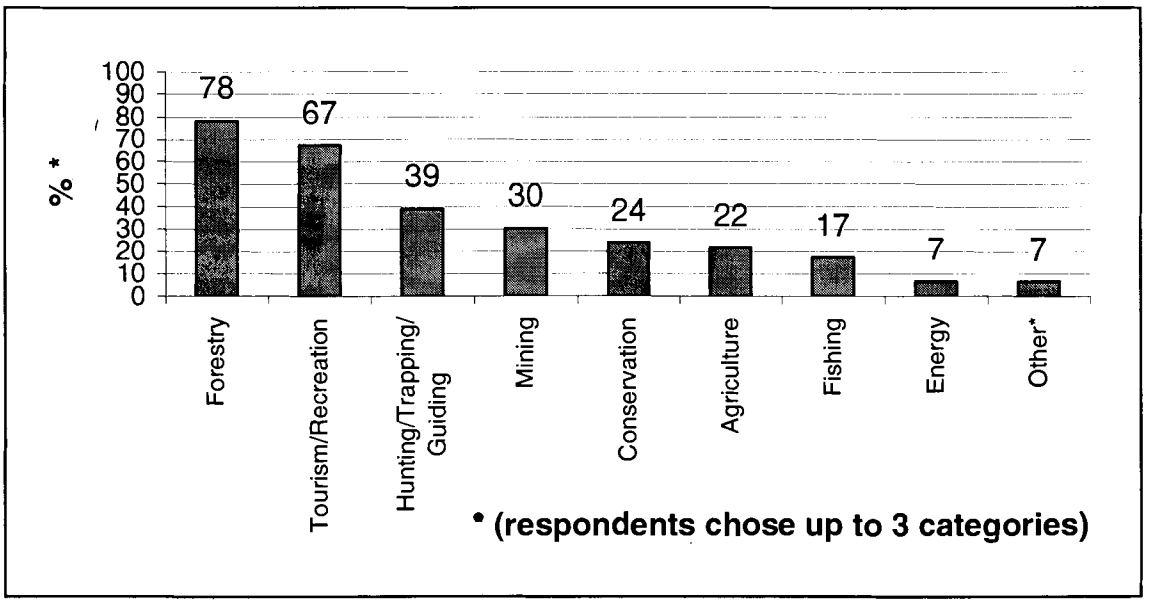
About a third (33%) of the respondents indicated they used parks 11 or more times annually for work or recreation purposes. The next largest response group (30%) said they used parks between 1 to 3 times per year.

4.2.6 Major Land Uses in the Region

The largest proportions of respondents were living in regions with forestry (78%), tourism and recreation (67%), and hunting/trapping/guiding (39%) as the dominant land uses (Figure 4.2)[3]. Other land uses reported by respondents included manufacturing and water protection.

[3] Because respondents were asked to choose three major land uses in their region, the total percentages of land use categories added up to over 100%.

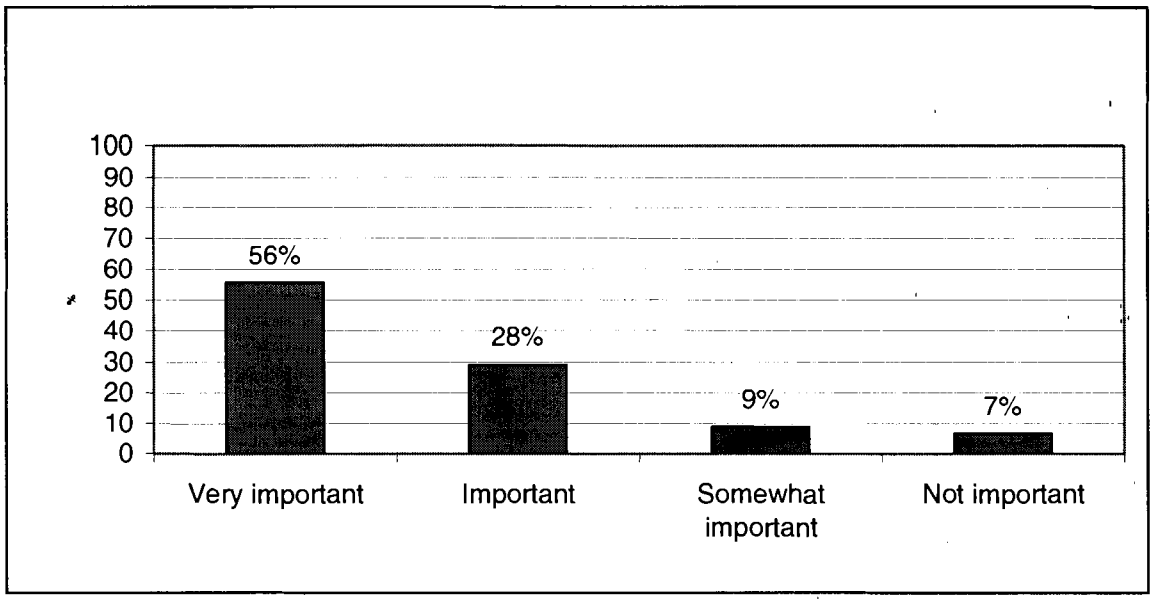
Figure 4.2: Major Land Uses in the Region



4.2.7 Importance of Parks and Protected Areas in the Development of LRMPs

Over 84% of the respondents indicated that the role of parks was IMPORTANT to VERY IMPORTANT in the development of BC LRMPs (Figure 4.3). Conversely, 16% of respondents felt that the role of protected areas and parks was Somewhat Important to Not Important in the development of LRMPs. The perceived role of parks and protected areas for the development of BC LRMPs was explored in more detail with open-ended questions about the impact of protected area designation upon sectors.

Figure 4.3: Importance of Parks for LRMPs

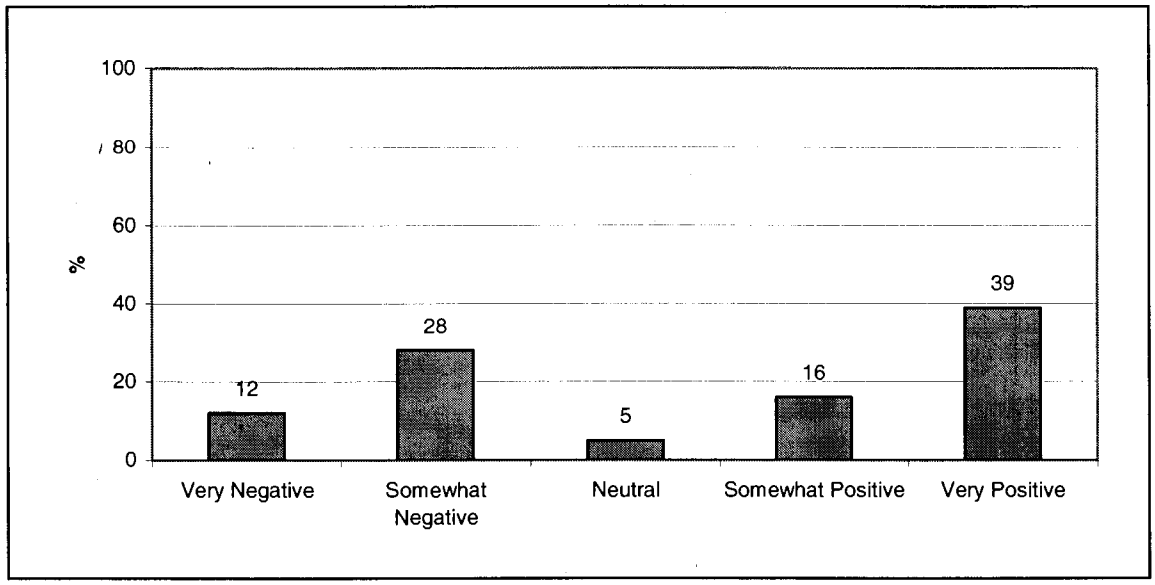


4.2.8 Impact of Parks and Protected Area Designation on Sectors

Respondents were asked their opinions about how the designation of protected areas affected the sectors in which they worked or represented[3]. They revealed a polarity of opinion. Over half (56%) of the respondents indicated that protected area designations had a SOMEWHAT POSITIVE to VERY POSITIVE impact on their sector's activities. However, 40% of the respondents indicated park designation had a SOMEWHAT NEGATIVE or VERY NEGATIVE impact on the sector they represented (Figure 4.4).

[3] The data analysis did not break out data by sector, therefore, it was not possible to make comment on impacts to specific sectors.

Figure 4.4: Impact of Protected Area Designation upon Sector



4.2.9 Types of Impacts of Parks and Protected Areas

Respondents were asked to describe the types of impacts that had occurred in their region because of protected area designation. Close to half (41%) of the comments from respondents indicated that protected area designation provided positive impacts upon their sector. The remaining comments (59%) from respondents indicated negative impacts had occurred upon their sector.

4.2.9.1 Positive Impacts of Protected Areas

Examples of positive impacts of protected area designations were environmental protection, preservation of heritage and historical values and natural beauty. Some respondents (18%) commented that environmental protection, through park designation, had increased recreational opportunities and commercial business opportunities linked to such pursuits as eco-tourism and wildlife viewing. One individual commented that protected areas might increase pine mushroom habitat, which could provide commercial

benefit to the region. Many respondents (18%) commented that protected area designations would increase land use certainty and allow industry to plan for the future. For example, one respondent commented that, from a forestry perspective, "we now know where we can and where we can't harvest". Some forest sector respondents (8%) indicated that the protected area selection process had improved relations between sector stakeholders. In one respondent's words, "It made people more aware that forestry workers (logging) are environmentalists too."

4.2.9.2 Negative Impacts of Protected Areas

Just under half of the respondents (46%) expressed negative impacts associated with protected area designations. The most frequently indicated comment (20%) was that protected designations would restrict resource development, which would lead to reductions in the working land base. To some respondents, this meant a potential reduction in employment opportunities, and economic development. Some respondents argued that having more protected areas designated would also result in lost revenues for the province's resource industries. Respondents suggested that designated protected areas would provide only a few low paying jobs in comparison to more lucrative positions associated with other resource sectors.

Other respondents (13%) noted that protected area designations meant that too many restrictions would be placed on activities, such as hunting opportunities; trail development, cabin building and firewood cutting. Protected area designations were also seen as catalysts for more user fees, decreased access to traditional subsistence harvesting as well as limited traditional use of resources within park boundaries. Some respondents

(8%) also commented that the protected area designation processes were more political than scientific. The feeling was that such political biases would lead to greater mistrust and uncertainty for resource industry investors.

Other respondents (10%) commented that there was a lack of consultation with their sectors in the protected area selection and implementation process. Respondents representing First Nations, mining, forestry and even environmentalists expressed this viewpoint. Illustrating the tone of this perspective, one respondent commented that the LRMP process was, "run entirely on a protectionist agenda".

Collectively, while most respondents expressed the viewpoint that protected area designations played an important role in the development of their LRMPs, they were divided on whether the impacts were positive or negative for their sectors. Respondent views on protected areas were further revealed in the second part of the survey, in which respondents were asked to rate what generic criteria were important in the selection of protected areas.

4.3 Respondent Selection of Criteria for Protected Area Selection

4.3.1 Importance Ratings of Generic Protected Area Criteria

In this section of the study, participants were asked to rate the importance of 24 generic social, economic and environmental criteria potentially of value in designating protected areas. Overall, respondents considered environmental priorities to be the most important reason for protected area selection, followed by social criteria, then economic.

Mean importance rating scores (out of a maximum of 5), along with the Group Consensus (group's strength of support) and the Support Type (direction of support) for

each factor, were broken out for each of the protected area selection criterion (Table 4.1). On the whole, environmental factors received the highest average ratings (4.14 out of a possible importance score of 5) by respondents as being the most important for protected area selection. Social criteria received the next highest average ratings (3.61), followed by economic considerations with the lowest importance ratings on average (3.22).

Table 4.1: Perceived Importance of Protected Area Selection Criteria

GENERIC CRITERIA FOR PROTECTED AREA SELECTION	Mean Score (1 - 5)	* Group Consensus	Support Type
ENVIRONMENTAL CRITERIA	**4.14**		
Protect the most rare or unique features.	4.51	High	Important – Very Important
Represent unique ecosystems across the province.	4.43	High	Important – Very Important
Preserve areas large enough to protect the greatest diversity of ecological, cultural and recreational values.	4.26	High	Important – Very Important
Protect resources that are most threatened by human activities.	4.04	Medium	Important – Very Important
Protect areas with a minimal degree of human disturbance.	3.96	Medium	Important – Very Important
Increase scientific research.	3.64	High	Neutral – Important
SOCIAL CRITERIA	**3.61**		
Preserve a full range of cultural heritage values.	4.09	Medium	Important – Very Important
Preserve regional aesthetic qualities.	3.93	Medium	Important – Very Important
Increase the variety of recreation opportunities.	3.89	Low	Important – Very Important
Minimize negative impacts on traditional activities.	3.89	Medium	Important – Very Important
Increase compatibility with adjacent land uses.	3.85	Medium	Important – Very Important
Preserve community identity and values.	3.72	Medium	Important – Very Important
Provide a full range of backcountry recreation opportunities.	3.59	Low	Neutral – Important
Improve the standard of living for local people.	3.43	None	None
Increase education options.	3.37	Medium	Neutral – Important
Increase local infrastructure (e.g. housing, transit).	2.37	None	None
ECONOMIC CRITERIA	**3.22**		
Increase tourism business development opportunities.	3.73	None	None
Increase employment opportunities for local people.	3.54	None	None
Minimize increases in the cost of living for local people.	3.17	None	None
Increase local investment opportunities.	3.16	None	None
Maintain forest resource development and extraction options.	3.13	None	None
Increase average incomes for local populations.	3.11	None	None
Maintain options for mining development and extraction.	3.09	None	None
Maintain agricultural development options.	2.86	None	None

* **High** = 70% of ratings in 1 category or 80% in 2 related categories; **Medium** = 60% of ratings in 1 category or 70% in 2 related categories; **Low** = 50% of ratings in 1 category or 60% in 2 related categories; **None** = Less than 60% of ratings in 2 related categories

4.3.1.1 Environmental Criteria

Environmental criteria received the highest overall mean average rating of 4.14 (Table 4.2). The highest rated criteria in order were: *Protect the most rare or unique features* (4.51); *Representing unique ecosystems across the province* (4.43); and, *Preserving areas large enough to protect the greatest diversity of ecological, cultural and recreational values* (4.26). Environmental criteria also received the highest levels of consensus with over 80% of respondents indicating that these items were important to very important as factors in protected area selection processes.

Protect resources most threatened by human activities (4.04) was rated fifth in importance. Respondents expressed medium consensus on the importance of this criterion. *Increase scientific research* received the lowest rating (3.64) of all the environmental standards, ranking 13th (out of 24 criteria) in overall importance. Respondents expressed strong consensus that this value was NEUTRAL to IMPORTANT for protected area selection.

4.3.1.2 Social Criteria

The five top rated social themes contain strong elements of cultural, aesthetic and recreational focus. Specifically, the preservation of cultural and heritage values was rated as more important than many environmental values (4.03). *Community standard of living* (3.43), and, *Education opportunities* (3.37) factors were not rated as being especially important selection criteria.

While the remaining social priorities received relatively high importance ratings, one criterion, *Increasing local infrastructure* (2.37), received the lowest importance

rating out of all 24 criteria. Only medium or lower consensus was achieved amongst the respondents concerning the importance ratings of social priorities, indicating that there was less agreement on the value of social considerations than environmental criteria in protected area selection processes.

4.3.1.3 Economic Criteria

Economic criteria had the lowest average importance ratings (average 3.22). Only one criterion, *Increase tourism business development opportunities* (3.73), actually rated higher than the environmental factor, *Increase scientific research* (3.64). There was low consensus among respondents on the importance ratings of the economic criteria, indicating that respondents had wide-ranging opinions on the importance of economic priorities in protected area selection processes.

4.3.2 Respondent Concerns with Protected Area Selection Criteria

Respondents were asked if they had any comments about any of the generic protected area criteria in the list question. Some respondents (19%) suggested new or modified criteria that could be included in such selection processes. Some suggestions included:

- Protection of sensitive areas;
- Consideration of non-commercial and other timber values of forested landscapes;
- Opportunity to classify areas unique to the community; and,
- Community agreement on specific land uses.

4.4 Respondent Ratings of Criteria in LRMP Protected Area Selection

In the previous section, respondents were asked to rate the importance of generic protected area selection criteria. In the next part of the survey, respondents were asked to rank the importance of the criteria used in the selection of protected areas in the LRMP process that they participated in.

4.4.1 Environmental Criteria

When respondents were asked to rate selection standards based on their actual experiences within their respective LRMPs, respondents again rated environmental criteria higher than social and economic criteria for protected area selection (Table 4.2). The highest rated criteria in terms of overall importance were: *Represent unique ecosystems across the province* (4.35); *Preserve areas large enough to protect the greatest diversity of ecological, cultural and recreational values* (4.23). For both of these standards, respondents expressed high levels of consensus on the importance of these factors.

Other key factors identified as being highly important were: *Protect the most rare or unique features* (4.16); *Protect resources most threatened by human activities* (4.05); *Preserve regional aesthetic qualities* (4.02). Medium levels of consensus on the importance of the top three priorities were expressed. This demonstrates that the importance of environmental factors is undisputed in both generic and LRMP criteria selection settings, according to respondents. The dominant use of environmental criteria in the LRMP process is consistent with the emphasis on environmental values in protected area selection in the literature.

Table 4.2: Perceived Importance of Protected Area Selection Criteria in Specific LRMP Processes

CRITERIA FOR PROTECTED AREA SELECTION IN LRMPs	Mean Score (1 - 5)	* Group Consensus	Support Type
ENVIRONMENTAL CRITERIA	**3.96**		
Represent unique ecosystems across the province.	4.35	High	Important -\ Very Important
Preserve areas large enough to protect the greatest diversity of ecological, cultural and recreational values.	4.23	High	Important -\ Very Important
Protect the most rare or unique features.	4.16	Medium	Important -\ Very Important
Protect resources that are most threatened by human activities.	4.05	Medium	Important -\ Very Important
Protect areas with a minimal degree of human disturbance.	4.00	Medium	Important -\ Very Important
Increase scientific research.	2.98	Low	Neutral = Important
SOCIAL CRITERIA	**3.25**		
Preserve regional aesthetic qualities.	4.02	Medium	Important -\ Very Important
Preserve a full range of cultural heritage values.	3.90	Low	Important -\ Very Important.
Provide a full range of backcountry recreation opportunities.	3.77	Medium	Neutral – Important
Increase the variety of recreation opportunities.	3.60	Low	Neutral – Important
Minimize negative impacts on traditional activities.	3.60	None	None
Preserve community identity and values.	3.21	Low	Neutral – Important
Increase compatibility with adjacent land uses.	3.17	None	None
Increase education options.	2.66	None	None
Improve the standard of living for local people.	2.61	None	None
Increase local infrastructure.	2.00	Low	Not at All Important – Not Very Important
ECONOMIC CRITERIA	**2.76**		
Increase tourism business development opportunities.	3.67	Medium	Neutral – Important
Maintain forest resource development and extraction options.	3.14	None	None
Increase employment opportunities for local people.	2.77	None	None
Maintain options for mining development and extraction.	2.71	None	None
Maintain agricultural development options.	2.62	None	None
Increase local investment opportunities.	2.51	None	None
Minimize increases in the cost of living for local people.	2.36	None	None
Increase average incomes for local populations.	2.33	None	None

* **High** = 70% of ratings in 1 category or 80% in 2 related categories; **Medium** = 60% of ratings in 1 category or 70% in 2 related categories; **Low** = 50% of ratings in 1 category or 60% in 2 related categories; **None** = Less than 60% of ratings in 2 related categories

4.4.2 Social Criteria

Overall, there was broad agreement that social priorities were relatively important in protected area selections in the LRMP process (Table 4.2). While the average ratings of social criteria (3.25) were not as high as environmental factors, several social criteria ranked close to environmental criteria in importance. Overall, somewhat similar selection factors emerged as being most important in generic and applied contexts such as, *cultural heritage values, aesthetic qualities, minimizing negative impacts on traditional activities,* and *variety of recreation opportunities.* As in the preceding section, *Increasing local infrastructure,* was considered to be the least important criterion (2.0). The top rated social criterion, *Preserve regional aesthetic qualities*, ranked above certain environmental criteria.

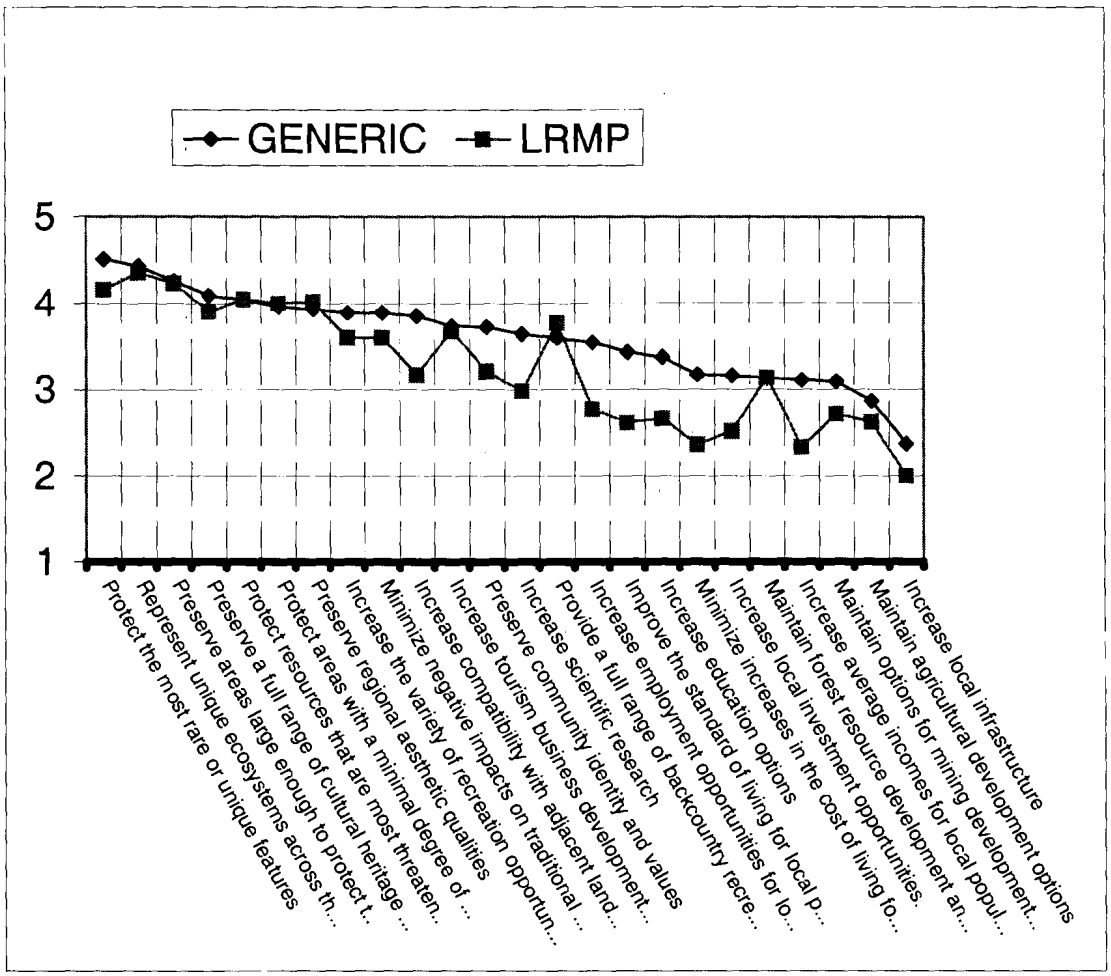
4.4.3 Economic Criteria

Economic priorities were predominantly clustered near the bottom of the importance ratings in the generic results. However, some of these criteria rose in importance in LRMP planning processes, i.e. *Increase tourism business development opportunities*, and, *Maintain forest resource development and extraction options*. The only similarly rated protected area considerations from the generic selection to the LRMP criteria selection were, *Increase tourism business development opportunities,* and, *Increase employment opportunities for local people.* Economic values that could have a social emphasis, such as *Improving the standard of living* (3.67), and, *Minimizing increases in the costs of living* (2.36), dropped dramatically in the LRMP application.

4.5 Comparison Between Generic Criteria Selection and LRMP Criteria Selection

A comparison of generic criteria deemed to be important in protected area selection, with those considerations actually cited to be important in practice in the LRMP, was revealing (Figure 4.5).

Figure 4.5: Comparison of Generic and LRMP Protected Area Criteria



Overall, environmental values were highly rated in both the generic and LRMP setting. However, social and economic value ratings were lower in the LRMP versus the

generic setting. Out of the 24 generic protected area criteria examined, 19 were cited as being of decreased importance to decision making in the LRMP. This marked decrease in importance ratings between the generic criteria selection and LRMP criteria selection demonstrates how the intent of planning processes can appear at odds with the outcomes. These results could indicate that many respondents valued protected areas for environmental or social reasons, over economic reasons. As well these lower economic results could indicate that, for example, resource extraction priorities were less realized than environmental priorities for the LRMP candidate protected areas.

4.6 Participant Listing of the Three Most Important Criteria

Respondents were asked, in an open-ended question, to record what they considered were the three most important criteria used in the LRMP protected area selection processes they experienced. The three top ranked criteria were all environmental. Overall, 53% of the informants indicated, *Preserve areas large enough to protect the greatest diversity of ecological, cultural and recreational values,* was the most important value for protected area selection in their region. The second most (26%) frequently mentioned important factor was; P*rotect the most rare or unique features.* A further 26% of the respondents indicated, *Representing unique ecosystems across the province*, was the third most important consideration used in the LRMP process. These rankings reinforce the findings in the preceding criteria rating exercise on the importance of environmental criteria.

4.7 Perceived Effect of LRMP Management Objectives on Protected Area Selection

Management objectives were developed within each LRMP region to guide planning groups in making decisions about land uses (including those associated with protected area selections). While each LRMP planning table developed a unique set of management objectives, there were common objectives established for all LRMPs. This study examined objectives that were common to many LRMP processes. In particular, the survey asked respondents to rate how important each general LRMP management objective was to the task of selecting protected areas.

4.7.1 Importance Ratings

The top three rated management objectives used to select protected areas were closely associated with social criteria (Table 4.3). More specifically, *Preservation of cultural heritage sites* (4.09), *Preservation of fish and wildlife populations as a sustainable resource for groups such as aboriginal, tourism and recreation* (4.09), and, *Avoiding infringement of aboriginal rights* (3.87), were deemed to be especially important to the selection of protected areas (Table 4.3). The high ranking of these socially oriented goals is notable, since the majority of management objectives had a distinctive economic focus.

The top two management objectives had high to medium levels of consensus, on their importance for guiding protected area selection. However, there was a low level of consensus on the importance of *Avoiding infringement of aboriginal rights* for protected area selection. The lowest rated management priority in terms of supporting protected

area designations was, *Opportunity for agricultural development* (2.14). A low level of consensus existed concerning the extent to which this focus was important for the selection of protected areas.

The three highest rated economic-oriented objectives in the consideration of protected areas were focused on timber supply, viable guiding and trapping and the development of local tourism opportunities. This pattern was also reflected in respondents' selection of protected area criteria, where social standards were generally rated higher than economic criteria.

Table 4.3: Perceived Importance of Management Objectives in Fulfilling Protected Area Selection

EFFECT OF LRMP MANAGEMENT OBJECTIVES ON PROTECTED AREA SELECTION	Mean Score (1 - 5)	* Group Consensus	Support Type
Preserve cultural heritage resources including archaeological sites, traditional use sites, trails, and structural features.	4.09	High	Important -\ Very Important
Preserve fish and wildlife populations as sustainable renewable resources for resident, aboriginal, commercial (e.g. trapping), tourism (e.g. guide outfitting) and recreational use (e.g. hunting and fishing).	4.09	Medium	Important -\ Very Important
Avoid infringement of aboriginal and treaty rights.	3.87	Low	Important -\ Very Important
Ensure a sustainable, long-term supply of timber.	3.80	Low	Important -\ Very Important
Ensure the viability of commercial guiding and trapping interests.	3.64	Medium	Neutral – Important
Promote development of locally based, sustainable tourism opportunities across the region (e.g. scenic potential of forest and other resource development areas).	3.36	None	None
Facilitate the development of partnerships between industry, community, and First Nations for a stable local economy.	3.30	None	None
Ensure access for subsurface resource exploration, development, processing and transportation	3.23	None	None
Increase opportunities for diversifying the forest industry (e.g. value-added manufacturing, diversified forest products such as mushrooms, medicinal plants).	2.89	None	None
Diversify employment opportunities in energy and mineral industries (e.g., alternative energy sources, value-added opportunities, recreational activities).	2.60	None	None
Provide opportunities for future agricultural development.	2.14	Low	Not at All Important - Not Very Important

* High = 70% of ratings in 1 category or 80% in 2 related categories; Medium = 60% of ratings in 1 category or 70% in 2 related categories; Low = 50% of ratings in 1 category or 60% in 2 related categories; None = Less than 60% of ratings in 2 related categories

4.7.2 Perceived Effect of 12% Protected Areas Guideline on LRMP Protected Areas Selection Process

Respondents were asked in an open-ended question to provide their opinions on the effect that the 12% protected area guideline had on the process of selecting protected areas within the LRMP. The majority (68%) of the respondents stated that the 12% guideline had a negative effect. About 15% of respondents suggested that the guideline was not appropriate for protected area selection, and the establishment of a quota limited the work of the LRMP participants to negotiate protected areas on their own merits. Two respondents (5%) were sceptical of the science behind setting the threshold of 12% parkland dedication and suggested it was an arbitrary standard.

Fifty one percent of the respondents stated that the 12% guideline was too high. Within this group, some informants commented that there was over 12% of the land base already dedicated to protected areas before their LRMP process was even started. They felt that the 12% guideline had led to an excess amount of land dedicated exclusively to park status. A smaller percentage of the respondents (7%) felt that the 12% protected area requirement was too limited. They felt that it resulted in the LRMP tables actually stopping when they achieved the minimum 12% protected area requirement, thereby leaving critical areas unprotected.

Many respondents (10%) indicated that they would have preferred the freedom to look at each potential protected area site and judge its appropriateness based on its own merits instead of having to reach an externally determined quota. This perspective was clearly expressed by one informant who commented that, "Many proposals were

unsuitable for one or several reasons and in the end I think we achieved about what we would have if there had been given a 'magic number'".

4.8 Perceived Effect of Protected Area Designations on Other Land Use Decisions

4.8.1 Importance Ratings

In this section of the survey, participants were asked how important they thought protected area designations were for accomplishing LRMP management objectives. While the last section focussed on how management objectives affected the selection of parks (i.e., pre-selection), this section assessed the impacts of the post-selection results, in terms of how the protected area selections helped to fulfil LRMP management goals. The premise for this part of the assessment was to establish how the protected area selection process contributed to the overall land use planning goals of the LRMP.

The findings indicated that protected area designations were viewed as important for fulfilling mainly social management priorities and the protection of sustainable forest and food resources (Table 4.4). Respondents rated, *Cultural heritage preservation* (3.95), as the management aspiration that was most assisted by such protected area designation. Medium consensus (over 60% of respondents) was reached, indicating that protected area designation was Important to Very Important for achieving the *Cultural heritage preservation* management priority.

The second highest rated management objective that was fulfilled by protected area designation was, *Preservation of fish and wildlife populations as sustainable resources* (3.93). A low consensus score indicated that fewer than 60% of respondents thought that protected area designation was Important to Very Important in achieving this

management objective. The third most important management aim that was fulfilled by protected area designation was, *Ensure a sustainable, long-term supply of timber* (3.63). This could mean that, by clearly establishing areas for protected areas and for forestry in the LRMP planning process, there is more certainty for the forestry industry in knowing where logging could take place and where it could not. Interestingly, this economically oriented objective was rated higher than, *Avoiding infringement of treaty rights* (3.55). The management targets that were considered by respondents to be the least fulfilled by protected area designation were, *Diversifying forest industries* (2.95), *Diversifying mining industries* (2.8), and, *Agricultural development* (2.21). There was no consensus on eight of the 11 objectives, indicating that the majority of respondents had wide ranging opinions on how protected areas accomplished overall LRMP land use goals.

One surprise was the drop in rating of the management priority, *Development of locally based sustainable tourism opportunities* (3.36). Respondents indicated that the development of sustainable tourism opportunities was a prime factor in selecting protected areas. However, respondents may have felt that tourism development was less accomplished in reality in the park selection exercise, than were other economic objectives such as the security of forestry and mining interests.

Table 4.4: Perceived Importance of Protected Areas in Fulfilling LRMP Management Objectives

EFFECT OF PROTECTED AREA DESIGNATION ON OTHER LAND DECISIONS	Mean Score (1 - 5)	* Group Consensus	Support Type
Preserve cultural heritage resources including archaeological sites, traditional use sites, trails, and structural features.	3.95	Medium	Important - Very Important
Preserve fish and wildlife populations as sustainable renewable resources for resident, aboriginal, commercial (e.g. trapping), tourism (e.g. guide outfitting) and recreational use (e.g. hunting and fishing).	3.93	Low	Important - Very Important
Ensure a sustainable, long-term supply of timber.	3.63	None	None
Avoid infringement of aboriginal and treaty rights.	3.55	None	None
Facilitate the development of partnerships between industry, community, and First Nations for a stable local economy.	3.31	None	None
Ensure the viability of commercial guiding and trapping interests.	3.24	Low	Neutral – Important
Ensure access for subsurface resource exploration, development, processing and transportation.	3.15	None	None
Promote development of locally based, sustainable tourism opportunities across the region (e.g. scenic potential of forest and other resource development areas).	3.15	None	None
Increase opportunities for diversifying the forest industry (e.g. value-added manufacturing, diversified forest products such as mushrooms, medicinal plants).	2.95	None	None
Diversify employment opportunities in energy and mineral industries (e.g., alternative energy sources, value-added opportunities, recreational activities).	2.80	None	None
Provide opportunities for future agricultural development.	2.21	None	None

* High = 70% of ratings in 1 category or 80% in 2 related categories; Medium = 60% of ratings in 1 category or 70% in 2 related categories; Low = 50% of ratings in 1 category or 60% in 2 related categories; None = Less than 60% of ratings in 2 related categories

4.8.2 Respondent Attitudes About the Effects of Protected Area Designations on Economic Development in Nearby Communities

Respondents were asked for their comments concerning the overall effects that protected area designations had on economic development in local communities. Their perspectives varied widely. Comment themes ranged from protected areas having clearly positive effects or decidedly negative effects on economic development.

Overall, 16 respondents (40%) stated that protected areas had overall positive effects on economic development. A similar proportion of informants (40%) expressed the opposite view. Proponents of park designations indicated that protected areas encouraged positive economic development in local communities through the:

- Provision of value-added and diversified economic activities leading to greater economic stability;
- Preservation of local jobs for future generations;
- Provision of land use certainty for resource users in various resource sectors leading to greater investment and long term planning (E.g. mineral access; timber supply areas);
- International recognition of BC's role in conservation and tourism;
- Promotion of recreation and backcountry economic development in areas unaltered by industrial activity; and,
- Reduction of conflict and greater communication between industrial sectors.

Those respondents not supporting the role of protected areas in facilitating economic development, suggested that such land use designations:

- Limited other forms of resource development (e.g., mining, forestry, tourism);
- Encouraged the creation of lower paid jobs in comparison to those offered by other resource sectors; and,

- Hindered other economic development opportunities due to the restrictions associated with land use in these protected areas.

4.8.3 Respondent Views on the Process for Selecting Protected Areas in the LRMP

Respondents were asked to comment on the effectiveness of protected area selection within the land use planning process in which they participated. Sixty three percent of respondent comments indicated the processes were not effective. Fifteen percent of respondents expressed that the overall protected area selection process was complex, laborious and contentious. They felt that it was sometimes impossible to work through the information, issues and people conflicts surrounding the process. On the positive side, 37% of informants expressed that the processes were effective. As one respondent put it, "the process was cooperative, even-handed, well-researched, well facilitated, inclusive, consensus based, considerate of all viewpoints and options". Comments were emphasized around the themes of sector representation and the scope of protected area selection criteria.

4.8.3.1 Sector Representation

Many respondents (20%) expressed concern about the imbalanced representation of stakeholder groups and the dominant influences of certain groups over the agenda and process. Diverse comments ranged from "protectionists" pushing only park issues, to the "deck being stacked with pro-mining or pro-forestry groups that had far more resources to be involved in the LRMP process than smaller interest groups." Several respondents also expressed concern that protected areas were being confirmed without consultation

with First Nations. Consultations were made more difficult because some First Nations groups chose not to be involved in the LRMP process. Overall, many respondents felt that imbalanced stakeholder representation and entrenchment of interest group positions contributed to a weak collaborative process and "contentious" consensus with respect to protected area selection processes.

4.8.3.2 Scope of Protected Area Selection Criteria

The other broad theme expressed by respondents concerned the criteria used for protected area selection. A couple of respondents emphasized their concern about the arbitrary nature of 12% protected areas as an overall target. Some felt that the whole LRMP process seemed to be biased toward creating more parks, instead of looking at such areas within a broader scenario of land uses. Some concerns were expressed that parks were selected to prevent resource development. Twenty percent of respondent comments suggested that the protected area selection criteria were biased toward environmental criteria without due consideration of the social and economic values of parks. This perspective was best illustrated by one respondent's comment that, "Most of the protected areas were chosen for their relative remoteness and non-use. There appears to be no economic incentive, only preservation." While there was concern expressed about the dominance of environmental criteria, many respondents (23%) commented that they were pleased by the protected area selection outcomes.

4.8.4 Respondent Views on the Effectiveness of Collaborative Planning for Selecting Protected Areas in the Region

An open-ended question asked respondents their views about how effective they thought the collaborative planning process was for selecting protected areas in their regions (i.e. negotiating trade-offs; choosing protected areas based on certain criteria over others). There was much agreement between respondents that the collaborative planning process was more effective (63%) than ineffective (28%).

4.8.4.1 Involvement and Commitment of Interested Groups

The main reasons cited for the process being effective were the involvement of all interested groups, working together through interest based negotiation techniques, and the groups' commitment to reach final protected area decisions and land use plans. Those offering comments suggested that, in order to have successful collaboration, there needed to be a willingness to sacrifice some "must haves", or compromise, in order to reach a liveable set of results. Trust and respect were developed between stakeholders as they worked through negotiations. Several individuals (28%) commented that the protected area designation process had been educational and well worth their time and effort. The main themes of commentary were around LRMP logistics, integrated land use planning methods and the effectiveness of collaborative planning.

4.8.4.2 LRMP Logistics

Several respondents (15%) felt that collaboration was successful because opinions were aided by sound information. The respondents indicated that reliable information

helped to dispel misconceptions and misunderstandings. One respondent suggested that, "this greatly aided the consensus based negotiation process to make final recommendations". Some of the logistical ingredients of successful collaboration listed by respondents were the provision of:

- Excellent information;
- Mapping and specialist resources;
- Government guidelines, such as the Protected Area Strategy goals,
- Appropriate training; and,
- Strong facilitation.

4.8.4.3 Integrated Land Use Planning

Several respondents (12%) made the point that the collaboration exercise was successful because protected areas were being negotiated within the "package" of other land use criteria. They felt that the overall tradeoffs resulted in integrated land management plans that represented the diversity of interests represented at the LRMP tables. As a result they believed that these plans would have greater acceptance by the broader community. However, one respondent commented that trade offs and protected area decisions were made too soon in the process, instead of within larger land use planning scenarios.

4.8.4.4 Effectiveness of Collaborative Planning

The main reason cited by some of the respondents for ineffective collaborative planning was that many groups and individuals were operating on a "one-issue" basis. They suggested that this approach caused power struggles, intransigence and ineffective trade-off negotiations. This led to many unresolved issues. They indicated that, in

instances of insufficient collaboration and indecision, the provincial government often ended up imposing park designation decisions. Similar to commentary in the previous open-ended question, some respondents indicated that there was also a feeling that certain interest groups "outweighed" local interests and also the sense that the "whiners" ended up being "the winners".

4.9 Summary of Findings

Respondents in this study consistently placed the greatest importance on environmental criteria as the basis for protected area selection. After environmental criteria, social considerations were generally more important than economic objectives for the selection of protected areas. This suggests that respondents felt protected areas could fulfil environmental objectives more readily than social and economic objectives. The relative importance of these factors was expressed in both generic and applied contexts.

There was wide ranging opinion on how protected areas could fulfill economic priorities of communities. The disparity highlights the need to better understand and plan for economic objectives as well as the need to increase the impact that protected areas can have on local economies. This study points toward the necessity of developing new and expanded social and economic roles for protected areas, in the context of environmental protection and community development. These concepts are discussed in more detail in the next chapter, Management Implications.

CHAPTER 5: MANAGEMENT IMPLICATIONS

5.1 Introduction

Chapter five provides management implications emanating from the research findings, which may be useful to consider in future protected area selection processes.

Management Implication 1: Environmental values are the most important to Include in protected area criteria lists.

A major focus of this research project was to determine what criteria were important when selecting parks and protected areas. Overall, respondents consistently regarded environmental criteria to be the most important in protected area selection in both generic criteria selection and in selecting criteria that were important in the LRMP protected area selection process. These results are consistent with the literature, which emphasizes the dominance of environmental criteria in protected area selection processes. Therefore, any protected area criteria list should include a comprehensive list of environmental criteria.

Management Implication 2: A listing of important social and economic criteria for protected area selection processes should be developed.

While environmental criteria were dominant, the data also confirmed that a range of social and economic criteria were also valued for protected area selection. Based on respondents' highest rated social and economic criteria from the generic and the LRMP, a

common list of social and economic criteria that should be considered in protected area selection processes includes:

- Preserve a full range of cultural heritage values
- Preserve regional aesthetic qualities
- Increase the variety of recreation opportunities
- Minimize negative impacts on traditional activities
- Increase compatibility with adjacent land uses
- Increase tourism business development opportunities
- Increase employment opportunities for local people
- Minimize increases in the cost of living for local people
- Increase local investment opportunities
- Maintain forest resource development and extraction options

The list of highest rated social and economic criteria coming out of this research was compatible with the list of the most prominently cited social and economic criteria for protected area selection from the literature (Appendix A).

Management Implication 3: Social and economic criteria need to be better defined within the protected area selection process.

The survey results showed that there was less awareness about how protected area designation could be used to fulfill LRMP social and economic objectives. While the purpose of PAs is to protect biodiversity, it is recognised in the literature, that PAs have significant social and economic value. Social and economic criteria should, therefore play a role in protected areas selection. The challenge with incorporating social and economic criteria is how to more vitally and practically link the role of protected areas, with the achievement of community socio-economic objectives.

The Protected Areas Strategy placed strong emphasis on environmental criteria for protected area selection, however, there seems to be problems with quantifying and integrating many socio-economic criteria. There is opportunity to include more specific social and economic criteria for LRMP protected area selection processes, and to make them more explicit within the selection process. This could be done by integrating social and economic criteria earlier in the protected area selection process (i.e., at the pre-selection stage), and then throughout the land use selection process (i.e., incorporating more quantifiable social and economic criteria measures in the Multiple Accounts Analysis stage). As discussed in the study, environmental objectives may ultimately be compromised if the social and economic needs of a community are not met.

Management Implication 4: Protected areas can play a stronger economic development role.

LRMP management objectives across many LRMPs placed strong emphasis upon community economic development, but this priority did not correspond with higher importance ratings of economic criteria for protected area selection. A stronger economic role for protected areas could help fulfill more LRMP management objectives such as sustainable tourism development, diversification of the resource sectors and increased local partnerships between industry, community and First Nations. Community economic development literature emphasizes the potentially valuable role of the tourism/recreation sector in rural development. As well, the provision of protected areas is often cited as being central to economic development in many remote areas. However, the link between economy and protected area selection was not strongly supported in the study results.

This may be related to challenges in quantifying the park/economy relationships, and the often-long delay between park development and measurable economic impacts.

A key management implication coming from the discussion of economic criteria is that there is the potential for economic development to play a stronger role in protected area selection, in cooperation with environmental and social priorities. Some growing tourism markets that could be compatible with environmental and social priorities for protected areas are culture-nature tourism, ecotourism and gateway community recreation. These tourism industries depend on high levels of environmental quality, cultural authenticity and high quality consumer services. It is critical, therefore, to develop these tourism niche markets in harmony with environmental and cultural protection and local economic development.

Management Implication 5: Specialized protected areas could be designated.

While many potential protected areas may have overlapping environmental, social and economic criteria, there may be cause to designate certain protected area candidates that satisfy predominantly environmental, social, or economic concerns. For example, an area could be selected for the protection of rare and endangered habitat. In this case the area would be designated exclusively on the basis on environmental criteria. Another area could be selected on the basis of rare cultural or heritage significance. In such cases, the area would be designated on the basis of social criteria, and there may not be any significant environmental values at the historic site. Therefore, there may be a case for specialized parks. This practice was used in some LRMP processes, where, apart from

protected area designation, some spaces were designated as special management zones for the protection of particular environmental values, recreation values or a combination of uses.

Management Implication 6: Protected area values can be compatible.

The findings indicated an emphasis on the importance of preserving cultural values and aesthetics, as well as providing increased recreational opportunities. Respondents also placed a priority on increasing the compatibility with adjacent land uses. The key message appears to be that designating protected areas based on their ability to provide recreational opportunities is important, provided those opportunities remain compatible with the protection of environmental and cultural values.

Management Implication 7: Aesthetic standards should be implemented not only in protected areas but in all land uses.

A highly rated social criterion in both generic and applied settings was, *Preserve regional aesthetic qualities*. A priority for protected area selection should be to establish a coherent set of aesthetic standards for the protection of the visual qualities of natural spaces. While areas with high aesthetic values may not be selected for protected area status, there is value, in whatever land use the area is categorized under, in preserving the aesthetic quality of these places. For example, aesthetic standards should be applied to protect the many viewsheds in BC, such as along highways, cruise and other tourism routes. These land areas with aesthetic qualities may be not be designated as parks (e.g. mining, forestry designations), however, aesthetic standards should be established within

the land use designation, such as with the use of buffers, in order protect the aesthetic qualities of the area.

Management Implication 8: Local involvement in protected areas is critical to their success.

The highest rated management objectives in the selection of protected areas were preservation of cultural sites and the environment for local people and preservation of First Nations rights. This provides an argument to expand the involvement of local people in the establishment and management of protected areas. As indicated from the literature, linking local people with the successful implementation of conservation initiatives shifts the focus from ecological criteria, as the sole basis of protected area creation, to the larger context beyond the park boundary. Additionally, by integrating local peoples in the park planning and selection process, conflicts between local peoples and park planning agencies may be reduced. The LRMP process did an excellent job of involving local people through such methods as multiple stakeholder representation, consensus building and the use of stakeholder analysis of different land use scenarios. However, the findings bore out that there were gaps in realizing social and economic goals of locals through the protected area selection component of the LRMP.

Management Implication 9: Protected area quotas are problematic.

The majority of respondents (68%) considered the 12% protected area guideline to have a negative effect on protected area designation. The protected area quota system was perceived by respondents to have been arbitrarily set by government. This caused LRMP tables to be constrained in the process of recommending what they felt were the appropriate protected area candidates for their region. Instead of establishing a protected area quota, government should allow local protected area criteria to guide which protected areas are established.

5.2 Summary of Management Implication Discussion

Respondent feedback indicated that, overall, the LRMP process was very effective in bringing together disparate stakeholders and viewpoints into collaborative protected area decision-making. The general criticism of the LRMP protected area selection process is that participant tools for effective protected area selection could be improved, specifically in the realms of criteria definition and protected area roles. The popular sense of respondents was that protected area designation was important for mainly environmental reasons. However, there was limited awareness of the other roles and community priorities to which protected areas could contribute. The management implications point toward the necessity of developing new and expanded social and economic roles for protected areas, in the context of the LRMP priorities of environmental protection and community development. Some suggested areas of further research along these lines are presented in Chapter 6.

CHAPTER 6: CONCLUSION

This concluding chapter provides a summary of the answers to the research questions. The chapter also suggests areas of further investigation related to protected area selection processes, in the context of broader land use planning processes.

6.1 Review of Research Project Questions

Research Question 1: What criteria are important in the selection of protected areas?

The study results clearly indicated the predominance of environmental criteria in generic protected area selection processes, and the lesser importance placed by respondents upon social and economic criteria. The following table lists respondent importance rating of generic protected area criteria from the highest importance score to the lowest, in rank order (Table 6.1).

Table 6.1: Respondent Selection of Generic Protected Area Criteria

Ranking	* Criteria	**Mean Score (1-5)
1	Protect the most rare or unique features	4.51
2	Represent unique ecosystems across the province	4.43
3	Preserve areas large enough to protect the greatest diversity of ecological, cultural and recreational values	4.26
4	Preserve a full range of cultural heritage values	4.09
5	Protect resources that are most threatened by human activities	4.04
6	Protect areas with a minimal degree of human disturbance	3.96
7	Preserve regional aesthetic qualities	3.93
8	Increase the variety of recreation opportunities	3.89
9	Minimize negative impacts on traditional activities	3.89
10	Increase compatibility with adjacent land uses	3.85
11	Increase tourism business development opportunities	3.73
12	Preserve community identity and values	3.72
13	Increase scientific research	3.64
14	Provide a full range of backcountry recreation opportunities	3.59
15	Increase employment opportunities for local people	3.54
16	Improve the standard of living for local people	3.43
17	Increase education options	3.37
18	Minimize increases in the cost of living for local people	3.17
19	Increase local investment opportunities	3.16
20	Maintain forest resource development and extraction options	3.13
21	Increase average incomes for local populations	3.11
22	Maintain options for mining development and extraction	3.09
23	Maintain agricultural development options	2.86
24	Increase local infrastructure	2.37

*** Criteria Importance Rating Scheme:**

Not at All Important (1); Not Very Important (2); Neutral (3); Important (4); Very Important (5)

**** Colour Code of Criteria:**

Environmental Criteria	Social Criteria	Economic Criteria

Research Question 2: What criteria were important in determining protected areas within the LRMP process?

As with the generic protected area criteria listing, environmental criteria dominated the list for protected area selection in the LRMPs. Table 6.2 lists respondent ratings of how important each criterion was in the selection of protected areas within the LRMPs. The scores are rank ordered from the highest importance score to the lowest.

While there were minor changes in the order of criteria importance from the generic selection to the LRMP application, most of the same protected area criteria remained important in both contexts. This finding validates the usefulness of the generic list of protected area criteria, with a role for social and economic criteria, in protected area selection processes.

Table 6.2: Respondent Selection of LRMP Protected Area Criteria

Ranking	* Criteria	**Mean Score (1-5)
1	Represent unique ecosystems across the province	4.35
2	Preserve areas large enough to protect the greatest diversity of ecological, cultural and recreational values	4.23
3	Protect the most rare or unique features	4.16
4	Protect resources that are most threatened by human activities	4.05
5	Preserve regional aesthetic qualities	4.02
6	Protect areas with a minimal degree of human disturbance	4.00
7	Preserve a full range of cultural heritage values	3.9
8	Provide a full range of backcountry recreation opportunities	3.77
9	Increase tourism business development opportunities	3.67
10	Increase the variety of recreation opportunities.	3.60
11	Minimize negative impacts on traditional activities	3.60
12	Preserve community identity and values	3.21
13	Increase compatibility with adjacent land uses	3.17
14	Maintain forest resource development and extraction options.	3.14
15	Increase scientific research	2.98
16	Increase employment opportunities for local people	2.77
17	Maintain options for mining development and extraction	2.71
18	Increase education options	2.66
19	Maintain agricultural development options	2.62
20	Improve the standard of living for local people	2.61
21	Increase local investment opportunities	2.51
22	Minimize increases in the cost of living for local people	2.36
23	Increase average incomes for local populations	2.33
24	Increase local infrastructure	2.00

*** Criteria Importance Rating Scheme:**

Not at All Important (1); Not Very Important (2); Neutral (3); Important (4); Very Important (5)

**** Colour Code of Criteria:**

Environmental Criteria	Social Criteria	Economic Criteria

Research Question 3: How important were LRMP management objectives in the selection of protected areas?

The third and fourth research questions focussed on examining the role of protected areas in the broader land use planning processes. This was investigated by asking how important LRMP management objectives were in the selection of protected areas, and conversely, how effectively did protected areas fulfill the larger land use objectives of the LRMP process.

The five highest rated LRMP management objectives deemed to be important in helping to guide the selection of protected areas were:

1) *Preserve cultural heritage resources*
2) *Preserve fish and wildlife populations as sustainable renewable resources*
3) *Avoid infringement of aboriginal and treaty rights*
4) *Ensure a sustainable, long-term supply of timber*
5) *Ensure the viability of commercial guiding and trapping interests*

Economically focussed LRMP management objectives were generally seen to be less important in choosing protected areas than social concerns. While LRMP management objectives provided the government's overriding direction for land use planning, local interests and priorities may have influenced protected area designations more strongly.

Research Question 4: How important were protected areas in the fulfillment of LRMP land use objectives?

Respondents, for the most part, considered protected area selections as important contributors in fulfilling several of the LRMP management objectives. The five highest

rated management objectives perceived to have been fulfilled by protected area designation were:

1) *Preserve cultural heritage resources*
2) *Preserve fish and wildlife populations as sustainable renewable resources*
3) *Ensure a sustainable, long-term supply of timber*
4) *Avoid infringement of aboriginal and treaty rights*
5) *Facilitate the development of partnerships between industry, community, and First Nations for a stable local economy*

6.2 Recommendations for Further Study

6.2.1 Broader Definition of Social and Economic Criteria for Protected Area Selection

This study validated the pre-eminence of environmental criteria for protected area selection, and the lower priority of social and economic criteria. The study also revealed, especially through respondent comments, a low awareness of social and economic criteria that protected areas could fulfil. This result is compatible with findings in the literature review that indicated there was little research being done in the realm of establishing or validating relevant social and economic criteria for protected area selection.

More research is needed in identifying criteria and roles that protected areas can play in accomplishing the social and economic development objectives of communities. This could involve exploring the definition of protected areas and the roles that protected areas can play in society (e.g., the different forms and functions of protected areas). Investigation into the experiences of places where protected areas have been established should be undertaken to learn how social and economic objectives have been integrated

into protected area development. In many international communities, the incorporation of social and economic criteria is vital to the survival of both community and protected areas. Protected areas need to be created within the fabric of society for the best chance of their success. As discussed previously, environmental objectives may ultimately be compromised if the social and economic needs of a community are not met.

6.2.2 Weighting of Social and Economic Criteria

An investigation of protected area criteria could look at determining a weighting scheme of social and economic criteria relative to environmental criteria. This system would help to incorporate social and economic criteria more fully in the protected area creation process. It might ultimately help planners integrate parks and protected areas more effectively with the needs and interests of local people.

6.2.3 Protected Area Selection Criteria are not Mutually Exclusive

Many of the social and economic objectives examined in this study were rated very closely in terms of their importance to protected area selection. This may indicate that many protected area criteria are not mutually exclusive, but are rather interrelated or interdependent. For example, socially oriented objectives such as, *Increase tourism business development opportunities,* and *Preserve regional aesthetic qualities*, are dependent upon environmental criterion such as, *Protect the most rare or unique features* and upon other social criteria such as, *Preserve a full range of cultural heritage values integrity.* Another illustration of this interdependency is that, often the ability to achieve environmental criteria is dependent on the presence of appropriate social and economic

criteria. For example, if the average income of a local population is very low, it may be difficult to *Protect areas with a minimal degree of human disturbance*, because people may need to utilize the park's resources for survival purposes.

Some relevant topics of investigation could include:

- Case study investigation of protected areas that are successfully integrated with local communities. Key success strategies could be identified.
- Exploration and identification of the synergies and compatibilities between environmental, social and economic criteria for protected areas.
- Comprehensive research on the roles and benefits of protected areas.

6.2.4 Protected Areas and Economic Diversification

Given the low ratings of how protected areas could help fulfill LRMP management objectives related to diversification of the forestry, energy and mining industries, there is a need to investigate how protected areas can assist with community economic diversification. An example of social and economic research could be to undertake social and economic impact assessments to determine the potential value of protected areas for community development.

A priority of the present government is to diversify the economy of British Columbia in order to improve the standard of living and viability of single-resource communities. This study supports that protected areas could be looked at more creatively and holistically to accomplish a community's environmental, economic and social objectives.

6.2.5 Gateway Communities and Protected Areas

More investigation is needed in the realm of exploring the potential opportunities of communities that are located near protected areas. The provincial government has, in the past, invested in pilot gateway community studies in locations across the province. However, the government financial support for these programs has been diminishing. Communities need support at all stages of diversification. The provincial government should put more resources into programs that encourage diversification of communities, such as developmental support of communities as gateways to parks and protected areas. A research program could focus on exploring economic diversification opportunities for communities in the vicinity of newly identified protected areas resulting from LRMP processes.

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APPENDIX A: Social and Economic Criteria for Protected Area Designation Identified in the Literature

	Social and Economic Criteria (as derived from impacts and indicators)	Description	Relevant to BC Situation	# of Lit. Citations
Social Criteria				
1	Minimize decreases in resource availability	The protection of areas necessarily requires that land and resources be removed from local and regional consumption	√	8
2	Maximize potential for tourism and recreation	The creation of PAs in many cases has the potential to increase tourism potential.	√	5
3	Land availability and tenure	Restrictions brought by PAs may impact local notions of land tenure and land – use.	√	5
4	Reduce the impact of conflicts	Conflict may result over land-use restrictions and resource use practices.	√	5
5	Strive to maintain traditional activities and relationships unaltered	Historical and native traditions including land use, art and crafts and other activities may be altered or restricted due to PA designation.	√	5
6	Changes in local values and attitudes	The influx of people from outside the area may serve to influence local values.	√	4
7	Adequate private and government sector resources/infrastructure (e.g., housing, recreational resources, transit, emergency services)	Local service may be inadequate for use by both visitors and locals alike. For example demand for housing by visitors can limit availability of housing options for local people. Recreation facilities and emergency services may be altered.	√	4
8	Community stability and identity.	How the local population view their community may be positively or negatively effected with the creation of PAs.	√	3
9	Maintain political autonomy	Restrictions from PA level of management may impact local political powers in present use.	√	3

10	Maximize opportunities for communication	Communication with senior levels of government often results when PA designations occur. This can cause conflict or serve to increase local influence over decisions that affect them.	√	3
11	Minimize change in social patterns and patterns of behaviour.	The introduction of tourism through PA formation will impact patterns of behaviour.	√	3
12	Improvement in the quality of living	This impact may indicate the influence of PAs and tourism in the area.	√	3
13	Minimize adverse impacts of population change (e.g, density, absolute numbers)	The introduction of PAs can change how many people will reside in the area.	√	2
14	Maintain aesthetic quality of the area	The development of PAs may impact the aesthetic appeal of specific areas due to development.	√	2
15	Maximize areas with educational value	The opportunity may exist for education of (e.g., ecology, conservation) local peoples.	√	2
16	Minimize threats of human interference on natural systems	Local population impact on ecological integrity and conservation efforts may be possible	√	2
17	Minimize relocation of local people	Local residents may be required to relocate as a result of PA creation	√	2
18	Minimize negative social impacts of employment through tourism	Tourism employment will alter traditional employment activities.	√	2
19	Minimize or mitigate inequities	Disparities in income and status are common results from increased development.	√	2
20	Reduce the need for restrictions on agricultural practices.	Many PAs are designated in close proximity to areas of agriculture. Restrictions on these activities may result in practices being altered to fit park management goals.	√	2

21	Reduce barriers to social interaction	Development can alter social interaction through separation and exclusion of local populations from local areas. (i.e., either physical or perceived such as material development splitting a neighbourhood or perhaps the perceived barrier between tourist and resident)	√	2
22	Minimize uncertainty and stress	Socio-economic change may bring stress to local people due to uncertainty over restrictions and opportunities.	√	1
23	Maximize community appeal	The appeal of aspects of community character is an example (e.g., aesthetics, events)	√	1
24	Minimize negative impacts on local community cohesion.	The ability of community to stabilize relationships and act as unit may be affected due to PA formation.	√	1
25	Changes in lifestyle	Changes in community, employment and social due to PA development may impact the real or perceived quality of life in the area.	√	1
26	Minimize the number of people affected in an area	This may impact the scale of changes to the local region.	√	1
27	Maximize impact on land-use certainty	With changes to land use restrictions brought on by PA formation significant uncertainty may exist as to restricted uses and practices in the area.	√	1
28	Ethnicity	Tourism may increase local ethnic diversity to serve international clientele.	√	1
Economic Criteria				
29	Maximize employment potential (e.g., seasonality, tourism sector, absolute numbers etc.)	The potential for impacts on employment from PA development can lead to reduced levels through restricted use of local resources or improvements through increases in tourism.	√	12
30	Maximize the level and distribution of income in affected communities	Income generation may increase or decrease depending on the level of development and pay scales.	√	6

31	Reduce drastic changes in property values	The literature has mixed evidence that PA development can reduce or improve property values in the vicinity of a park.	√	5
32	Maximize opportunities for Investment and availability of credit.	Local investment climate may be positively or negatively impacted by PA development.	√	5
33	Maximize per capita GDP for local peoples	This indicator may point to regional and local economic activity, which may be linked to PA formation.	√	4
34	Reduce drastic changes in cost of living for local populations due to PA development	Demand for goods and services by tourists may cause price inflation that may increase prices beyond the reach of local populations.	√	4
35	Minimize the need for higher local taxes.	Higher local tax revenue may have to be generated due to demands for increased public services.	√	2
36	Reduce the amount of per capita development assistance	Assistance from government may positively impact local income generation potential.	√	1
37	Minimize the impact on community economic base.	If resource use is restricted, PA creation may remove significant portions of the resource from local use. The development brought on by PA development may not replace losses.	√	1
38	Increase incentive and protection of traditional (i.e., native) economic endeavours and lifestyles	Traditional activities may have to be protected in the face of local restrictions and cultural change.	√	1
39	Maximize government revenues	Increases in economic activity may generate greater government revenue.	√	1
40	Maximize indirect and induced economic impacts	The introduction of jobs related to PA development will create indirect jobs for local people.	√	1

APPENDIX B: Survey

SIMON FRASER UNIVERSITY

School of Resource and
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BURNABY, BRITISH COLUMBIA
CANADA V5A 1S6

Telephone: (604) 291-4659
Fax: (604) 291-4968

March 28, 2003

Dear LRMP participant,

Re: Survey about Protected Areas and the LRMP

British Columbia's Protected Areas have been designated to play important conservation and socio-economic roles in the province's future land and resource development. This survey seeks your views concerning the extent to which a range of protected area values influenced the development of the province's LRMPs.

Because of your past LRMP involvement, your participation in this survey is especially important. Your experiences will provide us with valuable perspectives on the process of determining protected areas within broader land use planning processes in BC. Unless you provide us with specific written consent, your individual responses will be kept strictly confidential. Your responses and those of other survey participants will be presented collectively in a report describing the relationship between designated Protected Areas and LRMP development in this province. After the study is completed, your individual survey information will be destroyed.

This study is part of a larger project being undertaken by a team of Simon Fraser University researchers examining the development and implementation of LRMPs in British Columbia. It is funded by the provincial government and the Social Sciences and Humanities Research Council of Canada. This specific research is being conducted by Ms. Margaret Paridaen, a graduate student in the School of Resource and Environmental Management. It is being directed and supervised by Dr. Peter Williams, a Professor in that School. If you have questions or concerns about the focus or content of this research, please do not hesitate to contact Dr. Williams at 604.291.3074, or the School of Resource and Environmental Management, Simon Fraser University, Burnaby, BC, V7T 2G4.

We would greatly appreciate receiving your completed survey by **April 18, 2003** by mail or fax. The return fax number is 604.291.4968. The mailing address is Ms. Margaret Paridaen, School of Resource and Environmental Management, Simon Fraser University, Burnaby, BC, V7T 2G4. Thank you for taking time from your hectic schedule to complete this survey.

Sincerely,
Dr. Peter Williams
Professor, School of Resource and Environmental Management
Enclosure

Part A: Your Involvement in BC's LRMP Process

Please provide the following information about your LRMP involvement. This information will assist us to analyse in more detail the responses that you and other respondents provide.

1. Which LRMP process did you participate in? _____
   (*if you participated in more than one LRMP, please select the LRMP in which you had the **most** involvement in protected area selection.*)

2. What sector, interest or government ministry/department did you represent in the LRMP process?

☐ First Nations	☐ Tourism/Recreation	☐ Forestry
☐ Conservation	☐ Fishing	☐ Mining
☐ Energy	☐ Agriculture	☐ Hunting/Trapping/Guiding
☐ Government	☐ Non-gov't organization	☐ Member of public
☐ Alternate	☐ Other _____	

3. How many years did you live in the region prior to the commencement of the LRMP?

☐ Less than 1 year	☐ 11-20 years
☐ 1-5 Years	☐ 21 or more years
☐ 6-10 years	☐ Don't live in region

4. Approximately what percentage of LRMP meetings in your area were you able to attend? _____

5. In your opinion, how important a role have parks and protected areas played in the development of B.C. LRMPs?

Very Important	Important	Somewhat Important	Not Important	Don't Know
☐	☐	☐	☐	☐

6. How many times a year do you use parks and protected areas for work or recreation purposes? ☐ Never ☐ 1 - 3 ☐ 4 – 6 ☐ 7 –10 ☐ 11 or more

7. From the list below, indicate the **three** major land uses in your LRMP region at the time the LRMP process began?

☐ Conservation	☐ Tourism/ Recreation	☐ Mining
☐ Forestry	☐ Fishing	☐ Hunting/Trapping/Guiding
☐ Agriculture	☐ Energy	☐ Other: _____

8. In your opinion, what is the impact of protected area designation upon the group you represented?

Very Negative	Somewhat Negative	Neutral	Somewhat Positive	Very Positive	Don't Know
☐	☐	☐	☐	☐	☐

9. Please describe the types of impacts created by protected area designations on the group you represented. (*Please use the back of the page if needed*)

Part B: Criteria for Protected Area Selection

Many criteria can be used to select protected areas. In your opinion, how important do you think each of the following criteria should be in the selection of protected areas? (*Circle the number that matches best with your perspective.*)

How important is each criterion in the selection of protected areas?	Not at all Impor-tant	Not very Impor-tant	Neu -tral	Impor-tant	Very Impor-tant	N/A Don't Know
1. Improve the standard of living for local people.	1	2	3	4	5	☐
2. Increase local infrastructure (e.g., housing, transit, health services).	1	2	3	4	5	☐
3. Preserve community identity and values.	1	2	3	4	5	☐
4. Increase compatibility with adjacent land uses.	1	2	3	4	5	☐
5. Increase education options.	1	2	3	4	5	☐
6. Increase the variety of recreation opportunities.	1	2	3	4	5	☐
7. Preserve regional aesthetic qualities.	1	2	3	4	5	☐
8. Minimize negative impacts on traditional activities.	1	2	3	4	5	☐
9. Minimize increases in the cost of living for local people.	1	2	3	4	5	☐
10. Increase average incomes for local populations.	1	2	3	4	5	☐
11. Increase employment opportunities for local people.	1	2	3	4	5	☐
12. Increase local investment opportunities.	1	2	3	4	5	☐
13. Maintain options for mining development and extraction.	1	2	3	4	5	☐
14. Maintain forest resource development and extraction options.	1	2	3	4	5	☐
15. Maintain agricultural development options.	1	2	3	4	5	■
16. Increase tourism business development opportunities.	1	2	3	4	5	☐
17. Represent unique ecosystems across the province.	1	2	3	4	5	☐
18. Preserve a full range of cultural heritage values.	1	2	3	4	5	☐
19. Provide a full range of backcountry recreation opportunities.	1	2	3	4	5	☐
20. Protect areas with a minimal degree of human disturbance.	1	2	3	4	5	☐
21. Preserve areas large enough to protect the greatest diversity of ecological, cultural and recreational values.	1	2	3	4	5	☐
22. Protect resources that are most threatened by human activities.	1	2	3	4	5	☐
23. Protect the most rare or unique features.	1	2	3	4	5	☐
24. Increase scientific research.	1	2	3	4	5	☐

Do you have comments about any of the above criteria?

Part C: Selection Criteria and your LRMP

Now consider your experience with selecting protected areas in the LRMP for your region. Based on your experience, how important were the following criteria in selecting protected areas in your region? *(Circle the number that matches best with your perspective.)*

How important was each factor when selecting protected areas in your LRMP region?	Not at all Impor-tant	Not very Impor-tant	Neu -tral	Impor-tant	Very Impor-tant	N/A Don't Know
1. Improve the standard of living for local people.	1	2	3	4	5	☐
2. Increase local infrastructure (e.g., housing, transit, health services).	1	2	3	4	5	☐
3. Preserve community identity and values.	1	2	3	4	5	☐
4. Increase compatibility with adjacent land uses.	1	2	3	4	5	☐
5. Increase education options.	1	2	3	4	5	☐
6. Increase the variety of recreation opportunities.	1	2	3	4	5	☐
7. Preserve regional aesthetic qualities.	1	2	3	4	5	☐
8. Minimize negative impacts on traditional activities.	1	2	3	4	5	☐
9. Minimize increases in the cost of living for local people.	1	2	3	4	5	☐
10. Increase average incomes for local populations.	1	2	3	4	5	☐
11. Increase employment opportunities for local people.	1	2	3	4	5	☐
12. Increase local investment opportunities.	1	2	3	4	5	☐
13. Maintain options for mining development and extraction.	1	2	3	4	5	☐
14. Maintain forest resource development and extraction options.	1	2	3	4	5	☐
15. Maintain agricultural development options.	1	2	3	4	5	☐
16. Increase tourism business development opportunities.	1	2	3	4	5	☐
17. Represent unique ecosystems across the province.	1	2	3	4	5	☐
18. Preserve a full range of cultural heritage values.	1	2	3	4	5	☐
19. Provide a full range of backcountry recreation opportunities.	1	2	3	4	5	☐
20. Protect areas with a minimal degree of human disturbance.	1	2	3	4	5	☐
21. Preserve areas large enough to protect the greatest diversity of ecological, cultural and recreational values.	1	2	3	4	5	☐
22. Protect resources that are most threatened by human activities.	1	2	3	4	5	☐
23. Protect the most rare or unique features.	1	2	3	4	5	☐
24. Increase scientific research.	1	2	3	4	5	☐

Please list the three most important factors used in the selection of protected areas in your LRMP area, starting with the most important factor.

Part D: Effect of LRMP Management Objectives on Protected Area Selection

Some overriding LRMP management objectives may have influenced the designation of protected areas in your region. How important do you think each of the following LRMP management objectives was in determining the protected area designations in your region? *(Circle the number that matches best with your perspective.)*

How important was each LRMP management objective in selecting protected areas in your region?	Not at all Impor-tant	Not very Impor-tant	Neu -tral	Impor-tant	Very Impor-tant	N/A Don't Know
1. Ensure a sustainable, long-term supply of timber.	1	2	3	4	5	☐
2. Increase opportunities for diversifying the forest industry (e.g. value-added manufacturing, diversified forest products such as mushrooms, medicinal plants).	1	2	3	4	5	☐
3. Ensure access for subsurface resource exploration, development, processing and transportation.	1	2	3	4	5	☐
4. Diversify employment opportunities in energy and mineral industries (e.g., alternative energy sources, value-added opportunities, recreational activities).	1	2	3	4	5	☐
5. Provide opportunities for future agricultural development.	1	2	3	4	5	☐
6. Avoid infringement of aboriginal and treaty rights.	1	2	3	4	5	☐
7. Preserve cultural heritage resources including archaeological sites, traditional use sites, trails, and structural features.	1	2	3	4	5	☐
8. Preserve fish and wildlife populations as sustainable renewable resources for resident, aboriginal, commercial (e.g. trapping), tourism (e.g. guide outfitting) and recreational use (e.g. hunting and fishing).	1	2	3	4	5	☐
9. Promote development of locally based, sustainable tourism opportunities across the region (e.g. scenic potential of forest and other resource development areas).	1	2	3	4	5	☐
10. Ensure the viability of commercial guiding and trapping interests.	1	2	3	4	5	☐
11. Facilitate the development of partnerships between industry, community, and First Nations for a stable local economy.	1	2	3	4	5	☐

In your opinion, what effect do you think the provincial guideline of 12% protected areas had on the process of selecting protected areas within the LRMP?

Part E: Effect of Protected Area Designations on Other Land Use Decisions

Protected area designations can also influence decisions about other land uses within LRMPs. We would like to know how important you think such protected area designations were in fulfilling LRMP land use management objectives. *(Circle the number that matches best with your perspective.)*

Protected area selections are important in your region to:	Not at all Impor-tant	Not very Impor-tant	Neu-tral	Impor-tant	Very Impor-tant	N/A Don't Know
1. Ensure a sustainable, long-term supply of timber.	1	2	3	4	5	☐
2. Increase opportunities for diversifying the forest industry (e.g. value-added manufacturing, diversified forest products such as mushrooms, medicinal plants).	1	2	3	4	5	☐
3. Ensure access for subsurface resource exploration, development, processing and transportation.	1	2	3	4	5	
4. Diversify employment opportunities in energy and mineral industries (e.g., alternative energy sources, value-added opportunities, recreational activities).	1	2	3	4	5	☐
5. Provide opportunities for future agricultural development.	1	2	3	4	5	☐
6. Avoid infringement of aboriginal and treaty rights.	1	2	3	4	5	☐
7. Preserve cultural heritage resources including archaeological sites, traditional use sites, trails, and structural features.	1	2	3	4	5	☐
8. Preserve fish and wildlife populations as sustainable renewable resources for resident, aboriginal, commercial (e.g. trapping), tourism (e.g. guide outfitting) and recreational use (e.g. hunting and fishing).	1	2	3	4	5	☐
9. Promote development of locally based, sustainable tourism opportunities across the region (e.g. scenic potential of forest and other resource development areas).	1	2	3	4	5	☐
10. Ensure the viability of commercial guiding and trapping interests.	1	2	3	4	5	☐
11. Facilitate the development of partnerships between industry, community, and First Nations for a stable local economy.	1	2	3	4	5	☐

In your opinion, what overall affects do protected area designations have on economic development in nearby communities?

Please comment on the process for selecting protected areas in the LRMP.

How effective was collaborative planning for selecting protected areas in your region? (i.e. negotiating trade-offs, choosing protected areas based on certain criteria over others)

Thank you for taking the time to complete this survey! Please return the completed survey to us by **May 23, 2003.** You may fax it to 604.291.4968 or send it by mail in the enclosed self-addressed envelope.

If you need more time to complete the survey, please contact us at 604.291.3074.