UNDERSTANDING STAKEHOLDER PERSPECTIVES:  
THE CASE OF MOUNT ARROWSMITH MASSIF REGIONAL PARK &  
THE MOUNT ARROWSMITH BIOSPHERE RESERVE

By

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A thesis submitted in partial fulfillment of  
the requirements for the degree of Master’s of Environment and Management

MASTER OF SCIENCE  
in  
ENVIRONMENT AND MANAGEMENT

We accept this thesis as conforming  
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ROYAL ROADS UNIVERSITY  
February 2011

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Abstract

Parks and protected areas are crucial for the health of the biosphere and long-term sustainability of the planet. However, challenges these areas face include: there are simply not enough of them, the existing ones are often too small and fragmented, and there is not always public support for them. Regional parks are specific types of protected areas that can help contribute to conservation and sustainability. The effectiveness of protected areas for conservation can be enhanced through a variety of strategies such as “biosphere reserves”. This research looks at stakeholder perceptions regarding potential benefits of the Mount Arrowsmith Massif Regional Park and the importance of the Mount Arrowsmith Biosphere Reserve Operating Framework. This study has contributed to the larger Protected Areas and Poverty Reduction (PAPR) research initiative as it discusses the flow of costs and benefits from protected areas and alternate forms of protected area governance.
Acknowledgements

I would first like to thank my supervisor, Dr. Rick Rollins for his willingness to supervise this study and for his continued guidance and support throughout this process. Thanks to his expertise and passion for protected areas I have had access to an invaluable resource. Without his generosity and support I would not have been provided such a positive experience.

Thanks to Richard Crowley for his assistance identifying potential stakeholders to be interviewed and for providing information and maps about the Mount Arrowsmith Biosphere Reserve.

Thanks to Graham Gidden for providing information and maps for the Mount Arrowsmith Massif Regional Park.

I also want to give a special thanks to my fiancé Denise and my family for keeping me on track, hearing me out, and providing encouragement when times were tough.

Finally, I would like to thank all the stakeholders who participated in the interviews and who shared their perspectives and opinions regarding the research topics. Without their participation the research would not have been possible.
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Chapter 1 - Introduction

Parks and protected areas (PA’s) are vital for the health and wellbeing of the biosphere. The World Conservation Union (IUCN) defines a protected area as “an area of land and/or sea especially dedicated to the protection of biological diversity, and of natural and cultural resources, and management through legal or other effective means” (IUCN, 2003. P. 3). According to Eagles, McCool, & Haynes (2002) protected areas are not a new idea and date back to over two millennia ago when parts of India were set aside for natural resources. Over 1000 years ago hunting grounds were protected across Europe for the rich and powerful (Eagles, McCool, & Haynes, 2002). Across the Pacific and Africa PA’s have provided specific places to practice cultural traditions. By the 1800’s places were starting to be protected for natural beauty, recreation and tourism purposes across the US and Canada.

The Canadian national parks system started in 1885 through the reservation of Banff Hot Springs and became Rocky Mountain Park in 1887, which was later renamed Banff National Park (McNamee, 2009). The expansion of Canada’s national park system would not have been possible without public pressure that lead to specific legislation including the passing of the National Parks Act in 1930 (McNamee, 2009). Today Canada’s national park system totals 38 national parks and national park reserves representing 24 of the 38 natural regions across Canada (Parks Canada, 2009). As governments and the public realize the benefits of protected areas, the number has grown. The global protected area database as of 2005 totaled 113,707 sites covering 19.6 million square kilometers, or 12 per cent of the earth’s surface (Lockwood, Worboys, & Kothari, 2006).
By 2050 it is estimated that there will be 8.9 billion people living on earth competing for the same resources (United Nations, 2004). Protected areas will be crucial in ensuring a healthy and sustainable future. Some of the benefits derived from the establishment of PA’s include conserving biological diversity and ecological integrity, providing aesthetic and spiritual value, providing places for recreation and tourism, and supporting ecosystem services such as fresh water and nutrient cycling (IUCN, 2005).

However there are also a number of concerns or costs with PA’s. Issues or costs associated with PA’s can include an unequal distribution of benefits to nearby communities, cultural erosion of nearby residents, increased competition for local resources from tourists, and an increase in human-wildlife conflicts. The costs and benefits of protected areas are described in greater detail in Chapter 2.

Another significant issue with protected areas is that they have traditionally been managed from a top-down perspective. Top-down management operates through agency-based decision-making, such as government park agencies. This style of management has also been termed representative decision-making, as there is minimal stakeholder involvement with decision-making (Lockwood et al., 2006). Drawbacks of top-down management approaches include public mistrust, confrontation, polarization regarding decisions, and a lack of public support (Meffe, Nielsen, Knight, & Schenborn, 2002).

More recent PA management strategies include participative and collaborative approaches that utilize democratic decision-making as opposed to traditional top-down or representative decision-making (Lockwood et al., 2006). The benefits of participative and collaborative management include governance accountability, an increase in the
diversity of public interests and values, use of local knowledge, and the promotion of public ownership and problem solving.

Another effective management approach is ecosystem-based management. Ecosystem-based management can be defined as an approach to maintaining the composition, structure, and function of natural or modified ecosystems for long-term sustainability (Meffe et al., 2002). Ecosystem management involves coordinating between PA management and the management of adjacent lands and communities. One example of this is the UNESCO Biosphere Reserve Program. Biosphere reserves are a specific conservation strategy that supports a participative and community-based approach to planning and management. According to Slocombe & Dearden (2009) biosphere reserves are comprised of three zones; a core zone that represents protected areas but may include human activity, a buffer zone that supports low impact activities, and a transition zone that promotes sustainable use of resources such as forestry. Zoning in biosphere reserves provides a framework for sustainability. This approach to ecosystem management is different from traditional approaches that have arguably failed due to a lack of community participation and buy in. From a community-based participative planning approach biosphere reserves can be a key strategy to PA conservation and sustainable human activity. Biosphere reserves are a necessary PA strategy, as traditional PA management approaches are arguably doing a poor job at providing equitable socio-economic and environmental benefits (Lockwood et al., 2006).

Regional parks provide benefits and value to humans and nature not provided by larger scale PA’s at the national and provincial level. More specifically, it could be argued that regional parks contribute to a larger PA system through regional park
networks and therefore providing more benefits and conservation to local communities. Similarly, regional parks can also contribute to PA networks within biosphere reserves through the connection of core areas. National and provincial parks are often geographically spread out and fragmented leading to limited conservation ability (Theberge & Theberge, 2009).

To date, support for regional and local parks has been varied. Funding for regional parks are often a lower priority as they compete with other municipal services such as education and health care (Low, Taplin, & Scheld, 2005). Further, there has been minimal research conducted in the area of regional parks and or regional parks in biosphere reserves.

Research can play a crucial role in determining levels of community support for regional parks. Research can help identify the flow of costs and benefits of regional parks to local communities. Research can prove very valuable for regional park planners in measuring support for future park acquisitions. Research can help identify the need for conservation at the local level therefore providing the necessary trigger for ecosystem protection. Without research the perceived socio-economic and environmental impacts of regional parks to local communities may not be understood. Regional park research studies can also be applied to other PA research studies for comparative analysis.

The remaining chapter will introduce the study, providing an overview of the study area, the purpose of the research, and the research objectives. Finally, potential significance of the research will be highlighted.
Study Overview

To date there has been minimal research regarding regional and local parks. Further, there has been even less research conducted surrounding regional parks within biosphere reserves. In order to help provide a better understanding of stakeholder perceptions regarding biosphere reserve mandates and the costs and benefits of regional parks a case study approach was implemented. This case study is focused on the Mount Arrowsmith Massif Regional Park and the surrounding Mount Arrowsmith Biosphere Reserve.

Designated in December 2000, Mount Arrowsmith Biosphere Reserve, located on the southeastern side of Vancouver Island encompassing 79,000 hectares and includes the local communities of Parksville, Qualicum Beach, and portions of the Regional District of Nanaimo (Clermont, 2006) (see Appendix A for a map of the Mount Arrowsmith Biosphere Reserve). The boundaries of the biosphere reserve include several watersheds that drain Mount Arrowsmith, Mount Cokley, and Mount Moriarty. There are a variety of ecosystems represented in the Mount Arrowsmith Biosphere Reserve ranging from alpine to marine estuaries.

Like all biosphere reserves, the Mount Arrowsmith Biosphere Reserve is divided into three different zoning areas, core, buffer, and transition. As of 2006, the Mount Arrowsmith Biosphere Reserve had 2,500 hectares of protected areas (core zone) not including 800 hectares of marine foreshore that makes up the Wildlife Management Area between Parksville and Qualicum Beach (Clermont, 2006). The majority of the Mount Arrowsmith Biosphere Reserve is considered transition or buffer zoning and is privately owned land or impacted from human use. The Mount Arrowsmith Massif Regional Park,
a focus of this study, is considered a core area within the Mount Arrowsmith Biosphere Reserve.

Established in November 2008, Mount Arrowsmith Massif Regional Park is located on the mid-western edge of the Regional District of Nanaimo’s Electoral Area C (Nanaimo Regional District, 2010). Management of the park falls under the Regional District of Nanaimo’s Recreation and Parks Department.

Mount Arrowsmith Massif Regional Park is 1300 hectares in size and encompasses two key landscape features on Central Vancouver Island, Mount Arrowsmith (elevation 1,817m/5,962ft) and Mount Cokely (elevation 1,616m/5,301ft) (Regional District of Nanaimo, 2010). The park is bordered by the Mount Arrowsmith Regional Park, operated by the Alberni-Clayoquot Regional District (ACRD), and privately owned forestry lands. The park has natural, historical, and recreational values. Next to Strathcona Provincial Park, Mount Arrowsmith Massif Regional Park has the largest alpine and sub-alpine ecosystem on Vancouver Island (Regional District of Nanaimo, 2010). The park is home to several red-listed and blue-listed species, provides habitat to the White-tailed Ptarmigan and endangered Vancouver Island Marmot, and is a snow-pack source for the Englishman and Little Qualicum Rivers (Regional District of Nanaimo, 2010). Both of these rivers are salmon bearing and local drinking water sources. Historically, ascents of the mountain date back to 1887, and culturally the park is known to the local Hupacasath First Nations as “Kuth-Kah-Chulth” (“that which has sharp pointed faces”) (Regional District of Nanaimo, 2010). Mount Arrowsmith Massif Regional Park has significant recreational value, as the park is very accessible and popular for hiking, climbing, snowshoeing, lake fishing, wildlife viewing, and
photography.

The purpose of this research was to gauge stakeholder perceptions regarding these two areas: the Mount Arrowsmith Biosphere Reserve and the Mount Arrowsmith Massif Regional Park. The following summarizes the specific objectives of this study:

1. To better understand the awareness and engagement of stakeholders with the Mount Arrowsmith Massif Regional Park.

2. To better understand stakeholder perspectives regarding the perceived costs and benefits of the Mount Arrowsmith Massif Regional Park.

3. To better understand the awareness and engagement of stakeholders with the Mount Arrowsmith Biosphere Reserve.

This case study is important as it is connected to a larger protected areas research initiative undertaken by the Protected Areas and Poverty Reduction (PAPR) research group. The PAPR (2009) research group is focused on examining four themes: local benefits to bordering PA communities, PA governance, human-wildlife interactions, and knowledge mobilization at various study sites in Canada, Ghana, and Tanzania. The overall goal of the PAPR broader research initiative is to address the challenges of rural poverty and environmental sustainability.

PAPR is structured in a way that allows for a three-way learning connection, Canadians learn from Africans, Africans learn from Canadians, and Africans learn from each other (Protected Areas and Poverty Reduction, 2009). The PAPR (2009) research approach supports the development of innovative strategies for the exchange of ideas and knowledge mobilization, as well as the training of students, researchers, and community
members. PAPR research activities provide a platform for capacity building in rural communities, with partnering universities, and protected area agencies.

This study intends to provide an increased understanding of stakeholder awareness and engagement regarding the Mount Arrowsmith Biosphere Reserve and the costs and benefits of the Mount Arrowsmith Massif Regional Park. Often there exists an inequity of the flow of costs and benefits from protected areas to local communities (Protected Areas and Poverty Reduction, 2009). This study is intended to measure perceived benefits and concerns of regional parks perceived by local stakeholders in order to describe community support. The study is also intended to outline stakeholder perceptions relating to the mandate of the Mount Arrowsmith Biosphere Reserve.

Findings obtained in this study will be useful for regional park planners and biosphere reserve managers to assist with future management decision-making. This case study may also be used for comparative analysis with other PAPR studies.
Chapter 2 - Literature Review

Introduction

The intent of this research is to better understand awareness and engagement of stakeholders with the Mount Arrowsmith Massif Regional Park and Mount Arrowsmith Biosphere Reserve. This study was also intended to focus on the perceived flow of costs and benefits of protected areas as part of the Protected Areas and Poverty Reduction (PAPR) research network. This chapter will review relevant literature in order to provide context for the study.

Types of Protected Areas

In Canada, PA’s are established at the national, provincial, and regional or community level. They are also found within varying environmental contexts. Some are part of a large undisturbed natural system and others within urban developments. The IUCN (2003) have categorized PA’s into six different types in order to provide a global framework or template.

IUCN Category 1 PA’s are strict nature reserves and wilderness areas and are protected areas managed mainly for science or wilderness protection. This refers to a natural area possessing representative ecosystems, geological, or physiological features or species strictly for scientific research and environmental monitoring. An example of this type of IUCN protected area is the Nitinat Lake Ecological Reserve.

IUCN Category 2 protected areas are national parks and are protected areas managed mainly for ecosystem protection and recreation. Most people are familiar with this type of PA as they are areas intended to protect ecological integrity of specific ecosystems for future generations, often exclude resource exploitation, and provide
opportunities for spiritual, scientific, educational, recreational and visitors. Pacific Rim National Park Reserve and Banff National Park are examples of a Category 2 protected area.

Category 3 PA’s include national monuments and are protected areas managed mainly for conservation of specific natural features. These PA’s are places of specific importance due to their unique value of natural or cultural features representing specific significance. Horne Lake Caves Provincial Park is an example of a Category 3 PA.

Habitat and species management areas are IUCN Category 4 protected areas and are managed mainly for habitat and species conservation through management intervention. These PA’s are established to help ensure healthy populations of specific species through the use of management planning. An example of an IUCN habitat/species management area is the Parksville Qualicum Wildlife Management Area.

IUCN Category 5 protected areas are landscape and seascape PA’s that are managed mainly for conservation and recreation. These are areas where there has, over time, been a strong interaction between nature and people due to significant aesthetic, ecological or cultural values. Mount Arrowsmith Massif Regional Park, a focus of this study, is classified as a Category 5 PA.

IUCN Category 6 PA’s, which are protected areas managed mainly for the sustainable use of natural ecosystems. These PA’s are meant to protect natural systems while providing a sustainable flow of natural products and services to meet local community needs. The Highwood River Natural Area near Calgary is classified as an IUCN Category 6 PA.
The IUCN PA categories were created to serve a number of purposes: to alert governments of the importance of PA’s; to encourage governments to establish local and national PA systems; to explicitly define the various types of PA’s; to provide international standards to assist regional and global accounting; to provide a global framework for the collection and dissemination of PA information; and to improve communication and understanding for the conservation community (Lockwood et al., 2006).

Although the IUCN PA Categories help differentiate between protected areas globally, the designation and management of PA’s differ from country to country. There are some major internationally recognized PA designations that are not part of the IUCN PA Category listing. These areas include World Heritage Sites, Ramsar Wetlands, and UNESCO Man and the Biosphere (MAB) Reserves (Lockwood et al., 2006), which are a focus of this study. The level of protection and extent of management also varies between jurisdictions regarding these major international PA’s.

World Heritage Sites are arguably the most significant protected area designation due to the natural or cultural values of such PA’s. PA’s with this designation are protected for the benefit of all of humanity (Prato & Fagre, 2005). Nahanni National Park Reserve was the first natural World Heritage Site designated in Canada in 1978. Other Canadian World Heritage Sites include Banff, Jasper, Yoho, and Kootenay national parks.

Ramsar Wetlands are PA’s established under the Ramsar Convention that seeks to provide a framework for national action and international cooperation towards the sustainable use of wetlands (Lockwood et al., 2006). Ramsar sites help conserve global
biological diversity and sustain humanity through natural ecological and hydrological functions. Canada has 36 Ramsar sites totaling 129.2 million hectares of wetlands. Two examples in northern Canada include the Old Crow Flats Special Management Area in the Yukon, and the Queen Maud Gulf MBS in Nunavut (Lemelin & Johnston, 2009).

Biosphere Reserves are PA’s established under the UNESCO Man and the Biosphere program with the purpose to provide ecosystem conservation, foster economic sustainable development, and to provide research, education, and training opportunities (Lockwood et al., 2006). Biosphere reserves are a collaboration of human and natural systems working together. Biosphere reserves are community based and locally managed and can typically span several municipal boundaries and become regional in scope (Hanna, Clark, & Slocombe, 2008). Biosphere reserves are usually established around watersheds and or landscape features often extending beyond human communities.

Biosphere Reserves can help to not only protect a specific geographic area but also protect and help manage specific features within their boundaries or core zones such as parks. As biosphere reserves are based on a collaborative management approach they allow for greater stakeholder involvement (Slocombe & Dearden, 2009). Collaborative management allows for a democratic or participative decision-making process resulting in greater public interests being served (Lockwood et al., 2006). This can ultimately result in greater support for management objectives, as stakeholders are able to take part ownership of planning and management decisions.

In total, Canada has 15 biosphere reserves spread across 8 provinces (Canadian Biosphere Reserve Association, 2010). Two of the 15 biosphere reserves are located on
Vancouver Island: the Mount Arrowsmith Biosphere Reserve and the Clayoquot Biosphere Reserve.

**Governance of Protected Areas**

The designation of parks and protected areas does not ensure long-term survival. To ensure PA’s are properly managed for long-term sustainability requires active governance and management systems. There are essentially four main types of governance for protected areas: government protected areas (national and provincial parks), co-managed PA’s (collaboratively managed amongst stakeholders), private PA’s (private landowners and conservation organizations like the “Land Conservancy” and the “Nature Trust”), and community conservation areas (local communities and or indigenous people managed) (Lockwood et al., 2006).

There can be multiple agencies involved with the management of PA’s including not only government and non-governmental organizations (NGO) but also local community stakeholders and indigenous peoples. Recent studies show that PA governance is becoming less centralized providing more responsibility to various stakeholders (Lockwood et al., 2006). This can be attributed to the growing demand for democratic forms of protected area planning and management from the public. The benefits of participative planning processes include governance accountability, increase in the diversity of public interests and values, use of local knowledge, and the promotion of public ownership and problem solving.
Canada’s National Parks

Canada’s parks can be categorized into national, provincial, regional and municipal. The size, features, and purpose of the different parks that make up Canada’s parks vary considerably.

The role of national parks has changed over time. Early national parks were designated for social and economic purposes like Banff National Park, but today they provide a much different role with a greater focus on conserving biological diversity and ecological integrity (McNamee, 2009). Biodiversity can be defined as the diversity of all living organisms within an ecosystem, including species composition, structure, and function (Meffe, Nielsen, Knight, & Schenborn, 2002). Ecological integrity can be considered a condition of a natural region that is likely to continue supporting processes of native species and biological communities (Theberge & Theberge, 2009). National parks also allow park visitors the opportunity to experience and learn about nature.

The management of national parks in Canada has also evolved since the first national park was created. Park managers have come to understand the challenges of conserving biodiversity and maintaining ecological integrity and have embraced ecosystem management in official policy (Wright & Rollins, 2009). This involves exploring ways to engage with local stakeholders to work collaboratively towards conservation goals. Slocombe & Dearden (2009) state that participative and collaborative approaches are the key to making ecosystem-based management successful. Participatory and collaborative methods vary but can range from informing and communicating to the public to delegating decision-making among stakeholders. In some cases this has gone beyond communicating information and participating in decisions to
cooperative management. Cooperative management (co-management) can be defined as the management by two or more partners (Lockwood et al., 2006). Co-management in Canada’s national parks has increased involvement with First Nations such as Pacific Rim National Park Reserve and Gwaii Haanas National Park Reserve (Dearden & Langdon, 2009). These management structures have helped develop and improve positive working relationships with local First Nations.

**Provincial Parks**

Provincial parks also contribute to Canada’s system of protected areas. Malcolm (2009) suggests the main reason for the establishment of provincial parks is for protection, recreation, heritage appreciation, and tourism. Like national parks, there was increased demand for provincial parks after the Second World War as Canada’s population soared and the standard of living increased allowing greater access to outdoor recreation opportunities. Provincial parks now account for over 49 per cent of Canada’s protected areas and represent various IUCN PA categories (Malcolm, 2009). The province of British Columbia (BC) alone has grown its system to 972 parks and protected areas (BC Parks, 2009).

A number of provincial parks lie within close proximity to major human populations. As a result, provincial parks tend to be smaller in size and commonly experience external pressure from adjacent land activity (Malcolm, 2009). Oddly enough, Malcolm (2009) reports that resource extraction does still occur in Canada’s largest provincial park, Algonquin in Ontario, as well as in BC’s Strathcona Provincial Park. However, BC leads the way among all provinces when it comes to total provincially protected area with 12.1 per cent of the province protected. BC has been the
only province to implement its “Protected Areas Strategy”. In BC, the strategy is intended to address completing a system of PA’s that represent the variety of provincial ecosystems, protecting a total of 12% of provincial land (Malcolm, 2009).

It is important to differentiate between the similarities and differences of national and provincial parks. Both national and provincial parks protect significant landscapes. However, national parks are created and managed through the National Parks Act by the federal government’s Ministry of Environment, Parks Canada agency (Malcolm, 2009). Canada’s national parks can be created in any province or territory and are organized into 39 natural terrestrial regions (Malcolm, 2009). Similarly, provincial parks are classified based on natural features.

Most provinces are reluctant to surrender land to the federal government for national parks as it reduces their ability to generate revenue. Instead, provinces often choose to create provincial parks in order to retain the tourism revenues as well as resource extraction opportunities (Malcolm, 2009). This can also enable greater local control and management than if managed by the federal government. Malcolm (2009) highlights a potential disadvantage of designating a specific landscape into a provincial park over a national park is there could be a lower priority on ecological integrity. In summary, the main differences between national and provincial parks are size – national parks are often bigger, purpose – national parks are designated to conserve biodiversity and ecological integrity while provincial parks are designated to provide recreation and tourism opportunities, and management – national parks tend to have more rigid policies around conservation.
Regional Parks

Regional parks have a unique role in Canada’s parks network. According to Searle and Brayley (1993) local protected areas also have a long history in Canada dating back to 1583 where a small area of land near St. John’s Harbour was designated as a public space. By the 1800s Toronto, Kingston, and Hamilton had local parks devoted to recreation (Searle & Brayley, 1993). The primary focus of regional parks is to serve as retreats from urban environments and allow for outdoor recreation opportunities. The designation and management of local protected areas, in some cases, have now expanded to the scale of provincial and national protected areas contributing to a large regional network.

Regional and municipal parks in Canada fall under the Category 5 IUCN PA. According to Searle & Brayley (1993) regional parks are commonly designated, developed, and managed by local governments. These types of protected areas range from large geographic wilderness areas to tot lots, playgrounds, and sports fields in residential developments. The primary purpose of municipal and regional parks is often for human centered recreational use. As a result, it is very common for such PA’s to include built environment amenities such as washroom facilities, play structures, boat ramps, and well defined trail networks.

Regional park systems can vary across municipalities. The Capital Regional District (CRD) in Victoria has clearly stated the purpose of their regional parks in their Parks Master Plan. A park master plan is a local government document that provides a management framework and vision for local government staff, in this case, parks staff. The purpose of CRD parks is to protect a network of diverse natural environments that
represent the CRD and to provide outdoor experiences that foster respect for the region’s natural environments (Capital Regional District, 2000). Further, CRD regional parks propose to improve ecological health, protect threatened ecosystems, protect natural systems that are underrepresented in the region, connect existing park areas, and extend the regional trails system (Capital Regional District, 2000).

The CRD Parks Master Plan also outlines the contribution regional parks can provide towards biological diversity and ecological integrity. Specifically, CRD regional parks help conserve biodiversity through protecting diverse ecosystems and species of the region, linking regional parks with other protected areas, managing regional parks from an ecosystem-based management approach, and committing to maintaining ecological integrity and the protection of endangered species (Capital Regional District, 2000).

Even though local governments are usually the primary organization responsible for the maintenance and management of regional parks there is often community participation as well (Lanarc Consultants Ltd., 2007). Common community stakeholder involvement methods can include public meetings, workshops, surveys, comment submissions on draft management plans, and open houses (Slocombe & Dearden, 2009). For example, in relation to this study, the Regional District of Nanaimo embarked on the development of a management plan for the Mount Arrowsmith Massif Regional Park that included opportunities for public involvement through open houses and surveys. The RDN received over 120 survey responses in regards to the draft management plan for the Mount Arrowsmith Massif Regional Park (Regional District of Nanaimo, 2010).

The CRD has implemented similar planning processes including recently soliciting public input for a Regional Parks Strategic Plan through community dialogue
sessions, engagement with secondary school students, and on-line and hard copy response forms (Capital Regional District, 2010). Over 200 people attended the community dialogue sessions and approximately 75 hard copy and 350 on-line responses were received for the Regional Parks Strategic Plan (Capital Regional District, 2010).

Non-governmental organizations and volunteers also commonly assist local governments with the management of urban and regional parks through park warden and stewardship programs. The RDN currently has a volunteer park warden program that covers five of their regional parks including the Mount Arrowsmith Massif Park. Volunteers frequently visits parks and help monitor activities and conditions.

**Tribal Parks**

Tribal parks are an emerging type of PA particularly found in BC. Tribal parks are managed through cooperation among First Nations but can include other partners such as Parks Canada (Tla-o-qui-aht Tribal Parks, 2011). These parks are managed to integrate human and ecosystem wellbeing, similar to the First Nations ancestral way of life (Tla-o-qui-aht Tribal Parks, 2011). Although tribal parks promote conservation they can allow low-impact resource activities such as run-of-river power projects. An example of a tribal park is Meares Island near Tofino. BC Parks Fjordlands Conservancy located in the Great Bear Rainforest is a similar PA that is co-managed between BC Parks and the Kitasoo First Nation.

**Flow of Costs and Benefits of Protected Areas**

There are a variety of socio-economic and environmental benefits that can flow from the designation of protected areas. As PA’s have become attractions for people and places to recreate, services are required to cater to visitors. This often provides job
creation for local residents. This also increases local revenues and personal income. Tourism businesses created from the establishment of protected areas also helps diversify local economies, which can be crucial in ensuring a healthy and stable local tax base. In developing countries this can ultimately help reduce poverty. For example, South African National Parks has implemented a concessionaires program where contracts are given out to successful local bidders to provide tourism services within the parks providing business opportunities for local communities and increased operating revenue for the South African National Parks agency (Lockwood et al., 2006). Approximately 200 casual jobs were created through the Parks Empowering People development project in the Namaqualand South African National Park (Benjaminsen, Kepe, & Brathen, 2008). Pacific Rim National Park Reserve employs several First Nations as a deliberate attempt to provide economic benefits to a community that has high unemployment (Dearden & Langdon, 2009).

Capital or infrastructure benefits can also result from the establishment of protected areas. Through increased economic activity as indicated above there can be improvements to local facilities, transportation, and communications (Eagles et al., 2002). Utilities that may not have been developed otherwise can become a reality through the economic stimulus provided by PA’s. This can help improve the health and well being of bordering PA communities. The Conservation Corporation Africa through the help of ecotourism businesses committed approximately $4 million to community development projects, financed and built 65 classrooms and 18 pre-schools as well as three health care clinics, helped implement water programs at schools, and has assisted in
facilitating numerous other sustainable community development initiatives (Bushell, & Eagles, 2007).

There are also social benefits to local communities through protected area creation. PA’s can provide a place of aesthetic beauty, spiritualism, and wellness. This can include a place to recreate and a place to engage in physical activity. Recreating in PA’s can also provide environmental education and awareness for locals and visitors and ultimately help towards environmental stewardship. PA’s are a place for wildlife viewing and a place for experiencing natural processes. Through the exchange of tourism PA’s can increase cultural understanding of indigenous peoples including their traditions and crafts, which can support, promote, and preserve local cultures (Eagles et al., 2002).

Protected areas provide a learning environment of natural history.

Protected areas also provide many environmental benefits. These include promoting biological diversity and supporting ecological processes (Eagles et al., 2002). Protection of wildlife habitat, species populations, and endangered species is also a result of the designation of PA’s. Environmental benefits of PA’s also include ecosystem goods and services, or the goods and services provided by the natural environment, including providing clean water, carbon sequestration, and maintaining erosion control (Lockwood et al., 2006). PA’s also provide places for research and understanding of natural systems.

Just as there are multiple socio-economic and environmental benefits associated with protected areas, there are also potential costs. Most PA’s attract tourists and thus demand services that require a level of infrastructure to support these services. Not all communities have the proper infrastructure to support an influx of tourists therefore
potentially straining local community systems. In order to provide goods and services for the tourism economy it often requires increased taxes from local communities, sometimes forcing lower income families to relocate (Eagles et al., 2002). Tofino, British Columbia is a good example as the cost of living within the region has increased exponentially in recent years due to increased foreign investor developments throughout the region around the main attraction of Pacific Rim National Park Reserve. Although the developments have increased employment opportunities it has also attracted job seekers from abroad causing a spike in demand for accommodations that are in short supply thus driving up housing costs.

The designation of protected areas can also force local communities, who reside within the designated PA boundaries, to relocate. Brockington (2005) states that those affected by such evictions are rarely compensated for and in some cases can outweigh the economic benefits of establishing the protected area. This occurred in Canada in 1933 when Riding National Park was established as the Keeseekoowenen band were evicted and their houses burned to make way for the park (Dearden & Langdon, 2009).

Foreign landowner developments near parks can also lead to increased leakage of local revenues. If tourist revenues are being directed to foreign investors and not filtered back into the local community the local community will not benefit from the tourism dollars (Eagles et al., 2002). In Kenya there is little evidence that PA tourism dollars are improving local livelihoods (Honey, 2008). Some leakage undoubtedly occurs in Tofino as well.

Protected areas can also impose specific social costs on local communities. Protected area tourism can compete with local residents for local goods and services as
well as natural sanctuaries, or recreational places. This can contribute to the degradation of indigenous sacred sites. Increased demand on local community systems by tourists can result in an increase in congestion, pollution, vandalism, and crime (Eagles et al., 2002). For example, the annual Sand Castle Festival held in Parksville near Rathtrevor Park was cancelled in 1997 after rowdy tourists started riots and looting of local stores (Rollins, Delamere, & Sepos, 1999). However, in recent years the festival has been reinstated and reoriented towards a family festival.

Cultural erosion is another cost to local communities created by protected area tourism. Mass tourists and managers of PA’s bring with them at times differing values, traditions, and beliefs, which can conflict with those of the local native population. Berg (1990) suggests this may being experienced at Pacific Rim National Park Reserve where the local Nuu-chah-nulth people consider the park home, whereas park managers who consider themselves “preservationists” believe the park holds ecological and recreation values but detest that people live in the park. Protected area tourism can also commercialize indigenous peoples traditions. Eagles et al. (2002) states that this is not uncommon as local indigenous communities often lack the proper training and skills necessary to properly manage their tourism products and services. Findings from a review of 54 community tourism enterprises in Namibia revealed that there was an extremely low community understanding and capacity to manage community tourism effectively (Spenceley, 2008).

There can be environmental costs that stem from the creation of protected areas, which are most often directly associated with tourism. The construction of tourism infrastructure such as highways, resorts, hotels, and marinas can impact local ecosystems.
Tourism infrastructure can disturb wildlife habitat and increase human-wildlife incidents, cause soil compaction, and increase storm water run off (Eagles et al., 2002). For example, the Trans-Canada Highway running through Banff National Park (and Pacific Rim National Park Reserve) contributes to wildlife mortality. Tourism demands can strain local drinking water sources, as was the case in Tofino in the summer of 2008, as well as exceed sewage capacity polluting local water sources. Wildlife within the protected area can also be affected by increased human activity. Impacts to wildlife can come in the form of excessive noise and harassment, which can alter wildlife habits and behavior disrupting natural ecosystems. In some cases animals can become habituated and reliant on human interactions such as feeding or access to human garbage (Eagles et al., 2002), or feeding on urban gardens (that is a common occurrence on Vancouver Island). Environmental degradation can come from the distribution of tourists through soil compaction and erosion, trail creation, vehicle tracks, and impacts on vegetation.

Flows of costs and benefits of PA’s are related to governance, as well as the level of involvement and commitment of management by local communities. Arguably regional parks and tribal parks provide greater local involvement and potentially better flows of benefits. Compared to national and provincial parks, but this may not always be the case.

Summary

There are various challenges and issues related to the designation and management of parks and protected areas. A primary challenge is that there are simply not enough of them, especially in Canada. Dearden & Rollins (2009) report that only about 10% of the terrestrial country has protected designation. The location of parks can
also be an issue, or that PA’s must be established to protect natural landscapes and biodiversity with the long-term goal of sustaining ecological integrity (Wright & Rollins, 2009). This is an ongoing challenge as government agencies responsible for establishing parks and protected areas compete with industry and human development for potential PA sites. This is exacerbated by climate change and shifting ecosystems.

The size and scale of parks and protected areas is another issue, with PA’s often becoming protected terrestrial or marine islands bordering industry and communities (Theberge & Theberge, 2009). This makes it extremely challenging for management to achieve conservation goals. For example, wildlife does not know what boundaries are and need specific ranges to survive and support healthy populations.

Isolation of parks and protected areas is another challenge for PA agencies and managers. The theory of island biogeography described by Theberge & Theberge (2009) states that protected areas can become surrounded by human development creating a protected terrestrial or marine island, where species richness will decline on a function of park size and isolation. A potential solution to this is to create a matrix, or a network, of protected areas allowing wildlife corridors therefore providing landscape connectivity reducing habitat fragmentation. Large patches within a matrix of protected areas are preferable over small patches as they allow for a greater diversity of species. An example of this is the biosphere reserve concept, where a series of core areas (PA’s) form a network to achieve greater conservation.

Human-wildlife incidents are another challenge park manager’s face. Human-wildlife interactions can be positive and negative. Positive interactions are when there is no aggression displayed towards humans and people are able to safely view and learn
about various species in their natural environment. Negative human-wildlife interactions do occur and can be quite violent for both humans and wildlife (Lemelin & Johnston, 2009). Poaching of wildlife is another serious issue in and around parks and protected areas. To prevent negative human-wildlife interactions managers must better understand ecosystem processes and manage human activity accordingly to prevent such altercations and to ensure positive benefits from PA’s (Protected Areas & Poverty Reduction, 2009).

Gaining public support can also be a challenge for the creation and management of protected areas at all levels. At times PA’s can receive a lower priority for funding as they often compete for the same financial resources with other social services such as education and health care (Low et al., 2005). A lack of public understanding on the benefits of parks and protected areas can also contribute to a lack of support. Support for PA’s can be achieved through community education and awareness on the economic, social, and environmental benefits.

There are various challenges that Canada’s protected area manager’s face. In order to continue conserving biodiversity and maintaining ecological integrity governments and protected area managers must develop strategies to overcome such challenges. Collaborative planning, ecosystem-based management, and biosphere reserves are possible strategies to help overcome these challenges.

This chapter has provided an overview of the different types and governance of protected areas, including national, provincial, and regional parks. There has been very little research concerning the effectiveness of regional parks in Canada, nor has there been much research concerning the effectiveness of biosphere reserves. In order to improve public support for regional parks and biosphere reserves further research is
required regarding the flow of costs and benefits. This study is intended to do this by expanding on the literature of regional parks and biosphere reserves as well as contribute to the larger Protected Areas and Poverty Reduction (PAPR) research network.
Chapter 3 – Methodology

Introduction

This study had several purposes: to better understand awareness and engagement of stakeholders with the Mount Arrowsmith Massif Regional Park; to better understand the awareness and engagement of stakeholders with the Mount Arrowsmith Biosphere Reserve; and to focus on the perceived flow of costs and benefits of protected areas to local communities.

A mixed methods research methodology was implemented for this study. Semi-structured interviews were conducted with a variety of individuals from government, industry, and non-profit agencies in the Nanaimo, Parksville, and Qualicum communities. In total, 16 interviews were conducted with respondents representing private businesses, BC Parks, regional parks, conservation agencies such as the Western Wilderness Committee, and affiliates of the Mount Arrowsmith Biosphere Reserve. These interviews were conducted between June and October 2010. This chapter will discuss the overall research methodology and methods used to collect the data for this study, as well as limitations, strengths and weaknesses.

Methodology

The methodology for this study used a mixed methods approach with a case study focus, exploring several topics within a specific setting and context (Creswell, 2007). A main aspect of the research was qualitative. Qualitative research refers to the meanings, concepts, definitions, characteristics, metaphors, symbols, and description of things and often includes observations and interviews (Berg, 2004). Qualitative research seeks to answer questions through social setting examinations with individual inhabitants (Berg,
Therefore as this study is focused on stakeholder perceptions a qualitative research method was utilized for data collection through participant interviews.

However, as the interviews also included survey style questions there is a quantitative aspect incorporated in this study. Quantitative research is primarily associated with counts and measures of things and can be used for statistical analysis (Berg, 2004). This study could therefore be considered a mixed methods approach incorporating both qualitative and quantitative research.

Participant or stakeholder interviews were the main method of data collection for this research. Qualitative interviewing is intended to gauge participant opinions and gather their stories (Patton, 2002). This research method was selected to answer the research objectives of this study, or to gauge stakeholder perspectives about the Mount Arrowsmith Massif Regional Park and the Mount Arrowsmith Biosphere Reserve.

Stakeholder interviews also allowed an opportunity to understand other personal and organizational aspects of the participants in relation to the research objectives. A semi-standardized interview was used. According to Berg (2004) semi-standardized interviews have the following characteristics:

- are more or less structured;
- allow flexibility with ordering of questions;
- wording of the interview questions is flexible;
- the level of language in the interview can be adjusted;
- the interviewer may answer questions and make clarifications; and
- the interviewer can include interview probes.
A predetermined interview questionnaire was used that consisted of both open-ended and closed questions (see Appendix C for details of the research interview questionnaire). This allowed the interviews to stay on track but at the same time provide opportunity for stakeholders to raise and discuss other topics. Questions were developed from the literature review, and from discussions with a couple of stakeholders.

Stakeholder interviews were scheduled between June and October 2010. The date and location of interviews were dependent on interviewer and the interviewees’ availability and therefore took place on various days and times of the week including evenings and weekends. While the preferred interview method was a face-to-face encounter, several of the interviews were conducted via telephone. The lengths of the interviews varied but on average were finished within one hour. Due to technological challenges only a few of the total interviews were recorded. This did not pose an issue when compiling data due to sufficient note taking and a relatively short data collection period.

A purposeful sampling method was implemented for this study in order to select interview participants. Purposeful sampling allows for the selection of specific cases for study, people, organizations, communities, etc. as they are information rich in relation to the research objectives and can offer useful insight regarding the research topic (Patton, 2002). A key stakeholder interview contact list was developed including individuals from Nanaimo, Parksville, Qualicum, and Port Alberni. This list represented individuals from government, industry, local businesses, First Nations, and non-profit organizations that may be associated with or aware of the Mount Arrowsmith Massif Regional Park and the Mount Arrowsmith Biosphere Reserve. Invitations to potential participants were sent
out via email requesting a response if interested in participating in the study. A total of 16 interviews were conducted with a variety of individuals from the groups listed above.

**Characteristics of the Sample**

Conservation groups represented the greatest number of respondents interviewed (8). The types of organizations that represent this group include the Western Canada Wilderness Committee, Milner Gardens Woodlot, Mid Vancouver Island Habitat Enhancement Society, BC Conservation Foundation, and the Mount Arrowsmith Biosphere Reserve. Park and tourism agencies were the second most interviewed with 2 respondents each. Conservation group directors were the largest number of respondents interviewed by job title (3). Respondent job titles are as follows:

- Conservation group director (3);
- Conservation group chair person (2);
- Conservation group project manager (2);
- Conservation group coordinator (1);
- Conservation group president (1);
- BC Parks area supervisor (1);
- Entrepreneur (1);
- Fisheries scientist (1);
- Regional parks planner (1);
- Resource management consultant (1);
- Tourism services coordinator (1); and
- Tourism services executive director (1).
Sample characteristics in terms of involvement with resource management (Q2) are as follows:

- Advisory (13);
- Education (12);
- Advocacy (9);
- Consultation (9);
- Field Work (8);
- Restoration (7); and
- Parks and protected areas management (4).

Sample characteristics in terms of involvement with recreation use (Q3) are as follows:

- Education (7);
- Environmental restoration (5);
- Outdoor recreation (5);
- Fisheries management (4); and
- Tourism marketing (2).

Sample characteristics in terms of involvement with conservation (Q4) are as follows:

- Education (7);
- Environmental restoration (6);
- Consultation (4);
- Research (4);
- Parks and protected areas management (3);
• Advocacy (2); and
• Ecosystem-based management (2).

Limitations

The research methodology implemented for this study is subject to some limitations. Perhaps the most significant limitation was the use of a small number of stakeholders (16) as a proxy for community perspectives. These stakeholders represent significant interest groups and can provide insight that relate to their group and are significant for this study. The views expressed in this method are likely to reflect community values, but this can only be determined with a larger sample (e.g. 400 people).

Gaining feedback from a true representation of the study area was a challenge, as not all stakeholders contacted were able or willing to participate. Interview dates and times were not always feasible for all participants that ultimately determined the sample size. This was further exacerbated due to the short window for data collection to complete this project, or that all interviews had to be completed between June and October 2010. This was a factor for participant availability as this time of year is typically busier for most people.

Accurate interpretation of all interview questions by participants was challenging considering the different backgrounds of stakeholders. Although the interviewer strived to ensure all interviewees properly understood each question, some participants responded to the section regarding potential benefits of the Mount Arrowsmith Massif Regional Park through an agree/disagree perspective as oppose to the intended level of importance. Perhaps the interview question could have been worded differently to avoid
this situation, however as the objective of the research project was to generally gain a better understanding of stakeholder perspectives on park benefits the data is still very valid and useful.

Although there are various limitations or weaknesses that can be identified with this study there are also strengths that should be highlighted. Qualitative interviews are a very useful method to gain research participant perceptions (Patton, 2002). Through semi-structured interviews valuable information was gained regarding the research objectives relating to the Mount Arrowsmith Massif Regional Park and the Mount Arrowsmith Biosphere Reserve. Further, other stakeholder perspectives were obtained through the open-ended questions. Another strength of this methodology included the flexibility of the researcher to schedule and conduct interviews. This study provided an opportunity to engage in research regarding local issues that could potentially effect change.

There are various other research methods that could have been implemented. These include focus group interviews, survey methods such as mail, telephone, or Internet (Brewerton & Millward, 2001). However, as the main objectives of this study were to understand stakeholder perspectives and their interactions, semi-structured interviews were selected. This not only provided a forum for structured and unstructured dialogue but also an opportunity to meet and gauge stakeholders’ emotions about the research topics. Semi-structured interviews also enabled the researcher to develop a rapport with stakeholders and explore the research topics in a personal matter as well as other topics. This research method was also selected as it was most cost-effective and provided the most flexibility for data collection with the researcher and interviewees.
Summary

Mixed research methods was the methodology selected for this study. Individual interviews were the data collection method used. These interviews proved very valuable in gaining information about stakeholders in relation to the research topics. A key benefit of this methodology was that aspects of the information collected could be analyzed both qualitatively and quantitatively providing a richer analysis. This methodology also provided data collection flexibility for both the researcher and the research subjects.
Chapter 4 - Results and Discussion

Introduction

The purpose of this study was to better understand awareness and engagement of stakeholders with the Mount Arrowsmith Massif Regional Park and the Mount Arrowsmith Biosphere Reserve, as well as perceived costs and benefits of protected areas.

As outlined in Chapter 3 the method employed to collect the data for this study was stakeholder interviews. A list of potential stakeholders was identified from the Nanaimo, Parksville, Qualicum, and Port Alberni area. Stakeholders were selected from a diverse background including government, non-profit organizations, consultants, and local businesses. In total, 16 stakeholders were interviewed between June and October 2010.

The following chapter presents the results from the stakeholder interviews. It should be noted that to ensure anonymity of project participants, interview responses are presented and discussed without personal reference.

Engagement with Park and Other Agencies

Specific questions were asked in order to help understand the level of engagement or involvement stakeholders have with park and other agencies. The majority of respondents (81%) stated that their organization had engaged with park agencies when managing organizational activities. This is not surprising as the majority of respondents also indicated being directly or indirectly involved with recreation use and conservation.

Table 1 summarizes the types of challenges respondents reported when engaging with park agencies. Many respondents (25%) indicated a lack of financial resources were
a challenge when engaging with park agencies. This includes park agency financial resources for projects and partnerships as well as resources for research. Similarly, 25% of respondents stated that bureaucracy was a challenge with park agency engagement.

Examples of bureaucracy reported included the permit process at the provincial level in order to do environmental restoration work in provincial parks; and that processes with park agencies often move really slow. 25% of respondents also indicated that a lack of available park agency staff was a challenge for engagement. Interestingly, 19% of respondents did not report challenges while engaging with park agencies.

Table 1. Types of Challenges with Park Agencies (Q5b)

<table>
<thead>
<tr>
<th>Types of Challenges</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of park agency financial resources.</td>
<td>25</td>
</tr>
<tr>
<td>Park agency bureaucracy.</td>
<td>25</td>
</tr>
<tr>
<td>Lack of park staff available.</td>
<td>25</td>
</tr>
<tr>
<td>Staff changes.</td>
<td>6</td>
</tr>
<tr>
<td>Not welcoming public involvement.</td>
<td>6</td>
</tr>
<tr>
<td>Lack of internal resources.</td>
<td>6</td>
</tr>
<tr>
<td>None.</td>
<td>19</td>
</tr>
</tbody>
</table>

Respondents were also asked if their organization engaged with other government agencies. The majority, or 86% of respondents stated that their organization did engage with other government agencies but a number of challenges were identified (Table 2). 38% of respondents reported bureaucracy was a challenge when engaging with other government agencies. A specific type of bureaucracy reported by a respondent is the Provincial Water Stewardship Licensing process. A lack of government agency resources was the second greatest challenge reported by respondents (25%). It was interpreted that the majority of respondents were referring to a lack of government agency staff resources. 25% of respondents also indicated that a challenge to engaging with other government agencies was a lack of financial resources. Again, it is understood
that this challenge is regarding the lack of government agency funds available to community organizations for various projects.

Table 2. Types of Challenges with Other Government Agencies (Q5d)

<table>
<thead>
<tr>
<th>Types of Challenges</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Government agency bureaucracy</td>
<td>38</td>
</tr>
<tr>
<td>Lack of government agency resources</td>
<td>25</td>
</tr>
<tr>
<td>Lack of government agency funding</td>
<td>19</td>
</tr>
<tr>
<td>Lack of internal resources (volunteerism)</td>
<td>13</td>
</tr>
<tr>
<td>Government agency staff changes</td>
<td>13</td>
</tr>
<tr>
<td>Different philosophies/mandates</td>
<td>6</td>
</tr>
<tr>
<td>Lack of communication from government agencies</td>
<td>6</td>
</tr>
<tr>
<td>Lack of understanding by government agencies</td>
<td>6</td>
</tr>
<tr>
<td>Lack of interest at the regional government level</td>
<td>6</td>
</tr>
</tbody>
</table>

**Awareness and Engagement with the Mount Arrowsmith Massif Regional Park**

Table 3 presents respondents’ level of awareness with Mount Arrowsmith Massif Regional Park. 50% of respondents indicated they were very or quite aware of the Mount Arrowsmith Massif Regional Park while the remainder reported being only somewhat or not at all aware of the park. These response percentages are not surprising considering the park was only recently designated as an official RDN regional park. However, this is an important finding because in order to gain public support for regional parks there must be a sufficient level of public awareness for the park.

Table 3. Awareness of the Mount Arrowsmith Massif Regional Park (Q6)

<table>
<thead>
<tr>
<th>Level of Awareness</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very aware.</td>
<td>44</td>
</tr>
<tr>
<td>Quite aware.</td>
<td>6</td>
</tr>
<tr>
<td>Somewhat aware.</td>
<td>44</td>
</tr>
<tr>
<td>Not at all aware.</td>
<td>6</td>
</tr>
</tbody>
</table>

When asked if respondents had been involved in discussions, meetings, or decisions with the Regional District of Nanaimo regarding the Mount Arrowsmith Massif Regional Park, 75% indicated they had not. This correlates with the level of awareness
about the park. The public may become more aware of the park through increased opportunities for engagement.

A main focus of this research was to gain an understanding of stakeholder perceptions regarding the potential benefits of the Mount Arrowsmith Massif Regional Park. Table 4 outlines response percentages by respondents for the importance of various potential benefits from the Mount Arrowsmith Massif Regional Park. Most (88%) respondents indicated that it was quite or very important that the park provides aesthetic and natural beauty, provide outdoor and environmental education, contributes to habitat conservation, and contributes to biodiversity. Also, a large portion (82%) stated it is important that the park provides opportunities to engage in outdoor recreation and physical activity as well as wildlife conservation. The low end of perceived benefits reported were: contributes to local employment and business opportunities through tourism (26%), contributes to the local economy through tourism (44%), and, helps with local soil erosion (57%). It should be noted that although the interviewer tried to ensure interviewees understood each question some interviewees responded to these questions from an agree/disagree perspective. In these cases responses to each of the possible benefits were recorded based on the closest relation to the possible answers in Table 4.

Respondents were asked to indicate the two most important benefits from question 8 in the interview. The highest ranked possible benefits of the park reported were providing opportunities to engage in outdoor recreation and physical activity, providing opportunities to engage in outdoor and environmental education, contributes to habitat conservation, or contributes to biodiversity. The highest-ranking items in this table closely compare with Table 4. Some respondents reported “other” most important
benefits not provided in the list. These include: benefit to local landowners (6%), environmental health (6%), and ecosystem services (6%).

Table 4. Possible Benefits from the Mount Arrowsmith Massif Regional Park (Q8)

<table>
<thead>
<tr>
<th>Possible Benefits</th>
<th>Not at all Important</th>
<th>Somewhat Important</th>
<th>Quite Important</th>
<th>Very Important</th>
<th>Quite &amp; Very Important</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provides aesthetic and natural beauty.</td>
<td>6</td>
<td>0</td>
<td>19</td>
<td>69</td>
<td>88</td>
</tr>
<tr>
<td>Provides opportunities to engage in outdoor and environmental education.</td>
<td>6</td>
<td>6</td>
<td>25</td>
<td>63</td>
<td>88</td>
</tr>
<tr>
<td>Contributes to habitat Conservation</td>
<td>0</td>
<td>13</td>
<td>19</td>
<td>69</td>
<td>88</td>
</tr>
<tr>
<td>Contributes to biodiversity.</td>
<td>0</td>
<td>13</td>
<td>13</td>
<td>75</td>
<td>88</td>
</tr>
<tr>
<td>Provides opportunities to engage in outdoor recreation and physical activity.</td>
<td>6</td>
<td>13</td>
<td>13</td>
<td>69</td>
<td>82</td>
</tr>
<tr>
<td>Contributes to wildlife conservation.</td>
<td>6</td>
<td>13</td>
<td>19</td>
<td>63</td>
<td>82</td>
</tr>
<tr>
<td>Helps maintain water flow within the local watershed.</td>
<td>13</td>
<td>13</td>
<td>25</td>
<td>50</td>
<td>75</td>
</tr>
<tr>
<td>Helps cleanse the local water source.</td>
<td>19</td>
<td>6</td>
<td>25</td>
<td>50</td>
<td>75</td>
</tr>
<tr>
<td>Helps regulate climate.</td>
<td>19</td>
<td>13</td>
<td>38</td>
<td>31</td>
<td>69</td>
</tr>
<tr>
<td>Helps absorb pollutants.</td>
<td>19</td>
<td>19</td>
<td>31</td>
<td>31</td>
<td>62</td>
</tr>
<tr>
<td>Helps regulate air quality.</td>
<td>13</td>
<td>25</td>
<td>31</td>
<td>31</td>
<td>62</td>
</tr>
<tr>
<td>Helps control local soil erosion.</td>
<td>13</td>
<td>31</td>
<td>19</td>
<td>38</td>
<td>57</td>
</tr>
<tr>
<td>Helps contribute to the local economy through tourism revenues.</td>
<td>13</td>
<td>44</td>
<td>25</td>
<td>19</td>
<td>44</td>
</tr>
<tr>
<td>Helps contribute to local employment and business opportunities through tourism.</td>
<td>19</td>
<td>56</td>
<td>13</td>
<td>13</td>
<td>26</td>
</tr>
</tbody>
</table>
Table 5. Two Most Important Possible Benefits from the Mount Arrowsmith Massif Regional Park (Q9)

<table>
<thead>
<tr>
<th>Possible Benefits</th>
<th>Response (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provides opportunities to engage in outdoor recreation and physical activity.</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>31</td>
</tr>
<tr>
<td>Provides opportunities to engage in outdoor and environmental education.</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>31</td>
</tr>
<tr>
<td></td>
<td>31</td>
</tr>
<tr>
<td>Contributes to habitat and wildlife conservation.</td>
<td>31</td>
</tr>
<tr>
<td></td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>31</td>
</tr>
<tr>
<td>Contributes to biodiversity.</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>31</td>
</tr>
<tr>
<td>Provides aesthetic and natural beauty.</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>19</td>
</tr>
<tr>
<td>Helps maintain water flow within the local watershed.</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>13</td>
</tr>
<tr>
<td></td>
<td>13</td>
</tr>
<tr>
<td>Helps contribute to the local economy through tourism revenues.</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>19</td>
</tr>
<tr>
<td>Helps contribute to local employment and business opportunities through tourism.</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>0</td>
</tr>
<tr>
<td>Helps cleanse the local water source.</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>0</td>
</tr>
<tr>
<td>Helps control local soil erosion.</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>0</td>
</tr>
<tr>
<td>Helps absorb pollutants.</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>0</td>
</tr>
<tr>
<td>Helps regulate air quality.</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>0</td>
</tr>
<tr>
<td>Helps regulate climate.</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>0</td>
</tr>
</tbody>
</table>

Respondents were asked to state if there were other possible benefits from the Mount Arrowsmith Massif Regional Park (Q10), these included:

- Intrinsic value of the park;
- Preservation of traditional First Nations history;
- Protection from environmental degradation; and
- Raising the importance of the benefits of regional parks.

Respondents reported the following challenges when working with the Regional District of Nanaimo (RDN) regarding the Mount Arrowsmith Massif Regional Park (7b):

- Conservation issues – there is fear that the RDN will focus on the management of recreation use and not conservation when managing the park;
- Bureaucracy – concern that the RDN is slow moving with organizational activities;
- Engagement – what is the appropriate level of public engagement for making decisions about the park;
- Lack of personal time;
- Concerns regarding source drinking water – concern that the RDN do not understand public concern over drinking water;
- Lack of available research funding through the RDN; and
- Excesses by the RDN regarding authority to manage land-use activities on private property.

When asked about any issues or concerns about the Mount Arrowsmith Massif Regional Park respondents reported the following (Q11 & 12):

- Adjacent land use – concerns about the high potential for ongoing logging activity, as private forest companies own the majority of the adjacent land surrounding the park. This is an important finding as it supports the notion that parks are often not large enough to protect biodiversity. Logging adjacent to park boundaries could be a significant issue, unless the “Mount Arrowsmith Biosphere Reserve” can play a role in promoting sustainable harvesting;
- Lack of enforcement;
- Park access;
- Command and control management;
- Lack of planning and management;
- Lack of conservation/preservation;
- Over use;
- Protection of the watershed;
• Park safety;
• User group conflicts; and
• Vandalism.

**Awareness and Engagement with the Mount Arrowsmith Biosphere Reserve**

Understanding stakeholder perceptions about the Mount Arrowsmith Biosphere Reserve was another major focus of this study. Table 6 provides a break down of the level of awareness for the Mount Arrowsmith Biosphere Reserve. 69% of all respondents stated they were quite or very aware of the Mount Arrowsmith Biosphere Reserve, while 31% indicated they were only somewhat aware.

<table>
<thead>
<tr>
<th>Level of Awareness</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very aware.</td>
<td>50</td>
</tr>
<tr>
<td>Quite aware.</td>
<td>19</td>
</tr>
<tr>
<td>Somewhat aware.</td>
<td>31</td>
</tr>
<tr>
<td>Not at all aware.</td>
<td>0</td>
</tr>
</tbody>
</table>

A series of questions were asked about the Mount Arrowsmith Biosphere Reserve framework to understand stakeholder perspectives. As outlined in Table 7, highest importance from participants were:

• Promoting public awareness of resource management concerns facing residents living within the Mount Arrowsmith Biosphere Reserve;
• Promoting the conservation of natural diversity; and
• Participating with area residents in developing projects to address local concerns.

Benefits reported by respondents for collaborating with the Mount Arrowsmith Biosphere Reserve include (Q18):

• Working towards a common goal;
• Working towards conservation;
• Synergies with own organization;
• Centre for research;
• Facilitating public involvement;
• Working towards long-term sustainability;
• Raising public awareness; and
• Tourism marketing.

Table 7. Importance of the Mount Arrowsmith Biosphere Reserve Framework (Q17)

<table>
<thead>
<tr>
<th>Mount Arrowsmith Biosphere Reserve Framework</th>
<th>Not at all Important</th>
<th>Somewhat Important</th>
<th>Quite Important</th>
<th>Very Important</th>
</tr>
</thead>
<tbody>
<tr>
<td>Promoting public awareness of resource management concerns facing residents living within the Mount Arrowsmith Biosphere Reserve.</td>
<td>0</td>
<td>0</td>
<td>13</td>
<td>88</td>
</tr>
<tr>
<td>Promoting the conservation of natural diversity.</td>
<td>0</td>
<td>0</td>
<td>19</td>
<td>81</td>
</tr>
<tr>
<td>Participating with area residents in developing projects to address local concerns.</td>
<td>0</td>
<td>13</td>
<td>13</td>
<td>75</td>
</tr>
<tr>
<td>Encouraging cooperative resource management practices between private landowners/government.</td>
<td>0</td>
<td>13</td>
<td>19</td>
<td>69</td>
</tr>
<tr>
<td>Recognizing, representing and promoting a long-range, balanced view towards planning, development and management.</td>
<td>0</td>
<td>0</td>
<td>31</td>
<td>69</td>
</tr>
<tr>
<td>Encouraging research activities that focus on local issues.</td>
<td>0</td>
<td>13</td>
<td>13</td>
<td>75</td>
</tr>
<tr>
<td>Promoting sustainable land management.</td>
<td>6</td>
<td>0</td>
<td>19</td>
<td>75</td>
</tr>
<tr>
<td>Promoting opportunities for public involvement in discussions about natural resource.</td>
<td>0</td>
<td>0</td>
<td>31</td>
<td>69</td>
</tr>
<tr>
<td>Promoting the conservation of cultural diversity.</td>
<td>6</td>
<td>13</td>
<td>19</td>
<td>63</td>
</tr>
<tr>
<td>Promoting the biosphere reserve concept.</td>
<td>0</td>
<td>19</td>
<td>31</td>
<td>50</td>
</tr>
</tbody>
</table>
The types of challenges that respondents reported when working with the Mount Arrowsmith Biosphere Reserve include (Q16c):

- Lack of understanding of the biosphere reserve concept with the biosphere reserve foundation and the general public;
- Politics within the biosphere reserve foundation;
- Lack of personal/organizational resources to engage with biosphere reserve;
- Lack of commitment to the area by local residents;
- Lack of organization within the biosphere reserve foundation;
- Maintaining leadership within the biosphere reserve foundation;
- Representatives of the biosphere reserve foundation have their own agendas; and
- The biosphere reserve foundation is too demanding.

Summary

This study has provided insight into the research objectives identified at the beginning of this chapter. Information was collected regarding stakeholder involvement with park agencies including the Mount Arrowsmith Massif Regional Park, as well as stakeholder perceptions on the importance of potential costs and benefits of the park. Interview responses have indicated that most organizations engage with other park agencies while managing organizational activities, however very few stated that they had been involved with the Regional District of Nanaimo regarding Mount Arrowsmith Massif Regional Park. This is most likely due to the fact that the park has only recently been designated as a regional park. The top potential park benefits reported by respondents included providing aesthetic and natural beauty, providing opportunities to engage in outdoor and environmental education, and contributing to habitat conservation.
and biodiversity. Other potential park benefits reported include the intrinsic value of the park, protection of First Nations history, and providing awareness of the benefits of regional parks.

Although the majority of respondents did not have an issue with the way the park was managed, several issues or concerns were raised about the park including adjacent land use such as logging, lack of enforcement within the park, and park access. In regards to issues with adjacent land use, the Mount Arrowsmith Biosphere Reserve can play a role in promoting resource conservation through their mandate of encouraging sustainable land-use. Further, park planners must set goals and objectives in the Mount Arrowsmith Massif Regional Park Management Plan to actively work with adjacent landowners towards conservation. The public can also assist through lobbying for sustainable land-use on private lands and putting pressure on the Regional District of Nanaimo to increase parkland acquisition surrounding the current park boundary.

Another major focus of this research was to gauge stakeholder perspectives on various aspects of the Mount Arrowsmith Biosphere Reserve mandate. Due to a number of respondents being associated with the biosphere reserve it was not surprising to see such a high response regarding respondents overall awareness and involvement with the biosphere reserve. Similarly, the majority of respondents felt the aspects of the biosphere reserve operating framework were very important. The majority of respondents also felt there was benefit to collaborating with the biosphere reserve as it provided a collective effort towards achieving conservation and sustainability goals.
Chapter 5 - Conclusion and Recommendations

Introduction

This research has provided information regarding perception of community stakeholders for the Mount Arrowsmith Biosphere Reserve and the Mount Arrowsmith Massif Regional Park. The following chapter summarizes key findings of this study and provides recommendations for management. A summary of how the findings contribute to the larger Protected Areas and Poverty Reduction (PAPR) research initiative will also be discussed. The chapter concludes with a discussion of future research needs.

A mixed methods research methodology was selected for this study. As the focus of the study was on gauging stakeholder perceptions qualitative individual interviews were used for data collection. However, as the interviews also included survey style questions there is a quantitative aspect incorporated in this study.

Stakeholder interviews were scheduled between June and October 2010. While the preferred interview method was a face-to-face encounter, several of the interviews were conducted via telephone.

A purposeful sampling method was implemented for this study. A key stakeholder interview contact list was developed representing individuals from Nanaimo, Parksville, Qualicum, and Port Alberni. This list included individuals from government, industry, local businesses, First Nations, and non-profit organizations that may be associated with or aware of the Mount Arrowsmith Massif Regional Park and the Mount Arrowsmith Biosphere Reserve. A total of 16 interviews were conducted.

The research methodology implemented for this project is subject to both strengths and weaknesses or limitations. Strengths of this methodology include using
qualitative interviews to gauge stakeholder perceptions, cost-effective data collection, and flexibility with the timing of data collection. Individual interviews also provided an opportunity for the researcher to explore other topics with interviewees, which may have not been possible with other data collection methods such as surveys.

There are some potential weaknesses or limitations with this methodology. Gaining feedback from a true representation of the study area was a challenge, as a small number (16) of interviews were conducted and not all stakeholders contacted were able or willing to participate. Interview dates and times were not always feasible for all participants that ultimately determined the sample size. Accurate interpretation of all interview questions by participants was challenging considering the different backgrounds of stakeholders. Although the interviewer strived to ensure all interviewees properly understood each question some errors may have occurred.

**Summary of Key Research Findings**

Research Objective 1. – To better understand the awareness and engagement of stakeholders with the Mount Arrowsmith Massif Regional Park. Half of the respondents indicated that they were very or quite aware of the park, while the other half stated that they were only somewhat or not at all aware of the park. Similarly, 75% of respondents indicated they had not been involved in discussions, meetings, or decisions about the park with the Regional District of Nanaimo.

Research Objective 2. – To better understand stakeholder perspectives regarding the perceived costs and benefits of the Mount Arrowsmith Massif Regional Park. Most of respondents indicated that it was quite or very important that the park: (1) provides aesthetic and natural beauty, (2) provides opportunities to engage in outdoor and
environmental education, (3) contributes to habitat and wildlife conservation, (4) contributes to biodiversity, and (5) provides opportunities to engage in outdoor recreation and physical activity. Only 26% of respondents indicated that it is important that the park helps contribute to local employment and business opportunities through tourism.

Respondents were also asked if they had issues or concerns with the park or the way the park was managed. The main concerns were: (1) adjacent land use issues, specifically the threat of logging activity on adjacent private lands, (2) lack of enforcement, (3) park access, (4) command and control management, (5) lack of planning and management, (6) lack of conservation/preservation, (7) over use, (8) protection of the watershed, (9) park safety, (10) user group conflicts, and (11) vandalism.

Research Objective 3. – To better understand the awareness and engagement of stakeholders with the Mount Arrowsmith Biosphere Reserve. The majority (69%) of respondents indicated they were very or quite aware of the Mount Arrowsmith Biosphere Reserve. 81% of respondents also reported that they had been involved in some aspect with the biosphere reserve.

Although the majority of respondents did not report any challenges with the biosphere reserve several specific concerns were raised including: (1) lack of understanding about the biosphere reserve concept with the biosphere reserve foundation and the general public, (2) difficulties with internal politics within the biosphere reserve foundation, (3) lack of personal/organizational resources to engage with the biosphere reserve, (4) lack of commitment to the area by local residents, (5) lack of organization within the biosphere reserve foundation, (6) challenge of maintaining leadership within the biosphere reserve foundation, (7) perceptions that representatives of the biosphere
reserve foundation have their own agendas, and (8) some reported that the biosphere reserve foundation can be too demanding.

A series of questions were asked about the Mount Arrowsmith Biosphere Reserve Framework. Aspects of the framework that were reported most important included: (1) promoting public awareness of resource management concerns facing residents living within the Mount Arrowsmith Biosphere Reserve, (2) promoting the conservation of natural diversity, and (3) participating with area residents in developing projects to address local concerns. Working towards a common goal (sustainability) was the highest ranked benefit for collaborating with the Mount Arrowsmith Biosphere Reserve.

**Recommendations**

This study has identified areas of concern or areas of improvement for both the management of the Mount Arrowsmith Massif Regional Park and the Mount Arrowsmith Biosphere Reserve. Several recommendations are provided to help address such concerns.

From the stakeholder interviews a few key concerns were identified about the Mount Arrowsmith Massif Regional Park. It was anticipated from the start that the majority of stakeholders interviewed would have a high degree of awareness of the regional park. However, this proved not to be the case as only half indicated being very or quite aware of the park. There were also a low percentage of respondents who reported being involved with the park. Therefore it is recommended that the Regional District of Nanaimo increase its promotion of the park as well as opportunities for the public to be involved. This could include increased communication and marketing of the park through information kiosks, list serves and email, news conferences, newspaper
inserts/press releases, advertisements, and printed public information materials such as park brochures (International Association for Public Participation, 2006). Recreation programming could also assist with park awareness through open houses, nature walks and guided tours, and seasonal special events highlighting park features.

The current management planning process for the park has included open houses in several communities and provided opportunity for public input through a survey. This process is intended to provide awareness and an opportunity for public involvement for the management planning of the park. Other public participation techniques that the RDN could utilize to better achieve this goal could include:

- focus groups (meetings with randomly selected or target groups to obtain input on planning decisions);
- ongoing advisory groups (a group of representative stakeholders brought together to provide public input to the planning process);
- telephone surveys (random sampling of population by telephone to gain specific information for statistical review);
- public meetings (large scheduled meetings open to the public where information is exchanged about a specific topic and the public is encouraged to ask questions and provide comments);
- workshops (informal meetings that may present information and exhibits but ends with interactive working groups);
- stakeholder interviews (face-to-face meetings with stakeholders to gain information and for consensus-building); and
• charrettes (rigorous sessions where stakeholders are brought together to work through the development/design process) (International Association for Public Participation, 2006).

In addition to the participative and collaborative approaches to park planning and management just outlined, the RDN could take this a step further and engage in co-management of the park. Similar to what has been done at the national park level with Parks Canada, a management agreement could be developed and implemented between the RDN and specific stakeholders such as the Mount Arrowsmith Biosphere Reserve Foundation, local First Nations, and/or other key stakeholders. Co-management can result in increased public trust and achieving ecosystem-based management.

Respondents also highlighted issues revolving around park visitor experience. These issues included park access and enforcement within the park. As there are currently several access points to the park including some that require navigation of forest service roads it is suggested that the District identify and establish infrastructure such as signage and parking lots at main park access routes. Widely distributed user-friendly print maps should also be made available. Official easements must be established with applicable landowners for all private property access routes to prevent trespassing on private lands by park visitors. A park enforcement plan should be developed and implemented by the Regional District of Nanaimo to ensure ongoing visitor compliance, volunteer park wardens could assist with this.

The most challenging and sensitive issue raised in this study is adjacent land use issues. The main concern is over potential logging activity as the park is predominantly surrounded by private forestlands. To help ensure the Mount Arrowsmith Massif
Regional Park does not become a “terrestrial island” cooperation towards conservation and sustainable land use between area landowners must be pursued. It is recommended that the Regional District of Nanaimo ensure that the park management plan include goals, objectives, and timelines for action. Further, the management plans need to provide goals for future land acquisition surrounding the park in order to expand the current park boundary. Management guidelines must consider a network of protected areas linking with other PA’s in the region.

The Mount Arrowsmith Biosphere Reserve can assist with this issue through ongoing community promotion and facilitation of sustainable private land use and acting as a conduit for collaboration. It is therefore recommended that the Mount Arrowsmith Biosphere Reserve Foundation:

- continue attending area special events to promote the biosphere reserve and its principles;
- expand promotions including the use of various media sources to maximize organizational exposure;
- increase agency involvement with area stakeholders including government and non-government organizations. This involvement could take a number of forms including advisory groups, workshops, focus groups, and dialogues;
- adopt a set of annual goals and objectives derived from the operating framework to focus organizational activities and thus provide measurable outcomes and timelines; and
- develop and implement a set of terms of reference for board members to provide a protocol for communication and participation within the organization.
Biosphere reserves are a unique concept that can help with conservation and sustainability goals. However, they do face significant challenges including a lack of power and resource constraints. Regarding funding (R. Crowley personal communication, June 2010-January 2011), the Mount Arrowsmith Biosphere Reserve Foundation has recently been in a state of uncertainty as their main federal funding source was temporarily cancelled. This resulted in a temporary layoff for the only paid coordinator position responsible for daily operations of the biosphere reserve foundation, which meant the coordination of organizational activities were deferred to the volunteer board and its members. The temporary grant cancellation also resulted in perceived insurance issues by board members in relation to organizational liabilities that resulted in some board members resigning. The Mount Arrowsmith Biosphere Reserve Foundation has recently secured their primary funding source for another three years and reinstated the coordinator position. However, the person filling the position has since resigned along with a turnover of board members due to term expiries. This time of transition may temporarily slow organizational activities for the biosphere reserve foundation as the new recruits become familiar with the organization and its activities. However, it is hopeful that the organization can remain resilient and continue helping towards a sustainable future.

**Contribution to the Protected Areas and Poverty Reduction (PAPR) Research**

This research is linked to a larger protected areas research initiative through the Protected Areas and Poverty Reduction (PAPR) research group. The PAPR research group is focused on examining four themes: local benefits to bordering protected area communities, protected area governance, human-wildlife interactions, and knowledge
mobilization at various study sites in Canada and Africa (Protected Areas and Poverty Reduction, 2009). The goal of this broader research initiative is to address the challenges of rural poverty and environmental sustainability. This thesis fits within this larger research initiative as it describes perceived local costs and benefits of regional parks, and describes other forms of PA governance such as biosphere reserves and regional parks. This case study may be used for comparative analysis with other PAPR research studies in Canada, Ghana, and Tanzania.

Future Research

This research has built on the limited research regarding regional parks and biosphere reserves. However, further research could be pursued from this study. This study focused on perceptions of key stakeholders through interviews with selected community members. This study could be replicated to other biosphere reserves such as the Clayoquot Sound Biosphere Reserve or other Canadian biosphere reserves.

Knowledge Mobilization Strategy

The following communication strategies will be considered in order to help communicate the findings of this study to academics, professionals, and stakeholders:

- Develop a poster presentation to be shared with Royal Roads University colleagues;
- Develop a 2-3 page executive summary or distribution to all agencies and stakeholders involved with this study, as well as others who are interested;
- Develop a PowerPoint presentation for future presentation opportunities including presentations to the Mount Arrowsmith Biosphere Reserve and regional parks staff;
• Publish a journal article; and
• Publish a newspaper article and or press release.

Summary

Several key findings have resulted from this research regarding stakeholder perspectives regarding the Mount Arrowsmith Massif Regional Park and the Mount Arrowsmith Biosphere Reserve. The research findings have identified specific management issues and challenges with the regional park and the biosphere reserve and have provided recommendations to help address such management issues and challenges. The study has also contributed to the larger Protected Areas and Poverty Reduction (PAPR) research as it describes local benefits of regional parks and alternate forms of protected area governance. Lastly, this study has helped build on the limited research regarding regional parks and biosphere reserves and identified opportunities for further research.
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Appendix A

MOUNT ARROWSMITH BIOSPHERE RESERVE

The core areas do not represent all of the current protected areas in the region (Mount Arrowsmith Biosphere Reserve Foundation, 2010).
Appendix B

mt. arrowsmith massif regional park

Regional District of Nanaimo, 2010

(Regional District of Nanaimo, 2010)
Appendix C

Stakeholder Interview Questionnaire

Introduction

The purpose of this interview is to gain a greater understanding of parks and land use management in the Parksville, Qualicum, and Nanaimo area. All information collected in this interview will be kept in confidence. I would like to audio record this interview for accuracy. Are you ok with this?

Name of Stakeholder: ____________________________________________________
Organization: _____________________________
Address: ______________________________________________________________
Telephone Number: ______________________ Email: __________________________ 
Date of Interview: ______________________________________________________

Governance Questions:

1. First, can you provide a brief description of the duties and responsibilities of your job?

2. Can you provide a short description of your organization's role in land and resource management?

3. Is your organization involved in any way with recreation use? If so, please explain.

4. Is your organization involved in any way with conservation or the protection of biodiversity? If so, please explain.

5. In managing organizational activities do you ever or sometimes engage with:
   a. Park agencies? Provide an example.
   b. Are there any challenges with this type of engagement?
   c. Other government agencies? Provide an example.
   d. Are there any challenges with this type of engagement?
Mount Arrowsmith Massif Regional Park Questions:

This has been a very useful discussion. I now want to shift to a few questions about Mount Arrowsmith Massif Regional Park.

6. How would you describe your level of awareness with the Mount Arrowsmith Massif Regional Park.
   1. Not at all Aware
   2. Somewhat Aware
   3. Quite Aware
   4. Very Aware

7. Have you ever been involved in discussions, meetings, or decisions with the Regional District of Nanaimo regarding Mount Arrowsmith Massif Regional Park?
   a. Can you provide an example?
   b. List any challenges you may have encountered or face with such involvement.
8. For each of the following possible benefits about the Mount Arrowsmith Massif Regional Park indicate if you:

1. Not at all Important
2. Somewhat Important
3. Neither
4. Quite Important
5. Very Important

<table>
<thead>
<tr>
<th>Mount Arrowsmith Massif Regional Park:</th>
<th>Not At All Important</th>
<th>Somewhat Important</th>
<th>Quite Important</th>
<th>Very Important</th>
</tr>
</thead>
<tbody>
<tr>
<td>Helps contribute to the local economies through tourism revenues.</td>
<td>1</td>
<td>2</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Helps contribute to local employment &amp; business opportunities through tourism.</td>
<td>1</td>
<td>2</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Provides opportunities to engage in outdoor recreation and physical activity.</td>
<td>1</td>
<td>2</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Provides opportunities to engage in outdoor and environmental education.</td>
<td>1</td>
<td>2</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Contributes to wildlife conservation.</td>
<td>1</td>
<td>2</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Contributes to habitat conservation.</td>
<td>1</td>
<td>2</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Contributes to biodiversity.</td>
<td>1</td>
<td>2</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Helps maintain water flow within the local watershed.</td>
<td>1</td>
<td>2</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Helps cleanse the local water source.</td>
<td>1</td>
<td>2</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Helps control local soil erosion.</td>
<td>1</td>
<td>2</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Helps absorb pollutants.</td>
<td>1</td>
<td>2</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Helps regulate air quality.</td>
<td>1</td>
<td>2</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Helps regulate climate.</td>
<td>1</td>
<td>2</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Provides aesthetic and natural beauty.</td>
<td>1</td>
<td>2</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>
9. Indicate the two most important benefits from the list above.

1.

2.

10. Are there any other benefits you can think of regarding the Mount Arrowsmith Massif Regional Park?

11. Do you have any issues or concerns about this park?

12. Do you have any issues or concerns about the way this park is managed?

Questions for Regional Parks Staff

13. In what ways are regional parks different from national and provincial parks?

   a. In what way are they similar?

Questions for Provincial Parks Staff

14. In what ways are provincial parks different from regional and national parks?

   a. In what way are they similar?

Mount Arrowsmith Biosphere Reserve Questions:

Next, I would like to ask a few questions about the recently designated Mount Arrowsmith Biosphere Reserve.

Mount Arrowsmith Biosphere Reserve is one of many similar reserves around the world, including 15 in Canada. This is a United Nations concept and involves the following:

• Consideration for the functioning of a large landscape containing human communities, working landscapes (farming, fishing, logging), and protected areas such as provincial parks.
• Exploring opportunities for cooperation between local communities and resource users to create sustainable communities, economies, and environments.

15. How would you describe your level of awareness with the Mount Arrowsmith Biosphere Reserve.

   1. Not at all Aware
   2. Somewhat Aware
   3. Quite Aware
   4. Very Aware
16. Have you ever been involved in discussions, meetings, or decisions regarding the Mount Arrowsmith Biosphere Reserve?

b. Can you provide an example?

c. List any challenges you may have encountered or face with such involvement.
17. For each of the following statements about the Mount Arrowsmith Biosphere Reserve operating framework please indicate if you feel it is:

1. Not at all Important
2. Somewhat Important
3. Quite Important
4. Very Important

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Promoting public awareness of resource management concerns facing residents living within the Mount Arrowsmith Biosphere Reserve area.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Participating with area residents in developing projects to address local concerns.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Encouraging cooperative resource management practices between private landowners/government.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Recognizing, representing and promoting a long range, balanced view towards planning, development and management.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Promoting the conservation of natural diversity.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Promoting the conservation of cultural diversity.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Encouraging research activities that focus on local issues.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Promoting opportunities for public involvement in decisions about natural resource.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Promoting sustainable land management.</td>
<td>1</td>
<td>2</td>
<td>3</td>
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<tr>
<td>Promoting the biosphere reserve concept.</td>
<td>1</td>
<td>2</td>
<td>3</td>
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</tbody>
</table>
18. Do you see any benefits or value in collaborating with the Mount Arrowsmith Biosphere Reserve?

19. Are there any additional comments you would like to make about any part of this interview?

20. Is there anyone else that you feel I should interview?

That concludes this interview. Thanks for your cooperation and participation towards this research project. Please contact me if there are any other questions, comments, or concerns that you would like to forward.