Mount Arrowsmith Massif Regional Park Management Plan

FINAL PLAN
May 2011

ACKNOWLEDGEMENTS

View from the Judge's Route (Photo: H. Rueggeberg).

EXECUTIVE SUMMARY

Mount Arrowsmith Massif Regional Park (MAMRP), recently acquired by the Regional District of Nanaimo (RDN) is a predominant landscape feature on Central Vancouver Island. The park is valued for its recreational, environmental, scenic, cultural and historical values. The mountain peaks are prominent landscape features seen from both Port Alberni and the communities of east central Vancouver Island. At 1,817m, the peak of Mount Arrowsmith is the highest peak south of Strathcona Provincial Park on Vancouver Island. The high elevations support unique alpine and sub-alpine zones and the park is home to a significant area of these ecosystems.

The management plan is intended to guide the operations, development and stewardship of the park for a ten-year period from 2010 - 2020. The plan is guided by a long-term vision and goals, and describes policies and targeted actions to guide decision-making and provide direction on key park issues. An implementation summary delineates priorities and projected budgets, timelines and responsibilities.

The development of the Management Plan was guided by the Regional District of Nanaimo and partners: the Hupacasath First Nation, the Alpine Clubs of Canada and the Federation of Mountain Clubs of BC. In addition, to help gain insights and develop a plan that responds to the public, stakeholders and neighbours of the mountain, several consultations were completed.

MAMRP includes a myriad of natural and recreational values. This plan documents known ecology and habitat of the mountain based on previous field studies and reviews how the park is currently being used for recreation.

The following vision statement sets the tone for the long-term management of MAMRP and defines the context within which short-term management actions are made:

> *Mount Arrowsmith Massif Regional Park is a significant landmark in Central Vancouver Island. Its familiar peaks continue to be accessible for low-impact wilderness recreation in sub-alpine and alpine environments. Recreational and ecological values are balanced through stewardship so that important ecosystems and habitats are protected. First Nations stories and other historical accounts of the mountain are recorded and celebrated and research activities are supported and encouraged.*
>
> *Mount Arrowsmith Massif remains an important ecological, recreational, spiritual and visual resource for its neighbours, friends and visitors.*

Building on the vision, management goals set the framework for policies and actions for Mount Arrowsmith Massif Regional Park. The goals are developed from stakeholder and public input.

- Goal 1: Ecosystem Conservation
- Goal 2: Wilderness Recreation
- Goal 3: Partners in Stewardship
- Goal 4: Access
- Goal 5: Education
- Goal 6: Celebration of Heritage

Within the context of the above vision and goals, the plan lays out a series of management policies, organized under 9 key issues to be addressed in the Mount Arrowsmith Massif Regional Park Management Plan. The key issues were identified through the management planning process:

- Balanced Management
- ACRD Mount Arrowsmith Regional Park
- Park Access
- Recreational Use
- Habitat & Environmental Protection
- Education & Research
- Interpretation & Tourism
- Safety & Emergency Planning
- Park Expansion

The policies are supported by implementable actions intended to guide management of the park over the next 5 years and beyond.

> *"If one were to go into the fastness of Vancouver Island and find a great deposit of coal or ore, the discovery would be hailed as a real achievement of tremendous benefit to this section of British Columbia, and as another big addition to its assets. By the same process of reasoning, when one considers the benefits accruing from tourist travel, it will have to be admitted that the 'discovery' of Mt. Arrowsmith is also a great achievement, and that it will prove an asset of incalculable value."*
>
> *- excerpt from the 1912 Victoria Daily Colonist*

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1 INTRODUCTION

1.1 Park Overview

Mount Arrowsmith Massif Regional Park (MAMRP), recently acquired by the Regional District of Nanaimo (RDN) is a predominant landscape feature on Central Vancouver Island
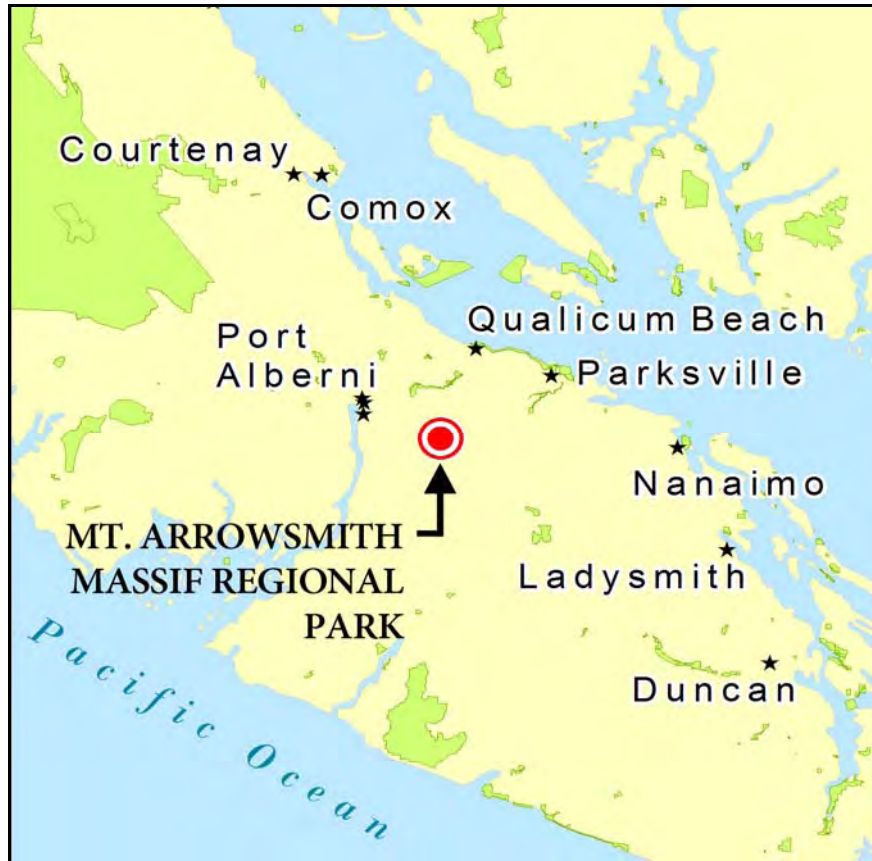
Figure 1.1: Approximate location of MAMRP on Vancouver Island.

The park is valued for its recreational, environmental, scenic, cultural and historical values. The mountain peaks are prominent landscape features seen from both Port Alberni and the communities of east central Vancouver Island.

At 1,817 m, the peak of Mount Arrowsmith is the highest peak south of Strathcona Provincial Park on Vancouver Island. The high elevations support unique alpine and sub-alpine zones and the park is home to a significant area of these ecosystems.

Mount Arrowsmith Massif from Beachcomber Park near Parksville (Photo: RDN).

Park Facts:

Legal Description:
- Block 1380, Cameron Land District, PID 008739668

Park Size:
- 1,300 Ha (3,212 acres)

Location:
- Mid-western edge of RDN Electoral Area 'C'
- Approximately 40 km west of Qualicum Beach
- Approximately 30 km east of Port Alberni

Peaks:
- Mount Arrowsmith – 1,817 m (5,962 ft)
- Mount Cokely – 1,631 m (5,184 ft)

Lakes:
- Fishtail Lake
- Hidden Lake
- Jewel or Emerald Lake (unofficial names)
- Lost Lake (unofficial name)

Elevations:
- Lower Elevation: ~900 m (varies at park boundary)
- Upper Elevation: ~1,817 m
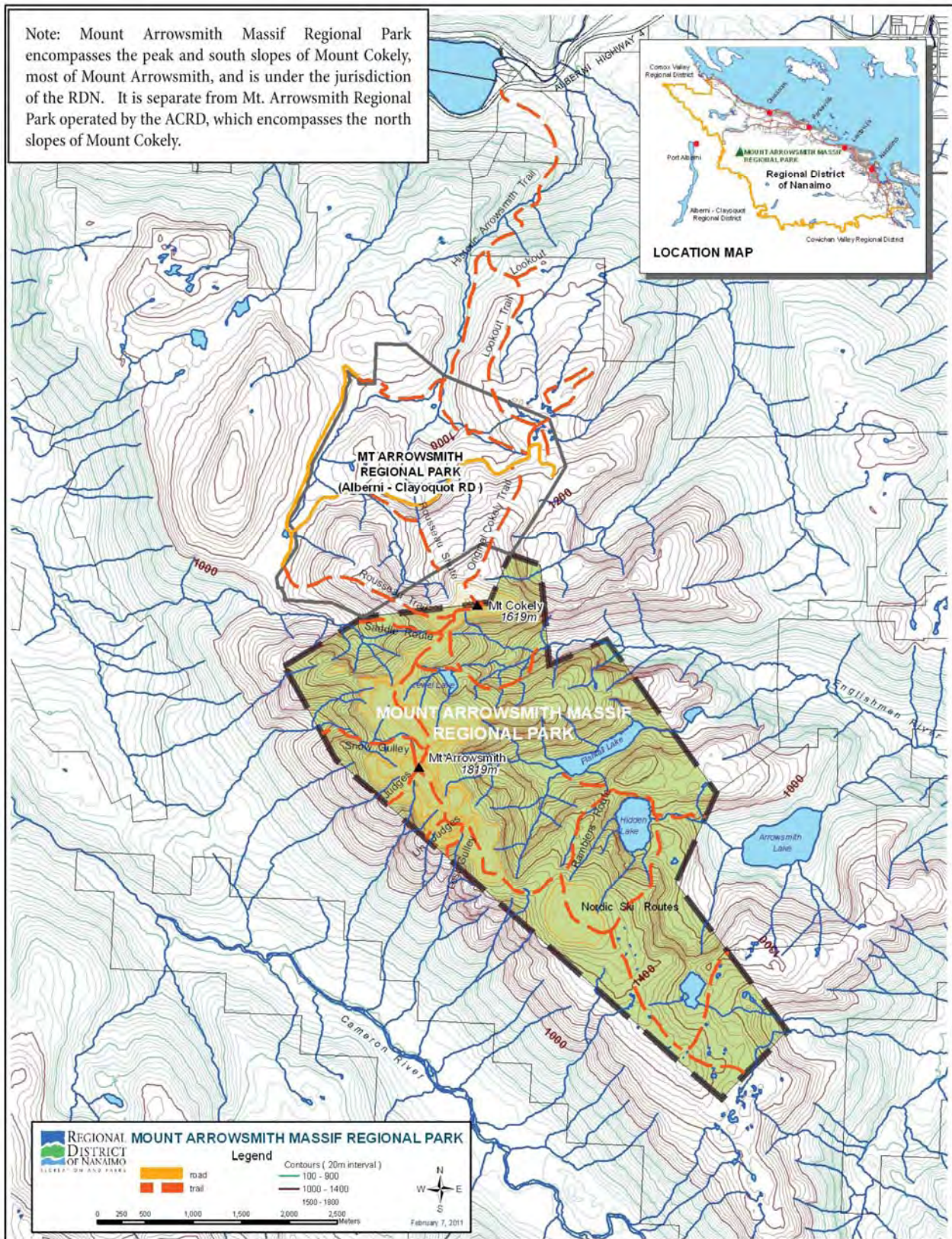
Figure 1.2: Extents of Mount Arrowsmith Massif Regional Park.

1.2   Park Acquisition

For decades, park users and local supporters advocated for the permanent protection of Mount Arrowsmith – both for its recreational and ecological values. The recreation community wanted to ensure protection of the recreational values of the mountain presented by its accessible location and its range of recreation activities that appeal to a wide range of user interests and abilities. The environmental community saw the alpine and sub-alpine areas as particularly valuable ecosystems that support a range of species, including multiple rare species.

Volunteers, advocates, user groups and individuals spent many years advocating for the area (*see Acquisition Highlights, p.13*). It was finally in 2008, through a partnership between the RDN, Hupacasath First Nation, FMCBC and ACC that Mount Arrowsmith's official designation as park occurred. Formerly Crown Forest Reserve, Mount Arrowsmith Massif Regional Park was officially established on November 25th, 2008 through a 30-year licence of occupation with the Province of British Columbia. The licence permits the RDN to develop and manage a Regional Park on the site.

Official Opening of MAMRP (Photo: RDN).

1.3   Purpose of the Management Plan

The management plan is intended to guide the operations, development and stewardship of the park for a ten-year period from 2010 - 2020. The plan is guided by a long-term vision and goals, and describes policies and targeted actions to guide decision-making and provide direction on key park issues. An implementation summary delineates priorities and projected budgets, timelines and responsibilities.

The plan considers:

- Protection and enhancement of unique natural ecosystems;
- Balancing recreational opportunities in the park with environmental protection;
- Historical and cultural significance of the mountains and surrounding areas;
- Access to the park over the next 10 years and beyond;
- Educational values of the site, including research opportunities;
- Safety and emergency planning; and
- Stewardship and park management.

1.4 Role of Regional Parks in the RDN

The Regional District of Nanaimo established a regional park function in 1989. Regional parks in the RDN are created for the benefit of the entire region. The system is financially supported by all electoral areas and municipalities within the RDN. The regional park function allows larger land areas to be secured than can typically be provided by individual municipalities. RDN Regional Parks tend to be larger parcels of land, located outside urban cores, with an emphasis on environmental protection and/or outdoor recreation in natural settings.

A *Regional Parks & Trails Plan*, updated in 2005, outlines the RDN's overall goals with respect to land management, stewardship and recreational use of regionally significant properties. The 2005 Regional Parks & Trails Plan establishes a vision for Regional Parks that "*secures, protects and stewards lands and water features of environmental significance and wildlife habitat value*." The acquisition of Mount Arrowsmith Massif clearly met this vision.

Currently the RDN manages approximately 2,026 ha of Regional Park and over 60 km of Regional Trail.

1.5 Plan Organization

The MAMRP management plan is organized into the following sections:

1   **Introduction:** Provides a basic overview of MAMRP and background about Regional Parks in the RDN.

2   **Management Planning Process**: Summarizes the process used in the development of the plan.

3   **Defining the Park Values:** Provides an overview of land status and natural, recreational, educational and cultural values.

4   **Vision, Goals & Principles:** Defines the vision and goals for the park and outlines key principles that affect its planning and ` operation.

5   **Management Policies & Actions:** Addresses issues identified for the park through recommended policies and actions.

6   **Implementation Plan:** Summarizes the recommended actions, with associated budgets, timelines and responsibilities.

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Panorama looking east from the peak of Mount Arrowsmith (Photo: HB Lanarc).

2 PLANNING PROCESS

2.1 The Approach

A consulting team, led by HB Lanarc Consultants Ltd. with support from Ursus Environmental, guided the planning process for the development of the management plan. The consulting team was overseen by a Staff Working Group consisting of representatives from the RDN Recreation and Parks Department, the Federation of Mountain Clubs of BC and Hupacasath First Nation. A Management Plan Sub-Committee, made up of members of the RDN Regional Parks & Trails Advisory Committee and Staff Working Group, provided review and input at key points in the planning process.

Figure 2.1: Team Organization Diagram

The management plan was developed in five phases, beginning in April
2010 and concluding in December 2010:
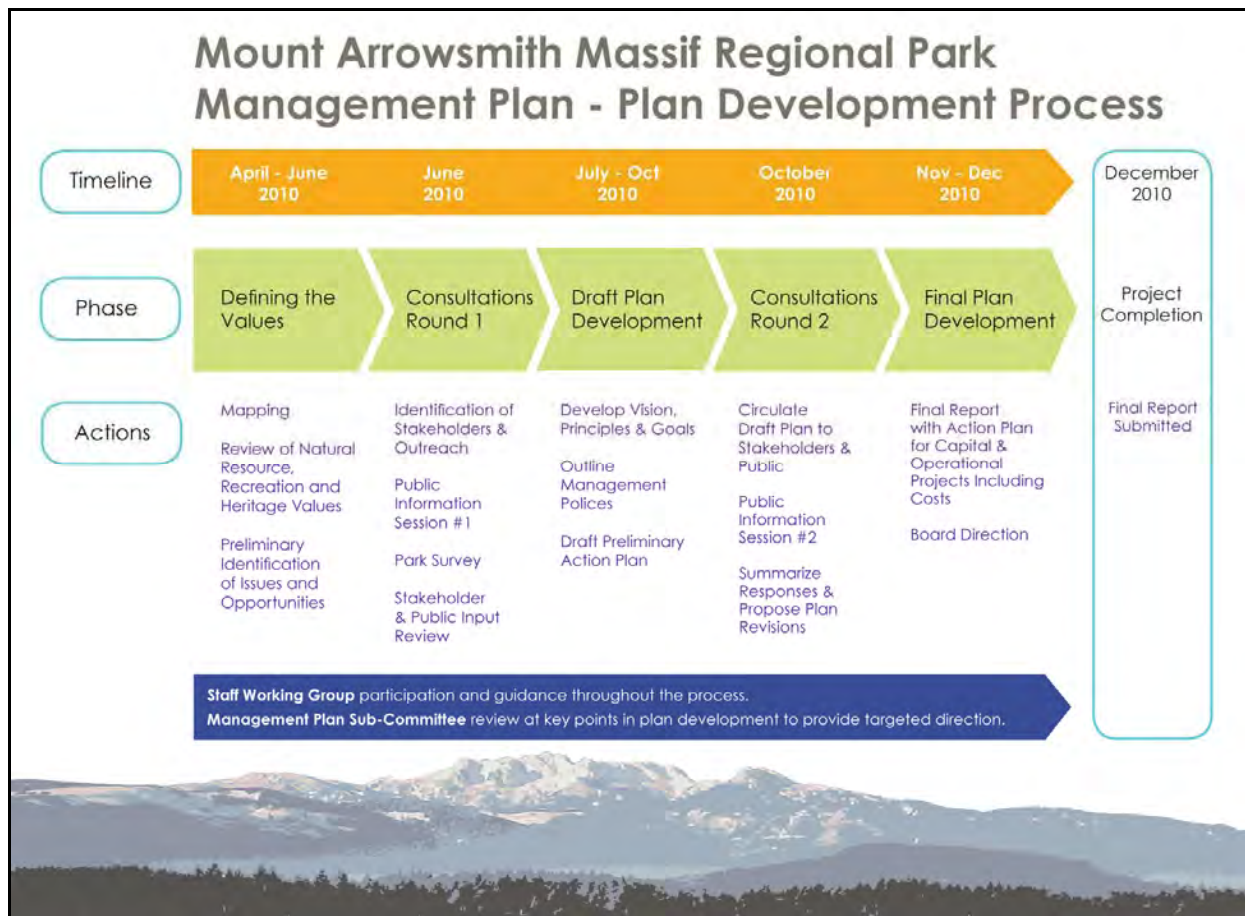
Figure 2.2: Process Diagram

1   ### Defining the Values:

Phase one reviewed and analyzed current park values. Steps included:

- Project start-up and process review;
- Compilation and review of relevant background documents and
  digital GIS data;
- Review of natural resource values;
- Review of recreation values;
- Review of local demographics and user trends;
- Development of mapping resources to identify park resources and
  document preliminary park information; and
- Preliminary identification of management issues and opportunities.

2   Consultations Round 1:

The second phase focused on the future of MAMRP through the eyes of the public, stakeholders, staff and board members. Steps included:

- Meetings with the Staff Working Group and Management Plan Sub-Committee to verify gathered information and review the consultation process;

- Identification of stakeholders to be invited to provide direct input into the plan;

- Consultation with identified stakeholders to compile a list of relevant issues;

- Facilitation of two public sessions in which local residents were invited to articulate concerns and issues, share their special knowledge and experiences and identify improvement ideas for Mount Arrowsmith Massif Regional Park; and

- A comprehensive public survey to present background information and gather public views about the park.

3   Draft Plan Development:

The third phase went through the process of developing a draft management plan for review and discussion:

- Development of a preliminary vision and goals to guide development of the management plan;

- Development of preliminary policies for planning, development and management of the park;

- Development of a preliminary action plan to achieve park vision, goals and policies;

- Review and refinement of preliminary vision, goals, policies and actions with the Staff Working Group;

- Review and consultation with key stakeholders on relevant portions of the draft plan;

- Presentation and review of the draft with the Management Plan Sub-Committee; and

- Revisions and dissemination of the draft plan and feedback forms to stakeholders and the public.

4   Consultations Round 2:

Phase four provided opportunity for the public and stakeholders to review the draft plan and point out areas where revisions could be considered:

- Consultation with identified stakeholders to receive comments on the draft plan;

- Facilitation of two public sessions in which local residents were invited to review the draft plan and provide comments;

- A response form to collect public feedback about the draft management plan; and

- Summarization of input received from stakeholders and the public.

5   Final Plan Development:

The final phase guided the plan to completion:

- Detailed discussions and reviews of the final plan with key stakeholders.

- Completion of the final plan in consultation with the Staff Working Group and the Management Plan Sub-Committee;

- Completion of the capital and operational implementation summary and timeline; and

- Submission of the plan to the RDN Board.

2.2   Public & Stakeholder Consultations

The development of the Management Plan was guided by the Regional District of Nanaimo and partners: the Hupacasath First Nation, the Alpine Clubs of Canada and the Federation of Mountain Clubs of BC. In addition, to help gain insights and develop a plan that responds to the public and stakeholders of the mountain, several consultations were completed.

Stakeholder Consultations

A variety of organizations, neighbours, agencies and individuals were identified as having direct interests in the development of a Management Plan for MAMRP. See **Appendix A: Stakeholders** for a list of stakeholders identified in this process. Stakeholders were contacted to inform them about the management plan process, invite them to the

public sessions, distribute background information and invite their ideas, concerns and feedback.

These groups and individuals were provided with the draft management plan and were asked to provide direct feedback on the draft.

Public Survey

A public survey was developed to gather preliminary public input and opinions about the future of the park. The survey was made available online and in hard copy at the RDN offices and through email lists. The survey was available from May to June 2010. A total of 142 responses were received. See **Appendix B: Public Survey** for a copy of the survey.

The compiled survey results can be viewed in **Appendix C: Public Survey Results**. The results were used to inform the development of the draft vision, goals, policies and actions.

Public Session #1

The first public sessions for the Management Plan were held on Tuesday, June 22nd, 2010 in Parksville/Qualicum Beach and on Thursday, June 24th, 2010 in Port Alberni. Attendees were introduced to the project and asked to provide input on issues, ask questions about the project and mountain, map their knowledge, share their experiences and provide their ideas for the future of the park. Approximately 50 people attended the sessions. See **Appendix D: Public Session #1 Summary** for a summary of the information received.

Public Session #2

The second public sessions were held on Tuesday, October 26th, 2010 in Port Alberni and on Thursday, October 28th, 2010 in Parksville/Qualicum Beach. The sessions focused on presenting policies and actions developed in response to the key issues and opportunities identified through the first round of consultations. Participants were encouraged to document their feedback on response forms. Approximately 30 people attended the sessions. See **Appendix E: Public Response Form for Draft Management Plan** for a copy of the Response Form.

The completed feedback results are in **Appendix F: Response Form Summary.** The results were used to propose changes to the Draft Plan.

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Looking up at Mount Cokely from the start of the Saddle Route (Photo: HB Lanarc).

3 DEFINING THE PARK VALUES

3.1 Property & Land Status

3.1.1 Property Description

Mount Arrowsmith Massif Regional Park encompasses 1300 ha of alpine and sub-alpine land mass encompassing the summits of Mount Arrowsmith and Mount Cokely and the surrounding range. The park is comprised of one parcel, legally described as Block 1380, Cameron Land District, PID 008739668. See **Figure 2: Extents of Mount Arrowsmith Massif Regional Park** (p.2).

3.1.2 Park Acquisition

Members of hiking clubs, including the Federation of Mountain Clubs of BC (FMCBC) and the Alpine Club of Canada (ACC), along with numerous individuals, have been climbing Mount Arrowsmith and Mount Cokely for decades. Club members, along with the general public, advocated for the protection of the area for many years.

Acquisition Highlights of Mount Arrowsmith
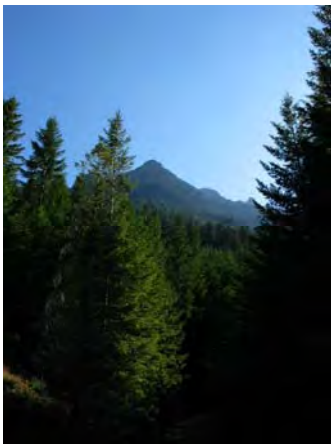
Looking up a MAMRP (Photo: HB Lanarc).

1992: The Commission on Resources and Environment (CORE) consider Mount Arrowsmith Massif for Class A Provincial Park Status, but opt to secure more threatened lowland areas, due to the adjacent existing ACRD Regional Park and Mount Arrowsmith's similarities to the already established Strathcona Provincial Park.

1995: The RDN's 1995 Regional Park Plan identifies Mount Arrowsmith as an area of interest for regional park acquisition.

1998: The Public Access Resolution Committee (PARC) garners support from over thirty clubs, societies, federations and outdoor groups to obtain Block 1380 as a regional park. The park is identified by the RDN's 1998 Acquisition Program as one of nine regionally significant acquisition priorities.

1999: The RDN appoints a local citizen committee to provide direction on the potential future of Mount Arrowsmith Massif as a

2001: A BC Parks Land Evaluation and Acquisition Framework (LEAF) form is completed for Mount Arrowsmith to document the values of the property as a potential provincial park. The park is ot pursued for Provincial Park.

2005: The updated RDN Regional Park Plan identifies Mount Arrowsmith Massif as a short-term (1 to 3 year) acquisition priority either as a provincial park or regional park.

October 2006: RDN Board members meet with the Minister of the Environment at the UBCM convention to discuss the designation of Mount Arrowsmith as a park. At this meeting it is recommended that the RDN pursue Regional Park status through the Province of BC's Nominal Rent Tenure process.

February 2007: The RDN Board passes a resolution to begin the Nominal Rent Tenure process.

October 2008: A MoU is signed between the RDN and Hupacasath First Nation to ensure key objectives are captured in planning for the future park.

November 12th, 2008: An offer for a 30-year licence of occupation of Block 1380 is received, permitting RDN use of the land for Regional Park purposes.

3.1.3 Neighbouring Properties

MAMRP is surrounded to the east, south and west by privately managed forest lands owned by Island Timberlands Ltd. The area is an active forestry area. To the north is the Alberni-Clayoquot Regional District's (ACRD) Mount Arrowsmith Regional Park which encompasses the north face of Mount Cokely and was formerly a ski hill site. Since the ski resort was closed in 1999, the site has continued to be heavily used as a recreation site by hikers, mountain bikers and motorized recreation enthusiasts. See **Figure 3.1: Neighbouring Lands Map** (next page).

The ACRD Mount Arrowsmith Ski Hill and Lodge during busy times (Photo: P. Rothermel).
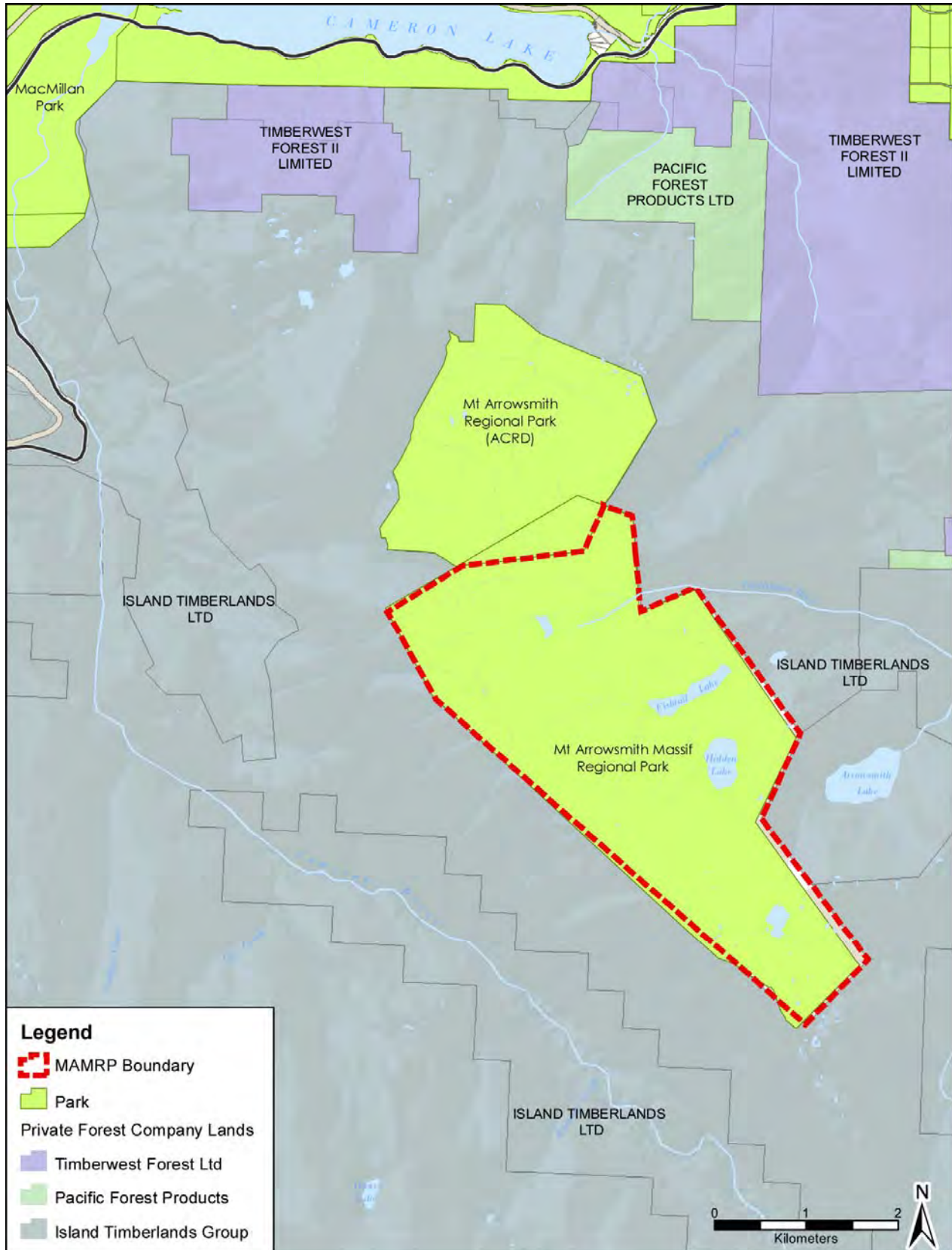
Figure 3.1: Neighbouring Lands Map.

3.1.4 Park Access

Currently, the only authorized public access route to the park is the Old Arrowsmith Trail/CPR Trail route from Camveron Lake. This is a trail route only and does not support vehicle access.

- **North Access – Old Arrowsmith Trail/CPR Trail from Cameron Lake:** 48% of respondents to the public survey said they have used the Old Arrowsmith Trail/CPR Trail to access the mountain. This is a historic route that has been in use for the past century. This route is accessed off the Alberni Highway at the east end of Cameron Lake. The route is well-established and a comfortable, but lengthy climb with gentle switchbacks and two alternative trail routes. The route meets up with the ACRD Mount Arrowsmith Regional Park parking lot, and hikers can ascend Mount Cokely from that point. The Mount Arrowsmith Massif is only accessible by technical climbs from this route, and is difficult to complete within a day-hike. The RDN maintains trail licences with Island Timberlands and TimberWest for this route to permit trail use and undertake maintenance on the existing trails.

There is currently no public road access to MAMRP. While many people who responded to the survey noted that they have accessed the park by vehicle using private roads, at the time of this plan, public vehicle access is not authorized on neighbouring Island Timberlands properties due to the health, safety and environmental implications of public use of private roads.

This process identified two unauthorized vehicle routes that have historically been used by the public to access the park.

- **West from Alberni Highway – Private Forestry Roads**: 95% of people who responded to the survey said they have accessed the park using private forestry roads from the Alberni Highway (Hwy 4). This is the route that was used to access the former ACRD ski facility on Mount Cokely and has been used to access trails on the west side of Mount Arrowsmith. *Public vehicle access on this route is currently not authorized.*

- **East from Highway 19 – Private Forestry Roads:** 19% of survey respondents said they have visited the park using the forestry roads on the eastern side of the mountain, to access the lakes on the east side of the park. *Public vehicle access on this route is currently not authorized.*
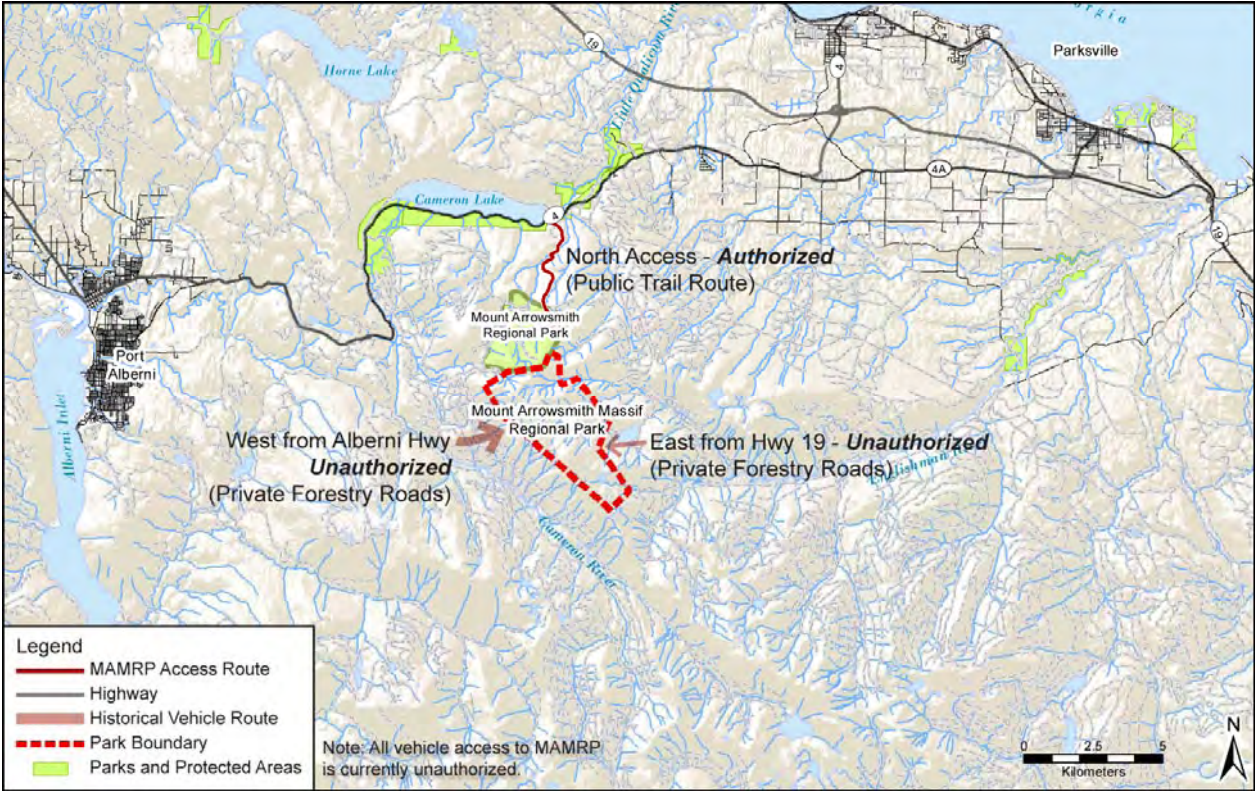
Figure 3.2: Park Access Points Map.

3.1.5   Existing Encumbrances

Communications Towers

Several communications towers are located at the summits of Mount Cokely and Mount Arrowsmith.

Repeater stations atop Mount Arrowsmith (Photo: RDN).

- Cercomm Communications has a communications tower at the summit of Mount Cokely, complete with a maintenance shed. The tower is accessed by helicopter or through hike-in from the ACRD Mount Arrowsmith Regional Park parking lot. The tower has been on this site for approximately 40 years. Consultation with Cercomm suggests there are no changes planned for the future and no issues were identified.

- Three repeater stations sit atop Mount Arrowsmith and are operated by Island Timberlands GP. ⟵ Correction: One repeater/dome is operated by Island Timberlands, one repeater/dome is operated by E&B Helicopters, and one repeater/dome is operated by the Ministry of Transportation & Infrastructure.

Mineral Claims

Under the Mineral Tenure Act (RSBC 1996), individuals are able to secure sub-surface mineral claims. The Mineral Titles Online map shows one Cell Claim Tenure with a small area that overlaps into the southeast corner of the park. The claim (603347) was made following designation of the Regional Park and as such, is subject to Section 21 of the Mineral Tenure Act which states that "*Despite any Act, agreement, free miner certificate or mineral title, a person must not locate a mineral title, carry out exploration and development of produce minerals or placer minerals in a park created under an Act of British Columbia...*"   As a result, exploration activity by the tenure holder must be conducted outside the park boundary.

3.1.6   Official Community Plan

Mount Arrowsmith Massif Regional Park is within RDN Electoral Area 'C'. Electoral Area 'C' is the RDN's largest and most rural electoral area encompassing 53% of the RDN, stretching from the Alberni Highway at its northern extents down to the Cowichan Valley Regional District border in the south end. This electoral area is comprised largely of forestry and agriculture lands, with a few small populated areas.

MAMRP sits at the top of the Englishman River Watershed Water Supply Area, which is identified by the OCP as one of Vancouver Island's most important freshwater sources. In addition, the OCP identifies the Mount Arrowsmith area as an important ecological habitat area.

Alpine vegetation in the park (Photo: RDN).

Several key objectives from the OCP are directly applicable to MAMRP:

- To preserve and protect environmentally sensitive ecosystems and the nesting trees of protected species.

- Recognize the contribution of Mount Arrowsmith Alpine Recreation Area to the tourist-recreational service sector. (The OCP was developed prior to the acquisition of MAMRP, but it can be assumed it applies to the entire Mount Arrowsmith area.)

- Facilitate the protection and provision of public access to regionally significant, natural landscapes and corridors.

- Protect the quantity and quality of surface and groundwater.

3.2   Natural Values

A multitude of natural values have been identified within MAMRP. Ursus Environmental compiled and reviewed existing records and consulted with stakeholders to develop a consolidated summary of environmental data related to the park's natural values. Stakeholders supplemented existing records with personal knowledge and documentation.

3.2.1   Environmental Setting

Hiking through July snow in MAMRP (Photo: RDN).

Elevations within MAMRP range from about 900 m to 1,800 m above sea level. Two main Biogeoclimatic Subzones are represented in the park. The lower Subzone, termed the Windward Moist Maritime Mountain Hemlock Subzone (or MHmm), extends from 900 m elevation to between 1,100 m and 1,350 m elevation, depending on aspect. The MHmm subzone covers approximately 55% of the park. The Coastal Alpine Tundra Subzone (or ATc) occurs immediately above the MHmm Subzone and accounts for about 45% of the park's total area. Exposed to moist Pacific air masses for much of the autumn and winter, these Subzones experience long, wet winters, with high snowfall. Total annual snowfall averages around 800 cm in the MHmm Subzone, and over 1,000 cm in the ATc Subzone. It is not unusual for snow cover to persist into July within both Subzones (Green and Klinka 1994).

The Massif (Photo: RDN).

The domed cluster of peaks (or massif) at MAMRP is relatively isolated from other sub-ranges comprising the Vancouver Island Ranges. The nearest mountain chain, the Beaufort Range, occurs about 10 km to the northeast. The mountains are comprised mostly of volcanic rock formed 230 million years ago. They are part of the Karnutsen Formation. The characteristic black basalts of this formation had their origin in undersea lava. The Karnutsen Formation reaches a thickness of approximately 3,000 m around MAMRP (Yorath and Nasmith 2001).

A number of glacial episodes, the latest occurring between 30,000 and 12,000 years ago, have left their mark on the landscape of MAMRP. Mount Arrowsmith's valley slopes and peaks were steepened by the tongues of advancing glaciers and growing cirques. Subdued terrain in the southern part of MAMRP was likely the result of a broader glacial advance. Two prominent peaks were left within MAMRP after the glaciers receded. There is some evidence suggesting parts of Mount Arrowsmith may not have been completely covered by glaciers, possibly providing refuge for some endemic flora of the region.

3.2.2 Watercourses

Mount Arrowsmith Massif Regional Park encompasses the headwaters of the Englishman River, a major Vancouver Island stream draining northeast into the Straight of Georgia. The Englishman River has a large falls presenting a barrier to salmonid migration about 12 km east of MAMRP and 15 km from the river's mouth. Significant salmonid fisheries values are associated with reaches below the falls, and considerable effort has been expended in enhancing habitats and fish populations there. Reaches above the falls support populations of Rainbow Trout and Coastal Cutthroat Trout.

Streams along the eastern flanks of Mount Arrowsmith drain into the Englishman River system through five small lakes that range from about 2 ha to 15 ha in size. Jewel (also unofficially known as Emerald) Lake, the smallest within MAMRP, drains east into the mainstem of the Englishman River. Fishtail Lake, the largest lake in the park, drains to the northeast to the mainstem via a short tributary stream. Water from Hidden Lake drains to the east into Arrowsmith Lake and then courses northeast for about 1.2 km before joining the Englishman River mainstem. A small unnamed basin (sometimes referred to as Lost Lake) located in the southern part of MAMRP flows eastward through a tributary for roughly 6 km before its confluence with the Englishman River. Fishtail and Hidden Lakes have occasionally been stocked with Rainbow Trout.

The western and northern flanks of Mount Arrowsmith make a small contribution to the Cameron River catchment area. The latter drains northward into the west end of Cameron Lake. Runoff and snowmelt from the northeast part of MAMRP, near the peak of Mt. Cokely, makes its way into Lockwood Creek, which is tributary to the Little Qualicum River.

Fishtail Lake from Mount Arrowsmith peak (photo: HB Lanarc).

Jewel (Emerald) Lake (photo: RDN).
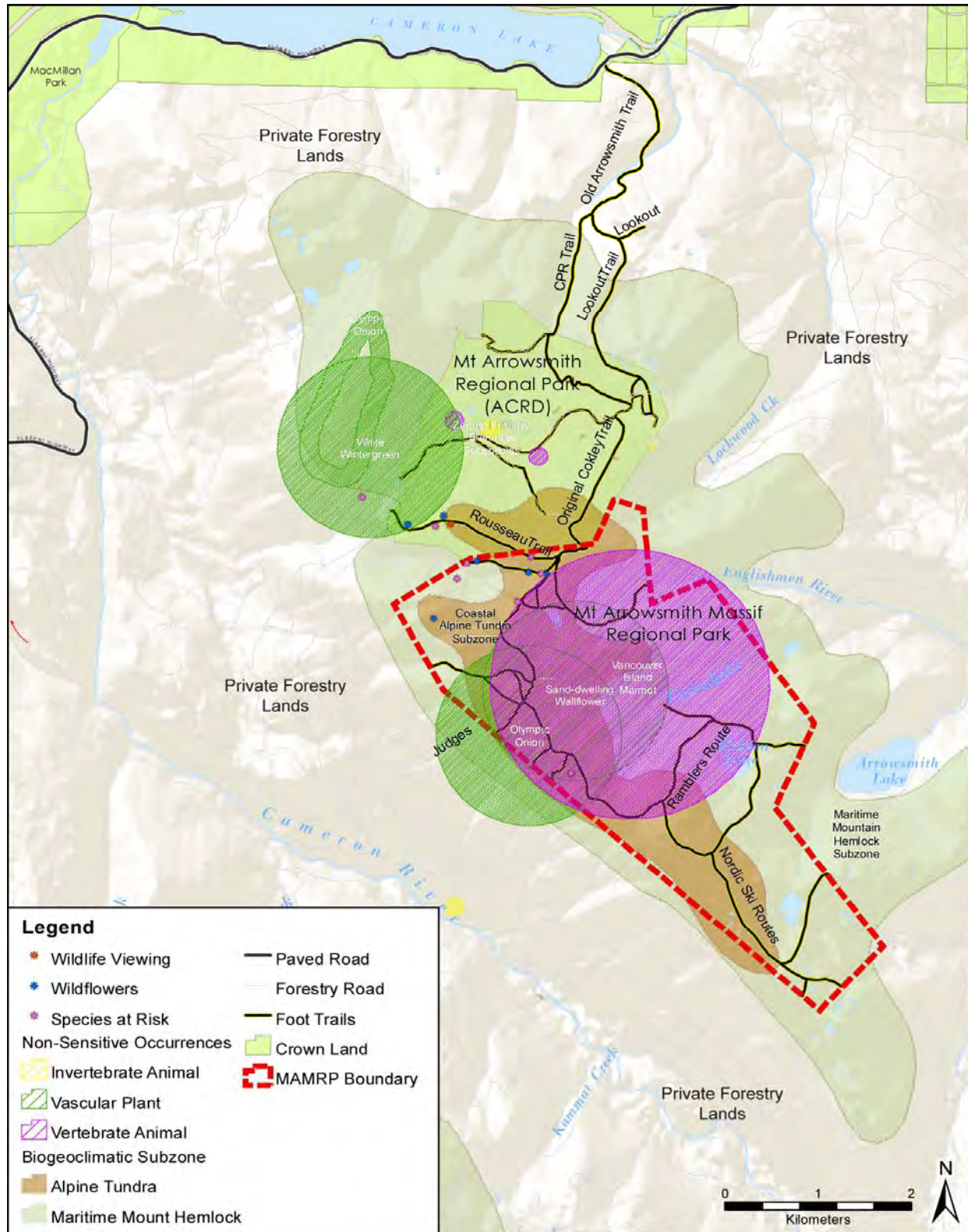
Figure 3.3: Natural Values Map.

Notes: 1. *"A Non-Sensitive Occurrence indicates the locations of non-sensitive species and ecological communities at risk" (see https://apps.gov.bc.ca/pub/geometadata/metadataDetail.do?recordUID=3651&recordSet=ISO19115 for information.)*
   2. *Information gathered through a variety of input sources. Mapping has not been field verified and is for reference only.*

3.2.3 Vascular Plants & Plant Communities

Although several plant surveys have been conducted at MAMRP in recent years, no detailed vegetation mapping has yet been completed. The area was not included in the mapping area for the 1997 Sensitive Ecosystem Inventory of Southeast Vancouver Island. No records of rare or threatened plant communities within MAMRP are indicated in the Conservation Data Centre (CDC) Rare Element Database. However, it should be noted that until recently, alpine ecosystems have received little attention from researchers and land managers (Meidinger and Pojar 1991). Research scientists with the B.C. Ministry of Forests and Range are currently developing classification schemes for use within alpine and subalpine ecosystems.

Alpine meadows on the slopes of Mount Arrowsmith (Photo: R. & L. Avis).

The CDC's Plant Ecologist, Adolph Ceska, has suggested that at least four Red-listed and two Blue-listed[1] alpine communities occur on Vancouver Island. These communities are typically described as plant pairings. Of these six communities, only the Red-listed *Lewisia columbiana – Allium crenulatum* and Blue-listed *Phylox diffusa – Selaginella wallacei* communities have had both of the key species documented within the MAMRP boundaries. Several plant communities containing the sedge *Carex scirpoidea*, which has been documented within MAMRP, may be considered for the CDC's Provincial Red-list.

Based on orthophoto coverage, background review and a limited amount of field reconnaissance, five general types of terrestrial plant communities have been identified within MAMRP's boundaries. These are Subalpine Forest, Subalpine Parkland, Alpine Scrubland, Alpine Meadow and Sparsely Vegetated Areas. Brief descriptions are provided for each plant community in Figure 3.4 below.

Oval-leaved blueberry in MAMRP (Photo: D. Harrison).

Plant Community	Description	Characteristic Plants	Distribution within MAMRP
Subalpine Forest	Generally continuous cover of conifers 8 m to 15 m in height; canopy dominated by Subalpine Fir & Mountain Hemlock.	Subalpine Fir; Yellow Cedar; Amabilis Fir; Mtn. Hemlock; Alaskan/ Oval-leaved Blueberry; False Azalea	Occurs below 1,300 m elev.; includes slopes around Fishtail Lake & N of the unnamed lake (Lost Lake).

Pink mountain heather in MAMRP (Photo: RDN).

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[1] In B.C., species and ecological communities are assigned to one of three lists, based on their provincial Conservation Status Rank. Red-listed species and ecological communities are Extirpated, Endangered, or Threatened in British Columbia. Blue-listed species and ecological communities are of Special Concern (formerly Vulnerable) and Yellow-listed species and ecological communities are secure. BC Conservation Data Centre –www.env.gov.bc.ca/cdc/

Partridgefoot in MAMRP (Photo: RDN).

Mountain arnica in MAMRP (Photo: RDN).

Arctic Lupine in MAMRP (Photo: RDN).

Sickletop Lousewort in MAMRP (Photo: RDN).

Red-listed Allium crenulatum (Olympic Onion) (Photo: Central Washington Native Plants database.)

Subalpine Parkland	Irregular patches of stunted & windswept conifers 1 m to 5 m in height; tree patches are often connected by thick shrub cover.	Shore Pine; Subalpine Fir; Yellow Cedar; Pink & White Mtn. Heathers; Dwarf blueberry; Partridgefoot	Bands distributed at elevations of 1,300 m to 1,500 m, depending on aspect.
Alpine Scrubland	Treeless areas dominated by low-growing shrubs. Occurs across the lower and middle parts of the Alpine Tundra Zone.	Pink & White Mountain Heathers; Kinnickinick; Crowberry	Broadly distributed above Subalpine Parkland communities.
Alpine Meadow	Located in seepage areas at the base of steep slopes; possess pockets of deep soil.	Mtn. Arnica; Red Columbine; Subalpine Daisy; Arctic Lupine; Red Paintbrush	Areas of pocket meadows on NW flank of Mt. Arrowsmith.
Sparsely Vegetated	Areas of thin, nutrient-poor soils, and frost-broken rock; found on peaks, cliff faces, talus fields, and around edges of snowfields.	Kinnickinnick; Villous Cinquefoil; Rosy Pussytoes; Yarrow; Sickletop Lousewort	Present on peaks of Mt. Arrowsmith & Mt. Cokely and along associated ridge crests.

Figure 3.4: General Ecosystem Types occurring within MAMRP.

To date, plant surveys have been carried out in MAMRP by Swerhun *et al.* in 2009 and by local botanist Rick Avis and alpine expert Hans Roemer in 2008. The results of these surveys indicate that, despite its high elevations, MAMRP possesses a diverse flora. As indicated in **Appendix G-1**, at least 167 species of plants have been identified in the park, including: 6 tree species, 21 shrub species and 140 non-woody plants. The non-woody plant assemblage of the park includes strong representation by graminoid plants (25 species), ferns (9 species), saxifrages (9 species), blueberries (6 species) and arnicas (5 species).

Recently observed rare plants in the park include the Red-listed Olympic Onion (*Allium crenulatum*) and Blue-listed Olympic Mountain Aster (*Eucephalus paucicapitatus*). Both species have their main range located outside Canada, along Washington's Olympic Peninsula. The Blue-listed Columbia Lewisia (*Lewisia columbiana var. rupicola*) is also shared with the Olympic Peninsula and occurs mostly between Strathcona Park and the Nanaimo Valley. It is a different variety from that occurring in the

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Manning Park Area in BC's Southern Interior.[2] The Blue-Listed Sand Dwelling Wallflower (*Erysium arenicola var. torulosum*) has also been recently observed in abundance within MAMRP. There are historical records for two other Blue-listed plants in MAMRP. These plants are the Lance-fruited Draba (*Draba lonchocarpa var. vestita*) and the White Wintergreen (*Pyrola elliptica*). Neither of these plants has been recorded in the park area for at least two decades.

In addition to above listed plants, there are several disjunct species of conservation interest on Mount Arrowsmith whose main range occurs away from Vancouver Island. Field Locoweed (*Oxytropis campestris*) is mainly distributed to the east of BC's Coast Mountain Range and along the Alaskan Panhandle. Silky Phacelia (*Phacelia sericea*) is widely distributed across BC's Southern Interior, but uncommon elsewhere. With a few exceptions, virtually all Alpine Lewisia (*Lewsia pygmaea*) records are from BC's Okanagan and Skagit Valley regions. Only one recent record exists for the latter species on Vancouver Island, and it is located within MAMRP. The single occurrence record for this species within MAMRP suggests it could be highly vulnerable to disturbance.

Lewisia pygmaea in MAMRP (Photo: R. & L. Avis).

Other occurrences on Mount Arrowsmith that are disjunct from their main distributions are those of Fairy Candelabra (*Androsace septentrionalis*) and Arctic Willow (*Salix arctica*).[3] Occurances of Mountain Sandwort (*Minuartia biflora*) have also been recently recorded on the mountain.[4]

3.2.4 Lichens and Fungi

An inventory of lichens occurring at Mount Arrowsmith was prepared in the autumn of 2006 by noted BC lichenologist Trevor Goward at the GLORIA research site, a small area within the park. The results of that inventory are presented in **Appendix G-4**. Over 50 different forms of lichens were identified at that time. Cup lichens of the genus *Cladonia* are the most diverse group occurring at Mount Arrowsmith, with 13 different forms. Rocktripes (genus *Umbilicaria*) are also well-represented, with eight different forms recorded. Other lichen groups with three or more representatives include Reindeer Lichens (*Cladina* spp.), Map Lichens (*Rhizocarpon* spp.) and Snow Lichens (*Stereocaulon* spp.). None of the lichens appearing in **Appendix G-4** are considered rare or threatened in the South Island Forest District.

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[2] Roemer, Hans. Personal Communication, October 2010.

[3] Roemer, Hans. Personal Communication, October 2010.

[4] Roemer, Hans. Personal Communication, October 2010.

Information about Fungi within MAMRP was not available during this process. Local naturalists and experts were not aware of any studies or park-specific records that have been completed to date.

3.2.5 Wildlife Occurrence

Mammals

No systematic mammal inventory has been completed within MAMRP. As a result, site-specific information about mammal occurrence is largely lacking. In the absence of such information, potential mammal occurrence has been predicted using published habitat preferences and range maps.

V.I. Marmot (Photo: The Vancouver Island Marmot Recovery Foundation).

Historically, several colonies of the Red-listed Vancouver Island Marmot (*Marmota vancouverensis*) existed within and near Mount Arrowsmith. However, over the past three decades their numbers in the Mount Arrowsmith area had declined to zero, as in many other locations across on Vancouver Island. In the summer of 2009, six marmots from the Vancouver Island Marmot Recovery Facility on Mt. Washington were reintroduced to the west side of Mount Arrowsmith. Five of these apparently remained at the release site and survived their first winter in the wild (D. Doyle, Ministry of Environment, personal communication). Before 2008, the nearest known active marmot site had been on Mount Moriarity, about 10 km to the southeast of Mount Arrowsmith (Vancouver Island Marmot Recovery Team 2008). Marmot sites have been associated with small (0.5–8.0 ha) subalpine meadows between 900 m and 1,450 m elevation, possessing moderately steep slopes and a south- to west-aspect (Bryant and Janz 1996). Radio-telemetry work has revealed that a large proportion of second-year marmots can move up to 20 km to new habitats (Bryant and Janz 1996).
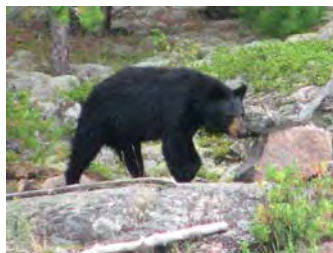
Black Bear (Photo: D. Gordon; E. Robertson).

Two large carnivores, the Black Bear (*Ursus americanus*) and Cougar (*Felis concolor*), have been reported within MAMRP in recent years. Black bear use of the park is likely highest over the mid-to-late summer period, when a variety of berry-producing shrubs normally provide an abundance of food. Cougars are wide-ranging predators with large home ranges, in the vicinity of 25 km^2 to 65 km^2 in this part of Vancouver Island (Hatter 1982). They can be expected in the park in all seasons, but their main prey, the Black-tailed Deer (*Odocoileus hemionus columbiana)*, inhabits the high country mainly in summer. Wolves (*Canis lupus*) occur at low densities across this part of Vancouver Island, and generally restrict their activities to valley bottom habitats of the larger river valleys.
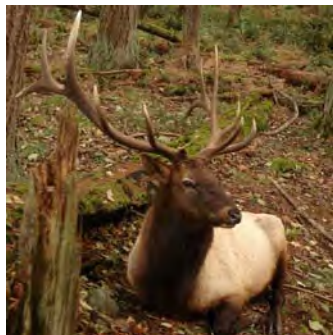
Roosevelt Elk (Photo: pnwnature).

Small numbers of Roosevelt Elk (*Cervus elaphus roosevelti*) occupying the adjacent Cameron River and Englishman River Valleys likely range up

into MAMRP in summer. Elk use within the park would be concentrated within riparian habitats along lake and wetland margins. Vegetated slide tracks, found along the western margins of the park are considered highly attractive elk summer and fall habitats (Nyberg and Janz 1990).

Preferred habitats of the Marten in Western North America include stands of Subalpine Fir and Amabilis Fir (Powell *et al.* 2003), both of which are found at lower elevations within MAMRP. Marten generally occur at low densities across Vancouver Island, as the abundance and diversity of their prey (small mammals), is very limited in comparison to the adjacent Mainland.

At higher elevations on Vancouver Island, the small mammal assemblage is comprised mainly of the Deer Mouse (*Peromycus manipulatus*), with an infrequent occurrence of the Dusky Shrew (*Sorex monticolus*) (Nagorsen 1996). Moist, herb-dominated habitats in the subalpine may support populations of Townsend's Voles (*Microtus townsendii*), which often fluctuate widely from year to year.

Birds

The avifauna of the Mount Arrowsmith area has been well documented by the region's birding community. As shown in **Appendix G-2**, local naturalists have recorded a total of 42 bird species over 2008 and 2009. The assemblage from the high elevation forest supports the greatest diversity of bird species, with 29 species or about two-thirds of all those recorded. Typical birds of high-elevation forests within MAMRP include: Hammond's Flycatcher (*Empidonax hammondii)*, Hermit Thrush (*Catharus guttatus)*, Gray Jay (*Perisoreus Canadensis*), Three-toed Woodpecker (*Picoides tridactylus*) and Sooty Grouse (*Dendragopus obscurus*). Two Blue-listed birds associated with snags and conifer forests have been noted at Mount Arrowsmith, the Northern Pygmy-owl (*Glaucidium gnoma swarthi*) and Band-tailed Pigeon (*Columba fasciata*). The former is a cavity-nester with an apparent preference for mature stands, while the latter builds loose stick nests in mixed conifer stands, often perching near the tops of dead trees (CDC 2010).

Approximately one-fifth of the recorded bird assemblage at Mount Arrowsmith are associated with open alpine and subalpine parkland habitats (eight species). Representative birds within Mount Arrowsmith's alpine and subalpine zones include Townsend's Solitare (*Dendroicus townsendi*), American Pipit (*Anthus rubescens*), Common Raven (*Corvus corax*) and Golden Eagle (*Aquila crysaetos*). Due to its cryptic plumage, the Blue-listed Vancouver Island White-tailed Ptarmigan (*Lagopus leucurus saxatilis*) is seldom seen, but sightings are frequent enough to consider them a resident species. This subspecies occupies a wider elevational range than Mainland ptarmigan, wintering

Curious Whiskey Jack (Photo: P. Rothermel).
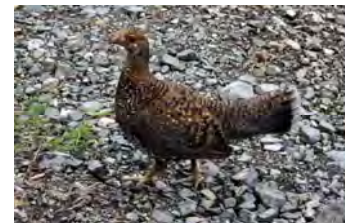
Sooty Grouse (Photo: RDN).

Camouflaged White-tailed Ptarmigan (Photo: P. Rothermel).

in lower subalpine parkland and montane forests. Due to this subspecies' restricted range on central Vancouver Island, the Mount Arrowsmith area has been designated a nationally significant Important Bird Area[5].

Five bird species associated with water occur in the Mount Arrowsmith area. The Common Loon (*Gavia immer*) and Common Goldeneye (*Bucephala islandica*) frequent open water lake habitats, while the Spotted Sandpiper (*Actitus macularia*) and Song Sparrow (*Melospiza melodia*) are associated with lake and wetland margins. The American Dipper (*Cinclus mexicanus*) is seldom seen outside of stream reaches with a combination of riffle and pool habitats.

Though not documented, there is a reasonable probability that MAMRP supports use by three other listed species. A Red-Listed raptor, the Queen Charlotte Goshawk (*Accipiter gentilis laingi*), is associated with mature stands possessing relatively open understories. The nearest known goshawk nest is located roughly 6 km to the southwest, in the upper part of the China Creek Valley. The Blue-listed Marbled Murrelet (*Brachyramphus marmorata*) feeds mainly in the marine environment, but typically nests on mossy pads within old-growth forest (Fraser *et al.* 1999). Records from Bird Studies Canada indicate the presence of Olive-sided Flycatchers (*Contopus cooperi*) on the northern flank of Mount Cokely, just beyond the MAMRP boundary. This Blue-listed bird forages and sings from the tops of tall snags, particularly along forest edges.

Herptiles

Only a few amphibians, and no reptiles, can tolerate the harsh environmental conditions associated with alpine and near-alpine habitats. The Western Toad (*Bufo boreas*) is adapted to cold temperatures, breeding in subalpine lakes over 1,000 m in elevation and inhabiting the northern limits of British Columbia. The Northwestern Salamander (*Ambystoma gracile*) is widely distributed in coastal BC and regularly breeds at higher elevations (up to 1,700 m). Usually the earliest breeding amphibian on Vancouver Island, the Long-toed Salamander (*Ambystoma macrodactylum*) is often present at ponds before the ice has completely melted (Matsuda *et al.* 2006). This species is reported to breed at elevations above 1,500 m where suitable ponds are present (Alberta Sustainable Resource Development 2010).

Invertebrates

Efforts by the Arrowsmith Naturalist Club to inventory butterflies in the region have so far focused on areas outside of MAMRP. The CDC Rare

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[5] Important Bird Areas (IBAs) are discrete sites that support specific groups of birds: threatened birds, large groups of birds and birds restricted by range or habitat (www.ibacanada.com).

Element Database contains historic records for two Red-listed butterflies in areas adjacent to the park, Blackmore's Blue (*Icaricia icaroides blackmorei*) and Bremner's Silverspot (*Speyeria zerene bremnerii*). As indicated in **Appendix G-3**, the Arrowsmith Naturalist Club has identified 10 species of butterflies from high elevation sites near MAMRP. One site is located near the headwaters of McBey Creek, just north of the park, and the other is near St. Mary's Lake, about 4 km to the northwest. In general, multi-species wildflower meadows and shallow warm-water puddles are considered attractive butterfly habitats.

3.3 Recreational Values

In addition to extensive natural values, MAMRP has a lengthy history of recreation. To this day it is one of the most popular wilderness recreation destinations on Vancouver Island.

3.3.1 Regional Tourism Trends

The 2008 Vancouver Island Visitor Exit Survey was conducted to discover, among other input, the motivation of people visiting Vancouver Island. When asked their primary motivation for visiting the Vancouver Island Region, 28% said they were visiting because of the Scenic Beauty of the region, second only to Friends and Family being the reason for a visit (32%). People also noted the Environment (4%), Outdoor Activities (1%) and Wildlife (1%) as primary reasons to visit Vancouver Island (see **Figure 3.4: Primary Trip Motivation**).

Survey respondents also indicated that Scenic Beauty (66%), the Environment (30%), Outdoor Activities (20%) and Wildlife (15%) were among what they like most about the Vancouver Island region (see **Figure 3.5: The Visitor 'Experience'**).

The value of natural areas to tourism on Vancouver Island is apparent. MAMRP represents an opportunity to encourage tourism within the region, by providing true wilderness experiences, within easy reach of visitors to all parts of the island.

Primary Trip Motivation

Category	Percentage
Arts & Culture	<1%
Transportation	<1%
First Nations	<1%
Value for money	<1%
Wildlife	1%
Ease of access	1%
Outdoor activities	1%
Attractions	2%
Friendly people	2%
Marine activities	3%
Environment	4%
Other	24%
Scenic beauty	28%
Friends & family	32%
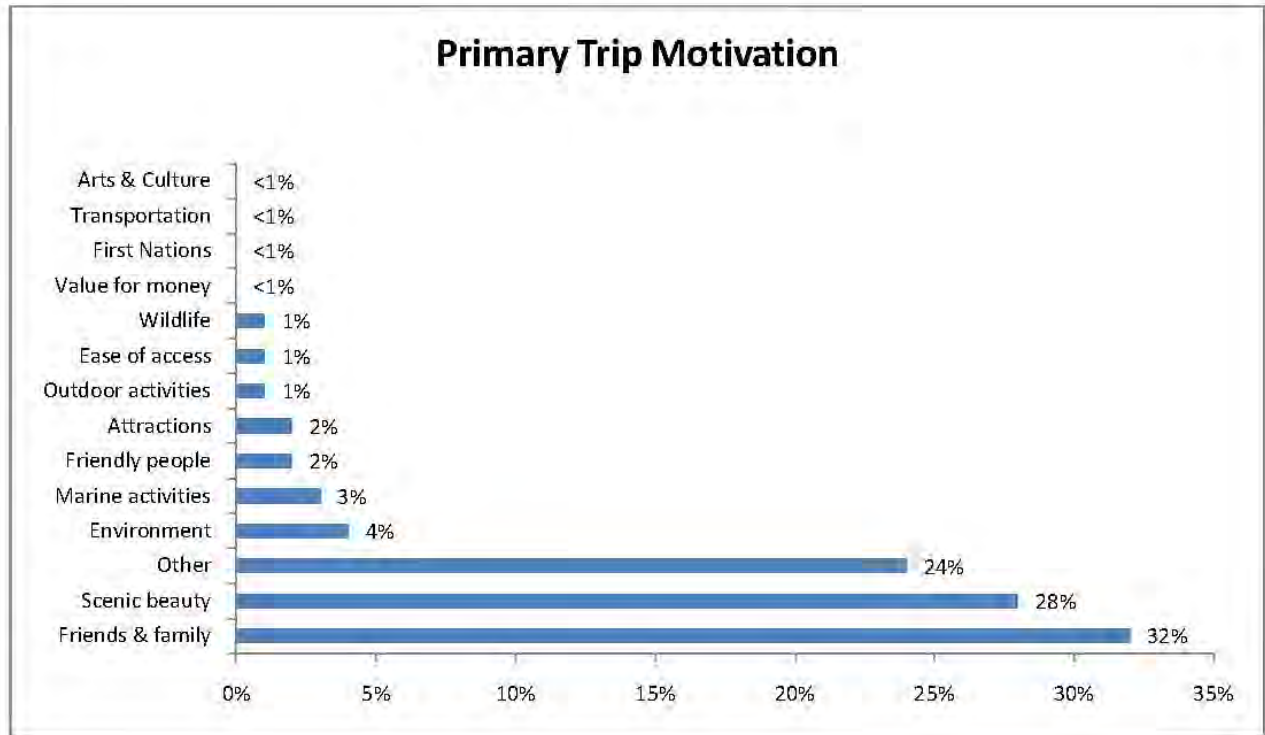
Figure 3.5: Primary Trip Motivation. Source: 2008 Vancouver Island Visitor Exit Survey, Tourism Vancouver Island.

The Visitor 'Experience'

Category	Percentage
Transportation	1%
Value for money	1%
First Nations	2%
Personal safety	3%
Arts & culture	8%
Ease of access	10%
Attractions	10%
Marine activities	14%
Wildlife	15%
Friendly people	16%
Outdoor activities	20%
Other	23%
Family and friends	26%
Environment	30%
Scenic beauty	66%
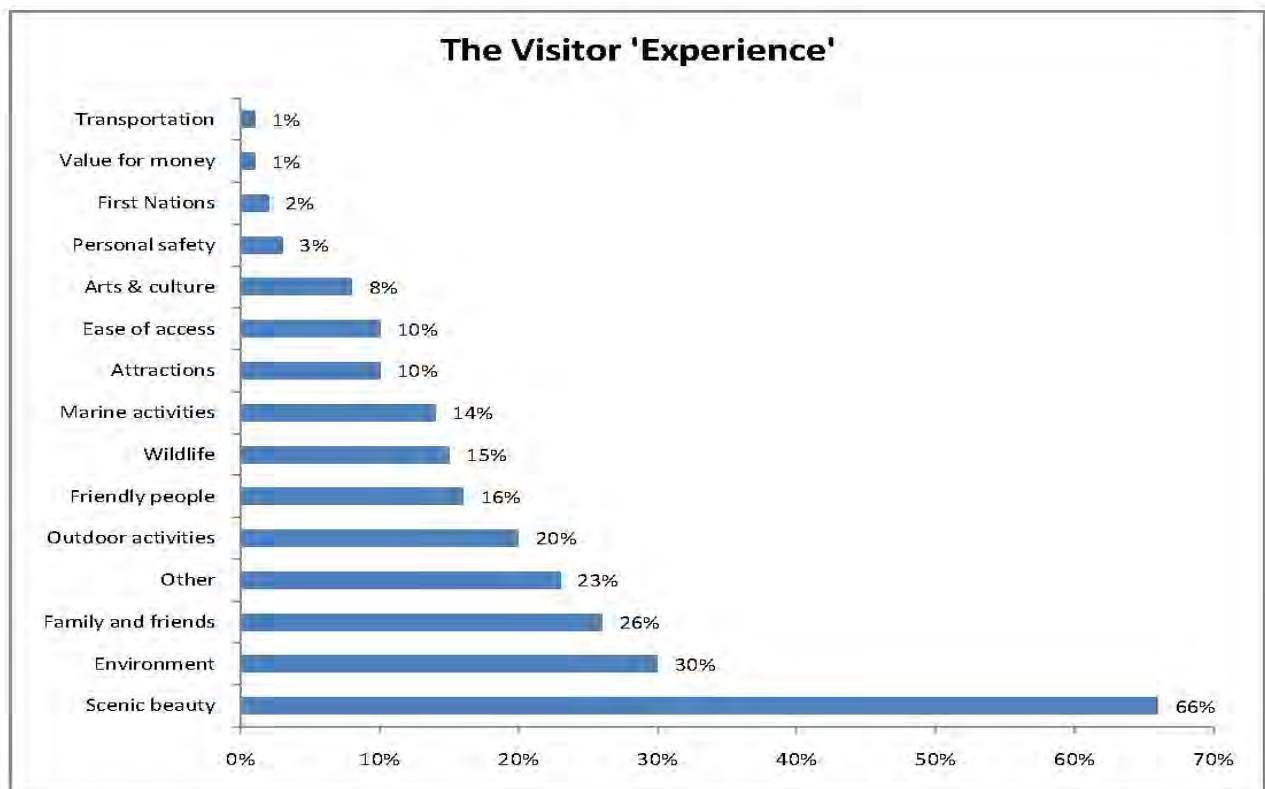
Figure 3.6: The Visitor 'Experience'. Source: 2008 Vancouver Island Visitor Exit Survey, Tourism Vancouver Island.

3.3.2 Regional Recreation Trends

Trends affect the use of parks and recreation throughout the RDN, BC and beyond. Identification of trends helps ensure decisions about planning and management are logical for the future of parks and recreation. Key national and provincial recreation trends related to the recreation opportunities at MAMRP include:

Mountain visitors in the Saddle (Photo: RDN).

■ **Less Structured Activities:** Non-traditional work schedules, home-based offices and double-income families are becoming more common which make it more difficult for people to make long-term commitments to team or on-going activities; as a result, unstructured activities such as hiking and climbing are gaining popularity.

■ **Changing Preferences and Expectations**: Interests in participation in activities that offer challenges, both physically and mentally, are increasing throughout the province and nation.

■ **Environmental Connection**: People are becoming increasingly aware of the natural environment and are seeking opportunities to experience, protect and steward important areas. People are seeking wilderness activities as a way to connect with their environment.[6]

3.3.3 Mount Arrowsmith Recreation Trends

"Mt. Arrowsmith is arguably the most popular mountain on Vancouver Island and is the highest point on the southern half of the Island.[7]" Tourism resources identify Mount Arrowsmith as a very important recreational resource on Vancouver Island.

One of the reasons the mountain is a popular recreation destination is its accessibility. MAMRP can be easily reached in a few hours from most populated areas on Vancouver Island; close to 400,000 people live within a three-hour drive of the mountain.[8] The range of activities available at the mountain, from moderate day-hikes to technical rock and ice-climbing, draw a wide variety of outdoor recreation enthusiasts.

People visit Mount Arrowsmith year-round to enjoy a range of experiences (Photo: P. Rothermel).

The Arrowsmith Summit Register sits at the peak of Mount Arrowsmith Massif and is monitored by the Alpine Club of Canada. Records from the mid-90s through mid-2000s show an increasing number of visitors to the summit. In 1993, 162 visits were recorded in the resgister; in 2004, 530 visits and counting.[9] While the register records only Mount Arrowsmith summit visits on a voluntary basis and therefore is not an

Mount Arrowsmith summit cairn and register location (Photo: RDN).

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[6] Trends from: 2006. BCRPA. "Trends in the Parks, Recreation & Culture Field." *Excerpt from the Strategic Plan for the Parks and Recreation Sector in BC.*

[7] Stone, Phillip. 2003. *Island Alpine: A Guide to the Mountains of Strathcona Park and Vancouver Island.*

[8] Mount Arrowsmith website. www3.telus.net/Mount_Arrowsmith/arrowsmith.html

[9] *Arrowsmith Summit Register*, Alpine Club of Canada. n.d.

accurate description of all people visiting the area, it is a good indicator for the growing popularity of the mountain. The ACC maintains summit records in their archive.

3.3.4   Recreation Use

Mount Arrowsmith Massif Regional Park is considered one of the most popular recreation destinations of Vancouver Island. One of the reasons for this is because it accommodates a wide variety of outdoor recreation activities.

Family Hike

- **Hiking:** The trails within the park provide a number of hiking experiences from family hikes to more challenging routes that are used both in summer and in winter.

Climbing

- **Climbing:** The park is a popular destination for climbers with numerous popular climbing routes, including ice climbs used during the winter months.

- **Skiing:** People use the park for cross-country and hike-in downhill skiing.

- **Nature Study & Observation:** The unique ecosystems and wildlife habitat make the park a popular destination for nature appreciation, study and research.

Paragliding

- **Paragliding:** The park has been known to be used as a launch point for paragliders.

The steep terrain found in Mount Arrowsmith Massif Regional Park also limits some recreation uses. Within the MARMP boundary, the grades are too steep for motorized recreation use, as well as mountain biking and other recreational uses that require gentler terrain. While these uses, notably motorized recreation use, are present in the adjacent ACRD Mount Arrowsmith Massif Regional Park, motorized vehicles are not able to access MAMRP. The steep terrain also limits park use by people who are unable to navigate the difficult conditions.

Ice Climbing

Trail routes provide a variety of experiences from moderate hiking to extreme climbing (Photos: P. Rothermel & M. Hofmann).

3.3.5   Existing Trails

Mount Arrowsmith has at least 10 well-documented and historically used routes that are used for recreation (see **Figure 3.7: Popular Existing Trail Routes**). Portions of some historical routes traverse the park boundaries onto neighbouring properties and public use of portions of trails on private property is currently unauthorized, except where formal licences have been secured.

- **Saddle Route:** This is the area's most popular trail route. The route includes the valley between Mount Arrowsmith and Mount Cokely and traverses alpine meadows within the gulley. From the gulley,

visitors may also ascend to the Cokely summit via a scramble or to the Mount Arrowsmith summit via a technical climb. Users may also choose to hike down to Jewel (Emerald) Lake.

- **Judge's Route:** The Judge's route is a very steep and at times rocky route up to the peak of Mount Arrowsmith, but does not require technical climbing and is considered the shortest and easiest way to the summit.

- **Snow Gulley:** The Snow Gulley follows alongside a creek through several couloirs to the summit of Mount Arrowsmith. This includes technical climbs and is a popular route for ice climbing.

- **Un-Judge's Route:** The Un-Judge's route heads up a ridge to the right of the Judge's Route. The ridge is bluffy and exposed with technical climbing. The route ascends at the south summit of Mount Arrowsmith and follows the ridge to the Mount Arrowsmith peak.

- **Lost Gulley Route:** This route leads up an open slope and two steep gullies to the South summit of Mount Arrowsmith, then requires a traverse over to the Mount Arrowsmith main summit.

- **Rosseau Trail:** This route includes a moderate trail leading up Mount Cokely and is often used to form a loop with the Saddle Route.

- **Original Cokely Trail:** This trail begins at the ACRD Mount Arrowsmith Regional Park parking lot and ascends Mount Cokely via a well-graded route through former ski hill terrain.

- **Old Arrowsmith Trail/CPR Trail/Lookout Trail:** The Old Arrowsmith Trail originates at the east end of Cameron Lake off Highway 4. The trail gently switchbacks up Mount Cokely to the ACRD Mount Arrowsmith Regional Park, dividing about a third of the way up into the CPR Trail (right fork) and the Lookout Trail (left fork) before rejoining at the ACRD Mount Arrowsmith Regional Park parking lot. The RDN has secured non-exclusive licences for public use of portions of this trail that traverse private property.

- **Rambler's Route:** The trail circles the south area of the park and connects to Hidden Lake and down to Fishtail Lake, via several climbs.

- **Judy's Meadows:** This route follows the southern ridgeline and connects with the Nordic Ski Routes and Ramblers Route.

Multiple websites and guidebooks provide detailed information about existing MAMRP trail routes. Additional routes likely exist within the park, but are not as well-used or documented.

Hiking the Saddle Route (Photo: HB Lanarc).

Hiking the Judge's Route (Photo: H. Rueggeberg).
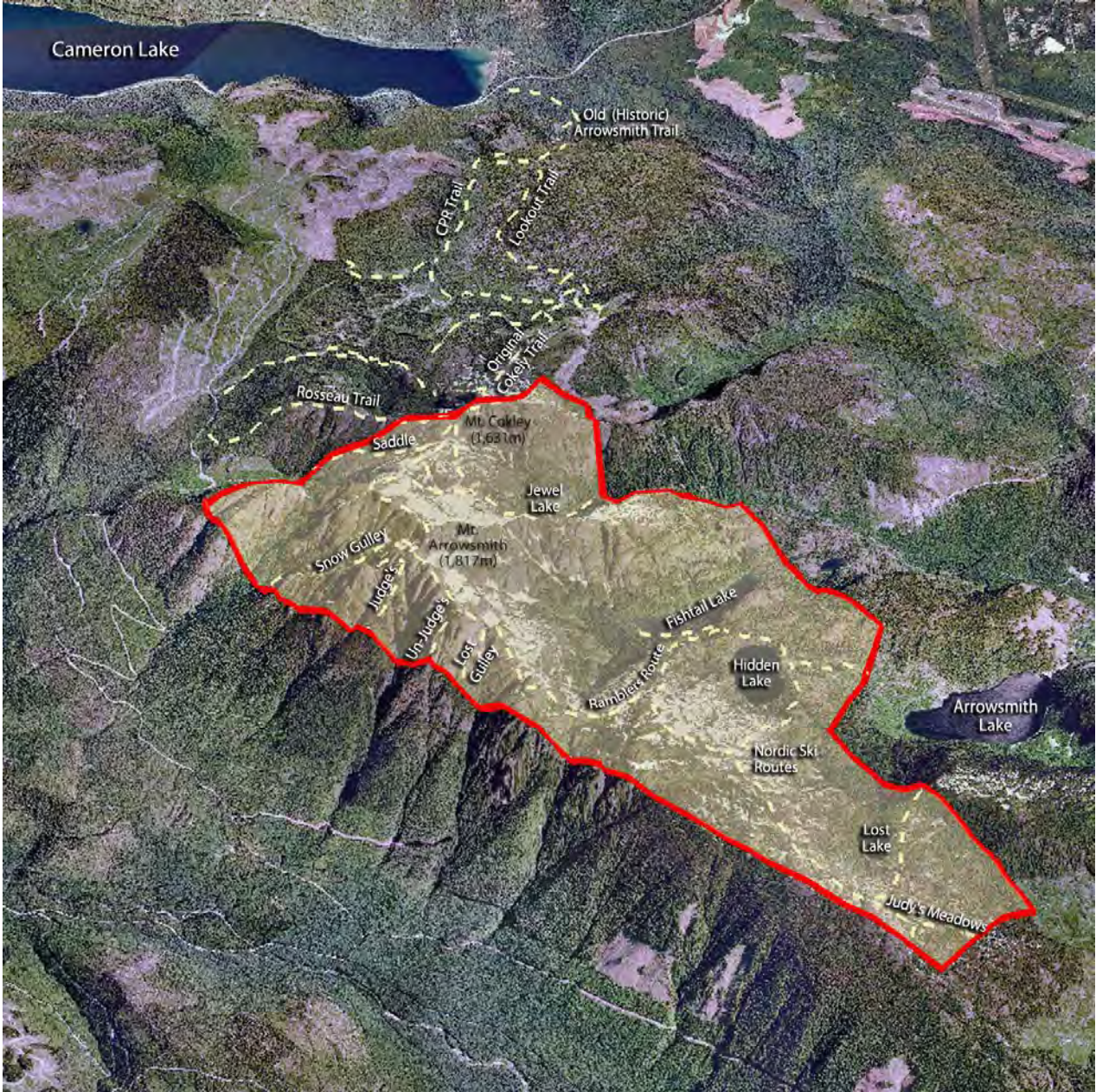
Figure 3.7: Popular Existing Trail Routes.

3.4 Education & Research Values

3.4.1 Education

The mountain is used as a training site for rock and ice climbing, guiding and alpine leadership uses, due to its ideal conditions and accessible location. While not accurately documented, park users indicate that clubs and organizations, such as school groups, scouts, hiking clubs and others use the mountain for recreational and educational programs.

Multiple opportunities exist to utilize Mount Arrowsmith Massif Regional Park as an educational venue. Park information and documents could help increase public knowledge about a range of topics, including alpine ecosystems and habitats, area forestry practices, first nations' history and culture and more. See **Section 5.6: Education & Research** for potential educational opportunities.

3.4.2 Research

The unique environments and habitats within MAMRP have inspired many research activities, formal and informal, on the mountain. Key documented activities include:

- **GLORIA Project:** "*The purpose of GLORIA (GLobal Observation Research Initiative in Alpine Environments) is to establish and maintain a world-wide long-term observation network in alpine environments.[10]*" The data collected during observations will be used to assess and predict losses in biodiversity and other threats to alpine ecosystems due to climate change. Monitoring was established in 2006 on Mount Arrowsmith. The study suggests that resurveying should occur at five-year intervals.[11]

- **Vancouver Island Marmot Recovery:** Mount Arrowsmith has habitat that is suitable to the Vancouver Island Marmot (*Marmota vancouverensis*), a marmot subspecies that exists only on Vancouver Island. Historical records indicate sightings of marmot colonies in the vicinity, although numbers dwindled to near extinction. Recent recolonization activities by the Vancouver Island Marmot Recovery Foundation have resulted in the relocation of several marmots to the
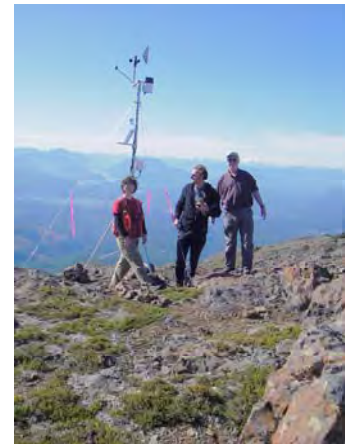
Installation of the weather station for GLORIA monitoring (Photo: RDN).

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[10] GLORIA website. www.gloria.ac.at

[11] Swerhun, K. G. Jamieson, D.J. Smith, and N.J. Turner. "Establishing GLORIA Long-term Alpine Monitoring in Southwestern British Columbia, Canada." *Northwest Science: Vol. 83, No. 2* (2009): 101-116. Print.

mountain in 2008/2009. Tracking indicates that some continue to reside on the mountain.

■ **Mount Arrowsmith IBA:** The Mount Arrowsmith area includes alpine, sub-alpine and upper montane forest areas that support significant numbers of Vancouver Island White-tailed Ptarmigan (Lagopus leucurus saxatilis)[12]. As such, it has been identified as an important bird area (IBA) and is a popular location for bird research. The IBA program works to assess status and trends of bird populations, champion conservation efforts and help ensure the safeguarding of Canadian bird populations.
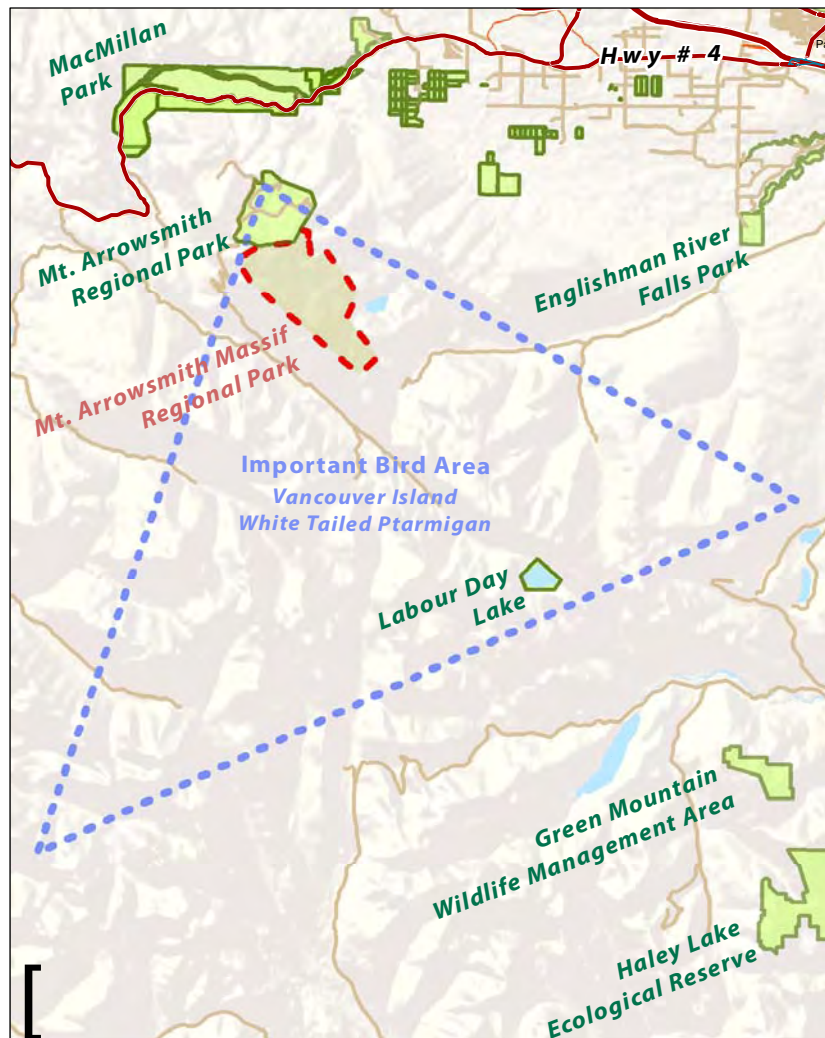
Figure 3.8: Extents of Vancouver Island White Tailed Ptarmigan IBA[13].

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[12] IBA Canada. www.ibacanada.ca

[13] Bird Studies Canada and Nature Canada. 2004-2010. Important Bird Areas of Canada Database. Port Rowan, Ontario: Bird Studies Canada. To access the Canadian IBA directory: http://www.ibacanada.com

■ **Ongoing Volunteer Studies:** Mount Arrowsmith inspires much interest from local expert plant and wildlife researchers. Naturalist organizations, including the Arrowsmith Naturalists Club, and local experts have documented flora and fauna sightings and continue to develop records and species lists.

3.5 Historical and Cultural Values

The area that is now MAMRP has a long history. In addition to recorded cultural and historical references, MAMRP has spiritual, experiential and personal values to local residents.

3.5.1 Hupacasath First Nation

The native people from the Alberni area call the mountain "Kuth-Kah-Chulth" which translates to "that which has sharp pointed faces".

The Hupacasath First Nation has strong cultural connections with Mount Arrowsmith and Mount Cokely. The mountains sit within their traditional territory along the southeast boundary. The mountain range provides a visual border between traditional Hupacasath, Qualicum and Nanoose territories.

MAMRP is within the Hupacasath's Cameron Use Area.[14] The Cameron Use Area is identified in the Hupacasath Territory Land Use Plan as a Resource Development Area in which, *"resource development, such as timber harvesting, mining, tourism and other development can take place while respecting Hupacasath rights and title, and being sensitive to fish, wildlife, culture and other environmental values.[15]"* As traditional territory, some activities including hunting, trapping and gathering may take place near the park. No concerns or conflicts were noted during the plan development process.

Mount Cokely and Mount Arrowsmith have a long history within Hupacasath stories. There are numerous oral legends about the mountain that continue to be passed down today. The Vancouver Island Marmots of Mount Arrowsmith are a particularly important part of Hupacasath history – the Marmots were an important food source for the Hupacasath and have a role in their stories and histories.

3.5.2 Recreational History

Mount Arrowsmith has been a recreation destination for mountain climbing and exploration for decades.

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[14] June 2003. Territory Land Use Plan, Hupacasath First Nation.

[15] June 2003. Territory Land Use Plan, Hupacasath First Nation, p.26.

CPR tourist chalet at Cameron Lake, c. 1920 (Photo: BC Archives).

Historical McBey Creek Bridge along Arrowsmith Trail (Photo: BC Archives).

Don Munday and Tom Ingram on the peak of Mount Arrowsmith (Photo: BC Archives).

Former ski lodge on Mount Cokely (Photo: P. Rothermel).

Historical Highlights of Mount Arrowsmith[16]:

Mid-1800s: The English name the mountain Mount Arrowsmith after cartographers, Aaron Arrowsmith and nephew John Arrowsmith.

1887: Written documentation of an ascent is recorded by John Macoun, Naturalist to Geological Survey, his son James Macoun, Qualicum Tom and his son Jim.

1901: Dr. James Fletcher, Canada's first Dominion Entomologist and Botanist, J.R. Anderson, Deputy Minister of Agriculture, Reverend G.W. Taylor, John Clutesi and Rob McKinley record a four day journey up Mount Arrowsmith.

1910: CPR builds a tourist chalet at the eastern edge of Cameron Lake along the railline.

1912: A pack trail is established from the tourist chalet to an overnight hut at 1,280 m (4,200 feet) on Mount Cokely. The pack trail, named Old Arrowsmith Trail is still used today.

1925: Don & Phyllis Munday record the visual discovery of Mount Waddington (unexplored at that time), the highest mountain peak within BC, from the peak of Mount Arrowsmith.

1926/27: Mount Cokely is unofficially named after Leroy Sterling Cokely, a Dominion & BC land surveyor. (Name is officially adopted in 1973.)

1940s/50s: New cabins are built on the massif and the area becomes a winter and summer outdoor destination.

1960s: Logging roads push up the mountain, facilitating day access to the mountain and increasing the popularity of hiking trails.

1972: 607 ha on the north slope of Mount Cokely is sold to the Alberni-Clayoquot Regional District by private forestry company for operation as a regional park and a downhill ski operation is opened.

1999: After years of struggling with financial viability, the Mount Arrowsmith Ski Hill is closed after record snow fall proves too much cost for snow-clearing on the access road.

2001: The RDN and timber companies develop non-exclusive licence agreements for public use of Old Arrowsmith Trail from Cameron Lake to the ACRD Mount Arrowsmith Regional Park.

2005: The ski lift towers on Mount Cokely (in the ACRD Mount Arrowsmith Regional Park) are decommissioned.

2008: Block 1380 is declared a RDN Regional Park on November 25th.

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[16] Key dates adapted from Peter Rothermel's "A Brief History of the Arrowsmith Massif."

3.6   Community Identity & Sense of Place

The peaks of Mount Arrowsmith and Mount Cokely are prominent visual features on Central Vancouver Island. The snow-topped peaks of the mountains can be see from several communities year-round and are a powerful visual representation of the notion of sea-to-sky.
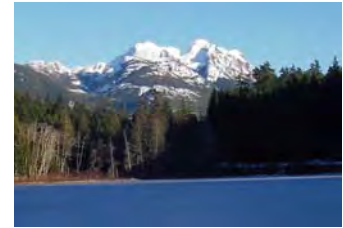
Mount Arrowsmith from Loon Lake (Photo: P. Rothermel).

3.6.1   Mount Arrowsmith Biosphere Reserve (MABR)

"Biosphere Reserves are areas of terrestrial and coastal/marine ecosystems, or a combination thereof, which are internationally recognized…" There are 553 biosphere reserves in 107 countries throughout the world.[17] MABR is one of 15 reserves in the Canadian Biosphere Reserve Network.

The reserves are established *"to promote and demonstrate a balanced relationship between humans and the biosphere"* and must *"encompass a mosaic of ecological systems.[18]"* The Mount Arrowsmith Biosphere Reserve is *"envisioned as an area where biological diversity is sustained in functioning ecosystems and where healthy communities enjoy an ecologically sustainable economy.[19]"*

The Mount Arrowsmith Biosphere Reserve encompasses the entire watershed of Mount Arrowsmith and its borders are determined by the watershed boundaries. Virtually, all precipitation that falls on Mount Arrowsmith ends up in the Little Qualicum or Englishman Rivers and the reach of these watersheds make up the boundaries of the Mount Arrowsmith Biosphere Reserve.[20]

The Mount Arrowsmith Biosphere Reserve Foundation (MABRF) is engaged in supporting the future ecological, social and cultural health of the MABR. The Foundation advocates for "a balance of natural ecosystem health and sustainable human activity, with a view to preserving the biodiversity of the region.[21]"

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[17] Mount Arrowsmith Biosphere Reserve website. www.mabr.ca

[18] Mount Arrowsmith Biosphere Reserve website. www.mabr.ca

[19] Mount Arrowsmith Biosphere Reserve website. www.mabr.ca

[20] Rothermel, Peter. Personal Communication. 04 Sept. 2010.

[21] Crowley, Richard. "Introducing your local biosphere." Mount Arrowsmith Biosphere Reserve, 2010.
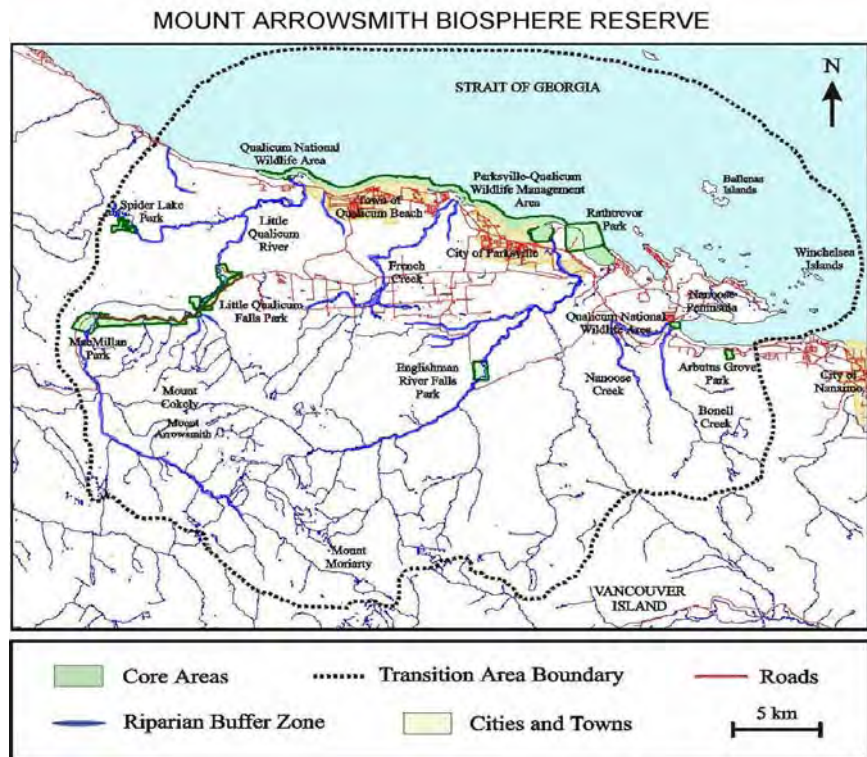
Figure 3.9: Mount Arrowsmith Biosphere Reserve. From the MABR website: www.mabr.ca

The hope of the MABRF is to locate funding and attract researchers to do future work in the area. Currently, the MABRF supports the GLORIA project, and provides indirect support for activities on Mount Arrowsmith, including ptarmigan research, tree ring research, repeat photography and geography, alpine restoration, weather monitoring, snow surveys and marmot recovery.

Opening ceremonies for MAMRP (Photo: RDN).

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Photo: P. Rothermel

4 VISION, GOALS & PRINCIPLES

4.1 Vision Statement

A vision statement sets the tone for the long-term management of MAMRP and defines the context within which short-term management actions are made.

Public and stakeholder input identified several key themes that are integrated into a vision for MAMRP:

Mount Arrowsmith Massif Regional Park is a significant landmark in Central Vancouver Island. Its familiar peaks continue to be accessible for low-impact wilderness recreation in sub-alpine and alpine environments. Recreational and ecological values are balanced through stewardship so that important ecosystems and habitats are protected. First Nations stories and other historical accounts of the mountain are recorded and celebrated and research activities are supported and encouraged.

Mount Arrowsmith Massif remains an important ecological, recreational, spiritual and visual resource for its neighbours, friends and visitors.

4.2 Management Goals

Management goals set the framework for policies and actions for Mount Arrowsmith Massif Regional Park. The goals are developed from stakeholder and public input.

Goal 1: Ecosystem Conservation

Manage the park to maintain its unique natural habitats. Monitor existing ecosystems to minimize impacts as recreational use of the mountain increases and undertake appropriate restoration activities. Encourage the study of the sub-alpine and alpine environments to increase knowledge of the area's unique flora and fauna.

Goal 2: Wilderness Recreation

Continue low-impact recreation use in the park, with the goal of balancing our recreational footprint with the sensitive ecology of the mountain. Encourage recognition and respect of the mountain's wilderness conditions by park users, stewards and maintenance providers.

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Goal 3: Partners in Stewardship

Work with the Mount Arrowsmith community – including Hupacasath First Nation, the Federation of Mountain Clubs of BC, the Alpine Club of Canada, the Alberni-Clayoquot Regional District, Island Timberlands, local user groups and volunteers – to steward and maintain the park.

Goal 4: Access

In cooperation with neighbouring landowners, ensure that Mount Arrowsmith Massif remains accessible for public use and enjoyment for generations to come.

Goal 5: Education

Support and encourage a wide range of research and education activities within the park. Collaborate with partners and neighbours to develop and share educational information. Permit alpine training activities that fit with the area's wilderness context.

Goal 6: Celebration of Heritage

Work with First Nations, historians and volunteers to learn more about the unique history and culture of the mountain and share information with the public so the significance of the area can be appreciated.

4.3 Management Principles

The following principles represent the basic 'rules' that must be observed by the policies and actions in the Management Plan.

Province of BC Licence of Occupation

MAMRP has been acquired by the RDN through a Nominal Rent Tenure agreement with the Province of BC that grants Licence of Occupation of Block 1380 to the RDN for a 30-year period. The agreement requires the RDN to complete proof of insurance and management planning for the park in collaboration with Hupacasath First Nation, the Federation of Mountain Clubs of BC and the Alpine Club of Canada.

Hupacasath – Regional District of Nanaimo Memorandum of Understanding for Mount Arrowsmith Massif

The RDN and Hupacasath First Nation established the MoU in 2008 to establish a co-operative relationship in managing Mount Arrowsmith Massif Regional Park. The agreement creates a working relationship between the parties to ensure that the park is planned and managed to the satisfaction and benefit of both parities. See **Addendum A:**

Hupacasath-Regional District of Nanaimo Memorandum of Understanding for Mount Arrowsmith Massif for a copy.

RDN Regional Parks & Trails Plan 2005–2015

The RDN's *Regional Parks and Trails Plan 2005–2015* sets out direction, policies, priorities and actions for RDN regional parks and trails. The vision outlined in this plan is for a system that *"protects and stewards natural values while providing rewarding recreational opportunities; fostering education and appreciation of the natural environment; and enhancing the liveability of the Region.[22]"* Management decisions for MAMRP are made within the context of this larger vision.

RDN Park Use Regulations Bylaw

The RDN's *Park Use Regulations Bylaw No. 1399 (2004)* regulates park use in RDN community and regional parks. Mount Arrowsmith Massif will be considered a Level 4 Park – "Undeveloped Park, Trail and Other Open Space" and will be governed by the bylaw policies for this level.

Hupacasath First Nation Territory Land Use Plan (2003) & Hupacasath Land Use Plan Phase 2 (2004)

The Land Use Plans are strategic plans that define the Hupacasath First Nation's land and forest values and management objectives at the territorial level. The plans describe cultural and resource values with standards that define how objectives can be met. Management of MAMRP will aim to follow the objectives outlined in these plans.

Cercomm Electronics Ltd. & Timberlands GP Ltd. Licences

Cercomm Electronics and Timberlands GP have existing licences for communication towers at the summits of Mount Cokely and Mount Arrowsmith that were in place with the Province prior to the declaration of Regional Park. Management activities in the park are required to respect the prior rights of the licence holders.

Trail Licences, Old Arrowsmith Trail/CPR Trail

The RDN currently maintains trail licences with Island Timberlands Ltd. and TimberWest for use and management of the Old Arrowsmith Trail/CPR Trail routes that connect Cameron Lake and the ACRD Mount Arrowsmith Regional Park.

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[22] RDN. *Regional Parks and Trails Plan 2005-2015.*

Park Access

Several of the hiking trails on Mount Arrowsmith are accessible only through the use of private forestry roads held by Island Timberlands Ltd. Cooperation between the RDN and these neighbours will be essential to providing long-term access to the Park.

Neighbouring Properties

MAMRP is bordered by other land uses, including private forestry property owned by Island Timberlands Ltd. and a Regional Park owned by the ACRD. The RDN will endeavour to promote respect for neighbouring property activities and property rights.

Park Access

Continued collaboration between the RDN and neighbouring landowners will be essential to maintaining long-term access to Mount Arrowsmith Massif Regional Park.

View to Mount Arrowsmith from Mount Cokely (Photo: H. Rueggeberg).

5   POLICIES & ACTIONS

Through input from staff working group and committee members, stakeholders and the public, a list of key issues and concerns were generated for MAMRP.

Key Issues List:

- Balanced Management
- ACRD Mount Arrowsmith Regional Park
- Park Access
- Recreational Use
- Habitat & Environmental Protection
- Education & Research
- Interpretation & Tourism
- Safety & Emergency Planning
- Park Expansion

The policies and action of this plan endeavour to address these fundamental issues. The management policies and actions are organized around the key issue topics. Each topic area provides:

- A brief summary of the issue;
- Management policies that provide direction on how the issue will be addressed; and
- Detailed actions to be completed.

Section 6: Implementation Summary provides timelines, estimates and potential partner information for the actions.

Figure 5.1: Proposed Park Plan Map provides a graphic plan of the park management plan policies and actions.

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Mount Arrowsmith Massif Regional Park Management Plan
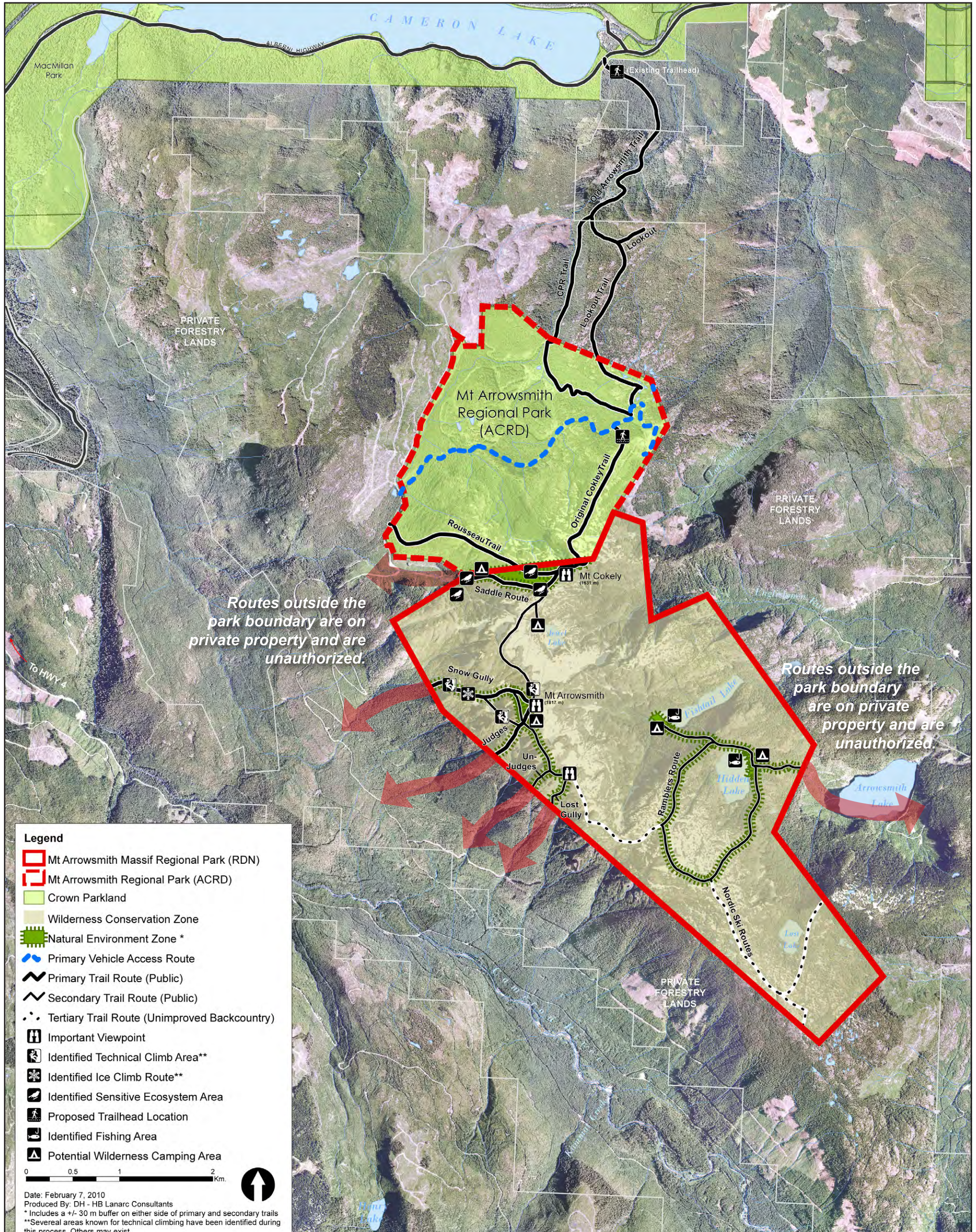
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Hiking, a major recreational use in Mount Arrowsmith, must respect the wilderness aspect of the park (Photo: RDN).

BC Parks has developed a series of parks zones to reflect different balances of recreation and conservation within their parks. These zones typologies can be considered for Mount Arrowsmith Massif Regional Park.

5.1   Balanced Management

Within Mount Arrowsmith Massif Regional Park, two main park functions must be balanced: natural ecosystem protection and wilderness-based recreation. While compatible, it is important to use a balanced approach to managing the park so both functions can flourish. Park zoning is a common method for managing park use and maintenance. The zones are used to divide the park into typical park areas that will have the general management objectives. Because Mount Arrowsmith Massif is a wilderness park with limited recreation, the recommended zones protect the wilderness values of the area. This plan recommends two park zones:

- **Wilderness Conservation Zone:** The purpose of the zone is, "*to protect a remote, undisturbed natural landscape to provide unassisted backcountry recreation opportunities dependent on a pristine environment where no motorized activities will be allowed.*[23]" The conservation of natural assets is the top priority in these zones. Typically there are no human-based facilities or improvements in these areas and it is expected that recreation uses in these areas are very low impact. In MAMRP, about 95% of the park area falls within the Wilderness Conservation Zone.

- **Natural Environment Zone:** This zone is designated to, "*protect scenic values and to provide for backcountry recreation opportunities in a largely undisturbed natural environment.*[24]" Typically these areas are low use, but can include key nodes of activity and access. In MAMRP, the high-use areas including hiking trails, trailheads, viewpoints, camping areas, climbing areas and trail buffers are included in this zone, totalling about 5% of the MAMRP area.

Policy:

Utilize park use zones to manage Mount Arrowsmith Massif Regional Park for both conservation and recreation.

Actions:

- Manage park areas in accordance with the following park use zones:

    o **Wilderness Conservation Zone:** Maintenance and improvements in these areas are limited to habitat protection or enhancement. New trail development, aside from required trail re-routing, is not supported in this zone.

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[23] BC Parks Zoning.

[24] BC Parks Zoning.

o **Natural Environment Zone:** Improvements in these areas are limited to trail maintenance, rerouting, improvements and signage. Trail improvements are limited to facilitate recreation uses supported in this plan. Improvements to facilitate motorized recreation, biking and horses are not supported.

5.2   ACRD Mount Arrowsmith Regional Park

Since 1972 the Alberni-Clayoquot Regional District (ACRD) has owned 607 ha of Regional Park on the north slope of Mount Cokely. The property was obtained through an agreement with private forestry owners and includes several conditions of use (see sidebar). While this park sits within the RDN, ownership and operation of the park is under the jurisdiction of the ACRD. For several years, the park was operated as a ski hill, complete with ski lifts and lodges; however, the operation of the facility proved to not be viable due in part to the long drive, unreliable snow conditions, poor winter road conditions and popularity of larger, more accessible ski hill facilities at Mount Washington, est. 1979.

After ski resort operations closed in the winter of 1998-99 during a period of record snowfall that hindered road clearing, the area continued to be used for backcountry skiing, hiking, cycling and motorized recreation. In 2005, the ACRD decommissioned all remaining infrastructure on the site, including the ski lifts, lift stations, lodges and storage tanks to alleviate vandalism and environmental contamination concerns. Today, the park continues to be used for a variety of recreation types. In comparison to the RDN MAMRP, the ACRD Mount Arrowsmith Regional Park has more open space and more gradual slopes, which makes it a preferred destination for motorized recreation enthusiasts.

The two parks share common access routes, trails and ecosystem values that warrant consideration for cooperative management.

A key condition of use within the ACRD Mount Arrowsmith Regional Park agreement with MacMillan Bloedel (now Island Timberlands), indicates that the area must be operated as a Regional Park. If the Regional Park function of the ACRD Regional Park were to cease the land could revert to private forestry ownership.

Record snowfall in the 1998-99 season contributed to the closure of the Mount Arrowsmith Ski Hill (Photo: P. Rothermel).

Policies:

Work cooperatively with the ACRD to manage mutual resources/responsibilities related to the adjacent parks and support and encourage ACRD initiatives for the adjacent park.

Encourage communication to ensure that improvements or changes in both parks are completed in consultation with the neighbouring regional district.
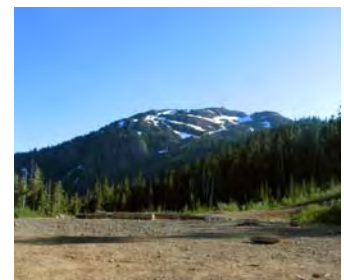
Today, the parking lot at the ACRD park is a convergence point for many key trails (Photo: HB Lanarc).

Actions:

■ Establish regular lines of communication between the ACRD and RDN by identifying key staff members and developing a cooperative, ongoing communication plan.

■ Establish a regular meeting schedule (e.g. once/year) to facilitate discussions on cooperative management and planning for both parks. Key topics for discussion could include:

   o The continuation and management of recreation activities.
   o The future of continued vehicle access via logging roads *(see Section 5.3.2: Vehicle Access)*.
   o Stewardship activities *(see Section 5.4.5: Volunteer Stewardship)*.
   o Information and communication initiatives *(see Section 5.4.6: Signage & Information)*.
   o Cooperative ecosystem management planning and documentation *(see Section 5.5: Habitat & Environmental Protection)*.

5.3 Park Access

MAMRP is surrounded by privately-owned forestry property to the east, south and west. It abuts the ACRD Mount Arrowsmith Regional Park to the north. Currently, the only authorized public access route to the park is the Old Arrowsmith Trail/CPR Trail route from Cameron Lake. This is a trail route only and does not support vehicle access. See **Section: 3.1.4: Park Access** for a detailed description of the route.

5.3.1 Vehicle Access

Island Timberlands owns neighbouring property adjacent to MAMRP. Information about Island Timberlands property and roads is available through their website at islandtimberlands.com.

At the time of this project, vehicle access to MAMRP is not authorized through neighbouring Island Timberlands properties due to the health, safety and environmental implications of public use of private roads.

While vehicle routes are unauthorized, public input suggested that two unauthorized routes have historically been used to access the park. For more information see **Section 3.1.4: Park Access.**

Through the consultation process, an additional potential access route was identified to the north that is worthy of feasibility study to determine its potential as a future vehicle access point. This northern access route was anticipated at the time of establishing the ACRD Mount Arrowsmith Regional Park.

Policy:

Endeavour to secure authorized public vehicle access to Mount Arrowsmith Massif Regional Park.

Actions:

■ Work cooperatively with Island Timberlands and other adjacent landowners to develop a long-term solution to public vehicle access to MAMRP.

■ Complete a feasibility study of the north access route for vehicle conveyance, that includes:

  o Consultation with all landowners, the ACRD and BC Parks;
  o Consultation with the Ministry of Transportation and Infrastructure to identify transportation and highway concerns; and
  o A preliminary road engineering reconnaissance during non-snow conditions to determine physical constraints and prepare proposed road and bridge standards and order of magnitude cost estimating.

■ If the feasibility study determines that the northern route is a reasonable alternative vehicle route, secure funding and necessary agreements to develop a vehicle access route to MAMRP. Ensure route planning includes considerations for future road maintenance.

■ Where road agreements or licences are secured, maintain for long-term public road access.

5.3.2 Trail Access

In many cases, trail routes cross over private property. The Arrowsmith Trail/CPR route has public access secured through non-exclusive licence agreements with private landowners. Other routes on private property are unauthorized at the time of this plan. Ensuring that people continue to have access to the park was identified as a priority by survey respondents and public session participants.

Policy:

Work cooperatively with neighbouring landowners to provide authorized key trail routes for public access.

Actions:

■ Continue to renew the existing non-exclusive licence with Island Timberlands Ltd. for the Old Arrowsmith/CPR Trail routes (next renewal March 2015).

■ Continue to renew the existing licence with Timberwest for the Old Arrowsmith/CPR Trail routes (next renewal Dec. 2011).

■ Coordinate Island Timberlands and Timberwest trail licence timelines to streamline future licence renewals.

Typically, trails in MAMRP originate outside the park boundaries (Photo: RDN).

- Work with the ACRD to develop use/access agreements for trails and facilities (e.g. parking and roads) that originate within the ACRD Park and facilitate ongoing access to MAMRP.

- Work cooperatively with Island Timberlands to negotiate future trail access agreements for authorized public use of routes on Island Timberlands private property adjacent to MAMRP.

- If successfully obtained, maintain agreements for trail routes that originate on neighbouring private property.

5.3.3 Winter Access

While the ski resort is no longer there, people continue to participate in winter activities in the Mount Arrowsmith/Mount Cokely area. Skiing, snowshoeing, winter hiking and ice climbing are popular winter activities. Snowmobiling occurs within the ACRD park.

Policy:

Recognizing the limitations associated with snow removal, develop information strategies to increase safety and minimize rescue efforts associated with winter road conditions.

Actions:

- Post general winter hazard information on the RDN website to advise people of the conditions to expect when accessing MAMRP during winter months.

Winter recreation currently occurs in MAMRP (Photo: P. Rothermel).

5.3.4 Parking

Currently, parking at MAMRP is typically informal. Consultations with stakeholders and the public indicate that parking has not been identified as a conflict to date. However, if park use continues to increase, parking may become a future concern.

Public parking is available in the ACRD Mount Arrowsmith Regional Park. Generally this lot is used by people using the Original Cokely Trail or participating in other activities within the ACRD park.

Public parking is also available at Cameron Lake for the Old Arrowsmith Trail/CPR Trail routes. Challenges in this area include the barrier presented by Highway 4 between the parking area and trailhead and potential crowding of the Cameron Lake lot. In many cases, people using the Old Arrowsmith Trail park informally along the highway or at the beginning of the trail.

Parking on Island Timberlands property is currently unauthorized.

Policy:

Ensure that appropriate parking for MAMRP is available to meet user volume, demand and safety.

Actions:

■ Include parking information in park documents.

■ In the long-term, develop a parking strategy for the park to address all authorized public access points, and complete improvements to provide safe public parking for MAMRP.

5.4   Recreational Use

5.4.1   Barrier-Free Access

MAMRP is the RDN's most remote regional park. Currently, the peaks of Mount Arrowsmith and Mount Cokely are accessible only by foot due to steep terrain. The trail routes within the park are very steep and rugged, limiting use by physically challenged, elderly, very young or those otherwise unable to climb. While certain routes are less difficult, no routes could be considered barrier-free at this time. Generally, public feedback acknowledged that MAMRP is rugged wilderness and responses showed limited interest in substantially increasing accessibility or this time.

Public feedback indicated that MAMRP trails are typically too steep for the use of mountain bikes, horses or motorized vehicles. Motorized vehicle users are present only in the adjacent ACRD Mount Arrowsmith Regional Park where topography is gentler.

At no point in area's history has an accessible route to the summit of Mount Arrowsmith or Mount Cokely been available.

The challenging terrain in MAMRP is a limitation for accessibility (Photo: RDN).

Policies:

Maintain current levels of accessibility on park trail routes.

Increase public information about the range of difficulty levels of park routes.

Do not permit motorized vehicle use within Mount Arrowsmith Massif Regional Park, as per *RDN Park Use Regulation Bylaw 1399*.

Actions:

■ Identify through park information materials the varying levels of route difficulty and provide descriptions of the level of fitness needed for particular trail routes. Ensure descriptions are accurate and easy to understand.

5.4.2 Climbing

Rock and ice climbing are current activities within MAMRP. There are multiple rock faces and ice walls within the park that are popular destinations for the climbing community. Climbing is a relatively common activity in public parks throughout BC. This plan acknowledges the dedicated interests in these activities and it is expected that this recreational use will continue within MAMRP. Safety and environmental impacts are two key considerations for climbing in MAMRP:

> *A potential issue associated with climbing within the park is general public use of trails that lead to climbing sites. Scenarios can occur where inexperienced climbers become stranded in terrain that is beyond their abilities.*

- o **Safety:** It is the responsibility of climbers to rely on themselves and other climbers for safety. It is expected that safety will continue to be the responsibility of climbers.
- o **Environmental Impacts:** If the popularity of this activity significantly increases over time, there could be impacts on sensitive ecosystems that are found on rocky bluffs.

Rappelling the cliffs in MAMRP (Photo: P. Rothermel).

Policy:

Continue climbing as a permitted park use within MAMRP, while working with local climbing associations to encourage safe and environmentally sensitive use of the mountain.

Actions:

- ■ Identify and connect with local climbing groups and associations using Mount Arrowsmith Massif Regional Park.

- ■ Work with local climbing groups and seek legal advice as needed to ensure the RDN does not incur liability related to climbing use.

- ■ Work with local climbing groups such as the Climbers Access Society of BC,[25] to document popular climbing locations within MAMRP and where permanent climbing protection (e.g. bolts) has been installed.

- ■ Work with local climbing groups to monitor climbing locations for safety and to monitor environmental impacts related to increasing use of the mountain. Where concerns are noted, take management actions to mitigate, through improvements, removals or, if required, closures.

Ice climbing in MAMRP (Photo: P. Rothermel).

- ■ General public use of trail routes that include 'climbs' should either be passively discouraged by not providing public information about these routes, or where 'climbs' exist along previously identified public routes, care should be taken to inform people of the technical

[25] "The Access Society represents everyone who supports public access to the cliffs and mountains of B.C. and conservation of them." (Society website: www.access-society.ca)

nature of the route and discourage use of the area by inexperienced climbers.

5.4.3 Wilderness Camping

While limited, wilderness camping is a recognized use in MAMRP. Currently, the RDN *Regional Park Bylaw No. 1399* does not permit camping within regional parks, except in designated camping areas. There are currently no designated wilderness camping areas in the RDN. The primary reason for this bylaw is that wilderness camping can overwhelm the capacity of the backcountry to absorb camping impacts, destroying habitat and undermining wilderness experiences. In addition, campfires can be a wildfire hazard.

Wilderness camping is effectively monitored in other BC parks through the use of Wilderness Camping Permits and/or Registration which are used to track the number of visitors to different areas of the park to limit overcrowding, overuse and damage. Registration can also aid in locating overdue or lost parties.

Camping near the Saddle (Photo: N. Steiner).

Policies:

Recognizing that wilderness camping is a desirable activity within MAMRP, the RDN will consider wilderness camping a viable recreation use, as long as it is conducted sensitively and safely.

Campfires associated with wilderness camping will not be permitted in MAMRP.

Actions:

- Amend RDN *Regional Park Bylaw No. 1399* to allow wilderness camping in MAMRP.

- Identify appropriate locations for wilderness camping and direct campers to these locations to afford greater protection of park ecosystems and, in case of emergency, facilitate rescue operations.

- Develop a process for Wilderness Camping Registration in MAMRP. Registration should be simple and straightforward, possibly through on-line or in-park registration.

- Monitor environmental impacts of camping at designated sites. If extensive damage is observed, consider setting daily maximum numbers for wilderness camping registration.

- Provide appropriate information with wilderness camping registration, including locations of camping areas, code-of-conduct information, restrictions (e.g. no fires) and emergency contact information.

5.4.4   Trail Maintenance

The trails within MAMRP are typically steep, rocky and difficult. Generally, public response indicated:

Erosion on the Judge's Route (Photo: H. Rueggeberg).

- o 63% of respondents were satisfied or very satisfied with the trail conditions and maintenance;
- o 60% were satisfied or very satisfied with the trail safety;
- o 54% were satisfied or very satisfied with the ease of navigation; and
- o 48% were satisfied or very satisfied with the technical climbing areas.

This feedback indicates that most people using the trail routes in the park understand and respect that they are participating in a wilderness recreation experience.

Two key maintenance concerns were identified in the public responses:

- o Erosion and environmental damage on popular trail routes.
- o Loss of route identification markers.

Maintenance has an important role in defining trail route locations and encouraging people to stay on trails. If a route is well-defined, people generally will follow trails, helping to reduce environmental impacts.

Policy:

Trail maintenance activities and park improvements will continue to respect the wilderness nature of the park.

Actions:

- ■ Develop and maintain a project list of potential trail improvements within MAMRP. Prioritize and complete potential projects based on:

  - o **Priority One:** Trail improvements where significant safety concerns have been identified.
  - o **Priority Two:** Trail improvements to keep main trail routes operational.
  - o **Priority Three:** Projects to improve conditions where environmental impacts are problematic. This process identified trail encroachment on sensitive ecosystems and erosion issues as significant concerns.
  - o **Priority Four:** Other projects identified by users or staff that would improve the experience of the trail routes.

- ■ Identify and map locations of human-installed aids (e.g. ropes) on trail routes. Prepare a plan to regularly monitor, and where needed, remove or replace these aids.

- ■ Create a user input system that encourages park users to identify trail maintenance issues and recommend potential improvement projects.

- ■ Coordinate with the ACC to obtain annual registry numbers of people accessing the summit Mount Arrowsmith. Track incremental

increases. Consider placing a register at the summit of Mount Cokely or at key trailheads to help monitor ascents.

5.4.5 Volunteer Stewardship

The years of effort by stakeholders and the public to protect Mount Arrowsmith as a park attests to the level of commitment park users have to the area. Due to the size and remote nature of MAMRP, the RDN will need to seek feedback and assistance from local user groups to maintain and steward the mountain.

Currently, the majority of maintenance on existing trails is completed on a volunteer basis by the FMCBC, ACC and other trail users. Groups and individuals undertake minor maintenance activities such as:

Volunteer maintenance crews at work (Photo: P. Rothermel).

- o **Trail debris removal** where fallen trees or other debris are significant barriers on routes;
- o **Trail reinforcement and cribbing** where erosion or safety concerns are identified;
- o **Trail relocation** where trail braiding has occurred or existing trails are disrupting important ecosystems, species or habitats; and
- o **Trail marking** where routes are identified by tree markers by trail users (*see Section 5.4.6: Signage & Information*).

The majority of these tasks are completed ad hoc and on a volunteer basis, typically using on-site materials and resources. Any improvements to trail routes must be accomplished without the need for vehicle or machine support.

Temporary signage recording maintenance activities (Photo: RDN).

While trail maintenance will form the largest portion of park maintenance, other stewardship activities, such as sign posting, flagging, litter removal and park observation may also be required.

Policy:

Seek to continue trail maintenance activities on a volunteer basis, by coordinating with partners, existing user groups, organizations and individuals that can provide volunteer support for trail improvements and general park stewardship.

Actions:

- ■ Carry on with the establishment and training of volunteer park wardens for MAMRP through the Park Warden Program.

Erosion control measures (Photo: P. Rothermel).

- Develop a general standards document for trails maintenance that can be shared with all groups completing maintenance activities in the park.[26]

- Coordinate with Hupacasath First Nation, and members of the FMCBC, ACC and other organizations to undertake potential maintenance projects within MAMRP.

- Work with Hupacasath First Nation to monitor, identify and secure grants and funding to facilitate cooperative maintenance and stewardship work in MAMRP.

- Consider the implementation of a Park Watchman Program, potentially in partnership with the Hupacasath, to undertake regular monitoring of trailheads and park facilities during high-use months.

- Maintain a record of trail improvements and dates work is completed.

5.4.6 Signage & Information

Currently, signage in MAMRP is very limited and without local experience and knowledge, some trail routes can be difficult to identify. Typically, signage within the park is limited to trail flagging. When asked what limits their use of Mount Arrowsmith Regional Park, 20% of respondents said there was not enough information available about the park. Several types of information warrant consideration for the park:

Flags marking a trail (Photo: HB Lanarc).

> Because Mount Arrowsmith Massif has been a popular hiking area for years, a wealth of information is currently available.

- **Trail Marking:** When asked what limits use of Mount Arrowsmith Massif Regional Park, 15% of respondents said that they do not know how to navigate within the park. In a remote, wilderness setting, getting lost is a possibility. Reports from Search-and-Rescue indicate that they are regularly called to search for people lost in the area. Generally, public survey responses indicated strong support (83%) for having more directional trail signage within the park.

- **Trailhead Signage:** All trailheads to MAMRP start outside the park boundary, a large portion originating on private forestry property. Currently, trailheads are not well marked, so users must rely mainly on local knowledge, maps and guidebooks for trailhead locations.

- **Park Regulatory and Use Information:** Consultations with stakeholders suggest that information about emergency contacts, appropriate park behaviour, restrictions, park hazards, private property information, wilderness park preparedness and other informative material would be valuable assets for the park. Public

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[26] Previous trail maintenance standards have been developed by volunteers for Mount Arrowsmith and may warrant consideration as a starting point for updated, formalized standards.

responses also recorded a public interest in more detailed information about the park and its recreational trails – e.g. trail distances, level of difficulty, travel time, etc. In addition to on-site signage, information about parks can be obtained via websites, brochures, maps, guidebooks and more.

■ **Interpretive Information:** Interpretive information can heighten the experience of a site by providing information about its history, culture, environment, visual experience, neighbouring forestry practices, and more. Generally, public response supported interpretive information being available for the park (71% support for natural information; 69% for historical & cultural information). However, public input also indicated that new signage should not be overly extensive. Park interpretive information can be delivered successfully through brochures and website information which people can carry during park visits.

Consultations with neighbouring landowners determined that issues such as liability, land use conflicts and safety are of concern, notably when information about unauthorized trails on private lands is provided. It is important to recognize that licenced trails over private land must respect private property rights.

The RDN Trans Canada Trail is cited as an example of a successful trail agreement on private property. Signage notifies people when they are on private forestry land, and trail information recognizes that trails may be closed and/or relocated to respond to private land activities. The RDN has posted signage to indicate to users when activities are happening that may affect public use of the trails.

Policy:

Develop a strategic information strategy that combines signage within the park and information available remotely, including website, brochures and publications, to increase the accurate information readily available to park users.

Actions:

Best practices in trailhead signage include locating signs up the trail (away from) major road junctions to minimize vandalism and designing signs to be durable and easy to install.

Trailhead signage at the start of the Old Arrowsmith Trail, outside MAMRP (Photo: P. Rothermel).

In-Park Signage	Island Timberlands	ACRD	Hupacasath	Volunteers
■ Consider posting signs on trails at private/public boundaries to indicate to park users when they are on private property.	✓			
■ Post trailhead signage at public trail route starting points. See **Figure 5.1: Proposed Park Plan Map** for recommended trailhead locations.	✓	✓		
■ Consult with Island Timberlands about posting/improving directional signage along private roads to help people access the park.	✓	✓		
■ Consult with the ACRD to determine how a unified signage strategy could be developed.		✓		
■ Consider using small markers to indicate appropriate trail routes in sensitive areas and discourage trail braiding and ecosystem damage.				✓
■ Provide unobtrusive, durable trail markers along main mapped trail routes from start-to-finish for user safety. Develop trail marker standards and colours to aid in the identification of routes. Do not provide extensive marking on less well-used routes.				✓
■ Develop a plan to routinely check all mapped trail routes to inspect signage and trail markers and add new markers as needed.				✓

Remote (On-line/Hardcopy) Information	Distri-bution		Potential Partners			
	Online	Hardcopy	Island Timberlands	ACRD	Hupacasath	Volunteers
■ Investigate utilizing a system of trail monuments that may be linked to GPS coordinates on main trail routes to record and map trail locations. These monuments could be simple numbered markers that people could use to report trail maintenance issues, record trail maintenance activities, report emergencies, etc.	✓					✓
■ Consider using digital technologies (e.g. GPS mapping, digital applications, etc.) to share digital recreation information about the park. This could be considered part of a larger regional parks initiative.	✓					
■ Develop website and brochure information that provides:						
o A map of public trail routes.	✓	✓		✓		
o Information, developed in consultation with private land lowers, about trail route use on private lands.	✓	✓	✓			
o Information about park features, including viewpoints, geological formations, ecological and cultural features, etc.	✓	✓			✓	✓
o Route information to summarize level of difficulty, route distances, anticipated time allowances, etc.	✓	✓				✓
o Safety and hazard information including wilderness hiking guidelines, fire prevention information, cell phone coverage limitations, emergency contact information, etc.	✓	✓				
o Code of conduct information and park regulations, including permitted uses, trail conduct, pet information, garbage disposal, etc.	✓	✓				
■ Work with volunteers to develop interpretive materials about the park, including historical, cultural and ecological information.	✓	✓		✓	✓	✓
■ Where appropriate, provide partners, stakeholders and neighbouring landowners opportunities to review draft information materials prior to public distribution.	✓	✓	✓	✓	✓	✓
■ Produce and distribute hard copy materials about the park through the RDN offices, Hupacasath First Nation, RDN member municipalities, local tourism agencies, local clubs and organizations and other avenues indentified.		✓	✓	✓	✓	✓

5.4.7 Park Amenities

Generally, public response indicated a desire to retain a wilderness experience and there was little support for the introduction of benches, garbage receptacles, shelters or other man-made amenities into the wilderness setting. Some public input suggested that toilets may be a desirable amenity, but given the remoteness of the park, and the fact that trailheads are located on private property, these facilities are not feasible at this time.

Policy

Beyond limited signage, the RDN will not introduce additional user amenities to the park in the short-term.

5.4.8 Code of Conduct

Currently, user facilities within MAMRP are minimal and this plan does not recommend introducing extensive amenities *(see Section 5.4.7: Park Amenities).* In the absence of extensive park amenities, appropriate wilderness conduct is particularly important. Human tread in wilderness areas must be minimized to protect sensitive ecosystems and habitat.

Key topics related to park conduct include:

■ **Garbage & Human Waste:** General observation and public feedback indicated that most park users practice responsible wilderness recreation techniques. Garbage receptacles and toilets are not available within the park. To ensure that people continue to use their park responsibly, park information should be provided through the park information strategy about proper waste management and "Leave no Trace" use of the park (*see* *www.lnt.org* *for more information*).

Broken glass at a popular parking area (Photo: HB Lanarc).

■ **Vandalism:** Park users reported incidents of vehicle vandalism and theft while using trails in MAMRP. This particular issue is difficult to monitor in remote settings, but may need to be addressed if incidences increase.

■ **Pets:** The public survey results show that about 30% of respondents visit MAMRP with their pet. Public comment showed a split opinion on whether pets should be permitted in the park. Potential conflicts of pets in the park include wildlife interaction, habitat damage and conflicts with other park users. The *RDN Park Use Bylaw 1399* requires pets in regional parks to be under control of their owner at all times, either being on-leash or responding to owner commands. In a wilderness setting, control is essential, and pets who would not respond immediately to commands must either be leashed or not taken into the park. Pet waste removal must also be completed by owners.

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Policy:

The RDN will provide information to support and promote respectful use of the park.

Actions:

◼ Ensure that park information includes details about appropriate garbage and waste management techniques.

◼ Encourage park users to report incidences of vandalism and theft, including information on where and how to make reports. If vandalism and theft continues to increase, consider park monitoring through volunteer programs.

◼ Provide within park information, details about personal property protection, including removing valuables from vehicles.

◼ Provide code-of-conduct information about pets in the park. Ensure people understand the sensitivity of the park and require owners to maintain control within the park and remove pet waste.

5.5 Habitat & Environment Protection

5.5.1 Ecosystem Monitoring & Protection

MAMRP is well-recognized for its unique flora and fauna *(see Section 3.2: Natural Values for a summary)*. As park use increases, it will be important to maintain a balance of conservation and recreation, ensuring increases in recreation use do not result in irreparable damage to natural ecosystems. The more that is known about ecological features, conditions and processes, the more effective park management can be in protecting them.

Policies:

Work with partners and volunteers to continue to increase the volume and detail of natural ecosystem information about the park.

Plan and manage the park to minimize negative impacts on identified ecological resources.

Alpine meadows (Photo: P. Rothermel).

Actions:

◼ Consider additional inventory efforts within MAMRP to determine if the Red-Listed bird species Queen Charlotte Goshawk and Marbled Murrelet occur in the park. Goshawks respond to call-playbacks, while Marbled Murrelets require dawn surveys.

◼ Prior to completing trail improvements within MAMRP, attempt to verify that rare/unusual plants and plant communities will not be

Rare Lewisia pygmaea growing on a trail (Photo: R. & L. Avis).

affected. UTM coordinates already exist for Red and Blue-listed plants in CDC Database, but detailed locations for disjunct species and uncommon lichen communities are needed as well.

■ Where recreation uses are identified as substantially conflicting with sensitive ecosystems, consider re-routing or closing areas to recreational use. Where such action is necessary, erect signage explaining the need to help promote compliance.

■ Where recreation and ecology can safely overlap, encourage public education and interests in ecological resources (e.g. providing information about the Mount Arrowsmith Marmots to promote education about the species).

■ Work with the research community to undertake vegetation mapping within MAMRP for use in long-term planning. Initial focus should be on delineating and classifying communities containing elements of potential Red- or Blue- listed communities (i.e. *Lewisia Columbiana, Allium crenulatum, Phlox diffusa, Selaginella wallacei, Carex scirpoide* and *Carex sitchensis*). Map remaining areas when Alpine ecosystem classification guidelines become available.

■ Recognize MAMRP as an Important Bird Area and support the IBA Program in monitoring and research of bird activities in the park.

■ Maintain GIS mapping of rare/unusual flora and fauna occurrences within MAMRP. Continue to update the data when new information becomes available. Consult with local naturalist organizations and individuals to seek assistance in gathering data and input for the mapping. Do not publicly advertise locations of rare/unusual flora and fauna that would be negatively affected by increased traffic.

■ Include environmental monitoring as a component of park maintenance and stewardship programs *(see Section 5.4.5: Maintenance & Stewardship)*. Work with local ecologists to determine monitoring procedures and indicators within MAMRP.

■ Maintain a record of research and studies completed within MAMRP (*see Section 5.6: Education & Research*).

5.5.2   Vancouver Island Marmot

MAMRP is important habitat for the Vancouver Island Marmot. These animals are a red-listed species and are celebrated in Hupacasath stories and Vancouver Island's natural history.

Discussions with stakeholders indicate that human presence in marmot colony areas is not expected to be detrimental to the species and could, in

some cases, provide the positive effect of reducing the presence of natural predators in their habitats. It is not anticipated that recreational trail use will negatively impact marmot recolonization efforts on Mount Arrowsmith.

Policy:

Support the habitat needs of the Vancouver Island Marmot and recolonization efforts of this species to Mount Arrowsmith.

Actions:

- Request that the Vancouver Island Marmot Recovery Project communicate with the RDN on marmot colonization activities planned for MAMRP.

- If the RDN plans to undertake any major projects that could impact the V.I. Marmot, notably in the Saddle Route area, consultation should be undertaken with the Vancouver Island Marmot Recovery Project to ensure animals and habitat will not be jeopardized.

- Provide public information about the species and provide a link to the Vancouver Island Marmot Recovery Project webpage from the RDN website and in other publications where appropriate.

5.6 Education & Research

Past research activities within MAMRP and surrounding area have provided a wealth of information about the area's habitats and ecosystems. Multiple opportunities exist to expand community knowledge about the Mount Arrowsmith area, including its ecosystems, history, neighbouring forestry practises, and more.

Policy:

Support and encourage the continued use of MAMRP as a site for environmental research.

Work cooperatively with neighbouring landowners and partners to increase access to public education information about the area.

Actions

- Support efforts for ongoing GLORIA research conducted on the mountain. Support the completion of the 2011 monitoring for the project.

- Work cooperatively with Island Timberlands to share educational information about forestry activities and practices on lands neighbouring Mount Arrowsmith Massif Regional Park. Recognize

Consultation with the Vancouver Island Marmot Recovery Project has indicated that two transplants of captive marmots to Mount Arrowsmith in 2009 have shown signs of success, with at least five of six marmots remaining on site through the winter.
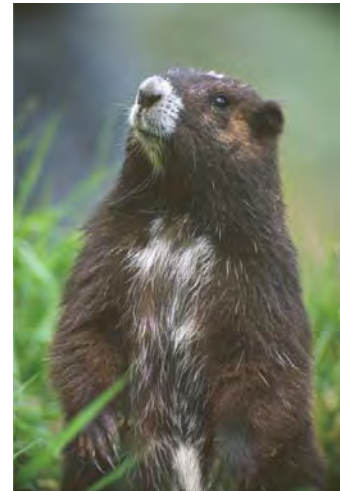
Vancouver Island Marmot (Photo: Unknown).

the significant role MAMRP's vistas play in effectively communicating forestry roles and practices.

■ Coordinate with the Mount Arrowsmith Biosphere Reserve Foundation to support their continuing efforts to increase research on Mount Arrowsmith.

■ Coordinate with the IBA Program to determine opportunities to develop educational and/or interpretive opportunities for the Mount Arrowsmith IBA.

■ Encourage Hupacasath educational programs to continue to utilize MAMRP.

■ Encourage local educational institutions, including VIU, UVic and others to utilize MAMRP for educational and research programs (inventory, mapping, monitoring, restoration, etc).

■ Maintain a record of research and studies completed on the mountain. Request people conducting research in the area to share with the RDN with information documented.

■ Ensure that research parties complete the appropriate park permit process, as laid out in the *Park Use Regulation Bylaw 1399*.

5.7   Interpretation & Tourism

5.7.1   First Nations History & Culture

Hupacasath First Nation has very strong historical and cultural ties to Mount Arrowsmith and Mount Cokely. As part of Hupacasath traditional territory, MAMRP will continue to play an important role in the future. See **Addendum A: Hupacasath-Regional District of Nanaimo Memorandum of Understanding for Mount Arrowsmith Massif**.

Policies:

Help residents and visitors learn more about the unique First Nations' history and culture of the area.

Ensure identified cultural and historical resources, artefacts and areas within MAMRP are protected.

Actions:

■ Continue to work with the Hupacasath First Nation to ensure that any identified culturally significant sites are not impacted by activities within the park.

■ Ensure policies of the existing MoU are reviewed and addressed when initiating park projects.

■ Together with Hupacasath First Nation, consider developing interpretive materials that share stories and facts about the mountain's history.

■ Work with Hupacasath First Nation to identify how Mount Arrowsmith Massif Regional Park can be incorporated into their tourism and business initiatives.

■ Work with Hupacasath First Nation to identify information sharing opportunities to maximize information available to the public about Mount Arrowsmith.

5.7.2   Recent History

The work of volunteers has helped to increase historical knowledge of the Mount Arrowsmith area. Photos and accounts have been collected, dating back to the 19th century. The information helps to paint a vibrant picture of the mountain's recent history.

Policy:

Encourage and support the collection and distribution of the area's recent history through interpretive materials.

Actions:

■ Support volunteer efforts to obtain historical and cultural information about the area.

■ Consider developing historical interpretive materials as a component of the larger information strategy for the mountain (*see Section 5.4.6: Signage & Information*).

5.7.3   Volunteer Tourism

The remote wilderness of MAMRP can be a barrier for both visitors and residents wanting to access the park. The park can be difficult to find, and once there, difficult to navigate.

Guided hikes to the mountain can introduce people to MAMRP in a way that is safe and enjoyable. Hikes may be offered through RDN Leisure Services or provided by user groups willing lead introductory hikes up the mountain. Guided hikes also have the advantage of demonstrating to first-time park visitors appropriate park conduct, user preparedness and may be an opportunity to share interesting environmental, historical or cultural information.

Group hike up Mount Arrowsmith (Photo: P. Rothermel).

Policy:

Encourage public use of MAMRP by providing opportunities to visit with an experienced guide.

Actions:

- Continue to offer regular guided hikes on public trails, led by experienced volunteer guides, on an annual/semi-annual basis through the RDN's leisure services.

- Investigate opportunities for First Nations cultural hikes to support cultural tourism.

- Encourage existing hiking clubs to offer introductory hikes to the mountain. Consult with clubs to determine if the RDN can direct potential hikers to contacts within the clubs.

5.7.4   Commercial Tourism

Commercial guiding programs use Mount Arrowsmith for tourism and training activities. The *2005 Regional Parks and Trails Plan* policy for commercial activities in regional parks is to *"allow commercial services that are program-oriented, personal services, such as guided programs or outdoor recreation activity training."* Commercial tourism applications are evaluated by the RDN to determine their compatibility with the Regional Park proposed for use. It is important that any commercial activities proposed for MAMRP be compatible with the wilderness nature of the park.

Commercial guides using RDN Regional Parks are required to obtain a permit issued under the *Park Use Regulation Bylaw 1399.*

In addition to obtaining a permit from the RDN, commercial operators must obtain appropriate permits from neighbouring landowners if the proposed activity will traverse the park boundary.

Policies:

Commercial guiding, training and interpretive programs that are compatible with the MAMRP's wilderness setting will be permitted, subject to the provisions of a permit issued under the Park Use Regulation Bylaw 1399.

Activities perceived to negatively impact the wilderness character of the park through introduction of new infrastructure or high-impact activities, will not be permitted in the park.

Actions:

- Ensure that existing commercial operations are aware of the regional park status and proper permits are obtained under the *Park Use Regulation Bylaw 1399.*

- Work cooperatively with Island Timberlands to assess any proposed commercial tourism applications that would utilize both MAMRP and Island Timberlands properties. Advise commercial operators that permits must be obtained from all property owners.

5.8   Emergency Services

5.8.1   Fire Management

Much of MAMRP Park is comprised of alpine and sub-alpine environments that have lower fuel sources, and therefore lower fire risk, than more densely forested areas. Consultations with stakeholders indicated that there have been no recent responses to fire in MAMRP. The types of park uses, hiking, climbing, snowshoeing, etc., performed in MAMRP are not typically considered high-risk fire hazards. Higher-risk activities such as motorized vehicle use are not permitted within the park. Consultations also revealed that lightening strikes are not as common in this area as other areas.

Currently, the RDN is undertaking a study that assesses fire risks in all RDN Regional Parks. The RDN maintains cost-sharing agreements for fire protection on multiple Regional Parks. This arrangement is negotiated annually to provide fire protection. The fee is based on risk and start-potential.

Policy:

The RDN will reduce fire risk through hazard management and information in MAMRP.

Actions:

- Continue to include MAMRP in the cost-sharing agreement with the Coastal Fire Centre.

- Implement recommendations provided in the RDN Fire Risk Study.

- Consult with the ACRD to determine how fire hazard mitigation is performed in Mount Arrowsmith Regional Park.

- Include fire safety information in park information materials *(see Section 5.4.6: Signage & Information).*

5.8.2   Search & Rescue

Emergency response to Mount Arrowsmith Massif Regional Park is often provided by local Search & Rescue (SAR) organizations. The park is considered within the jurisdiction of both the Alberni Valley and Arrowsmith Search & Rescue. SAR organizations have responded to numerous calls to Mount Arrowsmith over the years.

Consultations with the SAR organizations revealed concerns about the ability of the organizations to respond to snow-based rescues. WorkSafe BC does not permit the SARs to put their volunteers in high-risk situations such as avalanche terrain due to liability issues. This makes them unable to respond to avalanche-based rescues. The nearest avalanche rescue squad is located in Squamish.

Policy:

The RDN will provide information to local SAR organizations as needed to support effective emergency responses.

Actions:

- Provide, where appropriate, mapping and other park information to SAR organizations for their use in planning and executing activities.

- Provide opportunities for SAR volunteers to participate in guided hikes of the area to share local knowledge.

- Post emergency contact information on the RDN website and other park brochures at key locations within/near the park.

- Identity a response plan and contacts for avalanche emergencies.

5.9   Future Park Expansion

Aside from the ACRD Regional Park, all lands surrounding Mount Arrowsmith Massif Regional Park are privately-owned.

Future acquisitions, while not identified as a priority through the public input process, should still be a consideration if desirable opportunities or conditions arise. Generally, input on future acquisition centred around expanding the park to include existing trails and key natural features.

Policy:

The RDN will not actively pursue acquisition of adjunct lands at this time. However, the RDN should consider opportunities that arise to acquire properties that would enhance the recreational aspects of the park, protect indentified cultural features or protect important environmental features.

Actions:

- Develop a list of desirable recreational, cultural and environmental features that would be considered assets to Mount Arrowsmith Regional Park. Potential considerations could include:
  - o Expansion of the park to encompass existing trail routes and trailheads within the park boundaries.
  - o Sites that would facilitate opportunities to secure public vehicle access to the park.
  - o Expanded, continuous corridor from Cameron Lake to the ACRD Mount Arrowsmith Regional Park (encompassing the Old Arrowsmith Trail) that would facilitate protection of a wildlife corridor.
  - o Inclusion of the existing cabin sites or other identified cultural features outside the park boundaries.
  - o Other sites identified by the RDN, stakeholders or the public.

- Consult with neighbouring landowners to request that RDN be provided opportunity to acquire, through lease, licence, purchase, donation or other means, adjunct land areas, should the land owner wish to remove the land from their landbase.
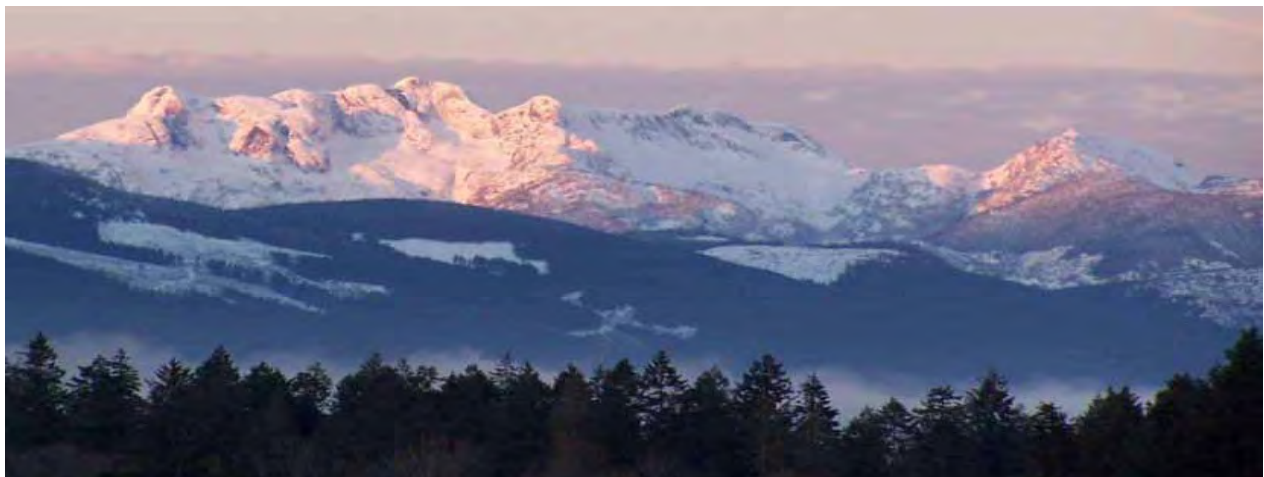
Sunrise over Mount Arrowsmith (Photo: P. Rothermel).

6   IMPLEMENTATION SUMMARY

The implementation summary is a series of summarizing tables that provide a recommended approach to completing the actions developed during this management planning process *(outlined in Section 5: Policies & Actions)*. The suggested project timelines, priorities and estimates are provided for consideration within the context of annual planning and budget considerations. Each Management Action is summarized with the following information:

- **Action Type:** Three types of actions are provided for management of MAMRP.

- **Capital Actions:** These actions will require investment of capital, through Regional District funding or other funding strategies, to maintain or improve the park.
- **Operational Actions:** These actions include the efforts required for the ongoing operation of the park. Some of these actions may require investment related to agreements, negotiations or legal fees and all operational actions will require staff time for completion.

- **Suggested Timeline:** General timelines are provided to help prioritize the implementation of actions. Suggested timelines are divided into four categories.

- **Short:** 2011 – 2015 year timeframe
- **Medium:** 2016 – 2020 year timeframe
- **Long:** Beyond 2020 year timeframe
- **Ongoing:** No defined timeframe

- **Type of Costs:** This section defines the types of costs that may be associated with the implementation of each action.

- **Staff Time:** All actions will require some staff time to complete. Staff time is specified where it is the only anticipated cost for an action.
- **Legal Fees:** Fees associated with getting legal advice and documentation. *Note: These are estimates only and actual costs will be based on legal requirements.*
- **Agreement Fee:** Costs associated with obtaining user and access agreements. *Note: These are estimates only and actual costs will be based on negotiated agreement terms.*
- **Agreement Renewal:** Costs associated with maintaining user and access agreements. *Note: These are estimates only and actual costs will be based on negotiated agreement terms.*
- **Materials & Labour:** Class 'D' estimates of costs associated with designing, building and installing improvements within the park. Some of these costs may be offset by volunteer efforts.

- **Consulting:** Where efforts beyond regular Staff Time may be required, outside consulting costs estimates are provided. *Note: These are estimates only and actual costs would be based on negotiated work terms.*

- **Labour:** Where efforts beyond scope of typical staff or volunteer labour may be required, estimates are provided for additional costs. *Note: These are estimates only and actual costs would be based on negotiated work terms.*

- **Print Materials:** Costs associated with producing print information for distribution.

- **Estimated Costs:** Class 'D' cost estimates are provided for each of the capital and operational action items that have associated costs. As yearly projects are undertaken, detailed planning, negotiations and/or design will be required to refine actual costs.

- **Potential Partners:** Partnerships will be essential for the successful management of MAMRP. Potential partners for consideration are suggested for each action item.

Five summary tables are provided in this report:

- **Table 6.1: All Actions Summarized by Management Topic** – A complete summary of all the actions developed in the management plan. They are organized based on the corresponding Management Plan Topic Area *(as organized in Section 5: Policies & Actions).*

- **Table 6.2: Short-Term Investment Estimates** – A summary of Capital and Operational Actions recommended for the short-term (2011–2015) that would require investment in addition to Staff Time.

- **Table 6.3: Medium-Term Investment Estimates** – A summary of Capital and Operational Actions recommended for the medium-term (2016–2020) that would require investment in addition to Staff Time.

- **Table 6.4: Long-Term Investment Estimates** – A summary of the Capital and Operational Actions recommended for the long-term (Beyond 2020) that would require investment in addition to Staff Time. *Note: It is anticipated that this management plan will be updated before the long-term and additional actions for the long-term may be developed at that time.*

- **Table 6.5: Operational Actions Requiring Staff Time** – A summary of the operational actions that are not anticipated to require additional investment beyond Staff Time. They are organized based on timeline to help prioritize the order in which actions are completed.

All actions will be provided in Excel Format from which additional summary tables and implementation guides may be produced.

Table 6.1: All Actions Summarized by Management Topic

#	Management Topic	#.#	Management Topic Subheading	Action	Action Type	Short (2011-2015)	Medium (2016-2020)	Long (Beyond 2020)	Ongoing	Type of Costs	Estimated Costs	Island Timberlands	Timberwest	Hupacasath	ACRD	FMCBC/ACC	Climbing Groups	MABF	IBA	Local Naturalists	V.I.Marmot Recovery	Other
1	Balanced Management			Manage park areas in accordance with park use zones *(see p.49 of the plan)*.	Operational				✔	Staff Time	$0											
2	ACRD Mount Arrowsmith Regional Park			Establish regular lines of communication between the ACRD and RDN by identifying key staff members and developing a cooperative, ongoing communication plan.	Operational	✔				Staff Time	$0				✔							
2	ACRD Mount Arrowsmith Regional Park			Establish a regular meeting schedule (e.g. once/year) to facilitate discussions on cooperative management and planning for both parks.	Operational	✔				Staff Time	$0											
3	Park Access	3.1	Vehicle Access	Work cooperatively with Island Timberlands and other adjacent landowners to develop a long-term solution to public vehicle access to MAMRP.	Operational	✔				Legal Fees Agreement Fee	$10,000	✔										
3	Park Access	3.1	Vehicle Access	Complete a feasibility study of the north access route for vehicle conveyance, that includes: - Consultation with all landowners, the ACRD and BC Parks; - Consultation with the Ministry of Transportation and Infrastructure to identify transportation and highway concerns; and - A preliminary road engineering reconnaissance during non-snow conditions to determine physical constraints and prepare proposed road and bridge standards and order of magnitude cost estimating.	Operational	✔				Consulting	$50,000	✔	✔		✔							✔
3	Park Access	3.1	Vehicle Access	If the feasibility study determines that the historical route is a reasonable route, secure funding and necessary agreements to develop a vehicle access route to MAMRP. Ensure route planning includes considerations for future road maintenance. *Note: If it is determined that this road development project is feasible, the capital costs could be significant and will need to be factored into RDN funding and fundraising efforts.	Capital		✔	✔		Legal Fees Land Negotiations Agreement Costs Materials & Labour	TBD*	✔	✔		✔							✔
3	Park Access	3.1	Vehicle Access	Where road agreements or licences are secured, maintain for long-term public road access.	Operational	✔	✔	✔		Agreement Renewal (Once every 5 years)	$2,500	✔										
3	Park Access	3.2	Trail Access	Continue to renew the existing non-exclusive licence with Island Timberlands Ltd. for the Old Arrowsmith/CPR Trail routes (next renewal March 2015).	Operational	✔	✔	✔		Agreement Renewal (Once every 5 years)	$700	✔										

#	Management Topic	#.#	Management Topic Subheading	Action	Action Type	Short (2011-2015)	Medium (2016-2020)	Long (Beyond 2020)	Ongoing	Type of Costs	Estimated Costs	Island Timberlands	Timberwest	Hupacasath	ACRD	FMCBC/ACC	Climbing Groups	MABF	IBA	Local Naturalists	V.I.Marmot Recovery	Other
3	Park Access	3.2	Trail Access	Continue to renew the existing licence with Timberwest for the Old Arrowsmith/CPR Trail routes (next renewal Dec. 2011).	Operational	✔	✔	✔		Agreement Renewal (Once every 5 years)	$500		✔									
3	Park Access	3.2	Trail Access	Coordinate Island Timberlands and Timberwest trail licence timelines to streamline future licence renewals.	Operational	✔				Agreement Renewal	$0	✔	✔		✔							
3	Park Access	3.2	Trail Access	Work with the ACRD to develop use/access agreements for trails and facilities (e.g. parking and roads) that originate within the ACRD Park and facilitate ongoing access to MAMRP.	Operational	✔				Legal Fees	$500				✔							
3	Park Access	3.2	Trail Access	Work cooperatively with Island Timberlands to negotiate future trail access agreements for authorized public use of routes on Island Timberlands private property adjacent to MAMRP.	Operational	✔				Legal Fees Agreement Fees	$1,000	✔										
3	Park Access	3.2	Trail Access	If successfully obtained, maintain agreements for trail routes that originate on neighbouring private property.	Operational	✔	✔	✔		Agreement Renewal (Once every 5 years)	$1,000	✔	✔									
3	Park Access	3.3	Winter Access	Post general winter hazard information on the RDN website to advise people of the conditions to expect when accessing MAMRP during winter months.	Operational	✔				Staff Time	$0											
3	Park Access	3.4	Parking	Include parking information in park documents.	Operational	✔				Staff Time	See Signage & Information	✔										
3	Park Access	3.4	Parking	In the long-term, develop a parking strategy for the park to address all authorized public access points, and complete improvements to provide safe public parking for MAMRP.	Capital			✔		Legal Fees Land Negotiations Agreement Costs Materials & Labour	$20,000	✔			✔							
4	Recreational Use	4.1	Barrier-Free Access	Identify through park information materials the varying levels of route difficulty and provide descriptions of the level of fitness needed for particular trail routes. Ensure descriptions are accurate and easy to understand.	Operational	✔				Staff Time	See Signage & Information											
4	Recreational Use	4.2	Climbing	Identify and connect with local climbing groups and associations using Mount Arrowsmith Massif Regional Park.	Operational	✔				Staff Time	$0						✔					
4	Recreational Use	4.2	Climbing	Work with local climbing groups and seek legal advice as needed to ensure the RDN does not incur liability related to climbing use.	Operational	✔				Legal Fees	$1,000						✔					
4	Recreational Use	4.2	Climbing	Work with local climbing groups such as the Climbers Access Society of BC, to document popular climbing locations within MAMRP and where permanent climbing protection (e.g. bolts) has been installed.	Operational	✔				Staff Time	$0						✔					

#	Management Topic	#.#	Management Topic Subheading	Action	Action Type	Short (2011-2015)	Medium (2016-2020)	Long (Beyond 2020)	Ongoing	Type of Costs	Estimated Costs	Island Timberlands	Timberwest	Hupacasath	ACRD	FMCBC/ACC	Climbing Groups	MABF	IBA	Local Naturalists	V.I.Marmot Recovery	Other
4	Recreational Use	4.2	Climbing	Work with local climbing groups to monitor climbing locations for safety and to monitor environmental impacts related to increasing use of the mountain. Where concerns are noted, take management actions to mitigate, through improvements, removals or, if required, closures.	Capital	✔	✔	✔		Materials & Labour (allow $500 every 5 years)	$500						✔					
4	Recreational Use	4.2	Climbing	General public use of trail routes that include 'climbs' should either be passively discouraged by not providing public information about these routes, or where 'climbs' exist along previously identified public routes, care should be taken to inform people of the technical nature of the route and discourage use of the area by inexperienced climbers.	Operational				✔	Staff Time	See Signage & Information											
4	Recreational Use	4.3	Wilderness Camping	Amend RDN *Regional Park Bylaw No. 1399* to allow wilderness camping in MAMRP.	Operational	✔				Staff Time	$0											
4	Recreational Use	4.3	Wilderness Camping	Identify appropriate locations for wilderness camping and direct campers to these locations to afford greater protection of park ecosystems and, in case of emergency, facilitate rescue operations.	Operational		✔			Staff Time	$0					✔						✔
4	Recreational Use	4.3	Wilderness Camping	Develop a process for Wilderness Camping Registration in MAMRP. Registration should be simple and straightforward, possibly through on-line or in-park registration.	Operational		✔			Consulting Print Materials	$5,000											
4	Recreational Use	4.3	Wilderness Camping	Monitor environmental impacts of camping at designated sites. If extensive damage is observed, consider setting daily maximum numbers for wilderness camping registration.	Operational				✔	Staff Time	$0					✔						✔
4	Recreational Use	4.3	Wilderness Camping	Provide appropriate information with wilderness camping registration, including locations of camping areas, code-of-conduct information, restrictions (e.g. no fires) and emergency contact information.	Capital		✔			Staff Time	See Signage & Information											
4	Recreational Use	4.4	Trail Maintenance	Develop and maintain a project list of potential trail improvements within MAMRP. Prioritize and complete projects based on priorities identified in the management plan (p.57).	Capital	✔	✔	✔		Materials & Labour (allow $1,000/year every 5 years)	$5,000	✔		✔		✔						✔
4	Recreational Use	4.4	Trail Maintenance	Identify and map locations of human-installed aids (e.g. ropes) on trail routes. Prepare a plan to regularly monitor, and where needed, remove or replace these aids.	Capital	✔	✔	✔		Materials & Labour (allow $500/year every 5 years)	$500					✔						✔
4	Recreational Use	4.4	Trail Maintenance	Create a user input system that encourages park users to identify trail maintenance issues and recommend potential improvement projects.	Operational	✔				Consulting Print Materials	$5,000											

#	Management Topic	#.#	Management Topic Subheading	Action	Action Type	Short (2011-2015)	Medium (2016-2020)	Long (Beyond 2020)	Ongoing	Type of Costs	Estimated Costs	Island Timberlands	Timberwest	Hupacasath	ACRD	FMCBC/ACC	Climbing Groups	MABF	IBA	Local Naturalists	V.I.Marmot Recovery	Other
4	Recreational Use	4.4	Trail Maintenance	Coordinate with the ACC to obtain annual registry numbers of people accessing the summit Mount Arrowsmith. Track incremental increases. Consider placing a register at the summit of Mount Cokely or at key trailheads to help monitor ascents.	Operational	✔				Staff Time	$0					✔						
4	Recreational Use	4.5	Volunteer Stewardship	Carry on with the establishment and training of volunteer park wardens for MAMRP through the Park Warden Program.	Operational				✔	Staff Time	$0					✔	✔					✔
4	Recreational Use	4.5	Volunteer Stewardship	Develop a general standards document for trails maintenance that can be shared with all groups completing maintenance activities in the park.	Operational	✔				Print Materials	$500											
4	Recreational Use	4.5	Volunteer Stewardship	Coordinate with Hupacasath First Nation, and members of the FMCBC, ACC and other organizations to undertake potential maintenance projects within MAMRP.	Operational				✔	Staff Time	$0	✔		✔	✔	✔						✔
4	Recreational Use	4.5	Volunteer Stewardship	Work with Hupacasath First Nation to monitor, identify and secure grants and funding to facilitate cooperative maintenance and stewardship work in MAMRP.	Operational				✔	Staff Time	$0			✔								
4	Recreational Use	4.5	Volunteer Stewardship	Consider the implementation of a Park Watchman Program, potentially in partnership with the Hupacasath, to undertake regular monitoring of trailheads and park facilities during high-use months.	Operational	✔	✔	✔		Labour (allow $2,000/ year every 5 years)	$10,000			✔								
4	Recreational Use	4.5	Volunteer Stewardship	Maintain a record of trail improvements and dates work is completed.	Operational				✔	Staff Time	$0											
4	Recreational Use	4.6	Signage & Information	**In-Park Signage:**																		
4	Recreational Use	4.6	Signage & Information	Consider posting signs on trails at private/public boundaries to indicate to park users when they are on private property.	Capital	✔				Materials & Labour (4 signs @ $500)	$2,000	✔										
4	Recreational Use	4.6	Signage & Information	Post trailhead signage at public trail route starting points. See **Figure 5.1: Proposed Park Plan Map** for recommended trailhead locations.	Capital	✔				Materials & Labour (3 sign kiosks @ $5,000)	$15,000	✔		✔								
4	Recreational Use	4.6	Signage & Information	Consult with Island Timberlands about posting/improving directional signage along private roads to help people access the park.	Capital	✔				Materials & Labour (3 signs @ $500)	$1,500	✔										
4	Recreational Use	4.6	Signage & Information	Consult with the ACRD to determine how a unified signage strategy could be developed.	Operational	✔				Staff Time	$0				✔							
4	Recreational Use	4.6	Signage & Information	Consider using small markers to indicate appropriate trail routes in sensitive areas and discourage trail braiding and ecosystem damage.	Capital	✔				Materials & Labour (5 signs @ $200)	$1,000					✔				✔		

#	Management Topic	#.#	Management Topic Subheading	Action	Action Type	Timeline Short (2011-2015)	Timeline Medium (2016-2020)	Timeline Long (Beyond 2020)	Ongoing	Type of Costs	Estimated Costs	Island Timberlands	Timberwest	Hupacasath	ACRD	FMCBC/ACC	Climbing Groups	MABF	IBA	Local Naturalists	V.I.Marmot Recovery	Other
4	Recreational Use	4.6	Signage & Information	Provide unobtrusive, durable trail markers along main mapped trail routes from start-to-finish for user safety. Develop trail marker standards and colours to aid in the identification of routes. Do not provide extensive marking on less well-used routes.	Capital	✔				Materials & Labour	$2,000					✔						✔
4	Recreational Use	4.6	Signage & Information	Develop a plan to routinely check all mapped trail routes to inspect signage and trail markers and add new markers as needed.	Operational				✔	Staff Time	$0					✔						✔
4	Recreational Use	4.6	Signage & Information	**Remote (On-line/Hardcopy) Information:**																		
4	Recreational Use	4.6	Signage & Information	Investigate utilizing a system of trail monuments that may be linked to GPS coordinates on main trail routes to record and map trail locations. These monuments could be simple numbered markers that people could use to report trail maintenance issues, record trail maintenance activities, report emergencies, etc.	Operational		✔			Staff Time	$0											
4	Recreational Use	4.6	Signage & Information	Consider using digital technologies (e.g. GPS mapping, digital applications, etc.) to share digital recreation information about the park. This could be considered part of a larger regional parks initiative.	Operational		✔			Staff Time	$0											
4	Recreational Use	4.6	Signage & Information	Develop website and brochure information *(see p.62 of the plan for summary of recommended information to be included)*.	Operational	✔				Consulting	$5,000	✔		✔	✔	✔						✔
4	Recreational Use	4.6	Signage & Information	Work with volunteers to develop interpretive materials about the park, including historical, cultural and ecological information.	Operational		✔			Print Materials	$1,500			✔		✔				✔		✔
4	Recreational Use	4.6	Signage & Information	Where appropriate, provide partners, stakeholders and neighbouring landowners opportunities to review draft information materials prior to public distribution.	Operational				✔	Staff Time	$0	✔		✔	✔	✔	✔			✔		✔
4	Recreational Use	4.6	Signage & Information	Produce and distribute hard copy materials about the park through the RDN offices, Hupacasath First Nation, RDN member municipalities, local tourism agencies, local clubs and organizations and other avenues indentified.	Operational	✔		✔		Print Materials (allow $7,500 every 10 years)	$7,500			✔	✔	✔	✔	✔	✔	✔		✔
4	Recreational Use	4.8	Code of Conduct	Ensure that park information includes details about appropriate garbage and waste management techniques.	Operational	✔				Staff Time	See Signage & Information											
4	Recreational Use	4.8	Code of Conduct	Encourage park users to report incidences of vandalism and theft, including information on where and how to make reports. If vandalism and theft continues to increase, consider park monitoring through volunteer programs.	Operational				✔	Staff Time	$0											

#	Management Topic	#.#	Management Topic Subheading	Action	Action Type	Short (2011-2015)	Medium (2016-2020)	Long (Beyond 2020)	Ongoing	Type of Costs	Estimated Costs	Island Timberlands	Timberwest	Hupacasath	ACRD	FMCBC/ACC	Climbing Groups	MABF	IBA	Local Naturalists	V.I.Marmot Recovery	Other
4	Recreational Use	4.8	Code of Conduct	Provide within park information, details about personal property protection, including removing valuables from vehicles.	Operational	✔				Staff Time	See Signage & Information											
4	Recreational Use	4.8	Code of Conduct	Provide code-of-conduct information about pets in the park. Ensure people understand the sensitivity of the park and require owners to maintain control within the park and remove pet waste.	Operational	✔				Staff Time	See Signage & Information											
5	Habitat & Environment Protection	5.1	Ecosystem Monitoring & Protection	Consider additional inventory efforts within MAMRP to determine if the Red-Listed bird species Queen Charlotte Goshawk and Marbled Murrelet occur in the park. Goshawks respond to call-playbacks, while Marbled Murrelets require dawn surveys.	Operational		✔			Consulting	$5,000								✔	✔		✔
5	Habitat & Environment Protection	5.1	Ecosystem Monitoring & Protection	Prior to completing trail improvements within MAMRP, attempt to verify that rare/unusual plants and plant communities will not be affected. UTM coordinates already exist for Red and Blue-listed plants in CDC Database, but detailed locations for disjunct species and uncommon lichen communities are needed as well.	Operational				✔	Staff Time	$0							✔		✔		✔
5	Habitat & Environment Protection	5.1	Ecosystem Monitoring & Protection	Where recreation uses are identified as substantially conflicting with sensitive ecosystems, consider re-routing or closing areas to recreational use. Where such action is necessary, erect signage explaining the need to help promote compliance.	Operational				✔	Staff Time	See Signage & Information					✔				✔		✔
5	Habitat & Environment Protection	5.1	Ecosystem Monitoring & Protection	Where recreation and ecology can safely overlap, encourage public education and interests in ecological resources (e.g. providing information about the Mount Arrowsmith Marmots to promote education about the species).	Operational				✔	Staff Time	See Signage & Information					✔				✔	✔	✔
5	Habitat & Environment Protection	5.1	Ecosystem Monitoring & Protection	Work with the research community to undertake vegetation mapping within MAMRP for use in long-term planning. Initial focus should be on delineating and classifying communities containing elements of potential Red- or Blue- listed communities (i.e. *Lewisia Columbiana, Allium crenulatum, Phlox diffusa, Selaginella wallacei, Carex scirpoide* and *Carex sitchensis*). Map remaining areas when Alpine ecosystem classification guidelines become available.	Operational		✔			Consulting	$2,500							✔		✔		✔
5	Habitat & Environment Protection	5.1	Ecosystem Monitoring & Protection	Recognize MAMRP as an Important Bird Area and support the IBA Program in monitoring and research of bird activities in the park.	Operational				✔	Staff Time	$0								✔			✔

#	Management Topic	#.#	Management Topic Subheading	Action	Action Type	Short (2011-2015)	Medium (2016-2020)	Long (Beyond 2020)	Ongoing	Type of Costs	Estimated Costs	Island Timberlands	Timberwest	Hupacasath	ACRD	FMCBC/ACC	Climbing Groups	MABF	IBA	Local Naturalists	V.I.Marmot Recovery	Other
5	Habitat & Environment Protection	5.1	Ecosystem Monitoring & Protection	Maintain GIS mapping of rare/unusual flora and fauna occurrences within MAMRP. Continue to update the data when new information becomes available. Consult with local naturalist organizations and individuals to seek assistance in gathering data and input for the mapping. Do not publicly advertise locations of rare/unusual flora and fauna that would be negatively affected by increased traffic.	Operational				✓	Staff Time	$0							✓		✓		✓
5	Habitat & Environment Protection	5.1	Ecosystem Monitoring & Protection	Include environmental monitoring as a component of park maintenance and stewardship programs *(see Section 5.4.5: Maintenance & Stewardship)*. Work with local ecologists to determine monitoring procedures and indicators within MAMRP.	Operational				✓	Staff Time	$0			✓	✓			✓		✓		✓
5	Habitat & Environment Protection	5.1	Ecosystem Monitoring & Protection	Maintain a record of research and studies completed wihtin MAMRP *(see Section 5.6: Education & Research)*.	Operational				✓	Staff Time	$0											
5	Habitat & Environment Protection	5.2	Vancouver Island Marmot	Request that the Vancouver Island Marmot Recovery Project communicate with the RDN on marmot colonization activities planned for MAMRP.	Operational	✓				Staff Time	$0										✓	
5	Habitat & Environment Protection	5.2	Vancouver Island Marmot	If the RDN plans to undertake any major projects that could impact the V.I. Marmot, notably in the Saddle Route area, consultation should be undertaken with the Vancouver Island Marmot Recovery Project to ensure animals and habitat will not be jeopardized.	Operational				✓	Staff Time	$0										✓	
5	Habitat & Environment Protection	5.2	Vancouver Island Marmot	Provide public information about the species and provide a link to the Vancouver Island Marmot Recovery Project webpage from the RDN website and in other publications where appropriate.	Operational				✓	Staff Time	$0										✓	
6	Education & Research			Support efforts for ongoing GLORIA research conducted on the mountain. Support the completion of the 2011 monitoring for the project.	Operational				✓	Staff Time	$0							✓				✓
6	Education & Research			Work cooperatively with Island Timberlands to share educational information about forestry activities and practices on lands neighbouring Mount Arrowsmith Massif Regional Park. Recognize the significant role MAMRP's vistas play in effectively communicating forestry roles and practices.	Operational				✓	Staff Time	$0							✓				✓
6	Education & Research			Coordinate with the Mount Arrowsmith Biosphere Reserve Foundation to support their continuing efforts to increase research on Mount Arrowsmith.	Operational				✓	Staff Time	$0							✓				

#	Management Topic	#.#	Management Topic Subheading	Action	Action Type	Short (2011-2015)	Medium (2016-2020)	Long (Beyond 2020)	Ongoing	Type of Costs	Estimated Costs	Island Timberlands	Timberwest	Hupacasath	ACRD	FMCBC/ACC	Climbing Groups	MABF	IBA	Local Naturalists	V.I.Marmot Recovery	Other
6	Education & Research			Coordinate with the IBA Program to determine opportunities to develop educational and/or interpretive opportunities for the Mount Arrowsmith IBA.	Operational				✔	Staff Time	$0								✔			
6	Education & Research			Encourage Hupacasath educational programs to continue to utilize MAMRP.	Operational				✔	Staff Time	$0			✔								
6	Education & Research			Encourage local educational institutions, including VIU, UVic and others to utilize MAMRP for educational and research programs (inventory, mapping, monitoring, restoration, etc).	Operational				✔	Staff Time	$0											✔
6	Education & Research			Maintain a record of research and studies completed on the mountain. Request people conducting research in the area to share with the RDN with information documented.	Operational				✔	Staff Time	$0											
6	Education & Research			Ensure that research parties complete the appropriate park permit process, as laid out in the *Park Use Regulation Bylaw 1399*.	Operational				✔	Staff Time	$0											
7	Interpretation & Tourism	7.1	First Nations History & Culture	Continue to work with the Hupacasath First Nation to ensure that any identified culturally significant sites are not impacted by activities within the park.	Operational				✔	Staff Time	$0			✔								
7	Interpretation & Tourism	7.1	First Nations History & Culture	Ensure policies of the existing MoU are reviewed and addressed when initiating park projects.	Operational				✔	Staff Time	$0			✔								
7	Interpretation & Tourism	7.1	First Nations History & Culture	Together with Hupacasath First Nation, consider developing interpretive materials that share stories and facts about the mountain's history.	Operational	✔				Staff Time	See Signage & Information			✔								
7	Interpretation & Tourism	7.1	First Nations History & Culture	Work with Hupacasath First Nation to identify how Mount Arrowsmith Massif Regional Park can be incorporated into their tourism and business initiatives.	Operational				✔	Staff Time	$0			✔								
7	Interpretation & Tourism	7.1	First Nations History & Culture	Work with Hupacasath First Nation to identify information sharing opportunities to maximize information available to the public about Mount Arrowsmith.	Operational				✔	Staff Time	$0			✔								
7	Interpretation & Tourism	7.2	Recent History	Support volunteer efforts to obtain historical and cultural information about the area.	Operational				✔	Staff Time	$0			✔								✔
7	Interpretation & Tourism	7.2	Recent History	Consider developing historical interpretive materials as a component of the larger information strategy for the mountain (*see Section 5.4.6: Signage & Information*).	Operational		✔			Staff Time	See Signage & Information			✔								✔

#	Management Topic	#.#	Management Topic Subheading	Action	Action Type	Short (2011-2015)	Medium (2016-2020)	Long (Beyond 2020)	Ongoing	Type of Costs	Estimated Costs	Island Timberlands	Timberwest	Hupacasath	ACRD	FMCBC/ACC	Climbing Groups	MABF	IBA	Local Naturalists	V.I.Marmot Recovery	Other
7	Interpretation & Tourism	7.3	Volunteer Tourism	Continue to offer regular guided hikes on public trails, led by experienced volunteer guides, on an annual/semi-annual basis through the RDN's leisure services.	Operational				✔	Staff Time	$0					✔						
7	Interpretation & Tourism	7.3	Volunteer Tourism	Investigate opportunities for First Nations cultural hikes to support cultural tourism.	Operational				✔	Staff Time	$0			✔								
7	Interpretation & Tourism	7.3	Volunteer Tourism	Encourage existing hiking clubs to offer introductory hikes to the mountain. Consult with clubs to determine if the RDN can direct potential hikers to contacts within the clubs.	Operational				✔	Staff Time	$0					✔	✔					✔
7	Interpretation & Tourism	7.4	Commercial Tourism	Ensure that existing commercial operations are aware of the regional park status and proper permits are obtained under the *Park Use Regulation Bylaw 1399*.	Operational				✔	Staff Time	$0					✔	✔					✔
7	Interpretation & Tourism	7.4	Commercial Tourism	Work cooperatively with Island Timberlands to assess any proposed commercial tourism applications that would utilize both MAMRP and Island Timberlands properties. Advise commercial operators that permits must be obtained from all property owners.	Operational		✔			Staff Time	$0	✔										
8	Emergency Services	8.1	Fire Management	Continue to include MAMRP in the cost-sharing agreement with the Coastal Fire Centre.	Operational	✔	✔	✔		Staff Time	As per agreement											✔
8	Emergency Services	8.1	Fire Management	Implement recommendations provided in the RDN Fire Risk Study.	Operational	✔	✔	✔		Staff Time	As per agreement											✔
8	Emergency Services	8.1	Fire Management	Consult with the ACRD to determine how fire hazard mitigation is performed in Mount Arrowsmith Regional Park.	Operational				✔	Staff Time	$0				✔							✔
8	Emergency Services	8.1	Fire Management	Include fire safety information in park information materials *(see Section 5.4.6: Signage & Information)*.	Operational				✔	Staff Time	See Signage & Information				✔							✔
8	Emergency Services	8.2	Search & Rescue	Provide, where appropriate, mapping and other park information to SAR organizations for their use in planning and executing activities.	Operational				✔	Staff Time	$0											✔
8	Emergency Services	8.2	Search & Rescue	Provide opportunities for SAR volunteers to participate in guided hikes of the area to share local knowledge.	Operational				✔	Staff Time	$0											✔
8	Emergency Services	8.2	Search & Rescue	Post emergency contact information on the RDN website and other park brochures at key locations within/near the park.	Operational				✔	Staff Time	See Signage & Information											✔
8	Emergency Services	8.2	Search & Rescue	Identity a response plan and contacts for avalanche emergencies.	Operational	✔				Staff Time	$0											✔
9	Future Park Expansion			Develop a list of desirable recreational, cultural and environmental features that would be considered assets to Mount Arrowsmith Regional Park *(see p.72 for a list of ideas)*.	Operational	✔				Staff Time	$0											

#	Management Topic	#.#	Management Topic Subheading	Action	Action Type	Timeline				Type of Costs	Estimated Costs	Potential Partners										
						Short (2011-2015)	Medium (2016-2020)	Long (Beyond 2020)	Ongoing			Island Timberlands	Timberwest	Hupacasath	ACRD	FMCBC/ACC	Climbing Groups	MABF	IBA	Local Naturalists	V.I.Marmot Recovery	Other
9	Future Park Expansion			Consult with neighbouring landowners to request that RDN be provided opportunity to acquire, through lease, purchase, donation or other means, adjunct land areas, should the land owner wish to remove the land from their landbase.	Operational				✔	Staff Time	$0	✔	✔	✔	✔							✔

Table 6.2: Short-Term Investment Estimate (2011-2015)

#	Management Topic	#.#	Management Topic Subheading	Action	Action Type	Suggested Timeline	Timeline Short (2011-2015)	Medium (2016-2020)	Long (Beyond 2020)	Ongoing	Type of Costs	Estimated Costs	Island Timberlands	Timberwest	Hupacasath	ACRD	FMCBC/ACC	Climbing Groups	MABF	IBA	Local Naturalists	V.I.Marmot Recovery	Other
3	Park Access	3.1	Vehicle Access	Work cooperatively with Island Timberlands and other adjacent landowners to develop a long-term solution to public vehicle access to MAMRP.	Operational	Short	✔				Legal Fees Agreement Fee	$10,000	✔										
3	Park Access	3.1	Vehicle Access	Complete a feasibility study of the north access route for vehicle conveyance, that includes: - Consultation with all landowners, the ACRD and BC Parks; - Consultation with the Ministry of Transportation and Infrastructure to identify transportation and highway concerns; and - A preliminary road engineering reconnaissance during non-snow conditions to determine physical constraints and prepare proposed road and bridge standards and order of magnitude cost estimating.	Operational	Short	✔				Consulting	$50,000	✔	✔		✔							✔
3	Park Access	3.1	Vehicle Access	Where road agreements or licences are secured, maintain for long-term public road access.	Operational	Short	✔	✔	✔		Agreement Renewal (Once every 5 years)	$2,500	✔										
3	Park Access	3.2	Trail Access	Continue to renew the existing non-exclusive licence with Island Timberlands Ltd. for the Old Arrowsmith/CPR Trail routes (next renewal March	Operational	Short	✔	✔	✔		Agreement Renewal (Once every 5 years)	$700	✔										
3	Park Access	3.2	Trail Access	Continue to renew the existing licence with Timberwest for the Old Arrowsmith/CPR Trail routes (next renewal Dec. 2011).	Operational	Short	✔	✔	✔		Agreement Renewal (Once every 5 years)	$500		✔									
3	Park Access	3.2	Trail Access	Work with the ACRD to develop use/access agreements for trails and facilities (e.g. parking and roads) that originate within the ACRD Park and facilitate ongoing access to MAMRP.	Operational	Short	✔				Legal Fees	$500				✔							
3	Park Access	3.2	Trail Access	Work cooperatively with Island Timberlands to negotiate future trail access agreements for authorized public use of routes on Island Timberlands private property adjacent to MAMRP.	Operational	Short	✔				Legal Fees Agreement Fees	$1,000	✔										

#	Management Topic	#.#	Management Topic Subheading	Action	Action Type	Suggested Timeline	Short (2011-2015)	Medium (2016-2020)	Long (Beyond 2020)	Ongoing	Type of Costs	Estimated Costs	Island Timberlands	Timberwest	Hupacasath	ACRD	FMCBC/ACC	Climbing Groups	MABF	IBA	Local Naturalists	V.I.Marmot Recovery	Other
3	Park Access	3.2	Trail Access	If successfully obtained, maintain agreements for trail routes that originate on neighbouring private property.	Operational	Short	✓	✓	✓		Agreement Renewal (Once every 5 years)	$1,000	✓	✓									
4	Recreational Use	4.2	Climbing	Work with local climbing groups and seek legal advice as needed to ensure the RDN does not incur liability related to climbing use.	Operational	Short	✓				Legal Fees	$1,000						✓					
4	Recreational Use	4.2	Climbing	Work with local climbing groups to monitor climbing locations for safety and to monitor environmental impacts related to increasing use of the mountain. Where concerns are noted, take management actions to mitigate, through improvements, removals or, if required, closures.	Capital	Short	✓	✓	✓		Materials & Labour (allow $500 every 5 years)	$500						✓					
4	Recreational Use	4.4	Trail Maintenance	Develop and maintain a project list of potential trail improvements within MAMRP. Prioritize and complete projects based on priorities identified in the management plan (p.57).	Capital	Short	✓	✓	✓		Materials & Labour (allow $1,000/year every 5 years)	$5,000	✓		✓		✓						✓
4	Recreational Use	4.4	Trail Maintenance	Identify and map locations of human-installed aids (e.g. ropes) on trail routes. Prepare a plan to regularly monitor, and where needed, remove or replace these aids.	Capital	Short	✓	✓	✓		Materials & Labour (allow $500/year every 5 years)	$500					✓						✓
4	Recreational Use	4.4	Trail Maintenance	Create a user input system that encourages park users to identify trail maintenance issues and recommend potential improvement projects.	Operational	Short	✓				Consulting Print Materials	$5,000											
4	Recreational Use	4.5	Volunteer Stewardship	Develop a general standards document for trails maintenance that can be shared with all groups completing maintenance activities in the park.	Operational	Short	✓				Print Materials	$500											
4	Recreational Use	4.5	Volunteer Stewardship	Consider the implementation of a Park Watchman Program, potentially in partnership with the Hupacasath, to undertake regular monitoring of trailheads and park facilities during high-use months.	Operational	Short	✓	✓	✓		Labour (allow $2,000/ year every 5 years)	$10,000			✓								
4	Recreational Use	4.6	Signage & Information	Consider posting signs on trails at private/public boundaries to indicate to park users when they are on private property.	Capital	Short	✓				Materials & Labour (4 signs @ $500)	$2,000	✓										

#	Management Topic	#.#	Management Topic Subheading	Action	Action Type	Suggested Timeline	Short (2011-2015)	Medium (2016-2020)	Long (Beyond 2020)	Ongoing	Type of Costs	Estimated Costs	Island Timberlands	Timberwest	Hupacasath	ACRD	FMCBC/ACC	Climbing Groups	MABF	IBA	Local Naturalists	V.I. Marmot Recovery	Other
4	Recreational Use	4.6	Signage & Information	Post trailhead signage at public trail route starting points. See Figure 5.1: Proposed Park Plan Map for recommended trailhead locations.	Capital	Short	✔				Materials & Labour (3 sign kiosks @ $5,000)	$15,000	✔			✔							
4	Recreational Use	4.6	Signage & Information	Consult with Island Timberlands about posting/improving directional signage along private roads to help people access the park.	Capital	Short	✔				Materials & Labour (3 signs @ $500)	$1,500	✔										
4	Recreational Use	4.6	Signage & Information	Consider using small markers to indicate appropriate trail routes in sensitive areas and discourage trail braiding and ecosystem damage.	Capital	Short	✔				Materials & Labour (5 signs @ $200)	$1,000					✔				✔		
4	Recreational Use	4.6	Signage & Information	Provide unobtrusive, durable trail markers along main mapped trail routes from start-to-finish for user safety. Develop trail marker standards and colours to aid in the identification of routes. Do not provide extensive marking on less well-used routes.	Capital	Short	✔				Materials & Labour	$2,000					✔						✔
4	Recreational Use	4.6	Signage & Information	Develop website and brochure information (see p.62 of the plan for summary of recommended information to be included).	Operational	Short	✔				Consulting	$5,000	✔		✔	✔	✔						✔
4	Recreational Use	4.6	Signage & Information	Produce and distribute hard copy materials about the park through the RDN offices, Hupacasath First Nation, RDN member municipalities, local tourism agencies, local clubs and organizations and other avenues indentified.	Operational	Short	✔		✔		Print Materials (allow $7,500 every 10 years)	$7,500			✔	✔	✔	✔	✔	✔	✔		✔
8	Emergency Services	8.1	Fire Management	Continue to include MAMRP in the cost-sharing agreement with the Coastal Fire Centre.	Operational	Ongoing	✔	✔	✔		Staff Time	As per agreement											✔
8	Emergency Services	8.1	Fire Management	Implement recommendations provided in the RDN Fire Risk Study.	Operational	Short	✔	✔	✔		Staff Time	As per agreement											✔
											Total: Short-Term Investment Estimate	**$122,700**											
											Capital Investment Portion	$27,500											
											Operational Investment Portion	$95,200											

Table 6.3: Medium-Term Investment Estimate (2016-2020)

#	Management Topic	#.#	Management Topic Subheading	Action	Action Type	Suggested Timeline	Short (2011-2015)	Medium (2016-2020)	Long (Beyond 2020)	Ongoing	Type of Costs	Estimated Costs	Island Timberlands	Timberwest	Hupacasath	ACRD	FMCBC/ACC	Climbing Groups	MABF	IBA	Local Naturalists	V.I.Marmot Recovery	Other
3	Park Access	3.1	Vehicle Access	If the feasibility study determines that the historical route is a reasonable route, secure funding and necessary agreements to develop a vehicle access route to MAMRP. Ensure route planning includes considerations for future road maintenance. *Note: If it is determined that this road development project is feasible, the capital costs could be significant and will need to be factored into RDN funding and fundraising efforts.	Capital	Short		✔	✔		Legal Fees Land Negotiations Agreement Costs Materials & Labour	TBD*	✔	✔		✔							✔
3	Park Access	3.1	Vehicle Access	Where road agreements or licences are secured, maintain for long-term public road access.	Operational	Short	✔	✔	✔		Agreement Renewal (Once every 5 years)	$2,500	✔										
3	Park Access	3.2	Trail Access	Continue to renew the existing non-exclusive licence with Island Timberlands Ltd. for the Old Arrowsmith/CPR Trail routes (next renewal March	Operational	Short	✔	✔	✔		Agreement Renewal (Once every 5 years)	$700	✔										
3	Park Access	3.2	Trail Access	Continue to renew the existing licence with Timberwest for the Old Arrowsmith/CPR Trail routes (next renewal Dec. 2011).	Operational	Short	✔	✔	✔		Agreement Renewal (Once every 5 years)	$500		✔									
3	Park Access	3.2	Trail Access	If successfully obtained, maintain agreements for trail routes that originate on neighbouring private property.	Operational	Short	✔	✔	✔		Agreement Renewal (Once every 5 years)	$1,000	✔	✔									
4	Recreational Use	4.2	Climbing	Work with local climbing groups to monitor climbing locations for safety and to monitor environmental impacts related to increasing use of the mountain. Where concerns are noted, take management actions to mitigate, through improvements, removals or, if required, closures.	Capital	Short	✔	✔	✔		Materials & Labour (allow $500 every 5 years)	$500						✔					
4	Recreational Use	4.3	Wilderness Camping	Develop a process for Wilderness Camping Registration in MAMRP. Registration should be simple and straightforward, possibly through on-line or in-park registration.	Operational	Medium		✔			Consulting Print Materials	$5,000											

#	Management Topic	#.#	Management Topic Subheading	Action	Action Type	Suggested Timeline	Short (2011-2015)	Medium (2016-2020)	Long (Beyond 2020)	Ongoing	Type of Costs	Estimated Costs	Island Timberlands	Timberwest	Hupacasath	ACRD	FMCBC/ACC	Climbing Groups	MABF	IBA	Local Naturalists	V.I.Marmot Recovery	Other
4	Recreational Use	4.4	Trail Maintenance	Develop and maintain a project list of potential trail improvements within MAMRP. Prioritize and complete projects based on priorities identified in the management plan (p.57).	Capital	Short	✓	✓	✓		Materials & Labour (allow $1,000/year every 5 years)	$5,000	✓		✓		✓						✓
4	Recreational Use	4.4	Trail Maintenance	Identify and map locations of human-installed aids (e.g. ropes) on trail routes. Prepare a plan to regularly monitor, and where needed, remove or replace these aids.	Capital	Short	✓	✓	✓		Materials & Labour (allow $500/year every 5 years)	$500					✓						✓
4	Recreational Use	4.5	Volunteer Stewardship	Consider the implementation of a Park Watchman Program, potentially in partnership with the Hupacasath, to undertake regular monitoring of trailheads and park facilities during high-use months.	Operational	Short	✓	✓	✓		Labour (allow $2,000/ year every 5 years)	$10,000			✓								
4	Recreational Use	4.6	Signage & Information	Work with volunteers to develop interpretive materials about the park, including historical, cultural and ecological information.	Operational	Medium		✓			Print Materials	$1,500			✓		✓				✓		✓
5	Habitat & Environment Protection	5.1	Ecosystem Monitoring & Protection	Consider additional inventory efforts within MAMRP to determine if the Red-Listed bird species Queen Charlotte Goshawk and Marbled Murrelet occur in the park. Goshawks respond to call-playbacks, while Marbled Murrelets require dawn	Operational	Medium		✓			Consulting	$5,000								✓	✓		✓
5	Habitat & Environment Protection	5.1	Ecosystem Monitoring & Protection	Work with the research community to undertake vegetation mapping within MAMRP for use in long-term planning. Initial focus should be on delineating and classifying communities containing elements of potential Red- or Blue- listed communities (i.e. Lewisia Columbiana, Allium crenulatum, Phlox diffusa, Selaginella wallacei, Carex scirpoide and Carex sitchensis). Map remaining areas when Alpine ecosystem classification guidelines become available.	Operational	Medium		✓			Consulting	$2,500							✓		✓		✓
8	Emergency Services	8.1	Fire Management	Continue to include MAMRP in the cost-sharing agreement with the Coastal Fire Centre.	Operational	Ongoing	✓	✓	✓		Staff Time	As per agreement											✓
8	Emergency Services	8.1	Fire Management	Implement recommendations provided in the RDN Fire Risk Study.	Operational	Short	✓	✓	✓		Staff Time	As per agreement											✓
											Total: Medium-Term Investment Estimate	$34,700 **											

#	Management Topic	#.#	Management Topic Subheading	Action	Action Type	Suggested Timeline	Short (2011-2015)	Medium (2016-2020)	Long (Beyond 2020)	Ongoing	Type of Costs	Estimated Costs	Island Timberlands	Timberwest	Hupacasath	ACRD	FMCBC/ACC	Climbing Groups	MABF	IBA	Local Naturalists	V.I.Marmot Recovery	Other
											Capital Investment Portion	$6,000											
											Operational Investment Portion	$28,700											

** Note: This cost does not include the potential capital costs related to road development (first action). If it is determined that road development is feasible and desirable, investment requirements would increase.

Table 6.4: Long-Term Investment Estimate (Beyond 2020)

#	Management Topic	#.#	Management Topic Subheading	Action	Action Type	Suggested Timeline	Short (2011-2015)	Medium (2016-2020)	Long (Beyond 2020)	Ongoing	Type of Costs	Estimated Costs	Island Timberlands	Timberwest	Hupacasath	ACRD	FMCBC/ACC	Climbing Groups	MABF	IBA	Local Naturalists	V.I.Marmot Recovery	Other
																		Timeline					**Potential Partners**
3	Park Access	3.1	Vehicle Access	If the feasibility study determines that the historical route is a reasonable route, secure funding and necessary agreements to develop a vehicle access route to MAMRP. Ensure route planning includes considerations for future road maintenance. *Note: If it is determined that this road development project is feasible, the capital costs could be significant and will need to be factored into RDN funding and fundraising efforts.	Capital	Short		✔	✔		Legal Fees Land Negotiations Agreement Costs Materials & Labour	TBD*	✔	✔		✔							✔
3	Park Access	3.1	Vehicle Access	Where road agreements or licences are secured, maintain for long-term public road access.	Operational	Short	✔	✔	✔		Agreement Renewal (Once every 5 years)	$2,500	✔										
3	Park Access	3.2	Trail Access	Continue to renew the existing non-exclusive licence with Island Timberlands Ltd. for the Old Arrowsmith/CPR Trail routes (next renewal March	Operational	Short	✔	✔	✔		Agreement Renewal (Once every 5 years)	$700	✔										
3	Park Access	3.2	Trail Access	Continue to renew the existing licence with Timberwest for the Old Arrowsmith/CPR Trail routes (next renewal Dec. 2011).	Operational	Short	✔	✔	✔		Agreement Renewal (Once every 5 years)	$500		✔									
3	Park Access	3.2	Trail Access	If successfully obtained, maintain agreements for trail routes that originate on neighbouring private property.	Operational	Short	✔	✔	✔		Agreement Renewal (Once every 5 years)	$1,000	✔	✔									
3	Park Access	3.4	Parking	In the long-term, develop a parking strategy for the park to address all authorized public access points, and complete improvements to provide safe public parking for MAMRP.	Capital	Long			✔		Legal Fees Land Negotiations Agreement Costs Materials & Labour	$20,000	✔			✔							
4	Recreational Use	4.2	Climbing	Work with local climbing groups to monitor climbing locations for safety and to monitor environmental impacts related to increasing use of the mountain. Where concerns are noted, take management actions to mitigate, through improvements, removals or, if required, closures.	Capital	Short	✔	✔	✔		Materials & Labour (allow $500 every 5 years)	$500						✔					

#	Management Topic	#.#	Management Topic Subheading	Action	Action Type	Suggested Timeline	Short (2011-2015)	Medium (2016-2020)	Long (Beyond 2020)	Ongoing	Type of Costs	Estimated Costs	Island Timberlands	Timberwest	Hupacasath	ACRD	FMCBC/ACC	Climbing Groups	MABF	IBA	Local Naturalists	V.I.Marmot Recovery	Other
4	Recreational Use	4.4	Trail Maintenance	Develop and maintain a project list of potential trail improvements within MAMRP. Prioritize and complete projects based on priorities identified in the management plan (p.57).	Capital	Short	✔	✔	✔		Materials & Labour (allow $1,000/year every 5 years)	$5,000	✔		✔		✔						✔
4	Recreational Use	4.4	Trail Maintenance	Identify and map locations of human-installed aids (e.g. ropes) on trail routes. Prepare a plan to regularly monitor, and where needed, remove or replace these aids.	Capital	Short	✔	✔	✔		Materials & Labour (allow $500/year every 5 years)	$500					✔						✔
4	Recreational Use	4.5	Volunteer Stewardship	Consider the implementation of a Park Watchman Program, potentially in partnership with the Hupacasath, to undertake regular monitoring of trailheads and park facilities during high-use months.	Operational	Short	✔	✔	✔		Labour (allow $2,000/ year every 5 years)	$10,000			✔								
4	Recreational Use	4.6	Signage & Information	Produce and distribute hard copy materials about the park through the RDN offices, Hupacasath First Nation, RDN member municipalities, local tourism agencies, local clubs and organizations and other avenues indentified.	Operational	Short	✔		✔		Print Materials (allow $7,500 every 10 years)	$7,500			✔	✔	✔	✔	✔	✔	✔		✔
8	Emergency Services	8.1	Fire Management	Continue to include MAMRP in the cost-sharing agreement with the Coastal Fire Centre.	Operational	Ongoing	✔	✔	✔		Staff Time	As per agreement											✔
8	Emergency Services	8.1	Fire Management	Implement recommendations provided in the RDN Fire Risk Study.	Operational	Short	✔	✔	✔		Staff Time	As per agreement											✔
											Total: Medium-Term Investment Estimate	**$48,200** **											
											Capital Investment Portion	$26,000											
											Operational Investment Portion	$22,200											

** Note: This cost does not include the potential capital costs related to road development (first action). If it is determined that road development is feasible and desirable, investment requirements would increase.

Table 6.5: Operational Staff Time Estimate

#	Management Topic	#.#	Management Topic Subheading	Action	Action Type	Suggested Timeline	Short (2011-2015)	Medium (2016-2020)	Long (Beyond 2020)	Ongoing	Type of Costs	Estimated Costs	Island Timberlands	Timberwest	Hupacasath	ACRD	FMCBC/ACC	Climbing Groups	MABF	IBA	Local Naturalists	V.I.Marmot Recovery	Other
1	Balanced Management			Manage park areas in accordance with park use zones (see p.49 of the plan).	Operational	Ongoing				✔	Staff Time	$0											
2	ACRD Mount Arrowsmith Regional Park			Establish regular lines of communication between the ACRD and RDN by identifying key staff members and developing a cooperative, ongoing communication plan.	Operational	Short	✔				Staff Time	$0				✔							
2	ACRD Mount Arrowsmith Regional Park			Establish a regular meeting schedule (e.g. once/year) to facilitate discussions on cooperative management and planning for both parks.	Operational	Short	✔				Staff Time	$0											
3	Park Access	3.3	Winter Access	Post general winter hazard information on the RDN website to advise people of the conditions to expect when accessing MAMRP during winter months.	Operational	Short	✔				Staff Time	$0											
3	Park Access	3.4	Parking	Include parking information in park documents.	Operational	Short	✔				Staff Time	See Signage & Information	✔										
4	Recreational Use	4.1	Barrier-Free Access	Identify through park information materials the varying levels of route difficulty and provide descriptions of the level of fitness needed for particular trail routes. Ensure descriptions are accurate and easy to understand.	Operational	Short	✔				Staff Time	See Signage & Information											
4	Recreational Use	4.2	Climbing	Identify and connect with local climbing groups and associations using Mount Arrowsmith Massif Regional Park.	Operational	Short	✔				Staff Time	$0						✔					
4	Recreational Use	4.2	Climbing	Work with local climbing groups such as the Climbers Access Society of BC, to document popular climbing locations within MAMRP and where permanent climbing protection (e.g. bolts) has been installed.	Operational	Short	✔				Staff Time	$0						✔					

#	Management Topic	#.#	Management Topic Subheading	Action	Action Type	Suggested Timeline	Short (2011-2015)	Medium (2016-2020)	Long (Beyond 2020)	Ongoing	Type of Costs	Estimated Costs	Island Timberlands	Timberwest	Hupacasath	ACRD	FMCBC/ACC	Climbing Groups	MABF	IBA	Local Naturalists	V.I.Marmot Recovery	Other
4	Recreational Use	4.2	Climbing	General public use of trail routes that include 'climbs' should either be passively discouraged by not providing public information about these routes, or where 'climbs' exist along previously identified public routes, care should be taken to inform people of the technical nature of the route and discourage use of the area by inexperienced climbers.	Operational	Ongoing				✔	Staff Time	See Signage & Information											
4	Recreational Use	4.3	Wilderness Camping	Amend RDN Regional Park Bylaw No. 1399 to allow wilderness camping in MAMRP.	Operational	Short	✔				Staff Time	$0											
4	Recreational Use	4.3	Wilderness Camping	Identify appropriate locations for wilderness camping and direct campers to these locations to afford greater protection of park ecosystems and, in case of emergency, facilitate rescue operations.	Operational	Medium		✔			Staff Time	$0					✔						✔
4	Recreational Use	4.3	Wilderness Camping	Monitor environmental impacts of camping at designated sites. If extensive damage is observed, consider setting daily maximum numbers for wilderness camping registration.	Operational	Ongoing				✔	Staff Time	$0					✔						✔
4	Recreational Use	4.4	Trail Maintenance	Coordinate with the ACC to obtain annual registry numbers of people accessing the summit Mount Arrowsmith. Track incremental increases. Consider placing a register at the summit of Mount Cokely or at key trailheads to help monitor ascents.	Operational	Short	✔				Staff Time	$0					✔						
4	Recreational Use	4.5	Volunteer Stewardship	Carry on with the establishment and training of volunteer park wardens for MAMRP through the Park Warden Program.	Operational	Ongoing				✔	Staff Time	$0					✔	✔					✔
4	Recreational Use	4.5	Volunteer Stewardship	Coordinate with Hupacasath First Nation, and members of the FMCBC, ACC and other organizations to undertake potential maintenance projects within MAMRP.	Operational	Ongoing				✔	Staff Time	$0	✔		✔	✔	✔						✔
4	Recreational Use	4.5	Volunteer Stewardship	Work with Hupacasath First Nation to monitor, identify and secure grants and funding to facilitate cooperative maintenance and stewardship work in MAMRP.	Operational	Ongoing				✔	Staff Time	$0			✔								
4	Recreational Use	4.5	Volunteer Stewardship	Maintain a record of trail improvements and dates work is completed.	Operational	Ongoing				✔	Staff Time	$0											

#	Management Topic	#.#	Management Topic Subheading	Action	Action Type	Suggested Timeline	Short (2011-2015)	Medium (2016-2020)	Long (Beyond 2020)	Ongoing	Type of Costs	Estimated Costs	Island Timberlands	Timberwest	Hupacasath	ACRD	FMCBC/ACC	Climbing Groups	MABF	IBA	Local Naturalists	V.I.Marmot Recovery	Other
4	Recreational Use	4.6	Signage & Information	Consult with the ACRD to determine how a unified signage strategy could be developed.	Operational	Short	✔				Staff Time	$0				✔							
4	Recreational Use	4.6	Signage & Information	Develop a plan to routinely check all mapped trail routes to inspect signage and trail markers and add new markers as needed.	Operational	Ongoing				✔	Staff Time	$0					✔						✔
4	Recreational Use	4.6	Signage & Information	Investigate utilizing a system of trail monuments that may be linked to GPS coordinates on main trail routes to record and map trail locations. These monuments could be simple numbered markers that people could use to report trail maintenance issues, record trail maintenance activities, report emergencies, etc.	Operational	Medium		✔			Staff Time	$0											
4	Recreational Use	4.6	Signage & Information	Consider using digital technologies (e.g. GPS mapping, digital applications, etc.) to share digital recreation information about the park. This could be considered part of a larger regional parks initiative.	Operational	Medium		✔			Staff Time	$0											
4	Recreational Use	4.6	Signage & Information	Where appropriate, provide partners, stakeholders and neighbouring landowners opportunities to review draft information materials prior to public distribution.	Operational	Ongoing				✔	Staff Time	$0	✔		✔	✔	✔	✔			✔		✔
4	Recreational Use	4.8	Code of Conduct	Ensure that park information includes details about appropriate garbage and waste management techniques.	Operational	Short	✔				Staff Time	See Signage & Information											
4	Recreational Use	4.8	Code of Conduct	Encourage park users to report incidences of vandalism and theft, including information on where and how to make reports. If vandalism and theft continues to increase, consider park monitoring through volunteer programs.	Operational	Ongoing				✔	Staff Time	$0											
4	Recreational Use	4.8	Code of Conduct	Provide within park information, details about personal property protection, including removing valuables from vehicles.	Operational	Short	✔				Staff Time	See Signage & Information											
4	Recreational Use	4.8	Code of Conduct	Provide code-of-conduct information about pets in the park. Ensure people understand the sensitivity of the park and require owners to maintain control within the park and remove pet waste.	Operational	Short	✔				Staff Time	See Signage & Information											

#	Management Topic	#.#	Management Topic Subheading	Action	Action Type	Suggested Timeline	Short (2011-2015)	Medium (2016-2020)	Long (Beyond 2020)	Ongoing	Type of Costs	Estimated Costs	Island Timberlands	Timberwest	Hupacasath	ACRD	FMCBC/ACC	Climbing Groups	MABF	IBA	Local Naturalists	V.I.Marmot Recovery	Other
5	Habitat & Environment Protection	5.1	Ecosystem Monitoring & Protection	Prior to completing trail improvements within MAMRP, attempt to verify that rare/unusual plants and plant communities will not be affected. UTM coordinates already exist for Red and Blue-listed plants in CDC Database, but detailed locations for disjunct species and uncommon lichen communities are needed as well.	Operational	Ongoing				✔	Staff Time	$0							✔		✔		✔
5	Habitat & Environment Protection	5.1	Ecosystem Monitoring & Protection	Where recreation uses are identified as substantially conflicting with sensitive ecosystems, consider re-routing or closing areas to recreational use. Where such action is necessary, erect signage explaining the need to help promote compliance.	Operational	Ongoing				✔	Staff Time	See Signage & Information					✔				✔		✔
5	Habitat & Environment Protection	5.1	Ecosystem Monitoring & Protection	Where recreation and ecology can safely overlap, encourage public education and interests in ecological resources (e.g. providing information about the Mount Arrowsmith Marmots to promote education about the species).	Operational	Ongoing				✔	Staff Time	See Signage & Information					✔				✔	✔	✔
5	Habitat & Environment Protection	5.1	Ecosystem Monitoring & Protection	Recognize MAMRP as an Important Bird Area and support the IBA Program in monitoring and research of bird activities in the park.	Operational	Ongoing				✔	Staff Time	$0								✔			✔
5	Habitat & Environment Protection	5.1	Ecosystem Monitoring & Protection	Maintain GIS mapping of rare/unusual flora and fauna occurrences within MAMRP. Continue to update the data when new information becomes available. Consult with local naturalist organizations and individuals to seek assistance in gathering data and input for the mapping. Do not publicly advertise locations of rare/unusual flora and fauna that would be negatively affected by increased traffic.	Operational	Ongoing				✔	Staff Time	$0							✔		✔		✔
5	Habitat & Environment Protection	5.1	Ecosystem Monitoring & Protection	Include environmental monitoring as a component of park maintenance and stewardship programs (see Section 5.4.5: Maintenance & Stewardship). Work with local ecologists to determine monitoring procedures and indicators within MAMRP.	Operational	Ongoing				✔	Staff Time	$0			✔		✔		✔		✔		✔

#	Management Topic	#.#	Management Topic Subheading	Action	Action Type	Suggested Timeline	Short (2011-2015)	Medium (2016-2020)	Long (Beyond 2020)	Ongoing	Type of Costs	Estimated Costs	Island Timberlands	Timberwest	Hupacasath	ACRD	FMCBC/ACC	Climbing Groups	MABF	IBA	Local Naturalists	V.I.Marmot Recovery	Other
5	Habitat & Environment Protection	5.1	Ecosystem Monitoring & Protection	Maintain a record of research and studies completed wihtin MAMRP (see Section 5.6: Education & Research).	Operational	Ongoing				✔	Staff Time	$0											
5	Habitat & Environment Protection	5.2	Vancouver Island Marmot	Request that the Vancouver Island Marmot Recovery Project communicate with the RDN on marmot colonization activities planned for MAMRP.	Operational	Short	✔				Staff Time	$0										✔	
5	Habitat & Environment Protection	5.2	Vancouver Island Marmot	If the RDN plans to undertake any major projects that could impact the V.I. Marmot, notably in the Saddle Route area, consultation should be undertaken with the Vancouver Island Marmot Recovery Project to ensure animals and habitat will not be jeopardized.	Operational	Ongoing				✔	Staff Time	$0										✔	
5	Habitat & Environment Protection	5.2	Vancouver Island Marmot	Provide public information about the species and provide a link to the Vancouver Island Marmot Recovery Project webpage from the RDN website and in other publications where appropriate.	Operational	Ongoing				✔	Staff Time	$0										✔	
6	Education & Research			Support efforts for ongoing GLORIA research conducted on the mountain. Support the completion of the 2011 monitoring for the project.	Operational	Ongoing				✔	Staff Time	$0							✔				✔
6	Education & Research			Work cooperatively with Island Timberlands to share educational information about forestry activities and practices on lands neighbouring Mount Arrowsmith Massif Regional Park. Recognize the significant role MAMRP's vistas play in effectively communicating forestry roles and practices.	Operational	Ongoing				✔	Staff Time	$0							✔				✔
6	Education & Research			Coordinate with the Mount Arrowsmith Biosphere Reserve Foundation to support their continuing efforts to increase research on Mount Arrowsmith.	Operational	Ongoing				✔	Staff Time	$0							✔				
6	Education & Research			Coordinate with the IBA Program to determine opportunities to develop educational and/or interpretive opportunities for the Mount Arrowsmith IBA.	Operational	Ongoing				✔	Staff Time	$0								✔			

#	Management Topic	#.#	Management Topic Subheading	Action	Action Type	Suggested Timeline	Short (2011-2015)	Medium (2016-2020)	Long (Beyond 2020)	Ongoing	Type of Costs	Estimated Costs	Island Timberlands	Timberwest	Hupacasath	ACRD	FMCBC/ACC	Climbing Groups	MABF	IBA	Local Naturalists	V.I.Marmot Recovery	Other
6	Education & Research			Encourage Hupacasath educational programs to continue to utilize MAMRP.	Operational	Ongoing				✔	Staff Time	$0			✔								
6	Education & Research			Encourage local educational institutions, including VIU, UVic and others to utilize MAMRP for educational and research programs (inventory, mapping, monitoring, restoration, etc).	Operational	Ongoing				✔	Staff Time	$0											✔
6	Education & Research			Maintain a record of research and studies completed on the mountain. Request people conducting research in the area to share with the RDN with information documented.	Operational	Ongoing				✔	Staff Time	$0											
6	Education & Research			Ensure that research parties complete the appropriate park permit process, as laid out in the Park Use Regulation Bylaw 1399.	Operational	Ongoing				✔	Staff Time	$0											
7	Interpretation & Tourism	7.1	First Nations History & Culture	Continue to work with the Hupacasath First Nation to ensure that any identified culturally significant sites are not impacted by activities within the park.	Operational	Ongoing				✔	Staff Time	$0			✔								
7	Interpretation & Tourism	7.1	First Nations History & Culture	Ensure policies of the existing MoU are reviewed and addressed when initiating park projects.	Operational	Ongoing				✔	Staff Time	$0			✔								
7	Interpretation & Tourism	7.1	First Nations History & Culture	Together with Hupacasath First Nation, consider developing interpretive materials that share stories and facts about the mountain's history.	Operational	Short	✔				Staff Time	See Signage & Information			✔								
7	Interpretation & Tourism	7.1	First Nations History & Culture	Work with Hupacasath First Nation to identify how Mount Arrowsmith Massif Regional Park can be incorporated into their tourism and business initiatives.	Operational	Ongoing				✔	Staff Time	$0			✔								
7	Interpretation & Tourism	7.1	First Nations History & Culture	Work with Hupacasath First Nation to identify information sharing opportunities to maximize information available to the public about Mount Arrowsmith.	Operational	Ongoing				✔	Staff Time	$0			✔								
7	Interpretation & Tourism	7.2	Recent History	Support volunteer efforts to obtain historical and cultural information about the area.	Operational	Ongoing				✔	Staff Time	$0			✔								✔
7	Interpretation & Tourism	7.2	Recent History	Consider developing historical interpretive materials as a component of the larger information strategy for the mountain (see Section 5.4.6: Signage & Information).	Operational	Medium		✔			Staff Time	See Signage & Information			✔								✔

#	Management Topic	#.#	Management Topic Subheading	Action	Action Type	Suggested Timeline	Short (2011-2015)	Medium (2016-2020)	Long (Beyond 2020)	Ongoing	Type of Costs	Estimated Costs	Island Timberlands	Timberwest	Hupacasath	ACRD	FMCBC/ACC	Climbing Groups	MABF	IBA	Local Naturalists	V.I.Marmot Recovery	Other
7	Interpretation & Tourism	7.3	Volunteer Tourism	Continue to offer regular guided hikes on public trails, led by experienced volunteer guides, on an annual/semi-annual basis through the RDN's	Operational	Ongoing				✔	Staff Time	$0					✔						
7	Interpretation & Tourism	7.3	Volunteer Tourism	Investigate opportunities for First Nations cultural hikes to support cultural tourism.	Operational	Ongoing				✔	Staff Time	$0			✔								
7	Interpretation & Tourism	7.3	Volunteer Tourism	Encourage existing hiking clubs to offer introductory hikes to the mountain. Consult with clubs to determine if the RDN can direct potential hikers to contacts within the clubs.	Operational	Ongoing				✔	Staff Time	$0					✔	✔					✔
7	Interpretation & Tourism	7.4	Commercial Tourism	Ensure that existing commercial operations are aware of the regional park status and proper permits are obtained under the Park Use Regulation Bylaw 1399.	Operational	Ongoing				✔	Staff Time	$0					✔	✔					✔
7	Interpretation & Tourism	7.4	Commercial Tourism	Work cooperatively with Island Timberlands to assess any proposed commercial tourism applications that would utilize both MAMRP and Island Timberlands properties. Advise commercial operators that permits must be obtained from all property owners.	Operational	Medium		✔			Staff Time	$0	✔										
8	Emergency Services	8.1	Fire Management	Continue to include MAMRP in the cost-sharing agreement with the Coastal Fire Centre.	Operational	Ongoing	✔	✔	✔		Staff Time	As per agreement											✔
8	Emergency Services	8.1	Fire Management	Implement recommendations provided in the RDN Fire Risk Study.	Operational	Short	✔	✔	✔		Staff Time	As per agreement											✔
8	Emergency Services	8.1	Fire Management	Consult with the ACRD to determine how fire hazard mitigation is performed in Mount Arrowsmith Regional Park.	Operational	Ongoing				✔	Staff Time	$0				✔							✔
8	Emergency Services	8.1	Fire Management	Include fire safety information in park information materials (see Section 5.4.6: Signage & Information).	Operational	Ongoing				✔	Staff Time	See Signage & Information				✔							✔
8	Emergency Services	8.2	Search & Rescue	Provide, where appropriate, mapping and other park information to SAR organizations for their use in planning and executing activities.	Operational	Ongoing				✔	Staff Time	$0											✔
8	Emergency Services	8.2	Search & Rescue	Provide opportunities for SAR volunteers to participate in guided hikes of the area to share local knowledge.	Operational	Ongoing				✔	Staff Time	$0											✔

#	Management Topic	#.#	Management Topic Subheading	Action	Action Type	Suggested Timeline	Timeline				Type of Costs	Estimated Costs	Potential Partners										
							Short (2011-2015)	Medium (2016-2020)	Long (Beyond 2020)	Ongoing			Island Timberlands	Timberwest	Hupacasath	ACRD	FMCBC/ACC	Climbing Groups	MABF	IBA	Local Naturalists	V.I.Marmot Recovery	Other
8	Emergency Services	8.2	Search & Rescue	Post emergency contact information on the RDN website and other park brochures at key locations within/near the park.	Operational	Ongoing				✔	Staff Time	See Signage & Information											
8	Emergency Services	8.2	Search & Rescue	Identity a response plan and contacts for avalanche emergencies.	Operational	Short	✔				Staff Time	$0											✔
9	Future Park Expansion			Develop a list of desirable recreational, cultural and environmental features that would be considered assets to Mount Arrowsmith Regional Park (see	Operational	Short	✔				Staff Time	$0											
9	Future Park Expansion			Consult with neighbouring landowners to request that RDN be provided opportunity to acquire, through lease, purchase, donation or other means, adjunct land areas, should the land owner wish to remove the land from their landbase.	Operational	Ongoing				✔	Staff Time	$0	✔	✔	✔	✔							✔

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