

A
Protected
Areas
Strategy
for
British
Columbia

Gap
Analysis
Workbook

for Regional Protected
Areas Teams

Working Draft — June 1993

*The protected areas
component of B.C.'s
Land Use Strategy*

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Protected Areas Strategy
RPAT Gap Analysis Workbook

WORKING DRAFT

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Foreword

The purpose of this workbook is to set out the procedures for gap analysis to be undertaken by the Regional Protected Areas Teams (RPATs) for the Protected Areas Strategy. In doing so, this workbook will encourage and enable a more consistent approach to gap analysis provincially than has been the case to date.

In addition to providing a basic technical support for the Protected Areas Strategy, gap analysis also provides useful information for use in land planning, zoning and other integrated resource management activities in areas outside those covered by a Protected Areas Strategy. Because of this, RPATs are encouraged to be comprehensive in the areas of interest chosen for description and evaluation.

This workbook has been reviewed by the Gap Analysis Working Group that consists of a Steering Committee and three supporting technical committees - conservation analysis, cultural heritage analysis and recreation analysis. It is endorsed by the working group as an initial working draft of gap analysis procedures for use by RPATs. It is also recognized that some flexibility will be needed in applying these procedures as additional RPATs become more involved in gap analysis, as all RPATs continue to test and refine these procedures and as PAS needs and priorities evolve.

The workbook will be reviewed periodically as warranted and as time and resources permit.

Please direct any needs, comments or questions that are of a technical nature to the appropriate chairperson of the various gap analysis technical committees as follows:

- K. Lewis, Chairperson, Gap Analysis Workbook Task Group
- R. Demarchi, Chairperson, Conservation Analysis Technical Committee
- B. Dalziel, Chairperson, Recreation Analysis Technical Committee
- P. Frey, Chairperson, Cultural Heritage Analysis Technical Committee

Comments or question of an overall policy nature may be directed to T. Hall, (Chairperson of the Gap Analysis Steering Committee).

Acknowledgements

The Gap Analysis Steering Committee gratefully extends its appreciation to the many persons, groups and agencies who have contributed over the months to the development of this workbook. This includes government staff in Parks, Environment, Forests, Cultural Heritage and other agencies, and non-government individuals representing a diverse range of groups and interests who have committed their time to review earlier drafts, prepared written submissions, attended workshops or taken part in informal discussions.

The Steering Committee wishes to acknowledge the literature at large and the wealth of conservation, recreation and cultural heritage scientific knowledge and information that has provided the foundation upon which these procedures have been developed.

The Steering Committee extends special thanks to the members of the Task Group for their key role in developing this workbook, and to Kaaren Lewis who has served throughout as primary coordinator and principal author of this working draft.

This coming together on a common task of such a large number of persons representing such a large number of agencies, groups and disciplines - all working in a voluntary, staff relationship to each other - has proved to be both challenging and gratifying to all involved.

Introduction

The British Columbia Protected Areas Strategy, a cornerstone policy for the government, charts out a vision for protected areas in B.C.

"Protected areas are a major component of British Columbia's commitment to protecting and restoring the quality and integrity of the environment, and to securing a sound and prosperous economy for present and future generations. British Columbia will designate and manage a system of protected areas for the purpose of protecting a diversity of biological, natural and cultural heritage resources, and providing a variety of outdoor recreation opportunities."

The Strategy aims to deliver an expanded and integrated system of protected areas that protect 12% of the province by the year 2000. The need to expand and integrate the province's protected areas system results from inadequacies in the existing system. B.C. presently has approximately 6% of its landbase within legally designated protected areas. Some areas, interests or values are not represented as well as others; some are not represented at all. In fact, 54% of the province's ecosections have less than 1% representation in protected areas (*Draft B.C. State of the Environment Report, Fall 1992*). Even within some better represented ecosections, existing protected areas tend to over-represent alpine ecosystems and under-represent mid and low elevation ecosystems. Although this protected areas system meets many of our recreation and conservation needs, it falls far short of representing the full diversity of biological, natural and cultural heritage resources and recreational opportunities.

The challenge will be to achieve full representativeness in protected areas. The purpose of this document is to detail the technical process, methods and standards developed to facilitate the identification of gaps in the existing protected areas system and the identification and evaluation of areas to fill those gaps. It is principally designed to provide guidance to the Regional Protected Areas Teams (RPATs), but will also serve to inform and guide staff at all levels of government, non-government organizations, the private sector and individual citizens with an interest in protected areas.

This workbook outlines how to systematically use biophysical (conservation), cultural heritage and recreation inventories to identify gaps in the existing system of protected areas, identify areas of interest to fill gaps, evaluate and rank the significance of these areas in light of the PAS goals and policy, and recommend them for further study and potential protection.

The Protected Areas Strategy aims to put in place an expanded and integrated system of protected areas in B.C. that meets 2 fundamental goals:

- 1. *To protect viable, representative examples of the natural diversity of the province, which are representative of the major terrestrial, marine and freshwater ecosystems, the characteristic habitats, hydrology and landforms, and the characteristic backcountry recreational and cultural heritage values of each ecosection.***

Wherever possible, protected areas should combine natural, cultural heritage and recreational values. Where not possible, in a common area, they may be represented separately. Where it is not possible to represent all values, the natural values will be given priority.
- 2. *To protect the special natural, cultural heritage and recreational features of the province, including rare and endangered species and critical habitats; outstanding or unique botanical, zoological, geological and paleontological features; outstanding or fragile cultural heritage features; and outstanding outdoor recreational features.***

Many protected areas will be set aside primarily to protect rare and vulnerable features. Others will combine protection with the opportunity to appreciate and enjoy their intrinsic value. Others will be protected to attract the public to experience and appreciate their natural and cultural heritage.

In order to achieve these goals, the existing protected areas system must be evaluated to determine what resources and values are currently protected and what ones need to be added to achieve the PAS goals. Gap analysis is the term used in B.C. to describe this technical process. The process has 6 major steps - getting started; describing ecosections; identifying gaps and areas of interest; evaluating areas; identifying broad land use and economic considerations; and finally recommending study areas. The study areas will be subject to interim management to protect PAS values, pending a land use decision on the areas, as determined through a land use planning process.

The PAS gap analysis process and methodology is systematic and has a solid scientific foundation. For example, the identification and evaluation of representative areas is based on:

the established ecoregion and biogeoclimatic classification systems: the concept of "representative ecosystems" forms the system planning framework - the ecoregion classification system, based on landform and climate, divides the province into 110 discrete geographical areas known as ECOSECTIONS (100 terrestrial and 10 marine); the biogeoclimatic classification system, based on vegetation, soils and climate, defines the major ecosystems to be represented within the ecosections [SUBZONES AND VARIANTS];

- provincial inventories and methods for recreation planning and management (e.g. Recreation Opportunities Spectrum and the Recreation Features Inventory) and cultural heritage studies, assessments and inventories.

This workbook encourages the RPATs to build upon this foundation by making use of other resource inventories, gathering additional resource information, seeking input from public and other agency sources, and developing innovative resource mapping products. Some of the key source documents include:

- Meidinger, D. and J. Pojar. 1991. Ecosystems of British Columbia. Ministry of Forests, Victoria, B.C.
- Demarchi, D, R. Marsh, A. Harcombe and E. Lea. 1990. The Environment. Pages 55-145 in: Campbell, R., N. Dawe, I. McTaggart-Cowan, J. Cooper, G. Kaiser and M. McNall. The Birds of British Columbia. Vol 1. Royal BC Museum.
- Ministry of Forests. Recreation Features Inventory. Victoria, B.C.
- Ministry of Forests. Recreation Opportunities Spectrum. Victoria, B.C.
- B.C. Ministry of Parks. 1990. Special features for BC Parks. Victoria, B.C.

Within the context of the Protected Areas Strategy, the purpose of Gap Analysis is to:

- provide technical support for overall PAS implementation and IAMC decisions;
- enable a systematic approach to protected area planning and assessment;
- provide a consistent framework for public input; and
- provide a technical rationale for recommending one area over another for study and potential protection.
- inform land use planning processes and resource management processes as to important PAS conservation, cultural heritage and recreation values across the land base.

The process and methods presented herein work within the policy framework developed by the PAS System Design Working Group (see Appendix 1; PAS Criteria). In keeping with the provincial policy, this gap analysis process is designed to address conservation, cultural heritage and recreation values in a systematic and, as much as possible, integrated manner. (Operationally, there are distinct techniques, inventories and standards for each of these streams).

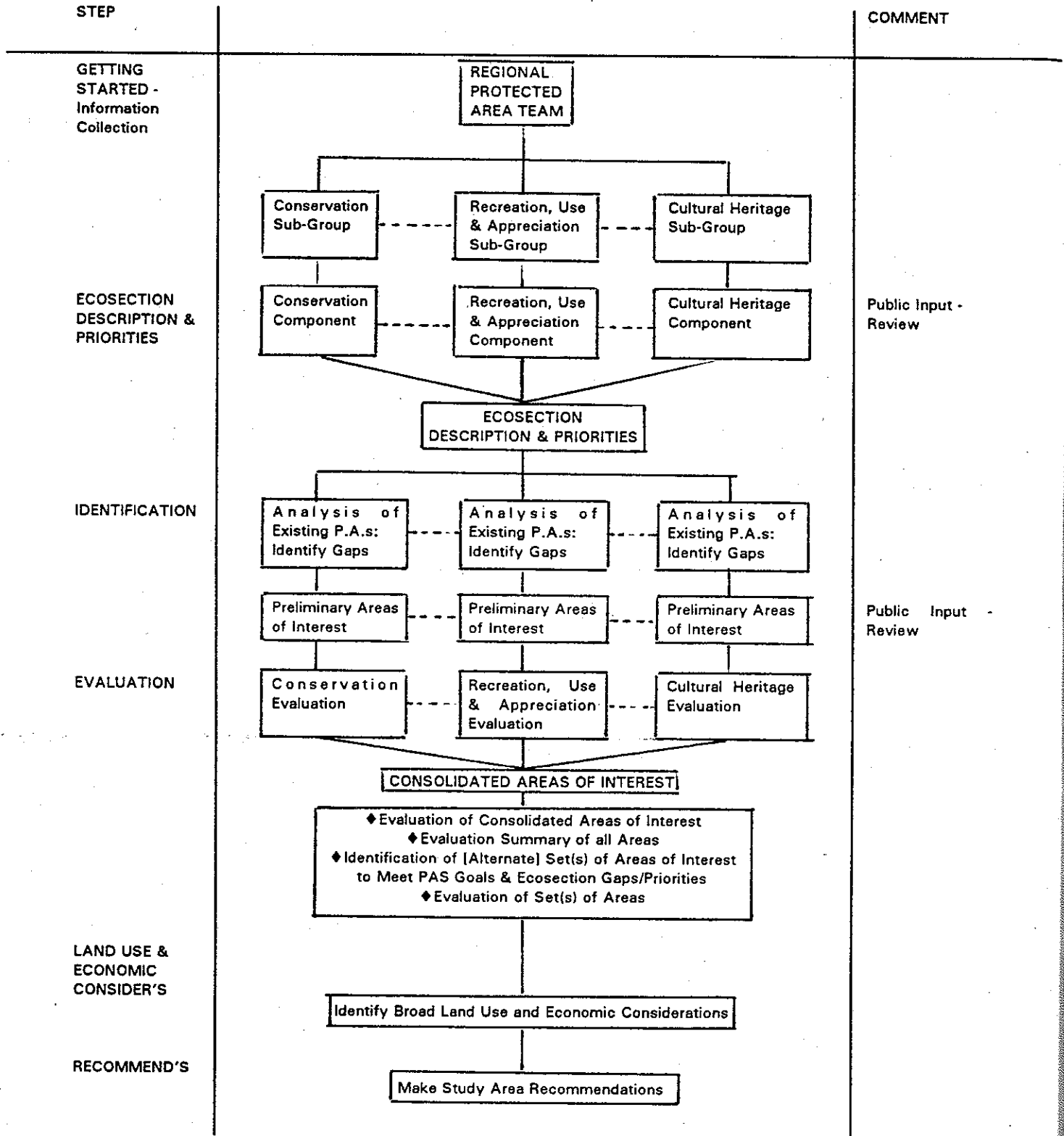
Detailed socio-economic analysis is not part of the gap analysis process, nor does gap analysis replace it. The extent to which socio-economic impacts are addressed during the gap analysis phase is limited to a broad inventory and description of other resource values, land uses and commitments in potential study areas: no actual socio-economic analysis is carried out. Socio-economic analysis will be carried out during land use planning processes, before recommendations are made to protect areas.

The Gap Analysis Process: An Overview

Steps	Purpose	Inputs	Outputs
Getting Started	To gather baseline information and mapping, make contacts, ensure coordination, finalize ecosection assignments, set regional priorities and establish a workplan.	<ul style="list-style-type: none"> . directive to start . PAS policy framework . background reports . resource inventories . resource mapping . protected area proposals - public and agency 	<ul style="list-style-type: none"> . workplan with priorities (e.g. for further inventory, research, public involvement, etc.) . resources garnered . source documents, resource inventories and maps
Describing Ecosections and Priorities	To provide standardized, comprehensive and systematic descriptions of natural, cultural heritage and recreation resources and values within each ecosection of B.C. as baseline information for subsequent area identification and evaluation to meet PAS goals and criteria.	<ul style="list-style-type: none"> . workplan . source documents, resource inventories and maps . standard ecosection description summary form (and standard worksheets for describing biophysical resources) 	<ul style="list-style-type: none"> . completed ecosection description summary forms and worksheets . identified strategic protected area priorities for each ecosection
Identifying Gaps and Areas of Interest	To identify gaps in the existing system of protected areas and to identify areas of interest that fill gaps and meet the PAS identification criteria for subsequent evaluation.	<ul style="list-style-type: none"> . ecosection descriptions . existing protected areas . approved study areas . areas of interest proposed by the public and agencies. . source documents, resource inventories and maps . PAS goals and identification criteria 	<ul style="list-style-type: none"> . description of values represented in existing protected areas . list of gaps in existing protected areas . list of areas for evaluation that fill gaps and meet identification criteria . map of areas for evaluation . description of each area (e.g. attributes, gaps filled).
Evaluating Areas	To systematically evaluate, compare and rank all public and agency areas of interest and approved study areas and to identify a set of areas that contribute to gaps, PAS goals and ecosection priorities - to assist IAMCs in making study area recommendations.	<ul style="list-style-type: none"> . list of areas for evaluation (including existing protected areas, approved study areas and areas of interest proposed by the public and agencies) . PAS evaluation criteria . standard evaluation forms . source documents, resource inventories and maps 	<ul style="list-style-type: none"> . map of evaluated areas . completed evaluation forms for all areas . recommended set of areas that best contribute to the gaps, PAS goals and ecosection priorities . evaluation of how well the recommended set of areas fills gaps, PAS goals and ecosection priorities
Identifying Broad Land Use and Economic Considerations	To provide an inventory of those values, uses and/or sectors which stand to be impacted if an area was to become an approved study area (IMGs applied) to assist IAMCs in making study area recommendations.	<ul style="list-style-type: none"> . single, ranked list and maps of evaluated areas . maps of land and resource commitments and potentially conflicting resource values/capabilities. 	<ul style="list-style-type: none"> . documentation (text and map) and ratings of land and resource commitments and other resource values for each evaluated area including: timber, mining and energy, agriculture/range use, alternative land uses, commercial recreation, guiding and trapping, and land status.

<p>Making Recommendations</p>	<p>To provide IAMCs with a recommended set of study areas to be added to, modified and/or deleted from the list of approved study areas for interim management.</p>	<ul style="list-style-type: none"> . single, ranked list and map of evaluated areas . completed evaluation forms for each area . recommended set of areas . documentation and ratings of land and resource commitments and other resource values for each evaluated area. . public input/comments 	<ul style="list-style-type: none"> . study area recommendations to IAMCs
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IDENTIFICATION & EVALUATION of AREAS OF INTEREST



Government Roles and Responsibilities

Inter-agency committees and teams have been struck in Victoria and in the regions, made up of management and staff from participating government agencies. The following committees/teams play a major role in gap analysis:

Provincial Gap Analysis Working Group: This headquarters's working group develops and maintains policy and procedures for undertaking gap analysis and related work under the Protected Areas Strategy, and represents and communicates gap analysis work to staff and the general public. The Group consists of a Steering Committee and three technical committees:

Conservation Analysis Technical Committee

Cultural Heritage Technical Committee

Recreation Technical Committee

These technical committees provide guidance and interpretation of the gap analysis process and limited technical support to the RPATs.

Inter-agency Management Committees (IAMCs): The IAMCs are responsible for the integration of all resource planning and protected areas work in a region and for setting regional priorities. They consider potential broad land use and economic considerations of proposed study areas, make recommendations on study areas to the PAS Assistant Deputy Ministers' Committee and Cabinet, and propose and implement interim management for approved study areas.

Regional Protected Area Teams (RPATs): The RPATs are responsible for conducting and managing the technical inventories and analyses required to identify and evaluate proposed study areas and for seeking input from the public and non-government organizations. In doing this, they are guided by the Strategy goals, principles and criteria, and by advice they receive from the Inter-agency Management Committees (IAMCs) and the provincial Gap Analysis Working Group.

Public Involvement

The intention of public involvement is to give the public an opportunity for input and allow staff to access the public's knowledge and expertise. It may also increase public confidence in, and support for, government decision-making.

The specific intention of the Protected Areas Strategy public involvement process is to allow the best possible protected area candidates to be identified and brought forward for Study Area designation. This must be done in a timely manner to meet the goal of establishing a revised set of approved Study Areas covering all areas of the province by 1994.

Principles Guiding PAS Public Involvement:

1. It is government's responsibility to:
 - undertake the technical evaluation and analysis of land and resources to meet the needs and criteria of the protected areas system;
 - recommend and approve Study Areas;
 - apply Interim Management Guidelines; and
 - designate protected areas.
2. The government will invite and encourage public input, comment and review in an open process to:
 - identify potential protected areas; and
 - review protected area technical analysis results and processes.
3. The government will seek public participation in the Protected Area Strategy in all areas of the province, and wherever possible through existing planning processes (regional, sub-regional or local).

Objectives of PAS Public Involvement:

To recommend to Cabinet, by 1994, a set of revised Study Areas throughout the province which meet PAS goals, criteria and priorities by working with the public to:

1. Identify, list and map Representative and Special Feature Areas of Interest, and all large (> 1000 ha) areas;
2. Review and identify deficiencies in: the ecosection descriptions; the gap analysis of existing protected areas; the areas of interest and their ability to fill gaps, meet the PAS criteria and contribute to a viable protected area system, and; the documentation of land and resource commitments and other resource values for areas under consideration;

3. Review Study Area recommendations; and
4. Encourage public understanding and support for the PAS technical evaluation process and criteria.

A more detailed explanation of the public involvement process in CORE and non-CORE regions is provided in the following appendices:

Appendix 2: CORE Region Public Involvement Process

Appendix 3: Non-CORE Region Public Involvement Process for Revising the Study Area List

Relationship of Gap Analysis to CORE

As stated above, government staff are responsible for undertaking the analytical work necessary to identify, evaluate and refine areas of interest for recommendation as Study Areas, within which interim management will be applied, pending land use decisions through a planning process. As part of the Study Area identification process, all sectors have the opportunity to propose areas which will be evaluated by government staff for approval by Cabinet as Study Areas. Technical gap analysis work and decisions on Study Areas will be done by government to allow the CORE tables to focus on developing long-term regional land use plans, including areas recommended for protection.

Participants in the CORE regional processes (and other planning processes that are dealing with protected area issues) will require gap analysis information in order to undertake a successful planning process. In particular, planning participants will require information showing the locations and the relative ranking of importance of candidate protected areas, as determined by the systematic application of the PAS criteria. Regional maps that show those areas that are preferred from a protected areas perspective, can then be used by planning participants to identify conflicts and compatibilities with other resource values, as a basis for exploring and evaluating alternative land allocation scenarios.

It is important to recognize that the tables can study any number of areas for recommendation as protected, but that only Cabinet can approve Study Areas to which interim management guidelines (IMGs) apply.

Gap Analysis

Getting Started

Purpose:

To gather baseline information and mapping, make contacts, establish workplan, ensure coordination, finalize ecosection assignments and set regional priorities. The baseline information and mapping are required to adequately complete the ecosection descriptions and to identify and evaluate areas of interest.

Inputs:

- . directive to start
- . PAS policy framework
- . background reports
- . resource inventories
- . resource mapping
- . protected area proposals - public and agency

Outputs:

- . workplan with priorities (e.g. priority ecosections; priorities for inventory, research, public involvement, etc.)
- . resources garnered
- . source documents, resource inventories and maps

Public Involvement:

In a CORE Region: The CORE Tables are comprised of a broad cross-section of society and therefore may provide IAMCs/RPATs with an efficient structure for obtaining public involvement in PAS implementation efforts, keeping in mind that the Tables do not have a responsibility for recommending Study Areas to Cabinet or dealing with Interim Management Guidelines. Through the government representative, IAMC/RPATs will discuss with the C.O.R.E. Table:

- (a) the responsibilities of government and role of the public related to PAS; and
- (b) the gap analysis process and opportunities and timing for public involvement as outlined in this workbook (see "Public Involvement").

The individual sectors involved in the regional processes can provide information for each of the "inputs", such as identifying area of interest, and will be given an opportunity to review each of the "outputs", such as the results of gap analysis, noted for each step in the gap analysis process. The extent, nature and timing of this involvement should be reviewed with each

Table on a case-by-case basis, as coordinated by the government representative at the Table.

There may also be a need for public involvement with key organizations outside the framework of the CORE Table. If so, RPATs should develop a draft public involvement work plan outlining these steps; this draft should be tabled by the CORE government representative for CORE Table information and comment; and the draft revised if necessary.

In a non-CORE Region: Develop a regional consultation network including First Nations and/or contact any existing sub-regional LRMP planning table and explain (a) and (b) above to the network and the planning table.

Draft a public involvement work plan, have the network and/or planning table review it, and make necessary revisions.

For all Regions: RPATs should develop a list of key specialists/contacts who can provide information for each step in the gap analysis process.

Procedures:

1. Develop separate plans for each ecosection. Where ecosections cross administrative boundaries, plans for that ecosection should be developed cooperatively by the agencies and RPATs involved. (A process to assign each ecosection to a single RPAT is underway.)
2. Gather baseline information and develop mapping products (at appropriate scales; generally 1:250,000¹) for purposes of carrying out each step in the gap analysis process.
3. Set ecosection priorities within the region:
Base priorities for description, identification and evaluation work on:
 - urgency due to rates of development
 - extent of remaining natural areas (options)
 - extent of existing, large protected areas
 - level of existing information and resources
 - level of public interest/concern

¹Flexibility is the key: we must be able to move from regional analytical scales (1:600,000 - 1:250,000) to more detailed, larger scale analytical units (1:20,000 or larger) in the planning process. In general, the preferred scale of analysis will be 1:250,000. This is large enough to clearly indicate watershed boundaries, species ranges and ecological units such as ecosections and biogeoclimatic variants, yet small enough to show spatial relationships between watersheds, including travel corridors for highly mobile species.

- extent of anticipated gaps, where known
- need to respond to planning process

4. Compile baseline information and mapping at a scale of 1:250,000. Some of this information is currently available in digital and hardcopy map form (e.g. base topographical maps, maps of ecosection boundaries, maps of biogeoclimatic subzone and variant units); some map layers can be generated digitally (where resources available); others must be prepared by hand through interpretation of inventory information, air photos, landsat imagery, different scale mapping, etc.

For all map layers (with the exception of the base map), produce a copy on milar so they can be used as overlays. Where possible, use consistent colors and tones for each map layer (e.g. the Kamloops RPAT has begun using green tones for naturalness; red tones for old growth; blue tones for important wildlife habitat; etc.)

General Information and Mapping

1. Base Map

- acquire in digital or hardcopy form from B.C. Lands, Surveys and Resource Mapping Branch
- provides topography, and location of lakes, rivers, streams, roads and municipalities/private land
- forms a base for registration of other layers, for digitizing other paper-based information, and for use in final presentations.

2. Ecosections

- acquire from BC Environment, Wildlife Branch.
- forms a basis for dividing the province up into discrete geographic units, based on landforms and climate, as planning units within which the full range of natural, cultural heritage and recreational resources and values are to be represented in protected areas.

3. Existing Protected Areas

- acquire from appropriate agencies
- include and map boundaries of all provincial parks, recreation areas, ecological reserves, national parks, large regional parks, wildlife management areas, forest service wilderness areas, and provincial heritage properties > 250 hectares in size. Protected areas < 250 hectares in size should be indicated as point data.
- forms a base for assessing what is protected by the existing system of protected areas.

4. Protected Area Proposals

- acquire from appropriate agencies and public
- include and map boundaries of all public and government proposals > 250 hectares in size; e.g. public areas of interest, approved PAS study areas, old growth deferral areas, ecological reserve proposals, other known agency areas of interest. Proposed areas < 250 hectares in size should be indicated as point data.
- provides inventory of areas of interest for further evaluation.

Biophysical Information and Mapping

1. Biogeoclimatic Subzones/Variants

- acquire BGC mapping (paper and/or digital) from the Ministry of Forests, Research Branch
- forms a base for dividing eco-sections into largely elevational bands of vegetation communities that represent the major terrestrial ecosystems to be represented.

2. Natural Land Cover

- prepare as 1-3 map layers, indicating:
 - a) undisturbed forests, grasslands², and alpine
 - b) older forests³ - age class 7, 8 and 9 (120 yrs +), major forest cover types by leading species (minimum 300 ha; preferably > 3,000 ha)
 - c) wetlands - large riparian areas (e.g. concentrations of wetlands) and extensive floodplains
- acquire from variety of sources: e.g. visual interpretation of satellite imagery (this map layer is currently available for Vancouver Island, the Queen Charlottes and the Coast⁴), air photos, and forest cover maps⁵.

²Designate those with obvious agricultural and urban development as disturbed; those that appear more natural or with the potential to recover as natural. Consult range agrologists or range resource officers with the Ministry of Forests regional and district offices.

³Field checks will be required at some point in the process to determine whether these older forests have the functional attributes of old growth.

⁴Where possible, the Conservation Analysis Technical Committee will assist the RPATs to acquire land cover data. It is anticipated that this will most commonly be visual interpretation of satellite imagery, but additional options are outlined in Section D.1.

⁵Various sources can be used to create land cover maps; three have been used to date in B.C. and all have their strengths and weaknesses.

Forest Cover Maps - Strengths: available for much of the province; provide detailed information at large scales (1:20,000); most available digitally. Weaknesses: not available for some areas (Tree Farm Licence's, larger, older parks, private land); sometimes not very current; relatively limited information

- forms a base for assessing the degree of human disturbance and identifying areas of interest with a high degree of naturalness.

3. Physical Landscape Elements

- initially rely on air photos, geological maps and base topographical maps to complete ecosection descriptions of the representative and special/rare physical landscape elements

- as appropriate/possible, prepare a single map layer of representative and special elements

4. Hydrological Elements

- initially rely on air photos, base topographical maps and any available hydrological mapping to complete ecosection descriptions of representative and special/rare hydrological elements

- as appropriate/possible, prepare a single map layer of representative and special elements

5. Fish and Wildlife

- prepare a single map layer indicating important fish and wildlife habitat
- acquire data from BC Environment wildlife and fisheries staff and local experts

- base on consideration of umbrella species ranges, critical travel corridors, occurrences of rare/endangered species, and provincial-level, predator-prey information: (contact Phil Holman re: documentation of Kamloops RPAT methodology for creating fish and wildlife map layer)

- incorporate new information as it becomes available (e.g. Conservation Data Centre rare species occurrences)

base; large scales may be incompatible with smaller scale (1:250,000) ecological overlays (however, BC Ministry of Forests, Nelson Region, has recently developed a methodology to aggregate forest cover inventory data to 1:250,000 - contact Jeff Leahy).

Interpreted Satellite Imagery - Strengths: potentially available for all areas in the short term (i.e., continuous coverage); small scales compatible with small scale ecological overlays; up-to-date. Weaknesses: information less detailed than forest cover maps; relatively limited information base; only available for the coast so far, and much more complex to interpret in the Interior.

Interpreted Air Photos - Strengths: available for all area in the short term; up-to-date information; provides detailed information at large scales (e.g. 1:70,000). Weaknesses: large scales may be incompatible with small scale (1:250,000) ecological overlays; interpretation is labour intensive and requires special skill set.

Additional layer of available information includes lists of remaining undeveloped watersheds by ecosection/ecoregion (Moore 1991; BC Ministry of Forests, Recreation Branch 1992). BC Ministry of Forests also has a provincial map of undeveloped watersheds greater the 5,000 ha at a scale of 1:2,000,000).

6. Other (Specialized) Habitats

- prepare a single map layer indicating known specialized habitats; e.g. slope failures, caves, canyons, cliffs, avalanche tracks, talus/scree slopes
- sites < 250 hectares indicate as point data.

7. Special Natural Features

- prepare a single map layer indicating known special natural feature occurrences (fine filter elements).
- sites/features < 250 hectares indicate as point data.
- initially this map layer will be limited, due to lack of knowledge about the presence and actual occurrence of rare/unique/scarce biophysical elements. However, this map layer should be added on an ongoing basis, as information is gathered and/or new information becomes available.⁶

Cultural Heritage Information and Mapping

1. Cultural Landscapes and Structural Features

- acquire information from federal, provincial, regional and municipal inventories, studies and assessments; local histories; historical societies' studies or information about site locations; local museums and archives information on local heritage resources; regional colleges/university studies/expertise on local history
- upon completion of ecosection descriptions, prepare a single map layer including any known cultural landscapes or structural features which exemplify the major representative themes within the ecosection and any special/rare cultural landscapes or structural features known within the

⁶ Some key sources of information for rare species:

- Conservation Data Centre (CDC) (BC Environment, Wildlife Branch). Strengths: provides specific location information for plants, animals (from insects to carnivores) and communities. Provides provincial, national and global significance rankings; have identified site-specific protection and special management considerations for rare, threatened and endangered plants and animals. Weaknesses: limited knowledge available about most species; limited resources available to compile information required.

- Cannings, S. 1993. Rare Freshwater Fish of British Columbia. A report submitted to Fisheries Branch, B.C. Ministry of Environment, Lands and Parks, Victoria.

- Red and Blue Species lists (BC Environment, Wildlife Branch). Strengths: identifies endangered/threatened and sensitive/vulnerable indigenous species for the province; ranks management requirements/activities for specific species; identifies population estimate when available. Weaknesses: only available at the ecoprovince level; concentrates on threatened and endangered species; does not recognize the important contribution the province makes in a global wildlife context (e.g. B.c. has a large percentage of the world populations of Blue grouse, Stone's sheep, Mountain goats and wintering Trumpeter swans); there is limited knowledge about most species.

- Red and Blue Species lists by ecosection (R. Page, B.C. Ministry of Forests, Research Branch, Victoria). Strengths: available digitally; contains ranking and distribution data.

- Stevens, V. ...

ecosection. (See Appendix 4 for definitions of the categories of cultural heritage resources.)

2. Traditional Use Sites

- the primary source of this information as it relates to PAS will be First Nations (Tribal Councils and Band Councils)
- upon completion of ecosection descriptions, prepare a single map layer indicating known sites.
- the Heritage Conservation Branch, MTMRC, as part of the CRII process and through a sub-component process labelled the Cultural Heritage Resource Inventory or CHRI, is currently developing a heritage resource typology and data dictionary which will identify and organise cultural heritage features in the province on a database. As part of this process, the Branch will encourage and facilitate two pilot projects in 1993 to identify traditional use sites in one area on Vancouver Island and another in the Interior of the Province.

3. Archaeological Sites:

- the Archaeology Branch, MTMRC, maintains a geographical inventory system of archaeological features which have been identified around the Province (1:50,000). This now consists of approximately 18,000 records, of which about 17,000 are traditional archaeological sites. The remainder consist of heritage properties owned by the province or heritage sites (mainly buildings) designated by the province or local government under the Heritage Conservation Act.
- upon completion of ecosection descriptions, prepare a single map layer indicating known sites.

Recreation, Use and Appreciation Information and Mapping

The Recreation, Use and Appreciation stream is responsible for describing, identifying and evaluating not only the active outdoor recreation opportunities most frequently considered as a use of protected areas, but also the other forms of use and appreciation such as scientific research, vicarious use or existence values, and the opportunities individual areas may contribute to the public's general understanding of and support for the protected area system as a whole.

It is important to involve as broad a base of input as possible because recreation, use and appreciation is as much human perception as it is technical data. Much of the information required to describe ecosections and identify areas of interest and the values within them will come from agency recreation specialists, user groups and individual outdoor recreation enthusiasts. RPATs that can involve a broad spectrum of interests to

provide or verify baseline information, identify trends and priorities within ecosections and identify areas of existing or potential outdoor recreation value, will generate stronger support for and commitment to the Protected Area Strategy.

Depending on the volume and type of information available, data should be summarized on one or more map layers, and in point or narrative form. Some of the sources of information are:

1. Recreation Opportunity Spectrum (ROS)⁷

The Recreation Opportunity Spectrum is a framework for planning and managing recreation opportunities. It is based on the knowledge that when considering outdoor recreation opportunities, people must make choices about activities in which to participate, biophysical settings on which to pursue those activities, and the facilities and services they require to support that activity in that setting. For management and conceptual convenience, possible mixes of these attributes have been arranged along a spectrum, or continuum. This continuum is called the Recreation Opportunity Spectrum (ROS), categorizing settings into a number of classes. This Ministry of Forests ROS inventory recognizes 6 ROS classes, ranging from primitive to urban. As indicated by the class names, the system focuses strongly on the factors of remoteness, size and evidence of humans.

While the Protected Area Strategy Goal 1 focuses on backcountry recreation opportunities (the primitive and semi-primitive ROS settings), Goal 2 focuses on special recreation features that cover the full spectrum of settings. Because of the difficulty in distinguishing representative from special recreation values, and because special features will be an integral part of all representative areas, the description, identification and evaluation phases for recreation will tend to consider both goals simultaneously.

2. Recreation Settings

The intention is conduct the identification and evaluation process on an ecosection basis. In some cases however, it may be desirable to use a more detailed level of resolution and subdivide the ecosection into discrete characteristic and special recreational settings. As described above, ROS may be an appropriate tool for dividing an ecosection into areas that reflect recreation values. In other cases, biophysical settings (such as "valley

⁷The Ministry of Forests' ROS Inventory provides a good starting point for determining the various ROS areas within the ecosection. In some parts of the province, however, the inventory system may not provide a good indication of backcountry areas (primitive and semi-primitive non-motorized) because of the missing or outdated information, or geographic areas, such as the southern part of the province, in which there are few or no areas of sufficient size. In these cases, rely on the natural land cover mapping which may be available through the conservation stream. This source, in conjunction with staff and public knowledge, may provide sufficient information for identifying backcountry areas.

bottom lakes" or "forested plateaus") are being used successfully. As well, the PAS public document makes repeated reference to planning around the priority settings associated with backcountry areas, travel corridors, holiday destination areas, and local recreation opportunities. In some cases, a combination of these approaches may be appropriate. Whichever approach is used, the following issues must be addressed:

1. Ensure coordination where the planning of an ecosection is shared with another RPAT.
2. Remember that some documentation of both the biophysical values and how the Area of Interest may contribute to backcountry, travel corridor, holiday destination and local recreation opportunities is required as part of the evaluation summary form.

A map may be a useful way of identifying and presenting the recreation setting used for the ecosection.

3. Recreation Features

Recreation features are the biophysical and cultural resources or features which can provide an opportunity for a recreation experience. A recreation inventory is the identification, classification and recording of the types and location of biophysical and cultural resources or features that are valued by society as the basis of a recreational experience (see Appendix 5: Special Recreation Features). A recreation inventory has 3 basic steps:

- identifying the biophysical and cultural features perceived and valued by the public as recreational features
- identifying and recording the nature and location of those features
- determining and indicating the significance of the feature or group of features, and the sensitivity of those features to social, environmental or resource development impacts.

There are many sources of recreation feature information. Tourism and BC Parks have area-specific inventories; the Ministry of Forests maintains the largest, provincial system. The Ministry of Forests' system, because of its scope and accessibility, is the recommended starting point for developing a recreation feature information base for each ecosection. This information should be supplemented by local knowledge. The data collected by the Conservation and Cultural Heritage streams may also provide very useful recreation feature information.

A map or set of maps may be a useful way of summarizing and presenting recreation feature information.

4. Other Sources re: land base for Recreation, Use and Appreciation
- tourism inventory data (may be available digitally or as hard copy maps and will be sent to RPATs as it becomes available - initially in the C.O.R.E. regions. This inventory work is based on activities and their requirements, aesthetics and other factors.

- Outdoor Recreation Council (ORC) maps

- wildlife viewing studies, plans and maps; acquire from BC Environment; amount of study and levels of priority vary around the province.

- overlays of representative and special (goal 1 & 2) biophysical and cultural heritage values to analyze the range of accessibility within the areas of interest proposed to protect those values.

- acquire Parks and Wilderness for 90's data - including the Recreation Goals paper from BC Parks (see Appendix 6: for maps and lists of provincially significant tourism travel routes and outdoor recreation destinations identified through P+W 90s).

- N.G.O.'s, local historians, historic journals and aboriginal groups re: spiritual significance and close contact with resources.

5. Sources of Information about User Characteristics and Needs

- population centre information from base map; resident demographic data and trends from Ministry of Finance and Stats. Canada (see Appendix 7 for B.C. population and aging trends).

- visitation, travel corridor and travel information from Tourism, BC Parks, and Parks Plan 90 recreation planning publication (see Appendix 6).

- recreation activity information from user groups, Tourism, tourism associations and agency staff.

- educational value from naturalist groups, school district plans, Dr., Milt McLaren - Kelowna campus SFU; and heritage interpretation organizations.

- research potential from universities and biophysical and cultural map layers.

- spectrum of society served - from delivery organizations (e.g. Parks, Forests); demographic data, and research in communities.

Describing Ecoregions and Setting Priorities

Purpose:

To provide a detailed description of the representative and special/rare natural, cultural heritage and recreation values and features of each ecoregion of the province. This description is a critical step as it provides a synthesis of the baseline information for use in conducting gap analysis and for identifying priority concerns, values and protected area opportunities. The process of describing the ecoregion should also be used as an opportunity to identify special issues and/or requirements at the ecoregion/ecoprovince level (e.g. predator-prey conservation; travel routes) and to link inventory information with the PAS goals.

The descriptions will be open for public review and input and are an important tool for communicating with the public and land use planning tables.

Inputs:

- . workplan
- . source documents, resource inventories and maps
- . standard ecoregion description summary form (and standard worksheets for describing biophysical resources)

Outputs:

- . completed ecoregion description summary forms and worksheets
- . identified strategic protected areas priorities for each ecoregion

Responsibilities:

The ecoregion description summary form provides a comprehensive overview of the biophysical, cultural heritage and recreation values present in a given ecoregion. RPAT specialists from each stream should take a lead in describing and later identifying the values and resources particular to their stream. Note that where "specialist" skills do not exist on an RPAT to deal with certain values or resources, the RPAT is responsible for seeking out that specialist skill from consultants, non-government organizations and/or the public. Similarly, all three PAS streams must be championed by an RPAT member(s) (this is a particularly critical issue for cultural heritage).

The conservation specialists will focus on describing and identifying the inherent biophysical values of the landbase, including vegetation, physiography, geology, hydrology and wildlife.

Cultural heritage specialists will look at past human use, and apply their skills to assessing such things as the authenticity and age of particular cultural heritage resources.

The recreation, use and appreciation stream will be responsible for addressing current human use, including recreation, research and aboriginal traditional use.

It will be most effective for representatives from all streams to work together to finalize the first and last pages of the ecosection summary description form.

Public Involvement:

Invite Sectors at the planning Table (CORE or LRMP), the consultation network, and identified key specialists/contacts to provide information that would help describe the natural, cultural heritage, and recreation resources and values within each ecosection (input), and to review completed ecosection description summary forms and worksheets (output).

Procedures:

1. Use available baseline information, mapping products and expert/local knowledge to complete the ecosection description summary form (and, for biophysical elements, a standard worksheet prior to completing the summary form) for each ecosection. A copy of the standard ecosection description summary form and worksheet is in Appendix 8; an example of a completed summary form is also provided for further guidance on the type and level of information to include.

Note that the description step is iterative and will involve ongoing compilation and revision/refinement. Complete a first draft of the descriptions based on available information and mapping, recognizing that the forms can and will be refined over time as new information becomes available.

The forms require the identification and description of:

- Representative and special/rare biophysical elements by BGC subzone and variants, according to the following categories:
 - physical landscape (bedrock geology, landforms and physiography)
 - hydrology (lakes, rivers and streams)
 - forests (old growth, successional stages, forested ecosystems, forested riparian)
 - grasslands
 - wetlands
 - marine (coastal associated, offshore)
 - other 'specialized' habitats
 - special natural features; rare elements, biologically or physically exceptional sites, paleontological resources, remnants.

Representative cultural heritage themes and special/rare features according to the four categories of:

- cultural landscapes
- structural features
- traditional use sites
- archaeological sites
- * defined in Appendix 4

Recreational character, use and appreciation values and opportunities, according to the following categories:

- general character as perceived by humans
- recreation settings
- recreation use patterns (as per Parks Plan 90 and Parks and Wilderness public input)⁸
- types of existing or potential use and appreciation
- aesthetics
- recreation features (significance and optional examples)
- overall recreation demand (current use and potential growth)
- potential to serve segments of society not using protected areas

The final page of the description form begins with a list of protected area benefits. This is a key opportunity to highlight those biophysical, cultural heritage and/or recreation resources and values are of priority concern in the context of the provincial strategy - i.e. how is this portion of the province best able to contribute to a provincial system of protected areas and effect protected area benefits.

Some of the final items flag the broad scale issues and challenges important for the planning of that ecosection; some values will have to be considered in the context of the ecoregion or the province as a whole. For example, a significant travel corridor may pass through several ecosections and will be identified according to their spacing, values and perhaps a travel corridor theme. In some ecosections, the demand for backcountry recreation may be met in adjacent ecosections. From a conservation perspective, important predator-prey systems may cover many ecosections and require the cooperation of and coordination among several planning teams.

⁸ Recreation use patterns include backcountry (essential for goal 1), travel destinations (places attracting travellers over large distances), local use and travel corridors (sites along important road, water or trail travel corridors). Appendix 6 shows the 1991 maps of significant areas (except local and travel corridor trail use).

2. Quantify occurrence of elements, features and values on the worksheet and summary form, based on their abundance and distribution or, in case of cultural heritage and recreation values, their significance. The following rating system should be used:

For biophysical elements

Area, number or length, or the following descriptors, as appropriate to the data:

First descriptor = proportion of the ecosection covered by the element.

- H = High (25-100%) abundance
- M = Medium (5-25%) abundance
- L = Low (<5%) abundance
- 0 = Absent
- ? = Unknown
- * = indicates further research warranted

Second descriptor = distribution of the element in the ecosection.

- 3 = many occurrences
- 2 = some occurrences
- 1 = few occurrences

e.g. the occurrence of streams may be described as "L3", meaning that they cover less than 5% of the ecosection, but occur at many sites within the ecosection.

Do not use the 2nd descriptor without the 1st descriptor (e.g. to avoid confusion, numbers should not appear on their own unless they are the actual %, ha or other measurement).

For cultural heritage and recreational features, values or opportunities:

- H = High significance
- M = Medium significance
- L = Low significance
- 0 = No significance
- ? = Unknown
- * = indicates further research warranted

Note: Assess significance in the context of the ecosection.

For cultural heritage, base quick initial estimates of significance on the criteria of authenticity, age, physical integrity, spirit of place and extent of pre-historic and historic associations (see Appendix 1: PAS Criteria, for further definition of the cultural heritage significance criteria).

For recreation, the significance rating is a general indication of the relative importance of the setting, as perceived by residents, visitors or people who value the area from a distance. It will be used to help identify where the planning process should concentrate efforts.

Identifying Gaps and Areas of Interest

Purpose:

To identify gaps in the existing system of protected areas and to identify areas of interest that fill gaps and meet the PAS identification criteria for subsequent evaluation.

Inputs:

- . ecosection descriptions
- . existing protected areas
- . approved study areas
- . proposed areas of interest - public and agency
- . source documents, resource inventories and maps
- . PAS goals and identification criteria

Outputs:

- . description of values represented in existing protected areas
- . list of gaps in existing protected areas
- . list of areas for evaluation that fill gaps and meet identification criteria
- . map of areas for evaluation at 1:250,000 - 1:50,000 (as appropriate)
- . description of each area (e.g. attributes, gaps filled)

Public Involvement:

Invite Sectors at the planning Table (CORE or LRMP), the consultation network, and identified key specialists/contacts to identify and map areas of interest with supporting documentation (input); and to review resultant map showing all areas of interest and description of each area (e.g. attributes and gaps filled) (output).

Overview of Methods for Conservation, Cultural Heritage and Recreation

Conservation Methods:

For conservation purposes there are two broad levels of analysis: the **coarse filter** analysis to determine to what extent the current system of protected areas represents the province's major ecosystems, and their characteristic biophysical elements (broad element categories for analysis include physical landscape, hydrology, habitats, fish and wildlife species, etc.), and; the **fine filter** analysis to identify the rare, scarce and otherwise special biophysical elements which need protection, but which may not be captured within the larger, representative areas.

Cultural Heritage Methods:

Protected areas should collectively contain representative examples of the full range of cultural heritage values within each ecosection. Unfortunately,

in the case of cultural heritage resources in both the pre-historic and historic context, the extent of our present information is highly variable. Unless money is made available to carry out further study and analysis, the process will have to rely on existing information and any additional sources that can be found.

The difference between "representative/coarse filter" and "special feature/fine filter" for cultural heritage resources is not as clear as it is for conservation. All heritage resources of value are "special features" - some of these may also qualify as "representative" of a regional or provincial thematic process. For example, Barkerville can be regarded as a special feature, but is also representative of boom towns of the Gold Rush period of history. Fort McLeod, Fort St. James and Fort Langley can be seen as representative of fur trade forts. Therefore, for cultural heritage resources, the difference between representative and special is not seen as a critical one.

Recreation, Use and Appreciation Methods:

Protected areas should collectively contain a full range of characteristic backcountry and special opportunities for recreation, use and appreciation compatible with protected area objectives (see Appendix 9 for an overview of recreation, use and appreciation of protected areas). The strategy's criteria provide for a wide range of human opportunities, some of which are very closely tied to natural and cultural heritage values (e.g. research, education, vicarious or appreciative use and a spectrum of access to natural and cultural values). Therefore, there must be good communication amongst specialists during the identification process.

As with cultural heritage, the difference between "representative/coarse filter" and "special/fine filter" is not as clear as it is for conservation. Some large areas are identified as "representative" because they support characteristic backcountry recreation; additional large areas could be defined as "special" through public demand criteria.

As with cultural heritage and some biophysical feature identification, public input is often required to identify areas which meet specific recreation interests, or which have other use and appreciation values (these are rarely mapped).

Procedures:

Use ecosection descriptions, resource mapping products/layers and maps of existing protected areas to analyze the gaps in the existing system of protected areas and to identify areas to fill those gaps.

Steps 1-7 are generic to all three streams. They should be carried out separately for conservation, cultural heritage and recreation, using the information sources and mapping products/layers as appropriate to the stream.

1. Conduct gap analysis (coarse filter/representation analysis).
 - a) Overlay map layers with existing protected areas. Assess representation in existing protected areas of the biogeoclimatic units and other biophysical elements¹⁰ and cultural heritage and recreation values as identified in the ecosection description.
 - b) Describe the % of each BGC unit, the biophysical elements, and the other values and features captured within existing protected areas - document the captured biophysical values by completing an ecosection description worksheet for each protected area (see Appendix 8).
 - c) Prepare a list of those BGC units (%), biophysical elements and other values that remain system gaps.

Note: A provincial overview, conservation gap analysis of subzones and variants by ecosection is presently available from the Ministry of Forests, Research Branch, Victoria; contact Marvin Eng.

2. Delineate and document representative areas of interest (to meet PAS Goal 1).

Follow steps (a) - (g) to identify areas that meet the PAS identification criteria for goal 1. For all three streams (conservation, cultural heritage and

¹⁰In general, the amount of each biogeoclimatic unit protected should be proportional to its occurrence in that ecosection to ensure that the protected areas system represents most of the ecosystem variation within the ecosection. Note, however, that there may be a need to protect a larger proportion of some BGC units (and a smaller proportion of others) for a variety of reasons (e.g. some units may have higher biological significance for wildlife; some units primarily occur only in one ecosection [and therefore may warrant greater attention]).

Further work is required to ensure that the protected areas system contain all of the biophysical elements characteristic of each biogeoclimatic unit. Within biogeoclimatic units, variation in soil moisture, nutrients and in disturbance history, result in a mosaic of different ecosystems across the landscape. Examples of ecosystems of high biological significance include wetlands, estuaries, riparian zones and alluvial habitats. Special attention should also be paid at this stage to capturing the successional stages of ecosystem development which are most at risk, and most difficult to replace. With respect to forests, this will usually mean old growth, but should not exclude other types such as riparian habitats.

recreation) this means the areas must be representative of that ecosection; for conservation and recreation they must have a high degree of naturalness, and; for recreation they should be backcountry.

Remember priority should be given to identifying large, representative areas and to filling major gaps and/or gaps most threatened or vulnerable.

a) overlay map layers

For conservation purposes, the key map layers include - base map, ecosections, existing protected areas, approved study areas, proposed areas of interest (e.g. public and agency), biogeoclimatic subzones and variants (BGC units), natural land cover, important fish and wildlife habitat, other specialized habitats, special natural features (refer back to section "getting started" for further detail on these map layers).

For recreation purposes, some of the important map layers include - ROS primitive and semi-primitive non-motorized classes (in some parts of the province, undisturbed backcountry areas can be better identified using the natural land cover layer prepared by the conservation stream), recreation settings and significant recreation features (additional map layers identified and discussed in section "getting started").

b) identify areas with multiple overlaps in values

(e.g. for conservation purposes, identify areas which have a high degree of naturalness, contain old growth ecosystems and have high value fish/wildlife habitat).

Where appropriate, private lands may be considered.

c) identify areas with multiple BGC units (preferably characteristic sequences)

d) for conservation purposes, seek areas 3000 hectares or greater in size, as first priority/cut. There is no size limit when identifying representative areas for the recreation or cultural heritage streams.

e) draw ecologically sound boundaries (e.g. boundaries should mimic natural shapes, follow natural landscape features [such as heights of land, water courses, islands, complete drainages], and minimize edge effects).

f) additional considerations - where possible:

- add to existing protected areas
- include intact watersheds
- include special features
- meet replication requirements
- select areas in a range of sizes, well distributed across the

ecoprovince¹⁰ - some very large and well distributed areas (100,000-1,000,000 ha); more numerous medium sized areas, closer together (10,000 - 100,000 ha); and many small areas (< 10,000 ha).
- address gaps in public access to significant natural and cultural values.

g) map areas of interest at 1:250,000 - 1:50,000 (as appropriate).

4. Document any concurrence or overlaps among areas of interest and approved study areas or previously proposed areas of interest.
5. Identify additional "special feature/fine-filter" areas of interest (to meet PAS Goal 2).

Special features are natural, cultural or recreational features made "special" by their rarity, scarcity and uniqueness or significance in intrinsic or perceived worth. (For examples of PAS special features, see Appendix 1, page 7-8). While many of these features may be captured within representative protected areas, a more focused and systematic approach is required to ensure that their special protection needs are met.

There are many sources of information for special features, including the Conservation Data Centre (CDC), wildlife viewing inventories, recreation features inventories, non-government organizations, the public, etc. In some ecosections, there may be more documented options than can practically be evaluated. Maintain comprehensive records (e.g. lists and maps) of all features.

a) use agency staff knowledge, local NGO and public knowledge, and any documented rarity/uniqueness/significance rankings to:

- i) determine if the special feature requires protection; if yes,
- ii) identify/locate and map known occurrence(s); and

¹⁰Wherever possible, the separate elements of representative ecosystems within an ecosection should be contained within landscape scale protected areas. This will help to ensure long term protection of functional ecosystems and representation of each ecosection's typical landscape/landform and hydrology patterns. Ecosystems can be defined at various scales. At the landscape scale, ecosystems must contain fairly extensive landscape units, generally defined by physiographic features and containing the full range of habitat/site diversity within them. The watershed is a good example of a complete landscape unit useful in conservation planning (Lertzman et al., in prep.). Watersheds come in a range of sizes, but generally constitute single, large, functional ecosystems at the landscape level and encompass a variety of ecosystem types (i.e. due to inherent topographic and environmental variation). Particularly advantageous is the fact that watersheds contain riparian zones with high wildlife habitat value and which act as natural movement corridors for wildlife among different habitat types within a given watershed.

iii) set priorities based on rarity/uniqueness/significance rankings globally > nationally > provincially > regionally.

Rarity/significance rankings are currently available for some better-known biological elements (e.g. plants, animals and communities) through the CDC; most non-biological elements (e.g. unique landforms, soils or geology) have not been ranked. The Ministry of Forests has significance rankings for those recreation features identified in their Recreation Features Inventory.

b) map additional areas of interest at 1:250,000 - 1:50,000 (as appropriate).

6. Again, document any concurrence or overlaps among areas of interest and approved study areas or previously proposed areas of interest.
7. Assign names to areas of interest; collate and track known areas of interest (to enable easy storage and retrieval of information). See "Record Keeping for Protected Area Proposals" on next page.
8. Document the attributes of each area of interest. For conservation areas, complete an ecosection description worksheet (see Appendix 8) for each area to document the biophysical resources and values contained within them. These completed worksheets will be used as the primary source of baseline data for later evaluation of each area's conservation value.

Record Keeping for Protected Area Proposals

It is important for each RPAT to keep a systematic record of all existing protected areas, approved study areas and areas of interest (all areas proposed by agencies, the public, NGO's, etc., as well as all areas identified or selected by the RPATs). A simple data base is needed that can be converted to a GIS if and when necessary. This information should be stored in a central (provincial) repository as well as in each region - a central repository is not yet functioning, but may be set up in the near future. Therefore, each RPAT should be keeping a simple data sheet and mapped record (at 1:50,000 to 1:250,000, as appropriate) of every area identified as having PAS capability.

In addition to the mapped record, the data base should have as a minimum:

- IAMC/RPAT Region name
- a unique number assigned (use PAS office system [80000-20 Stein] for Study Areas and Areas of Interest)
- UTM coordinate for centre of area
- a geographically related name
- the proponents name, address, phone, etc.
- record of proponent contacts to keep them informed
- the proponents rationale (role, values, etc.) for the proposal - why did they want it protected?
- summary of PAS capability: values, gaps filled, social/economic implications, ranking, etc.
- where can more detailed PAS assessments be obtained (file #, office location, key contact, etc.)
- what decisions have been made about the area? (boundary reviews and adjustments, etc.), when?, why?, who?

Due to time pressures, particularly in CORE regions, it may not be possible to organize such a system immediately, but it is important that the day-to-day RPAT work records allow the above data base to be developed at a later date.

Evaluating Areas

Purpose:

To systematically evaluate, compare and rank all public and agency areas of interest and study areas and to identify a set of areas that best contribute to the gaps, PAS goals and ecosection priorities - to assist the IAMCs in making study area recommendations.

Inputs:

- . list of areas for evaluation (including existing protected areas, approved study areas, and proposed areas of interest - public and agency)
- . ecosection descriptions, priorities and identified gaps
- . PAS evaluation criteria
- . standard evaluation forms
- . source documents, resource inventories, maps and other relevant information

Outputs:

- . map of evaluated areas (1:250,000 to 1:50,000, as appropriate)
- . completed evaluation forms for all areas
- . recommended set of areas that best contribute to the gaps, PAS goals and ecosection priorities based on a single, ranked list of evaluated areas and, where appropriate/desirable, consideration of alternative sets of areas
- . evaluation of how well the recommended set of areas fills gaps and meets the PAS goals and ecosection priorities

Responsibilities:

- . evaluations for conservation, cultural heritage and recreation PAS values of each area should be completed by the corresponding/appropriate RPAT subgroup.
- . overall PAS ratings for each area should be completed by the whole RPAT team.
- . development of recommended set of areas should be carried out by the whole RPAT team.

Public Involvement:

Invite sectors at the planning Table (CORE or LRMP), the consultation network, and identified key specialists/contacts to review evaluation criteria (input), the completed evaluation forms, and ranked list and map of evaluated areas (output).

Procedures:

1. Evaluating Conservation, Cultural Heritage and Recreation, Use and Appreciation Values.

All areas will be evaluated for their conservation, cultural heritage and recreation values using the PAS criteria in a consistent manner and documented on standard evaluation forms and maps.

The detailed methods and standard evaluation forms are presented in the following Appendices: Conservation values - Appendix 10; Cultural Heritage Values - Appendix 11 (forms are in process of being developed); Recreation - Appendix 12.

Field Checking: Areas with high PAS ratings should be field checked for reconnaissance purposes and to verify the occurrence, abundance and quality of values and resources within them.

2. Consolidating Areas of Interest

Areas identified in each stream of the process must be consolidated into areas that combine values in a way that best fills gaps and achieves the PAS goals and ecosection priorities. This process may necessitate revisions to the area of interest boundaries - revisions should maximize the number and quality of PAS values and attributes.

In the consolidation process, each area's objectives must be reviewed to ensure that each RPAT sub-group has been envisioning compatible purposes. For example, an area may have been proposed for intensive recreation as well as for protection of a species that cannot tolerate human presence. Such incompatibility must be reconciled and result in each area being assigned a clearly stated objective or set of compatible objectives.

Where changes to area boundaries are significant, conservation, cultural heritage and recreation evaluations must be re-done and documented on the standard forms. The consolidated Area of Interest's stated objective - if changed - may provide a new measure by which to evaluate the area. The evaluation at this stage is similar to the evaluation process in (1) above, but each stream evaluation is done using the adjusted boundaries and stated purpose.

3. Determining an Overall PAS Rating

An overall PAS rating must be determined for each area, based on a review and roll-up of the area's evaluation for conservation, cultural heritage and recreation.

More detailed guidance on how to arrive at an overall rating is yet to be developed.

4. Identifying a Set of Areas of Interest

If the Ecosection has a wide diversity of values and no single area can fill the system gaps and meet the PAS goals, a number of Areas of Interest will be required. Each area will contain different values, attributes and constraints. It will therefore be necessary to identify a set (or alternate sets of areas) that contain the combination of values and attributes that best contribute to the system gaps, PAS goals and ecosection priorities.

The following procedures will assist in identifying a set of areas of interest:

- although the planning unit is the ecosection, identify the set of areas of interest within a regional and provincial context.
- review the identified system gaps and ecosection description and priorities (especially the final page which includes a summary of key opportunities and priorities).
- review the evaluations from each stream to understand the values contained within each area.
- look for areas that both maximize the number and quality of PAS attributes and protect those values identified as ecosection (or regional or provincial) priorities and gaps. (An evaluation matrix may be a useful tool for summarizing and comparing the values within the Areas of Interest).
- look for combinations of areas that provide a spectrum of values and opportunities for that Ecosection. This spectrum could include areas from strict preservation to intensive recreation.

5. Evaluating the Set(s) of Areas

Document how well the recommended set of areas (or alternative sets of areas) fills the system gaps and meets PAS goals and ecosection priorities.

Identifying Broad Land Use and Economic Considerations

Purpose:

To provide an inventory of those values, uses and/or sectors which stand to be impacted if an area was to become an approved study area (IMGs applied) to assist IAMCs in making study area recommendations.

Inputs:

- . single, ranked list and maps of evaluated areas
- . maps of land and resource commitments and potentially conflicting resource values/capabilities

Outputs:

- . documentation (text and mapped) and ratings of land and resource commitments (short term impacts) and other potentially conflicting resource values for each evaluated area including such information as: % of area with operable forest, timber volumes, planned/approved cut blocks; # mineral claims, % of area with high, med. or low mineral potential; % under grazing lease, # of leases; commercial recreation use; # traplines; # licensed guide outfitters; private holdings; alternative land uses; etc.

Public Involvement:

Invite sectors at the planning Table (CORE or LRMP), consultative network, and identified key specialists/contacts to provide preliminary documentation of land and resource commitments and other resource values concerning the ranked list of evaluated areas (input), and to review the preliminary and broad land use and economic considerations for each evaluated area (output).

Procedures:

All areas will be inventoried for those values, uses and/or sectors which stand to be impacted if an area were to become an approved PAS study area and have IMGs applied. Generally this will include consideration of existing land and resource commitments and other resource values/capabilities as they relate to:

- timber harvesting
- mining and energy
- agriculture/range use
- alternative land uses (water, settlement, transportation, etc.)
- commercial recreation
- guiding and trapping
- land status

All implications should be rated from very high to very low and documented in text and map form for each area to aid IAMCs in making Study Area recommendations. Standard forms and methods of evaluation are not available at this time; various approaches are in the process of being developed by some RPATs.

Making Recommendations

Purpose:

To provide IAMCs with a recommended set of study areas to be added to, modified and/or deleted from the list of approved study areas for interim management.

Inputs:

- . single, ranked list and maps of evaluated areas
- . completed evaluation forms for each area
- . recommended set of areas (and where appropriate/desirable, alternative sets of areas)
- . documentation and ratings of land and resource commitment and other resource values for each evaluated area
- . public input/comments

Outputs:

- . study area recommendations to IAMCs

Public Involvement:

Invite sectors at the planning Table (CORE or LRMP), and consultative network to suggest what the new list of Study Areas should be (input) and, subject to PAS policy, ask them to review and comment on proposed Study Area recommendations (output). Revise recommendations if necessary and, subject to PAS policy, inform planning table and consultative network what the final IAMC Study Area recommendations are and supporting rationale.

Appendix 1

A
Protected
Areas
Strategy
for
British
Columbia

**PAS
Criteria**

*The protected areas
component of B.C.'s
Land Use Strategy*



Province of British Columbia

Canadian Cataloguing in Publication Data
British Columbia.

PAS criteria

At head of title: A protected areas strategy for British
Columbia.

ISBN 0-7726-1766-X

1. Land use - Government policy - British Columbia.
 2. Land use - British Columbia - Planning. 3. Nature
conservation - Government policy - British Columbia.
- I. Title. II. Title : Protected areas strategy for British
Columbia.

HD319.B7B732 1993 333.7'16'09711 C93-092140-2

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Introduction

This document identifies the selection criteria to identify and assess areas for possible protection. The criteria were created to help identify areas which meet one or both of the Protected Areas Strategy goals — representation and special features.

There are two distinct steps in applying the criteria. First, to identify areas which appear to contribute to the goal. Second, to consistently compare, evaluate and rank the characteristics of those areas of interest to determine the best candidate for study to achieve the goals.

Criteria for Goal 1

PAS Goal 1: to protect viable, representative examples of the natural diversity of the province.

The concept of representativeness forms the fundamental approach to identifying and evaluating areas for inclusion in the protected areas system. The first step in achieving representation of the province's natural diversity is to divide the province into distinct geographical areas requiring representation. The Protected Areas Strategy has adopted the ecoregion classification system which divides the province into 110 ecosections (100 terrestrial and 10 marine) according to landform and climate. The variation among ecosections is tremendous. Consider the hot, dry grasslands, unusual dry belt species, the ranching history and the lake fronts of the Okanagan Basin, and the marine estuaries, aboriginal fishing artifacts and marine use —past and present — along the north coast.

The Protected Areas Strategy will aim to contain representative examples of the full range of natural, cultural heritage and backcountry recreational values present across and within the ecosections of the province. Representative areas will usually be large in size.

Step 1. Identifying Representative "Areas of Interest"

The identification of representative "areas of interest" will be carried out within each ecosection of the province according to the following criteria:

- **Representativeness:** Within each ecosection, protected areas should collectively contain representative examples of the full range of ecosystems and their characteristic habitats, animals, plants, hydrology, landforms, and cultural heritage and backcountry recreation values.

More specifically this means:

- the full range of terrestrial ecosystems as defined by the biogeoclimatic subzones and variants; the amount protected should be proportional to its occurrence in the ecosection.
- the full range of marine and freshwater ecosystems (a marine ecosystem classification system is required, but has not yet been developed).
- the characteristic habitats, animals and plants, based on BC Environment broad habitat classes and prioritized lists of keystone or umbrella species and species with known, specialized habitat requirements. (Special emphasis will be given to identifying representative old growth, grassland and wetland habitats and large predator-prey systems.)
- the characteristic landforms and hydrology, based on ecosection descriptions.
- the characteristic pre-contact era cultural heritage resources as defined by the B.C. Archaeology Site Inventory Guide and the Canadian Heritage Inventory Network system.

- the characteristic post-contact era cultural heritage resources and aboriginal traditional cultural heritage resources identified.
- the characteristic backcountry recreation¹ opportunities of the ecosection.
- **Naturalness:** To protect natural, biological and backcountry recreation values, protected areas should be located in areas that have experienced a minimal degree of human development and disturbance. Where disturbance has occurred, the area must have the ability or potential to recover to a natural state. Evidence of past human development with significant cultural heritage values, will often be found in natural areas and, where present, will be protected.

More specifically, protected areas should:

- have a degree of naturalness > 75%; or
- have the ability to recover to a natural state.

Step 2. Evaluating and Rating Representative Areas

The most significant protected areas candidates will be selected from among the representative "areas of interest", based on consideration of the following evaluation criteria:

- **Representativeness:** Protected areas should be selected to fill gaps in representation. Natural, cultural and backcountry recreation values poorly represented in the existing system of protected areas will be given priority.
- **Degree of Naturalness:** Protected areas should be located in areas that have experienced the least degree of human development and disturbance or those where there is a high probability of restoring the area to its natural state (with the exception of areas with significant cultural heritage values).

In areas where representative examples of the natural diversity are no longer available, and where there is a high probability of restoring the area to its natural state, restoration management techniques (such as road closures, species re-introductions, appropriate silvicultural manipulations and controlled burning) may be considered and undertaken in order to create the needed representation.

¹ Backcountry recreation is a term used to describe outdoor recreation opportunities that are not dependent on the provision of facilities and services. Backcountry recreation opportunities occur in roadless areas that are usually more than 1,000 hectares in size. Acceptable recreational activities include those activities which have a low environmental impact and that can be managed in a manner that does not compromise the natural and cultural values of the area. Backcountry areas will have a natural-appearing environment with minimal site modification and limited evidence of people. The experience of visitors to backcountry areas will focus on solitude, low interaction with people and proximity to nature. An emphasis is placed on the individual's self-reliance. The primitive and semi-primitive classes of the Ministry of Forests' Recreation Opportunity Spectrum system provide general guidelines to assist in the identification of these areas.